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United States Patent
Nuhn

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(45) Certificate Issued: *Dec. 28, 2022

(54) **AMPHIBIOUS PUMPING VEHICLE**

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(73) Assignee: **NUHN INDUSTRIES LTD.**, Sebringville (CA)

Reexamination Request:
No. 90/019,076, May 6, 2022

Reexamination Certificate for:
Patent No.: **10,974,557**
Issued: **Apr. 13, 2021**
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Filed: **Jun. 3, 2020**

(*) Notice: This patent is subject to a terminal disclaimer.

Related U.S. Application Data

(63) Continuation of application No. 16/157,950, filed on Oct. 11, 2018, now Pat. No. 10,710,422, which is a continuation of application No. 15/586,493, filed on May 4, 2017, now Pat. No. 10,124,638, which is a continuation of application No. 15/044,905, filed on Feb. 16, 2016, now Pat. No. 9,694,636.

(51) **Int. Cl.**

B60F 3/00	(2006.01)
A01C 23/04	(2006.01)
A01C 3/02	(2006.01)
B63H 25/02	(2006.01)
F04D 13/02	(2006.01)

(52) **U.S. Cl.**
CPC ***B60F 3/0061*** (2013.01); ***A01C 3/026*** (2013.01); ***A01C 23/045*** (2013.01); ***B60F 3/003*** (2013.01); ***B60F 3/0007*** (2013.01); ***B60F 3/0038*** (2013.01); ***B63H 25/02*** (2013.01); ***F04D 13/02*** (2013.01); *B60F 2301/00* (2013.01); *B63H 2025/028* (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

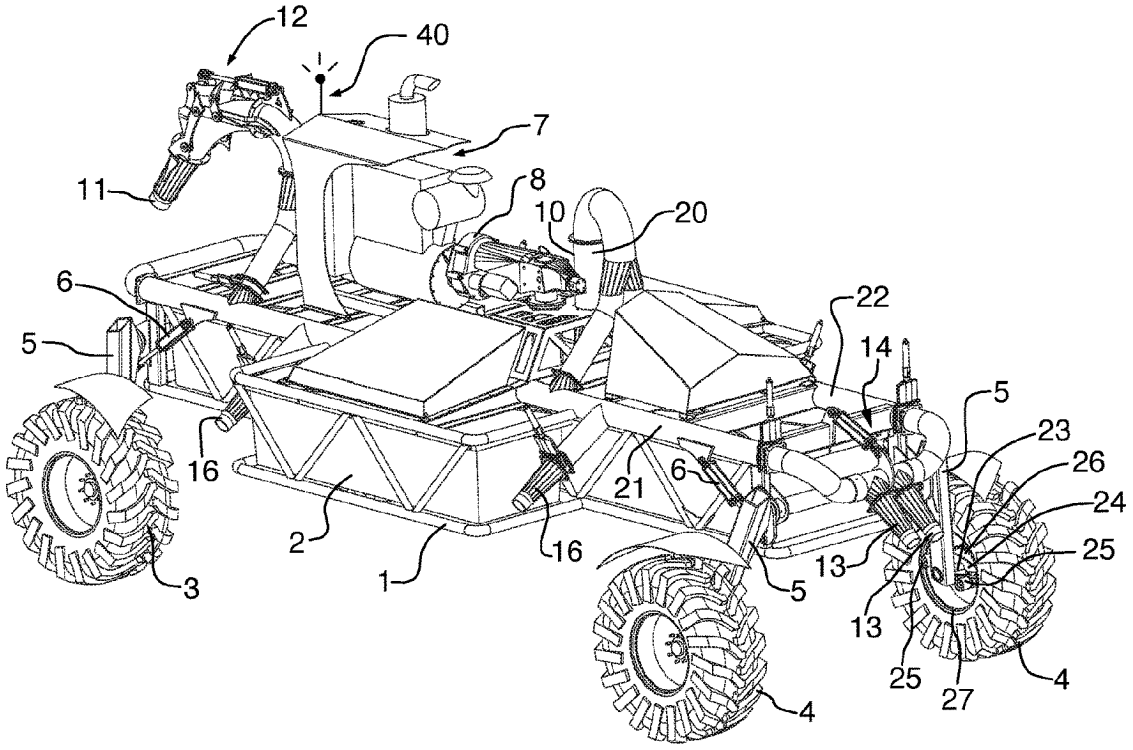
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/019,076, please refer to the USPTO's Patent Electronic System.

Primary Examiner — Joseph A Kaufman

(57) **ABSTRACT**

An amphibious pumping vehicle has a floatable vehicle body, a ground engaging propulsion structure, a fluid pump, a plurality of fluid nozzles comprising a first fluid nozzle connected by a fluid conduit to the fluid pump and at least one second fluid nozzle connected to the fluid conduit, a valve structure in the fluid conduit, the plurality of fluid nozzles and the valve structure co-operating to provide directional control and motive power for the vehicle when floating, and a power source configured to provide power to both the ground engaging propulsion structure and the fluid pump.



EX PARTE REEXAMINATION CERTIFICATE

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **8-10** are determined to be patentable as amended.

Claims **2-7** and **11-13**, dependent on an amended claim, are determined to be patentable.

New claims **14-80** are added and determined to be patentable.

1. An amphibious vehicle comprising:
a floatable vehicle body;
a ground engaging propulsion structure;
a fluid pump for pumping liquid manure;
at least one fluid nozzle connected by a fluid conduit to the fluid pump;
a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,
a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

8. An amphibious vehicle comprising:
a floatable vehicle body;
four hydraulically powered ground engaging wheels;
four *variable speed* hydraulic motors, one hydraulic motor per wheel, for powering the four hydraulically powered ground engaging wheels;
a fluid pump for pumping liquid manure;
at least one directionally adjustable nozzle through which the liquid manure is pumped;
an internal combustion engine configured to provide power to both the four variable speed hydraulic motors and the fluid pump; the location of the four hydraulically powered ground engaging wheels, the internal combustion engine and the fluid pump selected to provide a desired location for a center of gravity of the vehicle; and,
a remote control structure configured to control the four variable speed hydraulic motors and the fluid pump, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

9. The vehicle according to claim **8**, wherein the **[**power source**]** *internal combustion engine* is configured to provide hydraulic fluid power to the four hydraulic motors and the fluid pump.

10. The vehicle according to claim **9**, **[**wherein the four hydraulic motors are variable speed hydraulic motors and**]** wherein the four hydraulically powered ground engaging wheels are each operable at variable speed.

14. The vehicle according to claim 1, wherein the fluid pump comprises a bottom fluid inlet configured for immersion within the liquid manure.

15. The vehicle according to claim 14, wherein the ground engaging propulsion structure comprises only four wheels.

16. The vehicle according to claim 15, wherein the four wheels are provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle.

17. The vehicle according to claim 16, wherein the floatable vehicle body comprises buoyant elements situated between the pairs of wheels.

18. The vehicle according to claim 17, wherein the buoyant elements comprise foam filled buoyant chambers.

19. The vehicle according to claim 15, wherein the four wheels are independently driven.

20. The vehicle according to claim 15, wherein the four wheels are independently driven at variable speeds.

21. The vehicle according to claim 15, further comprising a steering structure configured to change direction of one or more of the wheels.

22. The vehicle according to claim 1, wherein the fluid pump comprises a pump housing configured for immersion within the liquid manure.

23. The vehicle according to claim 22, wherein the immersion within the liquid manure obviates the need for priming the fluid pump.

24. The vehicle according to claim 22, wherein the pump housing comprises a bottom fluid inlet and at least two tangential fluid outlets.

25. The vehicle according to claim 24, wherein each of the at least two tangential fluid outlets is equipped with a flexible connection to a single fluid conduit.

26. The vehicle according to claim 24, wherein the at least two tangential fluid outlets are connected to a combiner configured to combine the tangential fluid outlets into a single conduit.

27. The vehicle according to claim 22, wherein the fluid pump comprises a mechanical drive shaft that drives a pump impeller in the pump housing.

28. The vehicle according to claim 27, wherein the pump impeller draws liquid manure to be pumped through a bottom opening of the pump housing.

29. The vehicle according to claim 1, wherein the floatable vehicle body comprises buoyant elements.

30. The vehicle according to claim 29, wherein the buoyant elements comprise foam filled buoyant chambers.

31. The vehicle according to claim 1, wherein the at least one fluid nozzle comprises an adjustment structure that is configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

32. The vehicle according to claim 1, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

33. The vehicle according to claim 1, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

34. The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a terminal opening.

35. The vehicle according to claim 34, wherein the terminal opening is fluidically connected to the fluid conduit.

36. The vehicle according to claim 35, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

37. The vehicle according to claim 1, further comprising a hydraulic articulation cylinder for changing an angular orientation of the at least one fluid nozzle relative to the vehicle body.

38. The vehicle according to claim 37, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

39. The vehicle according to claim 1, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

40. The vehicle according to claim 8, wherein the fluid pump comprises a pump housing, wherein the pump housing is immersed in the liquid manure when the vehicle is floating.

41. The vehicle according to claim 40, wherein the pump housing comprises a bottom fluid inlet and a first tangential fluid outlet and a second tangential fluid outlet.

42. The vehicle according to claim 41, further comprising a first flexible connection fluidly coupled to the first tangential fluid outlet and a second flexible connection fluidly coupled to the second tangential fluid outlet, wherein the first flexible connection and the second flexible connection are fluidly coupled to the at least one directionally adjustable nozzle.

43. The vehicle according to claim 41, wherein the first tangential fluid outlet and the second tangential fluid outlet are connected to a combiner configured to combine liquid manure from the first tangential fluid outlet and the second tangential fluid outlet into a single conduit.

44. The vehicle according to claim 40, wherein the fluid pump comprises a pump impeller in the pump housing.

45. The vehicle according to claim 44, wherein the pump impeller is configured to draw liquid manure through a bottom opening of the pump housing.

46. The vehicle according to claim 8, wherein the four hydraulically powered ground engaging wheels comprise a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on a first side of the vehicle and the second front wheel and the second rear wheel are on a second side of the vehicle.

47. The vehicle according to claim 46, wherein the floatable vehicle body comprises a first buoyant element between the first front wheel and the first rear wheel and a second buoyant element between the second front wheel and the second rear wheel.

48. The vehicle according to claim 47, wherein the first buoyant element and the second buoyant element comprise foam filled buoyant chambers.

49. The vehicle according to claim 46, further comprising a steering structure configured to change direction of one or more of the four hydraulically powered ground engaging wheels.

50. The vehicle according to claim 8, wherein the floatable vehicle body comprises buoyant elements.

51. The vehicle according to claim 50, wherein the buoyant elements comprise foam filled buoyant chambers.

52. The vehicle according to claim 8, further comprising a hydraulic articulation cylinder configured to move the at least one directionally adjustable nozzle relative to the vehicle body.

53. The vehicle according to claim 52, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

54. The vehicle according to claim 8, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

55. An amphibious vehicle comprising:

a floatable vehicle body;

a ground engaging propulsion structure;

a liquid manure pump for pumping liquid manure from a liquid manure lagoon;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

56. The vehicle according to claim 55, wherein the liquid manure pump comprises a pump housing, wherein the pump housing is immersed in the liquid manure when the vehicle is floating.

57. The vehicle according to claim 56, wherein the pump housing comprises a bottom fluid inlet and a first tangential fluid outlet and a second tangential fluid outlet.

58. The vehicle according to claim 57, further comprising a first flexible connection fluidly coupled to the first tangential fluid outlet and a second flexible connection fluidly coupled to the second tangential fluid outlet, wherein the first flexible connection and the second flexible connection are fluidly coupled to the fluid conduit.

59. The vehicle according to claim 57, wherein the first tangential fluid outlet and the second tangential fluid outlet are connected to a combiner configured to combine liquid manure from the first tangential fluid outlet and the second tangential fluid outlet into a single conduit.

60. The vehicle according to claim 56, wherein the pump comprises a pump impeller in the pump housing.

61. The vehicle according to claim 60, wherein the pump impeller is configured to draw liquid manure through a bottom opening of the pump housing.

62. The vehicle according to claim 55, wherein the ground engaging propulsion structure comprises four wheels, wherein the four wheels comprise a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on a first side of the vehicle and the second front wheel and the second rear wheel are on a second side of the vehicle.

63. The vehicle according to claim 62, wherein the four wheels are independently driven.

64. The vehicle according to claim 62, wherein the four wheels are independently driven at variable speeds.

65. The vehicle according to claim 62, further comprising a steering structure configured to change direction of one or more of the wheels.

66. The vehicle according to claim 62, wherein the floatable vehicle body comprises a first buoyant element between the first front wheel and the first rear wheel and a second buoyant element between the second front wheel and the second rear wheel.

67. The vehicle according to claim 66, wherein the first buoyant element and the second buoyant element comprise foam filled buoyant chambers.

68. The vehicle according to claim 62, wherein the floatable vehicle body comprises buoyant elements.

69. The vehicle according to claim 68, wherein the buoyant elements comprise foam filled buoyant chambers.

70. The vehicle according to claim 55, wherein the at least one fluid nozzle comprises an adjustment structure that is

configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

71. The vehicle according to claim 55, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

72. The vehicle according to claim 55, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

73. The vehicle according to claim 55, wherein the at least one fluid nozzle comprises a terminal opening.

74. The vehicle according to claim 73, wherein the terminal opening is fluidically connected to the fluid conduit.

75. The vehicle according to claim 74, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

76. The vehicle according to claim 55, further comprising a hydraulic articulation cylinder configured to move the at least one fluid nozzle relative to the vehicle body.

77. The vehicle according to claim 76, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

78. The vehicle according to claim 55, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

79. An amphibious vehicle comprising:

a ground engaging propulsion structure comprising only four wheels provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle;

a floatable vehicle body comprising buoyant elements situated between the pairs of wheels;

a liquid manure pump configured to pump liquid manure;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

80. The vehicle according to claim 79, wherein the buoyant elements comprise foam filled buoyant chambers.

* * * * *

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/019,076	05/06/2022	10974557	19061.0001USRX	3433

27572 7590 12/01/2022
HARNESS DICKEY (TROY)
5445 Corporate Dr.
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Troy, MI 48098

EXAMINER
KAUFMAN, JOSEPH A

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
12/01/2022	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 5 of 894

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EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. *90/019,076* .

PATENT UNDER REEXAMINATION *10974557* .

ART UNIT *3993* .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Notice of Intent to Issue Ex Parte Reexamination Certificate	**Control No.** 90/019,076	**Patent Under Reexamination** 10974557	
	Examiner JOSEPH A KAUFMAN	**Art Unit** 3993	**AIA Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☑ Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of
   (a) ☑ Patent owner's communication(s) filed: 10/31/2022, 11/2/2022.
   (b) ☐ Patent owner's failure to file an appropriate timely response to the Office action mailed: _____.
   (c) ☐ Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
   (d) ☐ The decision on appeal by the ☐ Board of Patent Appeals and Interferences ☐ Court dated _____
   (e) ☐ Other: _____.
2. The Reexamination Certificate will indicate the following:
   (a) Change in the Specification: ☐ Yes ☑ No
   (b) Change in the Drawing(s): ☐ Yes ☑ No
   (c) Status of the Claim(s):
      (1) Patent claim(s) confirmed: _____.
      (2) Patent claim(s) amended (including dependent on amended claim(s)): 1-13
      (3) Patent claim(s) canceled: _____.
      (4) Newly presented claim(s) patentable: 14-54,82-105 and 112-113.
      (5) Newly presented canceled claims: 55-81,106-111 and 114-115.
      (6) Patent claim(s) ☐ previously ☐ currently disclaimed: _____
      (7) Patent claim(s) not subject to reexamination: _____.
3. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
4. ☑ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
5. ☐ Note attached NOTICE OF REFERENCES CITED (PTO-892).
6. ☑ Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).
7. ☐ The drawing correction request filed on _____ is: ☐approved ☐disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐None of the certified copies have
   ☐been received.
   ☐not been received.
   ☐been filed in Application No. _____.
   ☐been filed in reexamination Control No. _____.
   ☐been received by the International Bureau in PCT Application No. _____.

   * Certified copies not received: _____.
9. ☐ Note attached Examiner's Amendment.
10. ☐ Note attached Interview Summary (PTO-474).
11. ☐ Other: _____.

All correspondence relating to this reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

/JOSEPH A KAUFMAN/ Reissue/Reexam Specialist, Art Unit 3993	

cc: Requester (if third party requester)

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Reexamination

STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding: claims 1-54, 82-105, 112 and 113 are allowed over the art cited with the request. The examiner has considered the arguments that a pump that pumps manure has different requirements than one that pumps water. Further, without impermissible hindsight, there would not be proper motivation to combine a device like Carrier with a device like Puck. Therefore, the examiner concurs that the prior art does not reasonably show an amphibious vehicle that can be mobile on both land and liquid that pumps manure, in combination with the other claimed elements.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

Conclusion

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

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United States Patent & Trademark Office
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For EFS-Web transmissions, 37 CFR 1.8(a)(1)(i)(C) and (ii) states that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely if (a) it is transmitted via the Office's electronic filing system in accordance with 37 CFR 1.6(a)(4), and (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed: /JOSEPH A KAUFMAN/
Reissue/Reexam Specialist, Art Unit 3993

Conferees:/WILLIAM C DOERRLER/
Reexamination Specialist, Art Unit 3993

/EILEEN D LILLIS/
SPRS, Art Unit 3993

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90/019,076	10974557
	Examiner	**Art Unit**
	JOSEPH A KAUFMAN	3993

CPC						
Symbol					**Type**	**Version**
B60F	/	3	/	0061	F	2013-01-01
A01C	/	3	/	026	I	2013-01-01
A01C	/	23	/	045	I	2013-01-01
B60F	/	3	/	0007	I	2013-01-01
B60F	/	3	/	003	I	2013-01-01
B60F	/	3	/	0038	I	2013-01-01
B63H	/	25	/	02	I	2013-01-01
F04D	/	13	/	02	I	2013-01-01
B60F	/	2301	/	00	A	2013-01-01
B63H	/	2025	/	028	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	80	
/JOSEPH A KAUFMAN/ Reissue/Reexam Specialist, Art Unit 3993	07 November 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 10 of 894

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90/019,076	10974557
	Examiner	Art Unit
	JOSEPH A KAUFMAN	3993

INTERNATIONAL CLASSIFICATION				
CLAIMED				
B60F	/	3	/	00
A01C	/	23	/	04
A01C	/	3	/	02
B63H	/	25	/	02
F04D	/	13	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	80	
/JOSEPH A KAUFMAN/ Reissue/Reexam Specialist, Art Unit 3993	07 November 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 11 of 894

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	90/019,076	10974557
	Examiner	Art Unit
	JOSEPH A KAUFMAN	3993

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	16	16	31	31	46	46	-	61	-	76	64	91		106
2	2	17	17	32	32	47	47	-	62	-	77	65	92		107
3	3	18	18	33	33	48	48	-	63	-	78	66	93		108
4	4	19	19	34	34	49	49	-	64	-	79	67	94		109
5	5	20	20	35	35	50	50	-	65	-	80	68	95		110
6	6	21	21	36	36	51	51	-	66	-	81	69	96		111
7	7	22	22	37	37	52	52	-	67	55	82	70	97	79	112
8	8	23	23	38	38	53	53	-	68	56	83	71	98	80	113
9	9	24	24	39	39	54	54	-	69	57	84	72	99		114
10	10	25	25	40	40	-	55	-	70	58	85	73	100		115
11	11	26	26	41	41	-	56	-	71	59	86	74	101		
12	12	27	27	42	42	-	57	-	72	60	87	75	102		
13	13	28	28	43	43	-	58	-	73	61	88	76	103		
14	14	29	29	44	44	-	59	-	74	62	89	77	104		
15	15	30	30	45	45	-	60	-	75	63	90	78	105		

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	80	
/JOSEPH A KAUFMAN/ Reissue/Reexam Specialist, Art Unit 3993	07 November 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 12 of 894

Reexamination	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90/019,076	10974557
	Certificate Date	Certificate Number
		C1

Requester Correspondence Address: ☐	Patent Owner ☑	Third Party

MERCHANT & GOULD P.C.
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

LITIGATION REVIEW ☑	JAK (examiner initials)	07 November 2022 (date)
Case Name		Director Initials
Nuhn Industries LTD. v. Bazooka Farmstar LLC, 2:22cv339, Wisconsin Eastern District, closed.		
Nuhn Industries LTD. v. Bazooka Farmstar LLC, 3:22cv00015, Iowa Southern, open.		

COPENDING OFFICE PROCEEDINGS	
TYPE OF PROCEEDING	NUMBER
none	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90/019,076	10974557
	Examiner	Art Unit
	JOSEPH A KAUFMAN	3993

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
reviewed prosecution history of parent application and related patents	05/24/2022	JAK
updated review	11/07/2022	JAK

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
none	none	11/07/2022	JAK

Exhibit 2023
Bazooka v. Nuhn - IPR2024-00098
Page 14 of 894

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	90019076
Filing Date	2022-05-06
First Named Inventor	Ian NUHN
Art Unit	3993
Examiner Name	Joseph A Kaufman
Attorney Docket Number	19061.0001USRX

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2011035430	WO	A1	2011-03-31	Fuglsang		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.A.K/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	90019076
	Filing Date	2022-05-06
	First Named Inventor	Ian NUHN
	Art Unit	3993
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	1	Non-Final Office Action Corresponding to U.S. Patent Application No. 17/886,130, mailed October 31, 2022.
	2	Non-Final Office Action Corresponding to U.S. Patent Application No. 17/201,100, mailed August 19, 2022.

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Examiner Signature	/JOSEPH A KAUFMAN/	Date Considered	11/07/2022

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Art Unit	3993
Examiner Name	Joseph A Kaufman
Attorney Docket Number	19061.0001USRX

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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OR

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	
Name/Print	Timothy D. MacIntyre	Registration Number	42824

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Bibliographic Data

Application No: 90/019,076

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /JOSEPH A KAUFMAN/ Examiner's Signature | Initials

Title: AMPHIBIOUS PUMPING VEHICLE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/06/2022	440	3993	19061.0001USRX
RULE			

APPLICANTS

INVENTORS

10974557,

NUHN INDUSTRIES LTD. (Assignee), Sebringville, CANADA

MERCHANT & GOULD P.C. (3rd Pty Req), MINNEAPOLIS, MN, UNITED STATES

CONTINUING DATA

This application is a REX of 16891627 06/03/2020 PAT 10974557

16891627 is a CON of 16157950 10/11/2018 PAT 10710422

16157950 is a CON of 15586493 05/04/2017 PAT 10124638

15586493 is a CON of 15044905 02/16/2016 PAT 9694636 *

(*) Data provided by applicant is not consistent with PTO record

FOREIGN APPLICATIONS

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Docket No.: 19061.0001USRX
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Enter
/JAK/
11/7/22

In re Patent Application of:
Ian NUHN

Application No.: 90/019,076 Confirmation No.: 3433

Patent No: U.S. 10,974,557

Filed: June 3, 2020 Art Unit: 3993

Issued: April 30, 2021

For: AMPHIBIOUS PUMPING VEHICLE Examiner: KAUFMAN, JOSEPH A

RESPONSE TO EX PARTE REEXAMINATION

Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Final Office Action mailed October 21, 2022, the Patentee requests reconsideration and allowance based on the following amendments and remarks:

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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	1	2011035430	WO	A1	2011-03-31	Fuglsang		

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Name/Print	Timothy D. MacIntyre	Registration Number	42824

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 March 2011 (31.03.2011)

PCT

(10) International Publication Number
WO 2011/035430 A1

(51) International Patent Classification:
B60F 3/00 (2006.01) *B62D 55/00* (2006.01)

(21) International Application Number:
PCT/CA2010/001502

(22) International Filing Date:
21 September 2010 (21.09.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2679824 22 September 2009 (22.09.2009) CA

(71) Applicant *(for all designated States except US)*: **NORSEMAN CANADIAN INDUSTRIES LTD.** [CA/CA]; Suite 206, 4817 49th Street, Yellowknife, Northwest Territories X1A 3S7 (CA).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **FUGLSANG , Graham** [CA/CA]; 4405 Schooldraw Avenue, Yellowknife, Northwest Territories X1A 2K2 (CA).

(74) Agent: **COOPER , Michael D.**; Thompson Cooper LLP, Suite 201, 1007 Fort Street, Victoria, British Columbia V8V 3K5 (CA).

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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

— *with international search report (Art. 21(3))*

(54) Title: AMPHIBIOUS VEHICLE THAT TILTS WHILE FLOATING TO FACILITATE CLIMBING ONTO SEA ICE

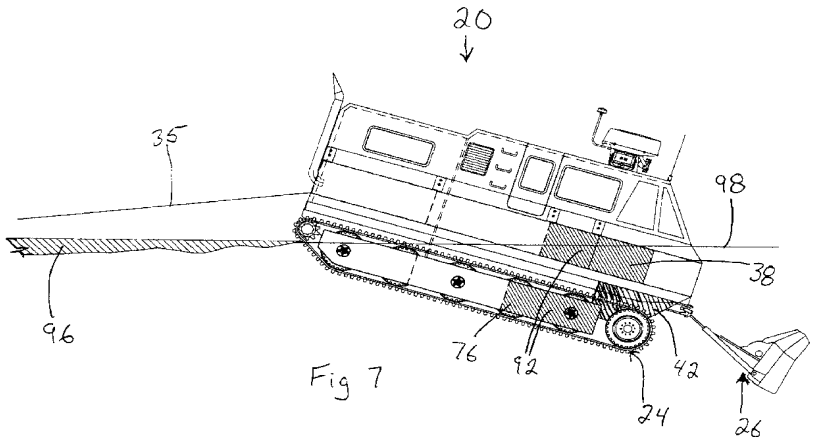


Fig 7

(57) Abstract: A tracked amphibious vehicle having adjustable ballasting means for changing between a neutral-trim position and an ice-engaging-end-up trim position when floating so as to facilitate moving from floating in water to the surface of adjacent floating ice.

WO 2011/035430 A1

AMPHIBIOUS VEHICLE THAT TILTS WHILE FLOATING TO FACILITATE CLIMBING ONTO SEA ICE

Field of the Invention

[0001] The present invention relates to amphibious vehicles, particularly amphibious vehicles for use on floating ice on ice-covered water bodies, such as sea ice.

Background of the Invention

[0002] Travel over floating ice is frequently desirable, for example, in polar, particularly arctic, scientific and exploratory expeditions, and in association with resource extraction, notably oil and gas exploration and extraction.

[0003] Floating ice is often interrupted by areas of open water. Further, a problem associated with travel over floating ice, one that varies in significance from a minor impediment to a life-threatening danger, is the risk of breaking through the ice. The thickness and solidity of floating ice varies in an unpredictable manner and such differences in ice condition are typically not apparent from the upper surface of the ice, especially when the ice is covered with snow, as it often is. Therefore, it is desirable for a vehicle for use on floating ice to be able to: survive breaking through the ice; manoeuver in water; and climb from water on to floating ice.

[0004] An example of a known vehicle for use with floating ice is disclosed in US 2,551,967 (Ice Breaker; Pouliot; 8 May 1951), which discloses a track-driven amphibious vehicle having elaborate cutters and other paraphernalia for cutting and handling ice. Lines 17 to 25 of column 2 of US 2,551,967, read: "Generally speaking, it is preferred that the hull A and propelling tracks C of the vehicle be shaped and disposed after the fashion of the earlier type of tanks;

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 26 of 894

that is, the path of the tracks and the shape of the hull will resemble somewhat a forwardly-canted parallelogram (see Figure 1). Thus the front end of the vehicle will have a shovel nose shape which is particularly adapted for climbing up on obstacles." The Pouliot amphibious vehicle uses a conventional propellor ("screw") and rudder for propulsion and directional control while floating in water. In addition to the forwardly-canted parallelogram configuration of the tracks, for aid in climbing an obstacle, the Pouliot patent discloses driven toothed wheels (serrated disks) projecting downward from the hull for engaging such obstacles. Presumably for additional buoyancy, the housings around which the tracks are disposed are structurally water-tight with the main hull.

[0005] Tracked amphibious vehicles, and equipment, having the tracks disposed around buoyant chambers are well known with respect to amphibious vehicles for use in swampy or marshy conditions. For example, US 3,842,785 (Amphibious Marsh Craft; Rivet; 22 October 1974), US 6,655,757 (Head and tail sprocket assemblies for a marsh excavator; Prestenbach; 2 December 2003), and US 6,918,801 (Amphibious vehicle; Wilson, Jr., et al.; 19 July 2005), disclose tracked vehicles for use in swamps and marshes wherein each track surrounds a pontoon, with each track kept in position by means of ridges or grooves on the surface of the pontoon. As there is considerable friction in the track arrangement, the vehicles are presumably slow-moving.

[0006] Further, US 3,951,093 (Amphibious air track vehicle; Poche; 20 April 1976) discloses a marsh vehicle generally similar to those disclosed in the above three patents in that the tracks surround the pontoons. The vehicle disclosed in this patent has the additional feature of open-bottom chambers between the pontoons into which air may be injected to increase buoyancy or from which air may be evacuated to reduce buoyancy.

[0007] As set out in the Abstract, US 4,433,634 (Tracked, amphibious vehicle with track securement and guide means; Coast; 28 February 1984), discloses a track-driven amphibious vehicle that includes, "two spaced, parallel

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 27 of 894

pontoons joined by a centrally located operator's platform structure, with each pontoon having a moveable track for propulsion, with each track supported on its pontoon by for and after sprocket wheel sets and a series of larger bogie wheels at its bottom and smaller guide wheels at its top."

[0008] US 6,820,566 (Means of providing additional modular armor protected buoyancy to tracked and wheeled vehicles; Brown; 23 November 2004), discloses armor-protected buoyancy modules for use on tracked or wheeled vehicles, to provide the vehicles with amphibious capability. The buoyancy modules are shown mounted on the sides of the vehicle above the tracks or wheels. The Brown patent contemplates inflating each individual module to a different extent so as to adjust the overall buoyancy of the vehicle for varying load weight and center of gravity conditions. The Brown patent also contemplates sequentially deflating the modules to increase the weight borne on the tracks or wheels as the vehicle engages the underwater bed adjacent the water's edge, so as to increase traction and enhance the vehicles ability to exit the water via a steep bank.

Summary of the Invention

[0009] In one aspect, the present invention provides for a method for moving a tracked amphibious vehicle from the water to the surface of adjacent floating ice, including the steps of: a) positioning the vehicle in an end-down trim position in which the portions of the track opposite the end that is down are raised sufficiently high to engage the edge of the ice; b) bringing the raised portions of the track into engagement with the ice; c) raising the end of the vehicle that was down in the end-down trim position so as to bring the vehicle into a more-level position with the tracks engaging the ice edge; and d) driving the vehicle onto the ice using the tracks.

[0010] In another aspect, the present invention provides for a vehicle for implementing the method, the vehicle comprising adjustable ballasting means

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 28 of 894

for changing between a level-trim position and a bow-down-trim position when floating.

[0011] In another aspect, the present invention provides for a vehicle configured for use on floating ice, the vehicle including: a track assembly, including a frame and two driveable tracks attached thereto, the tracks having an ice-engaging end; a hull, mounted to and supported by the track assembly, wherein the track assembly and hull have positive buoyancy; and an arrangement for adjusting the attitude of the vehicle between a neutral-trim position and an ice-engaging-end-up trim position when the vehicle is floating; wherein, in use the vehicle may be moved from floating in water onto adjacent ice by, with the vehicle in the ice-engaging-end-up trim position, bringing the ice-engaging end of the tracks into engagement with the ice and driving the tracks so as to draw a portion of the tracks onto the ice and then adjusting to the neutral-trim position and continuing to drive the tracks.

[0012] The arrangement for adjusting the attitude of the vehicle may include an adjustable ballasting arrangement including one or more tanks and water transfer assemblies whereby liquids may be selectively: drawn from and expelled to the surroundings, or shifted between tanks, or drawn from and expelled to the surroundings and shifted between tanks. The tanks may include two pontoons, one pontoon located within one of the tracks and the other pontoon located within the other of the tracks. Each pontoon may be segregated into two or more chambers.

[0013] The arrangement for adjusting the attitude of the vehicle may include an adjustable ballasting arrangement comprising a tank located in the hull and a water transfer assembly whereby water may be selectively drawn into the tank from the surroundings and expelled from the tank to the surroundings. The neutral-trim position may be a level-trim position.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 29 of 894

[0014] The frame may include watertight hollow structural components having integral floatation. The watertight hollow structural components may include two longitudinally extending beams and each track may be supported by an array of idler wheels and the idler wheels of one track may be mounted to one of the beams and the idler wheels of the other track may be mounted to the other of the beams. The watertight hollow structural components may include one or more crossbeams interposed between the longitudinally extending beams.

[0015] Each track may be supported by an array of idler wheels and each track may be driven by a drive gear located at the ice-engaging end. The vehicle may have a front and a back, and the ice-engaging end may be at the back.

[0016] The vehicle may include a winch assembly located at the ice-engaging end for assisting in bringing the ice-engaging end into engagement with ice when the vehicle is floating in water.

[0017] The addition and subsequent removal of weight in the form of ballast water, and/or the transfer of onboard fluids, enables the vehicle to climb an abutment (the ice cover) from a floating position by altering and then correcting it's longitudinal attitude (trim).

Summary of the Drawings

[0018] Figure 1 is a side elevation view of a tracked amphibious vehicle with snow plow, embodiment of the present invention.

[0019] Figure 2 is a partially transparent rear elevation view of the embodiment of Figure 1.

[0020] Figure 3 is partially transparent top plan view of the embodiment of Figure 1.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 30 of 894

[0021] Figure 4 is a side elevation view of the embodiment of Figure 1, shown on floating ice.

[0022] Figure 5 is a side elevation view of the embodiment of Figure 1, shown floating in level trim in water adjacent floating ice.

[0023] Figure 6 is a side elevation view of the embodiment of Figure 1, shown ballasted so as to provide full-bow-down trim and located adjacent floating ice.

[0024] Figure 7 is a side elevation view of the embodiment of Figure 1, shown ballasted so as to provide full-bow-down trim, with the rear end of the tracks abutting the edge of the floating ice and with a stabilizing line deployed.

[0025] Figure 8 is a side elevation view of the embodiment of Figure 1, shown ballasted so as to provide partial-bow-down trim, with the rear end of the tracks engaging the edge of the floating ice and with a stabilizing line deployed.

[0026] Figure 9 is a side elevation view of the embodiment of Figure 1, shown ballasted so as to tend to provide level trim, with the rear end of the tracks on the floating ice and with a stabilizing line deployed.

[0027] Figure 10 is a perspective view of a side-integral-tank track assembly of an embodiment of the present invention, with sections of the tracks not shown..

[0028] Figure 11, is a perspective view of a full-integral-tank track assembly shown in Figure 10, having pontoons, with sections of the tracks not shown.

[0029] In the drawings, the most closely spaced hatching is used to indicate water within a chamber or tank; the intermediately spaced hatching is

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 31 of 894

used to indicate a sectional view of floating ice; and the most widely spaced hatching is used to indicate a sectional view of snow overburden.

Detailed Description with Reference to the Drawings

[0030] A tracked amphibious vehicle 20 embodiment of the present invention is shown in the Figures. The tracked amphibious vehicle 20 includes a hull 22, a track assembly 24 and a snow-plow assembly 26.

[0031] Within, and attached to, the hull 22, there are disposed, an engine 30, engine exhausts 32, a winch 34 and associated winch line 35, two aft buoyancy tanks 36, two middle buoyancy tanks 37, two forward buoyancy tanks 38, navigation and communication devices 40, lights 41, a bow ballast tank 42, a control station 44, various crew amenities, including a toilet 46, shower 48, sink 50, stove 52, dinette 54 and berths 56, and a door 58. At least the lower portion of the hull 22 is watertight. The hull 22 is preferably a welded plate aluminum envelope of marine-grade construction.

[0032] The track assembly 24 includes a pair of continuous tracks 60, each track 60 associated with one drive gear 62 and six idler wheels 64. The tracks 60 are conventional such tracks. Preferably, the tracks 60 are 48 inches wide.

[0033] The means for controlling the drive gears 62 is configured such that each track 60 may be controlled independently. For example, the drive gears 62 may be driven by a common means but braked independently, such that one track may be stopped or slowed while the other is moving. Alternatively, the drive gears 62 may be driven by independent means (for example hydraulic motors) such that one track 60 may be driven in one direction and the other track 60 driven in the same direction at the same or a lesser or greater speed, stopped or driven in the opposite direction.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 32 of 894

[0034] Disposed within each track 60, there is a pontoon 70, segregated by watertight bulkheads into three separate chambers, an aft chamber 72, middle chamber 74 and forward chamber 76.

[0035] The snow-plow assembly is conventional and comprises a blade 80, supporting struts 82 and hydraulic rams 84, the latter used to raise, lower and angle the blade 80.

[0036] The tracked amphibious vehicle 20 includes, within the hull 22, a hydraulic pump (not shown) driven by the engine 30, for powering and controlling various devices, including the winch 34 and hydraulic rams 84.

[0037] Although not shown in the drawings, the tracked amphibious vehicle 20 includes conventional means for transferring water between the tanks and between chambers, and from and to the surrounding environment. The tracked amphibious vehicle 20 also includes means for preventing water in the tanks and chambers from freezing (not shown); such freezing prevention means may include insulation and heating means.

[0038] As shown in Figure 4, the tracked amphibious vehicle 20 may be used to remove snow overburden 94 from floating ice 96, for example, so as to create or maintain an ice road.

[0039] Preferably, the tracked amphibious vehicle 20 is designed to float at a level trim in the event of a breakthrough, so as to keep components that may be harmed by contact with ice away from the ice, and to prevent the ingress of water, such as via the engine intake or exhaust 30. The tracked amphibious vehicle 20 is generally configured in terms of the location of its internal machinery and other general components such that the center of gravity and center of buoyancy are generally aligned such that the tracked amphibious vehicle 20 floats at a level trim when in water. Further, ballasting may be adjusted to adapt for different vehicle uses and the weight of ancillary machinery

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 33 of 894

and equipment, by moving, expelling and/or taking on fluids. For example, as indicated by the most closely spaced hatching in Figures 4 and 5 (Figure 5 shows the tracked amphibious vehicle 20 after ice breakthrough, floating at a level trim.), with the embodiment shown in the drawings, the aft buoyancy tanks 36 and the aft chambers 72 may be filled with water to compensate for the weight of the snow-plow assembly 26. Further, other liquids contained within the hull 22, for example, drinking water, hydraulic fluid and fuel for the engine 30, could also be moved within the hull 22 to adjust the trim.

[0040] As shown in Figure 6, responsive to the ice breakthrough: the water 92 that was in the aft buoyancy tanks 36 and aft chamber 72 has been removed, and the forward buoyancy tanks 38, forward chamber 76 and bow ballast tank 42 have been filled with water. In the result, in Figure 6, the tracked amphibious vehicle 20 is floating at a full-bow-down trim position.

[0041] It has been found that tracked amphibious vehicles of the sort described herein are, when floating, able to obtain some motive force from fully submerged tracks. Why this is so is not clear, but it has been speculated that the bottom of each track may impart a greater propulsive force than the top of each track as a result of: the bottom of the track being slightly longer than the top of the track (as is the case in the present tracked amphibious vehicle 20 due to the location of the drive gear 62); and the top of the track being adjacent overhanging portions of the vehicle whereas the region adjacent the bottom of the track is clear of obstructions, such that when the track is moving, the water in the vicinity of the top of the track is subject to greater turbulence than the water in the vicinity of the bottom of the track. In any event, it is understood that when the tracked amphibious vehicle 20 is floating at a level trim it will be possible to manoeuver the tracked amphibious vehicle 20 using the tracks 60. Further, as a greater portion of the top of each track 60 than the bottom of each track 60 will be above the water surface 98 when the tracked amphibious vehicle 20 is floating in full-bow-down-trim such that the difference in the propulsive force provided by each of the top and bottom of each track 60 will be greater in

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 34 of 894

full-bow-down-trim than when floating at a level trim, it is understood that the ability to manoeuver using the tracks 60 when floating in full-bow-down-trim will be greater than when floating at a level trim.

[0042] As shown in Figure 7, once the tracks 60 have been used to bring the tracked amphibious vehicle 20 adjacent to the edge of the floating ice 96, it may be desirable to deploy the winch line 35, by securing the distal end of the winch line 35 to a following vehicle, a shoreline, or to the ice 96 via an ice anchor (not shown), so as to keep the tracks 60 in contact with the edge of the ice 96. An ice anchor is typically a threaded cylindrical device configured to be screwed into ice. Any suitable means for securing the distal end of winch line 35 may be used.

[0043] The winch 34 and winch line 35 are not intended to pull the tracked amphibious vehicle 20 out of the water and onto the ice 96, but rather are merely intended to assist the tracks 60 in gaining purchase on the ice 96 by: preventing the tracked amphibious vehicle 20 from bouncing away from the edge of the ice 96 as it might otherwise do as a result of the movement of the tracks 60 against the ice 96; and drawing the tracked amphibious vehicle 20 to the new edge of the ice 96 should the ice 96 break in the vicinity of the tracks 60.

[0044] The full-bow-down-trim position raises the rear sections of the tracks 60, enabling them to usefully engage the edge of the ice 96. As shown in Figures 8 and 9, once the tracks 60 have sufficient purchase on the ice 96 to begin lifting the aft end of the tracked amphibious vehicle 20 out of the water 92, the water in the forward buoyancy tanks 38, bow ballast tank 42 and forward chamber 76 is expelled. This expulsion causes the forward end/bow of the tracked amphibious vehicle 20 to rise in the water 92, which change in the attitude of the tracked amphibious vehicle 20 both: applies greater weight to the rearward portion of the tracks 60 engaged with the ice 96 (thus enhancing the "grip" of the tracks 60 on the ice 96); and reduces the vertical component of the water-egress direction of travel of the tracked amphibious vehicle 20 (i.e.,

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 35 of 894

reduces the extent to which the tracked amphibious vehicle 20 has to climb, as opposed to merely travel essentially horizontally, to exit the water 92). Both of these facilitate the movement of the tracked amphibious vehicle 20 from the water 92 to the surface of the ice 96.

[0045] An alternative partial-integral-tank track assembly 100 is shown in Figure 10. The partial-integral-floatation track assembly 100 has a side-and bow-floatation frame 102 having integral longitudinally extending floatation rails 104. The floatation rails 104 are held in a spaced-apart relationship by the bow floatation crossbeam 106, inner crossbeams 108, stern crossbeam 110 and braces 112. The floatation rails 104 and bow floatation crossbeam 106 are hollow and watertight, thus providing permanent floatation. Preferably, the inner crossbeams 108 and braces 112 are made from tubing (square tubing is indicated in Figure 10) and are also configured to be watertight, thereby providing some additional floatation.

[0046] A further alternative, full-integral-tank track assembly 120 is shown in Figure 11. The full-integral-tank track assembly 120 has a full-floatation frame 122 having integral longitudinally extending floatation rails 104 held in a spaced-apart relationship by the bow floatation crossbeam 106, inner crossbeams 108, stern floatation crossbeam 124 and braces 112. The floatation rails 104, bow floatation crossbeam 106 and stern floatation crossbeam 122 are hollow and watertight, thus providing permanent floatation. Preferably, the inner crossbeams 108 and braces 112 are made from tubing (square tubing is indicated in Figure 11) and are also configured to be watertight, thereby providing some additional floatation.

[0047] As shown in Figure 11, pontoons 70 (as described above), either segregated (e.g., aft chamber 72, middle chamber 74 and forward chamber 76; or more or fewer distinct chambers) or unsegregated (i.e. each pontoon 70 consisting of a single inner chamber) may be used with the full-integral-tank

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 36 of 894

track assembly 120. Pontoons 70 may also be used with the partial-integral-floatation track assembly 100 (not shown).

[0048] Preferably, the tracked amphibious vehicle 20 of the present invention is configured such that filling and emptying a single tank or chamber is sufficient to provide the attitude adjustment for climbing onto floating ice from water as described above. Preferably, this single tank or chamber is located within the hull 22, as such a location simplifies: drawing water into and expelling water from the tank or chamber, and impeding ice formation within the tank or chamber.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 37 of 894

WHAT IS CLAIMED IS:

1. A vehicle configured for use on floating ice, the vehicle comprising:

a) a track assembly, including a frame and two driveable tracks attached thereto, the tracks having an ice-engaging end;

b) a hull, mounted to and supported by the track assembly, wherein the track assembly and hull have positive buoyancy; and

c) an arrangement for adjusting the attitude of the vehicle between a neutral-trim position and an ice-engaging-end-up trim position when the vehicle is floating;

wherein, in use the vehicle may be moved from floating in water onto adjacent ice by, with the vehicle in the ice-engaging-end-up trim position, bringing the ice-engaging end of the tracks into engagement with the ice and driving the tracks so as to draw a portion of the tracks onto the ice and then adjusting to the neutral-trim position and continuing to drive the tracks.

2. The vehicle of claim 1, wherein the arrangement for adjusting the attitude of the vehicle comprises an adjustable ballasting arrangement comprising one or more tanks and water transfer assemblies whereby liquids may be selectively: drawn from and expelled to the surroundings, or shifted between tanks, or drawn from and expelled to the surroundings and shifted between tanks.

3. The vehicle of claim 2, wherein the tanks comprise two pontoons, one pontoon located within one of the tracks and the other pontoon located within the other of the tracks.

4. The vehicle of claim 3, wherein each pontoon is segregated into two or more chambers.

5. The vehicle of claim 1, wherein the arrangement for adjusting the attitude of the vehicle comprises an adjustable ballasting arrangement comprising a tank located in the hull and a water transfer assembly whereby water may be

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 38 of 894

selectively drawn into the tank from the surroundings and expelled from the tank to the surroundings.

6. The vehicle of claim 1, wherein the neutral-trim position is a level-trim position.

7. The vehicle of claim 1, wherein the frame comprises watertight hollow structural components having integral floatation.

8. The vehicle of claim 7, wherein the watertight hollow structural components comprise two longitudinally extending beams and wherein each track is supported by an array of idler wheels and the idler wheels of one track are mounted to one of the beams and the idler wheels of the other track are mounted to the other of the beams.

9. The vehicle of claim 8, wherein the watertight hollow structural components further comprise one or more crossbeams interposed between the longitudinally extending beams.

10. The vehicle of claim 1, wherein each track is supported by an array of idler wheels and each track is driven by a drive gear located at the ice-engaging end.

11. The vehicle of claim 1, wherein the vehicle has a front and a back, and the ice-engaging end is at the back.

12. The vehicle of claim 1, further comprising a winch assembly located at the ice-engaging end for assisting in bringing the ice-engaging end into engagement with ice when the vehicle is floating in water.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 39 of 894

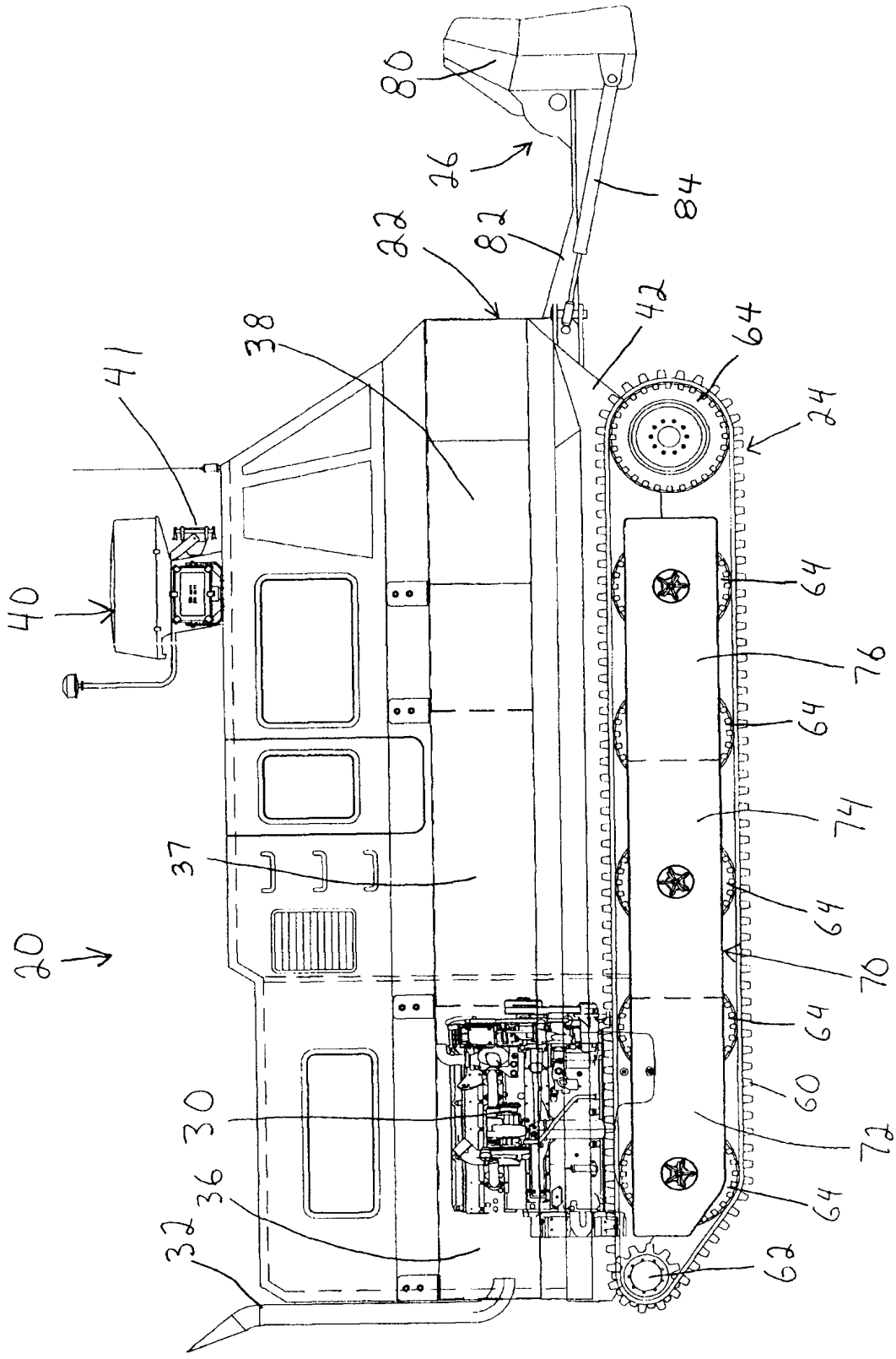


Fig 1

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 40 of 894

Fig 2

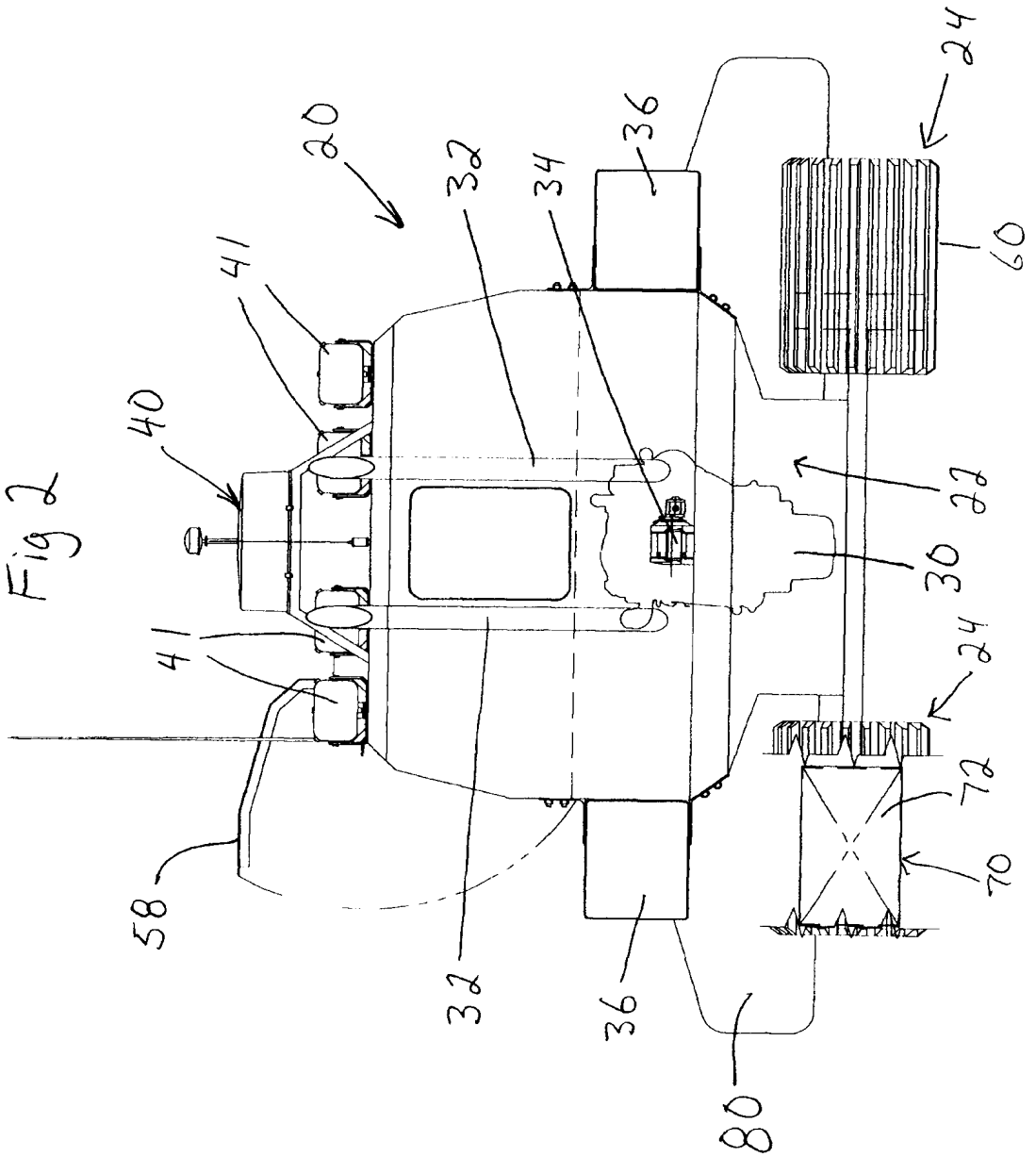


Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 41 of 894

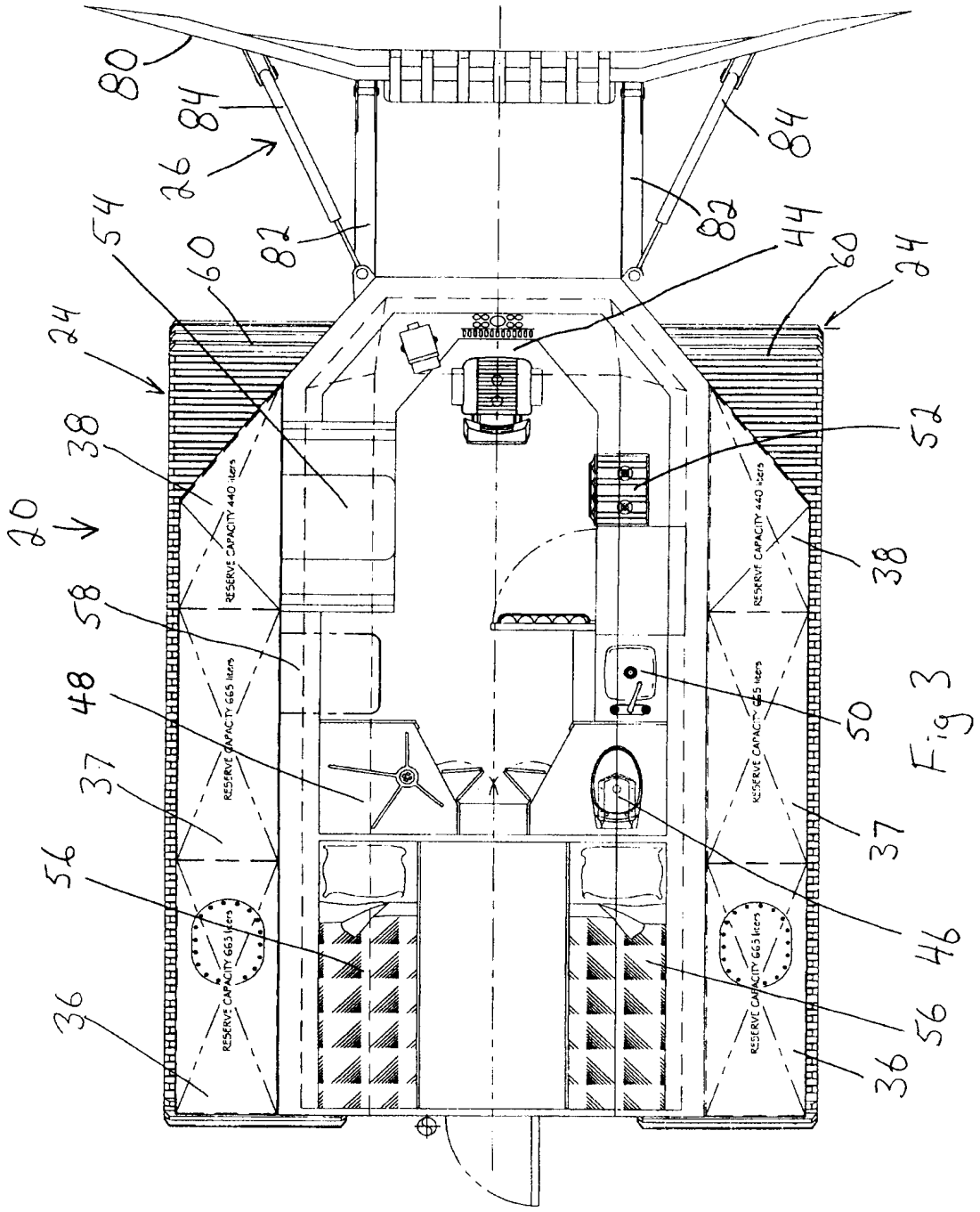


Fig 3

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 42 of 894

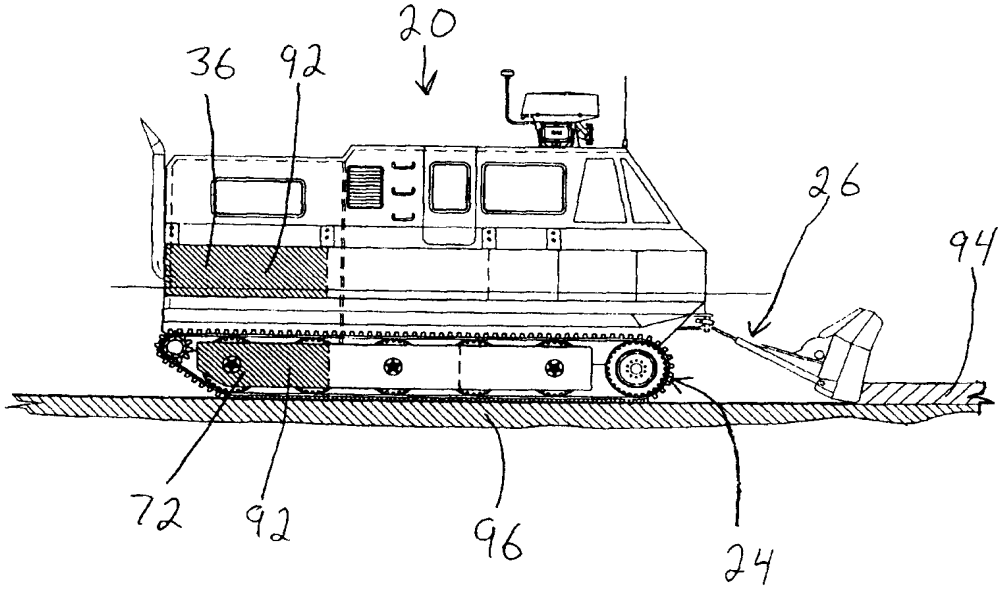


Fig 4

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 43 of 894

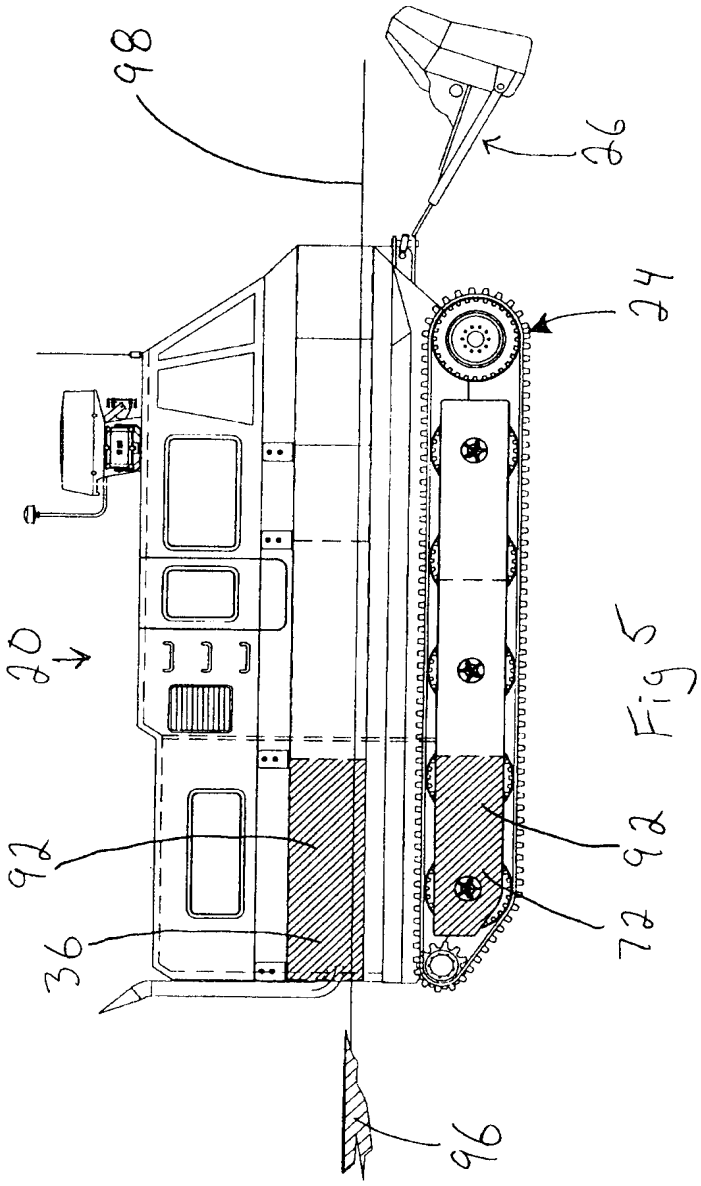


Fig 5

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 44 of 894

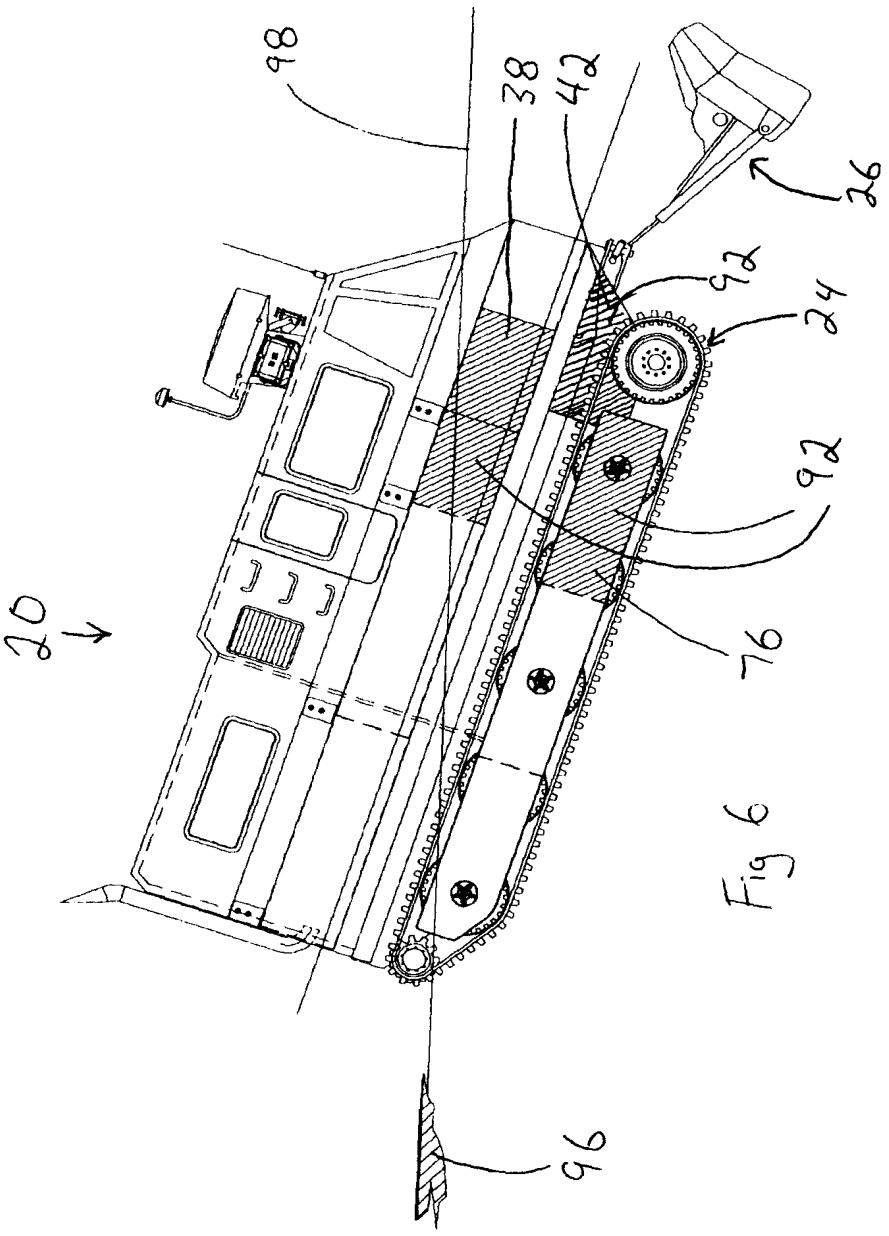


Fig 6

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 45 of 894

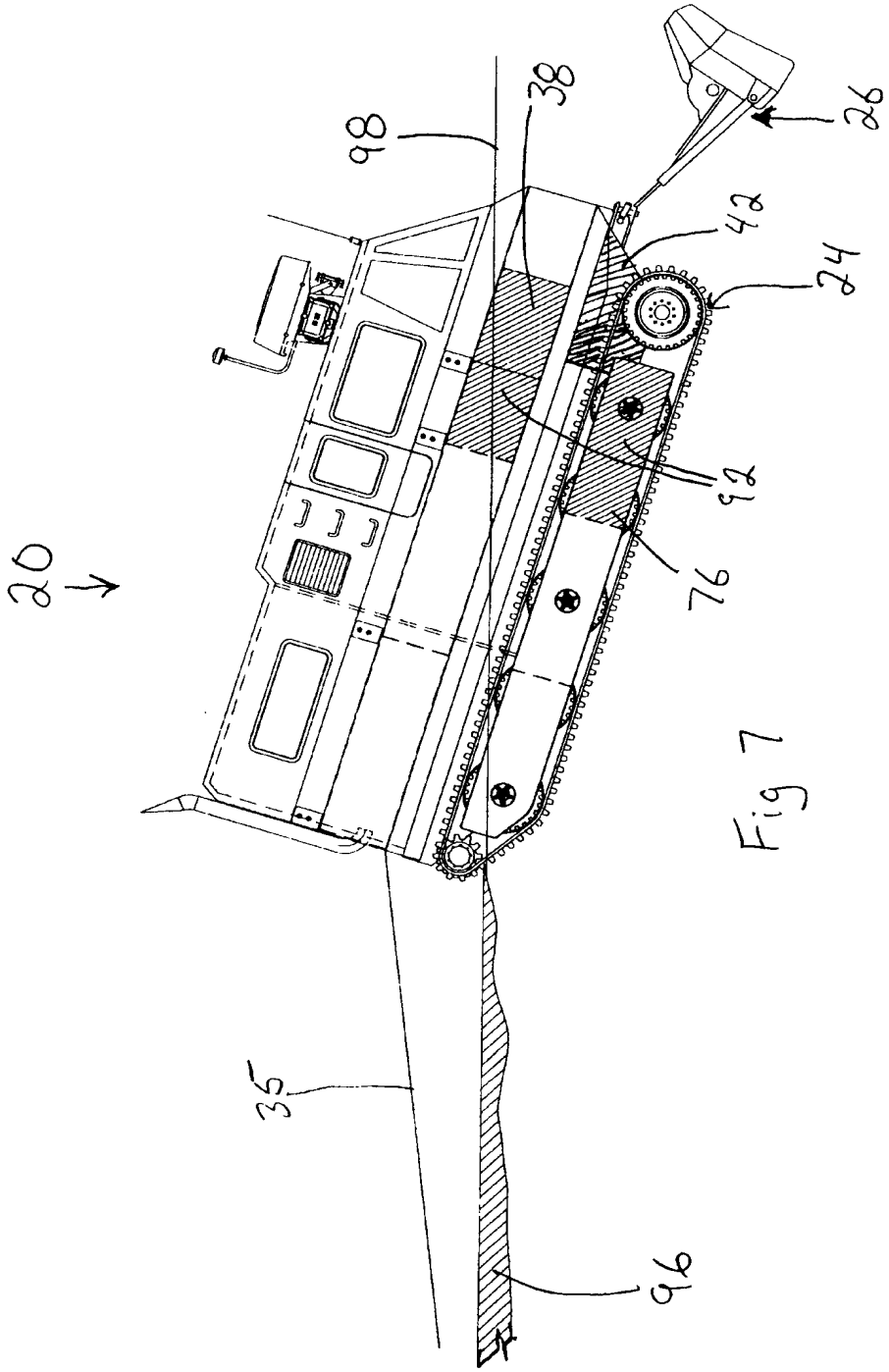


Fig 7

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 46 of 894

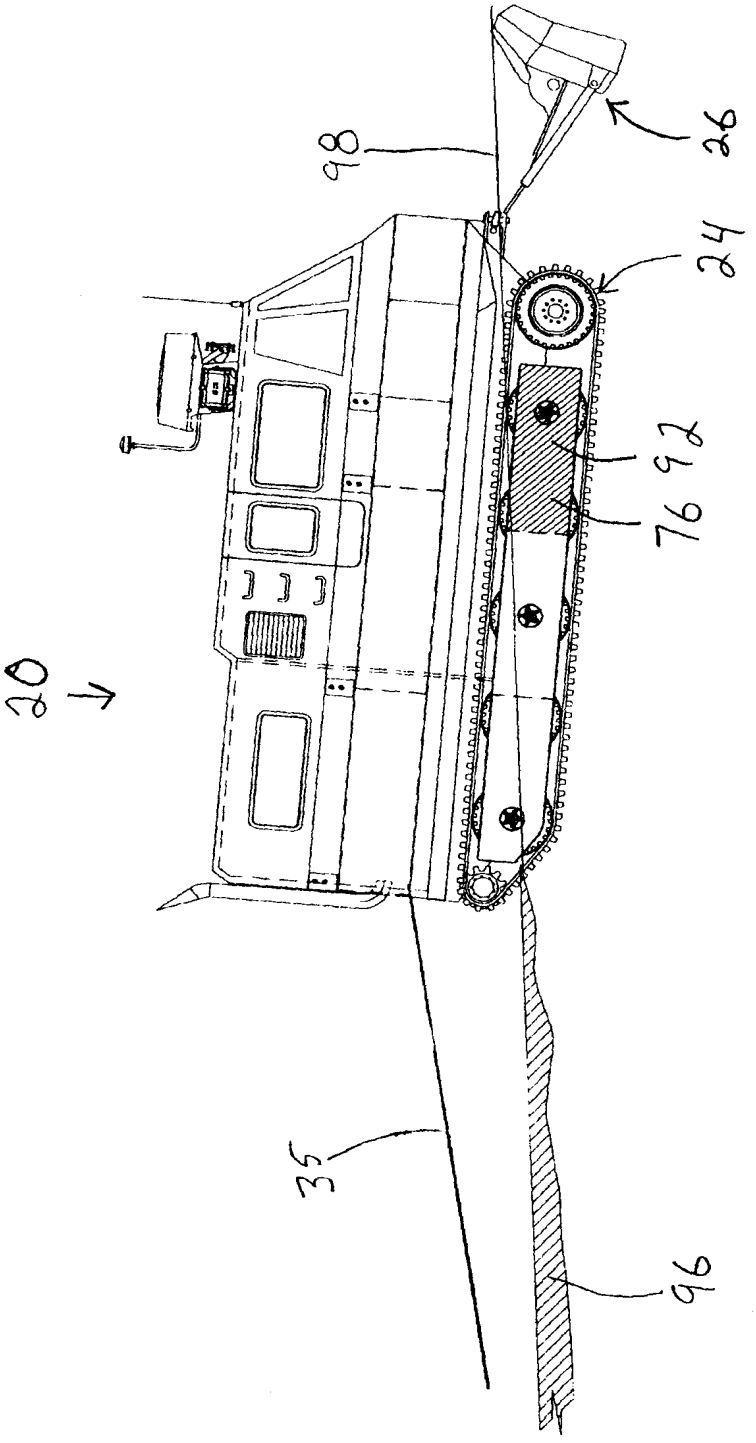


Fig 8

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 47 of 894

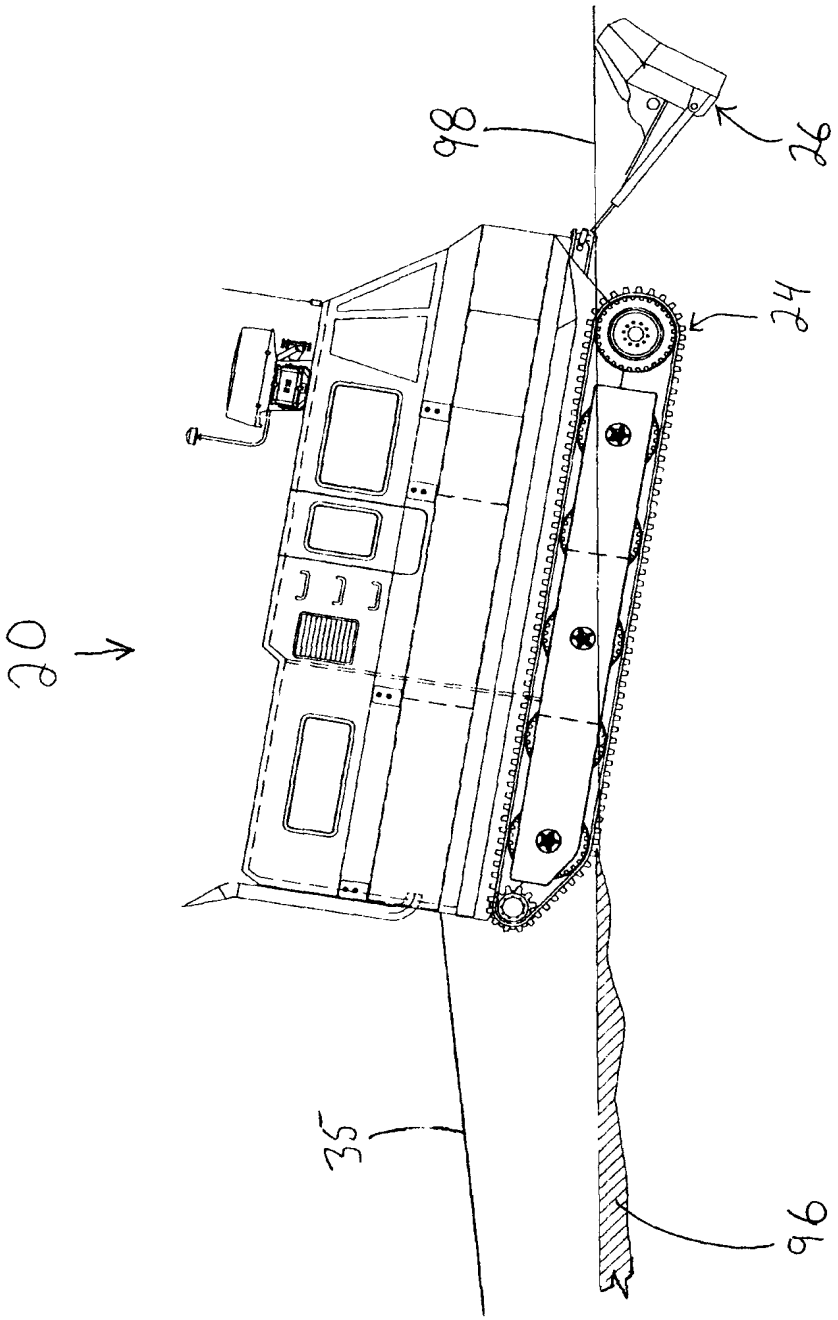


Fig 9

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 48 of 894

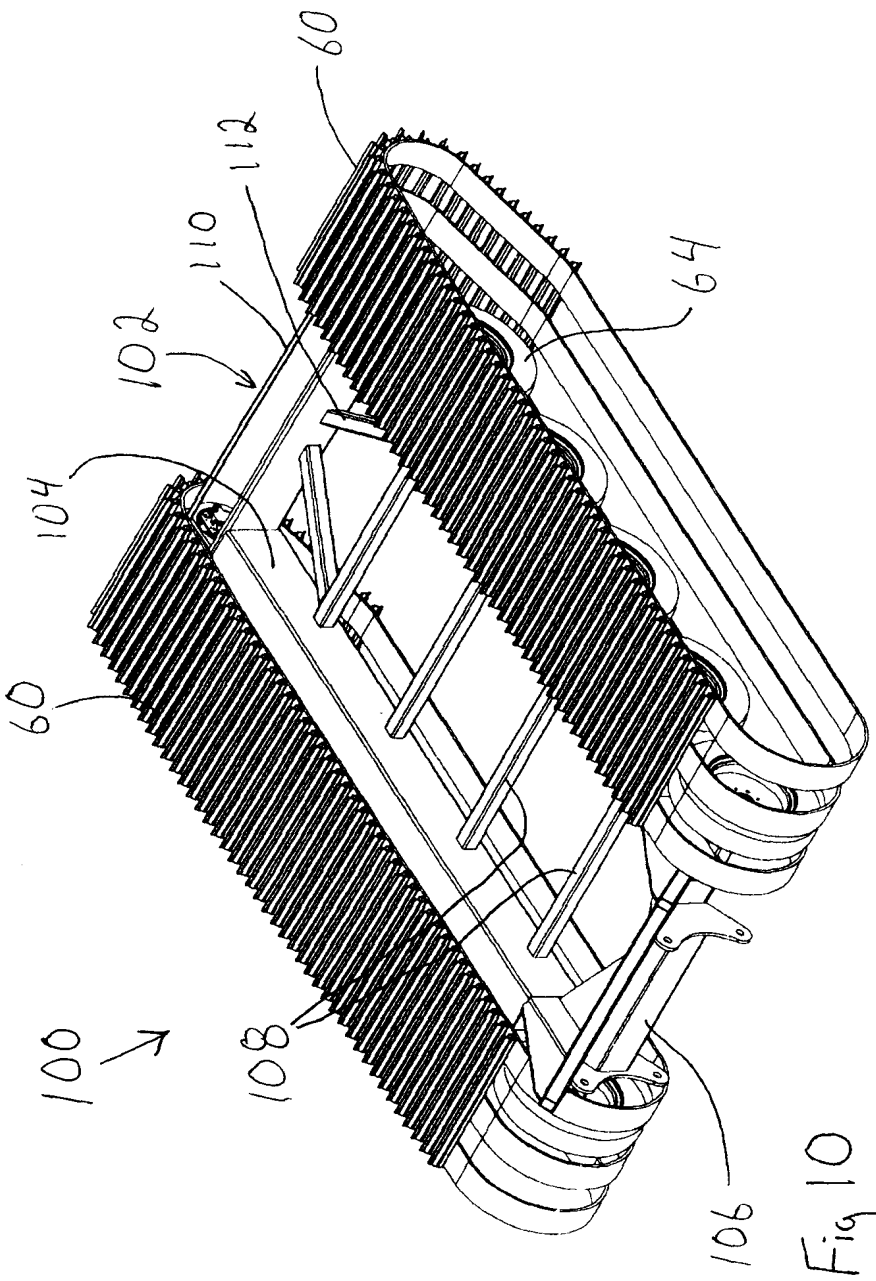


Fig 10

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 49 of 894

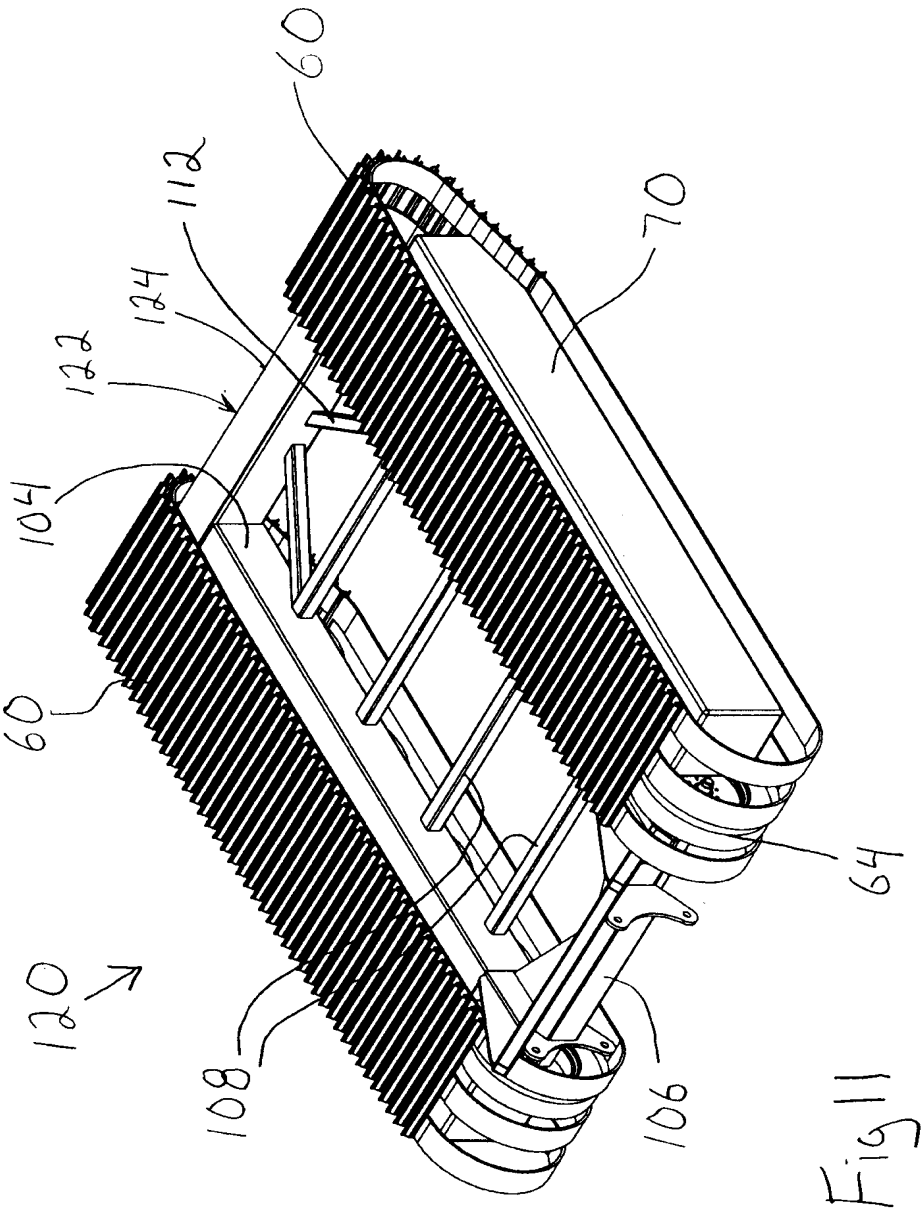


Fig 11

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 50 of 894

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2010/001502

A. CLASSIFICATION OF SUBJECT MATTER
IPC: ***B60F 3/00*** (2006.01) , ***B62D 55/00*** (2006.01)
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC: ***B60F 3/00*** (2006.01) , ***B62D 55/00*** (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
Databases: Canadian Patent Database (CPD) and EPOQUE (Epodoc, English Full text),
Keywords: ice, track, tread, float*, buoyancy, attitude, tilt, angle, pitch, inclination, leaning, fuglsang, graham,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US4645023 A (REA, K. et al.) 24 February 1987 (24-02-1987) *Whole document especially col 14, ln 37-45 & Fig 11-20 *	
A	US4934300 A (SELIGMAN, B. et al.) 19 June 1990 (19-06-1990) *Whole document especially col 4, ln 30-35 & ln 44-47*	
A	CA1191740 A (KOMOTO, M. et al.) 13 August 1985 (13-08-1985) *Whole document especially pg 2, ln 21-27 & pg 6, ln 12-14 & 23-24*	
A	US5027737 A (DUFFTY, B. et al.) 02 July 1991 (02-07-1991) *Whole document especially Fig 3 & col 6, ln 35-41 & ln 48-51*	

[ ] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 December 2010 (13-12-2010)	7 January 2011 (07-01-2011)

Name and mailing address of the ISA/CA	Authorized officer
Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476	David Narbaitz (819) 934-0088

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 51 of 894

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		US4727949A	01 March 1988 (01-03-1988)
US4934300A	19 June 1990 (19-06-1990)	None	
CA1191740A1	13 August 1985 (13-08-1985)	DK85386A	24 February 1986 (24-02-1986)
		DK85386D0	24 February 1986 (24-02-1986)
		DK280882A	28 August 1983 (28-08-1983)
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		US4476948A	16 October 1984 (16-10-1984)
US5027737A	02 July 1991 (02-07-1991)	AR248102A1	30 June 1995 (30-06-1995)
		BR9006813A	06 August 1991 (06-08-1991)
		DK0429605T3	29 August 1994 (29-08-1994)
		EP0429605A1	05 June 1991 (05-06-1991)
		EP0429605A4	10 July 1991 (10-07-1991)
		EP0429605B1	20 July 1994 (20-07-1994)
		ES2056468T3	01 October 1994 (01-10-1994)
		GR90100477A	15 November 1991 (15-11-1991)
		GR1001382B	29 October 1993 (29-10-1993)
		IL94802D0	15 April 1991 (15-04-1991)
		JP2524259B2	14 August 1996 (14-08-1996)
		JP4500343T	23 January 1992 (23-01-1992)
		KR960002420B1	17 February 1996 (17-02-1996)
		TR26272A	15 February 1995 (15-02-1995)
		WO9015752A1	27 December 1990 (27-12-1990)

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 52 of 894

Electronic Acknowledgement Receipt

EFS ID:	46947688
Application Number:	90019076
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	10974557
Customer Number:	27572
Filer:	Timothy David MacIntyre/Jessica Jeroue
Filer Authorized By:	Timothy David MacIntyre
Attorney Docket Number:	19061.0001USRX
Receipt Date:	02-NOV-2022
Filing Date:	06-MAY-2022
Time Stamp:	17:03:18
Application Type:	Reexam (Patent Owner)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS_SB08_11-2-2022.pdf	1049859 35969a84b1c9412fbce79830bc80d53568a67c3c	no	4

Warnings:

Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Foreign Reference	WO2011035430A1.pdf	1051620 a079b111cc0e22b2865e24a673f07ab4e141b588	no	28
Warnings:					
Information:					
3	Non Patent Literature	2022-10-31-OA1.pdf	440324 dd9c36198a11e1507f295ddfd671702571ddeae5	no	7
Warnings:					
Information:					
4	Non Patent Literature	2022-08-19-OA1.pdf	301592 d8476d5d813df7fe87bf26bf22a2d880c9c838e3	no	5
Warnings:					
Information:					
5	Transmittal Letter	IDS_Transmittal_11-2-2022.pdf	85582 3d92ec86bc5437cfc1b9fd6db6e7173355ccbfb4	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	2928977	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Docket No.: 19061.0001USRX
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Ian NUHN

Application No.: 90/019,076 Confirmation No.: 3433

Patent No: U.S. 10,974,557

Filed: June 3, 2020 Art Unit: 3993

Issued: April 30, 2021

For: AMPHIBIOUS PUMPING VEHICLE Examiner: KAUFMAN, JOSEPH A

INFORMATION DISCLOSURE STATEMENT

Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 C.F.R. §§ 1.555, 1.97, and 1.98, the attention of the United States Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the Reexamination of the above-identified Reexamination application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed after the mailing date of a Final Office Action or Notice of Allowance, whichever occurred first, but on or before payment of the Issue Fee (37 C.F.R. 1.97(d)). Applicant(s) hereby petition(s) that the Information Disclosure Statement be considered.

I hereby certify, pursuant to 37 C.F.R. 1.97(e)(2), that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Applicant submits herewith copies of foreign patents and non-patent literature in accordance with 37 C.F.R. § 1.98(a)(2).

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made. In accordance with 37 C.F.R. § 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that the information cited in this Information Disclosure Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b). It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. § 1.98, and the Examiner is respectfully requested to consider the listed references.

Please charge Deposit Account No. 08-0750 in the amount of $130.00 for the above-identified fee referencing work order number 18863-500002. If any additional fees are required for the prosecution of the application, please charge the fees to Deposit Account Number 08-0750 referencing work order number 18863-500002.

Dated: November 2, 2022

Respectfully submitted,

By_/Timothy D. MacIntyre/_____
Timothy D. MacIntyre
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Attorney for Patentee

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 57 of 894

CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. §§ 1.33(c) and 1.248, that on the date indicated below, a true and correct copy of the foregoing INFORMATION DISCLOSURE STATEMENT was served via U.S. Mail upon the following attorney of record at the USPTO for the requestor in Reexamination Application No. 90/019,076:

Robert A. Kalinsky
MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903

Dated: November 2, 2022

By /Timothy D. MacIntyre/
Timothy D. MacIntyre
Registration No.: 42,824

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 58 of 894

Electronic Acknowledgement Receipt

EFS ID:	46924543
Application Number:	90019076
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	10974557
Customer Number:	27572
Filer:	Timothy David MacIntyre/Jessica Jeroue
Filer Authorized By:	Timothy David MacIntyre
Attorney Docket Number:	19061.0001USRX
Receipt Date:	31-OCT-2022
Filing Date:	06-MAY-2022
Time Stamp:	12:06:32
Application Type:	Reexam (Patent Owner)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reexam Response to Final Rejection	Reply_to_Final_Office_Action_in_Ex_Parte_Reexamination_mailed_10-21-2022.pdf	164972 00d3f2d386078bd1b1df0c26cf74fc10153ca979	no	14

Warnings:

Information:	
Total Files Size (in bytes):	164972

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Docket No.: 19061.0001USRX
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Ian NUHN

Application No.: 90/019,076 Confirmation No.: 3433

Patent No: U.S. 10,974,557

Filed: June 3, 2020 Art Unit: 3993

Issued: April 30, 2021

For: AMPHIBIOUS PUMPING VEHICLE Examiner: KAUFMAN, JOSEPH A

RESPONSE TO EX PARTE REEXAMINATION

Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Final Office Action mailed October 21, 2022, the Patentee requests reconsideration and allowance based on the following amendments and remarks:

CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. §§ 1.33(c) and 1.248, that on the date indicated below, a true and correct copy of the foregoing RESPONSE TO EX PARTE REEXAMINATION was served via U.S. Mail upon the following attorney of record at the USPTO for the requestor in Reexamination Application No. 90/019,076:

Robert A. Kalinsky
MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903

Dated: Oct. 31, 2022

By_/Timothy D. MacIntyre/____
Timothy D. MacIntyre
Registration No.: 42,824

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 62 of 894

II. Remarks

U.S. Patent No. 10,974,557 ("the '557 Patent" or "Nuhn '557") was originally issued with 13 allowed claims. Claims 1, 8, 9 and 10 were amended to address possible antecedent basis issues and claims 14–115 were newly added in response to the Office Action dated August 12, 2022. Claims 1–115 are currently pending and claims 55–81, 106–111, 114, and 115 stand rejected. The action is final. By this response, the Patentee is cancelling rejected claims 55–81, 106–111, 114, and 115 and seeks issuance of a Reexamination Certificate for allowed claims 1–54, 82–105, 112, and 113. No other amendments beyond cancellation of the rejected claims 55–81, 106–111, 114, and 115 are included in this response.

A. Allowable Subject Matter

The Examiner has acknowledged that claims 1–54, 82–105, 112, and 113 are allowed. The Patentee thanks the Examiner for acknowledgement of the allowed subject matter.

B. Amendments to the Claims

Claims 55–81, 106–111, 114, and 115 are canceled. No new matter has been added.

C. Reply to Claim Rejection Under 35 U.S.C. § 305

Claims 55–81, 106–111, 114, and 115 are rejected under 35 U.S.C. § 305, allegedly as enlarging the scope of the claims of the patent being reexamined. Although the Patentee respectfully disagrees with the Examiner's rejections, the Patentee currently cancels claims 55–81, 106–111, 114, and 115. The Patentee requests withdrawal of the rejection under 35 U.S.C. § 305 at least on the basis of the cancellation of these claims. The Patentee respectfully requests the Examiner to issue the Reexamination Certificate.

D. Conclusion

For at least the foregoing reasons, the Patentee submits that the claims are in condition for allowance, and respectfully requests reconsideration and favorable action. The Examiner is

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 63 of 894

invited to contact the Patentee's representative at the number indicated below to discuss any matter that would advance prosecution of this application.

No fees are believed to be due at this time. If extensions of time are required, the extensions are hereby requested. If any additional fees are required for the prosecution of the application, please charge the fees to Deposit Account Number 08-0750 referencing work order number 18863-500002.

Dated: Oct. 31, 2022

Respectfully submitted,

By_/Timothy D. MacIntyre/_____
Timothy D. MacIntyre
Registration No.: 42,824
HARNESS, DICKEY & PIERCE, P.L.C.
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248.641.1600
Attorney for Patentee

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 64 of 894

I. Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Amended) An amphibious vehicle comprising:
   a floatable vehicle body;
   a ground engaging propulsion structure;
   a fluid pump for pumping liquid manure;
   at least one fluid nozzle connected by a fluid conduit to the fluid pump;
   a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,
   a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

2. (Original) The vehicle according to claim 1, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.

3. (Original) The vehicle according to claim 1, wherein the power source is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid pump.

4. (Original) The vehicle according to claim 3, wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.

5. (Original) The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a plurality of fluid nozzles connected to the fluid conduit.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 65 of 894

6. (Original) The vehicle according to claim 1, wherein the location of the ground engaging propulsion structure, power source and fluid pump are selected to provide a desired location for a center of gravity of the vehicle.

7. (Original) The vehicle according to claim 1, wherein the amount of fluid flow from the at least one fluid nozzle and/or the direction of the at least one fluid nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.

8. (Amended) An amphibious vehicle comprising:

a floatable vehicle body;

four hydraulically powered ground engaging wheels;

four <u>variable speed</u> hydraulic motors, one hydraulic motor per wheel, for powering the four hydraulically powered ground engaging wheels;

a fluid pump for pumping liquid manure;

at least one directionally adjustable nozzle through which the liquid manure is pumped;

an internal combustion engine configured to provide power to both the four variable speed hydraulic motors and the fluid pump; the location of the four hydraulically powered ground engaging wheels, the internal combustion engine and the fluid pump selected to provide a desired location for a center of gravity of the vehicle; and,

<u>a</u> remote control structure configured to control the four variable speed hydraulic motors and the fluid pump, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

9. (Amended) The vehicle according to claim 8, wherein the[power source] <u>internal combustion engine</u> is configured to provide hydraulic fluid power to the four hydraulic motors and the fluid pump.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 66 of 894

10. (Amended) The vehicle according to claim 9,[wherein the four hydraulic motors are variable speed hydraulic motors and] wherein the four hydraulically powered ground engaging wheels are each operable at variable speed.

11. (Original) The vehicle according to claim 8, wherein the at least one directionally adjustable nozzle is connected to a fluid conduit connected to the fluid pump.

12. (Original) The vehicle according to claim 11, wherein a plurality of nozzles comprising the at least one directionally adjustable nozzle is connected to the fluid conduit.

13. (Original) The vehicle according to claim 8, wherein the amount of fluid flow from the directionally adjustable nozzle and/or the direction of the directionally adjustable nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.

14. (New) The vehicle according to claim 1, wherein the fluid pump comprises a bottom fluid inlet configured for immersion within the liquid manure.

15. (New) The vehicle according to claim 14, wherein the ground engaging propulsion structure comprises only four wheels.

16. (New) The vehicle according to claim 15, wherein the four wheels are provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle.

17. (New) The vehicle according to claim 16, wherein the floatable vehicle body comprises buoyant elements situated between the pairs of wheels.

18. (New) The vehicle according to claim 17, wherein the buoyant elements comprise foam filled buoyant chambers.

19. (New) The vehicle according to claim 15, wherein the four wheels are independently driven.

20. (New) The vehicle according to claim 15, wherein the four wheels are independently driven at variable speeds.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 67 of 894

21. (New) The vehicle according to claim 15, further comprising a steering structure configured to change direction of one or more of the wheels.

22. (New) The vehicle according to claim 1, wherein the fluid pump comprises a pump housing configured for immersion within the liquid manure.

23. (New) The vehicle according to claim 22, wherein the immersion within the liquid manure obviates the need for priming the fluid pump.

24. (New) The vehicle according to claim 22, wherein the pump housing comprises a bottom fluid inlet and at least two tangential fluid outlets.

25. (New) The vehicle according to claim 24, wherein each of the at least two tangential fluid outlets is equipped with a flexible connection to a single fluid conduit.

26. (New) The vehicle according to claim 24, wherein the at least two tangential fluid outlets are connected to a combiner configured to combine the tangential fluid outlets into a single conduit.

27. (New) The vehicle according to claim 22, wherein the fluid pump comprises a mechanical drive shaft that drives a pump impeller in the pump housing.

28. (New) The vehicle according to claim 27, wherein the pump impeller draws liquid manure to be pumped through a bottom opening of the pump housing.

29. (New) The vehicle according to claim 1, wherein the floatable vehicle body comprises buoyant elements.

30. (New) The vehicle according to claim 29, wherein the buoyant elements comprise foam filled buoyant chambers.

31. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle comprises an adjustment structure that is configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 68 of 894

32. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

33. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

34. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a terminal opening.

35. (New) The vehicle according to claim 34, wherein the terminal opening is fluidically connected to the fluid conduit.

36. (New) The vehicle according to claim 35, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

37. (New) The vehicle according to claim 1, further comprising a hydraulic articulation cylinder for changing an angular orientation of the at least one fluid nozzle relative to the vehicle body.

38. (New) The vehicle according to claim 37, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

39. (New) The vehicle according to claim 1, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

40. (New) The vehicle according to claim 8, wherein the fluid pump comprises a pump housing, wherein the pump housing is immersed in the liquid manure when the vehicle is floating.

41. (New) The vehicle according to claim 40, wherein the pump housing comprises a bottom fluid inlet and a first tangential fluid outlet and a second tangential fluid outlet.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 69 of 894

42. (New) The vehicle according to claim 41, further comprising a first flexible connection fluidly coupled to the first tangential fluid outlet and a second flexible connection fluidly coupled to the second tangential fluid outlet, wherein the first flexible connection and the second flexible connection are fluidly coupled to the at least one directionally adjustable nozzle.

43. (New) The vehicle according to claim 41, wherein the first tangential fluid outlet and the second tangential fluid outlet are connected to a combiner configured to combine liquid manure from the first tangential fluid outlet and the second tangential fluid outlet into a single conduit.

44. (New) The vehicle according to claim 40, wherein the fluid pump comprises a pump impeller in the pump housing.

45. (New) The vehicle according to claim 44, wherein the pump impeller is configured to draw liquid manure through a bottom opening of the pump housing.

46. (New) The vehicle according to claim 8, wherein the four hydraulically powered ground engaging wheels comprise a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on a first side of the vehicle and the second front wheel and the second rear wheel are on a second side of the vehicle.

47. (New) The vehicle according to claim 46, wherein the floatable vehicle body comprises a first buoyant element between the first front wheel and the first rear wheel and a second buoyant element between the second front wheel and the second rear wheel.

48. (New) The vehicle according to claim 47, wherein the first buoyant element and the second buoyant element comprise foam filled buoyant chambers.

49. (New) The vehicle according to claim 46, further comprising a steering structure configured to change direction of one or more of the four hydraulically powered ground engaging wheels.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 70 of 894

50. (New) The vehicle according to claim 8, wherein the floatable vehicle body comprises buoyant elements.

51. (New) The vehicle according to claim 50, wherein the buoyant elements comprise foam filled buoyant chambers.

52. (New) The vehicle according to claim 8, further comprising a hydraulic articulation cylinder configured to move the at least one directionally adjustable nozzle relative to the vehicle body.

53. (New) The vehicle according to claim 52, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

54. (New) The vehicle according to claim 8, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

55. – 81. (Cancelled)

82. (New) An amphibious vehicle comprising:

a floatable vehicle body;

a ground engaging propulsion structure;

a liquid manure pump for pumping liquid manure from a liquid manure lagoon;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 71 of 894

83. (New) The vehicle according to claim 82, wherein the liquid manure pump comprises a pump housing, wherein the pump housing is immersed in the liquid manure when the vehicle is floating.

84. (New) The vehicle according to claim 83, wherein the pump housing comprises a bottom fluid inlet and a first tangential fluid outlet and a second tangential fluid outlet.

85. (New) The vehicle according to claim 84, further comprising a first flexible connection fluidly coupled to the first tangential fluid outlet and a second flexible connection fluidly coupled to the second tangential fluid outlet, wherein the first flexible connection and the second flexible connection are fluidly coupled to the fluid conduit.

86. (New) The vehicle according to claim 84, wherein the first tangential fluid outlet and the second tangential fluid outlet are connected to a combiner configured to combine liquid manure from the first tangential fluid outlet and the second tangential fluid outlet into a single conduit.

87. (New) The vehicle according to claim 83, wherein the pump comprises a pump impeller in the pump housing.

88. (New) The vehicle according to claim 87, wherein the pump impeller is configured to draw liquid manure through a bottom opening of the pump housing.

89. (New) The vehicle according to claim 82, wherein the ground engaging propulsion structure comprises four wheels, wherein the four wheels comprise a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on a first side of the vehicle and the second front wheel and the second rear wheel are on a second side of the vehicle.

90. (New) The vehicle according to claim 89, wherein the four wheels are independently driven.

91. (New) The vehicle according to claim 89, wherein the four wheels are independently driven at variable speeds.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 72 of 894

92. (New) The vehicle according to claim 89, further comprising a steering structure configured to change direction of one or more of the wheels.

93. (New) The vehicle according to claim 89, wherein the floatable vehicle body comprises a first buoyant element between the first front wheel and the first rear wheel and a second buoyant element between the second front wheel and the second rear wheel.

94. (New) The vehicle according to claim 93, wherein the first buoyant element and the second buoyant element comprise foam filled buoyant chambers.

95. (New) The vehicle according to claim 82, wherein the floatable vehicle body comprises buoyant elements.

96. (New) The vehicle according to claim 95, wherein the buoyant elements comprise foam filled buoyant chambers.

97. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle comprises an adjustment structure that is configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

98. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

99. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

100. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle comprises a terminal opening.

101. (New) The vehicle according to claim 100, wherein the terminal opening is fluidically connected to the fluid conduit.

102. (New) The vehicle according to claim 101, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 73 of 894

103. (New) The vehicle according to claim 82, further comprising a hydraulic articulation cylinder configured to move the at least one fluid nozzle relative to the vehicle body.

104. (New) The vehicle according to claim 103, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

105. (New) The vehicle according to claim 82, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

106. – 111. (Cancelled)

112. (New) An amphibious vehicle comprising:

a ground engaging propulsion structure comprising only four wheels provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle;

a floatable vehicle body comprising buoyant elements situated between the pairs of wheels;

a liquid manure pump configured to pump liquid manure;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

113. (New) The vehicle according to claim 112, wherein the buoyant elements comprise foam filled buoyant chambers.

114. – 115. (Cancelled)

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 74 of 894

Doc Code: PA..
Document Description: Power of Attorney

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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	90/019,107
Filing Date	August 31, 2022
First Named Inventor	Ian NUHN
Title	AMPHIBIOUS PUMPING VEHICLE
Art Unit	3993
Examiner Name	Joseph A. Kaufman
Attorney Docket Number	19061.0001USR2

SIGNATURE of Applicant or Patent Practitioner

Signature	/Timothy D. MacIntyre/	Date (Optional)	
Name	Timothy D. MacIntyre	Registration Number	42,824
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Nuhn Industries Ltd.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of 1 forms are submitted.

83112524.1

Electronic Acknowledgement Receipt

EFS ID:	46907532
Application Number:	90019076
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	10974557
Customer Number:	27572
Filer:	Timothy David MacIntyre/Tyler Ledwell
Filer Authorized By:	Timothy David MacIntyre
Attorney Docket Number:	19061.0001USRX
Receipt Date:	27-OCT-2022
Filing Date:	06-MAY-2022
Time Stamp:	14:57:31
Application Type:	Reexam (Third Party)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	POA_Transmittal.PDF	74328 4edc962cce23238922e04d62b76d2b831c283905	no	1

Warnings:

Information:	
Total Files Size (in bytes):	74328

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	90019076
Filing Date	2022-05-06
First Named Inventor	Ian NUHN
Art Unit	3993
Examiner Name	Joseph A Kaufman
Attorney Docket Number	19061.0001USRX

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20120185129	A1	2012-07-19	Carrier	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.A.K/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	90019076
	Filing Date	2022-05-06
	First Named Inventor	Ian NUHN
	Art Unit	3993
	Examiner Name	Joseph A Kaufman
	Attorney Docket Number	19061.0001USRX

	1	Re-Examination Request and Exhibits Corresponding to Application No. 90/019,107, for U.S. Patent No. 11,358,425, Issued June 14, 2022.	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/JOSEPH A KAUFMAN/	Date Considered	10/11/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	Filing Date	2022-05-06
	First Named Inventor	Ian NUHN
	Art Unit	3993
	Examiner Name	Joseph A Kaufman
	Attorney Docket Number	19061.0001USRX

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Timothy D. MacIntyre/	Date (YYYY-MM-DD)	2022-09-02
Name/Print	Timothy D. MacIntyre	Registration Number	42824

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/019,076	05/06/2022	10974557	19061.0001USRX	3433

27572 7590 10/21/2022

HARNESS DICKEY (TROY)
5445 Corporate Dr.
Suite 200
Troy, MI 48098

EXAMINER
KAUFMAN, JOSEPH A

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
10/21/2022	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. *90/019,076* .

PATENT UNDER REEXAMINATION *10974557* .

ART UNIT *3993* .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Reexamination

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Service of Papers

After the filing of a request for reexamination by a third-party requester, any document filed by either the patent owner or the third-party requester must be served on the other party (or parties where two or more third party requester proceedings are merged) in the reexamination proceeding in the manner provided in 37 CFR 1.248. See 37 CFR 1.550(f).

Extensions of Time

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that *ex parte* reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extensions of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

Amendment in Reexamination Proceedings

Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be

formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

Submissions

In order to insure full consideration of any amendments, affidavits or declarations or other documents as evidence of patentability, such documents must be submitted in response to the first Office action on the merits (which does not result in a close of prosecution). Submissions after the second Office action on the merits, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and by 37 CFR 41.33 after appeal, which will be strictly enforced.

Notification of Concurrent Proceedings

The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a), to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 10,974,557 throughout the course of this reexamination proceeding. Likewise, if present, the third-party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

Rejection 35 USC 305, Claims Enlarge the Scope of the Patent

Claims 55-81, 106-111, 114 and 115 rejected under 35 U.S.C. 305 as enlarging the scope of the claim(s) of the patent being reexamined. In 35 U.S.C. 305, it is stated

that "[n]o proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding...." A claim presented in a reexamination "enlarges the scope" of the patent claim(s) where the claim is broader than each and every claim of the patent. A claim is broader in scope than the original claims if it contains within its scope any conceivable product or process which would not have infringed the original patent. **A claim is broadened if it is broader in any one respect, even though it may be narrower in other respects**.

In the above listed claims, the limitation regarding the pump has been broadened to recite “configured to pump” from the original “for pumping”. The limitation is broader as the fluid pump no longer actually needs to pump, but merely be configured to do so. While other aspects of the claim including the limitations regarding the pump may be narrower, the claim cannot be broadened with respect to any feature in any manner.

STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION

The following is an examiner's statement of reasons for patentability and/or confirmation of the claims found patentable in this reexamination proceeding: claims 1-54, 82-105, 112 and 113 are allowed over the art cited with the request. The examiner has considered the arguments that a pump that pumps manure has different requirements than one that pumps water. Further, without impermissible hindsight, there would not be proper motivation to combine a device like Carrier with a device like Puck. Therefore, the examiner concurs that the prior art does not reasonably show an amphibious vehicle that can be mobile on both land and liquid that pumps manure, in combination with the other claimed elements.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

Conclusion

Patent owner's amendment filed 2 September 2022 necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

A shortened statutory period for response to this action is set to expire 2 months from the mailing date of this action.

Extensions of time under 37 CFR 1.136(a) do not apply in reexamination proceedings. The provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Further, in 35 U.S.C. 305 and in 37 CFR 1.550(a), it is required that reexamination proceedings "will be conducted with special dispatch within the Office."

Extensions of time in reexamination proceedings are provided for in 37 CFR 1.550(c). A request for extension of time must specify the requested period of extension and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). Any request for an extension in a third party requested ex parte reexamination must be filed on or before the day on which action by the patent owner is due, and the mere filing of a request will not effect any extension of time. A request for an extension of time in a third party requested ex parte reexamination will be granted only for sufficient

cause, and for a reasonable time specified. Any request for extension in a patent owner requested ex parte reexamination (including reexamination ordered under 35 U.S.C. 257) for up to two months from the time period set in the Office action must be filed no later than two months from the expiration of the time period set in the Office action. A request for an extension in a patent owner requested ex parte reexamination for more than two months from the time period set in the Office action must be filed on or before the day on which action by the patent owner is due, and the mere filing of a request for an extension for more than two months will not effect the extension. The time for taking action in a patent owner requested ex parte reexamination will not be extended for more than two months from the time period set in the Office action in the absence of sufficient cause or for more than a reasonable time.

The filing of a timely first response to this final rejection will be construed as including a request to extend the shortened statutory period for an additional two months. In no event, however, will the statutory period for response expire later than SIX MONTHS from the mailing date of the final action. See MPEP § 2265.

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

Please mail any communications to:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at https://efs.uspto.gov/efile/myportal/efs-registered.

By Mail to: Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P. O. Box 1450

Alexandria VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

By Hand: Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulany Street
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1)(i)(C) and (ii) states that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely if (a) it is transmitted via the Office's electronic filing system in accordance with 37 CFR 1.6(a)(4), and (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed: /JOSEPH A KAUFMAN/
Reissue/Reexam Specialist, Art Unit 3993

Conferee: /WILLIAM C DOERRLER/
Reexamination Specialist, Art Unit 3993

Conferee: /Patricia L Engle/
Acting SPRS, Art Unit 3993

Office Action in Ex Parte Reexamination	**Control No.** 90/019,076	**Patent Under Reexamination** 10974557	
	Examiner JOSEPH A KAUFMAN	**Art Unit** 3993	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

a. ☑ Responsive to the communication(s) filed on 02 September 2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

b. ☑ This action is made FINAL.

c. ☐ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).** If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☑ Information Disclosure Statement, PTO/SB/08.
3. ☐ Interview Summary, PTO-474.
4. ☐ _____.

Part II SUMMARY OF ACTION

1a. ☑ Claims 1-115 are subject to reexamination.

1b. ☐ Claims _____ are not subject to reexamination.

2. ☐ Claims _____ have been canceled in the present reexamination proceeding.

3. ☑ Claims 1-54,82-105 and 112-113 are patentable and/or confirmed.

4. ☑ Claims 55-81,106-111 and 114-115 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ The drawings, filed on _____ are acceptable.

7. ☐ The proposed drawing correction, filed on _____ has been (7a) ☐ approved (7b) ☐ disapproved.

8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have

   1 ☐ been received.

   2 ☐ not been received.

   3 ☐ been filed in Application No. _____.

   4 ☐ been filed in reexamination Control No. _____.

   5 ☐ been received by the International Bureau in PCT application No. _____.

   * See the attached detailed Office action for a list of the certified copies not received.

9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.

10. ☐ Other: _____

cc: Requester (if third party requester)

PTO/SB/08a (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Examiner Name	Joseph A Kaufman
Attorney Docket Number	19061.0001USRX

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20120185129	A1	2012-07-19	Carrier	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

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If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Timothy D. MacIntyre/	Date (YYYY-MM-DD)	2022-09-02
Name/Print	Timothy D. MacIntyre	Registration Number	42824

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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Electronic Patent Application Fee Transmittal

Application Number:	90019076
Filing Date:	06-May-2022
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	10974557
Filer:	Timothy David MacIntyre/Jessica Jeroue
Attorney Docket Number:	19061.0001USRX

Filed as Small Entity

Filing Fees for ex parte reexam

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
REEXAMINATION INDEPENDENT CLAIMS	2821	5	240	1200
REEXAMINATION CLAIMS IN EXCESS OF 20	2822	87	50	4350
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**5550**

Electronic Acknowledgement Receipt

EFS ID:	46546315
Application Number:	90019076
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	10974557
Customer Number:	27572
Filer:	Timothy David MacIntyre/Jessica Jeroue
Filer Authorized By:	Timothy David MacIntyre
Attorney Docket Number:	19061.0001USRX
Receipt Date:	02-SEP-2022
Filing Date:	06-MAY-2022
Time Stamp:	15:17:52
Application Type:	Reexam (Patent Owner)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$5550
RAM confirmation Number	E202292F19512699
Deposit Account	080750
Authorized User	Jessica Jeroue

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response after non-final action-owner timely	Reply_to_Office_Action_in_Ex_Parte_Reexamination_mailed_8-12-2022.pdf	300327 62e3a58d7d8484370a3f6190721e3b3b8f748851	no	32
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1034409 60c3bb090c0c9da4fb66db11814de845a3756b44	no	4
Warnings:					
Information:					
3	Non Patent Literature	NPL_Part_One.pdf	5410476 0ab7fb2394032486bb5695c3353277e412d6e141	no	100
Warnings:					
Information:					
4	Non Patent Literature	NPL_Part_Two.pdf	11533985 c670d5c2114fc859525e43e7a3d1576018578712	no	200
Warnings:					
Information:					
5	Non Patent Literature	NPL_Part_Three.pdf	11872410 eb8ba6e56d2f5596ae499caff030ec5fd96df230	no	300
Warnings:					
Information:					
6	Non Patent Literature	NPL_Part_Four.pdf	23659684 f3bc995cd71409c178dd39e991a70dfd9bf5d365	no	300
Warnings:					
Information:					

7	Non Patent Literature	NPL_Part_Five.pdf	12090592 af1c8e3be4e52aa0880d14d10c94361f8d39741b	no	100
Warnings:					
Information:					
8	Non Patent Literature	NPL_Part_Six.pdf	14166386 de3a870616550a4f0f33c619f4927923a64a3158	no	166
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	39980 33734bd46237210a4ac1433650672df38a3b1d16	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	80108249	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Docket No.: 19061.0001USRX
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Ian NUHN

Application No.: 90/019,076 Confirmation No.: 3433

Patent No: U.S. 10,974,557

Filed: June 3, 2020 Art Unit: 3993

Issued: April 30, 2021

For: AMPHIBIOUS PUMPING VEHICLE Examiner: KAUFMAN, JOSEPH A

RESPONSE TO EX PARTE REEXAMINATION

Ex Parte Reexam
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Office Action mailed August 12, 2022, the Patentee requests reconsideration and allowance based on the following amendments and remarks:

I. Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An amphibious vehicle comprising:
   a floatable vehicle body;
   a ground engaging propulsion structure;
   a fluid pump for pumping liquid manure;
   at least one fluid nozzle connected by a fluid conduit to the fluid pump;
   a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,
   a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

2. (Original) The vehicle according to claim 1, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.

3. (Original) The vehicle according to claim 1, wherein the power source is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid pump.

4. (Original) The vehicle according to claim 3, wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.

5. (Original) The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a plurality of fluid nozzles connected to the fluid conduit.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 101 of 894

6. (Original) The vehicle according to claim 1, wherein the location of the ground engaging propulsion structure, power source and fluid pump are selected to provide a desired location for a center of gravity of the vehicle.

7. (Original) The vehicle according to claim 1, wherein the amount of fluid flow from the at least one fluid nozzle and/or the direction of the at least one fluid nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.

8. (Currently Amended) An amphibious vehicle comprising:

a floatable vehicle body;

four hydraulically powered ground engaging wheels;

four <u>variable speed</u> hydraulic motors, one hydraulic motor per wheel, for powering the four hydraulically powered ground engaging wheels;

a fluid pump for pumping liquid manure;

at least one directionally adjustable nozzle through which the liquid manure is pumped;

an internal combustion engine configured to provide power to both the four variable speed hydraulic motors and the fluid pump; the location of the four hydraulically powered ground engaging wheels, the internal combustion engine and the fluid pump selected to provide a desired location for a center of gravity of the vehicle; and,

<u>a</u> remote control structure configured to control the four variable speed hydraulic motors and the fluid pump, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

9. (Currently Amended) The vehicle according to claim 8, wherein the[power source] <u>internal combustion engine</u> is configured to provide hydraulic fluid power to the four hydraulic motors and the fluid pump.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 102 of 894

10. (Currently Amended) The vehicle according to claim 9,[wherein the four hydraulic motors are variable speed hydraulic motors and] wherein the four hydraulically powered ground engaging wheels are each operable at variable speed.

11. (Original) The vehicle according to claim 8, wherein the at least one directionally adjustable nozzle is connected to a fluid conduit connected to the fluid pump.

12. (Original) The vehicle according to claim 11, wherein a plurality of nozzles comprising the at least one directionally adjustable nozzle is connected to the fluid conduit.

13. (Original) The vehicle according to claim 8, wherein the amount of fluid flow from the directionally adjustable nozzle and/or the direction of the directionally adjustable nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.

14. (New) The vehicle according to claim 1, wherein the fluid pump comprises a bottom fluid inlet configured for immersion within the liquid manure.

15. (New) The vehicle according to claim 14, wherein the ground engaging propulsion structure comprises only four wheels.

16. (New) The vehicle according to claim 15, wherein the four wheels are provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle.

17. (New) The vehicle according to claim 16, wherein the floatable vehicle body comprises buoyant elements situated between the pairs of wheels.

18. (New) The vehicle according to claim 17, wherein the buoyant elements comprise foam filled buoyant chambers.

19. (New) The vehicle according to claim 15, wherein the four wheels are independently driven.

20. (New) The vehicle according to claim 15, wherein the four wheels are independently driven at variable speeds.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 103 of 894

21. (New) The vehicle according to claim 15, further comprising a steering structure configured to change direction of one or more of the wheels.

22. (New) The vehicle according to claim 1, wherein the fluid pump comprises a pump housing configured for immersion within the liquid manure.

23. (New) The vehicle according to claim 22, wherein the immersion within the liquid manure obviates the need for priming the fluid pump.

24. (New) The vehicle according to claim 22, wherein the pump housing comprises a bottom fluid inlet and at least two tangential fluid outlets.

25. (New) The vehicle according to claim 24, wherein each of the at least two tangential fluid outlets is equipped with a flexible connection to a single fluid conduit.

26. (New) The vehicle according to claim 24, wherein the at least two tangential fluid outlets are connected to a combiner configured to combine the tangential fluid outlets into a single conduit.

27. (New) The vehicle according to claim 22, wherein the fluid pump comprises a mechanical drive shaft that drives a pump impeller in the pump housing.

28. (New) The vehicle according to claim 27, wherein the pump impeller draws liquid manure to be pumped through a bottom opening of the pump housing.

29. (New) The vehicle according to claim 1, wherein the floatable vehicle body comprises buoyant elements.

30. (New) The vehicle according to claim 29, wherein the buoyant elements comprise foam filled buoyant chambers.

31. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle comprises an adjustment structure that is configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 104 of 894

32. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

33. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

34. (New) The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a terminal opening.

35. (New) The vehicle according to claim 34, wherein the terminal opening is fluidically connected to the fluid conduit.

36. (New) The vehicle according to claim 35, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

37. (New) The vehicle according to claim 1, further comprising a hydraulic articulation cylinder for changing an angular orientation of the at least one fluid nozzle relative to the vehicle body.

38. (New) The vehicle according to claim 37, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

39. (New) The vehicle according to claim 1, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

40. (New) The vehicle according to claim 8, wherein the fluid pump comprises a pump housing, wherein the pump housing is immersed in the liquid manure when the vehicle is floating.

41. (New) The vehicle according to claim 40, wherein the pump housing comprises a bottom fluid inlet and a first tangential fluid outlet and a second tangential fluid outlet.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 105 of 894

42. (New) The vehicle according to claim 41, further comprising a first flexible connection fluidly coupled to the first tangential fluid outlet and a second flexible connection fluidly coupled to the second tangential fluid outlet, wherein the first flexible connection and the second flexible connection are fluidly coupled to the at least one directionally adjustable nozzle.

43. (New) The vehicle according to claim 41, wherein the first tangential fluid outlet and the second tangential fluid outlet are connected to a combiner configured to combine liquid manure from the first tangential fluid outlet and the second tangential fluid outlet into a single conduit.

44. (New) The vehicle according to claim 40, wherein the fluid pump comprises a pump impeller in the pump housing.

45. (New) The vehicle according to claim 44, wherein the pump impeller is configured to draw liquid manure through a bottom opening of the pump housing.

46. (New) The vehicle according to claim 8, wherein the four hydraulically powered ground engaging wheels comprise a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on a first side of the vehicle and the second front wheel and the second rear wheel are on a second side of the vehicle.

47. (New) The vehicle according to claim 46, wherein the floatable vehicle body comprises a first buoyant element between the first front wheel and the first rear wheel and a second buoyant element between the second front wheel and the second rear wheel.

48. (New) The vehicle according to claim 47, wherein the first buoyant element and the second buoyant element comprise foam filled buoyant chambers.

49. (New) The vehicle according to claim 46, further comprising a steering structure configured to change direction of one or more of the four hydraulically powered ground engaging wheels.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 106 of 894

50. (New) The vehicle according to claim 8, wherein the floatable vehicle body comprises buoyant elements.

51. (New) The vehicle according to claim 50, wherein the buoyant elements comprise foam filled buoyant chambers.

52. (New) The vehicle according to claim 8, further comprising a hydraulic articulation cylinder configured to move the at least one directionally adjustable nozzle relative to the vehicle body.

53. (New) The vehicle according to claim 52, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

54. (New) The vehicle according to claim 8, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

55. (New) An amphibious vehicle comprising:

a floatable vehicle body;

a ground engaging propulsion structure;

a fluid pump configured to pump liquid manure;

at least one fluid nozzle connected by a fluid conduit to the fluid pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

56. (New) The vehicle according to claim 55, wherein the fluid pump comprises a bottom fluid inlet configured for immersion within liquid manure.

57. (New) The vehicle according to claim 55, wherein the fluid pump comprises a pump housing configured for immersion within liquid manure.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 107 of 894

58. (New) The vehicle according to claim 57, wherein the immersion within the liquid manure obviates the need for priming the pump.

59. (New) The vehicle according to claim 57, wherein the pump housing comprises a bottom fluid inlet and at least two tangential fluid outlets.

60. (New) The vehicle according to claim 59, wherein each of the at least two tangential fluid outlets is equipped with a flexible connection to a single fluid conduit.

61. (New) The vehicle according to claim 59, wherein the at least two tangential fluid outlets are connected to a combiner configured to combine the tangential fluid outlets into a single conduit.

62. (New) The vehicle according to claim 57, wherein the fluid pump comprises a mechanical drive shaft that drives a pump impeller in the pump housing.

63. (New) The vehicle according to claim 62, wherein the pump impeller draws liquid manure to be pumped through a bottom opening of the pump housing.

64. (New) The vehicle according to claim 55, wherein the ground engaging propulsion structure comprises four wheels.

65. (New) The vehicle according to claim 64, wherein the four wheels are provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle.

66. (New) The vehicle according to claim 65, wherein the floatable vehicle body comprises buoyant elements situated between the pairs of wheels.

67. (New) The vehicle according to claim 66, wherein the buoyant elements comprise foam filled buoyant chambers.

68. (New) The vehicle according to claim 64, wherein the four wheels are independently driven.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 108 of 894

69. (New) The vehicle according to claim 64, wherein the four wheels are independently driven at variable speeds.

70. (New) The vehicle according to claim 64, further comprising a steering structure configured to change direction of one or more of the wheels.

71. (New) The vehicle according to claim 55, wherein the floatable vehicle body comprises buoyant elements.

72. (New) The vehicle according to claim 71, wherein the buoyant elements comprise foam filled buoyant chambers.

73. (New) The vehicle according to claim 55, wherein the at least one fluid nozzle comprises an adjustment structure that is configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

74. (New) The vehicle according to claim 55, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

75. (New) The vehicle according to claim 55, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

76. (New) The vehicle according to claim 55, wherein the at least one fluid nozzle comprises a terminal opening.

77. (New) The vehicle according to claim 76, wherein the terminal opening is fluidically connected to the fluid conduit.

78. (New) The vehicle according to claim 77, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

79. (New) The vehicle according to claim 55, further comprising a hydraulic articulation cylinder for changing an angular orientation of the at least one fluid nozzle relative to the vehicle body.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 109 of 894

80. (New) The vehicle according to claim 79, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

81. (New) The vehicle according to claim 55, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

82. (New) An amphibious vehicle comprising:

a floatable vehicle body;

a ground engaging propulsion structure;

a liquid manure pump for pumping liquid manure from a liquid manure lagoon;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

83. (New) The vehicle according to claim 82, wherein the liquid manure pump comprises a pump housing, wherein the pump housing is immersed in the liquid manure when the vehicle is floating.

84. (New) The vehicle according to claim 83, wherein the pump housing comprises a bottom fluid inlet and a first tangential fluid outlet and a second tangential fluid outlet.

85. (New) The vehicle according to claim 84, further comprising a first flexible connection fluidly coupled to the first tangential fluid outlet and a second flexible connection fluidly coupled to the second tangential fluid outlet, wherein the first flexible connection and the second flexible connection are fluidly coupled to the fluid conduit.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 110 of 894

86. (New) The vehicle according to claim 84, wherein the first tangential fluid outlet and the second tangential fluid outlet are connected to a combiner configured to combine liquid manure from the first tangential fluid outlet and the second tangential fluid outlet into a single conduit.

87. (New) The vehicle according to claim 83, wherein the pump comprises a pump impeller in the pump housing.

88. (New) The vehicle according to claim 87, wherein the pump impeller is configured to draw liquid manure through a bottom opening of the pump housing.

89. (New) The vehicle according to claim 82, wherein the ground engaging propulsion structure comprises four wheels, wherein the four wheels comprise a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on a first side of the vehicle and the second front wheel and the second rear wheel are on a second side of the vehicle.

90. (New) The vehicle according to claim 89, wherein the four wheels are independently driven.

91. (New) The vehicle according to claim 89, wherein the four wheels are independently driven at variable speeds.

92. (New) The vehicle according to claim 89, further comprising a steering structure configured to change direction of one or more of the wheels.

93. (New) The vehicle according to claim 89, wherein the floatable vehicle body comprises a first buoyant element between the first front wheel and the first rear wheel and a second buoyant element between the second front wheel and the second rear wheel.

94. (New) The vehicle according to claim 93, wherein the first buoyant element and the second buoyant element comprise foam filled buoyant chambers.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 111 of 894

95. (New) The vehicle according to claim 82, wherein the floatable vehicle body comprises buoyant elements.

96. (New) The vehicle according to claim 95, wherein the buoyant elements comprise foam filled buoyant chambers.

97. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle comprises an adjustment structure that is configured to adjust an angle of the at least one fluid nozzle relative to the floatable vehicle body.

98. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle is fluidically connected to the fluid conduit.

99. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle is configured to direct liquid manure through the air.

100. (New) The vehicle according to claim 82, wherein the at least one fluid nozzle comprises a terminal opening.

101. (New) The vehicle according to claim 100, wherein the terminal opening is fluidically connected to the fluid conduit.

102. (New) The vehicle according to claim 101, wherein the terminal opening has a diameter less than a diameter of the fluid conduit.

103. (New) The vehicle according to claim 82, further comprising a hydraulic articulation cylinder configured to move the at least one fluid nozzle relative to the vehicle body.

104. (New) The vehicle according to claim 103, wherein the hydraulic articulation cylinder is coupled to a four bar linkage.

105. (New) The vehicle according to claim 82, having a center of gravity located along a longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 112 of 894

106. (New) An amphibious vehicle comprising:

a floatable vehicle body;

a ground engaging propulsion structure;

a liquid manure pump configured to pump liquid manure, the liquid manure pump comprising a pump housing configured to be immersed in the liquid manure;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

107. (New) The vehicle according to claim 106, wherein the pump housing comprises a bottom fluid inlet and at least two tangential fluid outlets.

108. (New) The vehicle according to claim 107, wherein the at least two tangential fluid outlets are equipped with flexible connections to a single fluid conduit.

109. (New) The vehicle according to claim 107, further comprising a combiner configured to combine liquid from the tangential fluid outlets.

110. (New) The vehicle according to claim 106, wherein the liquid manure pump comprises a mechanical drive shaft that drives a pump impeller in the pump housing.

111. (New) The vehicle according to claim 106, wherein the liquid manure pump comprises an impeller and the pump housing comprises a bottom fluid inlet, wherein the impeller is configured to draw liquid manure through the bottom fluid inlet of the pump housing.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 113 of 894

112. (New) An amphibious vehicle comprising:

a ground engaging propulsion structure comprising only four wheels provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle;

a floatable vehicle body comprising buoyant elements situated between the pairs of wheels;

a liquid manure pump configured to pump liquid manure;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

a remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

113. (New) The vehicle according to claim 112, wherein the buoyant elements comprise foam filled buoyant chambers.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 114 of 894

114. (New) An amphibious vehicle comprising:

a floatable vehicle body comprising a first buoyant element on a first side of the vehicle body and a second buoyant element on a second side of the vehicle body;

a ground engaging propulsion structure comprising a first front wheel, a second front wheel, a first rear wheel, and a second rear wheel, wherein the first front wheel and the first rear wheel are on the first side of the vehicle body and the second front wheel and the second rear wheel are on the second side of the vehicle body, and wherein the first buoyant element is between the first front wheel and the first rear wheel and the second buoyant element is between the second front wheel and the second rear wheel;

a liquid manure pump configured to pump liquid manure, the liquid manure pump comprising a pump housing and an impeller in the pump housing, wherein the impeller is immersed in the liquid manure when the vehicle is floating in the liquid manure;

at least one fluid nozzle connected by a fluid conduit to the liquid manure pump;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the liquid manure pump; and,

remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating in the liquid manure.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 115 of 894

115. (New) An amphibious vehicle comprising:

a floatable vehicle body comprising a frame and a pair of buoyant elements supported by the frame, wherein one buoyant element of the pair of buoyant elements is disposed on a first side of the vehicle and one buoyant element of the pair of buoyant elements is disposed on a second side of the vehicle;

four hydraulically powered ground engaging wheels, wherein at least one buoyant element is disposed between two of the of the four wheels;

four variable speed hydraulic motors, one variable speed hydraulic motor per wheel, for powering the four hydraulically powered ground engaging wheels;

a liquid manure pump configured to pump liquid manure, the liquid manure pump comprising a pump housing having a bottom fluid inlet, wherein when the vehicle is floating in the liquid manure the pump housing is immersed in the liquid manure;

at least one directionally adjustable nozzle through which the liquid manure is pumped;

an internal combustion engine configured to provide power to both the four variable speed hydraulic motors and the liquid manure pump;

the location of the four hydraulically powered ground engaging wheels, the internal combustion engine, and the liquid manure pump selected to provide a desired location for a center of gravity of the vehicle; and,

a remote control structure configured to control the four variable speed hydraulic motors and the liquid manure pump, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 116 of 894

II. Remarks

U.S. Patent No. 10,974,557 ("the '557 Patent" or "Nuhn '557") was originally issued with 13 allowed claims. Claims 1–13 are currently subject to reexamination and stand rejected. The action is not final.

A. Notification of Concurrent Proceedings

Pursuant to MPEP § 2282, the Patentee hereby indicates that it has asserted the '557 Patent in the following district court litigations:

(1) *Nuhn Industries Ltd v. Bazooka Farmstar LLC et al.*, Civ. No. 2:21-cv-01322-BHL in the United States District Court for the Eastern District of Wisconsin. This case was administratively closed on July 8, 2022.

(2) *Nuhn Industries Ltd v. Bazooka Farmstar LLC*, Civ. No. 2:22-cv-00339-BHL in the United States District Court for the Eastern District of Wisconsin, which was transferred to the United States District Court for the Southern District of Iowa as *Nuhn Industries Ltd v. Bazooka Farmstar LLC*, Civ. No. 3:22-cv-00015-SMR-HCA ("the SDIA Action"). The SDIA Action was stayed on June 13, 2022 pending the resolution of this Reexamination.

B. Amendments to the Claims

Claims 1, 8, 9, and 10 are currently amended to address possible antecedent basis issues. Claims 2–7, and 11–13 are original. Claims 14–115 are currently added, with claims 55, 82, 106, 112, 114, and 115 being independent. No amendments have been made that enlarge the scope of the claims or introduce new matter. Pursuant to 37 C.F.R. § 1.530(e), support for the new claims may be found at least in the '557 Patent as identified in the below table, and no new matter has been added:

Claim	Support
1	5:30–31, original claim 1
8	2:25–27, original claims 8, 10
9	2:44–46, original claim 8
10	original claims 8, 10
14	2:65–3:1

15	2:9, Figs. 1, 2, 3
16	2:1–11, Figs. 1, 2, 3
17	2:66, Figs. 1, 2, 3
18	2:66–67
19	2:18
20	2:18–19
21	2:16–17
22	2:65–66
23	3:14–15
24	2:66–3:1, Figs. 3, 8
25	3:11–13, Figs. 8
26	7:20–24, Fig. 8
27	7:29–31, Fig. 8
28	7:31–33
29	2:66, Figs. 1, 2, 3
30	2:66–67
31	3:58–60
32	5:47–48
33	1:58–59, Figs. 1, 2, 3, 5
34	Fig. 3
35	5:47–48
36	Fig. 5
37	5:50–53, Fig. 5
38	6:44–46, Fig. 5
39	7:52–54
40	2:65–66
41	2:66–3:1, Figs. 3, 8
42	3:11–13, Figs. 8
43	7:20–24, Fig. 8
44	7:29–31, Fig. 8
45	7:31–33
46	2:9–11, Figs. 1, 2, 3
47	2:66, Figs. 1, 2, 3
48	2:66–67
49	2:16–17
50	2:66, Figs. 1, 2, 3
51	2:66–67
52	5:50–53, Fig. 5
53	6:44–46, Fig. 5
54	7:52–54

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 118 of 894

55	Claim 1
56	2:65–3:1
57	2:65–66
58	3:14–15
59	2:65–3:1, Figs. 3, 8
60	3:11–13, Figs. 8
61	7:20–24, Fig. 8
62	7:29–31, Fig. 8
63	7:31–33
64	2:9, Figs. 1, 2, 3
65	2:10–11, Figs. 1, 2, 3
66	2:66, Figs. 1, 2, 3
67	2:66–67
68	2:18
69	2:18–19
70	2:16–17
71	2:66, Figs. 1, 2, 3
72	3:58–60
73	5:47–48
74	1:58–59, Figs. 1, 2, 3, 5
75	Fig. 3
76	5:47–48
77	Fig. 5
78	2:66–67
79	5:50–53, Fig. 5
80	6:44–46, Fig. 5
81	7:52–54
82	Claim 1
83	2:65–66
84	2:65–3:1, Figs. 3, 8
85	3:11–13, Figs. 8
86	7:20–24, Fig. 8
87	7:29–31, Fig. 8
88	7:31–33
89	2:9, Figs. 1, 2, 3
90	2:18
91	2:18–19
92	2:16–17, Fig. 2
93	2:66, Figs. 1, 2, 3
94	2:66–67

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 119 of 894

95	2:66, Figs. 1, 2, 3
96	3:58–60
97	5:47–48
98	1:58–59, Figs. 1, 2, 3, 5
99	Fig. 3
100	5:47–48
101	Fig. 5
102	2:66–67
103	5:50–53, Fig. 5
104	6:44–46, Fig. 5
105	7:52–54
106	Claim 1, 2:65–66
107	2:65–3:1, Figs. 3, 8
108	3:11–13, Figs. 8
109	7:20–24, Fig. 8
110	7:29–31, Fig. 8
111	7:31–33, Figs. 3, 8
112	Claim 1, 2:9–11, 2:66, Fig. 2
113	2:66–67
114	Claim 1, 5:26–32, 7:31–36; 2:65–3:1, Figs. 1, 2, 3
115	Claim 8, 5:26–32, 7:31–36; 2:65–3:1, Figs. 1, 2, 3

The Patentee does not admit that either the amendments or new claims were necessary as a result of any cited reference. The Patentee respectfully requests reconsideration and withdrawal of the rejection and allowance of the new claims in view of the remarks below.

C. Reply to Claim Rejection Under 35 U.S.C. § 102 as Allegedly Anticipated by Carrier

1. Carrier Does Not Disclose "a Fluid Pump for Pumping Liquid Manure"

Claims 1–13 are rejected under 35 U.S.C. § 102, allegedly as being anticipated by U.S. Patent No. 7,478,817 to Carrier ("Carrier"). The Patentee respectfully traverses these rejections and requests reconsideration in view of the following remarks.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 120 of 894

a. The Office Action's Conclusory Rejection Fails to Set Forth the Factual Basis for its Rejection

In rejecting claims under 35 U.S.C. § 102, the Office bears the initial burden of presenting a prima facie case of anticipation. Additionally, 35 U.S.C. § 102 "clearly places a burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under sections 102 and 103." *In re Warner*, 379 F.2d 1011, 1016 (C.C.P.A. 1967); *see also In re Wilder*, 429 F.2d 447, 450 (C.C.P.A. 1970) ("the Patent Office has the initial burden of coming forward with some sort of evidence tending to disprove novelty"). Importantly, "[t]he pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified." 37 C.F.R. § 1.104(c)(2). The USPTO is governed by the Administrative Procedure Act ("APA") (5 U.S.C. § 500 *et seq.*). *In re Skvorecz*, 580 F.3d 1262, 1266 (Fed. Cir. 2009). Its actions cannot be arbitrary or capricious. *Id.* Its findings of fact must be supported by substantial evidence. *Id.*

To establish a prima facie case of anticipation, the Office Action must show a single cited reference discloses ***each and every*** element of a claimed invention. *See, e.g.*, *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 1444 (Fed. Cir. 1984). *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (stating a "claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference"); *see also* MPEP § 2131. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim," *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989), and must be "arranged as in the claim," *Net MoneyIN, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369–71 (Fed. Cir. 2008); *see also In re Smith Int'l, Inc.*, 871 F.3d 1375, 124 USPQ2d 1210, 1214 (Fed. Cir. 2017) (stating "[a] patent claim is anticipated 'only if each and every element is found within a single prior art reference, arranged as claimed'") (internal citations omitted). Where a cited reference "does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is 'inherent' in its disclosure." *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999).

Independent claims 1 and 13 recite, among other elements, "a fluid pump for pumping liquid manure." In recognizing that Carrier does not explicitly describe a "fluid pump for

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 121 of 894

pumping liquid manure," the Office Action asserts, without evidentiary support, that "the type of material pumped is intended use and the Carrier device is clearly capable of pumping manure." Office Action at 4. This statement is ambiguous and leaves the Patentee guessing as to whether the Office Action is rejecting the claims on the ground that: (1) the recitation "for pumping liquid manure" is merely intended use; or (2) the recitation "a fluid pump for pumping liquid manure" is inherent in Carrier. Because of this ambiguous statement and general lack of analysis in the Office Action, the Patentee is forced to guess as to what the reasoning is behind the rejection. Accordingly, the Patentee asserts that the Office Action is arbitrary and capricious, and thus invalid, under the APA. Despite this ambiguity, the Patentee addresses both potential grounds (as best as it can understand) below.

b. Carrier Device is Not "Clearly Capable of Pumping Manure"

The Office Action's statement that the Carrier device "is clearly capable of pumping manure" appears to be an attempt to establish anticipation by inherency, especially given that the Carrier reference fails to mention manure at all. This inherency argument is insufficient both legally and in view of the teaching of Carrier. To that end, well-established case law (and the MPEP) are clear that inherent teachings may not be established by mere probabilities or possibilities. *See, e.g.*, *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted); MPEP § 2112(IV) (*quoting In re Robertson*). According to MPEP § 2112(IV), the Office always bears the initial burden of developing reasons supporting a reliance on inherency. To satisfy this burden, the Office must identify some basis in fact or articulate some reasoning at least tending to show that allegedly inherent subject matter necessarily (*i.e.*, inevitably) flows from cited art. Indeed, MPEP § 2112(IV) states, in part, that "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing ***may*** result from a given set of circumstances is not sufficient.' *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950–51 (Fed. Cir. 1999)." *Id.* (emphasis added); *see also Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 122 of 894

F.3d 629, 639 (Fed. Cir. 2011). "'In relying upon the theory of inherency, the examiner ***must*** provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic ***necessarily*** flows from the teachings of the applied prior art.' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)." MPEP § 2112(IV) (emphasis added).

Here, the Office Action does not allege that the claimed "fluid pump for pumping liquid manure" is expressly described by Carrier. Instead, the Office Action merely states "the Carrier device is clearly capable of pumping manure." Office Action at 4. The Office Action's statement of Carrier's alleged "capabilities" is wholly conclusory and runs afoul of the law stating that "[i]nherency, however, may not be established by probabilities or possibilities." *In re Robertson*, 169 F.3d 743 at 745. An Examiner's belief that a cited reference describes a functional limitation "must be tethered to or grounded in some rationale so as to establish a prima facie case of anticipation." *In re Chudik*, 674 F. App'x 1011, 1015 (Fed. Cir. 2017). The Office Action's conclusory allegation fails to "provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic ***necessarily*** flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d at 1464 (emphasis added). Accordingly, the Patentee respectfully submits that Office Action has failed to meet its burden of establishing that Carrier inherently describes a "fluid pump for pumping liquid manure."

Further, "a fluid pump for pumping liquid manure" of claim 1 does not "necessarily" flow from Carrier. In fact, in direct contradiction of the rejection in the Office Action, Carrier includes structure that is not suitable for pumping liquid manure. Carrier includes no teaching, suggestion, or description of using its vehicle in agricultural applications, much less the pumping of liquid manure. Instead, Carrier states that it is directed to "an all-terrain hostile environment vehicle equipped with various aid units such as quick exchange medical, hazardous material, search, rescue, communications, fire fighting, and weapon units which can be deployed in remote areas or areas not accessible by paved roads." Carrier at 1:12–16. "[H]ostile terrain vehicles of the type [are] used in police, rescue and military applications." *Id.* at 1:18–19. Carrier states that:

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 123 of 894

> The use of a pump mounted to the all terrain vehicle which ***is capable of pumping water from a lake or stream*** onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire. (emphasis added).

Carrier at 10:51–56.

Liquid manure, including the components and solid material therein, is not like water and presents challenges not applicable to pumping water from a lake or stream. For example, as described in the '557 Patent, "[m]anure produced during animal husbandry, particularly hog and cattle manure, is transferred by washing to a pit or lagoon for storage prior to removal for land application or further processing. During storage, a crust can develop on the surface of the pit or lagoon that must be disrupted prior to or during removal of the manure. Pumps are employed for this purpose with jets that return a percentage of the manure back to the pit or lagoon in the form of a high volume spray to disrupt the crust and recirculate the manure." Nuhn '557 at 1:31–40. Moreover, in U.S. Patent No. 8,944,758 ("the '758 Patent" or "Nuhn '758")) (incorporated by reference in Nuhn '557), for pumps used in manure lagoons "it is desirable that the pump have large fluid openings and generous tolerances in order that solid material in the reservoir can be accommodated by the pump without plugging." Nuhn '758 at 1:29–32. Carrier neither describes nor contemplates the particular issues with manure lagoons and the pumping of liquid manure therein.

This is the type of pump a person of ordinary skill in the art would understand is required by the claims of the '557 Patent, not the type of pump in Carrier. More particularly, Carrier teaches that the pump of that reference should include a filter to eliminate debris. *Id.* at 10:64–66. ("tank 34 can preferably have . . . ***a screen to filter debris that would otherwise clog hoses*** . . . .") (emphasis added). If Carrier were actually used "for pumping manure," as claims 1 and 13 require, the pump would otherwise not be able to process the manure if a screen were not included and/or the screen of Carrier would quickly get clogged.

In short, the Office Action has failed to provide a basis in fact and/or technical reasoning to support the assertion that the claimed "fluid pump for pumping liquid manure" ***necessarily***

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 124 of 894

flows from Carrier. Accordingly, the Office Action has failed to meet its burden of showing anticipation by inherency.

c. The Type of Material Pumped is Not an Intended Use

As previously stated, independent claims 1 and 13 recite, among other elements, "a fluid pump for pumping liquid manure." According to MPEP § 2173.05(g), "[a] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." Further, "[d]uring patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'" MPEP § 2111. However, "[t]he broadest reasonable interpretation does not mean the broadest possible interpretation. Rather, the meaning given to a claim term must be consistent with the ordinary and customary meaning of the term (unless the term has been given a special definition in the specification), and must be consistent with the use of the claim term in the specification and drawings. Further, the broadest reasonable interpretation of the claims must be consistent with the interpretation that those skilled in the art would reach." *Id.* Moreover, "it is fundamental that each claim limitation must be given weight and consideration in determining patentability, whether under § 102 or § 103. . . and it is incumbent upon the examiner to demonstrate that a prior art apparatus is capable of performing the claimed function." *Ex Parte Ryoichi Shinjo, Minoru Haradaand Yukiko Nishioka*, No. 2005-0070, 2004 WL 4983459, at *2 (B.P.A.I. Dec. 29, 2004). Importantly, the Office Action "must consider all claim limitations when determining patentability of an invention over the prior art." MPEP § 2111.05.

Instead of evaluating and considering the functional recitations of claims 1 and 13, the Office Action merely alleges that "the type of material pumped is intended use and the Carrier device is clearly capable of pumping manure." Office Action at 4. As noted previously, this statement is devoid of any support or indication that the Office engaged in the due consideration of the claim recitation as required. *See* MPEP §§ 2173.05(g), 2111. Moreover, this statement fails to give any weight or consideration to the functional limitations of claims 1 and 13 and is inconsistent with the use of the claim term in the specification, drawings, and "the interpretation that those skilled in the art would reach." MPEP § 2111. Instead, one of ordinary skill in the art

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 125 of 894

would understand the claim recitation "a fluid pump for pumping liquid manure" to be not just any pump. Consistent with the specification, and as described previously, one of ordinary skill in the art would understand that the recited fluid pump is one that has structure configured to allow "solid material in the [manure] reservoir [to] be accommodated by the pump without plugging." Nuhn '758 at 1:30–32. Further, that person of ordinary skill in the art would recognize the difference between the type of pump required "for pumping liquid manure" and the type of pump described in Carrier, for example, that is used for pumping water for fire fighting and preferably implements a screen to prevent hoses from becoming clogged. Carrier at 10:64–66.

For at least these reasons, the recitation "for pumping liquid manure" is not an intended use. It is a functional limitation that must be given patentable weight and viewed from the perspective of a person having ordinary skill in the art. From that perspective, Carrier does not disclose the "pump for pumping liquid manure" recitation and does not, therefore, anticipate Nuhn '557.

2. The Office Action Fails to Establish Anticipation By Failing to Demonstrate How Each and Every Limitation of the Challenged Claims are Disclosed by Carrier

Further, the Office Action fails to establish how "each and every one" of the claimed features is believed to be disclosed by Carrier. In the Office Action, the recitations of the claim 1 appear to only be partially "cut and pasted" onto page 4 of the Office Action with brief parentheticals inserted into the language of the claim. These parentheticals cite figures and/or features in Carrier. However, no reasoning is provided explaining ***why*** the citations from Carrier are believed to disclose the claimed features. The Patentee respectfully submits that the rejection is improper at least in view of the following.

MPEP § 2131 states that "[a] claim is anticipated only if ***each and every element*** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (quoting *Verdegaal Bros.*, 814 F.2d at 631) (internal quotation marks omitted) (emphasis added). "The identical invention must be shown in ***as complete detail*** as is contained in the . . . claim." *Id.* (quoting *Richardson*, 868 F.2d at 1236) (internal quotation marks omitted) (emphasis added). Moreover, "[e]very element of the claimed invention must be literally

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 126 of 894

present, ***arranged as in the claim***." *Id.* (emphasis added). In the present case, the Office Action has not established that each element of the claims is disclosed in Carrier.

a. The Office Action Fails to Identify Any Portion of Carrier that Describes Each and Every Element of the Claimed "Remote Control Structure" in Claims 1 and 8

For example, the Office Action asserts that "Carrier shows . . . a remote control structure 42 that provides the claimed functions." Office Action at 4. However, beyond citing "a remote control structure 42," the Office Action does not point to any portion of Carrier that describes a "remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating," as recited in claim 1.

b. The Office Action Fails to Identify Any Portion of Carrier that Describes Each and Every Element of Claims 7 and 13

As an additional example, the Office Action fails to identify any portion of Carrier that describes "wherein the amount of fluid flow from the at least one fluid nozzle and/or the direction of the at least one fluid nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating," or "wherein the amount of fluid flow from the directionally adjustable nozzle and/or the direction of the directionally adjustable nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating," as recited in claims 7 and 13, respectively.

c. The Office Action Fails to Identify Any Portion of Carrier that Describes Each and Every Element of the Claimed "Four Variable Speed Hydraulic Motors, One Hydraulic Motor Per Wheel" in Claim 8

Additionally, the Office Action fails to identify any portion of Carrier that describes "***four*** variable speed hydraulic motors, ***one hydraulic motor per wheel***, for powering the four hydraulically powered ground engaging wheels," as recited in independent claim 8. (Emphasis added).

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 127 of 894

d. The Office Action is Invalid as Arbitrary and Capricious

Accordingly, the Patentee is not put on notice as to the rationale behind the rejection and cannot adequately determine whether such basis is proper. Further, failure to specifically identify which features of Carrier are believed to disclose each element of the claims likely renders the Office Action "arbitrary and capricious," and therefore invalid, under the APA, a standard to which all Actions by the USPTO must adhere. *See Dickinson v. Zurko*, 527 U.S. 150, 155 (1999); *In re Skvorecz*, 580 F.3d at 1266. Because the Office Action lacks the proper guidance as to which "element" of the claim is believed to correspond with which section of Carrier, the Patentee is forced to guess which features in Carrier the Office Action believed to allegedly disclose each of the claim recitations.

Because reasons for the rejection were not presented in the Office Action and the Patentee cannot reasonably determine which feature of Carrier is believed to correspond with which feature recited in the claims, it is respectfully submitted that the rejection is improper and must be withdrawn.

3. Carrier Does Not Describe a Variable Speed Hydraulic Motor

Additionally, the Office Action asserts that "the variable speed is discussed in column 7 line 42-column 8 line 15." Office Action at 4. However, the Office Action fails to direct this rejection to any claim and in fact ignores that claim 4 recites "wherein the ground engaging propulsion structure is operable at variable speed ***by a hydraulic motor***" and that claim 8 (formerly recited in claim 10) recites "***variable speed*** hydraulic motors." (Emphasis added). The portion of Carrier cited by the Office Action fails to describe these claim recitations, instead only referring to "transmission contemplated by the invention can be of a type configured using a torque converter driven, 3, 6 or more speed power-shift transmission." Carrier at 7:46–49. The torque converter pointed to by the Office Action is part of an automatic transmission and is ***not*** a "variable speed hydraulic motor," as recited in claim 4.

For at least these reasons, the Office Action has failed to show a prima facie case of anticipation and claims 1–13 are not anticipated by and are patentable over Carrier. Accordingly, the Patentee respectfully requests that the § 102 rejections of claims 1–13 be withdrawn.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 128 of 894

D. New Claims

New claims 14–115 are added. No new subject matter is added, and none of the added claims are broader than the issued claims. New claims 14–39 and claims 40–54 depend, directly or indirectly, from independent claim 1 or 8, respectively. New independent claims 55, 82, 106, 112, 114, and 115 recite elements that are similar or analogous to the elements of independent claims 1 or 8 and are allowable for similar or analogous reasons and for the additional elements they recite. The new dependent claims include all of the elements of the independent claims from which they depend, and are patentable for at least the same reasons as the independent claims from which they depend and for the additional elements they recite. The Patentee submits that the new claims are allowable over the cited reference.

E. Conclusion

For at least the foregoing reasons, the Patentee submits that the claims are in condition for allowance, and respectfully requests reconsideration and favorable action. The Examiner is invited to contact the Patentee's representative at the number indicated below to discuss any matter that would advance prosecution of this application.

The appropriate excess claim fees have been included herewith. If extensions of time are required, the extensions are hereby requested. If any additional fees are required for the prosecution of the application, please charge the fees to Deposit Account Number 08-0750 referencing work order number 18863-500002.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 129 of 894

Dated: Sept. 2, 2022

Respectfully submitted,

By_/Timothy D. MacIntyre/_____
Timothy D. MacIntyre
Registration No.: 42,824
HARNESS, DICKEY & PIERCE, P.L.C.
5445 Corporate Drive
Suite 200
Troy, Michigan 48098
248.641.1600
Attorney for Patentee

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 130 of 894

CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. §§ 1.33(c) and 1.248, that on the date indicated below, true and correct copies of: (1) the foregoing RESPONSE TO EX PARTE REEXAMINATION; and (2) the Information Disclosure Statement (IDS) providing the Request for Ex Parte Reexamination of U.S. Patent No. 11,358,425 (Application No. 90/019,107) and citing U.S. Patent Application Publication No. 2012/0185129 were served via U.S. Mail upon the following attorney of record at the USPTO for the requestor in Reexamination Application No. 90/019,076:

Robert A. Kalinsky
MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903

Dated: Sept. 2, 2022

By_/Timothy D. MacIntyre/_____
Timothy D. MacIntyre
Registration No.: 42,824

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 131 of 894

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 90/019,076	Filing Date 05/06/2022	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $240 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	09/02/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 107	Minus	** 20	= 87		x $50 =	4350
	Independent (37 CFR 1.16(h))	* 8	Minus	*** 3	= 5		x $240 =	1200
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	5550

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/TYWANA P LOVELACE/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/019,076	05/06/2022	10974557	19061.0001USRX	3433

27572 7590 08/12/2022

HARNESS DICKEY (TROY)
5445 Corporate Dr.
Suite 200
Troy, MI 48098

EXAMINER
KAUFMAN, JOSEPH A

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
08/12/2022	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

MERCHANT & GOULD P.C.
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. *90/019,076* .

PATENT UNDER REEXAMINATION *10974557* .

ART UNIT *3993* .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Office Action in Ex Parte Reexamination	Control No. 90/019,076	Patent Under Reexamination 10974557	
	Examiner JOSEPH A KAUFMAN	Art Unit 3993	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

a. ☐ Responsive to the communication(s) filed on _____.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

b. ☐ This action is made FINAL.

c. ☑ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).** If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Information Disclosure Statement, PTO/SB/08.
3. ☐ Interview Summary, PTO-474.
4. ☐ _____.

Part II SUMMARY OF ACTION

1a. ☑ Claims 1-13 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled in the present reexamination proceeding.
3. ☐ Claims _____ are patentable and/or confirmed.
4. ☑ Claims 1-13 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ The drawings, filed on _____ are acceptable.
7. ☐ The proposed drawing correction, filed on _____ has been (7a) ☐ approved (7b) ☐ disapproved.
8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
   1 ☐ been received.
   2 ☐ not been received.
   3 ☐ been filed in Application No. _____.
   4 ☐ been filed in reexamination Control No. _____.
   5 ☐ been received by the International Bureau in PCT application No. _____.
   * See the attached detailed Office action for a list of the certified copies not received.
9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.
10. ☐ Other: _____

cc: Requester (if third party requester)

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Service of Papers

After the filing of a request for reexamination by a third party requester, any document filed by either the patent owner or the third party requester must be served on the other party (or parties where two or more third party requester proceedings are merged) in the reexamination proceeding in the manner provided in 37 CFR 1.248. See 37 CFR 1.550(f).

Extensions of Time

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that *ex parte* reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extensions of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

Amendment in Reexamination Proceedings

Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

Submissions

In order to insure full consideration of any amendments, affidavits or declarations or other documents as evidence of patentability, such documents must be submitted in response to the first Office action on the merits (which does not result in a close of prosecution). Submissions after the second Office action on the merits, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and by 37 CFR 41.33 after appeal, which will be strictly enforced.

Notification of Concurrent Proceedings

The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a), to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 10,974,557 throughout the course of this reexamination proceeding. Likewise, if present, the third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

Claim Rejections - 35 USC § 102

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 1-13 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Carrier (U.S. Patent No. 7,478,817).

Carrier shows a floatatable vehicle body 10, 12; ground engaging propulsion structure being wheels 60 (up to 12 seen in Figure 2); fluid pump discussed in column 4 lines 20-32; fluid nozzle(s) and conduit discussed in column 9, lines 13-30; power source 18 connected to a hydraulic pump(s) (column 6, lines 41-46) to provide power to both the ground engaging propulsion structure and the fluid pump(s); and a remote control structure 42 that provides the claimed functions.

Carrier also shows an endless track seen in Figure 2a; the variable speed is discussed in column 7 line 42-column 8 line 15; and a plurality of nozzles discussed in column 9, lines 26-30.

Note, the type of material pumped is intended use and the Carrier device is clearly capable of pumping manure. Further, the positioning of the various components would impact the center of gravity and the term “desired location” does not provide any discernable boundaries or limitations.

Other references cited for use in rejections illustrate features already discussed in Carrier and are therefore considered cumulative. These references are not deemed

necessary at this time. The examiner could reconsider using these additional references based on Patent Owner's response to this action.

Conclusion

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

Please mail any communications to:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at https://efs.uspto.gov/efile/myportal/efs-registered.

By Mail to: Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P. O. Box 1450
Alexandria VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

By Hand: Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulany Street
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1)(i)(C) and (ii) states that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely if (a) it is transmitted via the Office's electronic filing system in accordance with 37 CFR 1.6(a)(4), and (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:/JOSEPH A KAUFMAN/
Primary Examiner, Art Unit 3993

Conferees:/WILLIAM C DOERRLER/
Reexamination Specialist, Art Unit 3993

/EILEEN D LILLIS/
SPRS, Art Unit 3993

UNITED STATES PATENT AND TRADEMARK OFFICE

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P.O. Box 1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
90/019,076	05/06/2022	10974557	19061.0001USRX

CONFIRMATION NO. 3433

POWER OF ATTORNEY NOTICE

59115
BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

OC000000135450285

Date Mailed: 07/28/2022

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/20/2022.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tplovelace/

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
90/019,076	05/06/2022	10974557	19061.0001USRX

CONFIRMATION NO. 3433

POA ACCEPTANCE LETTER

27572
HARNESS DICKEY (TROY)
5445 Corporate Dr.
Suite 200
Troy, MI 48098

OC00000135450378

Date Mailed: 07/28/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/20/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tplovelace/

Doc Code: PA..
Document Description: Power of Attorney

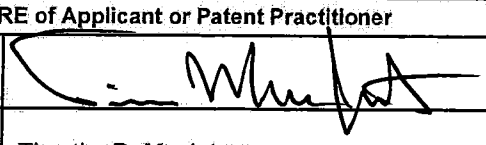
PTO/AIA/82A (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	90/019,076
Filing Date	May 6, 2022
First Named Inventor	Ian NUHN
Title	AMPHIBIOUS PUMPING VEHICLE
Art Unit	3993
Examiner Name	Joseph A Kaufman
Attorney Docket Number	19061.0001USRX

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	
Name	Timothy D. MacIntyre	Registration Number	42,824
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Nuhn Industries Ltd.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of 1 forms are submitted.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
90/019,076	May 6, 2022

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

[X] I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 27572

OR

[ ] I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

[ ] The address associated with the above-mentioned Customer Number

OR

[ ] The address associated with Customer Number:

OR

[ ] Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Nuhn Industries Ltd.

[ ] Inventor or Joint Inventor (title not required below)

[ ] Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

[X] Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

[ ] Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/Ian Nuhn/	Date (Optional)	JULY 15, 2022
Name	Ian Nuhn		
Title	Vice President		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

[ ] Total of 1 forms are submitted.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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33061002.1

Electronic Acknowledgement Receipt

EFS ID:	46234264
Application Number:	90019076
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	10974557
Customer Number:	59115
Filer:	Timothy David MacIntyre/Tyler Ledwell
Filer Authorized By:	Timothy David MacIntyre
Attorney Docket Number:	19061.0001USRX
Receipt Date:	20-JUL-2022
Filing Date:	06-MAY-2022
Time Stamp:	15:33:27
Application Type:	Reexam (Third Party)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	POA.PDF	248049 8399c20fe9586963e0ea5c89530785992c008992	no	3

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/019,076	05/06/2022	10974557	19061.0001USRX	3433

59115 7590 05/26/2022

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EXAMINER	
KAUFMAN, JOSEPH A	

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
05/26/2022	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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MERCHANT & GOULD P.C.
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MINNEAPOLIS, MN 55402-0903

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. *90/019,076* .

PATENT UNDER REEXAMINATION *10974557* .

ART UNIT *3993* .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Order Granting Request For Ex Parte Reexamination	Control No. 90/019,076	Patent Under Reexamination 10974557	
	Examiner JOSEPH A KAUFMAN	Art Unit 3993	AIA (FITF) Status Yes

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

The request for *ex parte* reexamination filed 05/06/2022 has been considered and a determination has been made. An identification of the claims, the references relied upon, and the rationale supporting the determination are attached.

Attachments: a)☐ PTO-892, b)☑ PTO/SB/08, c)☐ Other: ____

1. ☑ The request for *ex parte* reexamination is GRANTED.

RESPONSE TIMES ARE SET AS FOLLOWS:

For Patent Owner's Statement (Optional): TWO MONTHS from the mailing date of this communication (37 CFR 1.530 (b)). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

For Requester's Reply (optional): TWO MONTHS from the **date of service** of any timely filed Patent Owner's Statement (37 CFR 1.535). **NO EXTENSION OF THIS TIME PERIOD IS PERMITTED.** If Patent Owner does not file a timely statement under 37 CFR 1.530(b), then no reply by requester is permitted.

cc:Requester (if third party requester)

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DECISION

A substantial new question of patentability affecting claim 1-13 of United States Patent Number 10,974,557 is raised by the request for *ex parte* reexamination.

Service of Papers

After the filing of a request for reexamination by a third party requester, any document filed by either the patent owner or the third party requester must be served on the other party (or parties where two or more third party requester proceedings are merged) in the reexamination proceeding in the manner provided in 37 CFR 1.248. See 37 CFR 1.550(f).

Waiver of Right to File Patent Owner Statement

In a reexamination proceeding, Patent Owner may waive the right under 37 C.F.R. 1.530 to file a Patent Owner Statement. The document needs to contain a statement that Patent Owner waives the right under 37 C.F.R. 1.530 to file a Patent Owner Statement and proof of service in the manner provided by 37 C.F.R. 1.248, if the request for reexamination was made by a third party requester, see 37 C.F.R 1.550(f). The Patent Owner may consider using the following statement in a document waiving the right to file a Patent Owner Statement:

WAIVER OF RIGHT TO FILE PATENT OWNER STATEMENT

Patent Owner waives the right under 37 C.F.R. 1.530 to file a Patent Owner Statement.

Extensions of Time

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that *ex parte* reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extensions of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

Amendment in Reexamination Proceedings

Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

Submissions

In order to insure full consideration of any amendments, affidavits or declarations or other documents as evidence of patentability, such documents must be submitted in response to the first Office action on the merits (which does not result in a close of prosecution). Submissions after the second Office action on the merits, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and by 37 CFR 41.33 after appeal, which will be strictly enforced.

Notification of Concurrent Proceedings

The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a), to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 10,974,557 throughout the course of this reexamination proceeding. Likewise, if present, the third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

Substantial New Question of Patentability

It is agreed that Carrier (US Patent No. 7,478,817) raises a substantial new question of patentability regarding claims 1-13 of Nuhn. The prosecution history of the Nuhn patent indicates that the prior art of record did not teach the power source connected to the hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump. Carrier teaches these features as noted in the request on at least pages 23-24. Carrier is directed to an all-terrain vehicle that operates in both water/fluid and various solid/semi-solid surfaces.

The Carrier patent was not considered in the prosecution of the application that became the Nuhn patent. Further, there is a substantial likelihood that a reasonable examiner would consider the teachings in this reference important in deciding whether or not the claims are patentable. Therefore, Carrier raises a substantial new question of

patentability as to claims 1-13 which question has not been decided in a previous examination of what became the Nuhn patent.

In the Request, several additional references were listed and asserted to raise a substantial new question of patentability only as secondary references. Although the additional references were discussed in appropriate claim charts throughout the request, such additional references do not appear, in and of themselves, to raise any substantial new questions of patentability. The examiner does note, however, that while the references are not considered to raise SNQs by themselves, they will be considered during subsequent reexamination in the same manner as other documents in the Office search files, as well as to any additional degree in which the content and relevance of the information has been discussed or explained throughout the request.

Conclusion

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

Please mail any communications to:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at https://efs.uspto.gov/efile/myportal/efs-registered.

By Mail to: Attn: Mail Stop "Ex Parte Reexam"
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P. O. Box 1450
Alexandria VA 22313-1450

By FAX to: (571) 273-9900
Central Reexamination Unit

By Hand: Customer Service Window
Attn: Central Reexamination Unit
Randolph Building, Lobby Level
401 Dulany Street
Alexandria, VA 22314

For EFS-Web transmissions, 37 CFR 1.8(a)(1)(i)(C) and (ii) states that correspondence (except for a request for reexamination and a corrected or replacement request for reexamination) will be considered timely if (a) it is transmitted via the Office's electronic filing system in accordance with 37 CFR 1.6(a)(4), and (b) includes a certificate of transmission for each piece of correspondence stating the date of transmission, which is prior to the expiration of the set period of time in the Office action.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:

/JOSEPH A KAUFMAN/
Primary Examiner
Art Unit 3993

Conferees:/WCD/ /E.D.L/
SPRS, Art Unit 3993

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90/019,076	10974557
	Examiner	Art Unit
	JOSEPH A KAUFMAN	3993

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
reviewed prosecution history of parent application and related patents	05/24/2022	JAK

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Exhibit 2023
Bazooka v. Nuhn - IPR2024-00098
Page 156 of 894

Reexamination	Application/Control No.	Applicant(s)/Patent Under Reexamination
	90/019,076	10974557
	Certificate Date	Certificate Number

Requester Correspondence Address: ☐ Patent Owner ☑ Third Party
MERCHANT & GOULD P.C. P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903

LITIGATION REVIEW ☑	JAK (examiner initials)	24 May 2022 (date)
Case Name		Director Initials
Nuhn Industries LTD. v. Bazooka Farmstar LLC, 2:22cv339, Wisconsin Eastern District, closed.		
Nuhn Industries LTD. v. Bazooka Farmstar LLC, 3:22cv00015, Iowa Southern, open.		

COPENDING OFFICE PROCEEDINGS	
TYPE OF PROCEEDING	NUMBER
none	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2022-05-06
First Named Inventor	Ian Nuhn
Art Unit	
Examiner Name	
Attorney Docket Number	19061.0001USRX

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7478817	B1	2009-01-20	Carrier	
	2	7833071	B2	2010-11-16	Gaither	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20130033070	A1	2013-02-07	Kinsman et al.	
	2	20140112093	A1	2014-04-24	Puck	
	3	20140288763	A1	2014-09-25	Bennett et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.A.R/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2022-05-06
	First Named Inventor	Ian Nuhn
	Art Unit	
	Examiner Name	
	Attorney Docket Number	19061.0001USRX

	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/JOSEPH A KAUFMAN/	Date Considered	05/23/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.A.K/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2022-05-06
	First Named Inventor	Ian Nuhn
	Art Unit	
	Examiner Name	
	Attorney Docket Number	19061.0001USRX

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert A. Kalinsky/	Date (YYYY-MM-DD)	2022-05-06
Name/Print	Robert A. Kalinsky	Registration Number	50471

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Bibliographic Data

Application No: 90/019,076

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /JOSEPH A KAUFMAN/ Examiner's Signature | Initials

Title: AMPHIBIOUS PUMPING VEHICLE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/06/2022	440	3993	19061.0001USRX
RULE			

APPLICANTS

INVENTORS

10974557,

NUHN INDUSTRIES LTD. (Assignee), Sebringville, CANADA

MERCHANT & GOULD P.C. (3rd Pty Req), MINNEAPOLIS, MN, UNITED STATES

CONTINUING DATA

This application is a REX of 16891627 06/03/2020 PAT 10974557

16891627 is a CON of 16157950 10/11/2018 PAT 10710422

16157950 is a CON of 15586493 05/04/2017 PAT 10124638

15586493 is a CON of 15044905 02/16/2016 PAT 9694636 *

(*) Data provided by applicant is not consistent with PTO record

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

**** SMALL ENTITY ****

STATE OR COUNTRY

ADDRESS

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

FILING FEE RECEIVED

$275

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/019,076	05/06/2022	10974557	19061.0001USRX	3433

59115 7590 05/25/2022

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ONTARIO M5H 2Y4
CANADA

EXAMINER	
KAUFMAN, JOSEPH A	

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
05/25/2022	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

MERCHANT & GOULD P.C.
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO. *90/019,076* .

PATENT UNDER REEXAMINATION *10974557* .

ART UNIT *3993* .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Ex Parte Reexamination Interview Summary – Pilot Program for Waiver of Patent Owner's Statement	**Control No.** 90/019,076	**Patent Under Reexamination is Requested** 10974557	
	Examiner JOSEPH KAUFMAN	**Art Unit** 3993	**AIA (FITF) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

All participants (USPTO official and patent owner):

(1) SHANETTE BROWN (3) _____

(2) _____ (4) _____

Date of Telephonic Interview: 18 May 2022.

A. The USPTO official requested waiver of the patent owner's statement pursuant to the pilot program for waiver of patent owner's statement in *ex parte* reexamination proceedings.*

☐ The patent owner **agreed** to waive its right to file a patent owner's statement under 35 U.S.C. 304 in the event reexamination is ordered for the above-identified patent.

☐ The patent owner **did not agree** to waive its right to file a patent owner's statement under 35 U.S.C. 304 at this time.

☑ USPTO personnel were unable to reach the patent owner.**

B. The Patent Owner of record telephoned the Office and indicated they would like to participate in the pilot program for waiver of patent owner's statement in *ex parte* reexamination proceedings.*

☐ The Patent owner of record telephoned the Office and **agreed** to waive its right to file a patent owner's statement under 35 U.S.C. 304 in the event reexamination is ordered for the above-identified patent.

The patent owner is not required to file a written statement of this telephone communication under 37 CFR 1.560(b) or otherwise. However, any disagreement as to this interview summary must be brought to the immediate attention of the USPTO, and no later than one month from the mailing date of this interview summary. Extensions of time are governed by 37 CFR 1.550(c).

*For more information regarding this pilot program, see *Pilot Program for Waiver of Patent Owner's Statement in Ex Parte Reexamination Proceedings, 75 Fed. Reg.* 47269 (August 5, 2010), available on the USPTO Web site at http://www.uspto.gov/patents/law/notices/2010.jsp.

**The patent owner may contact the USPTO personnel at (571) 272-7705 or at the telephone number provided below if the patent owner decides to waive the right to file a patent owner's statement under 35 U.S.C. 304.

/SHANETTE BROWN/ (571)272-6632
Signature and telephone number of the USPTO official, who contacted, was contacted by, or attempted to contact the patent owner.

cc: Requester (if third party requester)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

REEXAM CONTROL NUMBER	FILING OR 371 (c) DATE	PATENT NUMBER
90/019,076	05/06/2022	10974557

CONFIRMATION NO. 3433

REEXAM ASSIGNMENT NOTICE

59115
BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

OC000000133805607

Date Mailed: 05/12/2022

NOTICE OF ASSIGNMENT OF REEXAMINATION REQUEST

The above-identified request for reexamination has been assigned to Art Unit 3993. All future correspondence to the proceeding should be identified by the control number listed above and directed to the assigned Art Unit.

A copy of this Notice is being sent to the latest attorney or agent of record in the patent file or to all owners of record. (See 37 CFR 1.33(c)). If the addressee is not, or does not represent, the current owner, he or she is required to forward all communications regarding this proceeding to the current owner(s). An attorney or agent receiving this communication who does not represent the current owner(s) may wish to seek to withdraw pursuant to 37 CFR 1.36 in order to avoid receiving future communications. If the address of the current owner(s) is unknown, this communication should be returned within the request to withdraw pursuant to Section 1.36.

NOTICE OF USPTO EX PARTE REEXAMINATION PATENT OWNER STATEMENT WAIVER PROGRAM

The USPTO has implemented a pilot program where, after a reexamination proceeding has been granted a filing date and before the examiner begins his or her review, the patent owner may orally waive the right to file a patent owner's statement. See *"Pilot Program for Waiver of Patent Owner's Statement in Ex Parte Reexamination Proceedings,"* 75 FR 47269 (August 5, 2010). One goal of the pilot program is to reduce the pendency of reexamination proceedings and improve the efficiency of the reexamination process.

Ordinarily when ex parte reexamination is ordered, the USPTO must wait until after the receipt of the patent owner's statement and the third party requester's reply, or after the expiration of the time period for filing the statement and reply (a period that can be as long as 5 to 6 months), before mailing a first determination of patentability. The USPTO's first determination of patentability is usually a first Office action on the merits or a Notice of Intent to Issue Reexamination Certificate (NIRC).

Under the pilot program, the patent owner's oral waiver allows the USPTO to act on the first determination of patentability immediately after determining that reexamination will be ordered, and in a suitable case issue the reexamination order and the first determination of patentability (which could be a NIRC if the claims under reexamination are confirmed) at the same time.

Benefits to the Patent Owner for participating in this pilot program include reduction in pendency.

To participate in this pilot program, Patent Owners may contact the USPTO's Central Reexamination Unit (CRU) at 571-272-7705. The USPTO will make the oral waiver of record in the reexamination file in an interview summary and a copy will be mailed to the patent owner and any third party requester.

cc: Third Party Requester(if any)
MERCHANT & GOULD P.C.
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

/tplovelace/

Legal Instruments Examiner
Central Reexamination Unit 571-272-7705; FAX No. 571-273-9900

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 166 of 894

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

REEXAM CONTROL NUMBER	FILING OR 371 (c) DATE	PATENT NUMBER
90/019,076	05/06/2022	10974557

CONFIRMATION NO. 3433

MERCHANT & GOULD P.C.
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

REEXAMINATION REQUEST NOTICE

OC000000133805605

Date Mailed: 05/12/2022

NOTICE OF REEXAMINATION REQUEST FILING DATE

(Third Party Requester)

Requester is hereby notified that the filing date of the request for reexamination is 05/06/2022, the date that the filing requirements of 37 CFR § 1.510 were received.

A decision on the request for reexamination will be mailed within three months from the filing date of the request for reexamination. (See 37 CFR 1.515(a)).

A copy of the Notice is being sent to the person identified by the requester as the patent owner. Further patent owner correspondence will be the latest attorney or agent of record in the patent file. (See 37 CFR 1.33). Any paper filed should include a reference to the present request for reexamination (by Reexamination Control Number).

cc: Patent Owner
59115
BRUNET & CO. LTD.
401 Bay St.
Suite 1600
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CANADA

/tplovelace/

Legal Instruments Examiner
Central Reexamination Unit 571-272-7705; FAX No. 571-273-9900

Patent Assignment Abstract of Title

Total Assignments: 1

Application #: 16891627 **Filing Dt:** 06/03/2020 **Patent #:** 10974552 **Issue Dt:** 04/13/2021
PCT #: NONE **Intl Reg #:** **Publication #:** US20200290415 **Pub Dt:** 09/17/2020
Inventor: Ian NUHN
Title: AMPHIBIOUS PUMPING VEHICLE

Assignment: 1

Reel/Frame: 052826 / 0449 **Received:** 06/03/2020 **Recorded:** 06/03/2020 **Mailed:** 06/04/2020 **Pages:** 2
Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).
Assignor: NUHN, IAN **Exec Dt:** 10/23/2013
Assignee: NUHN INDUSTRIES LTD.
P.O. BOX 160
SEBRINGVILLE, CANADA N0K1X0
Correspondent: BRUNET & CO. LTD.
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Search Results as of: 05/11/2022 04:38 PM

If you have any comments or questions concerning the data displayed, contact PRD / Assignments at 571-272-3350. v.2.6
Web interface last modified: Jun 26, 2017 v.2.6

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BIB DATA SHEET

CONFIRMATION NO. 3433

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
90/019,076	05/06/2022	440	3993	19061.0001USRX

APPLICANTS

INVENTORS

10974557, Residence Not Provided;
NUHN INDUSTRIES LTD. (Assignee), Sebringville, CANADA;
MERCHANT & GOULD P.C. (3rd Pty Req), MINNEAPOLIS, MN;
MERCHANT & GOULD P.C., MINNEAPOLIS, MN

**** CONTINUING DATA ***************************

This application is a REX of 16/891,627 06/03/2020 PAT 10974557 *
which is a CON of 16/157,950 10/11/2018 PAT 10710422
which is a CON of 15/586,493 05/04/2017 PAT 10124638
which is a CON of 15/044,905 02/16/2016 PAT 9694636
(*)Data provided by applicant is not consistent with PTO records.

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **

Foreign Priority claimed ❑ Yes ❑ No 35 USC 119(a-d) conditions met ❑ Yes ❑ No Verified and Acknowledged _____ Examiner's Signature	❑ Met after Allowance _____ Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
				13	2

ADDRESS

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

TITLE

AMPHIBIOUS PUMPING VEHICLE

FILING FEE RECEIVED		
6300	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	:
Ian Nuhn	:
Patent No. 10,974,557	:
Issued April 13, 2021	:
For AMPHIBIOUS PUMPING VEHICLE	:

CERTIFICATE OF SERVICE

The undersigned certifies that on May 9, 2022, service of a true and complete copy of this REQUEST FOR *EX PARTE* REEXAMINATION with associated exhibits was served in its entirety via United Postal Service on the Patent Owner, Nuhn Industries Ltd., at the following addresses:

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
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CANADA

and with sufficient postage affixed, and with delivery confirmation requested.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
612.332.5300

Dated: May 9, 2022

/Robert A. Kalinsky/
Robert A. Kalinsky
Reg. No. 50,471

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 170 of 894

UNITED STATES
PATENT AND TRADEMARK OFFICE

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
90/019,076	**05/09/2022 12:38:23 PM ET**	**19061.0001USRX**

Title of Invention

AMPHIBIOUS PUMPING VEHICLE

Application Information

APPLICATION TYPE	Utility / ex parte reexam	PATENT #	10974557
CONFIRMATION #	3433	FILED BY	Robert Kalinsky
PATENT CENTER #	60658361	FILING DATE	-
CUSTOMER #	59115	FIRST NAMED INVENTOR	Ian NUHN
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
15650525_1.pdf	1	Reexam Certificate of Service	86 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
15650525_1.pdf	8A362AFB358B603EC29540A56887FB957EDFD3F24C710EB85 FC4AE951ECF73F6FF813ED74B40556BA9090D304B7E6DE343 0B19307B811F2F13E3CFDBFB8CD81D

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Litigation Search Report CRU 3999

Reexamination Control No. 90/019,076

To: EXAMINER	**From: Shanette Brown**
Location: CRU	**Location: CRU 3999 / REM 4C75**
Art Unit: 3999	**Phone: (571) 272-6632**
Date: 05/09/2022	**E-mail: Shanett.brown@uspto.gov**

Search Notes

U.S. Patent No. 10/974,557

1. Performed a KeyCite Search in Westlaw, which retrieves all history on the patent including any litigation.
2. Performed a search on the patent in Lexis CourtLink for any open dockets or closed cases.
3. Performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.
4. Performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.
5. Performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.

Litigation: Found

Status	Docket	Description
CLOSED	2:22CV339	NUHN INDUSTRIES LTD V. BAZOOKA FARMSTAR LLC
FILED 03/17/2022	3:22-cv-00015 case transferred from Wisconsin Eastern has been opened in Southern District of Iowa.	NUHN INDUSTRIES LTD V, BAZOOKA FARMSTAR LLC

Citing References (11)

Treatment	Title	Date	Type	Depth	Headnote(s)
Cited by	**1. Amphibious pumping vehicle** LitAlert P2022-12-72 ... LitAlert Document Type: Patent Title: Amphibious pumping vehicle Patent Number: US 10974557 (20210413)Patent Type: Utility Class Number: B60/F Class Type: VEHICLES FOR USE BOTH ON RAIL AND ON ROAD; AMPHIBIOUS OR LIKEVEHICLES ...	Mar. 17, 2022	Lit Alert		—
Cited by	**2. Amphibious pumping vehicle** LitAlert P2022-12-73 ... LitAlert Document Type: Patent Title: Amphibious pumping vehicle Patent Number: US 10974557 (20210413)Patent Type: Utility Class Number: B60/F Class Type: VEHICLES FOR USE BOTH ON RAIL AND ON ROAD; AMPHIBIOUS OR LIKE ...	Mar. 17, 2022	Lit Alert		—
Cited by	**3. Amphibious pumping vehicle** LitAlert P2021-47-68 ... 2:21CV01322 Filing Date: 11/16/2021 Subsequent Action: 11/16/2021 Action Taken: CAUSE - 35 USC 271 - COMPLAINT FOR PATENT INFRINGEMENT Notes: none Other Patents: US 10974557 Other Trademarks: none See LitAlert No: none ...	Nov. 16, 2021	Lit Alert		—
Cited by	**4. Nuhn Industries LTD v. Bazooka Farmstar LLC** 2022 WL 816583, *1 , E.D.Wis. , (NO. 21-CV-1322-BHL) The liquid manure industry appears to have quite the mess on its hands, and this Court must decide where the mess should be cleaned up. Plaintiff Nuhn Industries LTD alleges that... ... to bring suit against Bazooka, and because Tasch is a peripheral party to the action against Bazooka, the Court will grant both motions.FACTUAL BACKGROUND United States Patent No. 10,974,557 (the Nuhn Patent) covers "the Lagoon Crawler," an amphibious pumping vehicle used to agitate manure lagoons. (ECF No. 22 at 2 ...	Mar. 17, 2022	Case		—
—	**5. AMPHIBIOUS PUMPING VEHICLE, HAS FLUID NOZZLE FOR DIRECTING FLUID THROUGH AIR AND CONNECTED BY FLUID CONDUIT TO FLUID PUMP, AND POWER SOURCE FOR PROVIDING POWER TO GROUND ENGAGING PROPULSION STRUCTURE AND FLUID PUMP** 2nd Of Two DWPI 2015-147414+ ... number US 10710422 B Continuation of US patent number US 10710422 B Continuation of US patent number US 10710422 B Continuation of US patent number US 10974557 B Continuation of US patent number US 9694636 B Continuation of US patent number US 9694636 B Continuation of US patent number US 9694636 ...	Aug. 19, 2013	DWPI	—	—

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Treatment	Title	Date	Type	Depth	Headnote(s)
—	**6. PatStat 10974557** ... Patent Status File Patent Number: US 10974557 Change Code: PS Description: Patent Suit(See LitAlert Entries)Reissue Number:OG Date: LITALERT ...	2022	Patent Status Files	—	—
—	**7. Nuhn Industries Ltd. v. Bazooka Farmstar LLC ET AL**	Mar. 17, 2022	Docket Summaries	—	—
—	**8. Nuhn Industries Ltd. v. Bazooka Farmstar LLC ET AL**	Mar. 17, 2022	Docket Summaries	—	—
—	**9. Title Available on Document Page**	—	Docket Summaries	—	—
—	**10. AMPHIBIOUS PUMPING VEHICLE** Out Of Plan US PAT APP 20210197635 , U.S. PTO Application An amphibious pumping vehicle has a floatable vehicle body, a ground engaging propulsion structure, a fluid pump, a plurality of fluid nozzles comprising a first fluid nozzle... ... corporation Sebringville, Canada Sebringville Canada Priority Information Related Information:This application is a Continuation of Application No. 16/891,627, filed on 2020/06/03, now Patent No. 10,974,557 US US which is a Continuation of Application No. 16/157,950, filed on 2018/10/11, now Patent No. 10,710,422 US US which ...	July 01, 2021	Patents	—	—
—	**11. FRANCHISING & DISTRIBUTION-E.D. WIS.: MANUFACTURER'S CONNECTION TO MANURE EQUIPMENT DEALER NOT DEEP ENOUGH FOR VENUE** The messy patent infringement suit from a competing manure pumping equipment maker was transferred in part. Venue in the Eastern District of Wisconsin was not proper under the... ... and the case against the Wisconsin dealer stayed (Nuhn Industries Ltd. v. Bazooka Farmstar LLC, March 17, 2022, Ludwig, B.).Plaintiff Nuhn Industries LTD owns United States Patent No. 10,974,557 (the Nuhn Patent) for "the Lagoon Crawler," an amphibious pumping vehicle used to agitate manure lagoons. According to Nuhn's suit, filed ...	2022	Other Secondary Source	—	—

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2:22cv339, Nuhn Industries Ltd V. Bazooka Farmstar Llc

US District Court Docket

United States District Court, Wisconsin Eastern

(Milwaukee)

This case was retrieved on 05/09/2022

Header

Case Number: 2:22cv339
Date Filed: 03/17/2022
Assigned To: Judge Brett H Ludwig
Nature of Suit: Patent (830)
Cause: Patent Infringement
Lead Docket: None
Other Docket: 2:21cv01322, Southern District of Iowa, 22-CV-15
Jurisdiction: Federal Question

Class Code: Closed
Closed: 03/17/2022
Statute: 35:271
Jury Demand: Both
Demand Amount: $0
NOS Description: Patent

Participants

Litigants

Nuhn Industries Ltd
Plaintiff

Bazooka Farmstar LLC
Defendant

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Attorneys

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Proceedings

#	Date	Proceeding Text	Source
1	03/17/2022	DECISION and ORDER signed by Judge Brett H Ludwig on 3/17/2022 granting 23 Defendant Bazooka Farmstar's Motion to Dismiss or to Transfer. Nuhn's patent infringement claim (Count 1) against Bazooka is severed from this action and the Clerk is directed to open a new case with Nuhn as plaintiff and Bazooka as the defendant and docket the pleadings identified in this order in the new case (22cv339). Further ordered that the Clerk transfer the new case, 22cv339, to the Davenport Division of the Southern Dist of Iowa. Further ordered that Tasch's motion to dismiss or to stay is granted and all proceedings against Tasch are stayed pending further order of this court. (cc: all counsel)(kmm)	
2	03/17/2022	FIRST AMENDED COMPLAINT with Jury Demand filed by Nuhn Industries Ltd.(kmm)	
3	03/17/2022	MOTION to Dismiss by Bazooka Farmstar LLC. (kmm)	
4	03/17/2022	BRIEF in Support filed by Bazooka Farmstar LLC re 3 MOTION to Dismiss. (kmm)	
5	03/17/2022	DECLARATION of Thomas Leach in support of motion to dismiss. (kmm)	
6	03/17/2022	BRIEF in Response filed by Nuhn Industries Ltd re 3 MOTION to Dismiss. (kmm)	
7	03/17/2022	DECLARATION of Scott Yackey in support of response to motion to dismiss. (kmm)	
8	03/17/2022	REPLY BRIEF in Support re 3 MOTION to Dismiss filed by Bazooka Farmstar LLC. (kmm)	
9	03/17/2022	DECLARATION of Eric Hahn in support of Bazooka's motion to dismiss. (kmm)	
	03/17/2022	Case Electronically Transmitted to the Southern District of Iowa on 3/17/2022. (kah)	
	03/17/2022	NOTICE OF RECEIPT: Case transferred from Wisconsin Eastern has been opened in Southern District of Iowa as case 3:22-cv-00015, filed 03/17/2022. (kah)	

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Results for: **10974557 OR 10,974,557**

Cases

1. Nuhn Indus. v. Bazooka Farmstar LLC

United States District Court for the Eastern District of Wisconsin | Mar 17, 2022 | 2022 U.S. Dist. LEXIS 47450

... occurred, is easily resolved. Generally, "as a matter of uniform federal **patent** law . . . **patent** infringement occurs where allegedly infringing sales are made." North Am. Philips ...
... United States **Patent** No. **10,974,557** (the Nuhn **Patent**) covers "the Lagoon Crawler," an amphibious pumping vehicle used to ...
... (" §1400(b) 'is the sole and exclusive provision controlling venue in **patent** infringement actions and is not to be supplemented by §1391(c) '") ...
... 1985) . Nuhn 's first amended complaint states a bona fide **patent** infringement claim against Bazooka based on sales made in this District. ...
... of allegedly infringing products are only peripherally involved in a plaintiff's **patent** infringement lawsuit against the products' manufacturer. See Ambrose , 2002 U.S. ...
... 927 F.3d 1378 , 1382 (Fed. Cir. 2019) . In **patent** infringement suits, venue is determined exclusively according to 28 U.S.C. Section ...

LexisNexis

Results for: **10974557 OR 10,974,557**

News

1. US Patent Issued to Nuhn Industries on April 13 for "Amphibious pumping vehicle" (Canadian Inventor)

US Fed News | Apr 14, 2021 | 224

... US **Patent** Issued to Nuhn Industries on April 13 for "Amphibious pumping vehicle" (Canadian Inventor)...
... ALEXANDRIA , Va. , April 14 -- United States **Patent** no. **10,974,557**, issued on April 13, was assigned to Nuhn Industries Ltd. (Sebringville , Canada). "Amphibious pumping vehicle" was invented by Ian Nuhn (Sebringville , Canada). According to the...
... abstract" released by the U.S. **Patent** & Trademark Office: "An amphibious pumping vehicle has a floatable vehicle body, a ground engaging propulsion structure, a fluid pump, a plurality of fluid nozzles comprising a first fluid nozzle connected by a fluid...
... the vehicle when floating, and a power source configured to provide power to both the ground engaging propulsion structure and the fluid pump." The **patent** was filed on June 3, 2020, under Application No. 16/891,627. *For further information, including...
... images, charts and tables, please visit: http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=**10974557**&OS=**10974557**&RS=**10974557** For any query with respect to this...

2. Nuhn Industries Granted United States Patent for Amphibious Pumping Vehicle

Global IP News. Automobile Patent News | Apr 14, 2021 | 296

... (20130101), F04D 13/02 (20130101), A01C 3/026 (20130101), A01C 23/045 (20130101), B60F 3/0038 (20130101), B63H 2025/028 (20130101), B60F 2301/00 (20130101)**Patent** Status: Granted Alexandria, April 14 -- Nuhn Industries has been granted a **patent** (**10,974,557**...
... FULL TEXT Publication Name: Automobile **Patent** NewsPatent Application Number: 16/891,627Patent Publication Number: 10,974,557International **Patent** Classification Codes: B60F 3/0007 (20130101), B63H 25/02 (20130101), B60F 3/0061 (20130101), B60F 3/003...
...) for amphibious pumping vehicle. This invention was developed by Nuhn Ian. The **patent** application number is 16/891,627. The International **Patent** Classification codes are B60F 3/00 (20060101), A01C 3/02 (20060101), A01C 23/04 (20060101), B63H 25/02...
... (20060101) and F04D 13/02 (20060101). Cooperative **Patent** Classification codes are B60F 3/0007 (20130101), B63H 25/02 (20130101), B60F 3/0061 (20130101), B60F 3/003 (20130101), F04D 13/02 (20130101), A01C 3/026 (20130101), A01C 23/045 (20130101), B60F 3/0038...
... (20130101), B63H 2025/028 (20130101) and B60F 2301/00 (20130101). According to the abstract released by the U.S. **Patent** and Trademark Office: "An amphibious pumping vehicle has a floatable vehicle body, a ground engaging propulsion structure, a fluid pump, a...

3. Head Line: Nuhn Industries Ltd. (California) granted US Patent for "Amphibious pumping vehicle"

Impact Financial News | Apr 15, 2021 | 173

... Head Line: Nuhn Industries Ltd. (California) granted US **Patent** for "Amphibious pumping vehicle"...
... ALEXANDRIA , Va : Nuhn Industries Ltd. has been granted a **patent** no. **10,974,557** on April 13, 2021, by United States **Patent** And Trademark Office. The **patent** has been granted for "Amphibious pumping vehicle"Inventors: Nuhn ; Ian (Sebringville , CA...
...)Assignee: Nuhn Industries Ltd. (Sebringville , CA) (California)According to the abstract released by the U.S **Patent** & Trademark Office: "An amphibious pumping vehicle has a floatable vehicle body, a ground engaging propulsion structure, a fluid pump, a...
... valve structure co-operating to provide directional control and motive power for the vehicle when floating, and a power source configured to provide power to both the ground engaging propulsion structure and the fluid pump."The **patent** was filed on June 3...

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2022-05-06
First Named Inventor	Ian Nuhn
Art Unit	
Examiner Name	
Attorney Docket Number	19061.0001USRX

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7478817	B1	2009-01-20	Carrier	
	2	7833071	B2	2010-11-16	Gaither	

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20130033070	A1	2013-02-07	Kinsman et al.	
	2	20140112093	A1	2014-04-24	Puck	
	3	20140288763	A1	2014-09-25	Bennett et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2022-05-06
	First Named Inventor	Ian Nuhn
	Art Unit	
	Examiner Name	
	Attorney Docket Number	19061.0001USRX

	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2022-05-06
	First Named Inventor	Ian Nuhn
	Art Unit	
	Examiner Name	
	Attorney Docket Number	19061.0001USRX

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert A. Kalinsky/	Date (YYYY-MM-DD)	2022-05-06
Name/Print	Robert A. Kalinsky	Registration Number	50471

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EXHIBIT C

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(54) **FLOATING MANURE AGITATOR**

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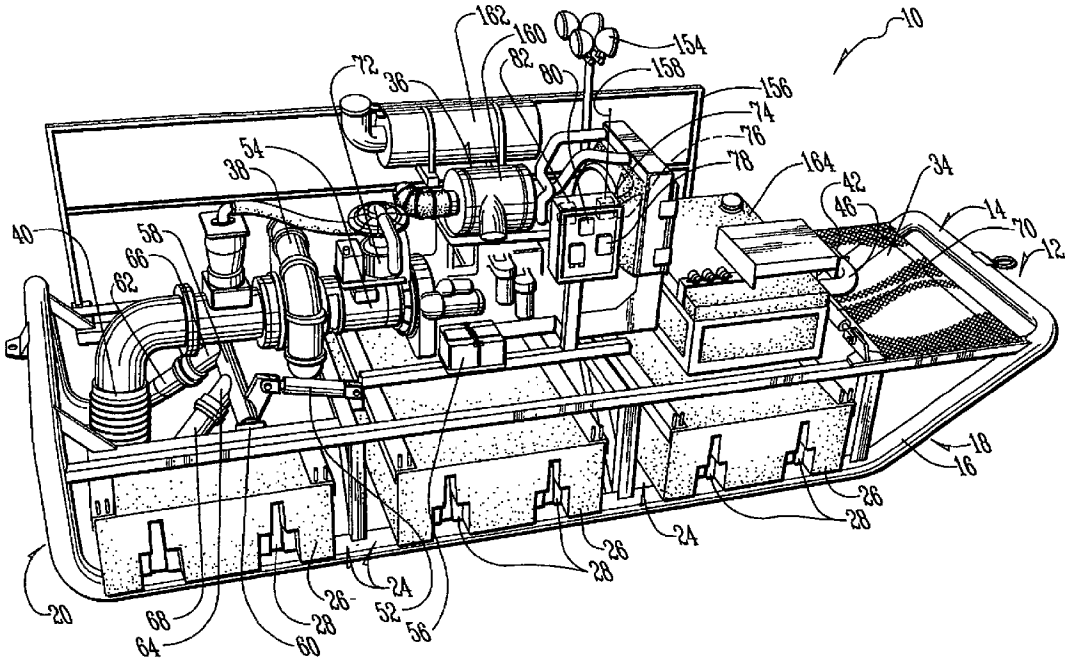
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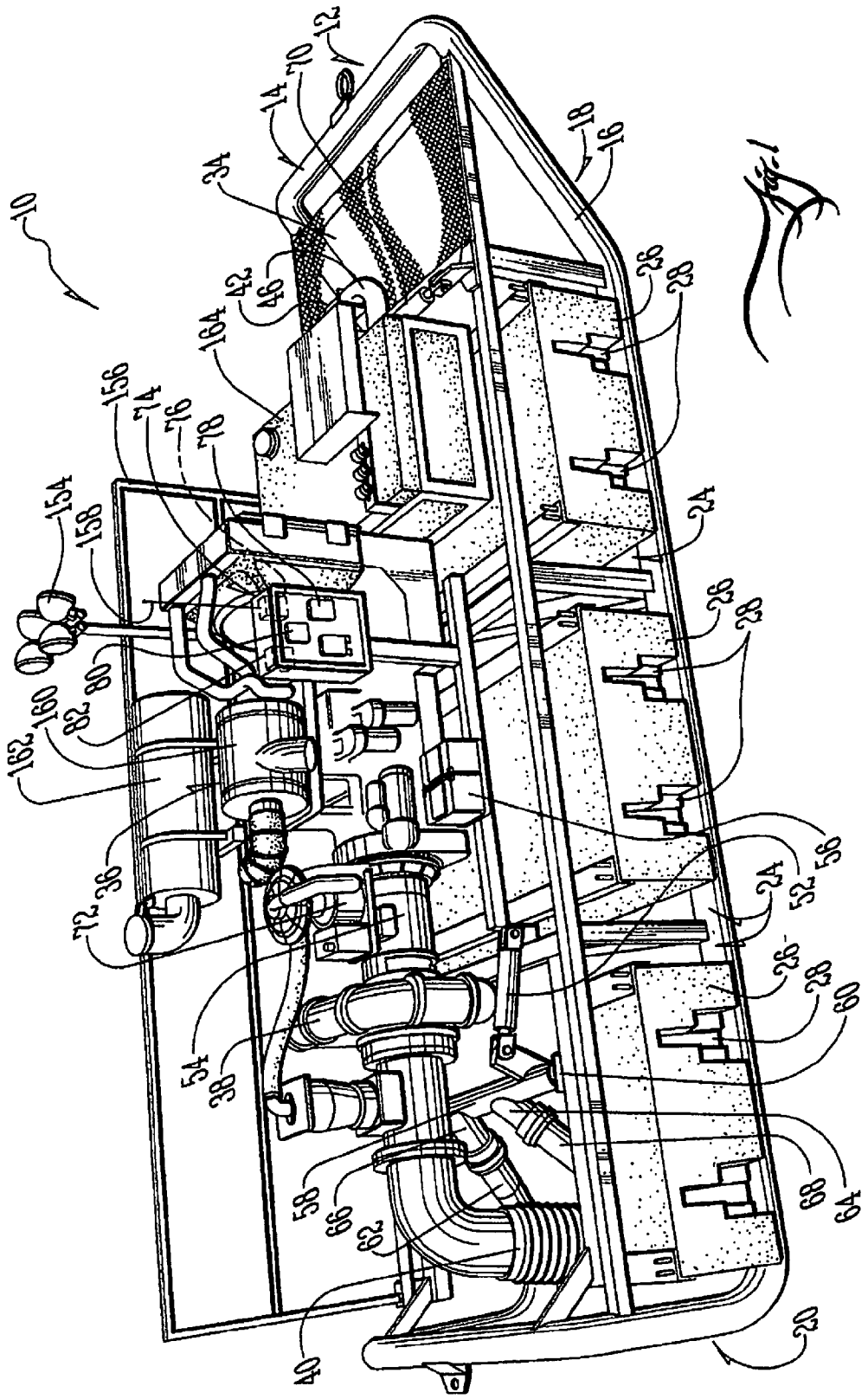
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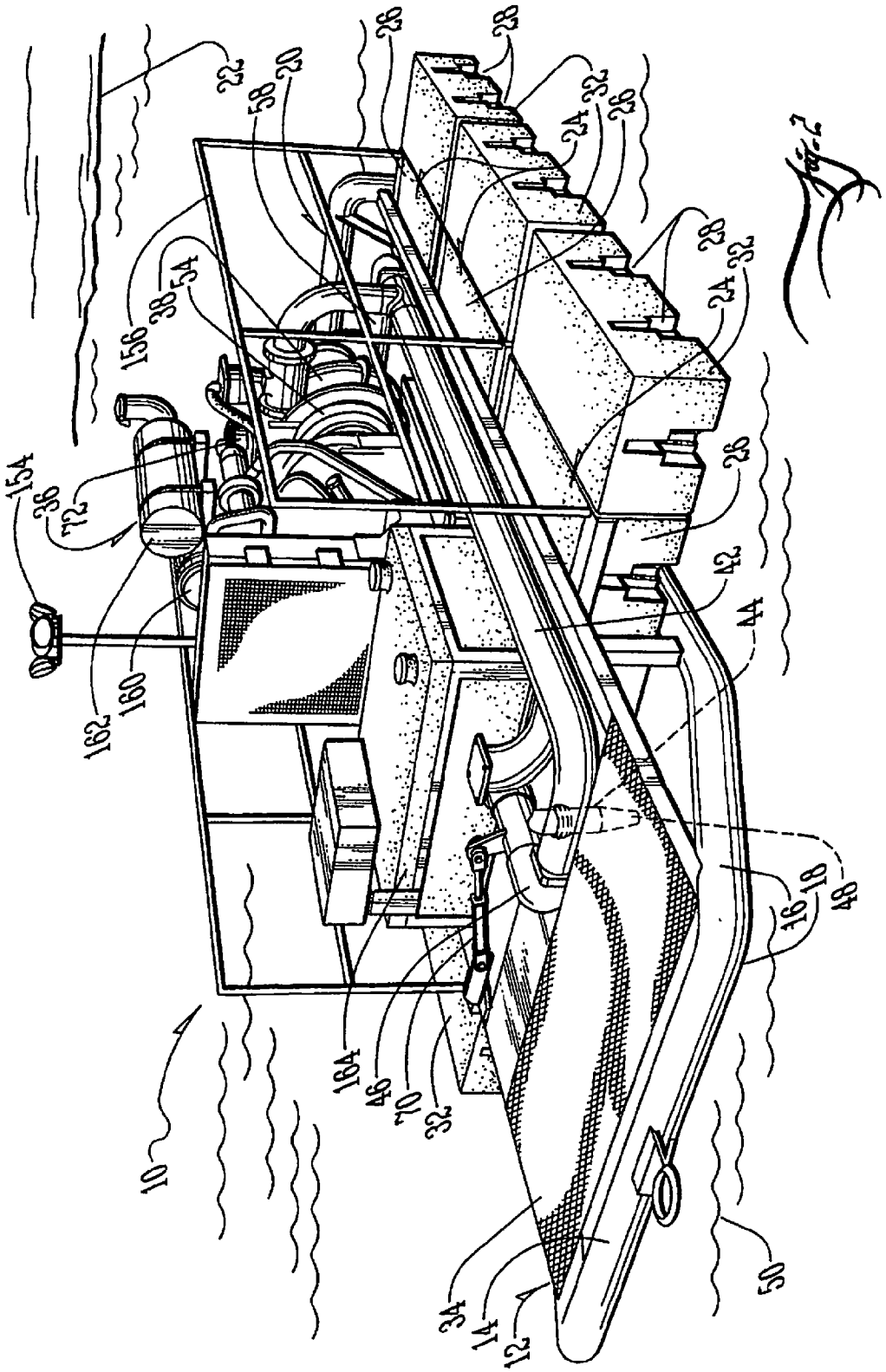
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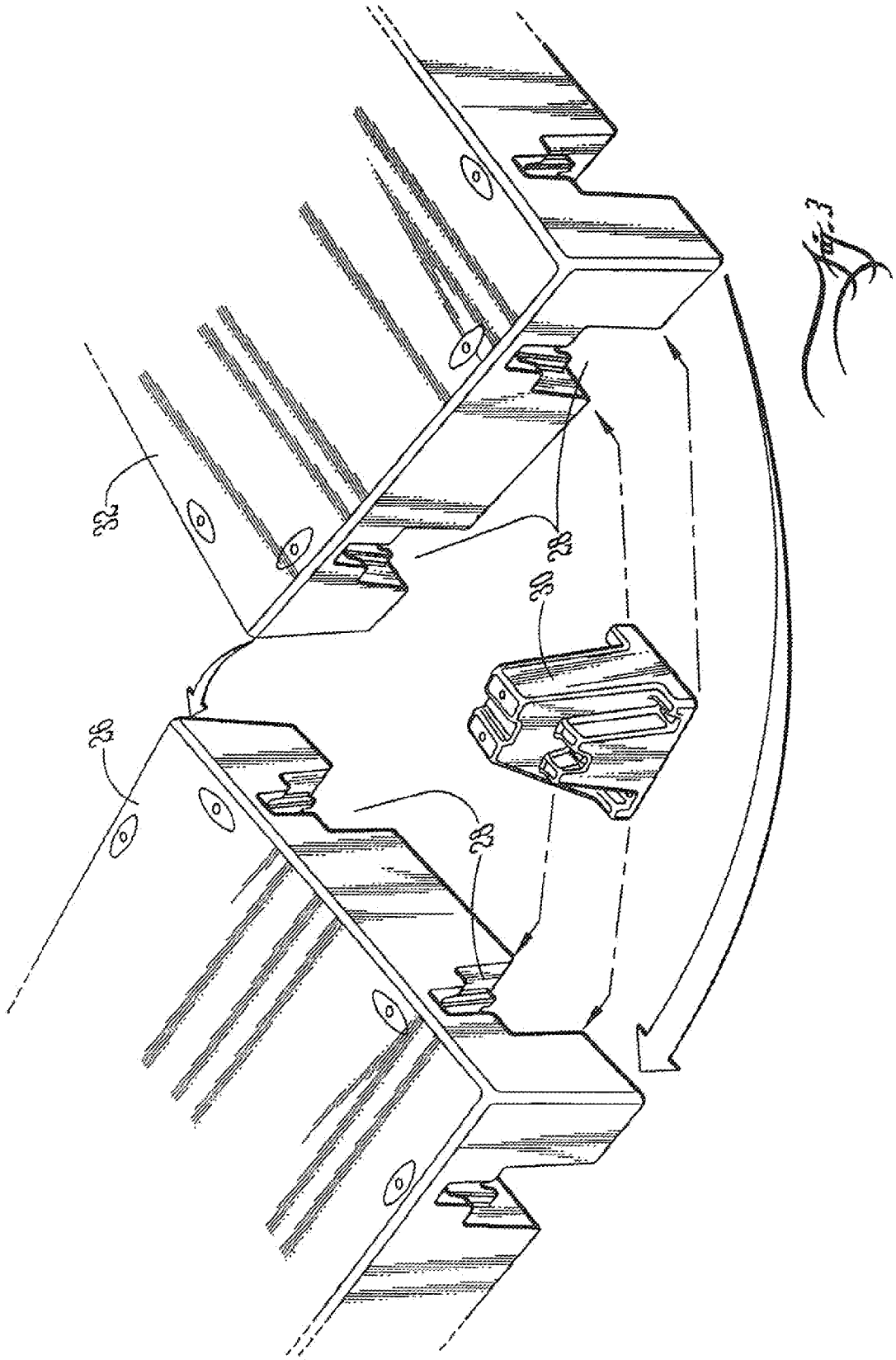
(57) **ABSTRACT**

A floating manure agitator that floats on the surface of a manure lagoon and that may be remotely controlled to agitate manure supernatant into a slurry with sludge settling on the bottom of the lagoon. The agitator is provided with a plurality of fluid outputs, the direction of which may be controlled to motivate and steer the agitator. The outputs are angled to develop vortices of supernatant into the sludge to further mix the materials into a slurry.




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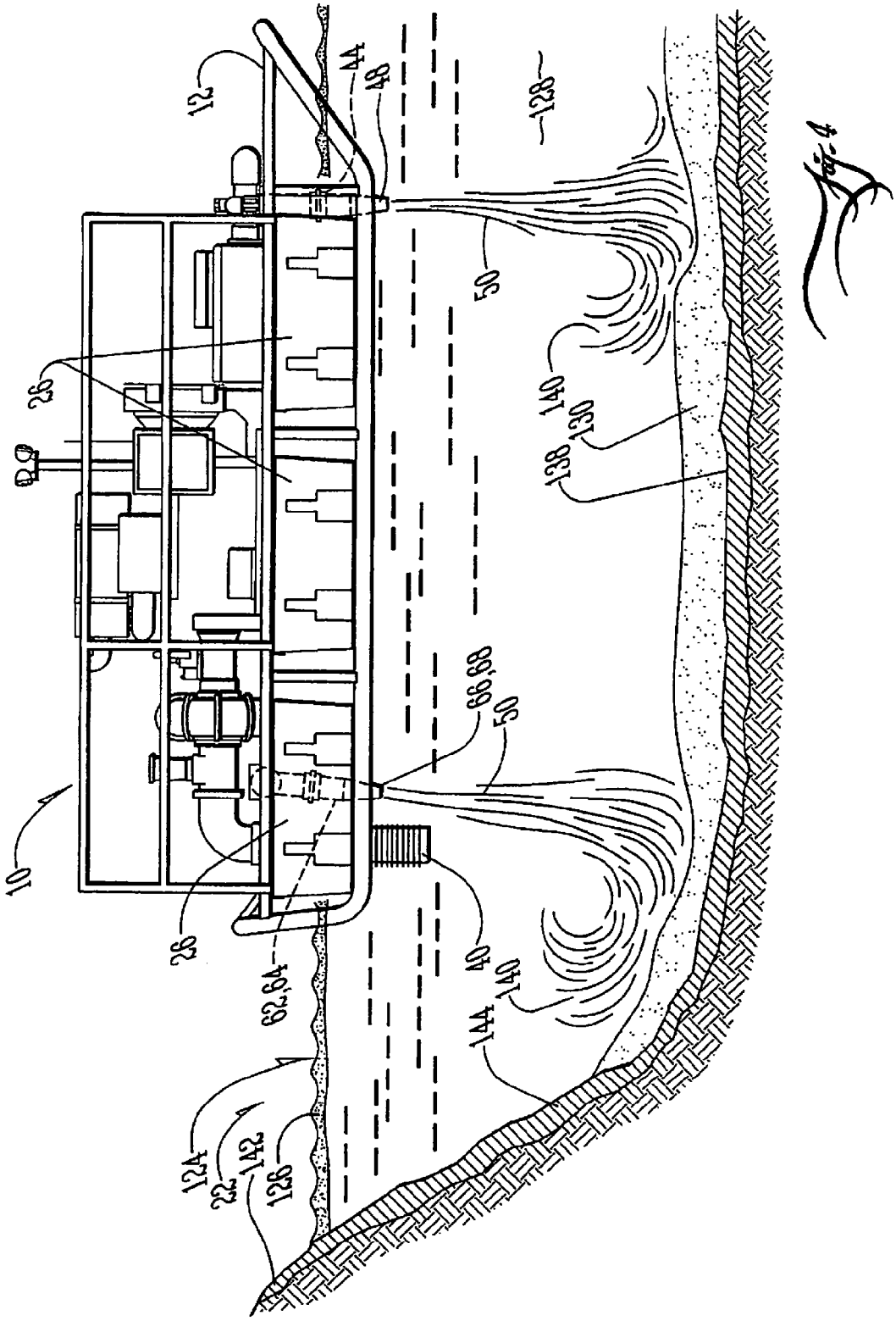
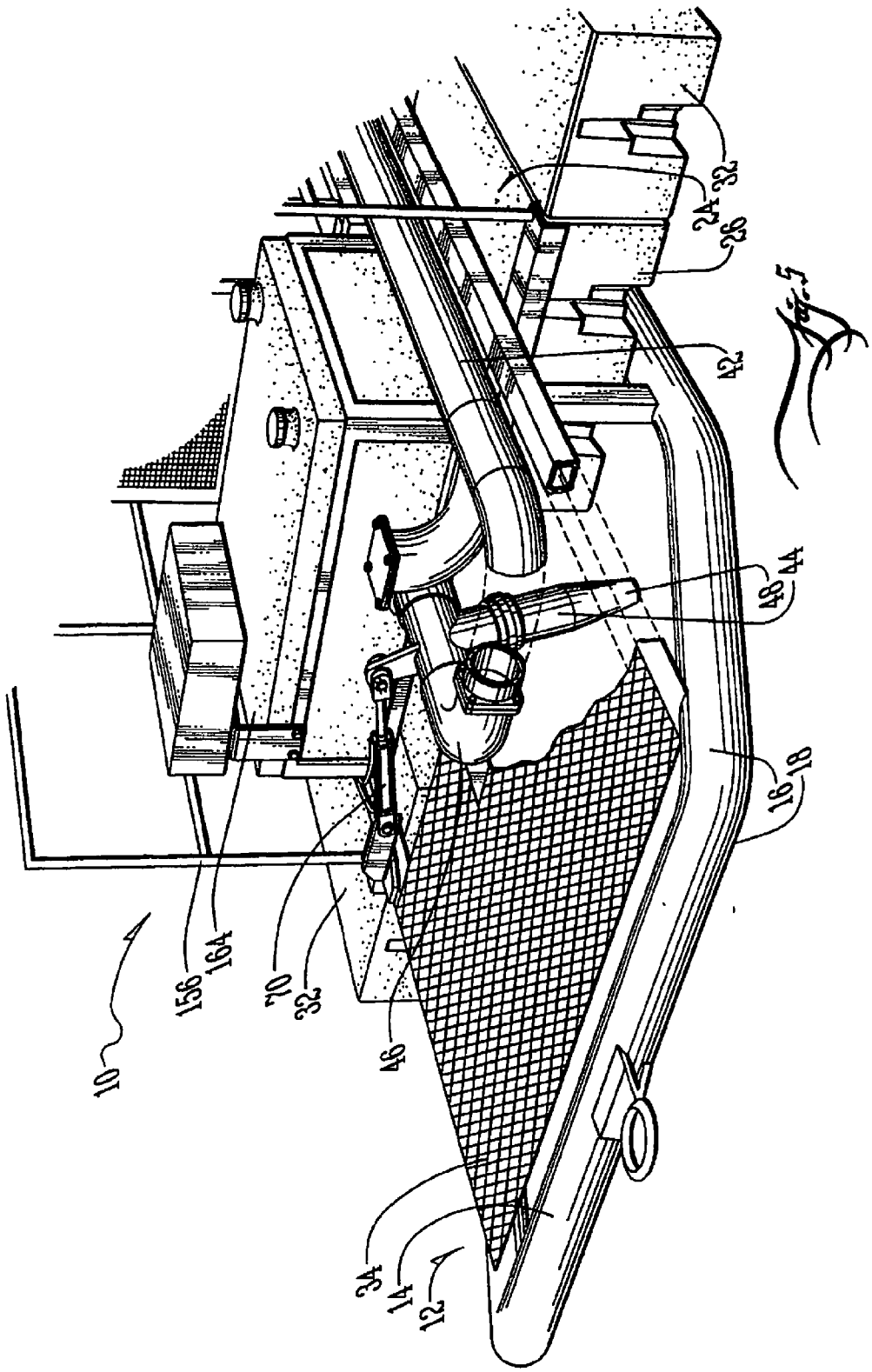
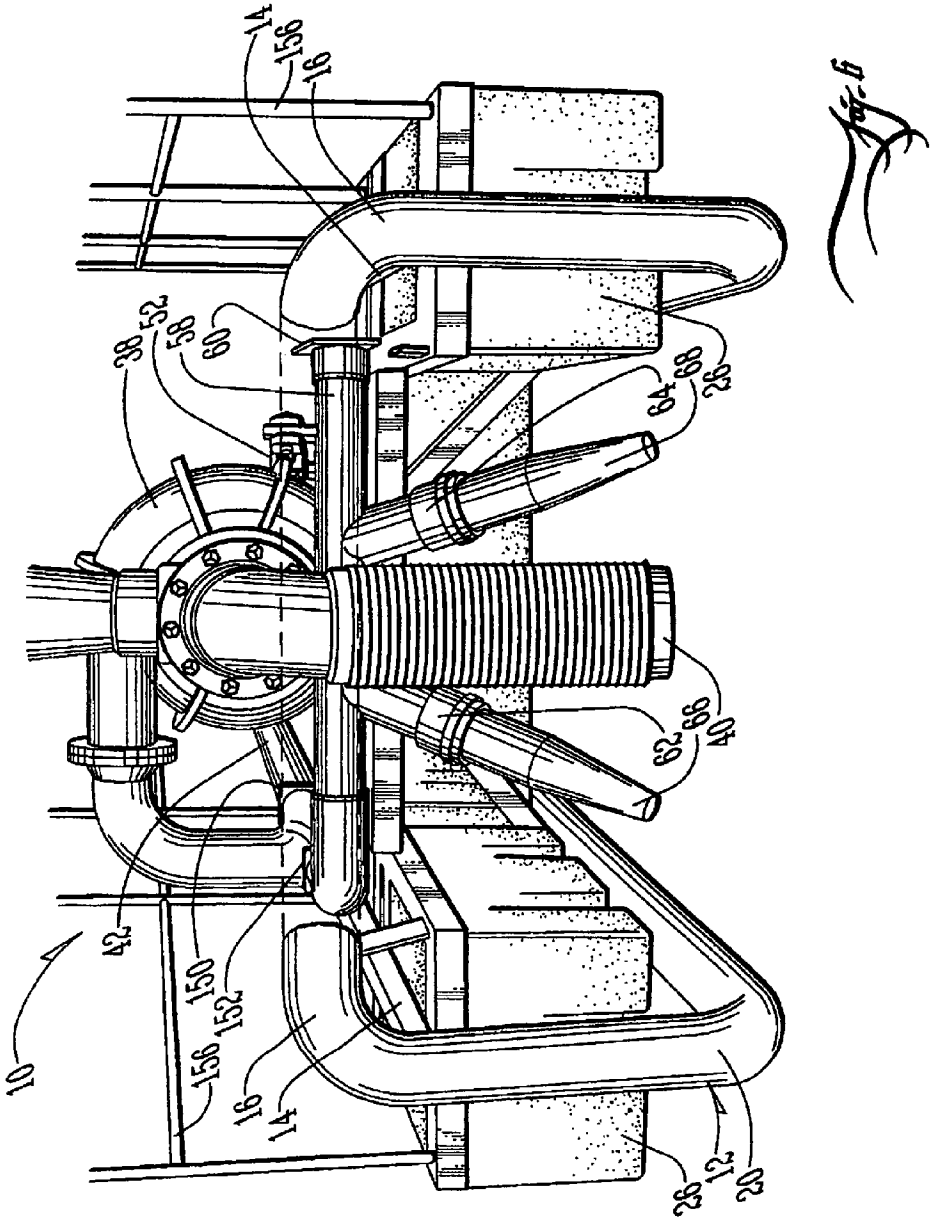

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Fig. 4


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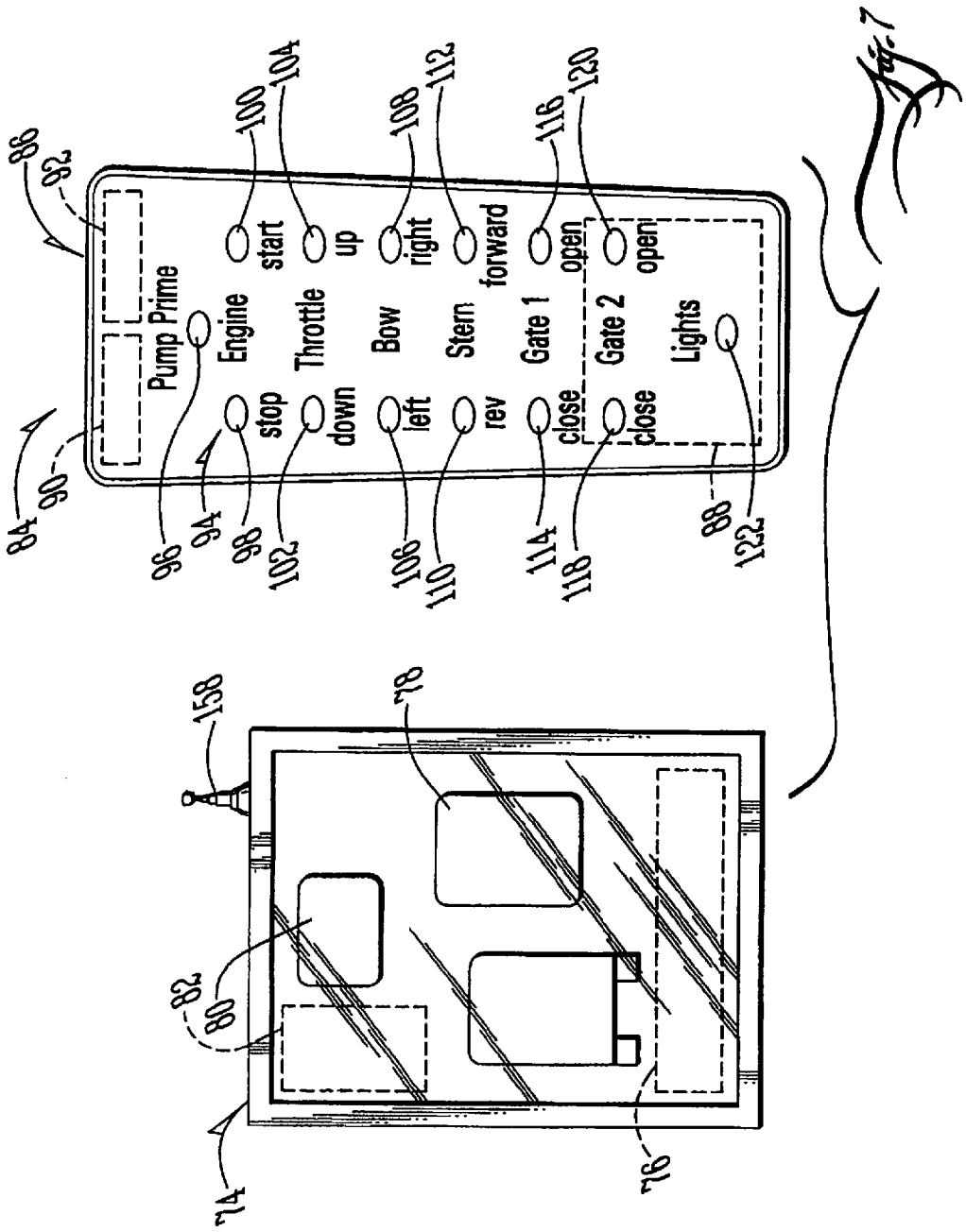
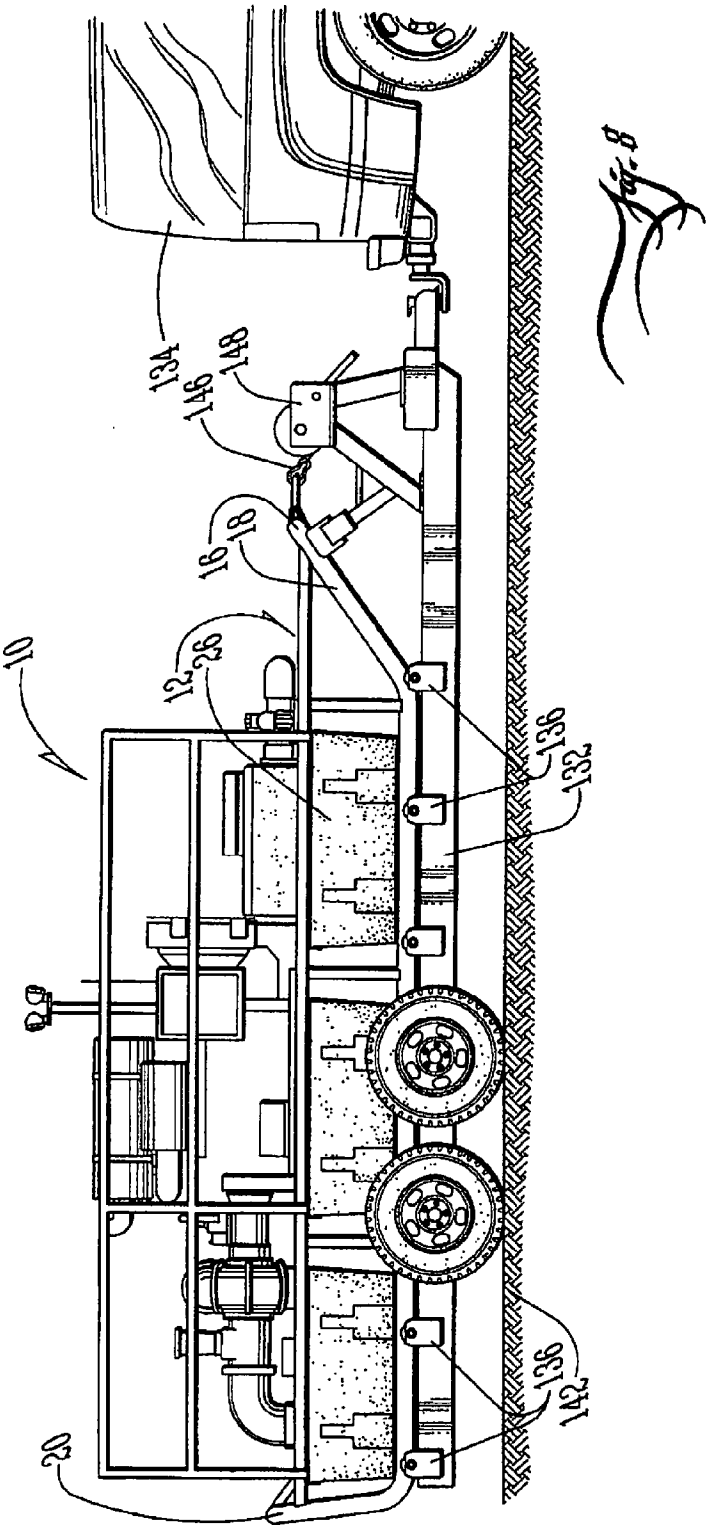

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Engine
Throttle
Bow
Stern
Gate 1
Gate 2
Lights
start
up
right
forward
open
open
stop
down
left
rev
close
close
100
104
108
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120
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Fig-7


Fig. 8
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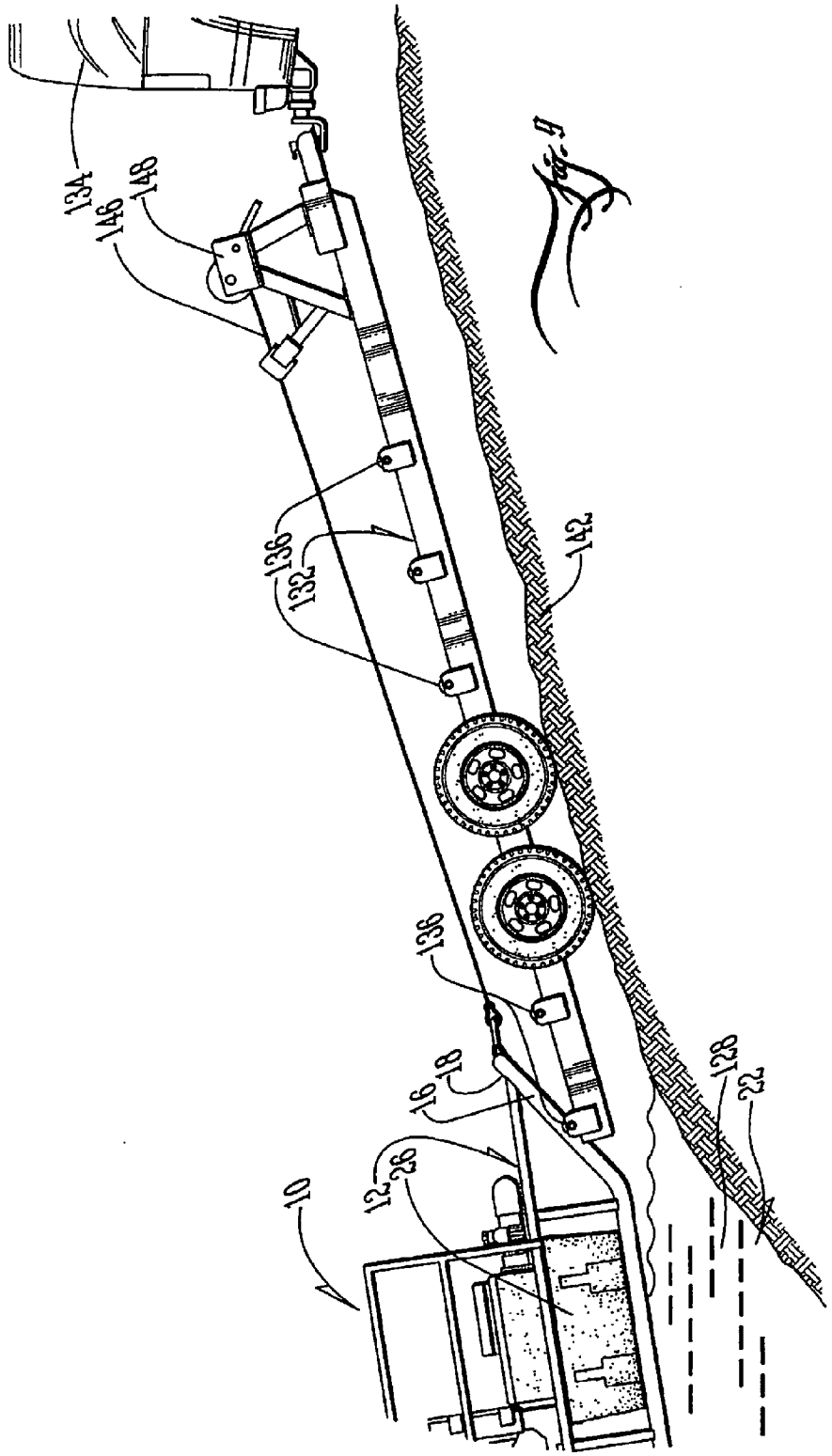


Fig. 9

FLOATING MANURE AGITATOR

TECHNICAL FIELD

[0001] The present invention relates in general to a manure agitator and, more particularly, to a floating manure agitator for use in association with a manure lagoon.

BACKGROUND

[0002] Livestock produce a large amount of manure. The high nitrogen content of the manure makes it useful as a fertilizer on agricultural fields. While manure is continually produced, it is only needed as fertilizer during certain times of the year. During the times it is being produced and not yet needed, it must be stored. It is also desirable to break down the manure prior to application as a fertilizer. One method of storing and breaking down livestock manure is a manure lagoon. Manure lagoons are sloped, fluid impermeable pits fifteen to thirty-five feet deep and may be several hundred feet across.

[0003] Manure from a livestock operation is pumped into a lagoon where anaerobic bacteria digest, liquefy, and convert a portion of the manure to carbon dioxide, methane, ammonia and hydrogen sulfide. The resulting supernatant contains nitrogen and calcium. The resulting solids form a sludge that rests on the bottom of the manure lagoon. The sludge is made up of several biodegradable organic solids, including lignin and cellulose. The sludge also contains high concentrations of phosphorous. After anaerobic bacteria breaks down the manure, the manure is pumped from the lagoon to a tank for transport and then applied to an agricultural field.

[0004] To prevent an undesirable buildup of sludge at the bottom of the lagoon, it is known in the art to place an agitator within the lagoon to create a slurry by moving solids in sludge into suspension within the supernatant. Prior art methods of agitating the manure include attaching a shaft with a propeller or auger to the power takeoff of a tractor or other farm vehicle resting on the shore. The rotating propeller or auger forces the supernatant down into the sludge, causing the solids within the sludge to move upward into suspension within the supernatant. While this method does place some solids into suspension, the method has several drawbacks. One drawback is that the propeller or auger forces sludge up from the bottom of the lagoon in only a narrow area. While the propeller or auger may be moved to provide a more even distribution of solids within the supernatant, moving the propeller or auger is time consuming.

[0005] Alternatively, the propeller or auger may be rotated at an increased speed to move more sludge to move into suspension. One drawback associated with increasing the speed of rotation of the propeller or auger is the increased risk to the bottom of the lagoon. If the speed of the rotation of the propeller or auger is increased too much, the bottom of the lagoon may be damaged, allowing the manure to leak into the ground water. Yet another drawback associated with the prior art is mixing sludge at the center of the lagoon. Prior art agitators are typically operated from shore. Even with long agitators it is difficult to mix sludge at the center of the lagoon, which leads to a buildup of sludge at the center of the lagoon. It would, therefore, be desirable to provide deep agitation at the center of the lagoon, to more thoroughly suspend the sludge solids within the supernatant.

[0006] It is also known in the art to provide a large vehicle that may be lowered into the lagoon. The vehicle may be equipped with a fluid intake, a pump and a fluid output to draw supernatant into the pump and force the supernatant at high speed downward toward the sludge. The vehicle is typically moved with cables by operators on the shore.

[0007] One drawback associated with such devices is that these devices are not easily maneuverable. Another drawback associated with such prior art devices is the difficulty associated with controlling such devices. Often elaborate systems of wires and securement posts must be erected near the shores of the manure lagoon to provide a guide for the vehicle to move during the agitation process. As the vehicle typically makes several passes across the lagoon, several guide wires and posts must be set up to accommodate multiple passes. The devices can be difficult to steer during passes across the lagoon.

[0008] It would, therefore, be desirable to provide a vehicle which floats on the manure pond and which is maneuverable. It would also be desirable to provide the vehicle with multiple outlet nozzles to direct the fluid downward into the lagoon a sufficient distance to agitate the solids in the bottom of the lagoon into suspension and create vortices within the lagoon to assist in carrying solids within the sludge into suspension in the supernatant. It would additionally be desirable to direct the nozzles to create vortices that mix the solids of the sludge into suspension with the supernatant, while minimizing the amount of unpleasant smelling hydrogen sulfide rising to the surface and escaping into the air.

[0009] It would further be desirable to provide a floating vehicle for the mixing of sludge solids into suspension with the supernatant that may be quickly and readily transported to a manure lagoon, launched into the lagoon, used to suspend sludge solids into suspension with the supernatant, and removed from the lagoon onto a trailer. It would also be desirable to provide a floating vehicle configured to the standard, height, weight and width restrictions associated with highway travel. Additionally, it would be desirable to provide a floating manure agitation vehicle that may be remotely controlled and guided to specific portions of the lagoon to move solids of the sludge into suspension with the supernatant as desired.

[0010] The difficulties encountered in the prior art discussed hereinabove are substantially eliminated by the present invention.

SUMMARY OF THE DISCLOSED SUBJECT MATTER

[0011] In the preferred embodiment of this invention, a floating manure agitator is provided with a floating vessel and a power source. A slurry pump is coupled to the power source. A slurry intake and three slurry outputs are also coupled to the slurry pump. Two of the slurry outputs are directed outward from the floating vessel. The slurry intake is provided between the two rearward slurry outputs. An additional slurry output is provided closer to the bow of the floating vessel and is provided with a steering control to direct the slurry output to control the direction of the floating vessel. The two aft slurry outputs may be rotated more rearward to increase the speed of the floating vessel or rotated more stern to slow or reverse the speed of the floating vessel, or move downward to direct more of the supernatant into the sludge. A remote control device may be coupled to the slurry control to allow the floating vehicle to be steered from the shore.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention will now be described, by way of example, with reference to the accompanying drawings in which:

[0013] FIG. **1** illustrates a side perspective view of the floating manure agitator of the present invention;

[0014] FIG. **2** illustrates a front perspective view of the floating manure agitator of FIG. **1**, being retrieved from a manure lagoon;

[0015] FIG. **3** illustrates a top perspective view of the modular dock sections and connector pin;

[0016] FIG. **4** illustrates a side elevation of the floating manure agitator of FIG. **1** on a manure lagoon;

[0017] FIG. **5** illustrates a front perspective view of the floating manure agitator of FIG. **1**;

[0018] FIG. **6** illustrates a front perspective view of the floating manure agitator of FIG. **1**;

[0019] FIG. **7** illustrates a block diagram in partial cutaway of the control panel and portable computer;

[0020] FIG. **8** illustrates a side perspective view of the floating manure agitator of FIG. **1** being transported; and

[0021] FIG. **9** illustrates a side perspective view of the floating manure agitator of FIG. **1** being retrieved from a manure lagoon.

DETAILED DESCRIPTION OF THE DRAWINGS

[0022] A floating fluid agitator is shown generally as (**10**) in FIG. **1**. A vessel (**12**) is provided having a frame (**14**) preferably constructed of welded tubular steel pipes (**16**). The vessel (**12**) may alternatively be constructed of any suitable material or may be constructed with a more standard hull, such as those known in the art. The frame (**14**) is constructed with an angled bow (**18**) and a vertical stern (**20**). The angled bow (**18**) facilitates the launch and retrieval of the agitator (**10**) from a manure lagoon (**22**). (FIGS. **1-2**). The frame (**14**) defines a plurality of receiver slots (**24**) into which are provided modular dock sections (**26**), such as those known in the art. In the preferred embodiment, the dock sections (**26**) are 1000 series dock components manufactured by Connect-A-Dock, Inc. of Atlantic, Iowa.

[0023] The modular dock sections (**26**) are provided with connector slots (**28**) to fit into interlocking mating engagement with connector pins (**30**). The connector pins (**30**) allow the modular dock sections (**26**) to connect to additional dock sections (**32**) in a manner such as that known in the art. (FIGS. **1** and **3**). The use of interlocking additional dock sections (**32**) allows for the buoyancy of the vessel (**12**) to be increased and allows the additional dock sections (**32**) to be removed to reduce the overall width of the agitator (**10**) for transport and storage. If desired, pontoons, inflatable components or any other type of buoyant material may be used in place of, or in addition to, the modular dock sections (**26**) and additional dock sections (**32**). Preferably, the vessel (**12**) has ten to fifty inches of draw, more preferably between fifteen and thirty inches of draw, and most preferably about twenty-six inches of draw.

[0024] The vessel (**12**) is provided with a deck (**34**) and a power source (**36**). (FIG. **1**). While the power source (**36**) may be any suitable power source, in the preferred embodiment the power source (**36**) is a John Deere Tier 3 diesel engine. Depending on the desired size and efficiency of the agitator (**10**), the power source (**36**) is preferably between twenty and two-thousand horsepower, more preferably between fifty and five hundred horsepower, and most preferably between one hundred fifty and two hundred fifty horsepower.

[0025] Coupled to the power source (**36**) is a liquid manure pump such as a slurry pump (**38**). In the preferred embodiment, the slurry pump (**38**) is a Cornell Redi-Prime centrifugal pump capable of handling both solid and liquid material. The slurry pump (**38**) is preferably designed to move between one thousand and twenty-four thousand liters of material per minute, more preferably between eight thousand and twenty thousand liters of material per minute, and most preferably about sixteen thousand liters of material per minute.

[0026] The slurry pump (**38**) is coupled to a liquid manure intake, such as a slurry intake, which is a downwardly directed intake pipe (**40**) in the preferred embodiment and is capable of handling manure crust, supernatant, sludge and the combined slurry. (FIGS. **1** and **4**). If desired, the intake pipe (**40**) may be extensible to adjust the depth of the intake pipe (**40**). The intake pipe (**40**) is constructed to extend about twenty-four inches below the surface of the lagoon (**22**), but may be extended or retracted to any desired depth, including the entire depth of the lagoon (**22**).

[0027] Coupled to the slurry pump (**38**) by a transport pipe (**42**) is a first slurry output (**44**). (FIG. **5**). The first slurry output (**44**) is an angled pipe (**46**) pivotably coupled to the transport pipe (**42**). Releasably coupled to the angled pipe (**46**) is a tapered liquid manure nozzle (**48**) to increase the velocity of slurry (**50**) passing through the nozzle (**48**). (FIGS. **4-5**). If desired, different sizes and configurations of nozzles (**48**) may be coupled to the angled pipe (**46**) to adjust the direction and velocity of slurry (**50**) exiting through the first slurry output (**44**). Coupled between the angled pipe (**46**) and the frame (**14**) is a steering control hydraulic cylinder (**52**). The hydraulic cylinder (**52**) is coupled to a hydraulic pump (**54**) that, in turn, is coupled to a 12-volt battery (**56**). (FIGS. **1** and **5**).

[0028] As shown in FIG. **6**, journaled to the rear outlet of the transport pipe (**42**) is a pivot pipe (**58**). The pivot pipe (**58**) is also journaled to a bearing (**60**) secured to the frame (**14**). (FIG. **6**). Depending from the pivot pipe (**58**) are a second slurry output (**62**) and a third slurry output (**64**). Preferably the slurry outputs (**62**) and (**64**) are angled outward from the centerline of the vessel (**12**), along which the intake pipe (**40**) is located. (FIGS. **4** and **6**).

[0029] Releasably coupled to the second slurry output (**62**) and third slurry output (**64**) are a pair of nozzles (**66**) and (**68**) pivotably coupled to the vessel (**12**). The second slurry output (**62**) and third slurry output (**64**) are oriented and configured to direct the slurry (**50**) as desired and to increase the velocity with which the slurry (**50**) exits the nozzles (**66**) and (**68**). The second slurry output (**62**) is preferably directed between five and eighty degrees port, more preferably directed between ten and sixty degrees port and, most preferably, between fifteen and forty-five degrees port. The third slurry output (**64**) is preferably directed between five and eighty degrees starboard, more preferably between ten and sixty degrees starboard and, most preferably, between fifteen and forty-five degrees starboard. The intake pipe (**40**) is preferably positioned between the first slurry output (**44**) and the second slurry output (**62**).

[0030] Coupled between the pivot pipe (**58**) and the frame (**14**) is a hydraulic cylinder (**70**) that rotates the pivot pipe (**58**) to direct the second slurry output (**62**) and third slurry output (**64**) preferably between 90 degrees aft and 90 degrees stern from a downward position, more preferably between 60

degrees aft and 60 degrees stern, and most preferably at least about 45 degrees aft and 45 degrees stern.

[0031] The hydraulic cylinder (**70**) is coupled to the hydraulic pump (**54**). The hydraulic pump (**54**) is coupled to a control manifold (**72**) that is electronically coupled to a control panel (**74**) provided with a central processing unit (**76**) and a global positioning system (**78**). (FIGS. **1** and **7**). Also coupled to the control panel (**74**) are a wireless receiver (**80**) and wireless transmitter (**82**), that allow the control panel (**74**) to operate as a wireless remote control, actuated by a remote control system (**84**). (FIGS. **1** and **5**). The remote control system (**84**) may be a portable computer (not shown) or simply a handset (**86**) provided with a battery (**88**), wireless transmitter (**90**) and a wireless receiver (**92**). The remote control system (**84**) may be provided with one or more joysticks, touchscreens, keyboards or other input devices known in the art (not shown), to allow the remote control system (**84**) to accept commands. In the preferred embodiment, the remote control system (**84**) is provided with a plurality of buttons (**94**) as shown in FIG. **7**. The remote control system (**84**) is provided with a pump prime button (**96**). The prime pump button (**96**) signals the control panel (**74**) to circulate fluid within the slurry pump (**38**) to prime the pump (**38**) prior to use.

[0032] The remote control system (**64**) also includes an engine stop button (**98**), start button (**100**), a throttle down button (**102**) and throttle up button (**104**). To steer the agitator (**10**) the remote control system (**84**) is provided with a bow left button (**106**) and bow right button (**108**). The bow left button (**106**) causes the steering control hydraulic cylinder (**52**) to extend, thereby directing the nozzle (**48**) to starboard and driving the agitator (**10**) port. The remote control system (**84**) is also provided with a bow right button (**108**) to retract the hydraulic cylinder (**52**) and steer the agitator (**10**) starboard. The remote control system (**84**) is provided with a reverse button (**110**) which causes the hydraulic cylinder (**70**) to extend, thereby forcing the pivot pipe (**58**) to direct the slurry outputs (**62**) and (**64**) toward the bow (**18**) of the agitator (**10**), thereby driving the vessel (**12**) rearward. Similarly, a forward button (**112**) causes the hydraulic cylinder (**70**) to retract and drive the agitator (**10**) forward.

[0033] If desired, the remote control system (**84**) may be provided with a first gate close button (**114**) that closes a valve (**115**) on the transport pipe (**42**) positioned between the fluid intake pipe (**40**) and forward nozzle (**48**). A gate open button (**116**) is also provided to open the valve (**150**). Similarly, a close gate button (**118**) and open gate button (**120**) are provided to open and close a valve (**152**) provided between the fluid intake pipe (**40**) and the nozzles (**66**) and (**68**). The gate buttons (**114**), (**116**), (**118**) and (**120**) allow a user to selectively supply fluid through one, two or three of the nozzles (**48**), (**66**) and (**68**) as is desired to appropriately agitate the fluid (**128**) within which the agitator (**10**) is floating. The remote control system (**84**) is also provided with a button (**122**) to actuate lights (**154**) provided on the agitator (**10**) if it is desired to use the agitator (**10**) in circumstances where additional lighting is desired. The remote control system (**84**) may be configured to receive feedback from the control panel (**74**), such as system status, latitude, longitude and height coordinates.

[0034] When it is desired to use the agitator (**10**) to agitate manure (**124**), that has separated into crust (**126**), supernatant (**128**) and sludge (**130**), into a slurry (**50**), the agitator (**10**) is preferably transported to the manure lagoon (**22**) using a trailer (**132**) and pulling vehicle (**134**). (FIGS. **4** and **8**). Once at the manure lagoon (**22**), the additional dock sections (**32**) are placed into mating engagement with the modular dock sections (**26**) and the trailer is backed toward the lagoon (**22**). (FIGS. **1**, **4**, **8** and **9**). Depending upon the angle of the trailer (**132**), the agitator (**10**) may roll off the trailer (**132**) by the force of gravity or may be manually pushed from the trailer (**132**) into the lagoon (**22**). If desired, the trailer (**132**) may be fitted with a plurality of rollers (**136**) to facilitate the removal of the agitator (**10**) from the trailer (**132**).

[0035] Once the agitator (**10**) is floating in the lagoon (**22**), the remote control system (**84**) is used to activate the power source (**36**) to cause the slurry pump (**38**) to draw supernatant (**128**) into the intake pipe (**40**) and out the outputs (**44**), (**62**) and (**64**). The remote control system (**84**) is used to direct the pivot pipe (**58**) to angle the slurry outputs (**62**) and (**64**) aft to drive the agitator (**10**) forward. The remote control system (**84**) then actuates the control panel (**74**) to direct the hydraulic cylinder (**52**) to angle the first slurry output (**44**) to turn the agitator (**10**) port or starboard as desired. The remote control system (**84**) is thereafter used to direct the volume of supernatant (**128**) drawn into the intake pipe (**40**) and the direction at which the supernatant (**128**) is expelled from the slurry outputs (**44**), (**62**) and (**64**). By manipulating the direction of the slurry outputs (**44**), (**62**) and (**64**) with the remote control system (**84**), a user may direct the agitator (**10**) to any desired portion of the lagoon.

[0036] As the agitator (**10**) moves across the lagoon (**22**), the agitator (**10**) breaks up the crust (**126**) as it draws supernatant (**128**) into the intake pipe (**40**). The agitator (**10**) then draws the supernatant (**128**) downward into the lagoon (**22**) with sufficient force to cause the sludge (**130**) at the bottom (**138**) of the lagoon (**22**) to mix with the supernatant (**128**) and to form the slurry (**50**). The angle of the slurry outputs (**62**) and (**64**) causes the supernatant (**128**) to generate vortices (**140**) near the bottom (**138**) of the lagoon (**22**) to cause additional mixing between the supernatant (**128**) and sludge (**130**).

[0037] The remote control system (**84**) may be used to cause the slurry pump (**38**) to expel slurry (**50**) more slowly from the slurry outputs (**44**), (**62**) and (**64**) as the agitator (**10**) is near the shore (**142**) of the lagoon (**22**) so as not to penetrate the lining (**144**) of the lagoon (**22**) thereby allowing the slurry (**50**) to escape. As the agitator (**10**) moves towards the center of the lagoon (**22**) which may range from five to forty feet deep, or more, the remote control system (**84**) can be used to increase the speed at which the supernatant (**128**) is passed from the slurry outputs (**44**), (**62**) and (**64**) to adequately mix the sludge (**130**) at the deepest portions of the lagoon (**22**). The remote control system (**84**) is used to direct the agitator (**10**) to all desired portions of the lagoon until the crust (**126**) and supernatant (**128**) is adequately mixed with the sludge (**130**).

[0038] Once the slurry (**50**) is adequately mixed, the remote control system (**84**) is used to guide the agitator (**10**) to the shore (**142**), where the agitator (**10**) may be coupled to a cable (**146**) and winch (**148**) provided on the trailer (**132**). The winch (**148**) is activated to draw the agitator (**10**) on to the trailer (**132**). Preferably during this procedure a hose or similar system is used to clean the slurry (**50**) from the agitator (**10**) as the agitator (**10**) is drawn on to the trailer (**132**). Once the agitator (**10**) has been cleaned and placed on the trailer

(**132**), the additional dock sections (**32**) are removed from the modular dock sections (**26**) and placed upon the vessel (**134**) and secured for transport.

[0039] As shown in FIG. **6**, the agitator (**10**) may be provided with a railing system (**156**) constructed of steel to allow a user to inspect the agitator (**10**). (FIG. **2**). If desired, the agitator (**10**) may also be provided with a power antenna system (**158**) such as those known in the art to increase GPS and wireless reception.

[0040] As shown in FIG. **2**, the air intake system (**160**) is preferably placed above the power source (**36**) to reduce the likelihood of slurry (**50**) blocking the air intake system (**160**). Similarly, the exhaust system (**162**) is located above the power source (**36**) to reduce the likelihood of the exhaust system (**162**) becoming blocked with slurry (**50**).

[0041] As shown, the fuel reservoir (**164**) is provided at least partially below the deck (**34**) of the vessel (**12**) to allow access to the fuel reservoir (**164**), while still providing the agitator (**10**) with a low center of gravity to increase the stability of the agitator (**10**).

[0042] Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications can be made therein which are within the full, intended scope of this invention as defined by the appended claims.

What is claimed is:

1. A floating slurry agitator comprising:
(a) a floating vessel;
(b) a power source provided on the vessel;
(c) a slurry pump coupled to the power source;
(d) a slurry intake coupled to the slurry pump;
(e) a first slurry output coupled to the slurry pump;
(f) a second slurry output coupled to the slurry pump; and
(g) a steering control coupled to the first slurry output.

2. The floating slurry agitator of claim **1**, further comprising a wireless remote control coupled to the steering control.

3. The floating slurry agitator of claim **2**, wherein the steering control comprises a hydraulic cylinder coupled between the vessel and the first slurry output.

4. The floating slurry agitator of claim **3**, wherein the second slurry output is pivotably coupled to the vessel.

5. The floating slurry agitator of claim **1**, further comprising a third slurry output coupled to the slurry pump.

6. The floating slurry agitator of claim **5**, wherein the second slurry output is directed port, and wherein the third slurry output is directed starboard.

7. The floating slurry agitator of claim **6**, wherein the slurry intake is positioned between the first slurry output and the second slurry output.

8. The floating slurry agitator of claim **7**, wherein the second slurry output and the third slurry output are pivotably coupled to the vessel.

9. The floating slurry agitator of claim **8**, further comprising a wireless remote control coupled to the steering wheel.

10. The floating slurry agitator of claim **1**, wherein the pump has a throughput capacity of at least four thousand liters per minute.

11. The floating slurry agitator of claim **1**, wherein the pump has a throughput capacity of at least eight thousand liters per minute.

12. The floating slurry agitator of claim **1**, wherein the floating vessel is provided on a manure lagoon.

13. The floating slurry agitator of claim **1**, wherein the power source is a diesel engine.

14. A liquid manure agitator comprising:
(a) a floating vessel;
(b) a power source provided on the vessel;
(c) a liquid manure pump coupled to the power source;
(d) a liquid manure intake coupled to the liquid manure pump;
(e) a first liquid manure nozzle coupled to the liquid manure pump;
(f) a second liquid manure nozzle coupled to the liquid manure pump; and
(g) a steering control coupled to the first liquid manure nozzle.

15. The liquid manure agitator of claim **14**, further comprising a wireless remote control coupled to the steering control.

16. The liquid manure agitator of claim **14**, wherein the second liquid manure nozzle is directed toward the liquid manure intake.

17. The liquid manure agitator of claim **14**, further comprising a third liquid manure nozzle coupled to the liquid manure pump.

18. The liquid manure agitator of claim **17**, wherein the second liquid manure nozzle is directed port and wherein the third liquid manure nozzle is directed starboard.

19. The liquid manure agitator of claim **18**, wherein the liquid manure intake is positioned between the first liquid manure nozzle and the second liquid manure nozzle.

20. A liquid manure agitator comprising:
(a) a frame;
(b) a floatation device coupled to the frame;
(c) a power source coupled to the frame;
(d) a liquid manure pump coupled to the power source;
(e) a liquid manure intake coupled to the liquid manure pump;
(f) a first liquid manure nozzle coupled to the liquid manure pump and positioned stern of the liquid manure intake;
(g) a steering control coupled to the first liquid manure nozzle;
(h) a second liquid manure nozzle coupled to the liquid manure pump and positioned aft of the first liquid manure nozzle wherein the second manure nozzle is directed port;
(i) a third liquid manure nozzle coupled to the liquid manure pump and positioned aft of the first liquid manure nozzle wherein the third manure nozzle is directed starboard; and
(j) a wireless remote control coupled to the steering control.

* * * * *

UNITED STATES
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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
90/019,076	05/06/2022 01:38:25 PM ET	19061.0001USRX

Title of Invention

AMPHIBIOUS PUMPING VEHICLE

Application Information

APPLICATION TYPE	Utility / ex parte reexam	PATENT #	10974557
CONFIRMATION #	3433	FILED BY	Robert Kalinsky
PATENT CENTER #	60656143	AUTHORIZED BY	-
CUSTOMER #	59115	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Ian NUHN

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 4359	E202256D39504084	Robert Kalinsky

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
132725	37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2812	REQUEST FOR EX PARTE REEXAM-NON-STREAMLINED	6300.00	1	6300.00
			TOTAL AMOUNT:	$6,300.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d)

and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/57 (01-18)
Approved for use through 11/30/2021. OMB 0651-0064
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(Also referred to as FORM PTO-1465)

REQUEST FOR *EX PARTE* REEXAMINATION TRANSMITTAL FORM

Address to:
Mail Stop *Ex Parte* Reexam
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attorney Docket No.: 19061.0001USRX

Date: May 6, 2022

1. ☒ This is a request for *ex parte* reexamination pursuant to 37 CFR 1.510 of patent number 10,974,557 issued April 13, 2021. The request is made by:
   ☐ patent owner. ☒ third party requester.

2. ☒ The name and address of the person requesting reexamination is:
   Bazooka-Farmstar, LLC
   800 E 7th St
   Washington, IA 52353

3. Requester ☒ asserts small entity status (37 CFR 1.27) or ☐ certifies micro entity status (37 CFR 1.29). Only a patent owner requester can certify micro entity status. Form PTO/SB/15A or B must be attached to certify micro entity status.

4. This request is accompanied by payment of the reexamination fee as set forth in:
   ☒ 37 CFR 1.20(c)(2); **or**
   ☐ 37 CFR 1.20(c)(1). **In checking this box for payment of the fee set forth in 37 CFR 1.20(c)(1), requester asserts that this request has forty (40) or fewer pages and complies with all other requirements of 37 CFR 1.20(c)(1).**

   Payment of the reexamination fee is made by the method set forth below.
   a. ☐ A check in the amount of $_____ is enclosed to cover the reexamination fee;
   b. ☐ The Director is hereby authorized to charge the reexamination fee to Deposit Account No. _____;
   c. ☐ Payment by credit card. Form PTO-2038 is attached; **or**
   d. ☒ Payment made via EFS-Web.

   ☒ In addition, the Director is hereby authorized to charge any fee deficiencies to Deposit Account No. 13-2725.

5. ☒ Any refund should be made by ☐ check or ☒ credit to Deposit Account No. 13-2725. 37 CFR 1.26(c). If payment is made by credit card, refund must be to credit card account.

6. ☒ A copy of the patent to be reexamined having a double column format on one side of a separate paper is enclosed. 37 CFR 1.510(b)(4).

7. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table
   ☐ Landscape Table on CD

This collection of information is required by 37 CFR 1.510. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) a request for reexamination. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop *Ex Parte* Reexam, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

8. ☐ Nucleotide and/or Amino Acid Sequence Submission
If applicable, items a. – c. are required.
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM (2 copies) or CD-R (2 copies) **or**
      ii. ☐ paper
   c. ☐ Statements verifying identity of above copies.

9. ■ A copy of any disclaimer, certificate of correction or reexamination certificate issued in the patent is included.

10. ■ Reexamination of claim(s) 1-13 is requested.

11. ■ A copy of every patent or printed publication relied upon is submitted herewith including a listing thereof on Form PTO/SB/08, PTO-1449, or equivalent.

12. ☐ An English language translation of all necessary and pertinent non-English language patents and/or printed publications is attached.

13. ■ The attached detailed request includes at least the following items:
   a. A statement identifying each substantial new question of patentability based on prior patents and printed publications. 37 CFR 1.510(b)(1).
   b. An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested. 37 CFR1.510(b)(2).

14. ☐ A proposed amendment is included (only where the patent owner is the requester). 37 CFR 1.510(e).

15. ■ It is certified that the statutory estoppel provisions of 35 U.S.C. 315(e)(1) or 35 U.S.C. 325(e)(1) do not prohibit requester from filing this *ex parte* reexamination request. 37 CFR 1.510(b)(6).

16. Service
   a. ■ It is certified that a copy of this request (if filed by other than the patent owner) has been served in its entirety on the patent owner as provided in 37 CFR 1.33(c).

      The name and address of the party served are:

      Nuhn Industries Ltd.
      PO Box 160
      Sebringville, ON, Canada N0K 1X0

      Date of Service: May 6, 2022

   OR

   b. ☐ A duplicate copy is enclosed since service on patent owner was not possible. An explanation of the efforts made to serve patent owner **is attached**. See MPEP 2220.

17. Correspondence Address: Direct all communication about the reexamination to:

☒ The address associated with Customer Number: 23552

OR

☐ Firm or Individual Name _____
(at the address identified below)

Address

City	State	Zip

Country

Telephone	Email

18. ☒ The patent is currently the subject of the following concurrent proceeding(s):

a. ☐ Copending reissue Application No. _____

b. ☐ Copending reexamination Control No. _____

c. ☐ Copending Interference No. _____

d. ☒ Copending litigation styled:

Nuhn Industries Ltd. v. Bazooka Farmstar LLC and Tasch's Custom LLC, Eastern District of Wisconsin, Civil Action No. 2:21-cv-01322

Nuhn Industries Ltd. v. Bazooka Farmstar, LLC, Southern District of Iowa, Civil Action No. 3:22-cv-00015-SMA-HCA

WARNING : Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

/Robert A. Kalinsky/ — Authorized Signature

May 6, 2022 — Date

Robert A. Kalinsky — Typed/Printed Name

50,471 — Registration No.

☐ For Patent Owner Requester ☒ For Third Party Requester

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

EXHIBIT B

US007478817B1

(12) United States Patent
Carrier

(10) Patent No.: US 7,478,817 B1
(45) Date of Patent: Jan. 20, 2009

(54) **ALL-TERRAIN HOSTILE ENVIRONMENT VEHICLE**

(75) Inventor: **Brian Carrier**, Wyoming, IL (US)

(73) Assignee: **Carsaf, LLC.**, Columbia, SC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 465 days.

(21) Appl. No.: **11/161,750**

(22) Filed: **Aug. 15, 2005**

Related U.S. Application Data

(60) Provisional application No. 60/601,451, filed on Aug. 13, 2004.

(51) **Int. Cl.**
B62D 11/02 (2006.01)
B60F 3/00 (2006.01)

(52) **U.S. Cl.** **280/6.48**; 280/6.2; 440/12.5; 169/52

(58) **Field of Classification Search** 180/6.2, 180/6.24, 6.48; 440/12.5; 114/364; 169/52
See application file for complete search history.

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2005/0003715	A1 *	1/2005	Hewitt	440/12.5

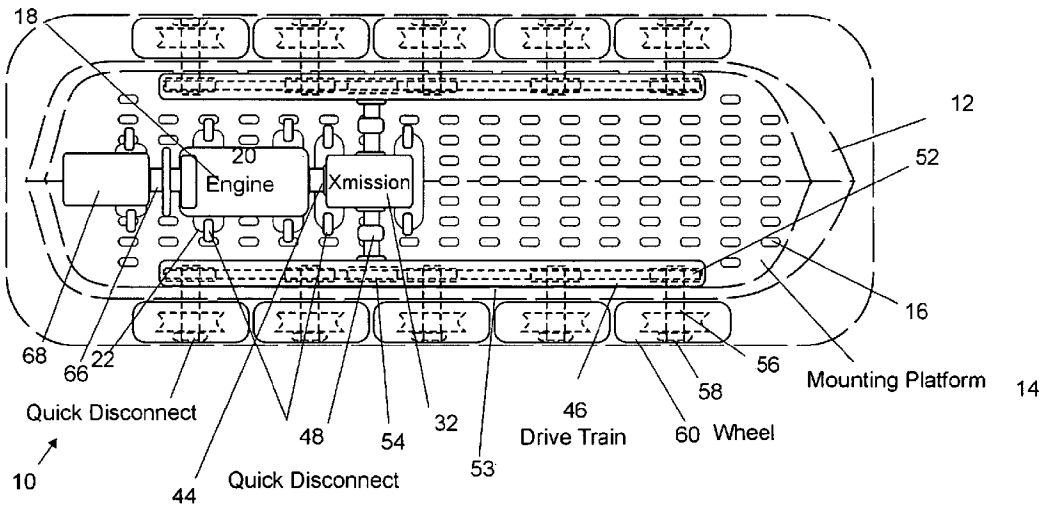
* cited by examiner

Primary Examiner—Tony H. Winner
(74) *Attorney, Agent, or Firm*—R. William Graham

(57) **ABSTRACT**

An all-terrain vehicle equipped for quick exchange of its functional components and aid units includes a frame having a mounting platform which includes a plurality of spatially positioned open surfaces, a functional unit having a quick release connector adapted to connect to the functional unit to a first part of the mounting platform, and wherein the frame is made of a polymer-matrix and metal-matrix composite.

17 Claims, 5 Drawing Sheets



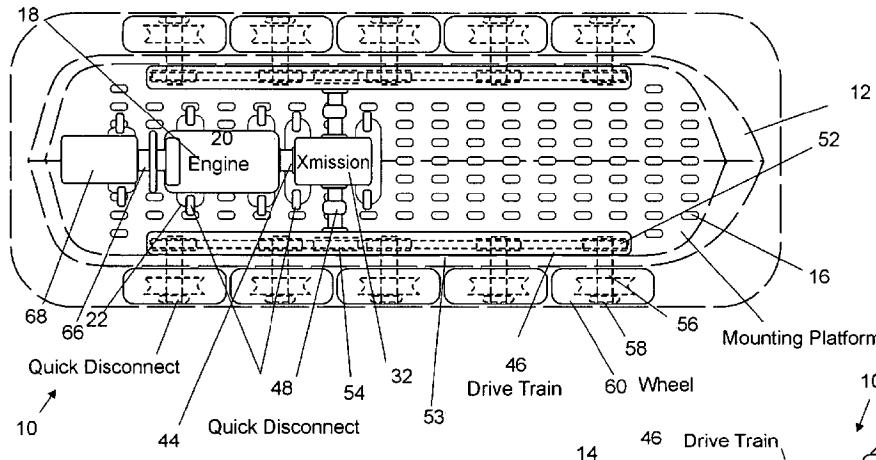


FIG. 1

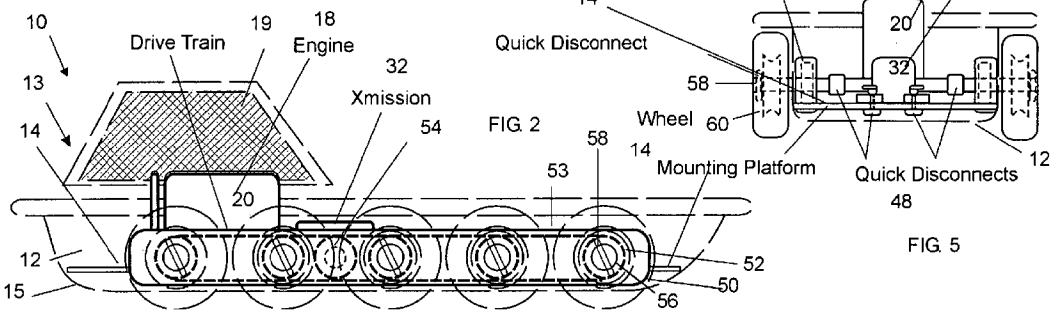


FIG. 5

FIG. 2

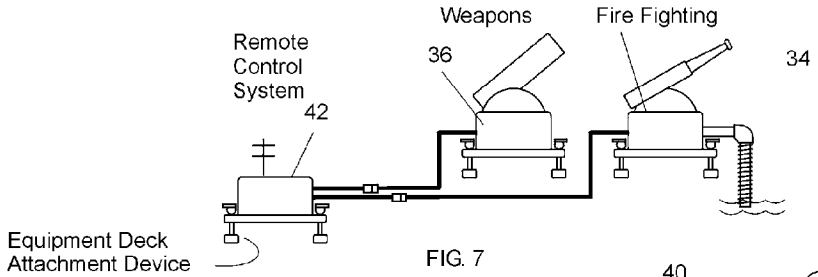


FIG. 7

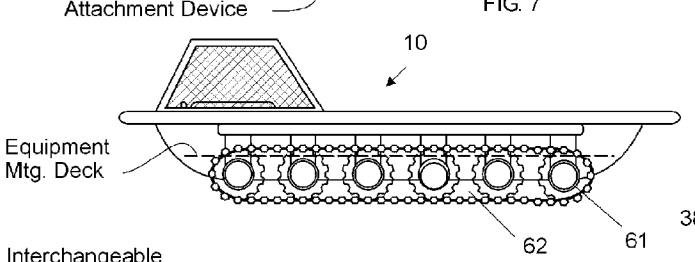


FIG. 2A

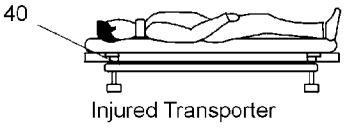


FIG. 8

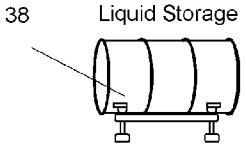


FIG. 9

The Design concept is of an all terrain vehicle that can be quickly converted to cover a broad range of applications; Weaponry, Fire Fighting, Rescue, etc.

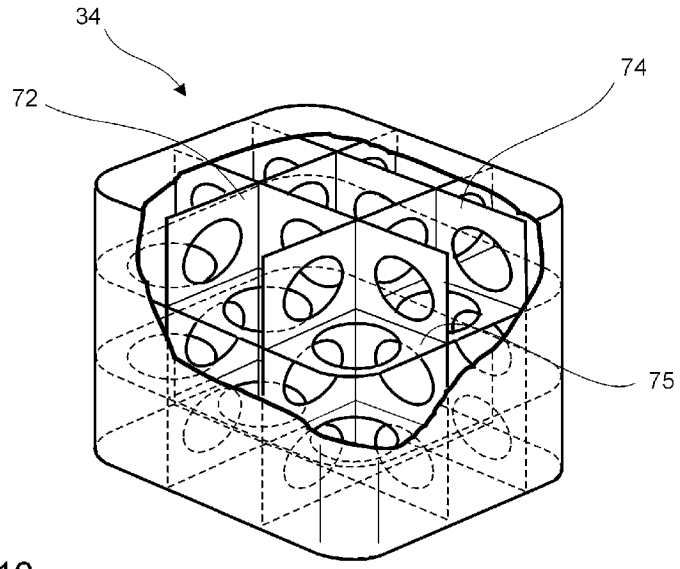
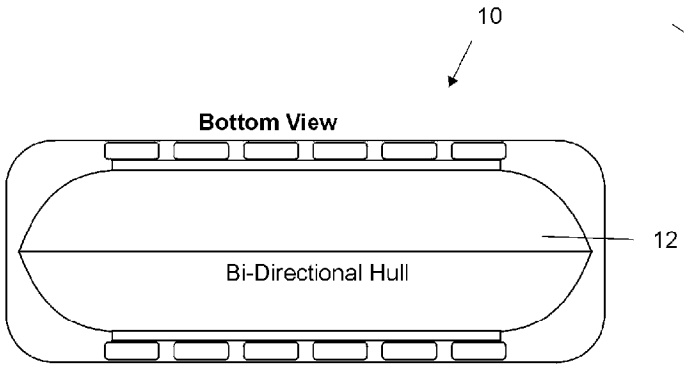


Fig. 10

FIG. 3



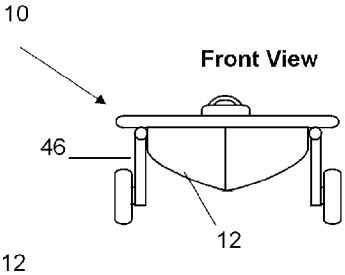


FIG. 4A

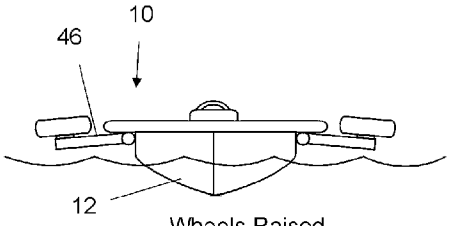
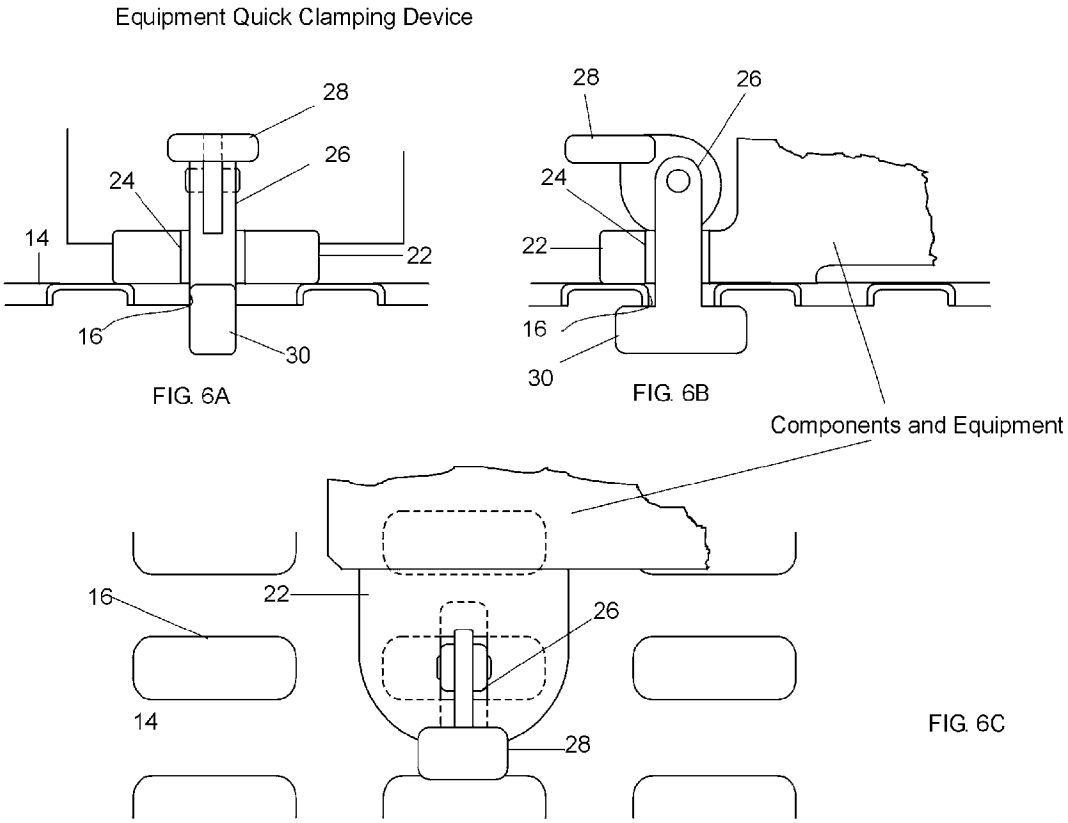


FIG. 4B

Wheels Raised
(Act as Stabilizers)


Equipment Quick Clamping Device
28
26
24
14
22
16
30
FIG. 6A
28
26
24
22
16
30
FIG. 6B
Components and Equipment
16
22
26
14
28
FIG. 6C

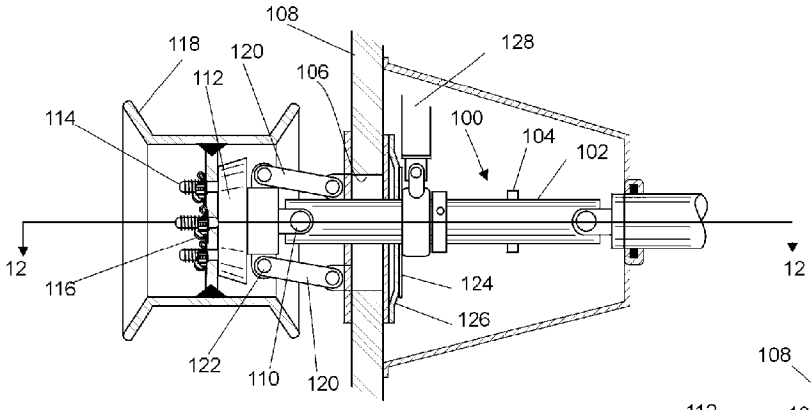

108
118
120
112
106
128
114
100
104
102
12
12
116
124
126
122
110
120

Fig. 11

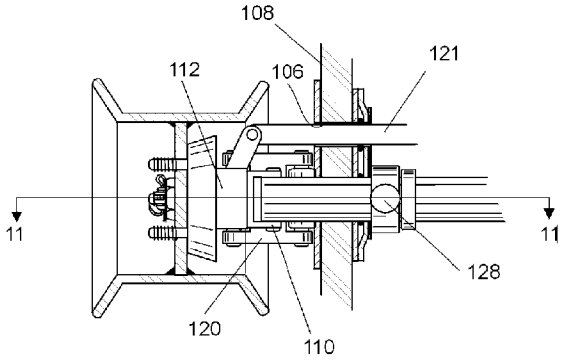

108
121
112
106
11
11
128
120
110

Fig. 12

ALL-TERRAIN HOSTILE ENVIRONMENT VEHICLE

This application claims the benefit of earlier filed application U.S. Ser. No. 60/601,451 filed Aug. 13, 2004.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a multi-purpose all-terrain vehicle. More specifically, the present invention is directed to an all-terrain hostile environment vehicle equipped with various aid units such as quick exchange medical, hazardous material, search, rescue, communications, fire fighting, and weapon units which can be deployed in remote areas or areas not accessible by paved roads.

2. Discussion of Background

Current hostile terrain vehicles of the type used in police, rescue and military applications have historically included tanks, trucks and jeeps, for example. While these vehicles have been effective, they have not been found very efficient for quick response scenarios in certain hostile environments i.e., (terrain as well as inclement weather particularly when the two are mixed). Further, due to the very nature of the conditions in which the vehicles can be deployed, one or more of the vehicles mechanical or armaments, equipment components can become damaged or disabled during the vehicles use. They are often too large, slow moving, or ill-equipped to handle a variety of potential deployment needs in which now require relatively light weight, fast moving, highly mobile, low profile signature vehicles which can be rapidly deployed onto land or water and quickly equipped or reequipped, armed or rearmed, predetermined or re-determined with one or more quick exchange equipment component packages.

In many instances deployment of many military conventional vehicles and equipment and armament systems is not practical or has limited utility. The terrain may be sandy, mountainous, muddy, swampy, jungle, or covered with snow, ice, mines, obstructions, vegetation, trees and in cities the roads may be to narrow to traverse. It is evident that there is a need for a more effective means to transport to and then deploy vehicles, weapons system packages, equipment, logistics, personnel and wounded and injured over areas of ground having difficult terrains.

There is a need for an all terrain vehicle to be as lightweight and mobile as possible. There is a need for a solution to tire problems which occur in the field. There is also a need for improved remote weapons systems. There is a further need for improved vehicle durability for an all-terrain vehicle, during periods of war in foreign lands.

In many instances deployment of conventional aid equipment is not practical or has limited utility. There is a need for a more effective way to transport aid equipment and personnel over areas having difficult terrain and for transporting injured persons. In addition, there is need for a vehicle that can solve all of the above problems.

SUMMARY OF THE INVENTION

It is an object of the invention to provide an improved all-terrain vehicle.

A further object is to provide a multi-purpose vehicle.

Another objective is to develop a small lightweight amphibious tactical assault vehicle.

Another objective is to develop a small manned or unmanned robotic amphibious ground vehicle.

Another objective is to develop a small manned or unmanned autonomous ground amphibious vehicle.

Still another object is to provide a vehicle which is equipped for quick exchange of all its functional components and aid units.

Accordingly, the present invention is directed to an all-terrain vehicle equipped for quick exchange of its functional components and aid units. The vehicle is lightweight and stable when traveling over rough ground and includes a frame having a sealed hull to provide the vehicle with buoyancy. A platform exists on the frame above the hull which includes a plurality of open surfaces through which a quick release connector may be inserted to secure a functional unit or aid unit to the platform.

The hull can be made of polymer composite material which includes ballistic proof characteristics. The units can be a self contained: operational fire fighting unit; decontamination unit, communications unit; weapons unit; fuel tank; engine unit; transmission unit; medical aid unit; troop transport unit; logistical supply transport unit; etc. To this end, each of these units can be air dropped at a site to immediately engage the enemy, to make ready, replenish or repair a required unit.

Other features and their advantages can be apparent to those skilled in emergency or combat equipment from a careful reading of the Detailed Description of Preferred Embodiments accompanied by the following Drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

FIG. **1** is a top view of a vehicle according to a preferred embodiment of the present invention;

FIG. **2** is a side view of a vehicle according to a preferred embodiment of the present invention;

FIG. **2**A is a side view of optional tractor tread wheels which can be employed.

FIG. **3** is a bottom view of another embodiment of the vehicle according to a preferred embodiment of the present invention;

FIG. **4**A is an end view of the embodiment in FIG. **3** in a first mode of use;

FIG. **4**B is an end view of the embodiment in FIG. **3** in a second mode of use;

FIG. **5** is a sectional view of the vehicle of the invention;

FIG. **6**A is a side sectional view depicting insertion of a quick attachment pivot lock through a mounting surface of a part of the vehicle;

FIG. **6**B shows side sectional of the pivot lock in a locked position to the mounting surface;

FIG. **6**C shows a top view of the pivot lock on in use on vehicle holding part of an aid unit for use on the vehicle according to a preferred embodiment of the present invention;

FIG. **7** is a side view of a remote control aid unit with quick attachment pivot locks, connected to a weapons aid unit and fire fighting unit which both have quick connect attachments;

FIG. **8** is a side view of a stretcher aid unit with quick attachment pivot locks;

FIG. **9** is a side view of a fuel tank aid unit with quick attachment pivot locks; and

FIG. **10** is a perspective view of a baffle system used in the tanks of the present invention.

FIG. **11** shows a side section view of an axle and rim portion of for use with the invention.

FIG. **12** shows a top section view of the axle and rim portion in FIG. **11**.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the figures, there is shown an all-terrain vehicle **10** according to the present invention. The all terrain vehicle **10** includes a sealed hull **12** having a platform **14** operably disposed within the hull **12**. The platform **14** includes a plurality of elongated mounting surfaces **16**.

To this end, the vehicle **10** and equipment configurations can be air delivery capable i.e., via a sling, parachute and touch and goes as well as surface water delivery to enable connection thereof to the platform **14** as can be described herein. The hull's upper body **13** and lower body and **15** of the vehicle **10** can be made of polymer composite ballistic resistant materials.

The platform **14** can be equipped for "quick exchange" of all of vehicle functional mechanical components, weapons armaments and equipment configurations and towing capabilities. Vehicle **10** can be lightweight and stable for traversing over rough terrain and can have a chassis frame system to accommodate various drive mechanisms.

The hull **12** can be substantially sealably molded for providing buoyancy for water crossings and provide way for necessary functional attachment of units. For example, the hull **12** can optionally be molded with axle holes therethrough to provide for axle shafts to be passed therethrough and connect with one or more each wheels to provide a direct drive. The vehicle **10** can be direct all wheeled drive (8, 10, or 12 wheeled drive). All axles can be in a split splined design configuration (one splined axle shaft along with a splined female mating coupling) can be permanently attached inside the vehicle hull **12** on a sub frame assembly, with the other splined axle shaft end being capable of being inserted into the splined female mating coupling enabling the splined axle shafts to be separated. Pivot or shaft (single or double action) push button ball bearing positive locking pins can be inserted through the splined female mating coupling and the splined axle shafts to lock the two axle shafts together thereby becoming quick release and quick exchange axles. Sub frame structural assemblies can preferably be made of composite ballistic proof materials or in a joined combination with steel or another suitable material.

As seen in FIGS. **11-12**, there is shown a front wheel turn steer mechanism. An axle portion **100** universally connects to an axle portion **102** connected to a transmission unit of the vehicle **10**. As described these can be splined connections with a locking pin **104** interconnecting the parts. The axle portion **100** extends through an oblong bearing surface **106** of a frame portion **108** and has an end equipped with a quick connect pivotal mount **110** which connects to a hub **112**. The hub **112** includes a plurality of plurality of shanks **114** equipped with quick connect locking pins **116** in which to quickly enable mounting of a tire rim **118**. A steering arm **121** is operably connected to the hub **112**. A pair of H-shaped support linkages **120** pivotally interconnect the hub **112** to the frame portion **108** via quick connect locking pins **122**. A flange plate **124** and accompanying sealing member **126** operably disposed therein are mounted to the frame portion **108** in a manner to aid in sealing about the axle portion **100** as is travels in the bearing surface **106**. A hydraulic piston **128** connects to axle portion **100** and can be controlled to actuate the position axle portion **100** within the bearing surface **108**, up or down.

The hull **12** can be designed keeping in mind heights, widths and length characteristics to match the heights, widths and lengths of various aircraft cargo holding bays to include aircraft width threshold. The upper body **13** within the cab or crew area can be designed in a user friendly manner so radios and other equipment can be within easy reach of the crew members individual area of operations as well as all entry and exit doors can be user friendly and easy to open and close from both inside and outside the vehicle **10**. Storage containers can also be designed in such a manner to facilitate easy to reach, store and retrieve battlefield gear (MOLLE gear, alice packs, CLBVs-combat load bearing vests, BCFG-basic combat field gear, etc.

As is described herein, a plurality of platform mounting surface **24** can be formed on the frame system inside the hull **12** which can include a plurality of open surfaces and holes through which quick release connectors (pivot locks **26**) can be inserted to attach and secure all functional mechanical components, weapons armaments, communications, fire-fighting equipment and pumps, pump engines, foam systems, dry chemical systems, split cell foam tanks, water hoses, nozzles, water tanks, special operations, laser, electrified water and or slippery slime tanks, microwave impulse equipment, water cannon, hazardous materials decontamination, search, rescue, medical, surveillance, cargo, transport, fuel tank, vehicle engine, transmission, wiring connectors, wire harnesses, instrument panels, access panels, computer, doors, windows, hatches, sensors, imaging equipment, etc, all of which can be equipped with mounting flanges **22** and pivot or shaft (single or double action) push button ball bearing positive locking pin system as used in the engine/transmission mounting platform described herein.

The vehicle **10** includes a self contained (main vehicle drive power plant), engine unit **18**, (that can be P-8 compatible, gasoline, diesel, hybrid-electric, propane, natural gas or a combination thereof) and be of the scaleable engine technology where as a specific horsepower engine can be used for instance 71 horsepower or 165 horsepower or 172½ horsepower etc. which can include engine housings with flanges **22** extending laterally from the engine for mounting. The flanges **22** include an open aperture **24** through which a pivot or shaft (single or double action) push button ball bearing positive locking pins **26** can extend. The pivot or shaft (single or double action) push button ball bearing positive locking pins **26** can have a handle **28** with an elongated head **30** which can be configured smaller, but in a similar shape, allowing the alignment and insertion of the pivot or shaft (single or double action) push button ball bearing positive locking pins **26** into the elongated mounting surfaces **16**. This can secure the engine unit **18** to the mounting platform allowing the engine unit **18** to be quickly connected and disconnected from the platform **14**.

A protective engine cage **19** can also be equipped with flanges **22** and pivot or shaft (single or double action) push button ball bearing positive locking pins **26** to provide additional protection to the engine unit **18** as well as the occupants. The protective cage **19** can also have a rear access door (not shown). This can allow for the engine protective cage **19** to be quickly removed and reinstalled. Additionally, all vehicle (main vehicle drive), transmission mounting platforms can be configured in the same manner as the engine unit **18** and engine protective cage **19** platforms allowing for the same quick disconnection for the transmission.

The operation of the pivot lock **26** can best be seen in FIGS. **6A-6C** wherein FIG. **6A** shows insertion of the head **30** through the mounting surface **16** in an alignment therewith. FIG. **6B** shows pivot lock **26** in a closed and locked position

with the head **30** transverse to the mounting surface **16** to secure the flange **22** to the platform **14**. FIG. **6**C shows a top view of the pivot lock connection. Thus, the engine unit **18** (or other component) can be quickly connected to platform **14**. In addition, handrails may be provided to facilitate the removal of any unit for quick attachment to the vehicle **10**.

Additionally, transmission unit **32**, fire fighting/decon unit **34**, weapons unit **36** fuel unit **38**, stretcher unit **40**, remote control unit **42** can all be equipped with similar flanges **22** and pivot locks **26**. The present invention provides better stabilization within weapons systems eliminating the need to stop to find out what as the system provides for easy addition of a missing or needed component for a mission. This also deprives the enemy of the chance to detect what is to be transported for a mission.

The fire fighting/decon unit **34** systems preferably includes cross over capabilities to perform hazardous material decontamination operations by merely the flip of an electronic switch and or a manual over-ride to the valve flow system. The unit **34** can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam and or dry chemicals in a fire and or hazardous materials decontamination mission from a distance that can not endanger the operator or crew members of the vehicle **10** and enable one to quickly change from one flow rate and pressure to another as the mission dictates such as from fire to hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. The unit **34** can include pump systems which have the capabilities to quickly change from flow rates and pressures of High Pressure/Low Volume, to Low Pressure/High Volume, to Low Pressure/Low Volume, to Pressure/High Volume in "joint" work together or independent pump systems and all pump systems can be draft capable, such as gross decontamination of men and equipment to include vehicles, downed aircraft, buildings, civilians, ect; in remote area's of the world during or after a chemical agent and or gas agent (Dirty Bomb), release by an opposing enemy or terrorist cell. Hose and attachment therewith can preferably be equipped to have quick release couplings. The unit **34** can be self powered (e.g., independent engine) or can be powered by the vehicle engine unit **18** through stacked hydrostatic or hybrid electrical drive systems. Vehicle and secondary engines of the combustion type can be electrically started and all engine horse powers can be predetermined to be capable to give the necessary power to drive the intended function(s) of the engine.

The engine unit **18** can be operably connected to the transmission unit **32** by a quick connect clamp **44**. In one embodiment, a drive train **46** can be operably connected to the side of the vehicle **10**. A quick connect drive linkage **48** connects the transmission unit **32** to the transmission unit **32**. The drive train **46** can be chain or belt driven in this embodiment. Chain or belt **50** operably connects to wheels **52** within a housing **53** which are configured to be complementary with the chosen drive, for example, a chain system would utilize a suitable sprocket on each wheel **52** for engagement therewith.

The drive train **46** includes a drive wheel **54** to drive the belt/chain **50**. Each wheel **52** can include a drive shaft **56** which extends outward from the housing **53** and includes an end configured with means **58**, such lock pin through a hole in shaft **56**, for quick connection of a wheel **60**. Alternatively, in another embodiment the drive train housing **53** can be pivotally mounted to the platform **14**, for example so that the same can be actuated between two modes, i.e., a land and a water use. as seen in FIGS. **4**A and **4**B.

In the embodiment of FIG. **2**A, vehicle **10** can use tractor treads **62** as seen in FIG. **2**A wherein tractor wheels **61** can be quick release. Such means **58** can include a hole extending through the end of the shaft **56** utilizing a locking ring pin. The treads **62** can include a band type track system having a high-performance, low maintenance alternative to segmented metal type tracks/treads that are traditionally used for tracked combat vehicles today. Band type tracks are light weight and continuous, travel smoothly around the wheels with a minimum amount of noise and vibration. This drastically reduces noise and dust and the vehicle **10** foot print signature and can enhance the survivability of the vehicle **10**. This can also reduce the amount of (drag) rolling resistance normally associated with track systems and can there-by improve the vehicles agility in the field. Band type track systems also offer significant track life cycles and can reduce the over all cost due to a reduced maintenance cycle with a much longer life span. Wheels **61** can have tractor/tank treads **62** wherein links of the treads can be quick release, quickly separable, enabling the vehicle **10** to be deployed and operable with or without using the treads **62**. This can be accomplished by a hole being molded into the tread links extending through the link from one end to the other and inserting a solid shaft locking ring pin through the hole. The tread links can be of a type manufactured using composites incorporated along with rubber to form the links.

Shock absorbers can be employed on the vehicle **10** with quick release capabilities. Alternatively, it may be preferred to use low pressure tires (15 to 25 psi) that provide both shock absorption as well as a very low ground pressure achieving a 10 to 15 psi ground pressure using only the tires and 5 to 10 psi with the read/track system employed. This would enable the vehicle **10** to operate with or without a shock absorption system. Shock absorbers can be employed on the vehicle with quick release capability or a pneumatic system employed to control air volume in the wheels **60** to enable the vehicle to operate with or without shock absorbers. The present invention also contemplates that by removing the need for central tire inflation systems, this would eliminate the confusion the driver or crew faces while in, or after, a combat situation to select from snow/mud, cross country/highway tire control settings.

It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle **10** providing the user with multiple drive mechanism options.

The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydrostatic, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. An objective achieved here is to incorporate a back up drive train for an "emergency switch-over" in the event one drive train becomes inoperable. This can be accomplished by using one or more methods: shaft over hydro-static, shaft over chain, shaft over belt, hydro-static over chain, hydro-static over belt, belt over chain. This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the

drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electronically or the transmission or both using a combination of manual over electronic solenoid valves in the event the solenoid valve falls to open it can be opened manually. The drive train can also be configured in such a manner where as one or more wheels can be driven by one or more drive component systems. In example, the front two wheels can be belt driven, the next two wheels being hydro-statically driven, the next two wheels can be chain or direct drive shaft driven or electronically driven in a multitude of various configurations.

In an embodiment, the vehicle **10** is equipped with steering and braking components adjacent the wheels **60** and can be steered via a conventional wheel turning mechanism or via a skid steer method whereby one or more wheels **60** are braked to effect a turn of the vehicle **10**. This will give the vehicle **10** the ability to switch back and forth from the turn steer mode to the skid steer mode through the flip of a switch. The vehicle **10** forward and reverse motion can be achieved by the drive train **46**. The multi steering capability enables the vehicle **10** to be placed into a highway mode of steering like that of an automobile on standard paved and unpaved road networks and then changed to skid steer type steering for greater steering mobility when needed as in combat escape and evade or weapons set up and deploy maneuvers, rough terrain or congested areas such as city streets enabling all vehicles to turn within the length of its own radius. This can be accomplished by incorporating single, double, and triple tiered yoke or universals on the wheels **60** at the point of attachment to the wheel axles, along with electromagnetic plates attached by one plate being attached to the wheel rim and another electromagnetic plate attached to springs enabling the plate to move along the axle through a key way slot in the axle for the two plates to become engaged with each other at a flip of a switch locking the turn steerable wheel or wheels into a skid steer mode and vice versa where as once the electromagnetic plates are disengaged through the flip of a switch the plate attached to the axle also having return springs or a pressurized air or hydraulic ram shaft or electrically actuated connection shaft would return the axle plate to its original position allowing for the wheel or wheels to become turn steerable again.

In an embodiment, the vehicle's **10** forward and reverse motion can be achieved through the drive train **46** (which can include those mentioned) to affect an emergency switch over from one drive train to another in the event a drive train failure occurs in one particular drive train. The transmission contemplated by the invention can be of a type configured using a torque converter driven, 3, 6 or more speed power-shift transmission. The transmission can be controlled by a microprocessor which can respond from the shift lever position input. The transmission can be programmed to be fully automatic through all three, six or more speeds or manually controlled, 1st through 3rd, and then automatically in 4th through 6th or more, in a 6 or more speed transmission. The transmission can also have programmable down-shift inhibit points programmed into the micro-processor which would prevent the transmission from reacting to a down-shift signal if the resultant engine speed, revolutions per minute, (rpm), would result in an engine over-speed and damage situation. This would not allow the downshift until the vehicle slowed to a speed which would not damage the engine after being down-shifted into the new gear range. This same feature can also be programmed into the transmission unit **32** to prevent accidental directional shuttle shifting at speeds which would cause a drive line package damage or operator's discomfort, i.e., neck and back injuries, (whip lash). The transmission can be reprogrammed to fit the vehicle **10** particular mission needs as it is determined or redetermined. This can also be accomplished as previously mentioned through radio frequencies, cell, digital, satellite, infra red signals from aircraft such the U.S. Air Force Predator and other aerial drone aircraft. Electric powertrain technologies can also be incorporated using hybrid-electric drive transformation designs and technologies that have no mechanical links between the internal combustion engine and the wheels. By operating the vehicle in electronic only drive mode, the acoustic, (exhaust sound characteristics), thermal, (engine and exhaust heat signatures), can be greatly reduced to facilitate operations that require covert deployments, in ultra high mobility arena's with silent running capabilities. The engine unit **18** to transmission unit **32** connection can be operably connected by using a quick connect method described herein above.

The vehicle **10** is designed to be drivable on uneven ground, on mud, through deep water, or on other surfaces a regular automobile or truck cannot be driven on. To achieve this effect, the vehicle can be relatively lightweight, having eight, ten or twelve-wheel drive, which is sealed against water intrusion to critical engine and transmission parts, and can be chain driven and geared for low speeds and power. Weight reduction can be achieved by using various polymers which also have ballistic proof capability. The wheels **60** can be formed to provide traction on slippery ground and retract on water. Tractor treads **62** made of synthetic or natural rubber. The transmission unit **32** can include a quick connect **66** for a propeller unit **68** to operate in water.

The tank **34** can be used for fire-fighting and includes a sloshless baffle system **70**. The baffle system **70** includes a plurality of panels **72** and **74** disposed transversely to one another using both horizontal and vertical plates of various thicknesses depending on the size of the tank (for structural stability) utilizing varying sized holes in each panel (e.g., hole sizes of less than about an inch can be used). The baffle system **70** provides for relatively constant fluid level within the tank **34**. The baffle system **70** prevents uncontrolled upward, downward and side to side fluid movement in rough terrains, sudden stops and starts, and most importantly sudden or quick turns that suddenly transfers the fluids weight energy dangerously in different directions. This also provides the vehicle **10** better stabilization and control characteristics at higher speeds during tight or sharp maneuvering as well as on rough, steep or unleveled terrains. This baffle design can be employed in other tanks on the vehicle **10**. The tank **34** is equipped with a pump for providing various pressure and volume outputs to shoot sufficient volumes of water and/or foam and or/dry chemicals toward a fire from a distance that can not endanger the operator of vehicle **10**. The user/operator can thereby quickly switch from one flow rate and/or pressure to another as needed. Hoses can preferably be provided with tank **34** and are of a quick connect end couplings as is known in the art.

Engine unit **18** can be fueled by any number of fuels such as gasoline, diesel, propane, electric, hybrid electric, or natural gas and can be used to power the vehicle **10** as well as any of the other units described herein by using a suitable coupling. However, it is contemplated that other units, such as the fire fighting tank **34** can be self powered. The engine unit **18** and any other engine provided is given a predetermined horsepower engine and pump, where required which is capable of running the intended function and is of the type that is electronically started.

A foaming agent can be dispensed from a container (not shown) inside tank **14** that adds foamant to the water in tank **34**. Enough foamant of any suitable commercially available, fire-retarding chemical foamants should be provided to foam

all the water in tank **34**, so that 100 gallons of water can produce approximately 10,000 gallons of foam when the water is discharged through a standard eductor jet nozzle attached to the end of hoses. This foaming system may be controlled by a series of valves or may be controlled from a control panel within the confines of passenger area of vehicle **10'**, as shown in FIG. **10**. Such control panel is equipped to control the valves to activate the foaming system or just water or just dry chemicals and can also include an adjustable valve which enables thickness of the foam expelled through the hoses or water cannon to be changed between heavy and light foam.

For controlling the flow of water in the case where a series of valves and hoses are used, a first valve controls the flow of water through a first hose from tank **34** to a pump; a second valve controls the flow of the water from a second hose through the tank filter; and a third valve prevents water from flowing from master drain. If there is a convenient nearby source of water, such as a lake or stream, the water from the available source can be pumped directly by pump into the fire hoses, or the tank at the same time refilling the tanks water supply and continuing to supply water to the hoses, water tank and cannon thereby providing a continuous uninterrupted supply or flow of water by removing an end cap from pump and simple valve manipulations feeding water therethrough. The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.

The passenger area of vehicle **10'** can be enclosed by roll bars and a wire mesh or steel grate, so that its passengers are protected from debris and other potential hazards. As well as the upper body of vehicle **10** can as well be formed in a separate form or a continuous flow form from the lower body of vehicle **10** comprised from bullet proof composite materials being form fitted with a multitude of multiple angles from 1 degree angles to 95 degree angles to assist in the deflection of enemy munitions striking the vehicle **10** in assisting the ballistic properties of the composite/thermo-plastic materials used in the upper and lower bodies of vehicle **10**. The tank **34** can have a first compartment and a second compartment separated by a divider. A first compartment preferably contains about 150 to 350 gallons of water, while a second compartment preferably contains about approximately 15 to 25 gallons of a foaming agent like that described above. The tank **34'** can also preferably be divided by a plurality of sections **72**, **74** having a number of holes dispersed therein which permit fluid to flow within tank **34'**, but prevents the fluid from shifting or "sloshing" from one side to the other. Again, it is important for the fluid not to shift, since the center of gravity of vehicle **10'** would shift with the fluid, which would in turn increase the chance of vehicle **10'** overturning.

In addition, the tank **34** can include a self-contained engine **16'** and can be fueled from the same fuel tank or source of power that supplies vehicle **10'**. Also positioned along a top of tank **34'** can be two storage areas. The first storage area can be enclosed and designed to carry equipment, such as chain saws axes or other fire-fighting equipment. The second storage area can serve as a hose bed enabling a length of hose to be folded upon itself and stored when vehicle **10'** is traveling. The hose can be fluidly attached to the pump. A Suction hose can be provided in the second storage area and connected to the pump connected to the tank with a sensor installed within the tank that sends a signal Pressure or Electric or both to a valve connected at the suction input on the pump automatically manipulating the valve system to automatically begin the refilling of the water tank when a determined loss of water level is reached. An adjustable electronic, electronic over air, air over hydraulic, air, hydraulic, automatic, automatic over manual valve system is provided to control the direction of flow of water, foam and dry chemicals through hoses.

A valve system consisting of electronic, air over hydraulic, electronic over air, air, hydraulic, automatic, automatic over manual can control fluid flows between the first compartment and pump, a tank fill valve to which the suction hose may be attached for refilling first compartment when the pump is activated; a water cannon valve that permits fluid to flow therethrough; and a master valve which controls the flow of fluid through fire hose. These controls are preferably within passenger area having sight levels indicating the level of fluid in the first compartment and second compartment and can be monitored via the vehicles on board diagnostics system and monitored by aircraft.

This combination also has several important advantages, such as the ability to transport a pump or other device to direct the water, foam and dry chemicals at the fire, as well as decontamination solutions for decon missions. For example, the pump can force the water, foam and dry chemical and decon solutions through the hose at a higher velocity, thus allowing the firefighters to attack the fire or decon objective from a greater distance than if they were on foot. Furthermore, while it is not practical for a firefighter or group of firefighters to carry a water cannon and then hold and operate it by hand, the present invention does permit the transportation of the water cannon, thus enabling the firefighters to attack the fire or decon objective from an even greater distance. The water cannon is as well capable to shoot streams of water (straight streams, fog, wide streams) of just water, foam, dry chemical or decon solutions in any combination and can be remotely controlled either wirelessly or wired in manned, unmanned and autonomous modes as well the water cannon can be operated manually in the case of a system failure.

Another important feature of the present invention is that the tank, hoses, and pump may be readily removed from the vehicle through the use of quick-release devices. Assuming the water and foam tanks are empty, four firefighters should easily be able to remove the fire-fighting equipment, which would enable the vehicle to be used during a search and rescue. The back portion, or rear deck, of the vehicle is capable of carrying two injured persons while two emergency personnel ride in the vehicle's passenger area. Consequently, transforming the vehicle and enabling it to be used for a different purpose reduces the number of vehicles required and provides greater flexibility to the firefighters, military personnel or other emergency personnel who use the device.

The use of a pump mounted to the all terrain vehicle which is capable of pumping water from a lake or stream onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire.

It can be apparent to those skilled in the art of fighting fires in remote areas that many modifications and substitutions can be made to the preferred embodiments described above without departing from the spirit and scope of the present invention. For example, vehicle **10'** may also be provided with a winch **150** or other equipment that can aid the vehicle in its fire-fighting mission or during a search and rescue.

The tank **34** can preferably have a recessed top for storage of hoses, multiple 100-foot hoses, and a large fill orifice, a screen to filter debris that would otherwise clog hoses, pump **18** to refill the tank **34** from lakes, ponds, or streams. Addi-

tionally, the tank **34** includes a master drain for flushing and cleaning the tank. In addition, a water cannon may be provided with vehicle **10** and located adjacent the operator to enable use thereof.

The operations of each unit described herein can be performed by remote control unit **42** which is operably quick connectable to each unit on the vehicle **10** having suitable connections therewith. The remote control unit **42** is also equipped with manual controls thereon to provide for operation of the vehicle **10** manually as well as a transceiver equipment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle **10** to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanics, servos, hardware, wiring harnesses can be quick releasable to facilitate easy replacement of any faulty components in case of damage or failure. A manual over-ride can be incorporated should the vehicle **10** need to be taken out of autonomous, unmanned mode for what ever reason and vice versa. For example, in an instance where as the crew could become incapacitated on a mission, the vehicle **10** via radio, satellite, cell, digital or IR (infrared) signals can be placed into remote control operation to continue the mission. This can be accomplished through methods such as using the SAE (Society of Automotive Engineer's), J-1939 standard reader's protocol using the engine and transmission ECM (Engine Control Module) and ECU (Engine Control Unit) and transmission data reader's through the use of pressure regulators linked with On Board Diagnostics (OBD-2) 16 or more pin connector linked to various communication signals such as "Blue Tooth", communication transmissions to send all relevant and pertinent engine, transmission, weapons system data to and from the aircraft allowing the aircraft and the vehicle **10** to communicate with each other through vehicle **10**'s on-board computer software to convert any incoming wide spectrum of broadband signals, radio frequencies (UHF, VHF, Low Band, High Band, etc.) cell, satellite, digital or IR (Infra Red) signals into electrical impulses to engage servo's attached to vehicle **10** steering, braking, engine, transmission, weapons deployment and engagement systems, etc., allowing the aircraft to be the forward observers eye's (FO), for guidance to the vehicle **10**. For instance, the aircraft informing the vehicle **10** that it's approaching a ravine and informing the vehicle **10** that it needs to down shift the transmission into a lower gear ratio for more power to negotiate itself at a slower speed to drive into the ravine and having the power to climb back out of the ravine. All pertinent data transmissions can be sent back and forth allowing for all systems monitoring such as vehicle speed, rpm, water temperature, oil pressure, gear transmission, electrical input and output, weapons diagnostics to include arming and disarming as well as including weapons selection if equipped with multiple weapons systems, water tank level, foam tank level, pump water pressure etc. To include all switch functions within the vehicle **10** to be dual use. dual functional e.g.; headlight switch will control the functions of the headlights but can also become the firing switch for the weapons systems and the windshield wiper switch controlling the wind shield wipers but also being capable of becoming the deployment activation switch for the missile launcher or grenade launcher deployment. All switches and switch functions can be reprogrammed or turned off rendering them non-usable to include the engine and transmission in the event the vehicle **10** is commandeered by the enemy using radio, cell, satellite, digital, IR signals etc. via aircraft.

Sensors including Multi-function RF, UAV, Tri-Band Radar, Active Protection Radar, unattended sensors network Sensor Technologies in (Ku, Ka, W-Band, etc.), can be employed into the vehicle **10** using a single electronically scanned antenna (ESA), that are high performance, electric field tunable and temperature insensitive that can be shared between all of the vehicles sensors. Doing so can help to cut costs, lower power consumption and reduce the over-all weight of all of the vehicle **10**.

As the trend continues from heavy forces to a much lighter, faster and mobile force this inevitably places more constraints on current sensor systems for engagement lethality and survivability issues. It is contemplated that the vehicle **10** can include improved thermal sensors integrated with cool thermal systems incorporating wide fields of view and narrow fields of view giving the ability to scan more of the field to then zoom and detect various targets. The vehicle can meet the challenge by integrating N-MEMS networked sensor systems and integrated sensor functions and technologies with an end result of better surveillance; active protection, command guidance, field combat recognition, active/passive target acquisition, combat identification, weapons guidance, secure point to point communications, networks for situational awareness and signal intercept sensors that are reduced in size to fit into reduced space that can become integral to help to ensure the survivability of the future lightweight operator within smaller lighter weight vehicles. Another benefit over traditional mechanically scanned antennas can be the added ability to reposition the antennas beam instantly to any given position within the coverage area of the sensors without having to manually or physically move the antenna. Additionally, technologies such as phased array and true-time-delay technologies, using ferroelectric tunable phase shifters, tunable filters for digital receivers, tunable impedance transformers to reduce loss due to impedance mismatch, MEMS phase shifters, millimeter wave integrated circuits (MMICs), and optical control of microwaves in a phased array antenna can be employed. The Rotman lens beam forming technologies for true-time-delay, multiple simultaneous beams can be generated to cover a broad band of the RF spectrum for multi function RF sensing. By applying multi-function radio frequency electronically scanned antenna sensors, real beam radar, direct digital synthesizer and field programmable gate array processing technologies designed for the vehicle's **10** architecture. Algorithms of the sensors can be integrated into the vehicles package, wherein a multi-functional sensor system with two-dimensional electronically scanned antennas, integrated receiver/exciters, flexible waveform synthesizers, high throughput signal processors can compliment the architectural design of all vehicle **10**. This reduces the number of antennas and interfaces on the vehicle **10** and can enhance the operability and infuse the inclusion of a multi-functional operating platform that is compact to fit within the scope of the vehicle package.

EO/IR image processing, algorithm technologies can also be incorporated into the vehicle **10** to maximize detection, clutter rejection and identification capabilities of various sensors and missile detection systems. In finding, detecting, engaging and then eliminating threat targets in a battlefield situation, one can encounter situations of partial occlusion to total obscurity. By receiving additional information in the form of multiple views of a potential target through a moveable or moving sensor platform, compiled with reconnaissance data available along with information from additional sensors provide multiple views of the target. Sensors include broadband and multi-spectral passive infrared sensors, imaging laser sensors and hyper-spectral imaging sensors with spatial clutter rejection technologies, and "Acoustic Battle Field" sensors, can also be incorporated into the vehicles

design signature. Acoustic sensors built into the vehicle **10** are passive by their nature and can provide real time, non line of site tracking and identification of enemy battlefield targets. Infrasonic sensors provide long range detection and target locating, electronic warfare (EW), countermeasures (ECM), and long range radio transmitters (e.g. base station to satellite), platform (combination or stand alone) systems can also be incorporated into the vehicles host of sensors and electronics. Beam-forming, target classification, identification algorithms, target tracking (using lines of bearing), signature molding and battlefield information validation can be incorporated into the vehicle **10**. By incorporating these imaging processing systems and acoustical battlefield sensor technologies into the vehicle platform, the vehicle **10** includes information systems which can be able to track helicopters, locate small arms (individual or sniper), and large (artillery), caliber gun and missile signatures, and track and identify other ground vehicles and importantly the vehicle operator and data analysts, preventing combat fatigue and information overload. The invention significantly reduces decision making in a combat situation by providing a myriad of capabilities herein described and can sharpen the operator's situational awareness, confidence and morale where needed in performing one's job.

Ultra-Wideband Foliage and Ground Penetrating Radar technologies can also be incorporated into the vehicle **10**. Low frequency imaging radar technologies, "Ultra-Wideband"(UWB), "Synthetic Aperture Radar," (SAR), and electromagnetic modeling and Short-Pulse Ground Penetrating Radar technologies can be provided in the vehicle **10** platform **14** and can provide the ability to reliably detect a stationary vehicle hidden under foliage as well as subsurface targets such as buried mines and even unexploded ordnance. Other benefits to employing this technology can be detecting negative obstacles (ditches, ravines, cliffs, ponds, lakes, streams, ect), as well as positive obstacles (rocks, trees, buildings, vehicles, bridges, etc). This enhances the vehicle **10** in the autonomous, unmanned robotic mode. Another critical initiative that achieved by employing these technologies into the vehicles system package is to counter-mine, humanitarian demining, and unexploded ordnance (environmental remediation), operations that confront present systems today.

Further, software programs can be included into computer processor ## of the vehicle **10** can include Cobra Command Post Computer Package consisting of Bio-Watch, Guardian Qualitative Assessment Tool (G-QAT), Decision Support System (DSS), Embedded Resources, Guides for Response to include Forensic, Emergency Response, Jane's Chem-Bio, NDPO on Scene Commander's, USAMRIID Medical Management of Biological Casualties, USAMRIID Medical Management of Chemical Causalities, AFRRI Medical Management of Radiological Casualties, MSDS Material Safety Data Sheets, BDR Bomb Dictionary Reader, RIDS Response Information Data Sheets, AIT Agent ID Tool, NFPA 704 Placard Tool, PPE Personal Protective Equipment, Glossary Tool, TSWG Terrorist Bomb Threat Evacuation Distance Tool, TSWG Damage and Injury Distance Card Tool, START Simple Triage And Rapid Treatment Tool, Form Completion Tool, SOP Standard Operating Procedures Tools, Checklist Tools, Incident Reporting Tools. The CoBRA Command Package is compatible with electronic mail, wireless communications, local area network (wired or wireless), Internet file transfer and manual file transfer using a disk or other media. The CoBRA Incident Report can carry with it attachments, including digital imagery, standard report forms, or other digital documents. This greatly facilitates data transfer on-scene and provides a definitive record of activities during or after an incident. In addition CoBRA uses the XML open data standard for creating incident reports, allowing CoBRA incident reports to be digested by third party data base and records management systems. Since the checklists and guidelines in CoBRA support a variety of different types of emergency response, the use of CoBRA at all levels of an Incident Command System greatly facilitates the situational awareness of unit commanders, overall incident commanders, and any subsequent follow-up investigations, or other software programs known in the art in as well be incorporated into vehicle **10**.

Each of the structural components can preferably be made of ballistic proof material, steel or other suitable material to enable the multiple functions of land and water use to be carried out. Each of the units described is exemplary for use with the invention and not intended to so limit the invention, rather modifications of these units are intended be covered hereby.

The composite armor ballistic resistant materials used in making the various components interior/exterior of the vehicle **10** integrate advanced polymer-matrix and metal-matrix composite materials which are preferably lightweight, quick exchange mission tailored having very high strength and brittle fibers which are combined with chemically resistant resins capable of being drawn out into thin layers and used as a building block to form a end result bulk material having a strength and stiffness nearing that of the fibers with the chemical resistance properties of the polymer. Composite materials can be used for both mobility and survivability as well as to achieve energy-absorbing armor equivalent to that of steel for ballistic protection while achieving a weight reduction factor of less than one-third the weight of steel. The composite materials that include two or more physically distinct and mechanically separable materials mixed in such a fashion that the dispersion of one material into the other material achieves the optimum physical characteristic properties desired for this project. A characteristic property of the constituent material is that of high-stiffness and high-strength reinforcing material that usually consists of a stand alone (a single/particular fiber type), fiber or multiple fiber types such as graphite, glass, kevalar, carbon, Aramid, to include Nano Composite Technologies (also known within the art), of various woven and inter-woven flat or tubular fibers or particles (cut, chopped at various lengths, ground to various consistencies of sizes of particles as well as braided or roped type designs can be used. The use of reinforcing materials either polymeric, such as polyethylene, polypropolene, such as Nylon 6 or Nylon 66 or ceramic or thermoplastics and Long Fiber thermoplastics that achieve very high strengths and stiffness at low densities. Another constituent material to be used can be a continuous "matrix" type i.e., (ceramic, polymer, metallic, thermo-plastics or Long Fiber thermoplastics), materials that can surround and envelope the reinforcing material to permeate the open space between the fibers or particles being used. Heat and/or pressure-based processing of the composite material matrix along with the reinforcing materials, using a variety of different techniques can result in the composite material matrix creating a composite ballistic resistant armor capable of defeating a wider range of small arms calibers and directed energy threats at a higher mass level of efficiency. For instance, a woven and or interwoven design layer of flat fibers in a front configuration layer, followed by woven and or interwoven braided or rope type design fibers configured in a secondary layer, followed by another layer of woven and or interwoven flat fibers design configured in a third layer, (followed by more consecutive layers if needed), impermeated with a host of different resin types (also known within the art), being incased within a

variety of thermo-plastic and Long Fiber thermoplastics polymers, (that are also known within the art).

This provides reduced weights, lower profile signatures, reduced overall composite thicknesses, ending with lower composite armor manufacturing costs. Other armoring techniques can be incorporated along with the composite material matrix; for example, using both positive and reversed polarity electromagnetics along with liquid chemicals that destroy the physical properties of various munitions as an example, copper or lead bullets embedded into the composite materials matrix, electrified plating and electrified encapsulated ceramics to destroy the threat of explosive warheads, chemical energy warheads, shaped charge/tandem shaped charged/precision shaped charged warheads, explosively formed penetrators and the impact of high velocity kinetic energy penetrators. Further materials which can be employed include Non-Explosive Reactive Armor (NxRA), and Non-Energetic Reactive Armor (NERA), capable of possessing a good multi-hit ratio against shaped charged warheads, (NREA when used with other armors) as well as both armors are considered to be passive armor technologies that are inexpensive and relatively easy to integrate. NxRA uses gas generating or other non-explosive materials to create an energetic drive material with-in the armor; and Momentum Transfer Armor (MTA), technologies used in small compact modular configurations that use explosively launched small bars to collide into the side of kinetic-energy penetrators and destroy them through fracturing, deflection and rotation. MTA along with composite matrix materials could reduce volume and weight of an explosive charge needed to destroy a wide range of enemy munitions; Smart Armor (SA) is also another reactive armor technology that can be integrated with composite material matrix using sensors in conjunction with microprocessors in the armor as a threat defeat characteristic reducing the size, weight and space needed to employ the armor. The sensors would determine the location of the munitions impact, velocity, and diameter while the microprocessor calculates the time when the armor should be deployed. Explosive Reactive Armor (ERA), and Self Limiting Explosive Reactive Armor (SLERA), technologies could as well be possibly incorporated with the composite armor matrix materials. ERA is the single most effectively proven technology for destroying explosive and kinetic-energy anti-armor munitions.

Both ERA and SLERA armor technologies produce good multi-hit capabilities with-in modular configurations and both are inexpensive and easy to fabricate. Advanced ERA designs are considered to be advanced technologies providing protection against many anti-armor munitions. SLERA uses an explosive charge in an arrangement that limits the production of power generated from the initial blast of the charge to a controlled space. This produces a reduced performance when compared to the characteristics to ERA armoring technologies, however the reduced blast reaction does contribute to a reduced shock on the vehicles structure as well as the SLERA modules themselves. SLERA can be a passive armoring material with explosive charges designed with increased safety in mind, i.e., the vehicles reaction with-in itself as well as behavioral reactions with other advanced technologies to include the vehicles electronics systems and threat distinction systems.

The combination of an all terrain vehicle **10** is an important feature of the present invention. This combination uses the ability substantially all functional components being quickly attached to the vehicle **10** to delivery a needed utility to a given site or condition. The use of the vehicle **10** can allow for a particular unit to be dropped by aircraft and quickly installed at site to handle the particular situation.

What is claimed is:

1. An all-terrain vehicle equipped for quick exchange of its functional components and aid units, which includes:

a frame having a mounting platform which includes a plurality of spatially positioned open surfaces;

a removable engine having a quick release connector adapted to connect said engine to a first part of said mounting platform;

a removable drive shaft having a quick release connector adapted to connect said drive shaft to a second part of said mounting platform and in an operably connected manner to said engine;

a removable transmission having a quick release connector adapted to connect said transmission to a third part of said mounting platform and in an operably connected manner to said drive shaft;

at least two removable axles each having a quick release connector adapted to connect said axles to a respective fourth part and fifth part of said mounting platform and in an operably connected manner to said transmission;

a plurality of wheels each having a quick release connector adapted to connect to one of said axles; and

a steering mechanism having wheels with a quick release connector adapted to connect said steering mechanism to a sixth part of said mounting platform and in an operably connected manner to said wheels and said transmission.

2. The all-terrain vehicle of claim **1**, which includes a sealed hull to provide said vehicle with buoyancy and said mounting platform is formed about said hull.

3. The all-terrain vehicle of claim **1**, which includes a weapons unit having a quick release connector adapted to connect said weapons unit to a seventh part of said mounting platform.

4. The all-terrain vehicle of claim **1**, which includes a communications unit having a quick release connector adapted to connect said communications unit to a seventh part of said mounting platform.

5. The all-terrain vehicle of claim **1**, which includes a firefighting equipment unit having a quick release connector adapted to connect to said firefighting equipment unit to a seventh part of said mounting platform.

6. The all-terrain vehicle of claim **1**, which includes a microwave impulse equipment unit having a quick release connector adapted to connect to said microwave impulse equipment unit to a seventh part of said mounting platform.

7. The all-terrain vehicle of claim **1**, which includes a water cannon unit having a quick release connector adapted to connect to said water cannon unit to a seventh part of said mounting platform.

8. The all-terrain vehicle of claim **1**, which includes a search and rescue unit having a quick release connector adapted to connect to said search and rescue unit to a seventh part of said mounting platform.

9. The all-terrain vehicle of claim **1**, which includes a firefighting equipment unit having a quick release connector adapted to connect to said firefighting equipment unit to a seventh part of said mounting platform.

10. The all-terrain vehicle of claim **1**, which includes a medical unit having a quick release connector adapted to connect to said medical unit to a seventh part of said mounting platform.

11. The all-terrain vehicle of claim **1**, which includes a surveillance unit having a quick release connector adapted to connect to said surveillance unit to a seventh part of said mounting platform.

12. The all-terrain vehicle of claim 1, which includes a fuel tank unit having a quick release connector adapted to connect to said fuel tank unit to a seventh part of said mounting platform.

13. The all-terrain vehicle of claim 1, which includes a cargo unit having a quick release connector adapted to connect to said cargo unit to a seventh part of said mounting platform.

14. The all-terrain vehicle of claim 1, which includes a hatch unit having a quick release connector adapted to connect to said hatch unit to a seventh part of said mounting platform.

15. The all-terrain vehicle of claim 1, which includes an imaging equipment unit having a quick release connector adapted to connect to said imaging equipment unit to a seventh part of said mounting platform.

16. The all-terrain vehicle of claim 1, which includes a field sensor unit having a quick release connector adapted to connect to said field sensor unit to a seventh part of said mounting platform.

17. The all-terrain vehicle of claim 1, which includes a remote control unit having a quick release connector adapted to connect to said remote control unit to a seventh part of said mounting platform.

* * * * *

EXHIBIT F

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Wisconsin on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
21-CV-1322-BHL	11/16/2021	Eastern District of Wisconsin

PLAINTIFF	DEFENDANT
Nuhn Industries, Ltd.	Bazooka Farmstar, LLC and Tach's Custom, LLC

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,694,636 B2	7/4/2017	Nuhn Industries, Ltd.
2	10,974,557 B2	4/13/2021	Nuhn Industries, Ltd.
3			
4			
5			

In the above---entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above---entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
Gina Colletti	s/K. Hubacz	11/18/2021

Copy 1---Upon initiation of action, mail this copy to Director Copy 3---Upon termination of action, mail this copy to Director
Copy 2---Upon filing document adding patent(s), mail this copy to Director Copy 4---Case file copy

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 223 of 894

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/891,627	04/13/2021	10974557	NUN-0007-US4	3433

59115 7590 03/24/2021

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CANADA

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Ian NUHN, Sebringville, CANADA;
Nuhn Industries Ltd., Sebringville, CANADA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
16891627	03-Jun-2020	Ian NUHN	NUN-0007-US4	3433

TITLE OF INVENTION :

AMPHIBIOUS PUMPING VEHICLE

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Small	Utility under 35 USC 111(a)	3617	012540	STEPHEN AVILA

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
$600	$0	$600	10-May-2021	$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
59115 BRUNET & CO. LTD. 401 Bay St. Suite 1600 Toronto ON M5H 2Y4 CANADA 519-474-0700 patents@brunetco.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status

Change in Entity Status

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

◉ Applicant asserting small entity status. See 37 CFR 1.27.
Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

○ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:

☒ Issue Fee	☐ I authorize USPTO to apply my previously paid issue fee to the current fees due
☐ Publication Fee	☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____
☐ Advance Order - # of copies _____	☐ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number _____ . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed

NOTE: If no name is listed, no name will be printed
For printing on the patent front page, list to be displayed as entered

1. BRUNET & CO. LTD.
2. ROBERT BRUNET
3. HANS KOENIG

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
Nuhn Industries Ltd.	Sebringville		canada	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Robert A. H. Brunet/	**Date**	03-15-2021
Name	Robert A.H. Brunet	**Registration Number**	55158

Electronic Patent Application Fee Transmittal

Application Number:	16891627
Filing Date:	03-Jun-2020
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Filer:	Robert A.H. Brunet/Stephanie Janssens
Attorney Docket Number:	NUN-0007-US4

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPL ISSUE FEE	2501	1	600	600
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**600**

Electronic Acknowledgement Receipt

EFS ID:	42177945
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet/Stephanie Janssens
Filer Authorized By:	Robert A.H. Brunet
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	15-MAR-2021
Filing Date:	03-JUN-2020
Time Stamp:	12:22:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$600
RAM confirmation Number	E20213EC22492945
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Web85b.pdf	46171 7322f4ebc70a5991777269afb3f272221779cc28	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32037 0a6671fd7a3950e17ff455fcd8f63c1d5774c566	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	78208		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/891,627	06/03/2020	3617	835	NUN-0007-US4	20	1

CONFIRMATION NO. 3433
CORRECTED FILING RECEIPT

59115
BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

OC000000123945336

Date Mailed: 03/10/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Ian NUHN, Sebringville, CANADA;

Applicant(s)

Nuhn Industries Ltd., Sebringville, CANADA;

Assignment For Published Patent Application

Nuhn Industries Ltd., Sebringville, CANADA

Power of Attorney: The patent practitioners associated with Customer Number 59115

Domestic Priority data as claimed by applicant

This application is a CON of 16/157,950 10/11/2018 PAT 10710422
which is a CON of 15/586,493 05/04/2017 PAT 10124638
which is a CON of 15/044,905 02/16/2016 PAT 9694636

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/10/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/891,627**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AMPHIBIOUS PUMPING VEHICLE

Preliminary Class

440

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 234 of 894

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

59115 7590 02/10/2021

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ONTARIO M5H 2Y4
CANADA

EXAMINER
AVILA, STEPHEN P

ART UNIT	PAPER NUMBER
3617	

DATE MAILED: 02/10/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4	3433

TITLE OF INVENTION: AMPHIBIOUS PUMPING VEHICLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	05/10/2021

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

59115 7590 02/10/2021

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ONTARIO M5H 2Y4
CANADA

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4	3433

TITLE OF INVENTION: AMPHIBIOUS PUMPING VEHICLE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	05/10/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
AVILA, STEPHEN P	3617	440-012540

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4	3433

59115 7590 02/10/2021

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ONTARIO M5H 2Y4
CANADA

EXAMINER	
AVILA, STEPHEN P	

ART UNIT	PAPER NUMBER
3617	

DATE MAILED: 02/10/2021

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/891,627	Applicant(s) NUHN, Ian	
	Examiner STEPHEN AVILA	Art Unit 3617	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to the interview of 1/28/21.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. 012821.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/STEPHEN P AVILA/
Primary Examiner, Art Unit 3617

Continuation of 3. The allowed claim(s) is/are: 1-2,4,6,12,18,20 and 29-34

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. **EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Mr. Brunet on 1/28/21.

The application has been amended as follows:

Claims 21-28 have been canceled.

Reasons for Allowance

4. The following is an examiner's statement of reasons for allowance: The response filed 1/26/21, including the amendment to the specification and ADS, aligns the specification to the ADS.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN AVILA whose telephone number is (571)272-6678. The examiner can normally be reached on Mon-Thu 6-4.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

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STEPHEN AVILA
Primary Examiner
Art Unit 3617

/STEPHEN P AVILA/
Primary Examiner, Art Unit 3617

Applicant-Initiated Interview Summary	**Application No.** 16/891,627	**Applicant(s)** NUHN, Ian		
	Examiner STEPHEN AVILA	**Art Unit** 3617	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
STEPHEN AVILA	Primary Examiner	Telephonic
Mr. Brunet	Attorney of Record	

Date of Interview: 28 January 2021

Issues Discussed:

35 U.S.C. 103

Claims 21-28 to be canceled via examiners amendment.

Other

The ADS and specification

/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	**Art Unit**
	STEPHEN AVILA	3617

CPC								
Symbol							**Type**	**Version**
B60F	/	3	/	0061			F	2013-01-01
A01C	/	23	/	045			I	2013-01-01
A01C	/	3	/	026			I	2013-01-01
B60F	/	3	/	0007			I	2013-01-01
B60F	/	3	/	0038			I	2013-01-01
B60F	/	3	/	003			I	2013-01-01
B63H	/	25	/	02			I	2013-01-01
F04D	/	13	/	02			I	2013-01-01
B60F	/	2301	/	00			A	2013-01-01
B63H	/	2025	/	028			A	2013-01-01

CPC Combination Sets								
Symbol							**Type**	**Set**	**Ranking**	**Version**
	/		/							

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	13	
/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	02 February 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20210202

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 244 of 894

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	**Art Unit**
	STEPHEN AVILA	3617

INTERNATIONAL CLASSIFICATION					
CLAIMED					
B60F	/	3	/	00	

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 13	
/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617 (Primary Examiner) 02 February 2021 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office Part of Paper No.: 20210202

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 245 of 894

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	**Art Unit**
	STEPHEN AVILA	3617

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28								
	2		11		20		29								
	3		12		21		30								
	4		13		22		31								
	5		14		23		32								
	6		15		24		33								
	7		16		25		34								
	8		17		26										
	9		18		27										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	13	
/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	02 February 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20210202

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 246 of 894

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	Art Unit
	STEPHEN AVILA	3617

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/09/2020	01/21/2021	02/02/2021						
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	Art Unit
	STEPHEN AVILA	3617

CPC - Searched*		
Symbol	Date	Examiner
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B60F 3/00,0061,0038,003,0007	01/19/2021	/sa/
B60F 3/00,0061,003,0038,0007	02/02/2021	/sa/

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
east, see search history	09/09/2020	/sa/
checked all parent applications	09/09/2020	/sa/
east interference, see search history	01/19/2021	/sa/
east, see search history	01/19/2021	/sa/
east interference, see search history	02/02/2021	/sa/

/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	

Exhibit 2023
Bazooka v. Nuhn - IPR2024-00098
Page 248 of 894

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	Art Unit
	STEPHEN AVILA	3617

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
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B60F	3/00,0061,0003,0038,0007	02/02/2021	/sa/

/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	

Exhibit 2023
Bazooka v. Nuhn - IPR2024-00098
Page 249 of 894

EAST Search History

EAST Search History (Prior Art)

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EAST Search History (Interference)

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2/2/2021 4:40:34 AM
C:\Users\savila\Documents\EAST\Workspaces\16303907.wsp

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4	3433

59115 7590 02/01/2021

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ONTARIO M5H 2Y4
CANADA

EXAMINER
AVILA, STEPHEN P

ART UNIT	PAPER NUMBER
3617	

NOTIFICATION DATE	DELIVERY MODE
02/01/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@brunetco.com

Office Action Summary	Application No. 16/891,627	Applicant(s) NUHN, Ian	
	Examiner STEPHEN AVILA	Art Unit 3617	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 1/14/21.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-2,4,6,12,18 and 20-34 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☑ Claim(s) 1-2,4,6,12,18,20 and 29-34 is/are allowed.

7) ☑ Claim(s) 21-28 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☑ Interview Summary (PTO-413) Paper No(s)/Mail Date 011921.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 21-28 is/are rejected under 35 U.S.C. 103 as being unpatentable over Royle (US 5176098; cited by Applicant) in view of Remley (US 3384047; cited by Applicant) Puck et al (US 2014/0112093; cited by Applicant) and Bennett (US 2014/0288763). Royle discloses the basic claimed structure including an amphibious vehicle 10 with a floatable body 12, ground engaging propulsion structure (including 11, 13) to configured to raise and lower relative to the vehicle body and a power source (Y) for an outboard motor (column 2, lines 10-20, for example) for water propulsion and to drive the wheels 13 for land propulsion. Not disclosed by Royle is a fluid nozzle to direct fluid through the air, a conduit and a pump and multiple nozzles for steering and propulsion. Remley teaches a device with a floatable body 10, a fluid pump 16, a conduit 19 and a fluid nozzle 13 configured to direct fluid through the air. Puck teaches multiple nozzles for steering and propulsion with a valve and a remote control system 84. Bennett teaches a remote control for land and water (paragraphs 0043, 0121). It would have been obvious to a person of ordinary skill in the art before the effective filing date of the claimed invention to form the device of Royle with a fluid pump, conduit and fluid nozzle as taught by Remley to allow fluid to be directed through the air and to provide multiple nozzles, remote control and a valve for improved steering and propulsion as taught by Puck and to use the remote control on land and water as taught by Bennett for ease of use. With respect to claims 2 and 3, note Royle Figure 2. With respect to claims 7

and 10, note Remley, pump 16. With respect to claim 8, note Figure 3 of Royle. With respect to claims 12-13, 16-17 note Puck, Figure 4. With respect to claim 18, the center of gravity is inherent in the combination. With respect to claims 19-20, note 84 of Puck. The combination combines known features to achieve predictable results.

4. Claims 1-2, 4, 6, 12, 18, 20 and 29-34 are allowed.

5. It is noted that the first page of the specification and the ADS form filed 1/26/21 do not correspond for the filing date of PCT/CA2014/050789. The ADS filed 1/26/21 lists the filing date as 2014-08-18 and the specification lists the filing date as August 19, 2014. It is required that either the specification is amended or a new ADS be filed so that the correct filing date corresponds.

6. Applicant's arguments with respect to claim(s) 21-28 have been considered but are moot because the new ground of rejection does not rely on any reference applied in the prior rejection of record for any teaching or matter specifically challenged in the argument.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN AVILA whose telephone number is (571)272-6678. The examiner can normally be reached on Mon-Thu 6-4.

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STEPHEN AVILA
Primary Examiner
Art Unit 3617

/STEPHEN P AVILA/
Primary Examiner, Art Unit 3617

Examiner-Initiated Interview Summary	**Application No.** 16/891,627	**Applicant(s)** NUHN, Ian		
	Examiner STEPHEN AVILA	**Art Unit** 3617	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
STEPHEN AVILA	Primary Examiner	Telephonic
Mr. Brunet	Attorney of Record	

Date of Interview: 19 January 2021

Issues Discussed:

35 U.S.C. 103

Remote control of Amphibious discussed. The examiner agreed that all the claims except 21-28 are allowable. New Bennett reference, found and cited.

Objections

The examiner also requested a new ADS to correspond to the specification details, however, the ADS filed 1/26/21 still does not correspond.

/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Notice of References Cited	Application/Control No. 16/891,627	Applicant(s)/Patent Under Reexamination NUHN, Ian	
	Examiner STEPHEN AVILA	Art Unit 3617	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20140288763-A1	09-2014	Bennett; Jeffrey D.	B62D11/18	701/31.6
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	Art Unit
	STEPHEN AVILA	3617

CPC - Searched*		
Symbol	Date	Examiner
B60F 3/00,0061,0007,003,0038	09/09/2020	/sa/
B60F 3/00,0061,0038,003,0007	01/19/2021	/sa/

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
east, see search history	09/09/2020	/sa/
checked all parent applications	09/09/2020	/sa/
east interference, see search history	01/19/2021	/sa/
east, see search history	01/19/2021	/sa/

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
B60F	3/00,0038,0061,003,0007	01/19/2021	/sa/

/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	Art Unit
	STEPHEN AVILA	3617

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/09/2020	01/21/2021							
	1	✓	=							
	2	✓	=							
	3	✓	-							
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EAST Search History

EAST Search History (Prior Art)

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EAST Search History (Interference)

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1/19/2021 2:42:59 PM
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	3	("20140112093").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/01/19 12:45
L3	4,589	B60F3/00,0061,0007,003,0038.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/01/19 13:24

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	937	B60F3/00,0061,0007,003,0038.cpc.	US-PGPUB; USPAT	OR	OFF	2021/01/19 13:32

1/19/2021 1:51:24 PM
C:\Users\savila\Documents\EAST\Workspaces\0000.wsp

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
Mr.	Ian		NUHN	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Sebringville	Country of Residence	CA

Mailing Address of Inventor:

Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Postal Code	N0K 1X0	**Country**	CA

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	59115		
Email Address	patents@brunetco.com	Add Email	Remove Email

Application Information:

Title of the Invention	AMPHIBIOUS PUMPING VEHICLE		
Attorney Docket Number	NUN-0007-US4	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	**Suggested Figure for Publication (if any)**	1

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	59115		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16157950	2018-10-11

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16157950	Continuation of	15586493	2017-05-04	10124638	2018-11-13
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15586493	Continuation of	15044905	~~2014-08-18~~ 2016-02-16	9694636	2017-07-04
Prior Application Status	~~Pending~~ Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
15044905	Continuation of	PCTCA2014050789	2014-08-18		
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
PCTCA2014050789	Claims benefit of provisional	61867598	2013-08-19		

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Nuhn Industries Ltd.		
Mailing Address Information For Applicant:			
Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Country	CA	Postal Code	N0K 1X0
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Nuhn Industries Ltd.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Country	CA	Postal Code	N0K 1X0
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Robert A. H. Brunet/			Date (YYYY-MM-DD)	2020-06-03
First Name	Robert	Last Name	Brunet	Registration Number	55158

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	41747440
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet/Stephanie Janssens
Filer Authorized By:	Robert A.H. Brunet
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	26-JAN-2021
Filing Date:	03-JUN-2020
Time Stamp:	14:58:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	2021-01-26-SupplementalAmendment.pdf	63524 cdb5a99f4a5d38a6d08443488252e009af2c0263	no	3

Warnings:

Information:					
2	Application Data Sheet	2021-01-26-ADS-Corrected2.pdf	176718 c991074540074be3639a52713906b22f8522a2b0	no	9
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
			Total Files Size (in bytes):	240242	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	16/891,627	Confirmation No. 3433
Applicant	:	Ian Nuhn	
Filed	:	06/03/2020	
TC/A.U.	:	3617	
Examiner	:	Stephen P Avila	
Docket No.	:	NUN-0007-US4	
Customer No.	:	59115	

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

SUPPLEMENTAL AMENDMENT & CORRECTED ADS

Sir:

Supplemental to the response filed January 14, 2021, please consider the following amendment. Please amend the application as follows:

Amendments to the Specification begin on page **2** of this paper.

Remarks/Arguments begin on page **3** of this paper.

Amendments to the Specification:

Please replace paragraph [0001] on page 1 with the following:

[0001] This application is a continuation of United States Patent Application USSN 16/157,950, filed October 11, 2018 now issued under patent number US 10,710,422 on July 14, 2020, which is a continuation of USSN 15/586,493 filed May 4, 2017, now issued under patent number US 10,124,638 on November 13, 2018, which is a continuation of United States Patent Application USSN 15/044,905 filed February 16, 2016 now issued under patent number US 9,694,636 on July 4, 2017, which is a continuation of international patent application PCT/CA2014/050789, filed August [[~~19~~]]18, 2014, which claims the benefit of United States patent application 61/867,598 filed August 19, 2013, the entire contents of which are herein incorporated by reference.

REMARKS/ARGUMENTS

The Cross-reference to Related Applications paragraph on page 1 of the specification has been updated to mention the issue number and date of USSN 16/157,950 and to correct the filing date of the original parent PCT application.

In addition, errors were noted in the ADS in the filing date of USSN 15/044,905 and the status of the original parent PCT application. Applicant submits herewith a corrected ADS.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,
BRUNET & CO. LTD.

/Robert A.H. Brunet/

Date: January 26, 2021

Robert A.H. Brunet
Reg. No. 55,158
Tel.: (519) 474-0700

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 275 of 894

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/891,627	Filing Date 06/03/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/26/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 21	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/RENEE M COLLINS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/891,627	Filing Date 06/03/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/26/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 21	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/RENEE M COLLINS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	16891627
Filing Date:	03-Jun-2020
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Filer:	Robert A.H. Brunet
Attorney Docket Number:	NUN-0007-US4

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	1	50	50
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 1 month with $0 paid	2251	1	110	110
Miscellaneous:				
		Total in USD ($)		**160**

Electronic Acknowledgement Receipt

EFS ID:	41653822
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet
Filer Authorized By:	
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	14-JAN-2021
Filing Date:	03-JUN-2020
Time Stamp:	23:03:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E20211DN05027142
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	2021-01-14-PetitionExtensionTime.pdf	148341 307ef63bdf1cc54dbc6bd88d7db9805a1e8488e1	no	1
Warnings:					
Information:					
2	Internet Communications Authorized	2021-01-14-AuthorizeInternetCommunication.pdf	56380 39c6680fdee432c0893eeea513addb0268acad13	no	1
Warnings:					
Information:					
3	First Action Interview - Schedule Interview request	2021-01-14-InterviewRequest.pdf	396131 deffd56fa2e5916ae07f1d34f3bc4753ecd4d890	no	1
Warnings:					
Information:					
4	Amendment/Req. Reconsideration-After Non-Final Reject	2021-01-14-ResponseOA1.pdf	38099 730a11da29d0c990ceaf9c8a538565c4f3e7f4b9	no	9
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	32371 ce262cafdf45b8517e5808309d077db921518333	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	671322		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/22 (10-20)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): NUN-0007-US4

Application Number: 16/891,627

Filed: 06/03/2020

For: AMPHIBIOUS PUMPING VEHICLE

Art Unit: 3617

Examiner: Stephen P Avila

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☑	One month (37 CFR 1.17(a)(1))	$220	$110	$55	$ 110
☐	Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☐	Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____.

☑ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 55,158.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Robert A.H. Brunet/ — Signature

January 14, 2021 — Date

Robert A.H. Brunet — Typed or printed name

(519) 474-0700 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Doc Code: ECOMM.AUTH/ECOMM.WTDW
Doc Description: Internet Communications Authorized/Internet Communications Authorization Withdrawn

PTO/SB/439 (11-15)

AUTHORIZATION FOR INTERNET COMMUNICATIONS IN A PATENT APPLICATION OR REQUEST TO WITHDRAW AUTHORIZATION FOR INTERNET COMMUNICATIONS		
	Application No.	16/891,627
	Filing Date	06/03/2020
	First Named Inventor	Ian Nuhn
	Art Unit	3617
	Examiner Name	Stephen P Avila
	Practitioner Docket No.	NUN-0007-US4

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I. To authorize permission for Internet Communications.

☑ Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned and practitioners in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03)

II. To withdraw authorization for Internet Communications.

☐ The authorization given on _____, to the USPTO to communicate with the undersigned and any practitioner in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via Internet communications such as video conferencing, instant messaging, or electronic mail is hereby withdrawn. I understand that the withdrawal is effective when approved rather than when received.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 55,158.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Robert A.H. Brunet/ — Signature

January 14, 2021 — Date

Robert A.H. Brunet — Typed or printed name

(519) 474-0700 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Juristic entities must be represented by a patent practitioner (see 37 CFR 1.31, which is applicable to any paper filed on or after September 16, 2012, that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

PTOL-413A (07-16)
Approved for use through 12/31/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 16/891,627 First Named Applicant: Ian Nuhn
Examiner: Stephen P Avila Art Unit: _____ Status of Application: 1st office action

Tentative Participants:
(1) Robert Brunet **(2)** Stephen Avila
(3) _____ **(4)** _____

Proposed Date of Interview: _____ **Proposed Time:** _____ **(◎AM◎PM)**

Type of Interview Requested:
(1) ☑ **Telephonic** **(2)** ☐ **Personal** **(3)** ☐ **Video Conference**

Exhibit To Be Shown or Demonstrated: ☐ **YES** ☑ **NO**
If yes, provide brief description: _____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) all pending	all pending	of record	☐	☐	☐
(2) _____	_____	_____	☐	☐	☐
(3) _____	_____	_____	☐	☐	☐
(4) _____	_____	_____	☐	☐	☐

☐ Continuation Sheet Attached ☑ Proposed Amendment or Arguments Attached
Brief Description of Arguments to be Presented: as set out in Office Action response dated January 14, 2021.

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/Robert A.H. Brunet/
Applicant/Applicant's Representative Signature

Examiner/SPE Signature

Robert A.H. Brunet
Typed/Printed Name of Applicant or Representative

(519) 474-0700
Applicant's/Applicant's Representative's Telephone Number

55,158
Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 24 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	16891627
Filing Date	03-Jun-2020
First Named Inventor	Ian NUHN
Attorney Docket Number	NUN-0007-US4
Title of Invention	AMPHIBIOUS PUMPING VEHICLE

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Nuhn Industries Ltd.	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

10710422

10124638

9694636

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

◉ Small Entity

○ Micro Entity

○ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 55158

○ A sole inventor

○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

○ A joint inventor; all of whom are signing this request

Signature	/Robert Brunet/
Name	Robert Brunet

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	16891627
Filing Date:	03-Jun-2020
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Filer:	Robert A.H. Brunet
Attorney Docket Number:	NUN-0007-US4

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	2814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**170**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16891627

Filing Date: 03-Jun-2020

Applicant/Patent under Reexamination: NUHN

Electronic Terminal Disclaimer filed on January 14, 2021

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	41653842
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet
Filer Authorized By:	
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	14-JAN-2021
Filing Date:	03-JUN-2020
Time Stamp:	23:14:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$170
RAM confirmation Number	E20211DN14257190
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33807 c48f561f8d64d1d24a04b3368de52300b0f4f5ec	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30246 338d626663cf78a0e970dae72b82285074fd2ba2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	64053		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	16/891,627	Confirmation No. 3433
Applicant	:	Ian Nuhn	
Filed	:	06/03/2020	
TC/A.U.	:	3617	
Examiner	:	Stephen P Avila	
Docket No.	:	NUN-0007-US4	
Customer No.	:	59115	

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

AMENDMENT/RESPONSE

Sir:

In response to the Office action of September 14, 2020, please consider the following amendment/response. Please amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page **2** of this paper.

Remarks/Arguments begin on page **7** of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An amphibious ~~pumping~~ vehicle comprising:

a floatable vehicle body;

ground engaging propulsion structure;

a fluid pump for pumping liquid manure;

~~a first~~at least one fluid nozzle connected by a fluid conduit to the fluid pump; ~~and,~~

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,

remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

2. (Original) The vehicle according to claim 1, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.

3. (Cancelled)

4. (Original) The vehicle according to claim 1, wherein the power source is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid pump.

5. (Cancelled)

6. (Original) The vehicle according to claim 4, wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Currently amended) The vehicle according to claim 1, wherein the ~~vehicle~~ at least one fluid nozzle comprises a plurality of fluid nozzles ~~comprising the first fluid nozzle and at least one second fluid nozzle~~ connected to the fluid conduit.

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Original) The vehicle according to claim 1, wherein the location of the ground engaging propulsion structure, power source and fluid pump are selected to provide a desired location for a center of gravity of the vehicle.

19. (Cancelled)

20. (Currently Amended) The vehicle according to claim [[~~19~~]]1, wherein the amount of fluid flow from the ~~first~~ at least one fluid nozzle and/or the direction of the ~~first~~ at least one fluid nozzle are remotely controllable by ~~an~~ the operator remote from the vehicle when the vehicle is floating.

21. (New) An amphibious vehicle comprising:

a floatable vehicle body;

ground engaging propulsion structure comprising a plurality of ground engaging elements powered by a hydraulic motor;

a hydraulically powered fluid mover for moving liquid manure;

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid mover; and,

remote control structure configured to control the ground engaging propulsion structure and the fluid mover, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

22. (New) The vehicle according to claim 21, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.

23. (New) The vehicle according to claim 21, wherein the power source is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid mover.

24. (New) The vehicle according to claim 23, wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.

25. (New) The vehicle according to claim 21, wherein the vehicle comprises at least one fluid nozzle connected to a fluid conduit.

26. (New) The vehicle according to claim 25, wherein the at least one fluid nozzle comprises a plurality of fluid nozzles connected to the fluid conduit.

27. (New) The vehicle according to claim 25, wherein the amount of fluid flow from the at least one fluid nozzle and/or the direction of the at least one fluid nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.

28. (New) The vehicle according to claim 21, wherein the location of the ground engaging propulsion structure, power source and fluid pump are selected to provide a desired location for a center of gravity of the vehicle.

29. (New) An amphibious vehicle comprising:

a floatable vehicle body;

four hydraulically powered ground engaging wheels;

four hydraulic motors, one hydraulic motor per wheel, for powering the four hydraulically powered ground engaging wheels;

a fluid pump for pumping liquid manure;

at least one directionally adjustable nozzle through which the liquid manure is pumped;

an internal combustion engine configured to provide power to both the four variable speed hydraulic motors and the fluid pump;

the location of the four hydraulically powered ground engaging wheels, the internal combustion engine and the fluid pump selected to provide a desired location for a center of gravity of the vehicle; and,

remote control structure configured to control the four variable speed hydraulic motors and the fluid pump, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

30. (New) The vehicle according to claim 29, wherein the power source is configured to provide hydraulic fluid power to the four hydraulic motors and the fluid pump.

31. (New) The vehicle according to claim 30, wherein the four hydraulic motors are variable speed hydraulic motors and wherein the four hydraulically powered ground engaging wheels are each operable at variable speed.

32. (New) The vehicle according to claim 29, wherein the at least one directionally adjustable nozzle is connected to a fluid conduit connected to the fluid pump.

33. (New) The vehicle according to claim 32, wherein a plurality of nozzles comprising the at least one directionally adjustable nozzle is connected to the fluid conduit.

34. (New) The vehicle according to claim 29, wherein the amount of fluid flow from the directionally adjustable nozzle and/or the direction of the directionally adjustable nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.

REMARKS/ARGUMENTS

A Petition for Extension of time and the appropriate fee have been filed along with this response. Applicant submits that the response is timely filed.

Claims

Claims 3, 5, 7-11, 13-17 and 19 are cancelled without prejudice.

Claim 1 is amended for improved clarity and to include a remote control structure as supported in claim 19 and at paragraph 0015, for example.

Claims 12 and 20 are amended for consistency with amended claim 1 and to update the dependency of claim 20 in view of cancellation of claim 19.

New independent claim 21 is added, which finds support, for example, in claims 1, 19 and in paragraphs 0007, 0009, 0015 of the specification.

New dependent claim 22 is based on claim 2.

New dependent claim 23 is based on claim 4.

New dependent claim 24 is based on claim 6.

New dependent claim 25 is supported, for example, by claim 1.

New dependent claim 26 is supported, for example, by claim 12.

New claim 27 is based on claim 20.

New claim 28 is based on claim 18.

New independent claim 29 is added, which finds support, for example, in claims 1, 18, 19 and in paragraphs 0007, 0009, 0015 of the specification.

New dependent claim 30 is supported, for example, by claim 4.

New dependent claim 31 is supported, for example, by claim 6.

New dependent claim 32 is supported, for example, by claim 1.

New dependent claim 33 is supported, for example, by claim 12.

New dependent claim 34 is supported, for example, by claim 20.

Applicant submits that no new matter is entered by way of these amendments.

Claim Rejections – 35 USC § 103

Claims 1-3, 7-8, 10, 12-13 and 16-20 were rejected for being unpatentable over US 5,176,098 (Royle) in view of U.S. 3,384,047 (Remley) and Puck (US 2014/0112093).

None of the cited prior art describe a remote control structure configured such that the speed and/or direction of an amphibious vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating. Neither Royle nor Remley disclose remote control by an operator remote from the vehicle. Puck discloses remote control over steering a floating vehicle, but does not disclose or even suggest that the vehicle can be operated on the ground and does not disclose or even suggest remotely operating such a vehicle on the ground.

Double Patenting

Claims 1-20 have been rejected as being unpatentable over claims 1-21 of Applicant's issued US patent 9,694,636 and claims 1-20 of issued US patent 10,124,638 on the grounds of non-statutory double patenting.

Claims 1-20 have also been rejected as being unpatentable over claims 1-20 of Applicant's issued US patent 10,710,422 in view of Puck (US 2013/0145980).

An e-terminal disclaimer over US patent 9,694,636, US patent 10,124,638 and US patent 10,710,422 has been filed together with the appropriate fee.

Applicant has submitted an Interview Request form. In the event that any matters remain to be resolved in view of this communication, the Examiner is encouraged to call the undersigned so that a prompt disposition of this application can be achieved.

Conclusion

Applicant respectfully requests that all the rejections be withdrawn. In view of the above amendment and remarks, reconsideration on all claims is respectfully requested. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,
BRUNET & CO. LTD.

/Robert A.H. Brunet/

Date: January 14, 2021

Robert A.H. Brunet
Reg. No. 55,158
Tel.: (519) 474-0700

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/891,627	Filing Date 06/03/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/14/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 20	= 1		x $100 =	100
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	100

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/DANTE SMITH/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4

CONFIRMATION NO. 3433

59115
BRUNET & CO. LTD.
401 Bay St.
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Toronto, ON M5H 2Y4
CANADA

PUBLICATION NOTICE

OC000000119967501

Title:AMPHIBIOUS PUMPING VEHICLE

Publication No.US-2020-0290415-A1
Publication Date:09/17/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4	3433

59115 7590 09/14/2020

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EXAMINER
AVILA, STEPHEN P

ART UNIT	PAPER NUMBER
3617	

NOTIFICATION DATE	DELIVERY MODE
09/14/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@brunetco.com

Office Action Summary	Application No. 16/891,627	Applicant(s) NUHN, Ian	
	Examiner STEPHEN AVILA	Art Unit 3617	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 6/3/20.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 6/3/20 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

2. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 7-8, 10, 12-13 and 16-20 is/are rejected under 35 U.S.C. 103 as being unpatentable over Royle (US 5176098; cited by Applicant) in view of Remley (US 3384047; cited by Applicant) and Puck (US 2014/0112093; cited by Applicant). Royle discloses the basic claimed structure including an amphibious vehicle 10 with a floatable body 12, ground engaging propulsion structure (including 11, 13) to configured to raise and lower relative to the vehicle body and a power source (Y) for an outboard motor (column 2, lines 10-20, for example) for water propulsion and to drive the wheels 13 for land propulsion. Not disclosed by Royle is a fluid nozzle to direct fluid through the air, a conduit and a pump and multiple nozzles for steering and propulsion. Remley teaches a device with a floatable body 10, a fluid pump 16, a conduit 19 and a fluid nozzle 13 configured to direct fluid through the air. Puck teaches multiple nozzles for steering and propulsion with a valve and a remote control system 84. It would have been obvious to a person of ordinary skill in the art before the effective filing date of the claimed invention to form the device of Royle with a fluid pump, conduit and fluid nozzle as taught by Remley to allow fluid to be directed through the air and to provide multiple nozzles, remote control and a valve for improved steering and propulsion as taught by Puck. With respect to claims 2 and 3, note Royle Figure 2. With respect to claims 7 and 10, note Remley, pump 16. With respect to claim 8, note Figure 3 of Royle. With respect to claims 12-13, 16-17 note Puck, Figure 4. With respect to claim 18, the center of

gravity is inherent in the combination. With respect to claims 19-20, note 84 of Puck. The combination combines known features to achieve predictable results.

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal

Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

5. Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 9694636 and claims 1-20 of U.S. Patent No. 10124638. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims are encompassed by the previous claims and any further differences in the claims would have been obvious to a person of ordinary skill in the art for improved efficiency.

6. Claims 1-20 are further rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 10710422 in view of Puck (US 2013/0145980; cited by Applicant). Not disclosed by the claims of 10710422 is a hydraulic pump. Puck teaches a hydraulic pump 84. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the device of the claims of 10710422 with a hydraulic pump as taught by Puck for improved efficiency. The combination combines known features to achieve predictable results.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gazda (US 2586218) shows a track (Figure 4).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN AVILA whose telephone number is (571)272-6678. The examiner can normally be reached on Mon-Thu 6-4.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on 571-272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEPHEN AVILA
Primary Examiner
Art Unit 3617

/STEPHEN P AVILA/
Primary Examiner, Art Unit 3617

Notice of References Cited	Application/Control No. 16/891,627	Applicant(s)/Patent Under Reexamination NUHN, Ian	
	Examiner STEPHEN AVILA	Art Unit 3617	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-9694636-B2	07-2017	Nuhn; Ian	A01C3/026	1/1
*	B	US-10124638-B2	11-2018	Nuhn; Ian	A01C23/045	1/1
*	C	US-10710422-B2	07-2020	Nuhn; Ian	A01C3/026	1/1
*	D	US-2586218-A	02-1952	ANTOINE GAZDA	B60F3/0015	440/95
	E					
	F					
	G					
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	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	Art Unit
	STEPHEN AVILA	3617

CPC - Searched*		
Symbol	Date	Examiner
B60F 3/00,0061,0007,003,0038	09/09/2020	/sa/

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
east, see search history	09/09/2020	/sa/
checked all parent applications	09/09/2020	/sa/

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/STEPHEN P AVILA/ Primary Examiner, Art Unit 3617	

Exhibit 2023
Bazooka v. Nuhn - IPR2024-00098
Page 311 of 894

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/891,627	NUHN, Ian
	Examiner	Art Unit
	STEPHEN AVILA	3617

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/09/2020								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
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	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 312 of 894

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4,500	B60F3/00,0061,0007,003,0038.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/09/09 07:58
L2	4	("20100144220" | "20130145980" | "20140112093" | "20150258868").PN.	US-PGPUB; USPAT	OR	OFF	2020/09/09 08:05
L3	3	(("9694636") or ("10124638") or ("10710422")).PN.	USPAT	OR	OFF	2020/09/09 08:21
L4	2,775,203	hydraulic	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/09/09 08:23
L5	3	2 and 4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/09/09 08:23
L6	10	(("5176098") or ("3384047")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/09/09 08:56
L7	1,121	B60F3/00,0061,0007,003,0038.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/09/09 08:59
L8	1,561,354	track	US-PGPUB; USPAT; USOCR	OR	OFF	2020/09/09 08:59
L9	1,685,118	track or tracked	US-PGPUB; USPAT; USOCR	OR	OFF	2020/09/09 09:00

L10	363	7 and 9	US-PGPUB; USPAT; USOCR	OR	OFF	2020/09/09 09:00
L11	2,232,965	remote	US-PGPUB; USPAT	OR	OFF	2020/09/09 09:07
L12	3	2 and 11	US-PGPUB; USPAT	OR	OFF	2020/09/09 09:07

EAST Search History (Interference)

<This search history is empty>

9/9/2020 9:16:32 AM
C:\Users\savila\Documents\EAST\Workspaces\16911809.wsp

Bibliographic Data

Application No: 16/891,627

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /STEPHEN P AVILA/ Examiner's Signature | Initials

Title: AMPHIBIOUS PUMPING VEHICLE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/03/2020	440	3617	NUN-0007-US4
RULE			

APPLICANTS

Nuhn Industries Ltd., Sebringville, CANADA

INVENTORS

Ian NUHN, Sebringville, CANADA

CONTINUING DATA

This application is a CON of 16157950 10/11/2018 PAT 10710422

16157950 is a CON of 15586493 05/04/2017 PAT 10124638

15586493 is a CON of 15044905 02/16/2016 PAT 9694636

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

06/10/2020

**** SMALL ENTITY ****

STATE OR COUNTRY

CANADA

ADDRESS

BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

FILING FEE RECEIVED

$785

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16891627
Filing Date	2020-06-03
First Named Inventor	NUHN, Ian
Art Unit	
Examiner Name	
Attorney Docket Number	NUN-0007-US4

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code1	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4594006	A	1986-06-10	Depeault	
	2	4406413	A	1983-09-27	Houle	
	3	5176098	A	1993-01-05	Royle	
	4	3384047	A	1968-05-21	Remley	
	5	1943152	A	1934-01-09	Weiss	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code1	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20130145980	A1	2013-06-13	Puck	

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.P.A/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16891627
	Filing Date	2020-06-03
	First Named Inventor	NUHN, Ian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	NUN-0007-US4

	2	20140112093	A1	2014-04-24	Puck	
	3	20100144220	A1	2010-06-10	Bailey	
	4	20150258868	A1	2015-09-17	Visscher	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2002619	CA	A1	1991-05-09	Depeault		☐
	2	3431345	DE	A1	1986-03-06	Lullmann		☒
	3	2364962	DE	A1	1975-07-03	Kronseder		☒
	4	2008/038029	WO	A2	2008-04-03	Gibbs Technologies Limited	page 5 line 28 to page 6 line 24, Figs. 4-7	☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.P.A/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16891627
	Filing Date	2020-06-03
	First Named Inventor	NUHN, Ian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	NUN-0007-US4

	1	International Search Report and Written Opinion, PCT/CA2014/050789, dated 2014-11-05.	☐
	2	Translation of Chinese Office Action dated March 2, 2017 on CN 201480053275.	☐
	3	Translation of Chinese Office Action dated November 6, 2017 on CN 201480053275.	☐
	4	Office Action dated August 23, 2018 on EA 201690422-31.	☒
	5	Office action dated January 5, 2017 on USSN 15/044,905.	☐
	6	Office action dated August 23, 2017 on USSN 15/586,493.	☐
	7	Office action dated December 15, 2017 on USSN 15/586,493.	☐
	8	Office action dated November 21, 2019 on USSN 16/157,950.	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/STEPHEN P AVILA/	Date Considered	09/09/2020

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.P.A/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16891627
Filing Date	2020-06-03
First Named Inventor	NUHN, Ian
Art Unit	
Examiner Name	
Attorney Docket Number	NUN-0007-US4

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert A.H. Brunet/	Date (YYYY-MM-DD)	2020-06-10
Name/Print	Robert A.H. Brunet	Registration Number	55158

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.P.A/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a reques involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/891,627

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/891,627	06/03/2020	3746	785	NUN-0007-US4	20	1

CONFIRMATION NO. 3433

FILING RECEIPT

OC000000117659245

59115
BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

Date Mailed: 06/12/2020

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Ian NUHN, Sebringville, CANADA;

Applicant(s)

Nuhn Industries Ltd., Sebringville, CANADA;

Assignment For Published Patent Application

Nuhn Industries Ltd., Sebringville, CANADA

Power of Attorney: The patent practitioners associated with Customer Number 59115

Domestic Priority data as claimed by applicant

This application is a CON of 16/157,950 10/11/2018
which is a CON of 15/586,493 05/04/2017 PAT 10124638
which is a CON of 15/044,905 02/16/2016 PAT 9694636 *
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/10/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/891,627**

Projected Publication Date: 09/17/2020

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AMPHIBIOUS PUMPING VEHICLE

Preliminary Class

417

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 325 of 894

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/891,627	06/03/2020	Ian NUHN	NUN-0007-US4

CONFIRMATION NO. 3433

IMPROPER CFR REQUEST

59115
BRUNET & CO. LTD.
401 Bay St.
Suite 1600
Toronto, ON M5H 2Y4
CANADA

OC000000117685549

Date Mailed: 06/12/2020

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

Prior-Filed Nonprovisional Application has been Improperly Indicated as a National Stage (35 U.S.C. 371) Application

Applicant submitted a benefit claim to a prior-filed nonprovisional application and improperly indicated that the prior-filed application is a national stage application under 35 U.S.C. 371. The Office's records show that the prior-filed application is an application filed under 35 U.S.C. 111(a). The Office has entered the benefit claim to the prior-filed application as a benefit claim to an application filed under 35 U.S.C. 111(a). Any request for a corrected filing receipt to include the indication that the prior-filed application is a national stage application will not be granted unless applicant supplies evidence that the prior application was in fact a national stage application. Accordingly, applicant should not submit such request without such evidence. Applicant should submit a corrected application data sheet (ADS) to delete the indication that the prior-filed application is a national stage application.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tle/

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
Mr.	Ian		NUHN	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Sebringville	Country of Residence	CA

Mailing Address of Inventor:

Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Postal Code	N0K 1X0	**Country**	CA

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	59115		
Email Address	patents@brunetco.com	Add Email	Remove Email

Application Information:

Title of the Invention	AMPHIBIOUS PUMPING VEHICLE		
Attorney Docket Number	NUN-0007-US4	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	**Suggested Figure for Publication (if any)**	1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	59115		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16157950	2018-10-11

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16157950	Continuation of	15586493	2017-05-04	10124638	2018-11-13
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15586493	Continuation of	15044905	2014-08-18	9694636	2017-07-04
Prior Application Status	Pending				Remove
Application Number	Continuity Type	Prior Application Number		Filing or 371(c) Date (YYYY-MM-DD)	
15044905	~~a 371 of international~~ Continuation of	PCTCA2014050789		2014-08-18	
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number		Filing or 371(c) Date (YYYY-MM-DD)	
PCTCA2014050789	Claims benefit of provisional	61867598		2013-08-19	

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Nuhn Industries Ltd.		
Mailing Address Information For Applicant:			
Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Country	CA	Postal Code	N0K 1X0
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Nuhn Industries Ltd.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Country i	CA	Postal Code	N0K 1X0
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Robert A. H. Brunet/			Date (YYYY-MM-DD)	2020-06-03
First Name	Robert	Last Name	Brunet	Registration Number	55158

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	39700763
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Hans O. Koenig/Stephanie Janssens
Filer Authorized By:	Hans O. Koenig
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	12-JUN-2020
Filing Date:	03-JUN-2020
Time Stamp:	09:52:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	2020-06-03-ADS-Corrected.pdf	143828 59f7db2649184fc1eeeefe6144a30e8d06711ba7	no	9

Warnings:

Information:	
This is not an USPTO supplied ADS fillable form	
Total Files Size (in bytes):	143828

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (03-15)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16891627
Filing Date	2020-06-03
First Named Inventor	NUHN, Ian
Art Unit	
Examiner Name	
Attorney Docket Number	NUN-0007-US4

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code1	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4594006	A	1986-06-10	Depeault	
	2	4406413	A	1983-09-27	Houle	
	3	5176098	A	1993-01-05	Royle	
	4	3384047	A	1968-05-21	Remley	
	5	1943152	A	1934-01-09	Weiss	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code1	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20130145980	A1	2013-06-13	Puck	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16891627
	Filing Date	2020-06-03
	First Named Inventor	NUHN, Ian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	NUN-0007-US4

	2	20140112093	A1	2014-04-24	Puck	
	3	20100144220	A1	2010-06-10	Bailey	
	4	20150258868	A1	2015-09-17	Visscher	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2002619	CA	A1	1991-05-09	Depeault		☐
	2	3431345	DE	A1	1986-03-06	Lullmann		☒
	3	2364962	DE	A1	1975-07-03	Kronseder		☒
	4	2008/038029	WO	A2	2008-04-03	Gibbs Technologies Limited	page 5 line 28 to page 6 line 24, Figs. 4-7	☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16891627
	Filing Date	2020-06-03
	First Named Inventor	NUHN, Ian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	NUN-0007-US4

	1	International Search Report and Written Opinion, PCT/CA2014/050789, dated 2014-11-05.	☐
	2	Translation of Chinese Office Action dated March 2, 2017 on CN 201480053275.	☐
	3	Translation of Chinese Office Action dated November 6, 2017 on CN 201480053275.	☐
	4	Office Action dated August 23, 2018 on EA 201690422-31.	☒
	5	Office action dated January 5, 2017 on USSN 15/044,905.	☐
	6	Office action dated August 23, 2017 on USSN 15/586,493.	☐
	7	Office action dated December 15, 2017 on USSN 15/586,493.	☐
	8	Office action dated November 21, 2019 on USSN 16/157,950.	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16891627
	Filing Date	2020-06-03
	First Named Inventor	NUHN, Ian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	NUN-0007-US4

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Robert A.H. Brunet/	Date (YYYY-MM-DD)	2020-06-10
Name/Print	Robert A.H. Brunet	Registration Number	55158

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EFS ID:	39678127
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet/Stephanie Janssens
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Attorney Docket Number:	NUN-0007-US4
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Application Type:	Utility under 35 USC 111(a)

Payment information:

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Foreign Reference	CA-2002619.pdf	673271 836f34af754ca06ce827969fdea9620b85016c0b	no	17

Warnings:

Information:					
2	Foreign Reference	DE-3431345.pdf	975910 a39a91d181d089447fe89f24a9304524593 19a09	no	15
Warnings:					
Information:					
3	Foreign Reference	DE-2364962.pdf	1051645 00ac4907863f83938fe0e3356a2cccd5b7bd 79d2	no	19
Warnings:					
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4	Foreign Reference	WO-2008-038029.pdf	953649 6451639c9755cbf94a9f7801cc52b99a3146 e063	no	22
Warnings:					
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5	Non Patent Literature	2014-11-05-WO-ISRonPCTCA2014050789.pdf	2338385 db0c24fcf327c2e10a1e98aeba963984c43c 41fb	no	8
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6	Non Patent Literature	2017-03-02-OA1-CN201480053275.pdf	379516 108e7666a110917efcc5ba055670cfd9a7b9 300b	no	18
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7	Non Patent Literature	2017-11-06-OA2-CN201480053275.PDF	84859 4ad831ec9056e73a100e58cbbaddebb091f c3b3c	no	13
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8	Non Patent Literature	2017-01-05-OA1-USSN15044905.pdf	696108 f9e281faa6bcbc89f0d79956e55715ec916a 06e1	no	17
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9	Non Patent Literature	2017-08-23-OA1-USSN15586493.pdf	536644 17b7a3eaa3b47a69a794d97b042cbd1824c0a982	no	20
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13	Information Disclosure Statement (IDS) Form (SB08)	2020-06-10-IDS1-US4-cute.pdf	1587766 8392f27427e496b09786e0f9a2f40d1f5b809b35	no	5
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National Stage of an International Application under 35 U.S.C. 371

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(51) Intl.Cl.[6] B01F 3/10

(19)(CA) **CANADIAN PATENT** (12)

PATENTS
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(54) Agitator and Pump Assembly

(72) Dépault, Marcel , Canada

(73) Dépault, Marcel , Canada

(57) 8 Claims

19 SEP. 1995

Abstract of the Disclosure

An agitator and pump assembly adapted to be trailed behind a vehicle and to be moved into a manure pond, wherein the apparatus includes a pump housing at the end of an elongated frame supported on a wheeled sub-frame. The wheeled sub-frame is pivotally connected near one end to a midpoint of the elongated frame. The pump housing includes a rotating bladed impeller having an axis of rotation which is at an acute angle to the elongated frame, and a screw pump extends above the housing for thrusting the material downwardly through the housing upon rotation thereof.

The present invention relates to an agitator and pump assembly for mixing and pumping slurry from holding ponds or lagoons in which animal manure is collected.

The inventor has obtained U.S. Patent 4,594,006, issued June 10, 1986, relating to a pump for mixing and pumping manure ponds. Such ponds are a combination of liquid and layers of hand-caked dried solids. As described in the above-mentioned patent, a combination of a vertical screw pump and an impeller is proposed to handle the material. The screw pump provides a vertical component to the flow of the liquid and solids to break up the caked layers, and the impeller acts as a pump to evacuate the liquid and solids in suspension through a drainage pipe directed outboard the pond. The impeller can also be used to direct the liquid through a jet nozzle having a horizontal component for the purpose of breaking up the caked layers and causing the solids to be mixed and suspended in the liquid.

The device of the above patent is mounted on a frame which is meant to be set up vertically in the pond. Given that such ponds are of varied depths and that it is not always possible, in the case of a shallow pond, to place the frame with the associated screw pump in a vertical attitude, the practical benefits of such an apparatus may be limited, in a portable version.

It is an aim of the present invention to provide an improved apparatus of the type described in U.S. Patent 4,594,006.

It is a further aim of the present invention to provide a portable agitator and manure pond pump which can be used in virtually any manure pond regardless of the depth.



It is a further aim of the present invention to provide an easily transportable agitator and manure pump apparatus which can be easily maneuvered by a conventional farm tractor and can be transported over roads by being trailed behind a light vehicle.

A construction in accordance with the present invention comprises an elongated frame having a longitudinal axis, a pump housing mounted at one end of the frame, a bladed impeller is mounted for rotation about a rotation axis in the pump housing, means are provided for mounting the other end of the elongated frame to a transport vehicle in an articulate manner, means provided for supporting and locating the elongated frame in the manure pond, including a sub-frame pivotally mounted to the elongated frame, runner means provided on the sub-frame, and positive motor means for controlling the angle of the sub-frame relative to the elongated frame when the runner means are in contact with the bottom of the manure pond.

More specifically the bladed impeller mounted for rotation about the rotation axis in the pump housing extends at an angle of between 30° and 45° from the longitudinal axis of the elongated frame and a bladed thrust means is mounted for rotation, above the pump housing in a direction of thrust away from the rotary impeller. More specifically the bladed thrust means is mounted in the axis of the rotary impeller.

Having thus generally described the nature of the invention, reference will now be made to the accompanying drawings, showing by way of illustration, a preferred embodiment thereof, and in which:

Fig. 1 is a side elevation view of the present invention in a transport position;

Fig. 2 is a side elevation of the device shown in Fig. 1 with the apparatus prepared to be put into operation;

Fig. 3 is a side elevation of the apparatus shown in Fig. 2 in a subsequent operative position;

Fig. 4 is a side elevation of the apparatus shown in Fig. 3 in a successive operative position;

Fig. 5 is a side elevation of the apparatus shown in Fig. 4 in a successive operative position; and

Fig. 6 is a fragmentary enlarged vertical cross-section of a detail shown in Figs. 1 to 5.

An agitator and pump assembly 10 is illustrated in the drawings which includes an elongated frame 12 carrying a pump housing 14 at one end thereof. A sub-frame 16 is pivotally connected to the frame 12.

The pump housing 14 is mounted to the end of the frame 12 at an acute angle thereto.

As shown in Fig. 6, the pump housing 14 includes an impeller 18 fixed to a shaft 24 which is journaled in bearings 20 of impeller casing 28 and bearings 21 in the frame 12. A cutting wheel 26 in the form of a multi-bladed propeller is mounted to the bottom end of shaft 24. The impeller casing 28 communicates with the pipe 30 for discharging liquid from the pump housing 14. A pair of support plates 22 mounts the impeller casing 28 to the frame 12.

A shaft 32 is mounted in the same axis as the shaft 24 but on the opposite side of the frame 12 and extends upwardly from the pump housing 14. The shaft 32 mounts a spiral screw pump 40. It is contemplated that other thrust means could be provided, such as a multi-blade propeller. The shaft 32, which is journaled in bearings 33 in the frame 12, mounts bevel gear

38a which in turn meshes with bevel gear 38b on the end of drive shaft 34. Likewise, the shaft 24 mounts a bevel gear 38c which meshes with the bevel gear 38b.

The frame 12 is hollow and is formed by a rectilinear cylinder 54 which is sealed throughout. The cylinder 54 is provided with a lubricating oil in its interior, and this oil is prevented from escaping from the cylinder 54 by means of sealed bearings, etc. The axis of the shafts 24 and 32 is at an acute angle to the longitudinal axis of frame 12. The range of angles is preferably between 30° and 45°. The purpose of having the axis of the shafts 24 and 32 at an acute angle to the frame 12 will become evident as will be described hereinbelow.

The shaft 34 extends throughout the cylinder 54 and is connected at a universal joint 36 in the elbow of the angled portion of the frame 12.

The discharge pipe 30 communicates with either a drainage pipe 52 or a diversion pipe 46, depending on the position of the valve 42. The valve 42 can be either in a position to allow the liquid to pass through the diversion pipe 46 to the nozzle 48, or alternatively to the drainage pipe 52 to be loaded outboard of the pond P when in operation.

The valve 42 is controlled by hydraulic control 44.

A nozzle 48 is at right angles to the diversion pipe 46 and is rotated by means of a rotary cable 50 operated by a hydraulic motor associated with the cable 50.

The other end of the drive shaft 34 is coupled to a drive shaft 56, off a typical tractor vehicle V. The frame 12 is detachably connected to the

vehicle V by means of a hitch 58. A drain pipe 52 is supported on the frame 12 at its outby end by means of a support 66 which may be hydraulically extendable.

The frame 12 may, in one embodiment, be cantilevered to the end of the tractor V, and in such a case, hydraulic cylinders would be provided for lifting the cantilevered frame in and out of the pond.

A preferred embodiment is shown in the drawings which includes a sub-frame 16 which is pivoted to a pivot bracket 72 on the frame 12. The sub-frame 16 may be in the form of a pair of parallel legs which are bent at 74 and at 76. Wheels 60 are mounted on the sub-frame 16, and a hydraulic ram 64 is mounted to a bracket 68 on the frame 12 which operates the dog-leg lever 62 fixed to the sub-frame 16 at the pivot point 76.

Figs. 1 to 4 show the successive operative positions of the agitator and pump assembly 10. Fig. 1 shows the apparatus 10 in its transport position. It will be noted that a set of wheels 60 is provided in the area of the bent portion 74 of the legs forming the sub-frame 16 and have been removed from the wheel mounting 70.

The frame 12 can be mounted to the rear of a lightweight vehicle, such as a pickup truck or even an automobile, for road transport. When it is required to drain a pond typically filled with animal manure, the wheels 60 are moved away from the bent portion 74 and are mounted to the wheel mounting 70 at the end of the legs forming the sub-frame 16, and the vehicle is made to advance the apparatus 10 towards the pond P as shown in Fig. 2.

As illustrated in Fig. 3, the agitator and pump assembly 10 is backed until the rear wheels 60 are on the edge of the pond P, at which point the vehicle

is halted. The ram 64 is then operated to move lever 62 counterclockwise until the front wheels 60 break through the crust formed on the liquid in the pond and engage the floor of the pond P as shown in Fig. 4. The vehicle V is then made to move backwards further as the sub-frame is supported by the lower wheels 60, and then the ram is actuated to allow the pump housing 14 on the frame 12 to be lowered into the pond P by pivoting about the hitch 58.

Fig. 5 illustrates a position wherein the pump housing 14 is nearer the bottom of the pond P. The frame 12 and pump housing 14 can be lowered to approximately 6 inches from the bottom of the pond P. The pump is then actuated by means of drive shaft 34 so that both the impeller 18 and the screw 40 are rotated. The screw 40, by rotating, draws the liquid and portions of the crust downwardly against the pump housing, and the impeller 18 sucks the liquid from the bottom to pump the liquid through the pipe 30. The multi-bladed cutting device 26 will shred hay and other debris in order to allow the liquid material to pass through the impeller 18 and pipe 30. At the beginning of an operation, the liquid will be diverted through the diversion pipe 46 through the nozzle 48 which will be forced back into the pond P. However, by controlling the angle of the nozzle 48, the operator can help to break up the crust which is normally at the surface of the pond over the liquid. At the same time, the recirculation of the liquid through the impeller 18, diversion pipe 46, and nozzle 48, causes the solid particles to be broken up into smaller pieces, thereby rendering the material more liquefied.

Once the liquid manure is of a suitable consistency, the valve control 44 will be operated to change the position of the valve 42 and divert the

liquid from pipe 30 through to drain pipe 52 which will be connected up to a liquid storage tank on a vehicle which will then be utilized to transport and spread the manure on fields.

As can be seen from the drawings, the acute angle of the shaft as relative to the frame 12 enables the apparatus to be used in shallow ponds P and at different levels of the pond P with the screw 40 substantially vertical. It is understood that the axis will not be exactly vertical, but the thrust will cause the flow to move downwardly towards the pump housing 14, and the impeller 26 can be made to approach the bottom of the pond P. A protecting bar 78 will be provided underneath the impeller casing to support the casing on the bottom floor and prevent the cutting wheel 26 from being damaged.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An agitator and pump assembly comprising an elongated frame member having a longitudinal axis, a pump housing mounted at one end of the frame, a bladed impeller mounted for rotation about a rotation axis in the pump housing, means provided for mounting the other end of the elongated frame to a transport vehicle in an articulated manner, means are provided for supporting and locating the elongated frame in a manure pond including a sub-frame pivotally mounted at one end to the elongated frame intermediate the ends of the elongated frame, runner means provided on the sub-frame at least at the free end thereof, and positive motor means extending between the elongated frame and the sub-frame for pivoting the sub-frame relative to the elongated frame when the runner means are in contact with the bottom of the manure pond.

2. An agitator and pump assembly as defined in claim 1, wherein the impeller rotation axis extends at an angle of between 30° and 45° from the longitudinal axis of the frame.

3. An apparatus as defined in claim 1, wherein the runner means are wheels provided at least at the other end of the sub-assembly from the pivotal mount of the sub-frame to the elongated frame.

4. An apparatus as defined in claim 3, wherein the sub-frame is an elongated dog-leg frame with the wheels mounted at each end thereof, and a lever is provided at one end of the sub-frame near the pivot mount of the sub-frame with the elongated frame and a hydraulic ram means is provided for activating the lever means such that the sub-frame can be rotated at an an-

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 356 of 894

gle to the elongated frame to position the pump housing at different vertical attitudes within the pond.

5. An agitator and pump assembly comprising an elongated first frame member having a longitudinal axis, a pump housing mounted at one end of the first frame, a bladed impeller mounted for rotation about a rotation axis in the pump housing, the impeller rotation axis extending at an angle of between 30° and 45° from the longitudinal axis of the frame, means provided for mounting the other end of the frame to a transport vehicle, including second frame means to which the first frame is articulated, and means are provided for moving the first frame relative to the second frame to change the angular disposition of the first frame thereto, a third frame pivotally mounted at one end to the elongated first frame member, wheel means provided on the other end of the third frame member, positive means for controlling the angle of the third frame relative to the elongated first frame when the wheel means are in contact with the bottom of a manure pond, such that the third frame supports the first frame member at different angular positions with the pump housing in the pond.

6. An apparatus as defined in claim 5, wherein the third frame is an elongated dog-leg frame with the wheel means mounted at each end thereof, and a lever is provided at one end of the third frame at the pivot point with the first frame, and hydraulic ram means are provided for activating the lever means such that the third frame can be angled relative to the elongated first frame to position the pump housing at different vertical attitudes within the pond.

7. An apparatus as defined in claim 5, wherein the pump housing includes a pipe extending on the first

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 357 of 894

frame, from and communicating with the impeller such that liquid is pumped from the impeller through said pipe to alternatively: a recirculating nozzle, or a drainage pipe which carries the material outboard of a pond.

8. An apparatus as defined in claim 5, wherein a bladed thrust means in the form of a screw conveyor extends in a spiral on a shaft with the shaft extending in the axis of rotation of the impeller and is connected thereto and extends along the first frame.



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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 358 of 894

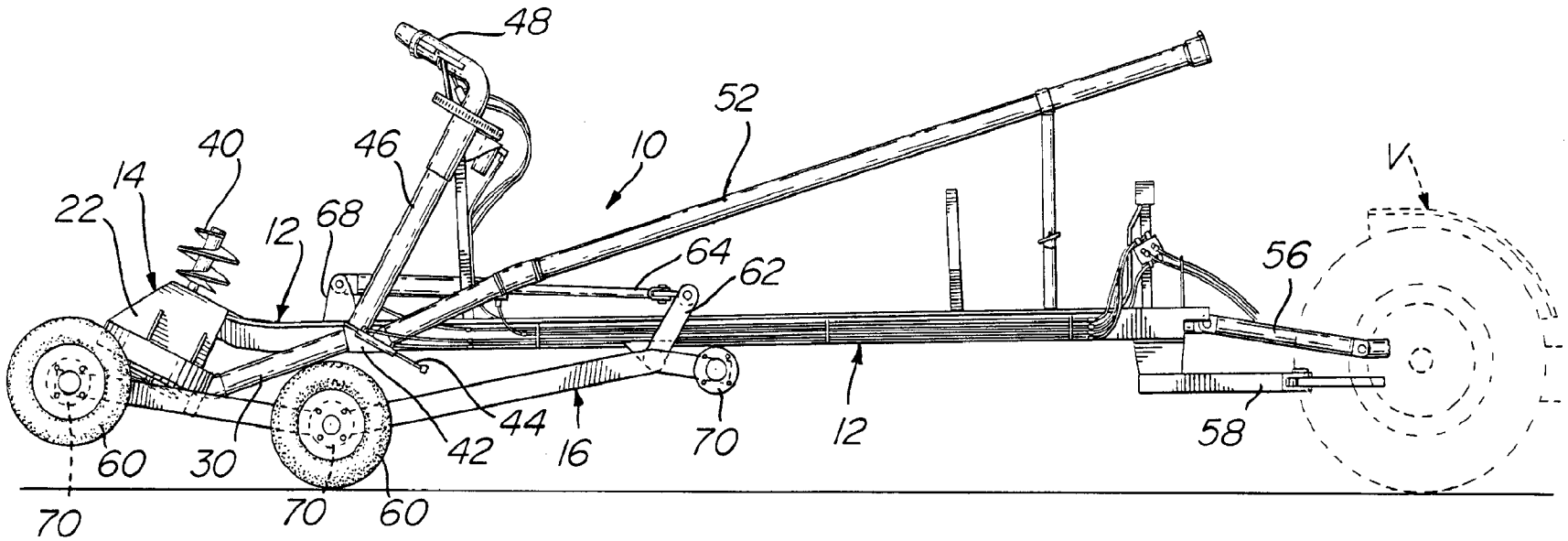


FIG. 1

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 359 of 894

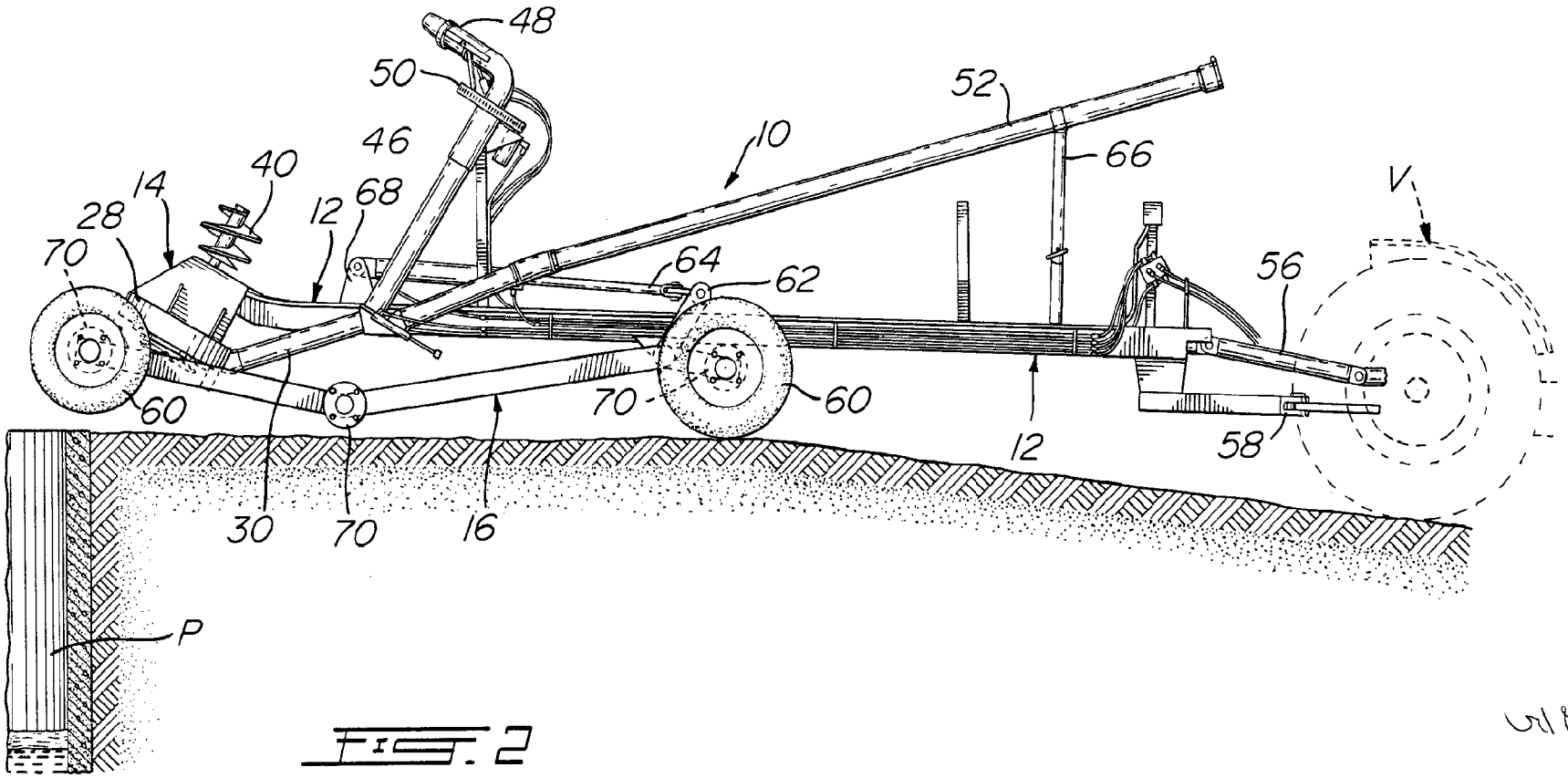


FIG. 2

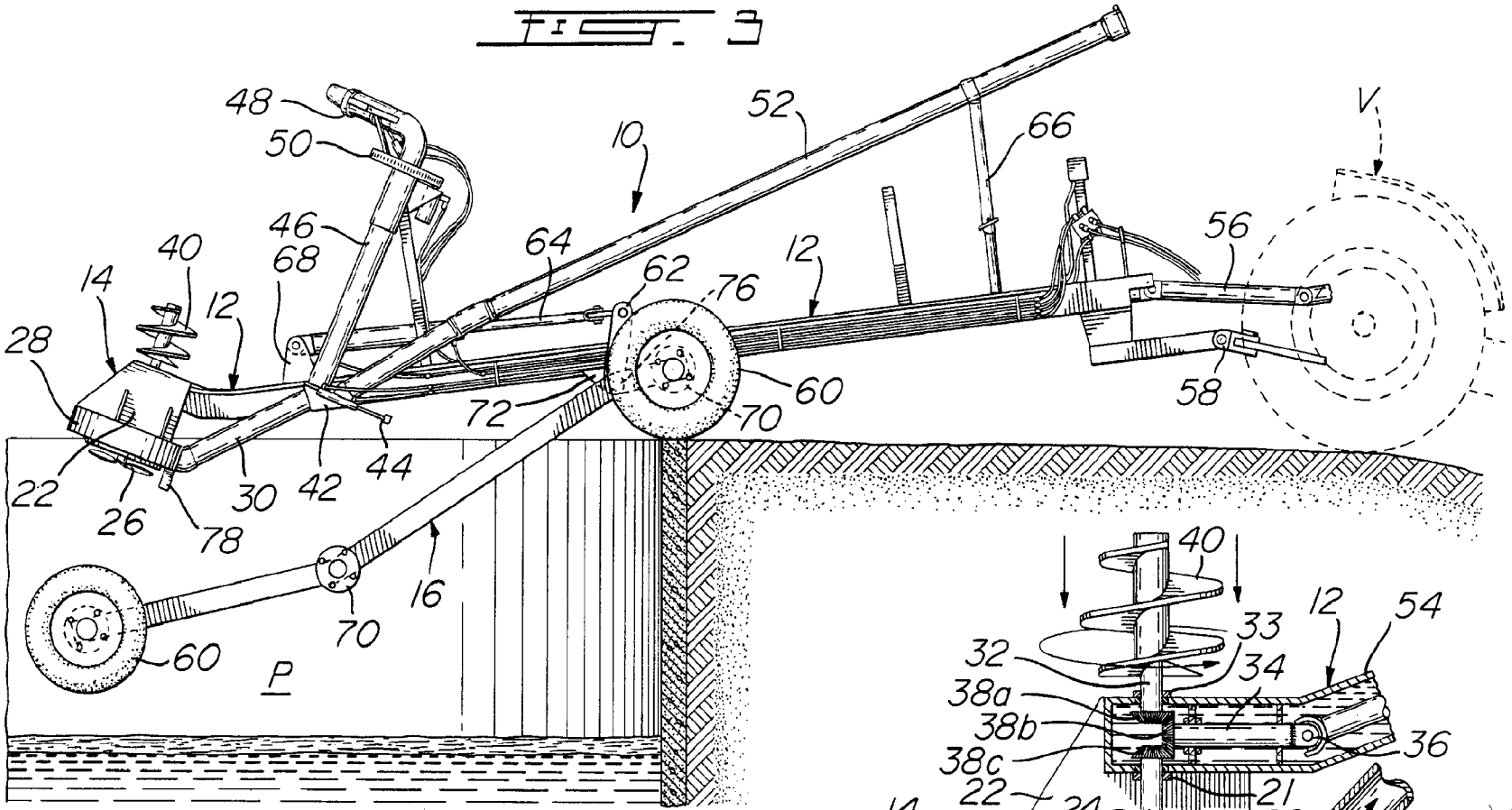
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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 360 of 894

FIG. 3



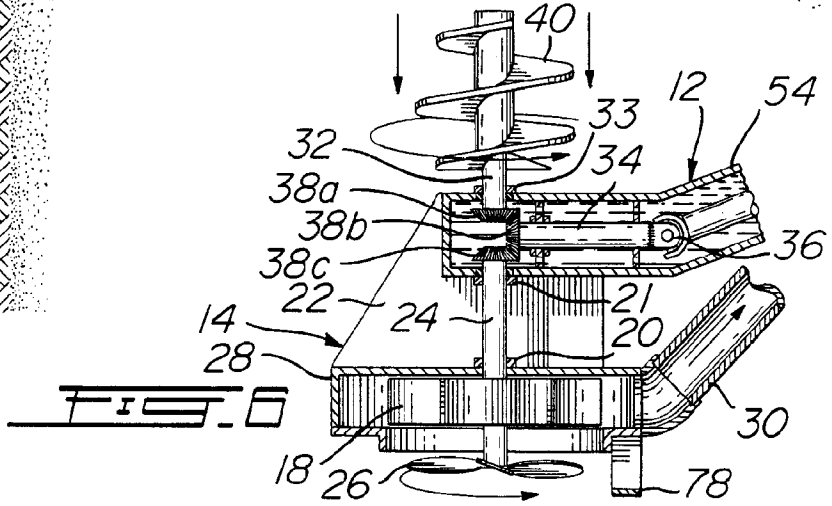


FIG. 6

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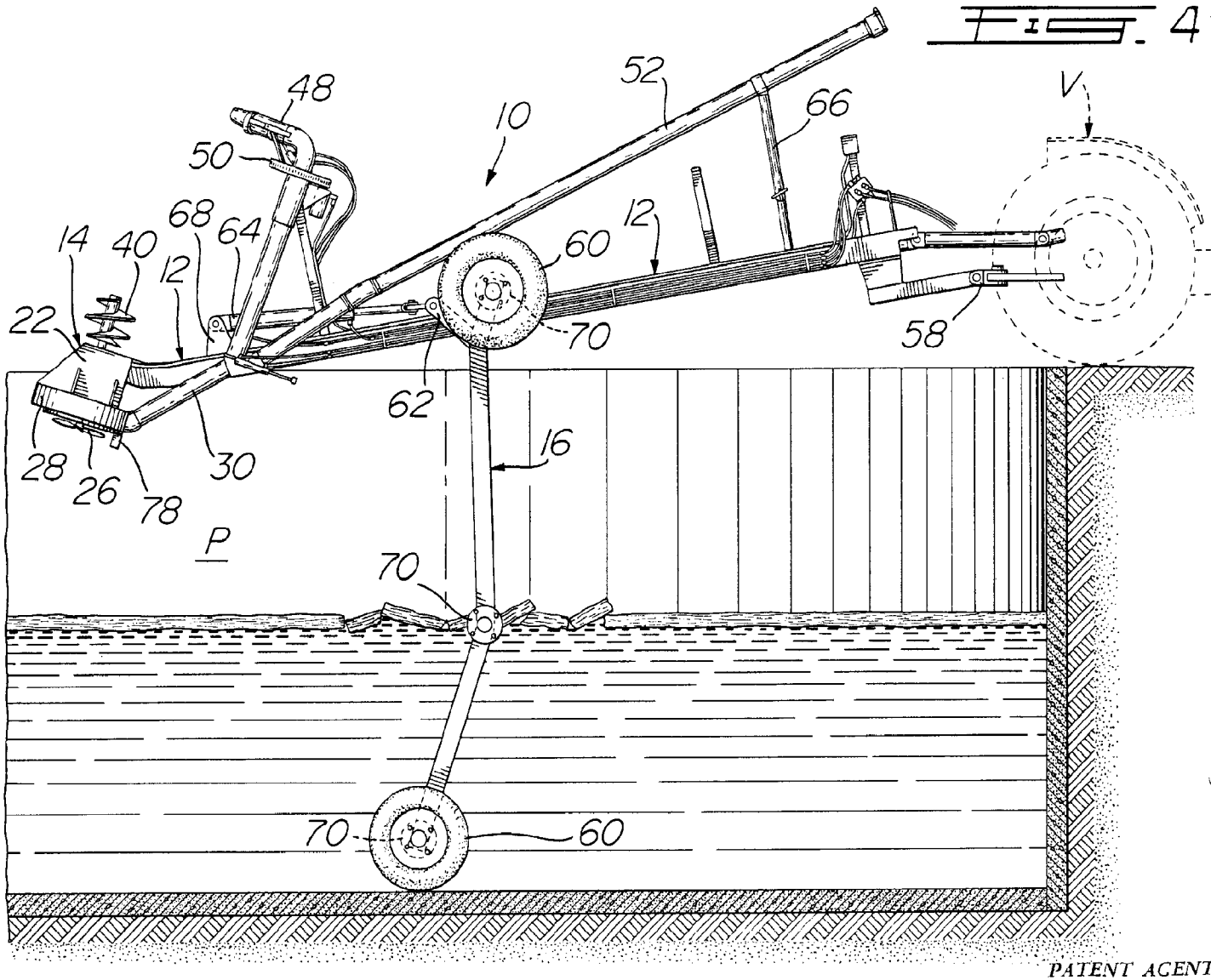
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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 361 of 894

FIG. 4



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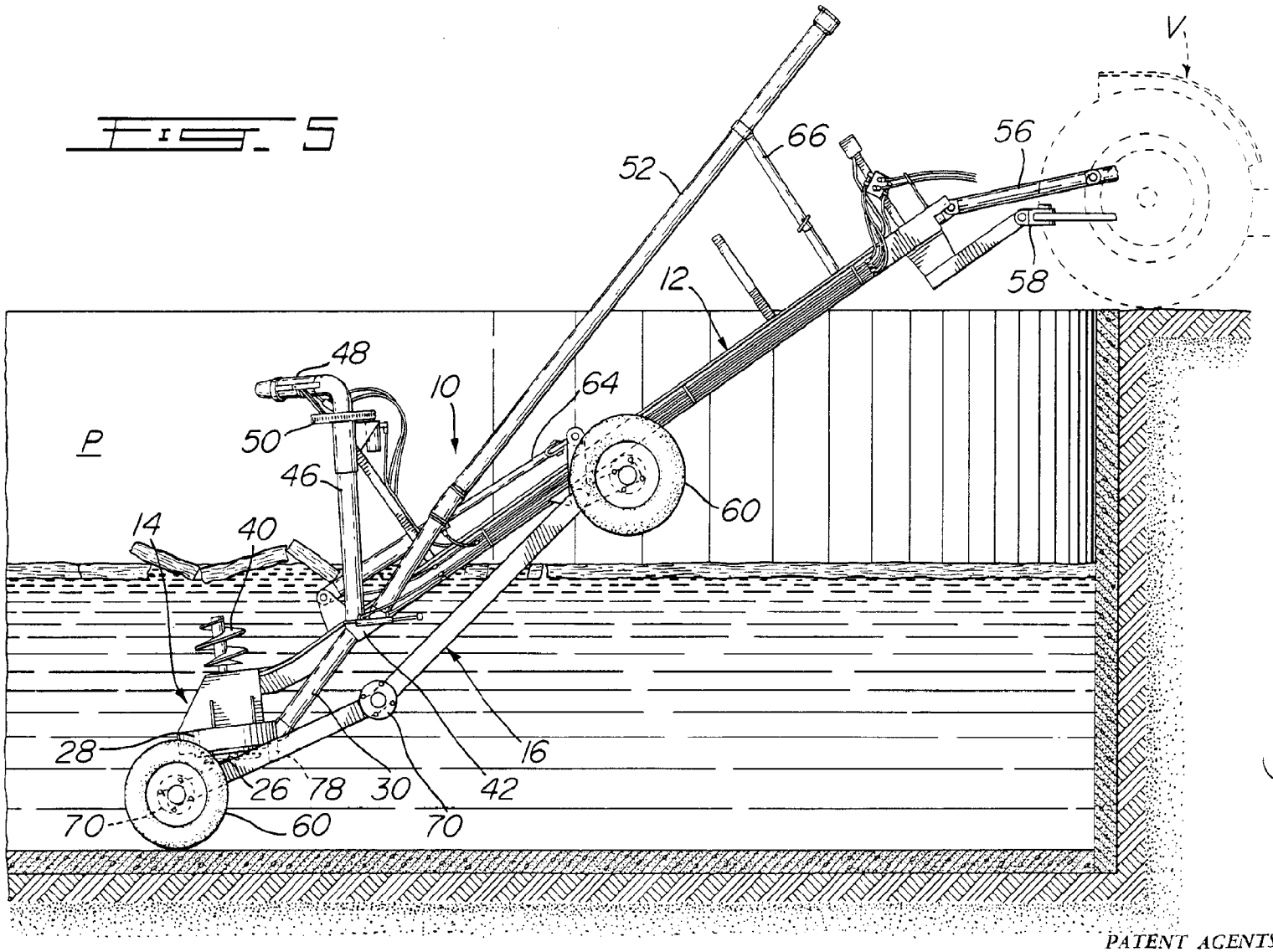
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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 362 of 894

FIG. 5



2002619

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 363 of 894

Espacenet

Bibliographic data: DE3431345 (A1) — 1986-03-06

Agitator device for liquid-manure containers

Inventor(s): LUELLMANN HEINRICH [DE] ± (LUELLMANN,HEINRICH)

Applicant(s): LUELLMANN HEINRICH ± (LUELLMANN,HEINRICH)

Classification: **- international:** ***A01C3/02; B01F13/00;*** (IPC1-7): A01B59/043; A01B63/10; A01C3/02

- cooperative: **A01C3/026; B01F13/0035**

Application number: DE19843431345 19840825

Priority number (s): DE19843431345 19840825

Abstract of DE3431345 (A1)

What is described is an agitator device for liquid-manure containers, in which the agitator is connected to a motor which can be driven by the engine of a vehicle via a power take-off shaft. The drive consists of a hydraulic drive with a hydraulic pump and a hydraulic motor, the hydraulic pump drivable by the power take-off shaft to the vehicle engine being fastened releasably to the vehicle, and the hydraulic motor movable relative to this carrying the agitator and being couplable to the hydraulic pump by means of hose lines.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098

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DESCRIPTION DE3431345

Stirring device for slurry tank

The invention relates to stirrers for slurry containers according to the generic concept of patent claim 1.

The drive of the agitator is known to be such devices by means of an electric motor designed as an immersion motor. Stirrers which are movably suspended on a carrier in the slurry container on fixedly mounted holders, for example on a winch, are widely used so that the stirrer can operate at different depths of the slurry container. Such agitators operate predominantly in fixed gill pits, I.B: on the premises of a farm, a breeding center for cattle. An existing power connection is essential for the operation of the stirrer, so that in each individual case of the use of such stirrers the laying of an electrical connecting line is necessary. A separate agitator must be provided for each slurry tank. However, transportable stirring devices are also known, which can be attached with special precautions to the hydraulic lifting mechanisms of a tractor used for agriculture or the like and whose drive is ultimately effected via an electric motor or directly through the power take-off connection of the tractor or the like.

Although such agitators can be converted from one slurry container to another slurry container, the drive is dependent on the presence of an electrical connection or has to be carried out by coupling the stirrer shaft to the tipper shaft of the tractor.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 365 of 894

However, the latter type of drive is associated with the disadvantage that the agitating device can only be inserted into the slurry container with a flat inclination angle.

On the other hand, it is the object of the invention to design a stationary stirring device in such a way that it can be operated independently of drive energy to be transported via lines, and can also be inserted and operated independently of a force source supplying drive energy into the liquid manure container.

According to the invention, this object is achieved by means of training features according to the characterizing clause of patent claim 1.

By using a hydraulic drive according to the invention from a hydropump and a hydromotor, the stirring device becomes completely independent of the electric drive energy.

The disadvantages of the previously uncontrolled type of drive directly above the tipper shaft of a tractor are also overcome.

On the rotor shaft of the hydromotor, the stirring tool, *** "

A twin or multi-leaf impeller, a propeller or the like, while the hydropump is connected to the tractor's tipper shaft or the like independently of the position and location of the hydromotor. A hose line adapted in length to the conditions serves to connect the hydropump to the hydromotor.

According to a particular embodiment of the invention, it is provided that the hydropump with its auxiliary devices, in particular with an U-shaped container, an U-filter, etc., as a fixed unit, *** "

Is formed in a carrier which can be hooked into the hydraulics of a tractor used for agriculture so that the pump rotor can be coupled directly to the tractor's tipper shaft. For the design of the stirrer itself, an elongated rod-shaped design is recommended in a manner known per se which carries the agitator at one end so that the stirrer can be lowered into different depths of the slurry container and can also be moved in the slurry container to effect the circulation Of the manure in

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 366 of 894

the container in effect.

In such a configuration, the hydromotor can also be arranged at some distance from the agitating tool on the carrier of the agitator, a connecting shaft connecting the rotor of the hydromotor to the shaft of the agitator. As a result, the hydromotor can not be immersed in the liquid manure. Particularly suitable for the attachment of the hydromotor and its auxiliary devices as well as the agitator are the hydraulic lifting devices customary in agricultural tractors, in particular the lifting device present at the rear, with a three-point linkage and the front-side lifting device in the design of a front loader.

An exemplary embodiment of the invention is schematically illustrated in the drawing. FIG. 1 is a side view of a tractor with the stirring device, and FIG. 2 is a rear view of the pump part of the stirring device.

A tractor 1 with a front loader which has vertically movable lifting arms 2 and a rear lifting hydraulic system comprising a linkage 3 and 4 with a three-point linkage, of which the upper linkage point is arranged centrally over two articulation points 6 lying at the same level. The pump part of the stirring device is arranged on a carrier 7 which has two bearing pins 8 for the connection in the articulation points 6 with the linkage 3 and a fork 9 for the connection at the articulation point 5 with the linkage 4 of the tractor hydraulics. The hydraulic pump 11 is arranged on an inner container 10 in the frame 7, the suction nozzle 12 of which projects into the container 10. The hose line marked with dash-dotted lines 14 can be connected to the pressure connection 13 of the pump 11 to the hydropump. Return is indicated by dashed-dotted lines 15. This line leads from the hydromotor to an ultrafilter 16 in the region of the ultrasound 10. The hydromotor 17 is attached to a carrier 18 and is connected via its rotor shaft 19 to the stirrer 20, which is designed, for example, as a bucket wheel, propeller or the like.

The carrier 18 of the hydromotor 17 is advantageously arranged in a height-adjustable manner in a holder 21 which, in turn, is connected to the free ends of the arms 2 of the front loader. For the transport position, the carrier 18 can be held by means of a tab 22 in the front trailer coupling 23 of the tractor 1. The feed line 14 and the return line 15 for the hydromotor 17 can be connected to corresponding connecting branches 24 and 25 of known quick couplings. In the depicted position, the hydromotor can be moved with the agitator 20 by moving the arms 2 of the front loader än anywhere in a slurry tank. By means of auxiliary devices known per se, the stirrer 20 can also be moved in the horizontal direction in the slurry tank. The agitator 2 is driven via the hydromotor 17, which is fed by the hydropump 11 via the lines 14 and 15. The hydropump 11 is driven via the pinion shaft 26 of the tractor 1.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 367 of 894

It can be seen that the stirrer can be inserted at any point in a slurry tank at any location. The assembly and disassembly can be carried out by means of the commercially available plug-in connections on the holder 21 or on the articulation points 5 and 6 as well as the pto shaft 26 with a few hand movements.

- Leerseite

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 368 of 894

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CLAIMS DE3431345

Stirrer for slurry containers Patent claims 1. A stirrer for slurry containers, in which the agitator is connected to a motor which can be driven by a drive motor of a vehicle via a power take - off shaft, characterized in that the agitator (20) comprises a hydraulic drive from a hydropump (11) and a hydromotor (17) Of the hydropump (11), which is drivable on the vehicle (1), is connected to the agitator (20) by means of a hose line (14, 15) with the hydropump (11) by means of a hose line (14, 15) .

2.

Stirrer device according to claim 1, characterized in that the housing of the hydropump (11) can be suspended in the hydraulics of a tractor (1) which can be used for agriculture, and the pump rotor can be mechanically coupled to the power take-off shaft (26) of the tractor (1).

3.

A stirring device on a transportable carrier according to claims 1 and 2, characterized in that the carrier (18) can be fastened to the tractor (1) for transport.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 369 of 894

4.

A stirring device according to claim 3, characterized in that the carrier (18) is provided with a three-point linkage (5, 6) with the support of the tractor hydraulics, in particular with a front loader (2), and a further carrier (7) for the hydraulic pump (11) A lifting hydraulics arranged on the rear side.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 370 of 894

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(54) Rührvorrichtung für Güllebehälter

Es wird eine Rührvorrichtung für Güllebehälter beschrieben, bei der das Rührwerk mit einem vom Antriebsmotor eines Fahrzeugs über eine Zapfwelle antreibbaren Motor verbunden ist. Der Antrieb besteht aus einem hydraulischen Antrieb mit einer Hydropumpe und einem Hydromotor, wobei die von der Zapfwelle des Fahrzeugmotors antreibbare Hydropumpe lösbar am Fahrzeug befestigt ist und der demgegenüber ortsveränderliche Hydromotor das Rührwerk trägt und mit der Hydropumpe mittels Schlauchleitungen kuppelbar ist.

DE 3431345 A1

3431345

Rührvorrichtung für Güllebehälter

Patentansprüche

1. Rührvorrichtung für Güllebehälter, bei der das Rührwerk mit einem vom Antriebsmotor eines Fahrzeugs über eine Zapfwelle antreibbaren Motor verbunden ist, dadurch gekennzeichnet, daß das Rührwerk (20) einen hydraulischen Antrieb aus einer Hydropumpe (11) und einem Hydromotor (17) aufweist, dessen von der Zapfwelle (26) des Fahrzeugmotors antreibbare Hydropumpe (11) am Fahrzeug (1) lösbar befestig ist und dessen mittels einer Schlauchleitung (14,15) mit der Hydropumpe (11) kuppelbarer Hydromotor (17) mit dem Rührwerk (20) verbunden ist.

2. Rührvorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Gehäuse der Hydropumpe (11) in die hydraulik eines landwirtschaftlich nutzbaren Schleppers (1) einhängbar und der Pumpenläufer mechanisch mit der Zapfwelle (26) des Schleppers (1) kuppelbar ist.

3. Rührvorrichtung an einem transportablen Träger nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß der Träger (18) zum Transport am Schlepper (1) befestigbar ist.

4. Rührvorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß der Träger (18) mit der Halterung der Schlepperhydraulik, insbesondere mit einem Frontlader (2), und ein weiterer Träger (7) für die hydraulische Pumpe (11) mit einer Dreipunktanlenkung (5,6) einer heckseitig angeordneten Hubhydraulik verbunden sind.

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 372 of 894

Rührvorrichtung für Güllebehälter

Die Erfindung betrifft Rührvorrichtungen für Güllebehälter nach dem Gattungsbegriff des Patentanspruches 1.

Bekannt ist der Antrieb des Rührwerkes solches Vorrichtungen durch einen als Tauchmotor ausgebildeten Elektromotor. Weithin gebräuchlich sind Rührvorrichtungen, die an einem Träger im Güllebehälter an fest installierten Haltern beweglich aufgehängt sind, zum Beispiel an einer Winde, so daß die Rührvorrichtung in unterschiedlichen Tiefen des Güllebehälters arbeiten kann. Solche Rührvorrichtungen arbeiten vorwiegend in festen Güllegruben, z.B. auf dem Gelände eines landwirtschaftlichen Betriebes, einer Zuchtanstalt für Vieh. Für den Betrieb der Rührvorrichtung ist ein vorhandener Stromanschluß unerläßlich, so daß in jedem Einzelfalle des Einsatzes solcher Rührvorrichtungen die Verlegung einer elektrischen Anschlußleitung erforderlich ist. Für jeden Güllebehälter ist eine eigene Rührvorrichtung vorzusehen. Bekannt sind jedoch auch transportable RÖhrvorrichtungen, die mit besonderen Vorkehrungen in die hydraulischen Hubwerke eines landwirtschaftlich genutzten Schleppers oder dergleichen eingehängt werden können und deren Antrieb endweder

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 373 of 894

über einen Elektromotor oder unmittelbar durch den Zapfwellenanschluß des Schleppers oder dergleichen erfolgt. Solche Rührvorrichtungen können zwar von einem in einen anderen Güllebehälter umgesetzt werden, der Antrieb ist jedoch von dem Vorhandensein eines Elektroanschlußes abhängig oder muß durch Kupplung der Rührwerkswelle mit der Zapfwelle des Schleppers erfolgen. Letztere Antriebsart ist jedoch mit dem Nachteil verbunden, daß die Rührvorrichtung nur mit einem flachen Neigungswinkel in den Güllebehälter eingeschoben werden kann.

Demgegenüber ist es Aufgabe der Erfindung, eine ortsveränderliche Rührvorrichtung in der Weise auszubilden, daß sie unabhängig von über Leitungen zu transportierende Antriebsenergie betrieben werden kann und auch unabhängig von einer Antriebsenergie liefernden Kraftquelle in den Güllebehälter eingesetzt und betrieben werden kann.

Erfindungsgemäß wird diese Aufgabe durch Ausbildungsmerkmale nach dem Kennzeichen des Patentanspruches 1 gelöst.

Durch die Verwendung eines hydraulischen Antriebes gemäß der Erfindung aus einer Hydropumpe und einem Hydromotor wird die Rührvorrichtung von elektrischer Antriebsenergie vollkommen unabhängig. Auch die Nachteile der bisherigen ortsungebundenen Antriebsart unmittelbar über die Zapfwelle eines Schleppers sind überwunden. Auf der Läuferwelle des Hydromotors wird das Rührwerkzeug, z. B. ein zwei- oder mehrflügeliges Schaufelrad, ein Propeller oder dergleichen, angeordnet, während die Hydropumpe unabhängig von Lage und Ort des Hydromotors an die Zapfwelle des Schleppers oder dergleichen angeschlossen wird. Eine in der Länge den Verhältnissen angepasste Schlauchleitung dient zur Verbindung der Hydropumpe mit dem Hydromotor.

Nach einer besonderen Ausführungsform der Erfindung ist vorgesehen, daß die Hydropumpe mit ihren Hilfseinrichtungen, insbesondere mit einem Ölbehälter, einem Ölfilter usw. als eine feste Einheit, z. B. in einem Träger ausgebildet ist, der in die Hydraulik eines landwirtschaftlich genutzten Schleppers einhängbar ist, so daß

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 374 of 894

der Pumpenläufer unmittelbar mit der Zapfwelle des Schleppers kuppelbar ist. Für die Ausbildung des Rührwerkes an sich empfielt sich eine langgestreckte stabförmige Ausbildung in an sich bekannter Weise, die an dem einen Ende das Rührwerkzeug trägt, so daß dieses in unterschiedliche Tiefen des Güllebehälters abgesenkt und gegebenenfalls in dem Güllebehälter auch bewegt werden kann, um die Umwälzung der Gülle in dem Behälter in der Wirkung zu unterstützen. Bei einer solchen Ausbildung kann der Hydromotor auch mit einigem Abstand von dem Rührwerkzeug an dem Träger des Rührwerkzeugs angeordnet sein, wobei eine Verbindungswelle den Läufer des Hydromotors mit der Welle des Rührwerkes verbindet. Dadurch kann erreicht werden, daß der Hydromotor nicht in die Gülle eintaucht. In besonderer Weise geeignet für die Befestigung des Hydromotors und seiner Hilfseinrichtungen sowie des Rührwerkes sind die bei landwirtschaftlich genutzten Schleppern gebräuchlichen hydraulischen Hubvorrichtungen, insbesondere die heckseitig vorhandene Hubvorrichtung mit einer Dreipunktanlenkung und die frontseitige Hubvorrichtung in der Gestaltung eines Frontladers.

Ein Ausführungsbeispiel der Erfindung ist auf der Zeichnung schematisch dargestellt. Es zeigen:

Figur 1 eine Seitenansicht eines Schleppers mit der Rührvorrichtung und

Figur 2 eine Rückansicht des Pumpenteils der Rührvorrichtung.

An einem Schlepper 1 mit einem Frontlader, der vertikal bewegliche Hubarme 2 aufweist, und einer Heckseitigen Hubhydraulik aus einem Gestänge 3 und 4 mit Dreipunktanlenkung, von denen der obere Anlenkpunkt mittig über zwei auf gleicher Höhe liegenden Anlenkpunkten 6 angeordnet ist. Der Pumpenteil der Rührvorrichtung ist auf einem Träger 7 angeordnet, welcher zwei Tragzapfen 8 für die Verbindung in den Anlenkpunkten 6 mit dem Gestänge 3 und eine Gabel 9 für die Verbindung im Anlenkpunkt 5 mit dem Gestänge 4 der Schlepperhydraulik aufweist. Auf einem Ölbehälter 10 in dem Gestell 7 ist die hydraulische Pumpe 11 angeordnet, deren Saugstutzen 12 in den Behälter 10 hineinragt. An den Druckstutzen 13 der Pumpe 11

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 375 of 894

ist die mit strichpunktierten Linien 14 markierte Schlauchleitung zu der Hydropumpe anschließbar. Die Rückleitung ist mit strichpunktierten Linien 15 angedeutet. Diese Leitung führt vom Hydromotor zu einem Ölfilter 16 im Bereich des Öltanks 10. Der Hydromotor 17 ist an einem Träger 18 befestigt und ist über ihre Läuferwelle 19 mit dem Rührwerk 20 verbunden , welches zum Beispiel als Schaufelrad, Propeller oder dergleichen ausgebildet ist. Der Träger 18 des Hydromotors 17 ist vorteilhaft höhenverstellbar in einem Halter 21 angeordnet, der seinerseits mit den freien Enden der Arme 2 des Frontladers verbunden ist. Für die Transportstellung kann der Träger 18 mittels einer Lasche 22 in der vorderen Anhängekupplung 23 des Schleppers 1 festgehalten werden. Die Vorlaufleitung 14 und die Rücklaufleitung 15 für den Hydromotor 17 sind an entsprechende Anschlußstutzen 24 und 25 mittel bekannter Schnellkupplungen anschließbar. In der gezeichneten Stellung kann der Hydromotor mit dem Rührwerk 20 durch Bewegung der Arme 2 des Frontladers an jede beliebige Stelle in einem Güllebehälter bewegt werden. Durch an sich bekannte Zusatzeinrichtungen kann das Rührwerk 20 auch in horizontaler Richtung im Güllebehälter bewegt werden. Der Antrieb des Rührwerkes 2 erfolgt über den Hydromotor 17, welcher durch die Hydropumpe 11 über die Leitungen 14 und 15 gespeist wird. Die Hydropumpe 11 wird über die Zapfwellle 26 des Schleppers 1 angetrieben. Man erkennt, daß das Rührwerk ortsungebunden an jeder beliebigen Stelle in einen Güllebehälter eingesetzt werden kann. Die Montage und Demontage ist durch die handelsüblichen Steckverbindungen an dem Halter 21 bzw. an den Anlenkpunkten 5 und 6 sowie der Zapfwelle 26 mit wenigen Handgriffen durchführbar.

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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 376 of 894

- Leerseite -

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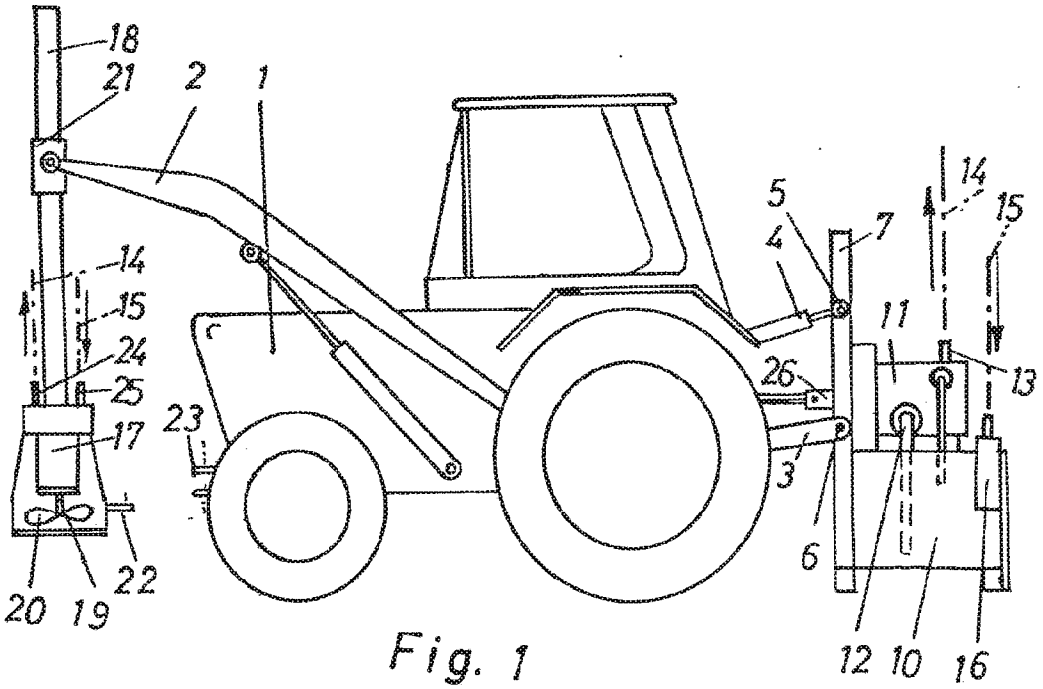


Fig. 1

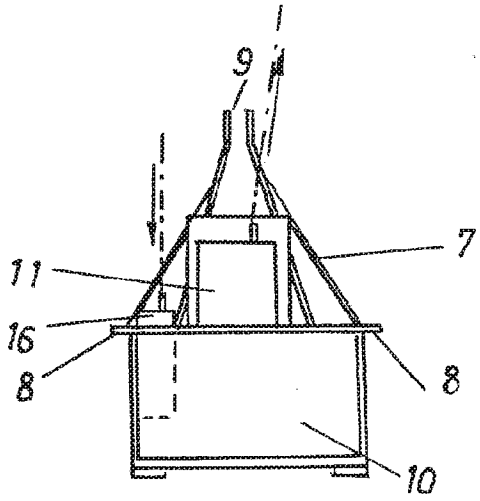


Fig. 2

Espacenet

Bibliographic data: DE2364962 (A1) — 1975-07-03

VORRICHTUNG ZUM AUFBEREITEN UND FOERDERN VON DICKSTOFFEN ENTHALTENDEN FLUESSIGKEITEN

Inventor(s): KRONSEDER JOSEF ± (KRONSEDER, JOSEF, 8313 VILSBIBURG)

Applicant(s): KRONSEDER JOSEF ± (KRONSEDER, JOSEF, 8313 VILSBIBURG)

Classification: **- international:** ***A01C3/02; B01F13/00; F04D29/60;*** *B01F7/00;* (IPC1-7): F04D7/04
- cooperative: **A01C3/026**; **B01F13/0035**; **F04D29/605**; B01F2215/0003; B01F7/00

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Abstract not available for DE2364962 (A1)

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DESCRIPTION DE2364962

[0001]

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F (Mti <cW (Mimcfceit 23193-804 Bank. AG. Some "35/32105

[0004]

APPLICATION: MEINB AKTE 2334 / P

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 380 of 894

[0005]

YOUR SIGN:

[0006]

Josef Kronseder, 8313 Vilsbiburg

[0007]

Apparatus for the preparation and delivery of fluids containing liquids.

[0008]

The invention relates to a device for the preparation and conveyance of fluids containing liquids, in particular liquid manure.

[0009]

The removal of liquid manure or the like, From seat pits is still very difficult, as the solids present in the liquid settle on the bottom of the pit.

[0012]

And are very difficult to eliminate.

It can be observed again and again that the solids are carefully applied after the liquid has been pumped out with the blade.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 381 of 894

[0013]

Pumps have already been disclosed which are equipped with a separate cutting device for the thick substances, but such pumps only detect the directly adjacent boundary regions of the jaws while the more remote regions remain unaffected.

[0014]

In order to avoid the described disadvantages, a device for the preparation and delivery of fluids containing liquids is proposed. According to the invention, this comprises a boom, which comprises a pump which can be driven by means of a gearing, a Mii wheel which can be plugged onto the pump shaft and a nozzle connected to the delivery tube of the pump Directional three-way valve.

[0015]

A device of this type allows the liquid to be stirred beyond the pure pumping out process by means of the mixing wheel, with the possible simultaneous cutting of thick substances, B0Stroh, and with the help of the pump and the nozzle, whereby the thick materials are whirled up and can not settle.

[0017]

ORfGiNAL INSPECTED

[0018]

Since a higher speed is required for the operation of the pump and the nozzle than for the

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 382 of 894

operation of the mixing wheel, the transmission is equipped with two PTO shafts and an output shaft (pump shaft) and is designed such that the pump shaft rotates at different speeds with the same input speed of the PTO shafts .

[0019]

In order to equip the gate direction for the tractor operation, the outrigger can be swiveled out on a! Which can be coupled to the trailer coupling of the pickup truck.

[0020]

Further details of the door direction can be derived from the drawing, in which an exemplary embodiment of the subject matter of the invention is shown in the side view.

[0021]

The gate direction shown essentially consists of a cantilever 1, which is braced by means of bolts 3 on a carrier 4 via two plates 2, only the front of which can be seen. The inclination angle of the cantilever 1 opposite the carrier 4 can be changed by means of a positioning spindle 5. The carrier 4 can be attached to the trailer coupling & bgr; Of the tractor 7 in such a way that tr can be pivoted upwards, as shown in dashed lines in the drawing "

[0022]

To enable swiveling, insert on plate 2

[0024]

Lever 8, on which, in turn, the piston rod 9 of a hydraulic working cylinder 10 engages.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 383 of 894

[0025]

The boom has two tubes 11, 12 which are attached at the top to the housing of the transmission 11 and at the bottom to the housing of the pump 14. Two power take-off shafts 15, 16 are provided on the transmission, which can be selectively connected to the power take-off shaft 18 of the tractor by means of an articulated shaft 17. The pump shaft 19, on which the Miyrad 20 can be mounted, is located in the tube 11. The tube 12 serves as a delivery tube and for this purpose is equipped with an outlet connector 21, a three-way valve 22 and a nozzle 23.

[0026]

If the tractor 7 is located on the 4-way pit 24, and the boom 1 dips through the pit hole 25 into the dead manhole 26, the following possibilities are obtained:

[0027]

1. Crushing.

[540]

The power take-off shaft 15 of the transmission 13 is connected to the power take-off shaft 18 of the tractor 7. The three-way valve 22 is closed, the mixing wheel 20 is pushed onto the pump shaft 19 and its bearing shell 27 is clamped to the housing of the pump 14. The Mix wheel runs with approx. 540 Rpm, and the slurry 26 is agitated, with coarse ropes being separated from the mixing wheel.

[0030]

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 384 of 894

2.

Stir.

[0031]

The power take-off shaft 16 of the transmission 13 is connected to the power take-off shaft 18 of the tractor 7, The three-way valve 22 is adjusted so as to provide a connection from the pump 14 to the nozzle 23. The pump 14f, which now circulates with ca., 1,350 ü / mim, thus sucks! And then presses it back into the liquid manure 26 under high pressure through the nozzle 23.

[0032]

3. Pump.

[0033]

The power take-off shaft 16 of the transmission 13 remains connected to the power take-off shaft 18 of the tractor 7. The three-way valve 22 is adjusted so that a connection from the pump H to the outlet nozzle 21 is established. The pump 14 thus conveys the effluent 26 out of the pit 28 through the outlet connection 21. In this way,

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 385 of 894

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CLAIMS DE2364962

Claims

(1), which comprises a pump (14) drivable via a gear (13), a Miirad (20) which can be slipped onto the pump shaft (19), a pressure - reducing device (23) connected to the delivery pipe (12) of the pump (14) and a three-way valve ('22) controlling the pump (14).

2.

(15, 16) and an output shaft (pump shaft) 19 and is designed in such a way that, at the same input speed of the power take-off shafts (15, 16), the pump shaft (19,) At different speeds.

3.

A door direction according to claims 1 to 3, characterized in that the boom (1) is pivotally pivoted on a carrier (4) which can be coupled to the trailer coupling (6) of a tractor (7).

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 386 of 894

4.

Apparatus according to claim 3? Characterized in that a positioning spindle (5) is provided between the boom (1) and the carrier (4)

5.

(3) which has its fixed point on the tractor (7), and in that a hydraulic working cylinder (10) is mounted on this lever (8), the lever (3) Attacks

6&

? Gate direction according to claims 1 to 5, characterized in that the housing of the pump (14) is connected to the housing of the transmission (13) via two pipes (11, 12), one (11) of which contains the pump shaft (19) , While the other (12) as delivery tube carries the outlet port (21), the three-way valve (22) and the nozzle (23)

Epsilon

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 387 of 894

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Vorrichtung zum Aufbereiten und Fördern von Dickstoffen enthaltenden Flüssigkeiten.

Die Erfindung betrifft eine Vorrichtung zum Aufbereiten und Fördern von Dickstoffen enthaltenden Flüssigkeiten, insbesondere Jauche.

Die Entfernung von Jauche o.dgl. aus Sitzgruben macht auch heute noch große Schwierigkeiten, da sich die in der Flüssigkeit befindlichen Feststoffe auf dem Boden der Grube ab-

509827/0122

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 389 of 894

setzen und nur äußerst schwer zu beseitigen sind. Man kann immer wieder die Beobachtung machen, daß die Feststoffe nach dem Auspumpen der Flüssigkeit mit der Schaufel mühsam ausgebracht werden.

Es sind zwar schon Pumpen bekannt geworden, die mit einer gesonderten Schneideinrichtung für die Dickstoffe ausgestattet sind, jedoch erfassen derartige Pumpen nur die unmittelbar anliegenden Grenzbereiche der Jauche, während die entfernter liegenden Bereiche unbeeinflußt bleiben.

Um die geschilderten Nachteile zu vermeiden wird eine Vorrichtung zum Aufbereiten und Fördern von Dickstoffen enthaltenden Flüssigkeiten vorgeschlagen, die erfindungsgemäß einen Ausleger, der eine über ein Getriebe antreibbare Pumpe, ein auf die Pumpenwelle aufsteckbares Mixrad, eine an das Förderrohr der Pumpe angeschlossene Düse sowie einen diese steuernden Dreiwegehahn aufweist.

Eine derartig ausgebildete Vorrichtung gestattet es die Flüssigkeit, über den reinen Auspumpvorgang hinaus, mittels des Mixrades umzurühren unter etwaigem gleichzeitigen Zerschneiden von Dickstoffen, z.B. Stroh, und mit Hilfe der Pumpe und der Düse umzuwälzen, wodurch die Dickstoffe aufgewirbelt werden und sich nicht absetzen können.

509827/0122
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Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 390 of 894

Da für den Betrieb der Pumpe und der Düse eine höhere Geschwindigkeit erforderlich ist als für den Betrieb des Mixrades, wird das Getriebe mit zwei Zapfwellen und einer Ausgangswelle (Pumpenwelle) ausgestattet und so ausgelegt, daß bei gleicher Eingangsgeschwindigkeit der Zapfwellen die Pumpenwelle mit verschiedenen Geschwindigkeiten umläuft.

Um die Vorrichtung für den Schlepperbetrieb auszurüsten, wird der Ausleger ausschwenkbar an einem Träger angelenkt, der an die Anhängerkupplung des Schleppers ankuppelbar ist.

Weitere Einzelheiten der Vorrichtung ergeben sich aus der Zeichnung in der ein Ausführungsbeispiel des Gegenstandes der Erfindung in der Seitenansicht dargestellt ist.

Die gezeigte Vorrichtung besteht im wesentlichen aus einem Ausleger 1, der über zwei Platten 2, von denen nur die vordere zu sehen ist, mittels Bolzen 3 an einem Träger 4 angelenkt ist. Der Neigungswinkel des Auslegers 1 gegenüber dem Träger 4 läßt sich mit Hilfe einer Stellspindel 5 verändern. Der Träger 4 kann an der Anhängerkupplung 6 des Schleppers 7 so befestigt werden, daß er nach oben ausschwenkbar ist, wie dies in der Zeichnung in gestrichelten Linien dargestellt ist.

Um das Ausschwenken zu ermöglichen, ist an der Platte 2 ein

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 391 of 894

Hebel 8 angelenkt, an dem wiederum die Kolbenstange 9 eines hydraulischen Arbeitszylinders 10 angreift.

Der Ausleger weist zwei Rohre 11, 12 auf, die oben an dem Gehäuse des Getriebes 11 und unten an dem Gehäuse der Pumpe 14 befestigt sind. An dem Getriebe sind zwei Zapfwellen 15, 16 vorgesehen, die wahlweise über eine Gelenkwelle 17 mit der Zapfwelle 18 des Schleppers verbunden werden können. In dem Rohr 11 befindet sich die Pumpenwelle 19, auf die das Mixrad 20 aufgesteckt werden kann. Das Rohr 12 dient als Förderrohr und ist zu diesem Zweck mit einem Auslaßstutzen 21, einem Dreiwegehahn 22 und einer Düse 23 ausgestattet.

Befindet sich der Schlepper 7 auf der Grubendecke 24 und taucht der Ausleger 1 durch das Grubenloch 25 in die Jauche 26 ein, so ergeben sich folgende Möglichkeiten:

1. Zerkleinern.

   Die Zapfwelle 15 des Getriebes 13 wird mit der Zapfwelle 18 des Schleppers 7 verbunden. Der Dreiwegehahn 22 wird geschlossen, das Mixrad 20 auf die Pumpenwelle 19 aufgesteckt und deren Lagerschale 27 am Gehäuse der Pumpe 14 festgeklemmt. Das Mixrad läuft mit ca. 540 U/min um und die Jauche 26 wird aufgewühlt, wobei grobe Teile von dem Mixrad zerteilt werden.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 392 of 894

2. Rühren.

Die Zapfwelle 16 des Getriebes 13 wird mit der Zapfwelle 18 des Schleppers 7 verbunden. Der Dreiwegehahn 22 wird so eingestellt, daß eine Verbindung von der Pumpe 14 zur Düse 23 geschaffen wird. Die Pumpe 14, die jetzt mit ca. 1.350 U/min umläuft, saugt somit Teile der Jauche 26 an und preßt sie unter erhöhtem Druck durch die Düse 23 wieder in die Jauche 26 zurück.

3. Pumpen.

Die Zapfwelle 16 des Getriebes 13 bleibt mit der Zapfwelle 18 des Schleppers 7 verbunden. Der Dreiwegehahn 22 wird so eingestellt, daß eine Verbindung von der Pumpe 14 zum Auslaßstutzen 21 hergestellt wird. Die Pumpe 14 fördert somit die Jauche 26 aus der Grube 28 durch den Auslaßstutzen 21 nach außen.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 393 of 894

P a t e n t a n s p r ü c h e :

1. Vorrichtung zum Aufbereiten und Fördern von Dickstoffen enthaltenden Flüssigkeiten, gekennzeichnet durch einen Ausleger (1), der eine über ein Getriebe (13) antreibbare Pumpe (14), ein auf die Pumpenwelle (19) aufsteckbares Mixrad (20), eine an das Förderrohr (12) der Pumpe (14) angeschlossene Düse (23) sowie einen diese steuernden Dreiwegehahn (22) aufweist.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Getriebe (13) mit zwei Zapfwellen (15, 16) und einer Ausgangswelle (Pumpenwelle) 19 ausgestattet und so ausgelegt ist, daß bei gleicher Eingangsgeschwindigkeit der Zapfwellen (15, 16) die Pumpenwelle (19) mit verschiedenen Geschwindigkeiten umläuft.

3. Vorrichtung nach den Ansprüchen 1 bis 3, dadurch gekennzeichnet, daß der Ausleger (1) ausschwenkbar an einem Träger (4) angelenkt ist, der an die Anhängerkupplung (6) eines Schleppers (7) ankuppelbar ist.

4. Vorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß zwischen dem Ausleger (1) und dem Träger (4) eine Stellspindel (5) vorgesehen ist.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 394 of 894

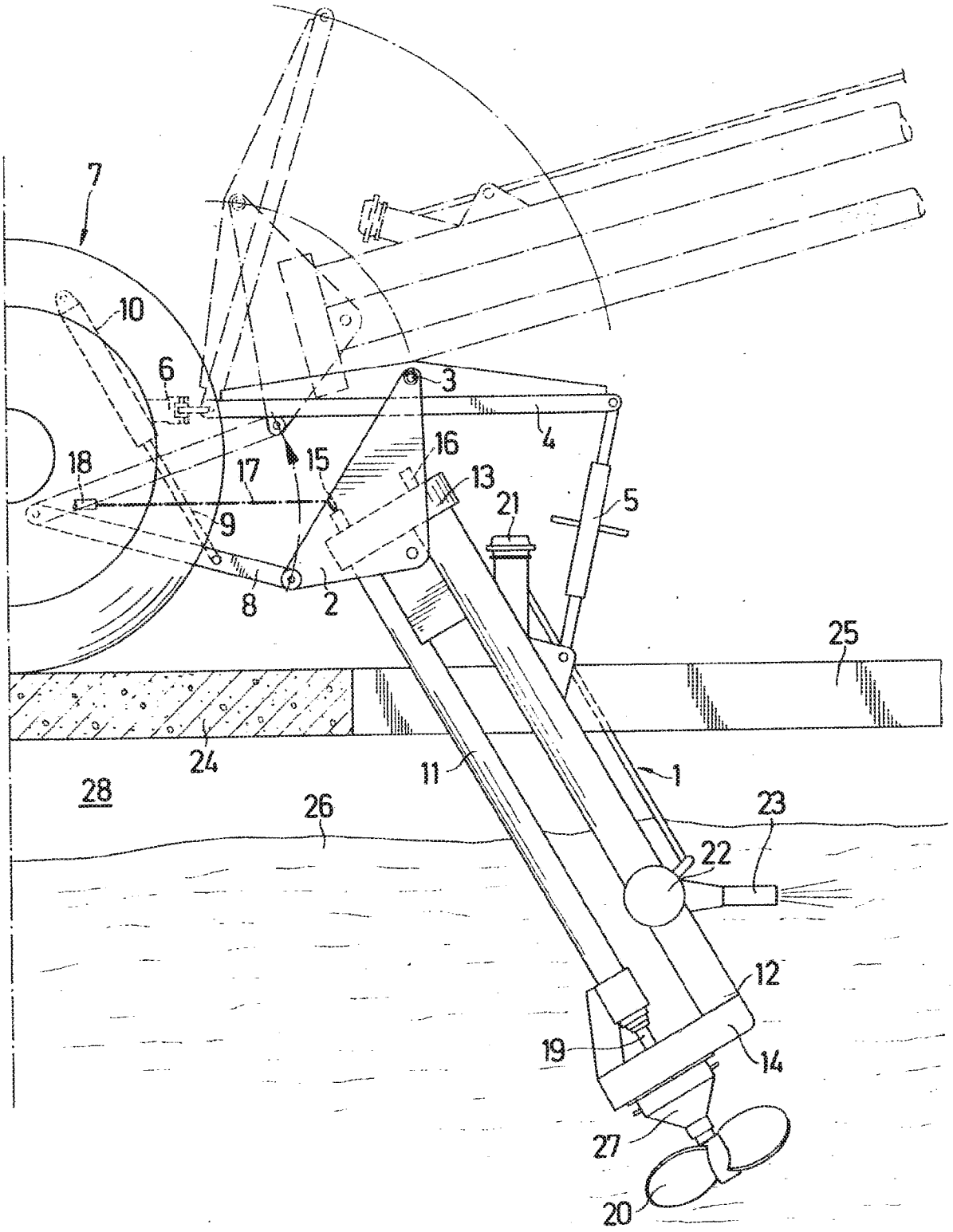
5. Vorrichtung nach den Ansprüchen 3 und 4, dadurch gekennzeichnet, daß an dem Ausleger (1) ein Hebel (8) angelenkt ist, der seinen Festpunkt am Schlepper (7) hat, und daß an diesem Hebel (8) ein hydraulischer Arbeitszylinder (10) angreift.

6. Vorrichtung nach den Ansprüchen 1 bis 5, dadurch gekennzeichnet, daß das Gehäuse der Pumpe (14) über zwei Rohre (11, 12) mit dem Gehäuse des Getriebes (13) verbunden ist, von denen eines (11) die Pumpenwelle (19) enthält, während das andere (12) als Förderrohr den Auslaßstutzen (21), den Dreiwegehahn (22) und die Düse (23) trägt.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 395 of 894

8

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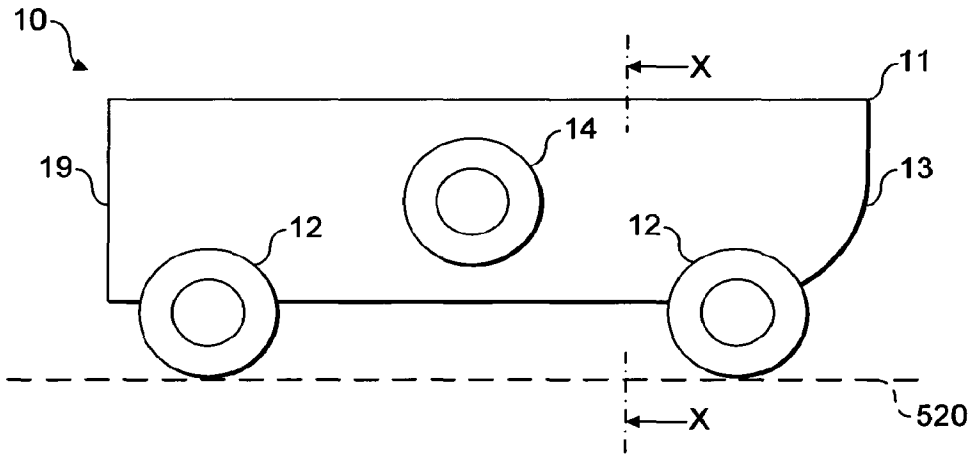
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(54) Title: AMPHIBIOUS VEHICLE



(57) Abstract: Amphibious vehicle (10) has land propulsion means and marine propulsion means. At least two axles with wheels (12) are spaced apart along the length of the vehicle. At least one intermediate axle with retractable wheel(s) (14) is positioned between the other axles. This additional axle may improve manoeuvrability over rough ground. Wheel(s) (14) may be retracted on water and/or on land. Wheels (12) may also be retractable. One or more axles may be driven, full time or selectively. The vehicle may plane on water, and may have a vee type hull (11). Marine propulsion may be by means of a jet drive. Wheel(s) (14) may retract vertically or through arcs around a longitudinal axis of the vehicle. Skid steer may be used. Mudguards, a vehicle roof, and retraction guides for the wheels (slides 16) may be fitted. Pairs of slides may provide roof supports. A forward control driving position may be provided.

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AMPHIBIOUS VEHICLE

The present invention relates to an amphibious vehicle, and in particular to an amphibious vehicle which is provided with at least one intermediate axle supporting a wheel which is retractable above the vehicle waterline.

Placement of axles in a conventional off-road vehicle is a compromise between breakover angle on the one hand and approach and departure angles on the other hand. Figure 12 illustrates these angles for a vehicle 500. A front wheel 503 is mounted on a front axle, and a rear wheel 504 is mounted on a rear axle. The axles have to be inset from the outer ends 505, 506 of the vehicle to give an acceptable breakover angle 507, but this limits mobility by reducing the approach angle 501 and departure angle 502. It is also conventional to inset axles from bumpers to build in crushable space for impact absorption. However, where mobility off-road is the prime concern, the fitment of an intermediate axle or axles each supporting a wheel and provided between front and rear axles makes breakover angle 507 an irrelevant concept. The vehicle will not ground on its sills between the axles, because the additional wheel or wheels are there to support it. This allows the front and rear axles to be pushed out towards the bumpers, maximizing approach and departure angles 501, 502.

Multiple axle off-road vehicles have many advantages off-road, but are limited on road. They may suffer tyre scrub where single axle steering is used; multiple axle steering adds complexity, weight and cost. They are often noisy, and typically use a lot of fuel. In an age where relations between military forces and civilians are often fraught, any modification to military vehicles which makes their passage along public roads less conspicuous, and less likely to induce hostility, is a major advantage.

Four wheeled vehicles may be adapted for use off road by providing balloon tyres and elongated suspension travel in both bump and rebound modes (see, for example. the Doliner Go-Devil at www.amphibiousvehicle.net).

However, these modifications may limit speed, economy, and ease of handling on road. Provision of retractable intermediate axles allows tyres and suspension to be tuned more to road use, and may avoid use of balloon tyres which have speed limits on road.

The present invention provides, in a first aspect, an amphibious vehicle for use on land and on water, comprising land propulsion means and marine propulsion means, wherein the land propulsion means comprises at least two axles spaced apart along the length of the vehicle and at least one intermediate axle positioned therebetween, the at least one intermediate axle supporting at least one wheel which may be retracted above the vehicle waterline for use of the vehicle on water and/or on land.

In a second aspect, the present invention provides an amphibious vehicle for use on land and on water, comprising land propulsion means, marine propulsion means, at least two wheels spaced apart along the length of the vehicle and at least one intermediate wheel positioned therebetween, wherein the at least one intermediate wheel is retractable in use of the vehicle on water and/or on land.

According to other aspects of the present invention, there is provided an amphibious vehicle as set forth in the appended claims.

Preferred embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a schematic side elevation view of a first embodiment of amphibious vehicle according to the present invention on land with all axles protracted;

Figure 2 is a schematic transverse cross-section view of the amphibious vehicle of Figure 1 taken at X-X;

Figure 3 is a schematic side elevation view of the amphibious vehicle of Figure 1 on land with the intermediate axle retracted;

Figure 4 is a schematic transverse cross-section view of the amphibious vehicle of Figure 3 taken at X-X;

Figure 5 is a schematic side elevation view of the amphibious vehicle of Figure 1 on water with all axles retracted;

Figure 6 is a schematic side elevation view of a second embodiment of amphibious according to the present invention on land provided with two intermediate axles;

Figure 7 is a schematic transverse cross-section view of a further embodiment of amphibious vehicle according to the present invention in a first state;

Figure 8 is a schematic transverse cross-section view of the amphibious vehicle of Figure 7 in a second state;

Figure 9 is a schematic transverse cross-section view of a yet further embodiment of amphibious vehicle according to the present invention;

Figure 10 is a perspective view of amphibious vehicle according to the present invention in use on water with all axles retracted;

Figure 11 is a further perspective view of the amphibious vehicle of Figure 10 in use on land with all axles protracted; and

Figure 12 is a schematic side elevation view of a prior art vehicle.

Figure 1 shows an amphibious vehicle 10 having a main vehicle structure in the form of a hull 11. The vehicle has a front (bow) 13 and a rear (stern) 19. The vehicle 10 is propelled on land by means of wheels 12, 14 provided longitudinally along each side of the hull 11. Each wheel 12, 14 is supported on a retractable axle (not shown). The wheels 12, 14 may all be driven wheels or may comprise one or more driven wheels and one or more non-driven wheels. The vehicle 10 may be steered conventionally using the front wheels and/or by independently operating the wheels 12, 14 on each side of the hull 11 (e.g. by braking or reversing certain wheels, i.e. by skid-steer).

This arrangement is advantageous off-road, where the wheels 12, 14 can engage the terrain surface even over rugged terrain. The wheels 12, 14 allow for improved steering compared to tracked vehicles, particularly on hard surfaces.

The hull 11 is a vee type hull as shown in Figure 2. The vehicle 10 additionally has a marine propulsion means for travelling on water. This is preferably in the form of at least one jet drive (not shown). The jet drive is able to generate sufficient thrust to allow the vehicle 10 to plane on water.

Figure 2 shows a schematic cross-sectional view of the amphibious vehicle 10 illustrated in Figure 1 looking back from the front at position X-X. Each intermediate axle supporting a wheel 14 has at least one guide element located in one or more slides 16. The slides 16 extend substantially vertically adjacent the hull 11, and allow the intermediate axles supporting a wheel 14 to be raised or lowered substantially vertically. The slides 16 may be in the form of tubes. The slides 16 are arranged in pairs across the width of the vehicle 10. Pairs of slides 16 may be attached to each other across the width of the vehicle 10 by attachment elements (not shown).

Hydraulic rams (not shown) are connected to the intermediate axles supporting a wheel 14, and are operable to raise or lower the intermediate axles supporting a wheel 14 in the slides 16. The intermediate axles supporting a wheel 14 can be raised until they are above the waterline of the vehicle 10. This allows the vehicle 10 to plane on water without interference or drag from the intermediate axles supporting a wheel 14. The intermediate axles supporting a wheel 14 are raisable above the level of any rudder. All protraction operations are inverse to the retraction operations described.

The hydraulic rams may additionally provide for suspension springing of the vehicle 10. The hydraulic rams may additionally provide suspension damping for the vehicle, as known from WO 01/74612 which is incorporated herein by reference.

A cover or roof (not shown) may be supported by the slides 16. The cover or roof may be attached to the attachment elements. The cover may provide physical protection for occupants of the vehicle in a military conflict, for example providing protection from enemy fire.

Figure 3 shows the amphibious vehicle of Figure 1 in which the intermediate axles supporting a wheel 14 have been raised upwardly (retracted). The intermediate axles supporting a wheel 14 are raised above the level of the waterline 540 of the vehicle 10 (see Figure 5). Conventional front and rear axles supporting wheels 12 are shown in the protracted position with the wheels 12 on the ground, so as to drive and steer the vehicle 10. This state is advantageous on roads, where the wheels 12 allow relatively fast, quiet travel and allow smooth steering of the amphibious vehicle 10.

Figure 4 shows a schematic cross-sectional view of the amphibious vehicle 10 illustrated in Figure 3 looking back from the front at position X-X. Each intermediate axle supporting a wheel 14 is shown in the retracted position. The wheels 12 may also be raised in slides 16, or by any other means for retracting wheels.

Figure 5 shows the front and rear wheels 12 retracted in addition to the intermediate retracted wheels 14. This allows the amphibious vehicle 10 to travel on water, where it is propelled by a jet drive. The wheels 12, 14 are raised above the waterline 540, allowing the vehicle 10 to plane on the water without interference from the wheels 12, 14.

Figure 6 shows a second embodiment of amphibious vehicle 110. The vehicle 110 is provided with a hull 111 having a front (bow) 113 and a rear (stern) 119. The vehicle 110 has a front pair of wheels 124 and a rear pair of wheels 126 (all shown retracted). Two pairs of intermediate axles supporting wheels 128 are located between the front and rear wheels 124, 126, each pair of wheels 128

on either side of the vehicle 110 (all shown protracted). All or any of the front and rear wheels 124, 126 and the intermediate axles supporting a wheel 128 can be independently raised or lowered on slides or otherwise as described with respect to Figures 2 and 4 above. Figure 6 shows the front and rear wheels 124, 126 above the waterline 540, in a retracted position, and shows the intermediate axles supporting a wheel 128 in a protracted position, extending below the hull 111. The vehicle 110 is shown standing with wheels 128 on the ground 520. This arrangement is advantageous in certain off-road scenarios, where the wheels 128 can engage the terrain surface even over rugged terrain.

In the embodiments described above, all of the wheels 12, 14; 124, 126, 128 may be driven. Alternatively, only the front wheels or the rear wheels 12; 124, 126 may be driven. The front wheels 12; 124, rear wheels 12; 126, or all road wheels 12, 14; 124, 126, 128 may be used to steer the vehicle 10; 110 on land. At least wheel 12, 14; 124, 126, 128 may in particular be driven, stopped (braked) or reversed in order to steer the vehicle 10; 110.

Figure 7 shows an alternative means for raising and lowering the intermediate axles supporting a wheel 14. This may be used on any of the previously described embodiments. The intermediate axles supporting a wheel 14 are mounted on support members 30. The support members 30 extend vertically downwardly from the main structure when the intermediate axles supporting a wheel 14 are in the lowered position.

As shown in Figure 8, the support members 30 are pivotally attached to the main structure, so that the intermediate axles supporting a wheel 14 can swing laterally outwardly in an arc. The intermediate axles supporting a wheel 14 rotate about one or more axes extending substantially longitudinally along the vehicle 10. The support members 30 can pivot to a horizontal orientation in order to lift the intermediate axles supporting a wheel 14 away from the hull 11 and above the waterline 540 of the vehicle 10. The retracted position is thus

substantially perpendicular to the protracted position. In the retracted position the wheels 14 may act as fenders for the amphibious vehicle 10 when on the water.

All wheels 12, 14; 124, 126, 128 may also be raised or lowered by rotation in an arc as described above.

As shown in Figure 9, mudguards 52 or spray guards 52 may be provided over the intermediate axles supporting a wheel 14. The mudguards 52 may be rigidly attached to the hull 11, such that the mudguards 52 do not move when the intermediate axles supporting a wheel 14 are raised and lowered. Alternatively, the mudguards 52 may be attached to the intermediate axles supporting a wheel 14 and/or slides such that the mudguards 52 are raised and lowered with the intermediate axles supporting a wheel 14 to stay a constant distance from the wheels 14.

Figure 10 shows the vehicle 10 in use planing on water, with all wheels 12, 14 retracted.

Figure 11 shows the vehicle 10 in use on land, with all wheels 12, 14 protracted.

The wheels of any of the embodiments may be powered (so as to provide drive) by a mechanical transmission. Alternatively, the wheels may be powered by an electric transmission or a hydraulic transmission. Alternatively, the wheels may be powered by a transmission comprising mechanical and hydraulic elements. The hydraulic elements may be hydraulic wheel motors.

The wheels of any of the embodiments may be lowered on water; either to limit speed in crowded spaces e.g. harbours or marinas; in readiness for landing; or in areas such as swamps, where depth of water is unpredictable and constantly changing. Furthermore, where heavy marine growth in swamps may choke up a water jet intake.

Although it is envisaged that a vehicle according to the invention should be able to reverse on water, the shape of a typical planing hull, with a tapered bow and cut-off stern, indicates that there will be a forward direction of travel in which the vehicle can travel considerably faster than in reverse, due to the very different hydrodynamic resistance encountered in each direction. In general, an amphibious vehicle will have similar proportions to a road vehicle or boat, being approximately 1.5-5 times, preferably 2.5-4 times, longer than it is wide. The practical and legislative limits on width of road vehicles are a major influence here; as are the hydrodynamic characteristics of the hull. The conventional direction of travel of an amphibious vehicle is along its length.

Where reference herein is made to a "main structure" of the vehicle, this should be regarded as the hull for marine use; and as the body for land use.

Any of the embodiments described may be operated from a "forward control" driving position at the front of the vehicle, and preferably in front of the engine. With such a vehicle, there is very little bodywork forward of the windscreen – possibly just a bumper. Such a driving position offers excellent visibility on both land and water. The obvious drawbacks are visibility to hostile fire in military applications; and lack of crushable structure forward of the driver in case of collision.

A jet drive has been described as providing drive for the vehicle on water. Alternatively, a marine outdrive or propeller or propellers may be used. Providing a marine outdrive improves ease of conversion from a dedicated road vehicle. Alternatively, the vehicle may have two or more jet drives for propulsion on water.

The front, intermediate and rear wheels have been described as being driven for driving the vehicle on land. Alternatively, the certain wheels may be selectively driven or not driven at all.

Hydraulic rams have been described as raising or lowering the intermediate axles supporting a wheel. Alternatively, the intermediate axles supporting a wheel may be moved by threaded drives, hydraulic motors or other suitable means. Alternatively, the intermediate axles supporting a wheel may be raised and lowered by pneumatic rams or other pressurised air actuating means. The pneumatic rams may additionally provide for suspension springing of the vehicle. The pneumatic rams may additionally provide suspension damping for the vehicle.

Pivoted link arms or other linkages may be used between the actuating means and the intermediate axles and/or wheels as required.

The intermediate axles supporting a wheel have been described as mounted on either side of the hull. Alternatively, a single intermediate axle supporting a wheel may be provided centrally under the centreline of the hull. Alternatively, three intermediate axles supporting a wheel may be provided, one on each side of the hull and one under the centreline of the hull. The intermediate axles supporting a wheel may be located either on the sides of the hull as shown, or partially or fully mounted underneath the hull.

A pair of front wheels and a pair of rear wheels have been described. Alternatively, the vehicle may have a pair of front wheels and a single, central, rear wheel. Alternatively, the vehicle may have a pair of rear wheels and a single, central, front wheel. Alternatively, the vehicle may have additional or fewer wheels than any of the particular embodiments shown, including in relation to the intermediate axles described. For example, the vehicle may be provided with just one wheel at each axle, i.e. just three wheels in all.

It will be appreciated from the foregoing that more than one intermediate axle may be provided. In every case, each and every axle may be retracted independently of the other or others, including where a plurality of intermediate axles are provided. Furthermore, an axle may in fact comprise two stub axles

provided one on each opposite side of the vehicle, or just one stub axle provided on one side or other of the vehicle or at a location in-between.

Reference herein to the terms axle and axles simply infers something about which a wheel or wheels may rotate. An axle may comprise just one wheel supported on a wheel hub or stub axle. Alternatively, an axle may comprise two wheels supported on a traditional axle.

Although several embodiments of amphibian have been described above, any one or more or all of the features described (and/or claimed in the appended claims) may be provided in isolation or in various combinations in any of the embodiments. As such, any one or more these features may be removed, substituted and/or added to any of the feature combinations described and/or claimed. For the avoidance of doubt, any of the features of any embodiment may be combined with any other feature from any of the embodiments.

Whilst preferred embodiments of the present invention have been described above and illustrated in the drawings, these are by way of example only and non-limiting. It will be appreciated by those skilled in the art that many alternatives are possible within the ambit of the invention, as set out in the appended claims.

CLAIMS

1. An amphibious vehicle for use on land and on water, comprising land propulsion means and marine propulsion means, wherein the land propulsion means comprises at least two axles spaced apart along the length of the vehicle and at least one intermediate axle positioned therebetween, the at least one intermediate axle supporting at least one wheel which may be retracted above the vehicle waterline for use of the vehicle on water and/or on land.

2. An amphibious vehicle as claimed in claim 1 wherein the at least two axles spaced apart along the length of the vehicle each support at least one wheel which may be retracted above the vehicle waterline for use of the vehicle on water and/or on land.

3. An amphibious vehicle as claimed in claim 1 or claim 2 wherein one or more of the axles are driven axles.

4. An amphibious vehicle as claimed in any one of the preceding claims wherein drive to one or more of the axles is selective.

5. An amphibious vehicle as claimed in any one of the preceding claims which is adapted to plane over water.

6 An amphibious vehicle as claimed in any one of the preceding claims comprising a vee type hull.

7. An amphibious vehicle as claimed in any one of the preceding claims wherein the marine propulsion means comprises at least one jet drive.

8. An amphibious vehicle as claimed in any one of the preceding claims wherein at least one of the spaced apart axles is provided at a first proximal or

front end of the vehicle and at least one of the spaced apart axles is provided at a second distal or rear end of the vehicle.

9. An amphibious vehicle as claimed in any one of the preceding claims wherein the at least one intermediate axle is provided towards the rear of the vehicle.

10. An amphibious vehicle as claimed in any one of claims 1 to 8 wherein the at least one intermediate axle is provided towards the front of the vehicle.

11. An amphibious vehicle as claimed in any one of claims 2 to 10 wherein the at least one supported wheel of the at least one intermediate axle is provided in line with the supported wheels of the at least two spaced apart axles along a longitudinal axis running fore and aft along the vehicle.

12. An amphibious vehicle as claimed in any one of claims 2 to 10 wherein the at least one supported wheel of at the least one intermediate axle is not in line longitudinally with the supported wheels of the at least two spaced apart axles.

13. An amphibious vehicle as claimed in any one of the preceding claims wherein the at least one intermediate axle comprises an plurality of intermediate axles each supporting at least one wheel and being retractable independently of the or each other intermediate axle and/or the other axles of the vehicle.

14. An amphibious vehicle as claimed in claim 13 wherein the supported wheels of the plurality of intermediate axles are provided in line with one another along a longitudinal axis running fore and aft along the vehicle.

15. An amphibious vehicle as claimed in claim 13 wherein the supported wheels of the plurality of intermediate axles are not in line longitudinally with one another.

16. An amphibious vehicle as claimed in any one of the preceding claims wherein the land propulsion means are powered by a mechanical transmission.

17. An amphibious vehicle as claimed in any one of claims 1 to 15 wherein the land propulsion means are powered by an electric transmission.

18. An amphibious vehicle as claimed in any one of claims 1 to 15 wherein the land propulsion means are powered by a hydraulic transmission.

19. An amphibious vehicle as claimed in any one of claims 1 to 15 wherein the land propulsion means are powered by a transmission comprising mechanical and hydraulic elements.

20. An amphibious vehicle as claimed in claim 19 wherein the hydraulic elements comprise hydraulic wheel motors.

21. An amphibious vehicle as claimed in any one of the preceding claims wherein the at least one intermediate axle is retractable substantially vertically.

22. An amphibious vehicle as claimed in any one of the preceding claims wherein the at least one intermediate axle is retractable about one or more axes running fore and aft along the length of the vehicle, so that each intermediate axle retracts in an arc about said axes.

23. An amphibious vehicle as claimed in claim 22 wherein the retracted position of the axis of the at least one intermediate axle is substantially perpendicular to its protracted position.

24. An amphibious vehicle as claimed in any one of the preceding claims wherein the at least one intermediate axle is retracted by means of threaded drives.

25. An amphibious vehicle as claimed in any one of claims 1 to 23 wherein the at least one intermediate axle is retracted by means of hydraulic rams or pneumatic rams.

26. An amphibious vehicle as claimed in claim 25 wherein the hydraulic rams or pneumatic rams also provide vehicle suspension springing.

27. An amphibious vehicle as claimed in claim 25 or claim 26 wherein the hydraulic rams or pneumatic rams also provide vehicle suspension damping.

28. An amphibious vehicle as claimed in any one of the preceding claims wherein the at least one intermediate axle has guide elements which locate in tubes attached to a main vehicle structure which guide the retraction of the at least one intermediate axle.

29. An amphibious vehicle as claimed in claim 28 wherein the tubes are attached to each other in pairs across the width of the vehicle by attachment elements.

30. An amphibious vehicle as claimed in any one of claims 1 to 27 wherein the at least one intermediate axle has guide elements which locate in slides attached to a main vehicle structure which guide the retraction of the at least one intermediate axle.

31. An amphibious vehicle as claimed in claim 30 wherein the slides are attached to each other in pairs across the width of the vehicle by attachment elements.

32. An amphibious vehicle as claimed in claim 29 or claim 31 wherein a vehicle cover or roof is attached to the attachment elements.

33. An amphibious vehicle as claimed in any one of the preceding claims wherein the wheel or wheels of the at least one intermediate axle has a mudguard fitted above.

34. An amphibious vehicle as claimed in claim 33 wherein the mudguard is attached so as to retract with the at least one intermediate axle.

35. An amphibious vehicle as claimed in any one of the preceding claims wherein the vehicle is provided with a forward control driving position.

36. An amphibious vehicle as claimed in any one of the preceding claims wherein the, some or each of the at least one intermediate axle supporting at least one wheel may be independently retracted in or for use of the vehicle on land.

37. An amphibious vehicle as claimed in any one of the preceding claims wherein the, some or each of the at least one intermediate axle supporting at least one wheel may be used to steer the vehicle.

38. An amphibious vehicle as claimed in any one of the preceding claims wherein the, some or each of the at least one intermediate axle supporting at least one wheel may be stopped or braked in order to steer the vehicle.

39. An amphibious vehicle as claimed in any one of the preceding claims wherein the, some or each of the at least one intermediate axle supporting at least one wheel may be reversed in order to steer the vehicle.

40. An amphibious vehicle for use on land and on water, comprising land propulsion means, marine propulsion means, at least two wheels spaced apart along the length of the vehicle and at least one intermediate wheel positioned therebetween, wherein the at least one intermediate wheel is retractable in use of the vehicle on water and/or on land.

41. An amphibious vehicle as claimed in claim 40 wherein the at least two wheels spaced apart along the length of the vehicle are retractable in use of the vehicle on water and/or on land.

42. An amphibious vehicle as claimed in any one of the preceding claims wherein each retractable wheel is retractable independently of each other retractable wheel in use of the vehicle on water and/or on land.

43. An amphibious vehicle as claimed in any one of the preceding claims wherein each pair of retractable wheels is retractable independently of each other retractable wheel or pair of retractable wheels in use of the vehicle on water and/or on land.

44. An amphibious vehicle substantially as hereinbefore described with reference to or as shown in any one or more of the accompanying Figures 1 to 11.

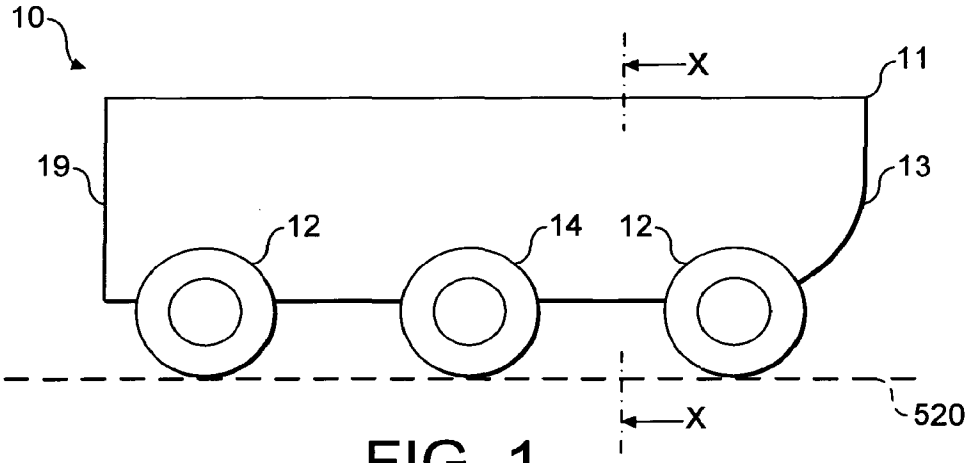


FIG. 1

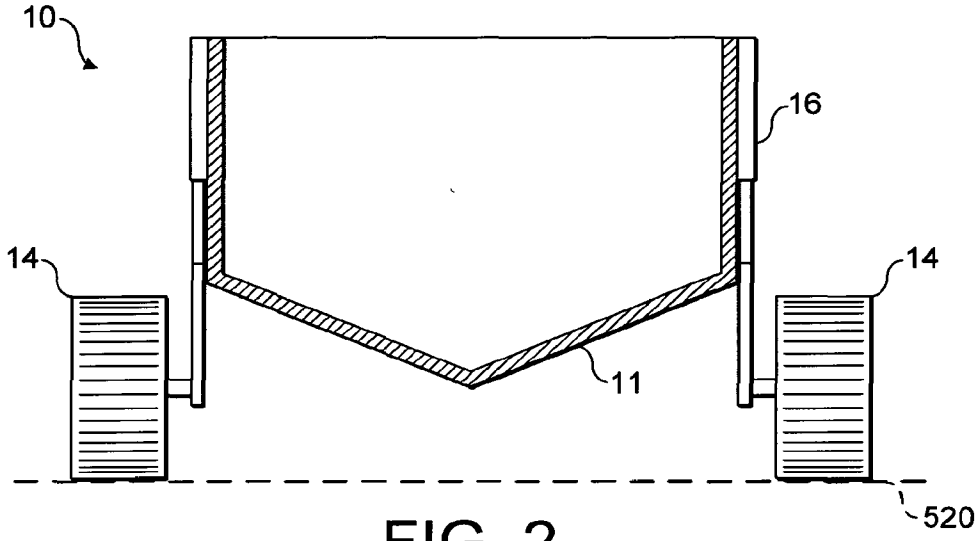


FIG. 2

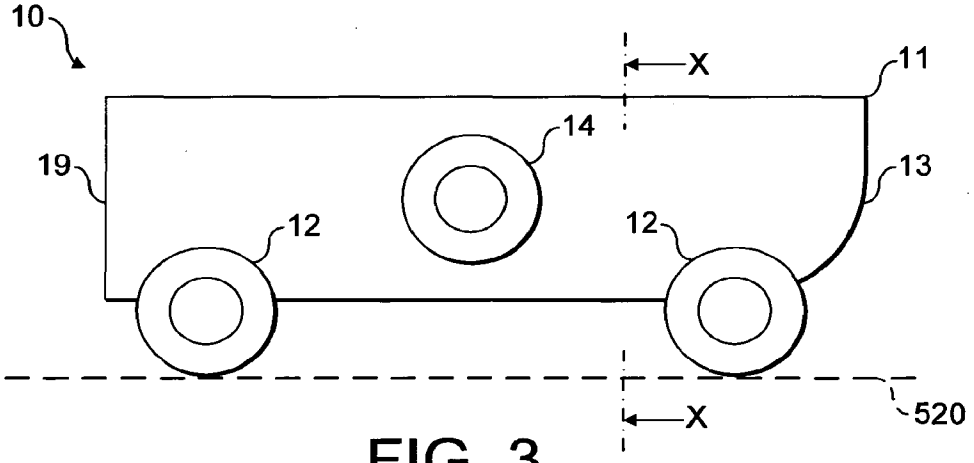


FIG. 3

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 416 of 894

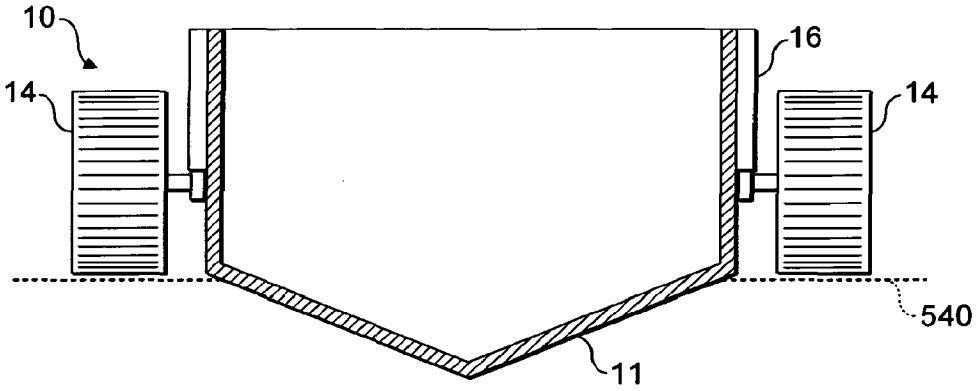


FIG. 4

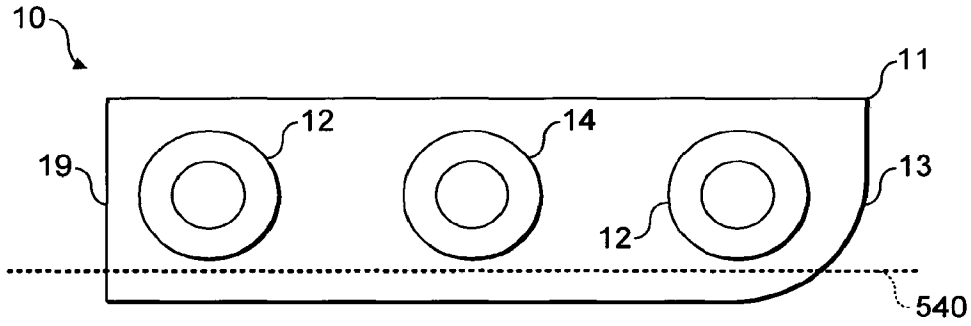


FIG. 5

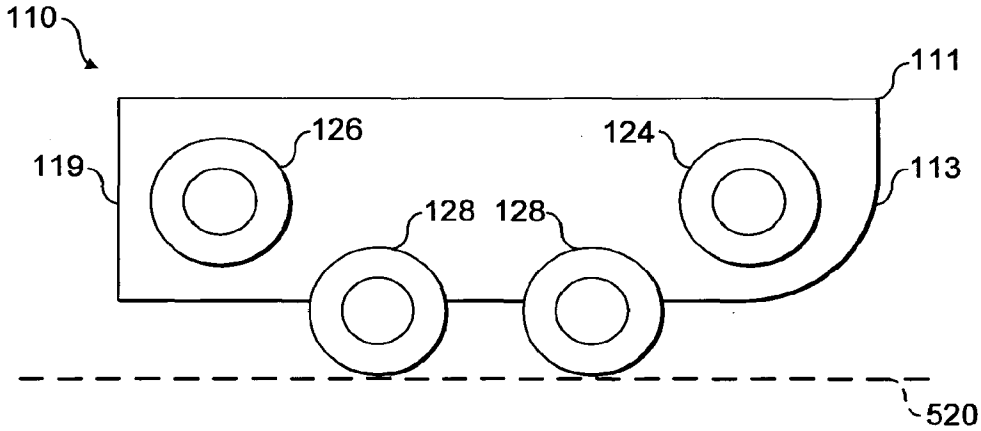


FIG. 6

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 417 of 894

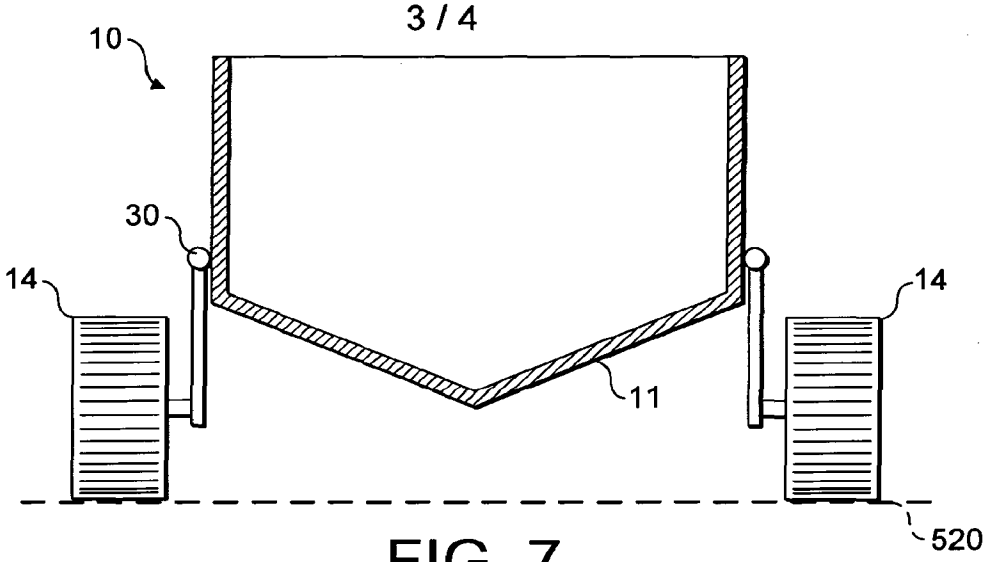


FIG. 7

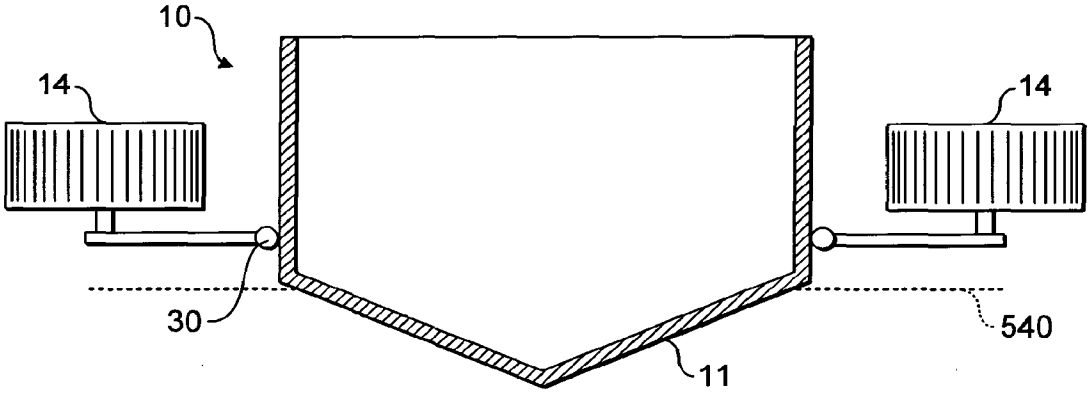


FIG. 8

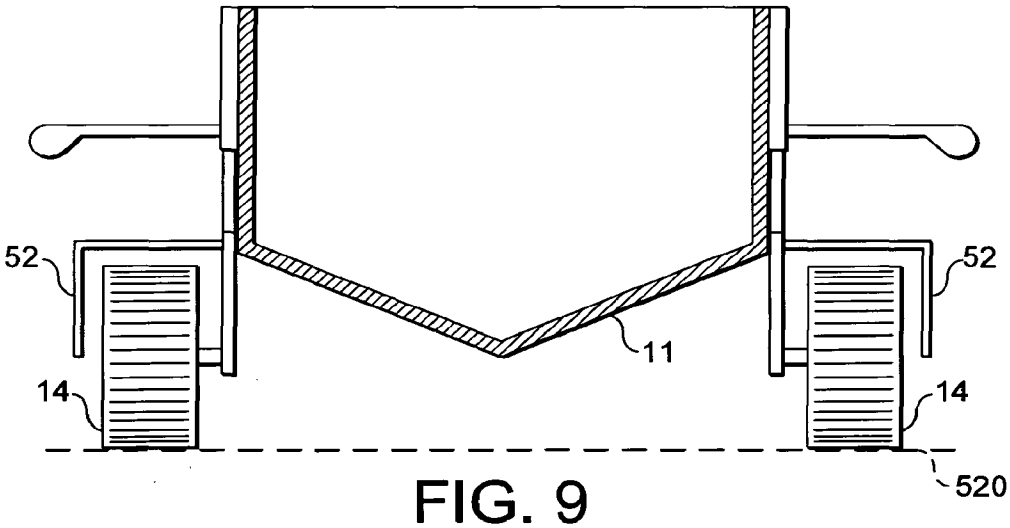


FIG. 9

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 418 of 894

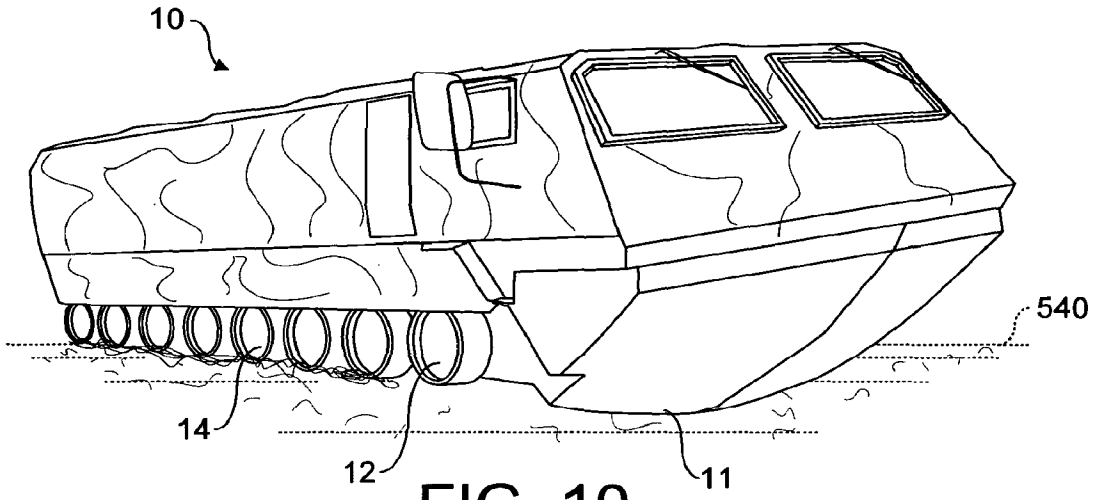


FIG. 10

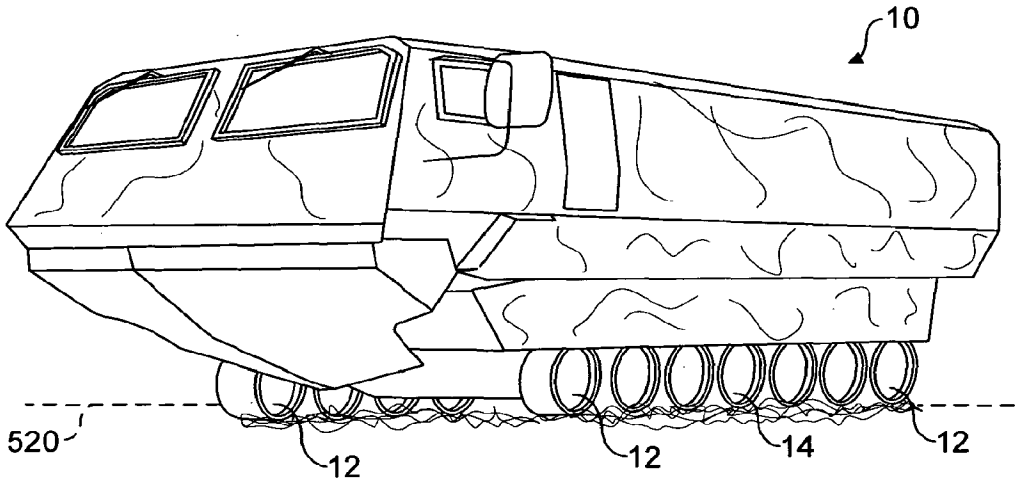


FIG. 11

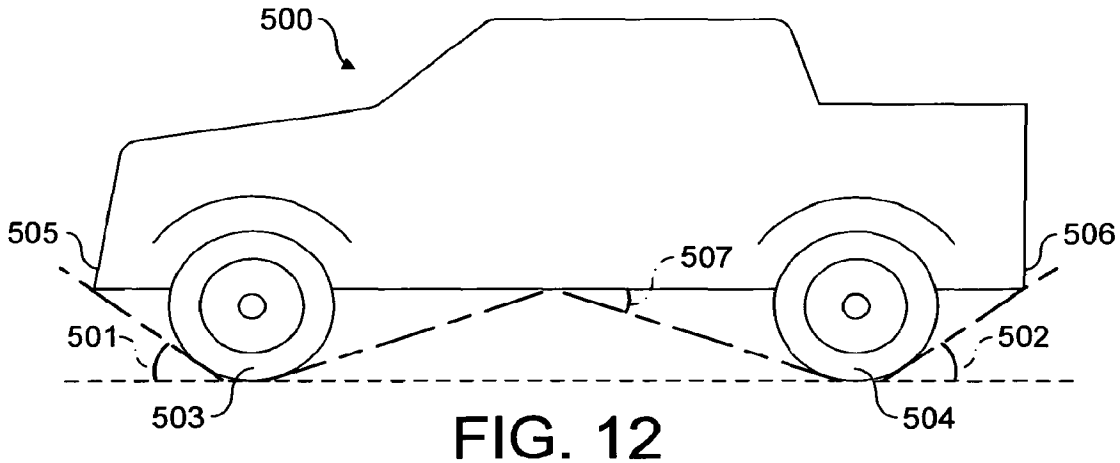


FIG. 12

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 419 of 894

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

BRUNET & CO. LTD.
1600-401 Bay St.
TORONTO, Ontario
Canada, M5H 2Y4

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*	05 November 2014 (05-11-2014)
Applicant's or agent's file reference NUN-0007-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. **PCT/CA2014/050789**	International filing date *(day/month/year)* 18 August 2014 (18-08-2014)
Applicant NUHN INDUSTRIES LTD.	

1. ☑ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant=s Guide*, International Phase, paragraphs 9.004 B 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the any request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 819-953-2476	Authorized officer Carole Millaire (819) 994-6587

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 420 of 894

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
BRUNET & CO. LTD.
1600-401 Bay St.
TORONTO, Ontario
Canada, M5H 2Y4

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	5 November 2014 (05-11-2014)
Applicant's or agent's file reference NUN-0007-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA2014/050789	18 August 2014 (18-08-2014)	19 August 2013 (19-08-2013)

International Patent Classification (IPC) or both national classification and IPC
IPC: ***A01C 23/00*** (2006.01), ***A01K 1/01*** (2006.01)

Applicant
NUHN INDUSTRIES LTD.

1. This opinion contains indications relating to the following items:

- ☑ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☑ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☑ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/CA	Date of completion of this opinion	Authorized officer
Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476	04 November 2014 (04-11-2014)	Sam Abounehme (819) 997-2773

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 421 of 894

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CA2014/050789

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☑ the international application in the language in which it was filed.

☐ a translation of the international application into which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

a. (means)

☐ on paper

☐ in electronic form

b. (time)

☐ in the international application as filed.

☐ together with the international application in electronic form

☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 422 of 894

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims 1 - 20	YES
	Claims None	NO
Inventive step (IS)	Claims 1 - 20	YES
	Claims None	NO
Industrial applicability (IA)	Claims 1 - 20	YES
	Claims None	NO

2. Citations and explanations:

D1: CA2002619A1 (Dépault) 09 May 1991 (09-05-1991)

D2: DE3431345A1 (Bruse) 06 March 1986 (06-03-1986)

D3: US4594006A (Depeault) 10 June 1986 (10-06-1986)

D4: DE2364962A1 (Gleich) 03 July 1975 (03-07-1975)

D5: US4406413A (Houle) 27 September 1983 (27-09-1983)

Novelty (N)

Claims 1 - 20 are novel and do comply with Article 33(2) of the PCT. Document D1 is considered the closest prior art and discloses an agitator and pump assembly adapted to be trailed behind a vehicle and to be moved into a manure pond, wherein the apparatus includes a pump housing at the end of an elongated frame supported on a wheeled sub-frame. The wheeled sub-frame is pivotally connected near one end to a midpoint of the elongated frame. The pump housing includes a rotating bladed impeller having an axis of rotation which is at an acute angle to the elongated frame, and a screw pump extends above the housing for thrusting the material downwardly through the housing upon rotation thereof. The subject matter of these claims differs from the prior art in that D1 does not disclose a floatable vehicle body having ground engaging propulsion structure, the structure being configured to be raised and lowered relative to the vehicle body.

Inventive Step (IS)

Claims 1 - 20 do comply with Article 33(3) of the PCT. The subject matter of these claims is considered to involve an inventive step since the prior art does not disclose nor fairly suggest a floatable vehicle body having ground engaging propulsion structure, the structure is configured to be raised and lowered relative to the vehicle body.

Industrial Applicability (IA)

The subject matter of claims 1 - 20 is considered to be industrially applicable and thus complies with the requirements of Article 33(4) of the PCT.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 423 of 894

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 1 does not comply with Article 6 of the PCT. The claim shall be clear and concise.
It is not clear from the expression "configured to raise and lower " what is being raised or lowered.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 424 of 894

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below
NUN-0007-PCT		
International application No.	International filing date *(day/month/year)*	(Earliest)Priority date *(day/month/year)*
PCT/CA2014/050789	18 August 2014 (18-08-2014)	19 August 2013 (19-08-2013)

Applicant

NUHN INDUSTRIES LTD.

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☑ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☑ the international application in the language in which it was filed.

☐ a translation of the international application into which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☑ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☑ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may,within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☑ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 425 of 894

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2014/050789

A. CLASSIFICATION OF SUBJECT MATTER
IPC: ***A01C 23/00*** (2006.01) , ***A01K 1/01*** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC: A01C 23/00 (2006.01) , A01K 1/01 (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
TotalPatent, Questel-Orbit

Search Terms: (manure) and IPC-1-8(A01C) and pump and nozzle and vehicle

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CA2002619A1 (Dépault) 09 May 1991 (09-05-1991)	1 – 20
A	DE3431345A1 (Bruse) 06 March 1986 (06-03-1986)	1 – 20
A	US4594006A (Depeault) 10 June 1986 (10-06-1986)	1 – 20
A	DE2364962A1 (Gleich) 03 July 1975 (03-07-1975)	1 – 20
A	US4406413A (Houle) 27 September 1983 (27-09-1983)	1 - 20

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 30 October 2014 (30-10-2014)	Date of mailing of the international search report 05 November 2014 (05-11-2014)
Name and mailing address of the ISA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001-819-953-2476	Authorized officer Sam Abounehme (819) 997-2773

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 426 of 894

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
CA2002619A1	09 May 1991 (09-05-1991)	CA2002619A1	09 May 1991 (09-05-1991)
		CA2002619C	19 September 1995 (19-09-1995)
		US5100303A	31 March 1992 (31-03-1992)
DE3431345A1	06 March 1986 (06-03-1986)	None	
US4594006A	10 June 1986 (10-06-1986)	US4594006A	10 June 1986 (10-06-1986)
		CA1212937A1	21 October 1986 (21-10-1986)
DE2364962A1	03 July 1975 (03-07-1975)	DE2364962A1	03 July 1975 (03-07-1975)
		ATA947374A	15 November 1975 (15-11-1975)
		AT331547B	25 August 1976 (25-08-1976)
		FR2256330A1	25 July 1975 (25-07-1975)
		GB1493119A	23 November 1977 (23-11-1977)
US4406413A	27 September 1983 (27-09-1983)	US4406413A	27 September 1983 (27-09-1983)
		CA1126257A1	22 June 1982 (22-06-1982)

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 427 of 894

PTO/AIA/80 (07-17)
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 59115

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 59115

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: NUHN INDUSTRIES LTD.
P.O. Box 160, Sebringville, Ontario, N0K 1X0, Canada

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature Dennis F Nuhn	Date July 18, 2018
Name Dennis Nuhn	Telephone 519-393-6284
Title President	

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: NUHN INDUSTRIES LTD.

Application No./Patent No.: 16/891,627 Filed/Issue Date: 06/03/2020

Titled: AMPHIBIOUS PUMPING VEHICLE

NUHN INDUSTRIES LTD., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 052826, Frame 0449, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Robert A. H. Brunet/	06/08/2020
Signature	Date
Robert A. H. Brunet	55158
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	39649617
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet/Stephanie Janssens
Filer Authorized By:	Robert A.H. Brunet
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	08-JUN-2020
Filing Date:	
Time Stamp:	10:05:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	2018-07-18-POA-signed.pdf	525892 cfe9bbc2e0a3155d416987eb40a32c110dc683b7	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	2020-06-08-Statement37.pdf	94242 715a2037c52d7ab520370088d196aa98e181ffc0	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	620134		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
Mr.	Ian		NUHN	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Sebringville	Country of Residence i	CA

Mailing Address of Inventor:

Address 1	PO Box 160		
Address 2			
City	Sebringville	State/Province	ON
Postal Code	N0K 1X0	Country i	CA

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	59115		
Email Address	patents@brunetco.com	Add Email	Remove Email

Application Information:

Title of the Invention	AMPHIBIOUS PUMPING VEHICLE		
Attorney Docket Number	NUN-0007-US4	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	Suggested Figure for Publication (if any)	1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	59115		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16157950	2018-10-11

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16157950	Continuation of	15586493	2017-05-04	10124638	2018-11-13
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15586493	Continuation of	15044905	2014-08-18	9694636	2017-07-04
Prior Application Status	Pending				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
15044905	a 371 of international	PCTCA2014050789	2014-08-18		
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
PCTCA2014050789	Claims benefit of provisional	61867598	2013-08-19		

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Nuhn Industries Ltd.		
Mailing Address Information For Applicant:			
Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Country	CA	Postal Code	N0K 1X0
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

Assignee 1

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Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Nuhn Industries Ltd.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	PO Box 160		
Address 2			
City	Sebringville	**State/Province**	ON
Country i	CA	Postal Code	N0K 1X0
Phone Number		Fax Number	
Email Address			

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Signature	/Robert A. H. Brunet/			Date (YYYY-MM-DD)	2020-06-03
First Name	Robert	Last Name	Brunet	Registration Number	55158

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	NUN-0007-US4
	Application Number	
Title of Invention	AMPHIBIOUS PUMPING VEHICLE	

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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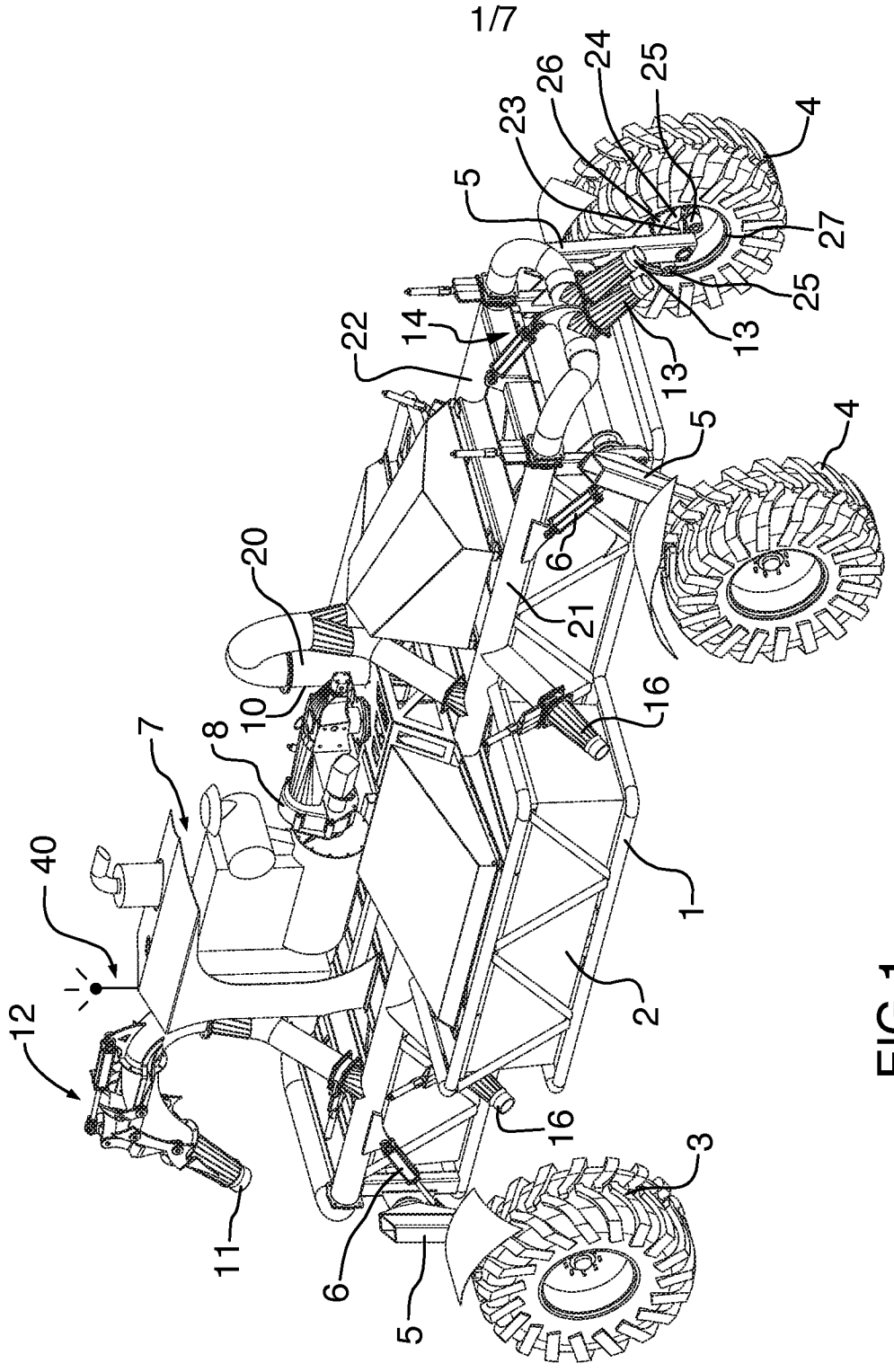


FIG.1

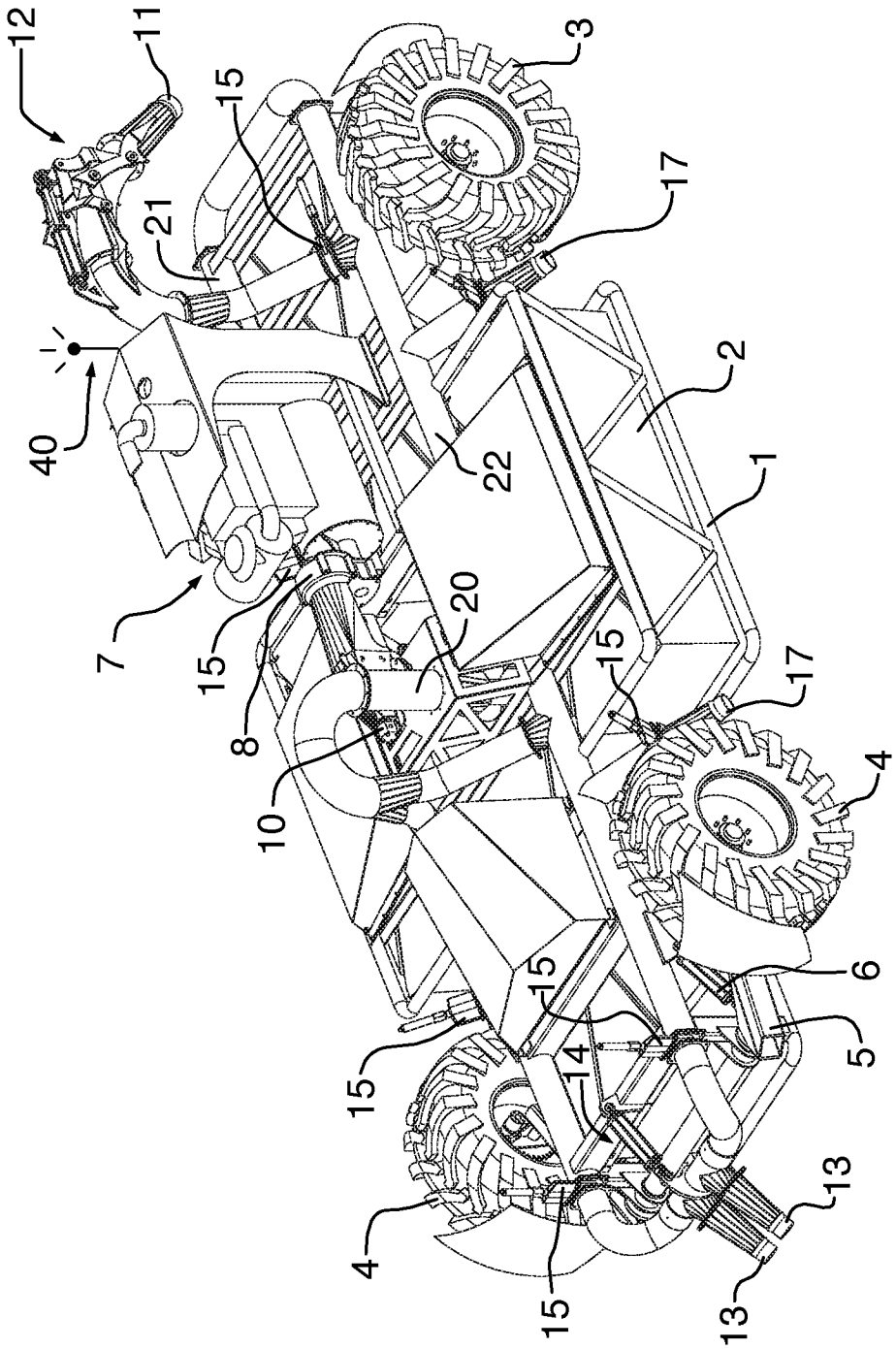


FIG.2

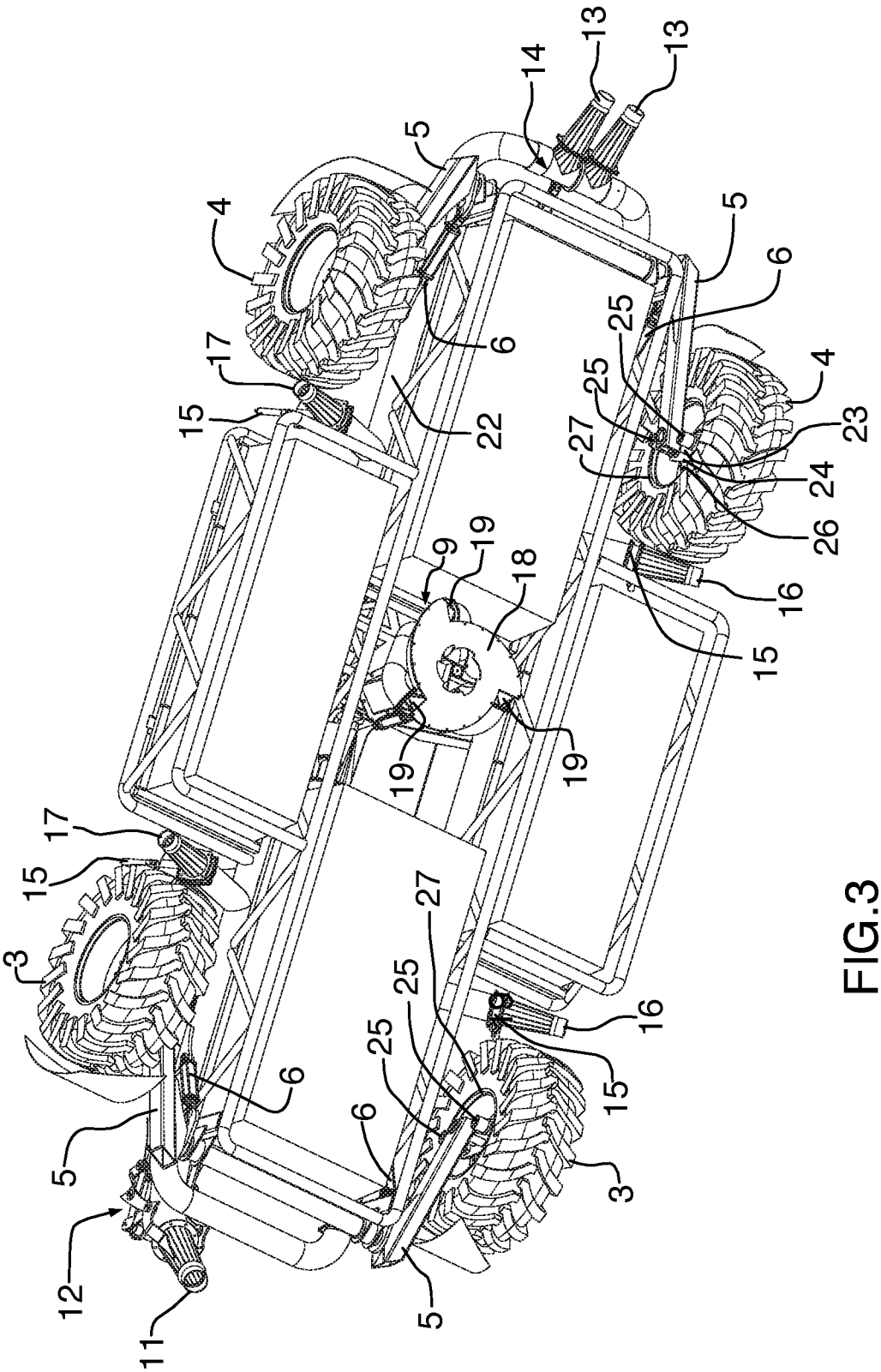


FIG.3

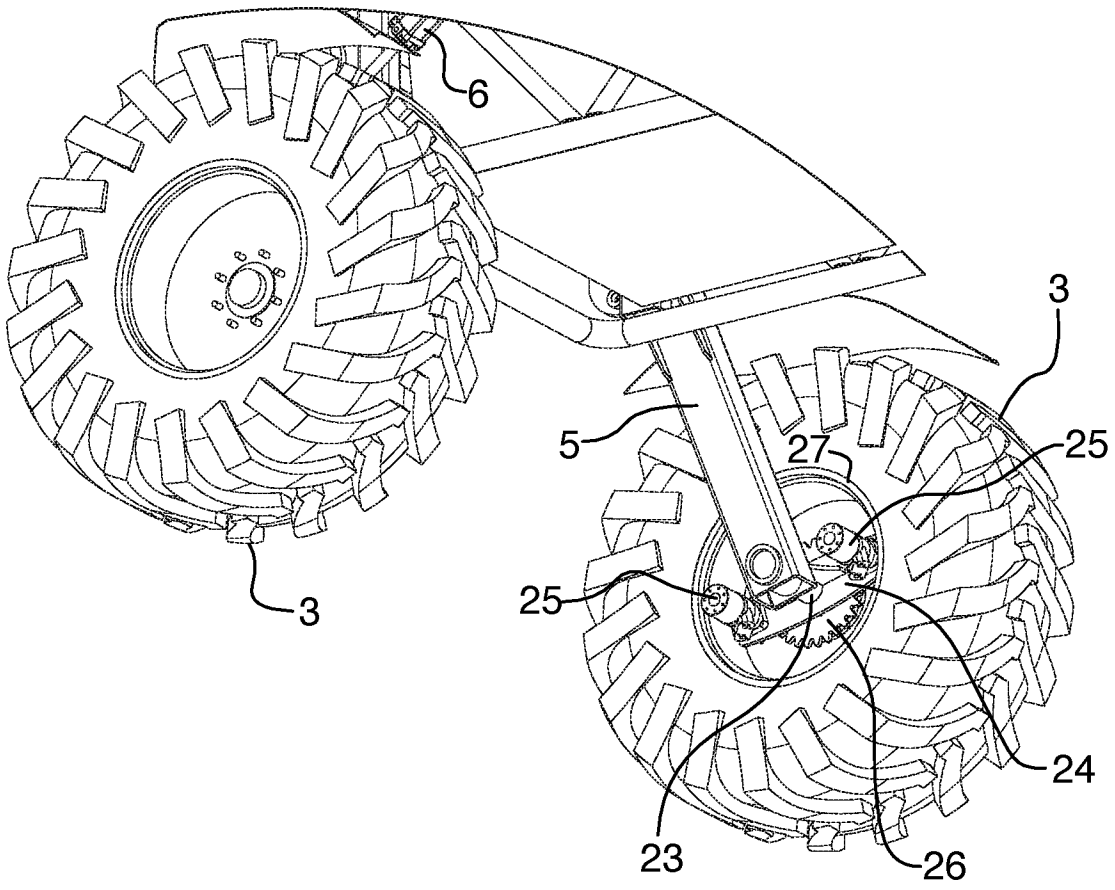


FIG.4

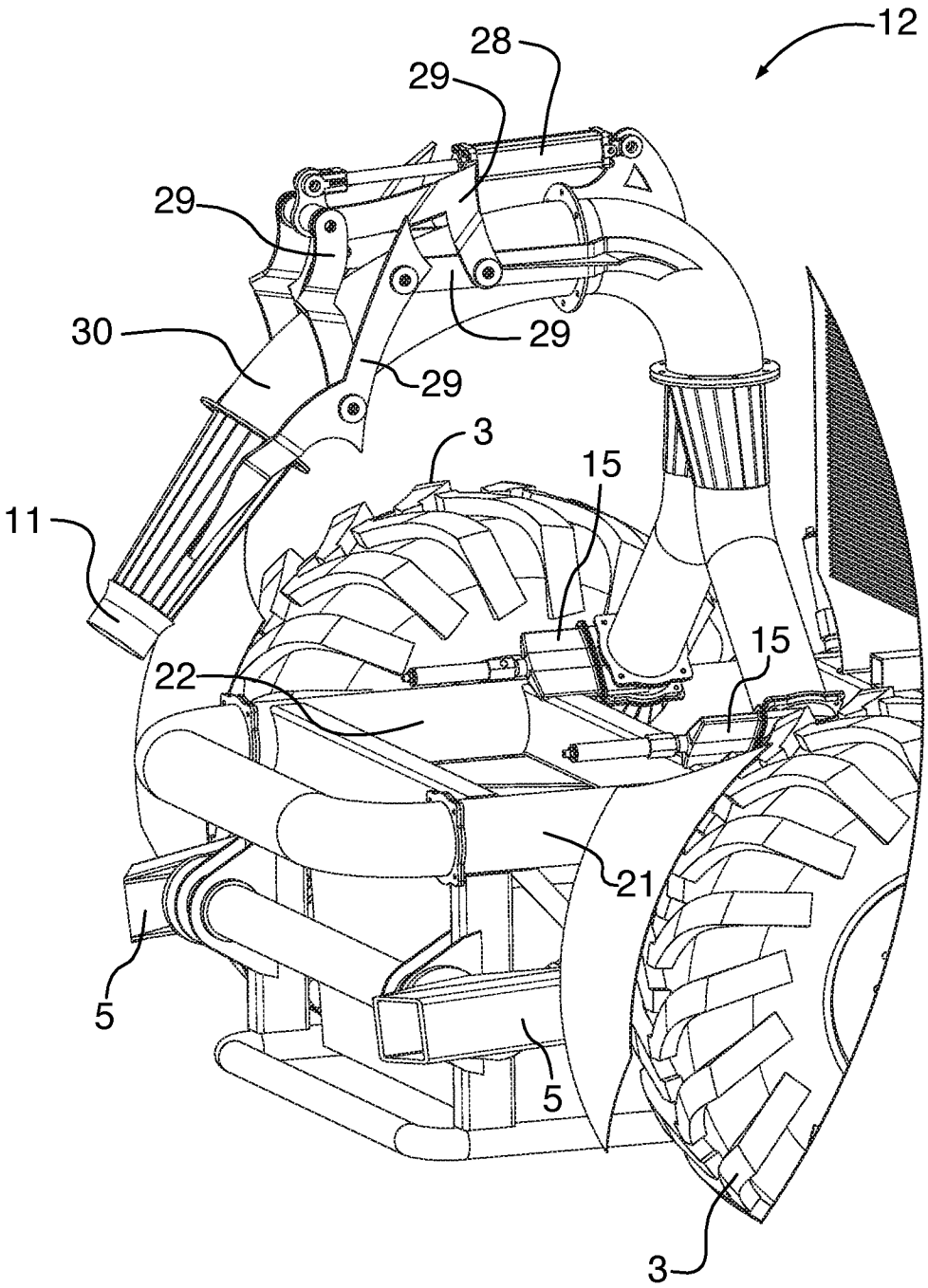


FIG.5

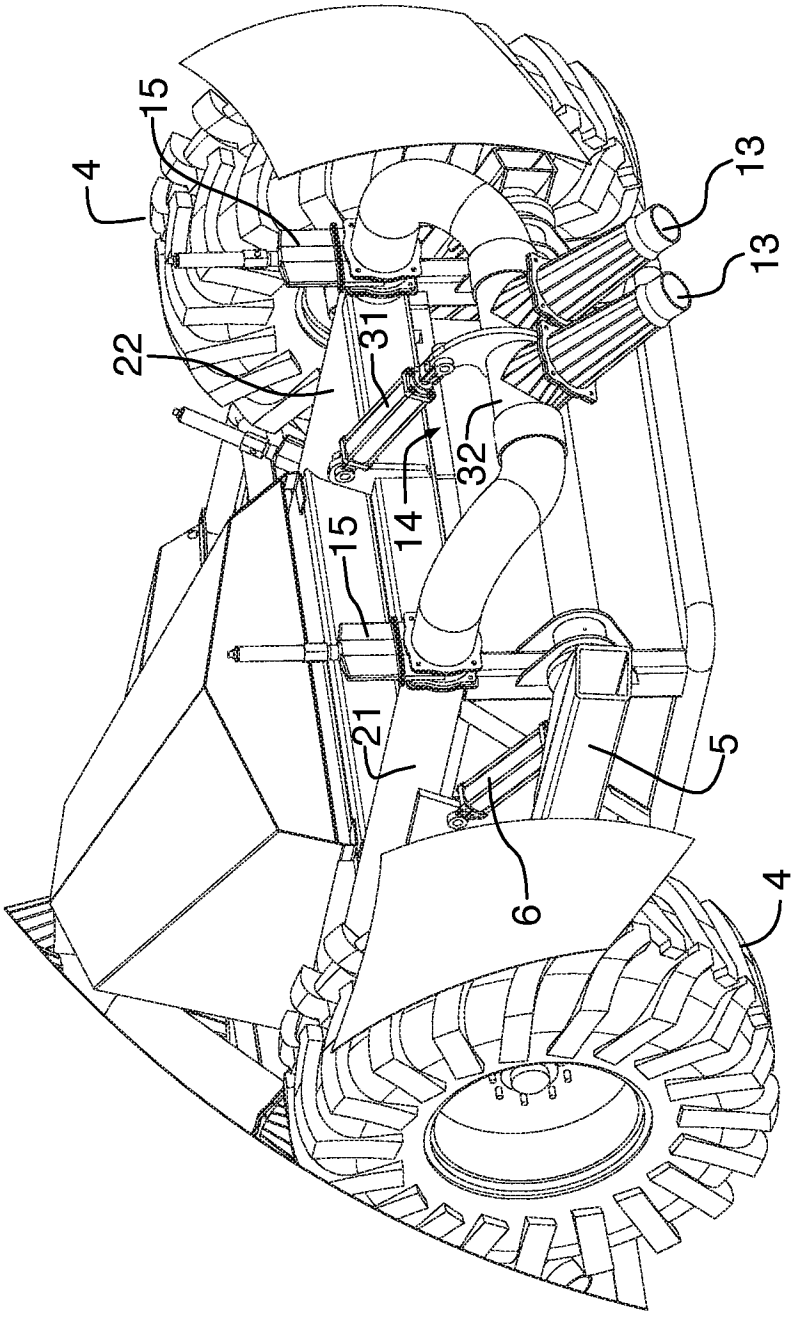


FIG.6

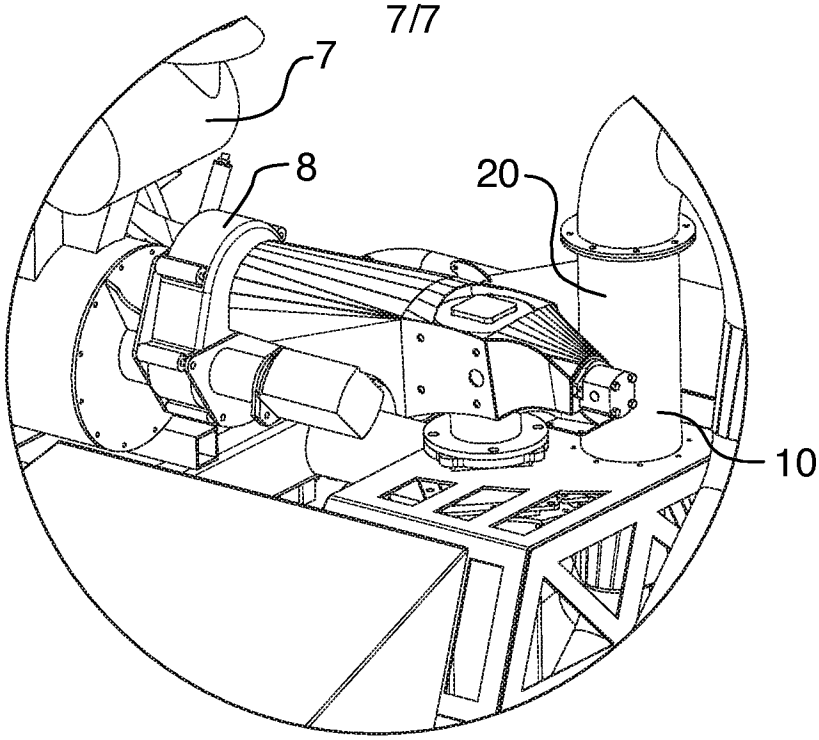


FIG.7

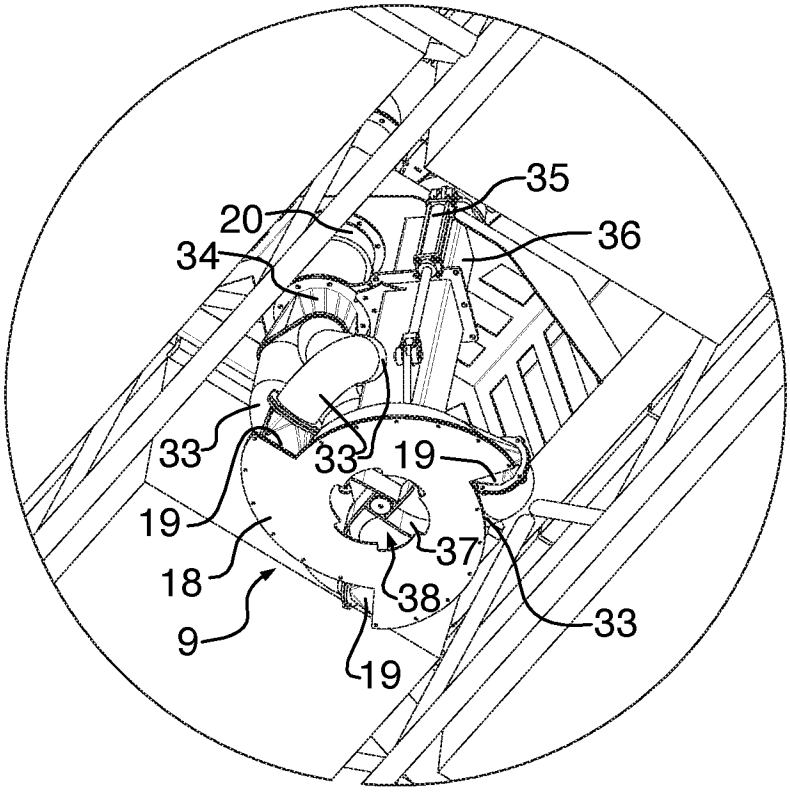


FIG.8

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	AMPHIBIOUS PUMPING VEHICLE

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 15/044,905 filed on February 16, 2016.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

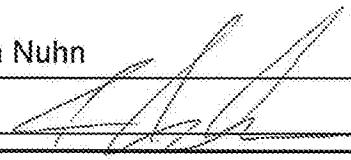
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LEGAL NAME OF INVENTOR

Inventor: Ian Nuhn Date (Optional): MAR 10th 16.

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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AMPHIBIOUS PUMPING VEHICLE

Cross-Reference to Related Applications

[0001] This application is a continuation of United States Patent Application USSN 16/157,950, filed October 11, 2018, which is a continuation of USSN 15/586,493 filed May 4, 2017, now issued under patent number US 10,124,638 on November 13, 2018, which is a continuation of United States Patent Application USSN 15/044,905 filed February 16, 2016 now issued under patent number US 9,694,636 on July 4, 2017, which is a continuation of international patent application PCT/CA2014/050789, filed August 19, 2014, which claims the benefit of United States patent application 61/867,598 filed August 19, 2013, the entire contents of which are herein incorporated by reference.

Technical Field

[0002] The invention relates to pumps and vehicles equipped for pumping. In particular, the invention relates to manure pumps and amphibious vehicles equipped for pumping liquid manure, such as animal manure contained in a farm lagoon.

Background

[0003] Manure produced during animal husbandry, particularly hog and cattle manure, is transferred by washing to a pit or lagoon for storage prior to removal for land application or further processing. During storage, a crust can develop on the surface of the pit or lagoon that must be disrupted prior to or during removal of the manure. Pumps are employed for this purpose with jets that return a percentage of the manure back to the pit or lagoon in the form of a high volume spray to disrupt the crust and recirculate the manure. Pumps for use in recirculating manure from smaller pits are known; however, these pumps are typically suitable for accessing the pit or lagoon from its edge and are connected to a tractor or similar land vehicle for operational power. They are

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 452 of 894

therefore limited in their ability to recirculate manure to the middle of large lagoons, which are becoming increasing common as the size of animal husbandry operations increases.

[0004] Accordingly, there is a need for improved pumps and vehicles equipped for pumping, particularly pumps and vehicles suitable for use with large manure lagoons.

Summary of the Invention

[0005] According to the invention, there is provided an amphibious pumping vehicle comprising: a floatable vehicle body; ground engaging propulsion structure configured to raise and lower relative to the vehicle body; a fluid pump; a first fluid nozzle configured to direct fluid through the air, the fluid nozzle connected by a fluid conduit to the fluid pump; and, a power source configured to provide power to both the ground engaging propulsion structure and the fluid pump.

[0006] The floatable vehicle body may be in the shape of a mono-hull, a catamaran or a barge. Floatation of the vehicle body may be provided by a displacement hull, pontoon elements, or buoyant elements, for example foam filled buoyant chambers, such as are used for supporting floating docks. The vehicle body may be made using a variety of suitable materials, for example, fiberglass, aluminum, plastics, steel, etc.

[0007] The ground engaging propulsion structure may comprise ground engaging elements of the type suitable for powering a vehicle across wet or muddy terrain. For example, the ground engaging propulsion structure may comprise an endless track or a set of wheels. The set of wheels may comprise two or more wheels, for example four wheels, six wheels or eight wheels. May be provided in pairs with one wheel of each pair disposed on opposite sides of the vehicle. When the vehicle comprises a set of wheels, any number of the wheels may be driven in order to provide propulsion for the vehicle. Although at least two wheels may be driven, it is preferred that at least four wheels are driven. Although the vehicle may be provided with steering structure configured to change direction of one or more pairs of wheels, it is preferred that the

wheels are independently driven at variable speeds, allowing them to be fixed in direction relative to the vehicle body. This provides directional control of the vehicle, even in wet or muddy conditions where conventional steering is likely to be ineffective due to sliding of the steerable set of wheels. A variety of drive mechanisms may be used to operate the wheels independently at variable speed; for example, at least one motor may be connected to each wheel that is hydraulically or electrically operable at variable speed. A transmission may alternatively be provided with structure configured to allow each wheel to be operated at variable speeds.

[0008] The ground engaging propulsion structure is configured to raise and lower relative to the vehicle body. Raising and lowering may be provided by telescoping structure or lever structure configured to pivot relative to the vehicle body. The lever structure may comprise a linear actuator that is driven, for example hydraulically, to cause pivoting of the lever arm relative to the vehicle body and thereby raise or lower the wheels. Each wheel is preferably raised or lowered at the same time. Alternatively, the lever structure may comprise a planetary drive that is either mechanically or hydraulically powered to cause pivoting of the lever arm.

[0009] The vehicle further comprises a power source configured to provide power to both the ground engaging propulsion structure and the fluid pump. The power source may be self-contained on the vehicle or may be linked to shore. For example, the power source may comprise an internal combustion engine, a fuel-cell, electric batteries, etc. The power source may comprise an electric motor that may be driven from shore via an electrical cable. The power source may be connected to a generator for supplying electrical power to electrical systems on board the vehicle. The power source may be connected to a hydraulic pump for supplying hydraulic fluid pressure to hydraulic systems on board the vehicle. The power source may be connected to the fluid pump hydraulically, electrically, or via a mechanical drive. A single power source may be used to provide power to all vehicle systems, including the fluid pump. In one embodiment, the power source is an internal combustion engine that is connected to the fluid pump

and a hydraulic pump via a mechanical drive. The mechanical drive may comprise a gearbox to provide an appropriate rotational speed for the fluid pump. The mechanical drive may comprise a gearbox to provide an appropriate rotational speed for the hydraulic pump. The fluid pump and hydraulic pump may be operated at the same or different rotational speeds.

[0010] The fluid pump may comprise a pump housing configured for immersion within the fluid. The pump housing may comprise a bottom fluid inlet and at least two tangential fluid outlets. A greater number of tangential fluid outlets may be provided, for example three fluid outlets. The tangential fluid outlets may be combined into a single fluid conduit for directing the combined output of the fluid pump to a desired location. The vehicle may comprise structure configured to cause raising and lowering of the fluid pump, especially the fluid pump housing, relative to the vehicle body. For example, a hydraulically or electrically driven linear actuator may be provided on the vehicle and configured to raise and lower the fluid pump. This may be accomplished via a telescoping structure or a lever structure of the vehicle. The tangential fluid outlets may be equipped with flexible or telescoping connections to the single fluid conduit. Lowering the fluid pump for immersion into the fluid obviates the need for priming the fluid pump, which can be problematic when the fluid is manure comprising solid materials that can plug the pump or priming structure. Immersion of the pump also simplifies intermittent operation of the pump, due to eliminating potential loss of prime, and reduces the need for pump maintenance.

[0011] The vehicle comprises a first fluid nozzle configured to direct fluid through the air. The fluid nozzle is connected by fluid conduit to the fluid pump. The fluid conduit connecting the fluid nozzle to the fluid pump may comprise the single fluid conduit that is connected to the tangential fluid outlets of the pump. The vehicle may further comprise a plurality of fluid nozzles comprising the first fluid nozzle and at least one second fluid nozzle connected to the fluid conduit. The first fluid nozzle may comprise a front nozzle and the second fluid conduit may comprise the rear nozzle or a pair of

rear nozzles. The plurality of fluid nozzles may comprise at least two side fluid nozzles on opposite sides of vehicle connected to the fluid conduit. The at least two side fluid nozzles may comprise a pair of fluid nozzles on opposite sides of the vehicle connected to the fluid conduit; thus, the at least two side fluid nozzles may comprise a total of four fluid nozzles. The vehicle may further comprise valve structure configured to proportion fluid flow between the plurality of fluid nozzles. The valve structure may comprise a valve corresponding to each fluid nozzle. The valve corresponding to each fluid nozzle may be actuatable, for example hydraulically or electrically. The valve structure may be actuatable remotely.

[0012] The plurality of fluid nozzles and the valve structure may cooperate to provide directional control, motive power, or a combination thereof for the vehicle when floating. For example, by closing valve structure associated with the fluid nozzle(s) on the right side of the vehicle, fluid flow is directed to the nozzle(s) on the left side of the vehicle, causing the vehicle to turn to the right. In one embodiment, steering is achieved solely by cooperation of the plurality of fluid nozzles and the valve structure; accordingly, the vehicle does not comprise a rudder. In one embodiment, movement of the vehicle while floating is achieved solely by cooperation of at least the second fluid nozzle and the valve structure; accordingly, the vehicle does not comprise a propeller.

[0013] One or more fluid nozzles may comprise adjustment structure that is powered and configured to adjust an angle of the fluid nozzle relative to the floatable vehicle body. For example, the first fluid nozzle may comprise first adjustment structure and the second fluid nozzle(s) may comprise second adjustment structure, each adjustment structure configured to adjust an angular orientation of its respective fluid nozzle(s) in a vertical and/or horizontal plane. In one embodiment, both the first fluid nozzle and the second fluid nozzle(s) are adjustable in a vertical plane. The second fluid nozzle(s) is/are adjustable in the vertical plane by an amount sufficient to cause forward or backward movement of the vehicle when floating. In other words, the second fluid nozzle(s) is/are adjustable to point at least partially toward the front of the vehicle

at least partially toward the rear of the vehicle. The second fluid nozzle(s) may be configured to direct fluid through the air in a substantially downward direction. The first fluid nozzle may be configured to direct fluid through the air in a substantially upward direction. The side fluid nozzle(s) may be configured to direct fluid through the air in a substantially downward direction. One or more side fluid nozzle(s) may comprise adjustment structure configured to adjust an angular orientation of its respective side fluid nozzle(s) in a vertical plane.

[0014] The location of at least the ground engaging propulsion structure, the power source and the fluid pump may be selected to provide a desired location for a center of gravity of the vehicle. The desired location for the center of gravity of the vehicle may be selected to improve handling characteristics of the vehicle while floating. The center of gravity may be located along the longitudinal centerline of the vehicle. The center of gravity may be located substantially in the middle of the vehicle, for example at an intersection of longitudinal centerline of the vehicle and the transverse centerline of the vehicle. The center of gravity may be located rearward of the transverse centerline of the vehicle. The center of gravity may be located forward of the transverse centerline of the vehicle. Thus the ground engaging propulsion structure, power source, and fluid pump cooperate together to improve handling characteristics of the vehicle.

[0015] The vehicle may comprise remote control structure configured to cause the vehicle to be remotely controllable by an operator remote from the vehicle. The vehicle may be remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating. The remote control structure may comprise a wireless transmitter and a wireless receiver. The remote control structure may be configured to control the speed and or direction of the vehicle when ground engaging and when floating. The remote control structure may be configured to control an amount of fluid flow from at least the first nozzle. The remote control structure may be configured to control an angular orientation of at least the first

nozzle relative to the vehicle body. The remote control structure may be configured to control an amount of fluid flow from at least the second nozzle(s). The remote control structure may be configured to control an angular orientation of at least the second nozzle(s) relative to the vehicle body. The remote control structure may be configured to control the valve structure in order to proportion fluid flow between the plurality of fluid nozzles. The remote control structure may be configured to control rotational speed of the fluid pump. The remote control structure may be configured to raise and lower the fluid pump. The remote control structure may be configured to raise and lower the ground engaging propulsion structure. The remote control structure may be configured to start and stop the power source.

[0016] Further features of the invention will be described or will become apparent in the course of the following description.

Brief Description of the Drawings

[0017] In order that the invention may be more clearly understood, embodiments thereof will now be described in detail by way of example, with reference to the accompanying drawings, in which:

[0018] Fig. 1 shows a perspective view of an embodiment of the vehicle with wheels lowered;

[0019] Fig. 2 shows another perspective view of the vehicle with wheels raised;

[0020] Fig. 3 shows a perspective view of the underside of the vehicle; and,

[0021] Fig. 4 shows a perspective view of a set of wheels of the vehicle from the underside of the vehicle;

[0022] Fig. 5 shows a perspective view of the first fluid nozzle of vehicle;

[0023] Fig. 6 shows a perspective view of a second fluid nozzle of the vehicle;

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 458 of 894

[0024] Fig. 7 shows a perspective view of a mechanical drive connecting the power source of the vehicle to the fluid pump and a hydraulic pump of the vehicle;

[0025] Fig. 8 shows a perspective view of the fluid pump from the underside of the vehicle.

Detailed Description

[0026] In describing the figures, like features are referred to by like reference numerals. Although not all features indicated on a particular drawing are necessarily described with reference to that drawing, all of the features are described with reference to at least one of the drawings.

[0027] Referring to Figs. 1-3, an amphibious vehicle comprises a vehicle body 1 incorporating buoyant elements 2. The buoyant elements comprise flotation tanks of the type that may be foam filled and used, for example, in the construction of floating docks. The vehicle comprises a ground engaging propulsion structure comprising two sets of wheels 3, 4. Each wheel is rotatably mounted to lever structure 5 that is pivotally attached to the vehicle body. Each lever structure 5 is driven by a hydraulic actuator 6 that is operable to cause raising and lowering of the wheels 3, 4 by pivoting of the lever structure 5. A power source 7 comprising an internal combustion engine, for example a diesel engine, is mounted to the vehicle body. A mechanical drive 8 connects the power source 7 to the fluid pump 9 and a hydraulic pump 10 that is used to provide hydraulic system fluid pressure for the vehicle.

[0028] The fluid pump 9 comprises a pump housing 18 with three tangential fluid outlets 19 that are combined into a single fluid conduit 20. The single fluid conduit 20 is then split into left side 21 and right side 22 fluid conduits which connect at the front and rear of the vehicle to form a complete circuit. The fluid pump 9 is thus fluidically connected to all fluid nozzles of the vehicle via the fluid conduits 20-22.

[0029] A first fluid nozzle 11 is provided at a front of the vehicle. The first fluid nozzle 11 comprises first articulation means 12 that is hydraulically powered to cause the nozzle to change angular orientation relative to the vehicle body 1 in a vertical plane. A pair of second fluid nozzles 13 is provided at a rear of the vehicle. The second fluid nozzles 13 comprise a second articulation means 14 that is hydraulically powered to cause the nozzles to change angular orientation relative to the vehicle body 1 in a vertical plane. The first and second fluid nozzles are part of a plurality of fluid nozzles of the vehicle. The plurality of fluid nozzles further comprises side fluid nozzles 16, 17 on opposite sides of the vehicle. A pair of left side fluid nozzles 16 and a pair of right side fluid nozzles 17 are provided.

[0030] Valve structure comprising a valve 15 corresponding to each fluid nozzle 11, 13, 16, 17 is also provided. The valves 15 are powered and operable to open or close. The valves 15 may be opened fully or partially to proportion flow between the plurality of fluid nozzles. Cooperation between the valves 15 and the plurality of fluid nozzles is used to provide directional control and motive power for the vehicle while floating. For example, proportioning fluid flow from the right side fluid nozzles 17 to the left side fluid nozzles 16 causes the vehicle to turn to the right will floating. Similarly, fluid flow may be proportioned between the first fluid nozzle 11 and the second fluid nozzles 13 to cause the vehicle to move forward or backward. By rotating the second fluid nozzles 13 fully downwardly and then up toward the front of the vehicle using the second articulation means 14, the vehicle may also be directed rearward and/or slowed in its forward movement speed. Thus, the combination of proportioning flow between the plurality of fluid nozzles using the valve structure and/or articulating the nozzles may be used to control forward, rearward, left and right movement and speed of the vehicle. The flow rate of the fluid pump 9 may also be adjusted to enhance directional and speed control via the plurality of nozzles while floating.

[0031] Referring additionally to Fig. 4, each wheel of the front set of wheels 3 is rotatably attached to its corresponding lever 5 by a spindle 23. Fixedly mounted to lever

5 is a bracket 24 supporting a pair of hydraulic motors 25. Each hydraulic motor 25 has an output gear (not shown) that is engaged with a drive gear 26. The drive gear 26 is fixedly attached to a rim 27 of each wheel 3 concentric with the spindle 23. Referring to the right side wheel of the set of wheels 3 (showing an interior of the rim 27), operation of the hydraulic motors 25 in a clockwise direction causes the drive gear 26 to rotate in a counterclockwise direction, moving the vehicle forward. Reversing the direction of operation of the hydraulic motors 25 causes the vehicle to move rearward. By increasing the rotational speed of the hydraulic motors 25 on the right side relative to the motors 25 on the left side, the vehicle is caused to turn to the left. The motors 25 connected to the rear set of wheels 4 work in a similar manner to those described for the front set of wheels 3. Thus, directional and motive control of the vehicle (forward/reverse) while on land is controlled by varying the relative speed and rotational direction of the hydraulic motors 25.

[0032] Turning now to Fig. 5, the first fluid nozzle 11 is able to change angular direction in a vertical plane relative to the vehicle body 1 through operation of a powered first articulation means 12. The first articulation means 12 comprises a hydraulic first articulation cylinder 28 that is coupled to a four bar linkage 29. The four bar linkage serves to amplify the effective stroke length of the first articulation cylinder 28 to cause the nozzle to move through a larger degree of motion in the vertical plane than if the linkage 29 were not present. The first fluid nozzle 11 is connected to the fluid conduits 21, 22 via a flexible conduit 30 that permits articulation of the nozzle. Valves 15 are provided to proportion flow to the first fluid nozzle in a manner as described previously.

[0033] Referring to Fig. 6, the second fluid nozzles 13 are connected to the fluid conduits 21, 22 by articulation means 14 that comprises a hydraulic second articulation cylinder 31 mounted to the vehicle body 1 and connected to a rotatable conduit section 32. Actuation of the second articulation cylinder 31 causes the rotatable conduit section 32 to rotate relative to the first and second fluid conduits 21, 22. The second fluid nozzles 13 are provided on rotatable conduit section 32 and thus rotate with the conduit

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 461 of 894

section 32 upon actuation of the articulation cylinder 31. This causes the nozzles 13 to change angular orientation relative to the vehicle body 1 in a vertical plane. The geometry of the second articulation cylinder 31 and the rotatable conduit section 32 is such that the nozzles 13 may be rotated fully downwardly and then upwardly towards the front of the vehicle. This allows an operator to change the amount of forward movement to slow or even reverse forward movement of the vehicle. When operated in conjunction with the valves 15, the nozzles 13 and second articulation structure 14 provide a high degree of control over forward and reverse movement of the vehicle.

[0034] Referring to Fig. 7, the power source 7 comprises an internal combustion engine connected to a mechanical drive 8 that delivers power to the pump 9 (not shown in Fig. 7) and also to the hydraulic pump 10 that is used to provide hydraulic fluid pressure to the vehicle's hydraulic systems. A transmission is provided within the mechanical drive 8 that allows the rotational speed of the fluid pump 9 to be adjusted independently of the rotational speed of the hydraulic pump 10. The power source 7 is thus mechanically connected to both the fluid pump 9 and the hydraulic pump 10.

[0035] Referring to Fig. 8, the fluid pump 9 comprises a pump housing 18 comprising three tangential fluid outlets 19 that are connected via flexible pump outlet conduits 33 to a combiner 34 that is used to combine the fluid output of the tangential fluid outlets 19 into the single conduit 20. A pump actuation cylinder 35 is provided to cause raising and lowering of the pump 9 and especially the pump housing 18 relative to the vehicle body 1. A telescoping pump support structure 36 is provided for use in combination with the pump actuation cylinder 35. A mechanical drive shaft (not shown) runs through the telescoping pump support structure 36 to provide power to the pump impeller 37. When powered, the impeller 37 draws the fluid to be pumped through an enlarged bottom fluid opening 38 of the pump housing 18. By immersing the pump housing 18 in the fluid, fluid is allowed to enter the pump housing, thereby obviating the need for priming the pump. Raising the pump 9 via the pump actuation cylinder 35 and telescoping pump support structure 36 allows the vehicle to exit the lagoon (or similar

fluid reservoir) without damaging the pump. Thus, these structures cooperate with the ground engaging propulsion structure to allow the vehicle to operate on land.

[0036] An example of a pump 9 suitable for use with the vehicle is disclosed in co-pending United States Patent Application 13/038,189 filed March 1, 2011, entitled Pump for Immersion Within a Fluid Reservoir, which is incorporated herein by reference.

[0037] The location of at least the ground engaging propulsion structure, the power source and the fluid pump are selected to provide a desired location for a center of gravity of the vehicle. The desired location for the center of gravity of the vehicle is selected to improve handling characteristics of the vehicle while floating. The center of gravity is located along the longitudinal centerline of the vehicle, substantially in the middle of the vehicle.

[0038] A remote control structure 40 comprises an antenna configured to cause the vehicle to be remotely controllable by an operator remote from the vehicle. The remote control structure comprises a wireless transmitter used by the operator and a wireless receiver on the vehicle. The wireless receiver interfaces with a hydraulic control center on the vehicle to permit control of hydraulically operated components, such as hydraulic cylinders, valves, motors, etc. This allows the operator to control vehicle speed and direction on land or when floating, to raise the wheels and to change the angular orientation of the first and second fluid nozzles. A wireless engine starter is provided to control operation of the internal combustion engine used as a power source. A set of hydraulic controls is optionally provided to modulate engine speed and/or fluid pump rotational speed. Thus, a variety of functions may be controlled remotely that allow the vehicle to operate on land or when floating.

[0039] In operation, an operator uses the remote controls to maneuver the vehicle to the lagoon entrance, drive the vehicle into the lagoon, raise the ground engaging propulsion structure (wheels), lower the fluid pump, begin pumping fluid with the fluid pump through the fluid conduits and selectively open at least the second fluid nozzles

to cause the vehicle to move out on to the surface of the lagoon. The valves associated with the side fluid nozzles may also be opened or closed to provide directional control of the vehicle on the lagoon. Once the vehicle is in the desired position, the valves associated with the first fluid nozzle are opened and the first articulation structure is used to position the first fluid nozzle at a desired angular orientation relative to the vehicle body. This is generally an upward orientation so that the fluid is sprayed widely to break crusts of material floating on the surface of the lagoon. In this manner, fluid is recirculated and directed to desired locations in the lagoon. As fluid is emptied from the lagoon, the floating vehicle is permitted to lower with the fluid level. When the lagoon has been sufficiently emptied, the operator is able to reverse the foregoing process in order to maneuver the vehicle to the lagoon exit, lower the wheels, and drive the vehicle up the muddy bank out of the lagoon.

[0040] The novel features will become apparent to those of skill in the art upon examination of the description. It should be understood, however, that the scope of the claims should not be limited by the embodiments, but are intended by the inventor to be given the broadest interpretation consistent with the wording of the claims and the specification as a whole.

Claims:

1) An amphibious pumping vehicle comprising:

a floatable vehicle body;

ground engaging propulsion structure;

a fluid pump for pumping liquid manure;

a first fluid nozzle connected by a fluid conduit to the fluid pump; and,

a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump.

2) The vehicle according to claim 1, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.

3) The vehicle according to claim 2, wherein the set of wheels comprises at least two powered wheels.

4) The vehicle according to claim 1, wherein the power source is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid pump.

5) The vehicle according to claim 4, wherein the hydraulic pump is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid pump.

6) The vehicle according to claim 4, wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.

7) The vehicle according to claim 1, wherein the power source is connected to the hydraulic pump by a mechanical drive and connected to the fluid pump by the mechanical drive.

8) The vehicle according to claim 1, wherein the ground engaging propulsion structure is able to raise and lower relative to the floatable vehicle body.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 465 of 894

9) The vehicle according to claim 1, wherein the vehicle comprises structure configured to raise and lower the pump relative to the floatable vehicle body.

10) The vehicle according to claim 1, wherein the fluid pump comprises a pump housing for immersion within the fluid, the pump housing comprising a bottom fluid inlet and at least two tangential fluid outlets.

11) The vehicle according to claim 10, wherein the at least two tangential fluid outlets are combined into the fluid conduit.

12) The vehicle according to claim 1, wherein the vehicle comprises a plurality of fluid nozzles comprising the first fluid nozzle and at least one second fluid nozzle connected to the fluid conduit.

13) The vehicle according to claim 12, wherein the vehicle further comprises valve structure in the fluid conduit configured to proportion fluid flow between the plurality of fluid nozzles.

14) The vehicle according to claim 13, wherein the plurality of fluid nozzles comprises at least two side fluid nozzles on opposite sides of the vehicle connected to the fluid conduit.

15) The vehicle according to claim 14, wherein the plurality of fluid nozzles and the valve structure co-operate to provide directional control and motive power for the vehicle when floating.

16) The vehicle according to claim 12, wherein at least the first fluid nozzle comprises first adjustment structure that is powered and configured to adjust an angle of the first fluid nozzle relative to the floatable vehicle body.

17) The vehicle according to claim 12, wherein the second fluid nozzle comprises second adjustment structure that is powered and configured to adjust an angle of the second fluid nozzle relative to the floatable vehicle body by an amount sufficient to cause forward or backward movement of the vehicle when floating.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 466 of 894

18) The vehicle according to claim 1, wherein the location of the ground engaging propulsion structure, power source and fluid pump are selected to provide a desired location for a center of gravity of the vehicle.

19) The vehicle according to claim 1, wherein the speed and direction of the vehicle are remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.

20) The vehicle according to claim 19, wherein the amount of fluid flow from the first nozzle and the direction of the first nozzle are remotely controllable by an operator remote from the vehicle when the vehicle is floating.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 467 of 894

ABSTRACT

An amphibious pumping vehicle has a floatable vehicle body, a ground engaging propulsion structure, a fluid pump, a plurality of fluid nozzles comprising a first fluid nozzle connected by a fluid conduit to the fluid pump and at least one second fluid nozzle connected to the fluid conduit, a valve structure in the fluid conduit, the plurality of fluid nozzles and the valve structure co-operating to provide directional control and motive power for the vehicle when floating, and a power source configured to provide power to both the ground engaging propulsion structure and the fluid pump.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 468 of 894

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Filer:	Robert A.H. Brunet/Stephanie Janssens
Attorney Docket Number:	NUN-0007-US4

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**785**

Electronic Acknowledgement Receipt

EFS ID:	39615673
Application Number:	16891627
International Application Number:	
Confirmation Number:	3433
Title of Invention:	AMPHIBIOUS PUMPING VEHICLE
First Named Inventor/Applicant Name:	Ian NUHN
Customer Number:	59115
Filer:	Robert A.H. Brunet/Stephanie Janssens
Filer Authorized By:	Robert A.H. Brunet
Attorney Docket Number:	NUN-0007-US4
Receipt Date:	03-JUN-2020
Filing Date:	
Time Stamp:	15:19:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$785
RAM confirmation Number	E202063F20554806
Deposit Account	
Authorized User	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	2020-06-03-ADS.pdf	1880090 1c042483aa425dfbb82abb9fbfe6e1c188c27628	no	9
Warnings:					
Information:					
2	Drawings-only black and white line drawings	2020-06-03-Figures-NUN-0007-US4.pdf	1104542 2febaf6bd520bc94f4c4c0dbf173fa270bf87749	no	7
Warnings:					
Information:					
3	Oath or Declaration filed	2018-10-11-Dec_INsigned.pdf	2668235 973d5ef855017e840c487e64fc171b54e4922fb1	no	1
Warnings:					
Information:					
4		2020-06-03-Spec-NUN-0007-US4.pdf	105407 da458d43100b32839200aa91b53a2640903d1063	yes	17

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	13
Claims	14	16
Abstract	17	17

Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	35017 b9baf29b5b80a51ebb88d8a040740a4f2b7a31d7	no	2

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Total Files Size (in bytes):	5793291

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
90/019,076	**05/06/2022 01:38:25 PM ET**	**19061.0001USRX**

Title of Invention

AMPHIBIOUS PUMPING VEHICLE

Application Information

APPLICATION TYPE	Utility / ex parte reexam	PATENT #	10974557
CONFIRMATION #	3433	FILED BY	Robert Kalinsky
PATENT CENTER #	60656143	FILING DATE	-
CUSTOMER #	59115	FIRST NAMED INVENTOR	Ian NUHN
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 13

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
2022-05-06--IDS--19061.0001USRX.PDF	4	Information Disclosure Statement (IDS) Form (SB08)	1010 KB
Exhibit A - US Patent No. 10974557.PDF	15	Copy of patent for which reexamination is requested	1010 KB
Exhibit B - Carrier - US7478817.PDF	16	Other reference-Patent/Application/Search Documents	1132 KB
Exhibit C - Puck - US20140112093A1.PDF	15	Other reference-Patent/Application/Search Documents	877 KB
Exhibit D - Gaither -	25	Other reference-	1267 KB

US7833071.PDF		Patent/Application/Search Documents	
Exhibit E - Bennett - US20140288763A1.PDF	45	Other reference-Patent/Application/Search Documents	4128 KB
Exhibit F - 557 Patent Prosecution History.PDF	252	Other reference-Patent/Application/Search Documents	9832 KB
Exhibit K - Kinsman - US20130033070A1.PDF	121	Other reference-Patent/Application/Search Documents	7164 KB
2022 05 06 Cert of service - 19061.0001USRX.PDF	1	Reexam Certificate of Service	85 KB
2022 05 06 Exhibits G-J - claim charts - 19061.0001USRX.PDF	163	Receipt of Original Ex Parte Request by Third Party	2612 KB
2022 05 06 Reexamination Request - 19061.0001USRX.PDF	63	Receipt of Original Ex Parte Request by Third Party	930 KB
2022 05 06 Terminal disclaimer - 19061.0001USRX.PDF	2	Copy of patent for which reexamination is requested	65 KB
2022 05 06 Transmittal - 19061.0001USRX.PDF	4	Transmittal of New Application	391 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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Exhibit C - Puck - US20140112093A1.PDF	1172081D9F0435DA8E22140EADF8BCFC6B649C625387EC1C170715B843B947F926678211 6B9A0964B33E29C3BAE10486E97A53E7E804E46EB3A46984BCA90437
Exhibit D - Gaither - US7833071.PDF	4572F46F35CF3D2E79DC3968A510943A215F65B315F67C3FEEEE3A9BF52D4FE51FCCCE9825BDA73A6E1EF8FCEEE8B91A9B4E23ECC47D68F17EEB4A270EE92BA7
Exhibit E - Bennett - US20140288763A1.PDF	C16508E63C19D35BBF07EDB9BF5516C94F78A71E06CEAAC2DCF756967AABFB7D9BE9FA226CF03FD3FCB3573679BE4A02D7CF319EB9747DA24AACA477487F03D4
Exhibit F - 557 Patent Prosecution History.PDF	E04117B5431F75C7F2F504D7D61CEE8130B5CB967FF1C8AACE170D2A17A697AB6DF9745D3519C01501021CE32982A4879280AC21D09D32D6F2BE4E8E6F6891C8
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2022 05 06 Cert of service - 19061.0001USRX.PDF	0A3E89568CC283EACB13796283804609E6D52DE0CAFD6DF424CC8533BEFD928261ECF6D2D20D3300EFA6947E5FA5A64B7DD149FCB4D3CEC17435B5F94F58998D
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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

EXHIBIT G

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 478 of 894

Ground 1 - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
1. An amphibious vehicle comprising:	**Col. 1:10-16:** The present invention relates to a multi-purpose all-terrain vehicle. More specifically, the present invention is directed to an all-terrain hostile environment vehicle equipped with vari-ous aid units such as quick exchange medical, hazardous material, search, rescue, communications, fire fighting, and weapon units which can be deployed in remote areas or areas not accessible by paved roads. **Col. 1:37-41:** The terrain may be sandy, mountainous, muddy, swampy, jungle, or covered with snow, ice, mines, obstructions, vegetation, trees and in cities the roads may be to [sic] narrow to traverse. **Col. 1:66-67:** Another objective is to develop a small manned or unmanned robotic amphibious ground vehicle. **Col. 8:16-18:** The vehicle 10 is designed to be drivable on uneven ground, on mud, through deep water, or on other surfaces a regular automobile or truck cannot be driven on.
a floatable vehicle body;	**Col. 2:8-10:** The vehicle is lightweight and stable when traveling over rough ground and includes a fame having a sealed hull to provide the vehicle with buoyancy. **Col. 3:26-28:** The hull 12 can be substantially sealably molded for pro-viding buoyancy for water crossings and provide way for necessary functional attachment of units. **Col. 5:61-65:** Alternatively, in another embodiment the drive train housing 53 can be pivot-ally mounted to the platform 14, for example so that the same can be actuated between two modes, i.e., a land and a water use, as seen in FIGS. 4A and 4B. **Figs. 4A, 4B:**

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 479 of 894

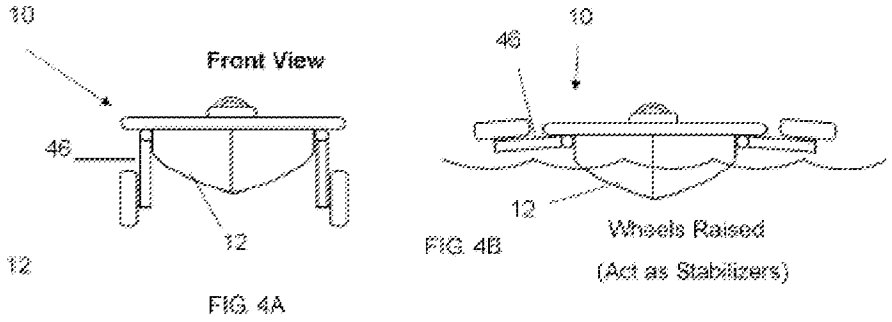
Ground 1 - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	
ground engaging propulsion structure;	**Col. 3:25-38:** The hull 12 can be substantially sealably molded for pro-viding buoyancy for water crossings and provide way for necessary functional attachment of units. For example, the hull 12 can optionally be molded with axle holes therethrough to provide for axle shafts to be passed therethrough and con-nect with one or more each wheels to provide a direct drive. The vehicle 10 can be direct all wheeled drive (8, 10, or 12 wheeled drive). All axles can be in a split splined design configuration (one splined axle shaft along with a splined female mating coupling) can be permanently attached inside the vehicle hull 12 on a sub frame assembly, with the other splined axle shaft end being capable of being inserted into the splined female mating coupling enabling the splined axle shafts to be separated. **Col. 4:33-40:** The vehicle 10 includes a self contained (main vehicle drive power plant), engine unit 18, (that can be P-8 compatible, gasoline, diesel, hybrid-electric, propane, natural gas or a combination thereof) and be of the scaleable engine tech-nology where as a specific horsepower engine can be used for instance 71 horsepower or 165 horsepower or 172 ½ horse-power etc. which can include engine housings with flanges 22 extending laterally from the engine for mounting. **Col.6:3-6:** The treads 62 can include a band type track system having a high-performance, low maintenance alternative to segmented metal type tracks/treads that are traditionally used for tracked combat vehicles today.
a fluid pump for pumping liquid manure;	**Col. 4:14-32:** As is described herein, a plurality of platform mounting surface 24 can be formed on the frame system inside the hull 12 which can include a plurality of open surfaces and holes through which quick release connectors (pivot locks 26) can be inserted to attach and secure all functional mechanical components, weapons armaments, communications, fire-fighting equipment and pumps, pump engines, foam systems, dry chemical systems, split cell foam tanks, water hoses, nozzles, water tanks, special operations, laser, electrified water and or slippery slime tanks, microwave impulse equip-ment, water cannon, hazardous materials decontamination, search, rescue, medical, surveillance, cargo, transport, fuel ank, vehicle engine, transmission, wiring connectors, wire harnesses, instrument panels, access panels, computer, doors, windows, hatches, sensors, imaging equipment, etc, all of which can be equipped with mounting flanges 22 and pivot or

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 480 of 894

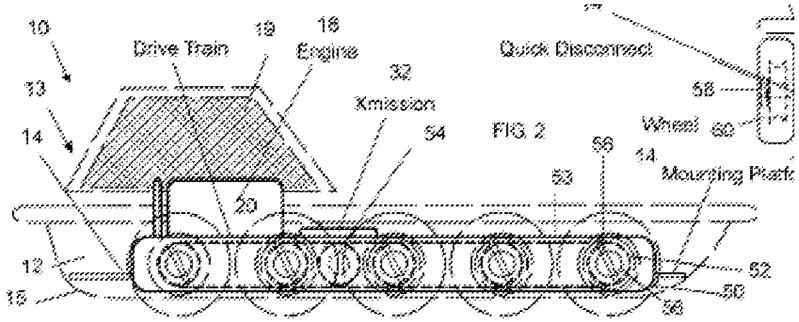
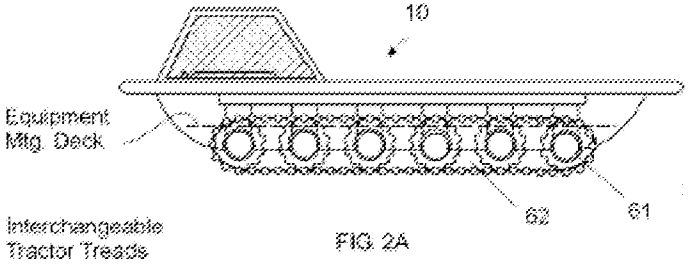
Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	shaft (single or double action) push button ball bearing positive locking pin system as used in the engine/transmission mounting platform described herein. **Col. 10:51-56:** The use of a pump mounted to the all terrain vehicle which is capable of pumping water from a lake or stream onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire.
at least one fluid nozzle connected by a fluid conduit to the fluid pump;	**Col. 5:19-40:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam and or dry chemicals in a fire and or hazardous materials decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such as from fire to hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. The unit 34 can include pump systems which have the capabilities to quickly change from flow rates and pressures of High 30 Pressure/Low Volume, to Low Pressure/High Volume, to Low Pressure/Low Volume, to Pressure/High Volume in 'joint" work together or independent pump systems and all pump systems can be draft capable, such as gross decontamination of men and equipment to include vehicles, downed aircraft, buildings, civilians, ect; in remote area's of the world during or after a chemical agent and or gas agent (Dirty Bomb), release by an opposing enemy or terrorist cell. Hose and attachment therewith can preferably be equipped to have quick release couplings. **Col. 9:13-30:** For controlling the flow of water in the case where a series of valves and hoses are used, a first valve controls the flow of water through a first hose from tank 34 to a pump; a second valve controls the flow of the water from a second hose through the tank filter; and a third valve prevents water from flowing from master drain. If there is a convenient nearby source of water, such as a lake or stream, the water from the available source can be pumped directly by pump into the fire hoses, or the tank at the same time refilling the tanks water supply and continuing to supply water to the hoses, water tank and cannon thereby providing a continuous uninterrupted supply or flow of water by removing an end cap from pump and simple valve manipulations feeding water therethrough. The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.
a power source connected to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,	**Col. 4:33 – 40:** The vehicle 10 includes a self contained (main vehicle drive power plant), engine unit 18, (that can be P-8 compatible, gasoline, diesel, hybrid-electric, propane, natural gas or a combination thereof) and be of the scaleable engine tech-nology where as a specific horsepower engine can be used for instance 71 horsepower or 165 horsepower or 172 ½ horse-power etc. which can include engine housings with flanges 22 extending laterally from the engine for mounting. **Col. 5: 19-28:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam or dry chemicals in a fire or hazardous material decontamination

Ground 1 - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such from the fire hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. **Col. 5:40-46:** The unit 34 can be self powered (e.g., 40 independent engine) or can be powered by the vehicle engine unit 18 through stacked hydrostatic or hybrid electrical drive systems. Vehicle and secondary engines of the combustion type can be electrically started and all engine horse powers can be predetermined to be capable to give the necessary power to drive the intended function(s) of the engine. **Col. 5:53-56:** Chain or belt operably connects to wheels 52 within a housing 53 which are configured to be complementary with the chosen drive, for example, a chain system would utilize a suitable sprocket on each wheel 52 for engagement therewith. **Col. 6:41-54:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydro-static, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. **Col. 6:60 – Col. 7:5:** This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electroni-cally or the transmission or both using a combination of manual over electronic solenoid valves in the event the sole-noid valve falls to open it can be opened manually. **Col 8:54-58:** Engine unit 18 can be fueled by any number of fuels such as gasoline, diesel, propane, electric, hybrid electric, or natural gas and can be used to power the vehicle 10 as well as any of the other units described herein by using a suitable cou-pling. **Col. 9:54-56:** In addition, the tank 34 can include a self-contained engine 16' and can be fueled from the same fuel tank or source of power that supplies vehicle 10'.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 482 of 894

Ground 1 - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.	**Col. 11:5-16:** The operations of each unit described herein can be per-formed by remote control unit 42 which is operably quick connectable to each unit on the vehicle 10 having suitable connections therewith. The remote control unit 42 is also equipped with manual controls thereon to provide for opera-tion of the vehicle 10 manually as well as a transceiver equip-ment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle 10 to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanics, servos, hardware, wiring har-nesses can be quick releasable to facilitate easy replacement of any faulty components in case of damage or failure. **Col 10:31-35:** The water cannon is as well capable to shoot streams of water (straight streams, fog, wide streams) of just water, foam, dry chemical or decon solutions in any combination and can be remotely controlled either wirelessly or wired in manned, unmanned and autonomous modes as well the water cannon can be operated manually in the case of a system failure. **Col. 11:5-16:** The operations of each unit described herein can be performed by remote control unit 42 which Is operably quick connectable to each unit on the vehicle 10 having suitable connections therewith. The remote control unit 42 is also equipped with manual controls thereon to provide for operation of the vehicle 10 manually as well as a transceiver equipment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle 10 to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanism, servos, hardware, wiring harnesses can be quickly releasable to facilitate easy replacement of any faulty components in case of damage or failure. **Col. 11:47-53:** All pertinent data transmissions can be sent back and forth allowing for all systems monitoring such as vehicle speed, rpm, water temperature, oil pressure, gear transmis-sion, electrical input and output, weapons diagnostics to include arming and disarming as well as including weapons selection if equipped with multiple weapons systems, water tank level, foam tank level, pump water pressure etc.
2. The vehicle according to claim 1, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.	**Col. 3:28-33:** For example, the hull 12 can optionally be molded with axle holes therethrough to provide for axle shafts to be passed therethrough and con-nect with one or more each wheels to provide a direct drive. The vehicle 10 can be direct all wheeled drive (8, 10, or 12 wheeled drive). **Col. 6:3-6:** The treads 62 can include a band type track system having a high-performance, low maintenance alternative to segmented metal type tracks/treads that are traditionally used for tracked combat vehicles today. **Col. 6:13-16:** Band type track systems also offer significant track life cycles and can reduce the over all cost due to a reduced maintenance cycle with a much longer life span.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 483 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	Fig. 2:  **Fig. 2A:**  FIG. 2A
3. The vehicle according to claim 1, wherein the power source is configured to provide hydraulic fluid power to both the ground engaging propulsion structure and the fluid pump.	**Col. 5: 19-28:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam or dry chemicals in a fire or hazardous material decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such from the fire hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. **Col. 5:40-46:** The unit 34 can be self powered (e.g., 40 independent engine) or can be powered by the vehicle engine unit 18 through stacked hydrostatic or hybrid electrical drive systems. Vehicle and secondary engines of the combustion type can be electrically started and all engine horse powers can be predetermined to be capable to give the necessary power to drive the intended function(s) of the engine.

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	Col. 6:41-54: It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydro-static, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. **Col. 6:60 – Col. 7:5:** This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electroni-cally or the transmission or both using a combination of manual over electronic solenoid valves in the event the sole-noid valve falls to open it can be opened manually.
4. The vehicle according to claim 3, wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.	**Col. 6:41 – Col. 7:11:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydro-static, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. n objective achieved here is to incorporate a back up drive train for an "emergency switch-over" in the event one drive train becomes inoperable. This can be accomplished by using one or more methods: shaft over hydro-static, shaft over chain, shaft over belt, hydro-static over chain, hydro-static over belt, belt over chain. This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electroni-cally or the transmission or both using a combination of manual over electronic solenoid valves in the event the sole-noid valve falls to open it can be opened manually. The drive train can also be configured in such a manner where as one or more wheels can be driven by one or more drive component systems. In

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 485 of 894

Ground 1 - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	example, the front two wheels can be belt driven, the next two wheels being hydro-statically driven, the next two wheels can be chain or direct drive shaft driven or electronically driven in a multitude of various configurations. **Col. 7:46-54:** The transmission contem-plated by the invention can be of a type configured using a torque converter driven, 3, 6 or more speed power-shift trans-mission. The transmission can be controlled by a microprocessor which can respond from the shift lever position input. The transmission can be programmed to be fully automatic through all three, six or more speeds or manually controlled, 1st through 3rd, and then automatically in 4th through 6th or more, in a 6 or more speed transmission.
5. The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a plurality of fluid nozzles connected to the fluid conduit.	**Col. 9:26-30:** The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.
6. The vehicle according to claim 1, wherein the location of the ground engaging propulsion structure, power source and fluid pump are selected to provide a desired location for a center of gravity of the vehicle.	**Col. 4:14-32:** As is described herein, a plurality of platform mounting surface 24 can be formed on the frame system inside the hull 12 which can include a plurality of open surfaces and holes through which quick release connectors (pivot locks 26) can be inserted to attach and secure all functional mechanical components, weapons armaments, communications, fire-fighting equipment and pumps, pump engines, foam systems, dry chemical systems, split cell foam tanks, water hoses, nozzles, water tanks, special operations, laser, electrified water and or slippery slime tanks, microwave impulse equip-ment, water cannon, hazardous materials decontamination, search, rescue, medical, surveillance, cargo, transport, fuel tank, vehicle engine, transmission, wiring connectors, wire harnesses, instrument panels, access panels, computer, doors, windows, hatches, sensors, imaging equipment, etc, all of which can be equipped with mounting flanges 22 and pivot or shaft (single or double action) push button ball bearing positive locking pin system as used in the engine/transmission mounting platform described herein. **Col. 9:43-53:** A first compartment preferably con-tains about 150 to 350 gallons of water, while a second com-partment preferably contains about approximately 15 to 25 gallons of a foaming agent like that described above. The tank 34' can also preferably be divided by a plurality of sections 72, 74 having a number of holes dispersed therein which permit fluid to flow within tank 34', but prevents the fluid from shifting or "sloshing" from one side to the other. Again, it is important for the fluid not to shift, since the center of gravity of vehicle 10' would shift with the fluid, which would in tum increase the chance of vehicle 10' overturning.
7. The vehicle according to claim 1, wherein the amount of fluid flow	**Col. 10: 2-5:** An adjustable electronic, electronic over air, air over hydraulic, air, hydraulic, automatic, automatic over manual valve system is provided to control the direction of flow of water, foam and dry chemicals through hoses.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 486 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
from the at least one fluid nozzle and/or the direction of the at least one fluid nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.	**Col. 11:47-53:** All pertinent data transmissions can be sent back and forth allowing for all systems monitoring such as vehicle speed, rpm, water temperature, oil pressure, gear transmission, electrical input and output, weapons diagnostics to include arming and disarming as well as include weapons selection if equipped with multiple weapon systems, water tank level, foam tank level, pump water pressure, etc.
8. An amphibious vehicle comprising:	**Col. 1:10-16:** The present invention relates to a multi-purpose all-terrain vehicle. More specifically, the present invention is directed to an all-terrain hostile environment vehicle equipped with vari-ous aid units such as quick exchange medical, hazardous material, search, rescue, communications, fire fighting, and weapon units which can be deployed in remote areas or areas not accessible by paved roads. **Col. 1:37-41:** The terrain may be sandy, mountainous, muddy, swampy, jungle, or covered with snow, ice, mines, obstructions, vegetation, trees and in cities the roads may be to narrow to traverse. **Col. 8:16-18:** The vehicle 10 is designed to be drivable on uneven ground, on mud, through deep water, or on other surfaces a regular automobile or truck cannot be driven on.
a floatable vehicle body;	**Col. 2:8-10:** The vehicle is lightweight and stable when traveling over rough ground and includes a fame having a sealed hull to provide the vehicle with buoyancy. **Col. 3:26-28:** The hull 12 can be substantially sealably molded for pro-viding buoyancy for water crossings and provide way for necessary functional attachment of units. **Col. 5:61-65:** Alternatively, in another embodiment the drive train housing 53 can be pivot-ally mounted to the platform 14, for example so that the same can be actuated between two modes, i.e., a land and a water use, as seen in FIGS. 4A and 4B. **Figs. 4A, 4B:**

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 487 of 894

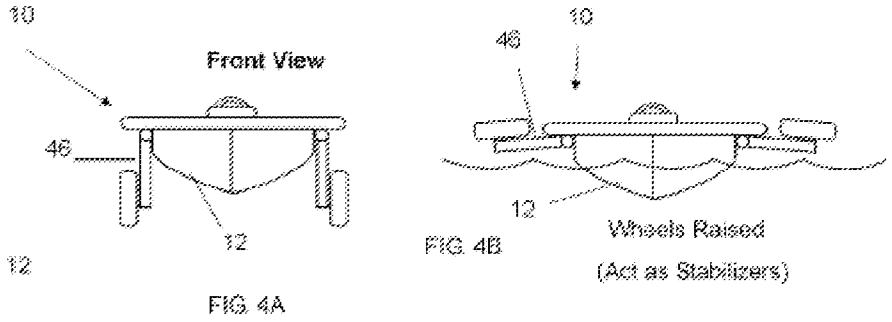
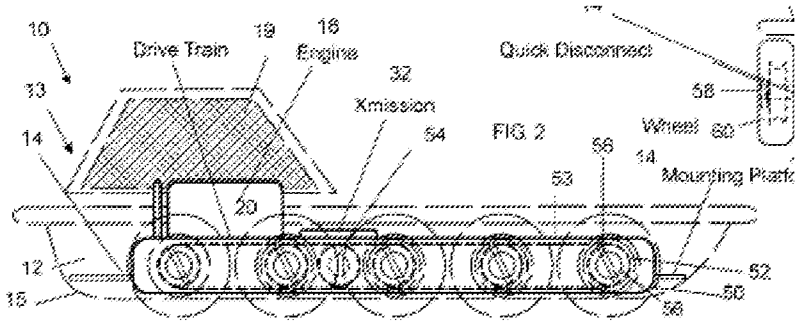
Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	
four hydraulically powered ground engaging wheels;	**Col. 3:25-38:** The hull 12 can be substantially sealably molded for pro-viding buoyancy for water crossings and provide way for necessary functional attachment of units. For example, the hull 12 can optionally be molded with axle holes therethrough to provide for axle shafts to be passed therethrough and con-nect with one or more each wheels to provide a direct drive. The vehicle 10 can be direct all wheeled drive (8, 10, or 12 wheeled drive). All axles can be in a split splined design configuration (one splined axle shaft along with a splined female mating coupling) can be permanently attached inside the vehicle hull 12 on a sub frame assembly, with the other splined axle shaft end being capable of being inserted into the splined female mating coupling enabling the splined axle shafts to be separated. **Col. 6:41-46:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. **Fig. 2:** 

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 488 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
four hydraulic motors, one hydraulic motor per wheel, for powering the four hydraulically powered ground engaging wheels;	**Col. 6:41 – Col. 7:11:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydro-static, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. n objective achieved here is to incorporate a back up drive train for an "emergency switch-over" in the event one drive train becomes inoperable. This can be accomplished by using one or more methods: shaft over hydro-static, shaft over chain, shaft over belt, hydro-static over chain, hydro-static over belt, belt over chain. This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electroni-cally or the transmission or both using a combination of manual over electronic solenoid valves in the event the sole-noid valve falls to open it can be opened manually. The drive train can also be configured in such a manner where as one or more wheels can be driven by one or more drive component systems. In example, the front two wheels can be belt driven, the next two wheels being hydro-statically driven, the next two wheels can be chain or direct drive shaft driven or electronically driven in a multitude of various configurations.
a fluid pump for pumping liquid manure;	**Col. 4:14-32:** As is described herein, a plurality of platform mounting surface 24 can be formed on the frame system inside the hull 12 which can include a plurality of open surfaces and holes through which quick release connectors (pivot locks 26) can be inserted to attach and secure all functional mechanical components, weapons armaments, communications, fire-fighting equipment and pumps, pump engines, foam systems, dry chemical systems, split cell foam tanks, water hoses, nozzles, water tanks, special operations, laser, electrified water and or slippery slime tanks, microwave impulse equip-ment, water cannon, hazardous materials decontamination, search, rescue, medical, surveillance, cargo, transport, fuel tank, vehicle engine, transmission, wiring connectors, wire harnesses, instrument panels, access panels, computer, doors, windows, hatches, sensors, imaging equipment, etc, all of which can be equipped with mounting flanges 22 and pivot or shaft (single or double action) push button ball bearing positive locking pin system as used in the engine/transmission mounting platform described herein. **Col. 10:51-56:** The use of a pump mounted to the all terrain vehicle which is capable of pumping water from a lake or stream onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 489 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
at least one directionally adjustable nozzle through which the liquid manure is pumped;	**Col. 5:19-40:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam and or dry chemicals in a fire and or hazardous materials decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such as from fire to hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. The unit 34 can include pump systems which have the capabilities to quickly change from flow rates and pressures of High 30 Pressure/Low Volume, to Low Pressure/High Volume, to Low Pressure/Low Volume, to Pressure/High Volume in 'joint" work together or independent pump systems and all pump systems can be draft capable, such as gross decontamination of men and equipment to include vehicles, downed aircraft, buildings, civilians, ect; in remote area's of the world during or after a chemical agent and or gas agent (Dirty Bomb), release by an opposing enemy or terrorist cell. Hose and attachment therewith can preferably be equipped to have quick release couplings. **Col. 9:13-30:** For controlling the flow of water in the case where a series of valves and hoses are used, a first valve controls the flow of water through a first hose from tank 34 to a pump; a second valve controls the flow of the water from a second hose through the tank filter; and a third valve prevents water from flowing from master drain. If there is a convenient nearby source of water, such as a lake or stream, the water from the available source can be pumped directly by pump into the fire hoses, or the tank at the same time refilling the tanks water supply and continuing to supply water to the hoses, water tank and cannon thereby providing a continuous uninterrupted supply or flow of water by removing an end cap from pump and simple valve manipulations feeding water therethrough. The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.
an internal combustion engine configured to provide power to both the four variable speed hydraulic motors and the fluid pump;	**Col. 5:47-65:** The engine unit 18 can be operably connected to the trans-mission unit 32 by a quick connect clamp 44. In one embodi-ment, a drive train 46 can be operably connected to the side of the vehicle 10.A quick connect drive linkage 48 connects the transmission unit 32 to the transmission unit 32. The drive train 46 can be chain or belt driven in this embodiment. Chain or belt 50 operably connects to wheels 52 within a housing 53 which are configured to be complementary with the chosen drive, for example, a chain system would utilize a suitable sprocket on each wheel 52 for engagement therewith. The drive train 46 includes a drive wheel 54 to drive the belt/chain 50. Each wheel 52 can include a drive shaft 56 which extends outward from the housing 53 and includes an end configured with means 58, such lock pin through a hole in shaft 56, for quick connection of a wheel 60. Alternatively, in another embodiment the drive train housing 53 can be pivot-ally mounted to the platform 14, for example so that the same can be actuated between two modes, i.e., a land and a water use, as seen in FIGS. 4A and 4B. **Col. 5:40-43:** The unit 34 can be self powered (e.g., 40 independent engine) or can be powered by the vehicle engine unit 18 through stacked hydrostatic or hybrid electrical drive systems.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 490 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	Col. 6:41 – Col. 7:11: It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydro-static, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. n objective achieved here is to incorporate a back up drive train for an "emergency switch-over" in the event one drive train becomes inoperable. This can be accomplished by using one or more methods: shaft over hydro-static, shaft over chain, shaft over belt, hydro-static over chain, hydro-static over belt, belt over chain. This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electroni-cally or the transmission or both using a combination of manual over electronic solenoid valves in the event the sole-noid valve falls to open it can be opened manually. The drive train can also be configured in such a manner where as one or more wheels can be driven by one or more drive component systems. In example, the front two wheels can be belt driven, the next two wheels being hydro-statically driven, the next two wheels can be chain or direct drive shaft driven or electronically driven in a multitude of various configurations. **Col. 5:19-40:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam and or dry chemicals in a fire and or hazardous materials decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such as from fire to hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. The unit 34 can include pump systems which have the capabilities to quickly change from flow rates and pressures of High 30 Pressure/Low Volume, to Low Pressure/High Volume, to Low Pressure/Low Volume, to Pressure/High Volume in 'joint" work together or independent pump systems and all pump systems can be draft capable, such as gross decontamination of men and equipment to include vehicles, downed aircraft, buildings, civilians, ect; in remote area's of the world during or after a chemical agent and or gas agent (Dirty Bomb), release by an opposing enemy or terrorist cell. Hose and attachment therewith can preferably be equipped to have quick release couplings. **Col. 5:40-46:** The unit 34 can be self powered (e.g., independent engine) or can be powered by the vehicle engine unit 18 through stacked hydrostatic or hybrid electrical drive systems. Vehicle and secondary engines of the combustion type can be electrically started and all engine horse powers can be predetermined to be capable to give the necessary power to drive the intended function(s) of the engine.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 491 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	Col. 8:4-8: Electric power-train technologies can also be incorporated using hybrid-electric drive transformation designs and technologies that have no mechanical links between the internal combustion engine and the wheels. **Col. 8:54-58:** Engine unit 18 can be fueled by any number of fuels such as gasoline, diesel, propane, electric, hybrid electric, or natural gas and can be used to power the vehicle 10 as well as any other unites descried herein by using a suitable coupling.
the location of the four hydraulically powered ground engaging wheels, the internal combustion engine and the fluid pump selected to provide a desired location for a center of gravity of the vehicle; and,	**Col. 4:14-32:** As described herein, a plurality of platform mounting surface 24 can be formed on the frame system inside the hull 12 which can include a plurality of open surfaces and holes through which quick release connectors (pivot locks 26) can be inserted to attach and secure all functional mechanical components, weapons armaments, communications, fire-fighting equipment and pumps, pump engines, foam systems, dry chemical systems, split cell foam tanks, water hoses, nozzles, water tanks, special operations, laser, electrified water and or slippery slime tanks, microwave impulse equip-ment, water cannon, hazardous materials decontamination, search, rescue, medical, surveillance, cargo, transport, fuel tank, vehicle engine, transmission, wiring connectors, wire harnesses, instrument panels, access panels, computer, doors, windows, hatches, sensors, imaging equipment, etc, all of which can be equipped with mounting flanges 22 and pivot or shaft (single or double action) push button ball bearing positive locking pin system as used in the engine/transmission mounting platform described herein. **Col. 9:43-53:** A first compartment preferably con-tains about 150 to 350 gallons of water, while a second com-partment preferably contains about approximately 15 to 25 gallons of a foaming agent like that described above. The tank 34' can also preferably be divided by a plurality of sections 72, 74 having a number of holes dispersed therein which permit fluid to flow within tank 34', but prevents the fluid from shifting or "sloshing" from one side to the other. Again, it is important for the fluid not to shift, since the center of gravity of vehicle 10' would shift with the fluid, which would in tum increase the chance of vehicle 10' overturning.
remote control structure configured to control the four variable speed hydraulic motors and the fluid pump, wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.	**Col. 11:5-16:** The operations of each unit described herein can be per-formed by remote control unit 42 which is operably quick connectable to each unit on the vehicle 10 having suitable connections therewith. The remote control unit 42 is also equipped with manual controls thereon to provide for opera-tion of the vehicle 10 manually as well as a transceiver equip-ment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle 10 to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanics, servos, hardware, wiring har-nesses can be quick releasable to facilitate easy replacement of any faulty components in case of damage or failure. **Col. 11:47-53:** All pertinent data transmissions can be sent back and forth allowing for all systems monitoring such as vehicle speed, rpm, water temperature, oil pressure, gear transmis-sion, electrical input and output, weapons diagnostics to include arming and disarming as well as including weapons selection if equipped with multiple weapons systems, water tank level, foam tank level, pump water pressure etc.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 492 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
9. The vehicle according to claim 8, wherein the power source is configured to provide hydraulic fluid power to the four hydraulic motors and the fluid pump.	**Col. 6:41 – Col. 7:11:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydro-static, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. n objective achieved here is to incorporate a back up drive train for an "emergency switch-over" in the event one drive train becomes inoperable. This can be accomplished by using one or more methods: shaft over hydro-static, shaft over chain, shaft over belt, hydro-static over chain, hydro-static over belt, belt over chain. This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electroni-cally or the transmission or both using a combination of manual over electronic solenoid valves in the event the sole-noid valve falls to open it can be opened manually. The drive train can also be configured in such a manner where as one or more wheels can be driven by one or more drive component systems. In example, the front two wheels can be belt driven, the next two wheels being hydro-statically driven, the next two wheels can be chain or direct drive shaft driven or electronically driven in a multitude of various configurations **Col. 9:61 – Col. 10:13:** The hose can be fluidly attached to the pump. A Suction hose can be provided in the second storage area and connected to the pump connected to the tank with a sensor installed within the tank that sends a signal Pressure or Electric or both to a valve connected at the suction input on the pump automatically manipulating the valve system to automatically begin the refilling of the water tank when a determined loss of water level is reached. An adjustable electronic, electronic over air, air over hydraulic, air, hydraulic, automatic, automatic over manual valve system is provided to control the direction of flow of water, foam and dry chemicals through hoses. A valve system consisting of electronic, air over hydraulic, electronic over air, air, hydraulic, automatic, automatic over manual can control fluid flows between the first compartment and pump, a tank fill valve to which the suction hose may be attached for refilling first compartment when the pump is activated; a water cannon valve that permits fluid to flow therethrough; and a master valve which controls the flow of fluid through fire hose.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 493 of 894

Ground I - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
10. The vehicle according to claim 9, wherein the four hydraulic motors are variable speed hydraulic motors and wherein the four hydraulically powered ground engaging wheels are each operable at variable speed.	**Col. 7:12-27:** In an embodiment, the vehicle 10 is equipped with steering and braking components adjacent the wheels 60 and can be steered via a conventional wheel turning mechanism or via a skid steer method whereby one or more wheels 60 are braked to effect a turn of the vehicle 10. This will give the vehicle 10 the ability to switch back and forth from the turn steer mode to the skid steer mode through the flip of a switch. The vehicle 10 forward and reverse motion can be achieved by the drive train 46. The multi steering capability enables the vehicle 10 to be placed into a highway mode of steering like that of an automobile on standard paved and unpaved road networks and then changed to skid steer type steering for greater steer-ing mobility when needed as in combat escape and evade or weapons set up and deploy maneuvers, rough terrain or congested areas such as city streets enabling all vehicles to turn within the length of its own radius. **Col. 7:46-49:** The transmission contemplated by the invention can be of a type configured using a torque converter drive, 3, 6 or more speed power-shift transmission.
11. The vehicle according to claim 8, wherein the at least one directionally adjustable nozzle is connected to a fluid conduit connected to the fluid pump.	**Col. 9:13-30:** For controlling the flow of water in the case where a series of valves and hoses are used, a first valve controls the flow of water through a first hose from tank 34 to a pump; a second valve controls the flow of the water from a second hose through the tank filter; and a third valve prevents water from flowing from master drain. If there is a convenient nearby source of water, such as a lake or stream, the water from the available source can be pumped directly by pump into the fire hoses, or the tank at the same time refilling the tanks water supply and continuing to supply water to the hoses, water tank and cannon thereby providing a continuous uninterrupted supply or flow of water by removing an end cap from pump and simple valve manipulations feeding water therethrough. The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.
12. The vehicle according to claim 11, wherein a plurality of nozzles comprising the at least one directionally adjustable nozzle is connected to the fluid conduit.	**Col. 5:19-40:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam and or dry chemicals in a fire and or hazardous materials decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such as from fire to hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. The unit 34 can include pump systems which have the capabilities to quickly change from flow rates and pressures of High 30 Pressure/Low Volume, to Low Pressure/High Volume, to Low Pressure/Low Volume, to Pressure/High Volume in 'joint" work together or independent pump systems and all pump systems can be draft capable, such as gross decontamination of men and equipment to include vehicles, downed aircraft, buildings, civilians, ect; in remote area's of the world during or after a chemical agent and or gas agent (Dirty Bomb), release by an opposing enemy or terrorist cell. Hose and attachment therewith can preferably be equipped to have quick release couplings.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 494 of 894

Ground 1 - Carrier	
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**
	Col. 9:13-30: For controlling the flow of water in the case where a series of valves and hoses are used, a first valve controls the flow of water through a first hose from tank 34 to a pump; a second valve controls the flow of the water from a second hose through the tank filter; and a third valve prevents water from flowing from master drain. If there is a convenient nearby source of water, such as a lake or stream, the water from the available source can be pumped directly by pump into the fire hoses, or the tank at the same time refilling the tanks water supply and continuing to supply water to the hoses, water tank and cannon thereby providing a continuous uninterrupted supply or flow of water by removing an end cap from pump and simple valve manipulations feeding water therethrough. The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end. **Col. 10:2-5:** An adjustable electronic, electronic over air, air over hydraulic, air, hydraulic, automatic, automatic over manual valve system is provided to control the direction of flow of water, foam and dry chemicals through hoses.
13. The vehicle according to claim 8, wherein the amount of fluid flow from the directionally adjustable nozzle and/or the direction of the directionally adjustable nozzle are remotely controllable by the operator remote from the vehicle when the vehicle is floating.	**Col. 10:2-5:** An adjustable electronic, electronic over air, air over hydraulic, air, hydraulic, automatic, automatic over manual valve system is provided to control the direction of flow of water, foam and dry chemicals through hoses. **Col. 11:5-16:** The operations of each unit described herein can be per-formed by remote control unit 42 which is operably quick connectable to each unit on the vehicle 10 having suitable connections therewith. The remote control unit 42 is also equipped with manual controls thereon to provide for opera-tion of the vehicle 10 manually as well as a transceiver equip-ment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle 10 to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanics, servos, hardware, wiring har-nesses can be quick releasable to facilitate easy replacement of any faulty components in case of damage or failure. **Col. 11:47-53:** All pertinent data transmissions can be sent back and forth allowing for all systems monitoring such as vehicle speed, rpm, water temperature, oil pressure, gear transmis-sion, electrical input and output, weapons diagnostics to include arming and disarming as well as including weapons selection if equipped with multiple weapons systems, water tank level, foam tank level, pump water pressure etc.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 495 of 894

EXHIBIT H

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 496 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
1. An amphibious vehicle comprising:	**Col. 1:10-16:** The present invention relates to a multi-purpose all-terrain vehicle. More specifically, the present invention is directed to an all-terrain hostile environment vehicle equipped with various aid units such as quick exchange medical, hazardous material, search, rescue, communications, fire fighting, and weapon units which can be deployed in remote areas or areas not accessible by paved roads. **Col. 1:37-41:** The terrain may be sandy, mountainous, muddy, swampy, jungle, or covered with snow, ice, mines, obstructions, vegetation, trees and in cities the roads may be to [sic] narrow to traverse. **Col. 1:66-67:** Another objective is to develop a small manned or unmanned robotic amphibious ground vehicle. **Col. 8:16-18:** The vehicle 10 is designed to be drivable on uneven ground, on mud, through deep water, or on other surfaces a regular automobile or truck cannot be driven on.	
a floatable vehicle body;	**Col. 2:8-10:** The vehicle is lightweight and stable when traveling over rough ground and includes a fame having a sealed hull to provide the vehicle with buoyancy. **Col. 3:26-28:** The hull 12 can be substantially sealably molded for providing buoyancy for water crossings and provide way for necessary functional attachment of units. **Col. 5:61-65:** Alternatively, in another embodiment the drive train housing 53 can be pivotally mounted to the platform 14, for example so that the same can be actuated between two modes, i.e., a land and a water use, as seen in FIGS. 4A and 4B. **Figs. 4A, 4B:**	**Abstract:** A floating manure agitator that floats on the surface of a manure lagoon and that may be remotely controlled to agitate manure supernatant into a slurry with sludge settling on the bottom of the lagoon. The agitator is provided with a plurality of fluid outputs, the direction of which may be controlled to motivate and steer the agitator. The outputs are angled to develop vortices of supernatant into the sludge to further mix the materials into a slurry. **[0001]** The present invention relates in general to a manure agitator and, more particularly, to a floating manure agitator for use in association with a manure lagoon. **[0006]** It is also known in the art to provide a large vehicle that may be lowered into the lagoon. The vehicle may equipped with a fluid intake, a pump and a fluid output to draw supernatant into the pump and force the supernatant at high speed downward

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 497 of 894

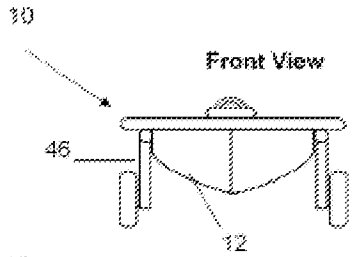
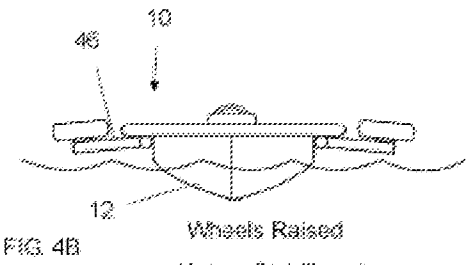
Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
	 FIG. 4A  FIG. 4B	toward the sludge. The vehicle is typically moved with cables by operators on the shore. **[0008]** It would, therefore, be desirable to provide a vehicle which floats on the manure pond and which is maneuverable. It would also be desirable to provide the vehicle with multiple outlet nozzles to direct the fluid downward into the lagoon a sufficient distance to agitate the solids in the bottom of the lagoon into suspension and create vortices within the lagoon to assist in carrying solids within the sludge into suspension in the supernatant. It would additionally be desirable to direct the nozzles to create vortices that mix the solids of the sludge into suspension with the supernatant, while minimizing the amount of unpleasant smelling hydrogen sulfide rising to the surface and escaping into the air. **[0011]** In the preferred embodiment of this invention, a floating manure agitator is provided with a floating vessel and a power source. A slurry pump is coupled to the power source. A slurry intake and three slurry outputs are also coupled to the slurry pump. Two of the slurry outputs are directed outward from the floating vessel. The slurry intake is provided between the two rearward slurry outputs. An additional slurry output is provided closer to the bow of the floating vessel and is provided with a steering control to direct the slurry output to control the direction of the floating vessel. The two aft slurry outputs may be rotated more rearward to increase the speed of the floating vessel or rotated more stern to slow or reverse the speed of the floating vessel, or move downward to direct more of the supernatant into the sludge. A remote control device may be coupled to the slurry control to allow the floating vehicle to be steered from the shore. **[0022]:** A floating fluid agitator is shown generally as (10) in FIG. 1. A vessel (12) is provided having a frame (14) preferably constructed of welded tubular steel pipes (16). The vessel (12) may alternatively be constructed of any suitable material or may

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 498 of 894

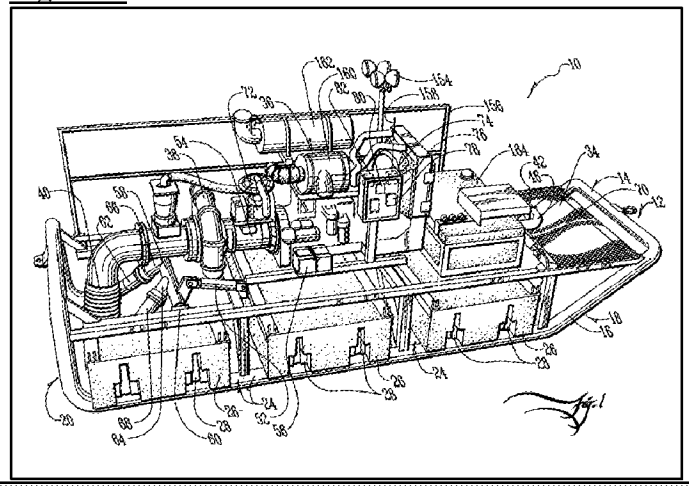
Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
		be constructed with a more standard hull, such as those known in the art. The frame (14) is constructed with an angled bow (18) and a vertical stern (20). The angled bow (18) facilitates the launch and retrieval of the agitator (10) from a manure lagoon (22). (FIGS. 1-2). The frame (14) defines a plurality of receiver slots (24) into which are provided modular dock sections (26), such as those known in the art. In the preferred embodiment, the dock sections (26) are 1000 series dock components manufactured by Connect-A-Dock, Inc. of Atlantic, Iowa. **Figure 1:** 
ground engaging propulsion structure;	**Col. 3:25-38:** The hull 12 can be substantially sealably molded for providing buoyancy for water crossings and provide way for necessary functional attachment of units. For example, the hull 12 can optionally be molded with axle holes therethrough to provide for axle shafts to be passed therethrough and connect with one or more each wheels to provide a direct drive. The vehicle 10 can be direct all wheeled drive (8, 10, or 12 wheeled drive). All axles can be in a split splined design configuration (one splined axle shaft along with a splined female mating coupling) can be permanently attached inside the vehicle hull 12 on a sub frame assembly, with the other splined axle shaft end being capable of being inserted into the splined female mating coupling enabling the splined axle shafts to be separated.	

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 499 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
	Col. 4:33-40: The vehicle 10 includes a self contained (main vehicle drive power plant), engine unit 18, (that can be P-8 compatible, gasoline, diesel, hybrid-electric, propane, natural gas or a combination thereof) and be of the scaleable engine technology where as a specific horsepower engine can be used for instance 71 horsepower or 165 horsepower or 172 ½ horsepower etc. which can include engine housings with flanges 22 extending laterally from the engine for mounting. **Col.6:3-6:** The treads 62 can include a band type track system having a high-performance, low maintenance alternative to segmented metal type tracks/treads that are traditionally used for tracked combat vehicles today.	
a fluid pump for pumping liquid manure;	**Col. 4:14-32:** As is described herein, a plurality of platform mounting surface 24 can be formed on the frame system inside the hull 12 which can include a plurality of open surfaces and holes through which quick release connectors (pivot locks 26) can be inserted to attach and secure all functional mechanical components, weapons armaments, communications, fire-fighting equipment and pumps, pump engines, foam systems, dry chemical systems, split cell foam tanks, water hoses, nozzles, water tanks, special operations, laser, electrified water and or slippery slime tanks, microwave impulse equipment, water cannon, hazardous materials decontamination, search, rescue, medical, surveillance, cargo, transport, fuel ank, vehicle engine, transmission, wiring connectors, wire harnesses, instrument panels, access panels, computer, doors, windows, hatches, sensors, imaging equipment, etc, all of which can be equipped with mounting flanges 22 and pivot or shaft (single or double action) push button ball bearing positive locking pin system as used in the engine/transmission mounting platform described herein. **Col. 10:51-56:** The use of a pump mounted to the all terrain vehicle which is capable of pumping water from a lake or stream onto a fire is another feature of the present invention. This feature reduces the need to transport water to the site of the fire or, in the alternative, makes it easier to transport water pumping equipment to the body of water to be used in fighting the fire.	**[0006]** It is also known in the art to provide a large vehicle that may be lowered into the lagoon. The vehicle may equipped with a fluid intake, a pump and a fluid output to draw supernatant into the pump and force the supernatant at high speed downward toward the sludge. The vehicle is typically moved with cables by operators on the shore. **[0026]** The slurry pump (38) is coupled to a liquid manure intake, such as a slurry intake, which is a downwardly directed intake pipe (40) in the preferred embodiment and is capable of handling manure crust, supernatant, sludge and the combined slurry. (FIGS. 1 and 4). If desired, the intake pipe (40) may be extensible to adjust the depth of the intake pipe (40). The intake pipe (40) is constructed to extend about twenty-four inches below the surface of the lagoon (22), but may be extended or retracted to any desired depth, including the entire depth of the lagoon (22). **[0027]** Coupled to the slurry pump (38) by a transport pipe (42) is a first slurry output (44). (FIG. 5). The first slurry output (44) is an angled pipe (46) pivotably coupled to the transport pipe (42). Releasably coupled to the angled pipe (46) is a tapered liquid manure nozzle (48) to increase the velocity of slurry (50) passing through the nozzle (48). (FIGS. 4-5). If desired, different sizes and configurations of nozzles (48) may be coupled to the

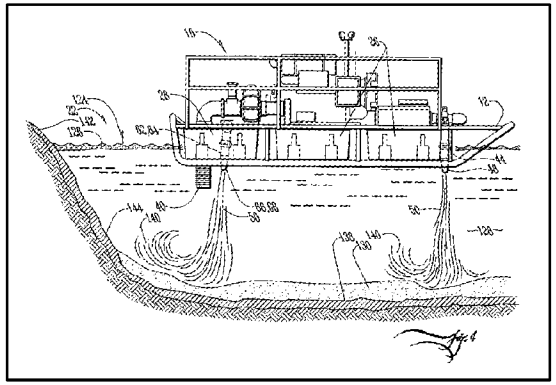
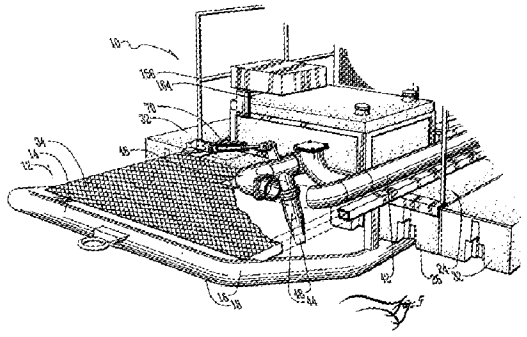
Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
		angled pipe (46) to adjust the direction and velocity of slurry (50) exiting through the first slurry output (44). Coupled between the angled pipe (46) and the frame (14) is a steering control hydraulic cylinder (52). The hydraulic cylinder (52) is coupled to a hydraulic pump (54) that, in turn, is coupled to a 12-volt battery (56). (FIGS. 1 and 5). **Figure 4:**  **Figure 5:**  **Figure 6:**

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 501 of 894

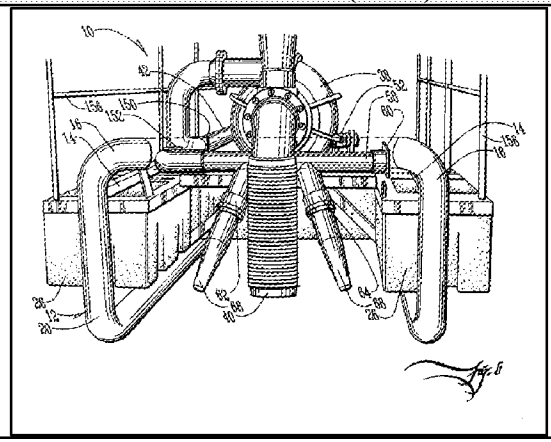
Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
		
at least one fluid nozzle connected by a fluid conduit to the fluid pump;	**Col. 5:19-40:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam and or dry chemicals in a fire and or hazardous materials decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such as from fire to hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. The unit 34 can include pump systems which have the capabilities to quickly change from flow rates and pressures of High 30 Pressure/Low Volume, to Low Pressure/High Volume, to Low Pressure/Low Volume, to Pressure/High Volume in 'joint" work together or independent pump systems and all pump systems can be draft capable, such as gross decontamination of men and equipment to include vehicles, downed aircraft, buildings, civilians, ect; in remote area's of the world during or after a chemical agent and or gas agent (Dirty Bomb), release by an opposing enemy or terrorist cell. Hose and attachment therewith can preferably be equipped to have quick release couplings. **Col. 9:13-30:** For controlling the flow of water in the case where a series of valves and hoses are used, a first valve controls the flow of water through a first hose from tank 34 to a pump; a second valve controls the flow of the water from a second hose through the tank filter; and a third valve prevents water from flowing from master drain. If there is a convenient nearby source of water,	**[0008]** It would, therefore, be desirable to provide a vehicle which floats on the manure pond and which is maneuverable. It would also be desirable to provide the vehicle with multiple outlet nozzles to direct the fluid downward into the lagoon a sufficient distance to agitate the solids in the bottom of the lagoon into suspension and create vortices within the lagoon to assist in carrying solids within the sludge into suspension in the supernatant. It would additionally be desirable to direct the nozzles to create vortices that mix the solids of the sludge into suspension with the supernatant, while minimizing the amount of unpleasant smelling hydrogen sulfide rising to the surface and escaping into the air. **[0011]** In the preferred embodiment of this invention, a floating manure agitator is provided with a floating vessel and a power source. A slurry pump is coupled to the power source. A slurry intake and three slurry outputs are also coupled to the slurry pump. Two of the slurry outputs are directed outward from the floating vessel. The slurry intake is provided between the two rearward slurry outputs. An additional slurry output is provided closer to the bow of the floating vessel and is provided with a steering control to direct the slurry output to control the direction of the floating vessel. The two aft slurry outputs may be rotated

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 502 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
	such as a lake or stream, the water from the available source can be pumped directly by pump into the fire hoses, or the tank at the same time refilling the tanks water supply and continuing to supply water to the hoses, water tank and cannon thereby providing a continuous uninterrupted supply or flow of water by removing an end cap from pump and simple valve manipulations feeding water therethrough. The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.	more rearward to increase the speed of the floating vessel or rotated more stern to slow or reverse the speed of the floating vessel, or move downward to direct more of the supernatant into the sludge. A remote control device may be coupled to the slurry control to allow the floating vehicle to be steered from the shore. **[0027]** Coupled to the slurry pump (38) by a transport pipe (42) is a first slurry output (44). (FIG. 5). The first slurry output (44) is an angled pipe (46) pivotably coupled to the transport pipe (42). Releasably coupled to the angled pipe (46) is a tapered liquid manure nozzle (48) to increase the velocity of slurry (50) passing through the nozzle (48). (FIGS. 4-5). If desired, different sizes and configurations of nozzles (48) may be coupled to the angled pipe (46) to adjust the direction and velocity of slurry (50) exiting through the first slurry output (44). Coupled between the angled pipe (46) and the frame (14) is a steering control hydraulic cylinder (52). The hydraulic cylinder (52) is coupled to a hydraulic pump (54) that, in turn, is coupled to a 12-volt battery (56). (FIGS. 1 and 5). **[0028]:** As shown in FIG. 6, journaled to the rear outlet of the transport pipe (42) is a pivot pipe (58). The pivot pipe (58) is also journaled to a bearing (60) secured to the frame (14). (FIG. 6). Depending from the pivot pipe (58) are a second slurry output (62) and a third slurry output (64). Preferably the slurry outputs (62) and (64) are angled outward from the centerline of the vessel (12), along which the intake pipe (40) is located. (FIGS. 4 and 6). **[0029]** Releasably coupled to the second slurry output (62) and third slurry output (64) are a pair of nozzles (66) and (68) pivotably coupled to the vessel (12). The second slurry output (62) and third slurry output (64) are oriented and configured to direct the slurry (50) as desired and to increase the velocity with which the slurry (50) exits the nozzles (66) and (68). The second slurry output (62) is preferably directed between five and eighty degrees port, more preferably directed between ten and sixty

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 503 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
		degrees port and, most preferably, between fifteen and forty-five degrees port. The third slurry output (64) is preferably directed between five and eighty degrees star-board, more preferably between ten and sixty degrees star-board and, most preferably, between fifteen and forty-five degrees starboard. The intake pipe (40) is preferably posi-tioned between the first slurry output (44) and the second slurry output (62). **[0032]** The remote control system (64) also includes an engine stop button (98), start button (100), a throttle down button (102) and throttle up button (104). To steer the agitator (10) the remote control system (84) is provided with a bow left button (106) and bow right button (108). The bow left button (106) causes the steering control hydraulic cylinder (52) to extend, thereby directing the nozzle (48) to starboard and driving the agitator (10) port. The remote control system (84) is also provided with a bow right button (108) to retract the hydraulic cylinder (52) and steer the agitator (10) star-board. The remote control system (84) is provided with a reverse button (110) which causes the hydraulic cylinder (70) to extend, thereby forcing the pivot pipe (58) to direct the slurry outputs (62) and (64) toward the bow (18) of the agi-tator (10), thereby driving the vessel (12) rearward. Similarly, a forward button (112) causes the hydraulic cylinder (70) to retract and drive the agitator (10) forward. **[0035]** Once the agitator (10) is floating in the lagoon (22), the remote control system (84) is used to activate the power source (36) to cause the slurry pump (38) to draw supernatant (128) into the intake pipe (40) and out the outputs (44), (62) and (64). The remote control system (84) is used to direct the pivot pipe (58) to angle the slurry outputs (62) and (64) aft to drive the agitator (10) forward. The remote control system (84) then actuates the control panel (7 4) to direct the hydrau-lic cylinder (52) to angle the first slurry output (44) to turn the agitator (10) port or starboard as desired. The remote control system (84) is thereafter used to direct the volume of super-natant (128) drawn into the intake pipe (40)

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 504 of 894

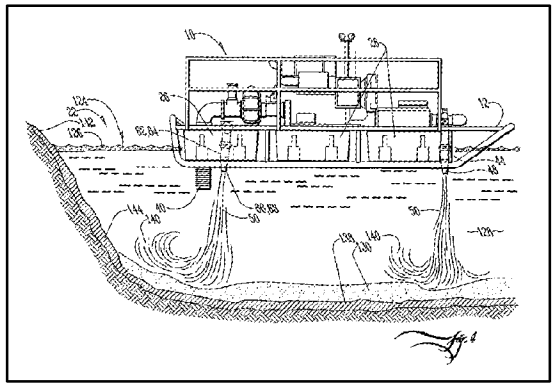
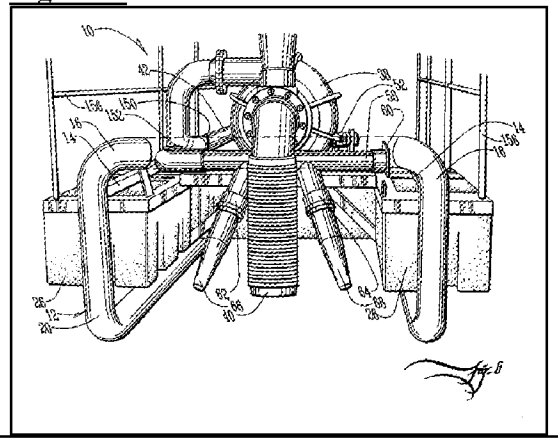
Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
		and the direction at which the supernatant (128) is expelled from the slurry outputs (44), (62) and (64). By manipulating the direction of the slurry outputs (44), (62) and (64) with the remote control system (84), a user may direct the agitator (10) to any desired portion of the lagoon. **Figure 4:**  **Figure 6:** 
a power source connected	**Col. 4:33 – 40:** The vehicle 10 includes a self contained (main vehicle drive power plant), engine unit 18, (that can be P-8 compatible, gasoline, diesel,	**[0024]** The vessel (12) is provided with a deck (34) and a power source (36). (FIG.1). While the power source (36) may be any

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 505 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
to a hydraulic pump and configured to provide power to both the ground engaging propulsion structure and the fluid pump; and,	hybrid-electric, propane, natural gas or a combination thereof) and be of the scaleable engine technology where as a specific horsepower engine can be used for instance 71 horsepower or 165 horsepower or 172 ½ horsepower etc. which can include engine housings with flanges 22 extending laterally from the engine for mounting. **Col. 5: 19-28:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam or dry chemicals in a fire or hazardous material decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such from the fire hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds. **Col. 5:40-46:** The unit 34 can be self powered (e.g., 40 independent engine) or can be powered by the vehicle engine unit 18 through stacked hydrostatic or hybrid electrical drive systems. Vehicle and secondary engines of the combustion type can be electrically started and all engine horse powers can be predetermined to be capable to give the necessary power to drive the intended function(s) of the engine. **Col. 5:53-56:** Chain or belt operably connects to wheels 52 within a housing 53 which are configured to be complementary with the chosen drive, for example, a chain system would utilize a suitable sprocket on each wheel 52 for engagement therewith. **Col. 6:41-54:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydrostatic, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally	suitable power source, in the preferred embodiment the power source (36) is a John Deere Tier 3 diesel engine. Depending on the desired size and efficiency of the agitator (10), the power source (36) is preferably between twenty and two-thousand horsepower, more preferably between fifty and five hundred horsepower, and most preferably between one hundred fifty and two hundred fifty horsepower. **[0025]** Coupled to the power source (36) is a liquid manure pump such as a slurry pump (38). In the preferred embodi-ment, the slurry pump (38) is a Cornell Redi-Prime centrifu-gal pump capable of handling both solid and liquid material. The slurry pump (38) is preferably designed to move between one thousand and twenty-four thousand liters of material per minute, more preferably between eight thousand and twenty thousand liters of material per minute, and most preferably about sixteen thousand liters of material per minute.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 506 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
	complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. **Col. 6:60 – Col. 7:5:** This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electronically or the transmission or both using a combination of manual over electronic solenoid valves in the event the solenoid valve falls to open it can be opened manually. **Col 8:54-58:** Engine unit 18 can be fueled by any number of fuels such as gasoline, diesel, propane, electric, hybrid electric, or natural gas and can be used to power the vehicle 10 as well as any of the other units described herein by using a suitable coupling. **Col. 9:54-56:** In addition, the tank 34 can include a self-contained engine 16' and can be fueled from the same fuel tank or source of power that supplies vehicle 10'.	
remote control structure configured to control the ground engaging propulsion structure and a flow of fluid from the fluid nozzle,	**Col. 11:5-16:** The operations of each unit described herein can be performed by remote control unit 42 which is operably quick connectable to each unit on the vehicle 10 having suitable connections therewith. The remote control unit 42 is also equipped with manual controls thereon to provide for operation of the vehicle 10 manually as well as a transceiver equipment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle 10 to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanics, servos, hardware, wiring harnesses can be quick releasable to facilitate easy replacement of any faulty components in case of damage or failure. **Col 10:31-35:** The water cannon is as well capable to shoot streams of water (straight streams, fog, wide streams) of just water, foam, dry chemical or decon	**[0009]** It would further be desirable to provide a floating vehicle for the mixing of sludge solids into suspension with the supernatant that may be quickly and readily transported to a manure lagoon, launched into the lagoon, used to suspend sludge solids into suspension with the supernatant, and removed from the lagoon onto a trailer. It would also be desirable to provide a floating vehicle configured to the stan-dard, height, weight and width restrictions associated with highway travel. Additionally, it would be desirable to provide a floating manure agitation vehicle that may be remotely controlled and guided to specific portions of the lagoon to move solids of the sludge into suspension with the superna-tant as desired.

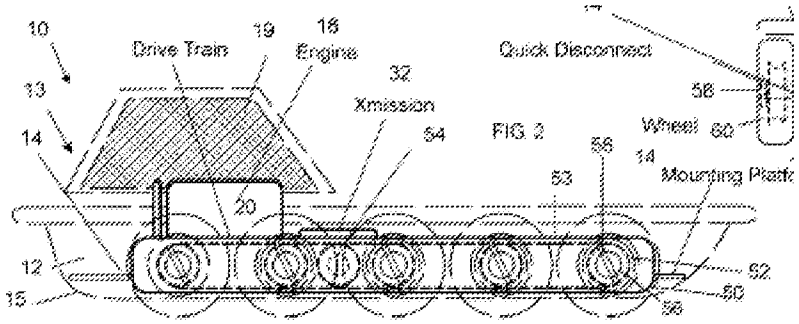
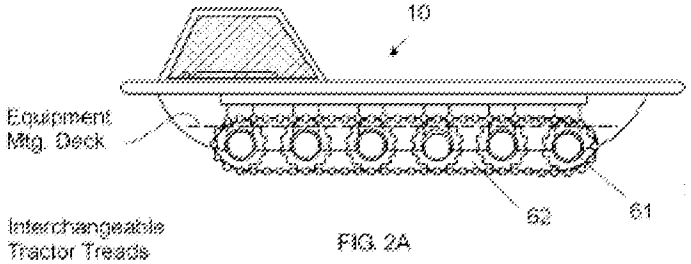
Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 507 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
wherein the speed and/or direction of the vehicle is remotely controllable by an operator remote from the vehicle when the vehicle is ground engaging and when the vehicle is floating.	solutions in any combination and can be remotely controlled either wirelessly or wired in manned, unmanned and autonomous modes as well the water cannon can be operated manually in the case of a system failure. **Col. 11:5-16:** The operations of each unit described herein can be performed by remote control unit 42 which Is operably quick connectable to each unit on the vehicle 10 having suitable connections therewith. The remote control unit 42 is also equipped with manual controls thereon to provide for operation of the vehicle 10 manually as well as a transceiver equipment enabling it to be reprogrammed on a need to need basis, as well as enabling the vehicle 10 to be remotely controlled via line of sight, gps, or by air via aircraft such as the Preditor. Remote control mechanism, servos, hardware, wiring harnesses can be quickly releasable to facilitate easy replacement of any faulty components in case of damage or failure. **Col. 11:47-53:** All pertinent data transmissions can be sent back and forth allowing for all systems monitoring such as vehicle speed, rpm, water temperature, oil pressure, gear transmission, electrical input and output, weapons diagnostics to include arming and disarming as well as including weapons selection if equipped with multiple weapons systems, water tank level, foam tank level, pump water pressure etc.	**[0011]** In the preferred embodiment of this invention, a floating manure agitator is provided with a floating vessel and a power source. A slurry pump is coupled to the power source. A slurry intake and three slurry outputs are also coupled to the slurry pump. Two of the slurry outputs are directed outward from the floating vessel. The slurry intake is provided between the two rearward slurry outputs. An additional slurry output is provided closer to the bow of the floating vessel and is provided with a steering control to direct the slurry output to control the direction of the floating vessel. The two aft slurry outputs may be rotated more rearward to increase the speed of the floating vessel or rotated more stern to slow or reverse the speed of the floating vessel, or move downward to direct more of the supernatant into the sludge. A remote control device may be coupled to the slurry control to allow the floating vehicle to be steered from the shore. **[0027]** Coupled to the slurry pump (38) by a transport pipe (42) is a first slurry output (44). (FIG. 5). The first slurry output (44) is an angled pipe (46) pivotably coupled to the transport pipe (42). Releasably coupled to the angled pipe (46) is a tapered liquid manure nozzle (48) to increase the velocity of slurry (50) passing through the nozzle (48). (FIGS. 4-5). If desired, different sizes and configurations of nozzles (48) may be coupled to the angled pipe (46) to adjust the direction and velocity of slurry (50) exiting through the first slurry output (44). Coupled between the angled pipe (46) and the frame (14) is a steering control hydraulic cylinder (52). The hydraulic cylinder (52) is coupled to a hydraulic pump (54) that, in turn, is coupled to a 12-volt battery (56). (FIGS. 1 and 5). **[0035]** Once the agitator (10) is floating in the lagoon (22), the remote control system (84) is used to activate the power source (36) to cause the slurry pump (38) to draw supernatant (128) into the intake pipe (40) and out the outputs (44), (62) and (64). The remote control system (84) is used to direct the pivot pipe (58) to angle the slurry outputs (62) and (64) aft to drive the agitator (10)

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 508 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
		forward. The remote control system (84) then actuates the control panel (7 4) to direct the hydrau-lic cylinder (52) to angle the first slurry output (44) to turn the agitator (10) port or starboard as desired. The remote control system (84) is thereafter used to direct the volume of super-natant (128) drawn into the intake pipe (40) and the direction at which the supernatant (128) is expelled from the slurry outputs (44), (62) and (64). By manipulating the direction of the slurry outputs (44), (62) and (64) with the remote control system (84), a user may direct the agitator (10) to any desired portion of the lagoon. **[0037]** The remote control system (84) may be used to cause the slurry pump (38) to expel slurry (50) more slowly from the slurry outputs (44), (62) and (64) as the agitator (10) is near the shore (142) of the lagoon (22) so as not to penetrate the lining (144) of the lagoon (22) thereby allowing the slurry (50) to escape. As the agitator (10) moves towards the center of the lagoon (22) which may range from five to forty feet deep, or more, the remote control system (84) can be used to increase the speed at which the supernatant (128) is passed from the slurry outputs (44), (62) and (64) to adequately mix the sludge (130) at the deepest portions of the lagoon (22). The remote control system (84) is used to direct the agitator (10) to all desired portions of the lagoon until the crust (126) and supernatant (128) is adequately mixed with the sludge (130).
2. The vehicle according to claim 1, wherein the ground engaging propulsion structure comprises a set of wheels or an endless track.	**Col. 3:28-33:** For example, the hull 12 can optionally be molded with axle holes therethrough to provide for axle shafts to be passed therethrough and connect with one or more each wheels to provide a direct drive. The vehicle 10 can be direct all wheeled drive (8, 10, or 12 wheeled drive). **Col. 6:3-6:** The treads 62 can include a band type track system having a high-performance, low maintenance alternative to segmented metal type tracks/treads that are traditionally used for tracked combat vehicles today.	

Bazooka v. Nuhn - IPR2024-00098 Exhibit 2033
Page 509 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
	Col. 6:13-16: Band type track systems also offer significant track life cycles and can reduce the over all cost due to a reduced maintenance cycle with a much longer life span. **Fig. 2:**  **Fig. 2A:**  	
3. The vehicle according to claim 1, wherein the power source is configured to provide hydraulic fluid power to	**Col. 5: 19-28:** The unit 34 can be equipped with quick release pump systems that can provide various pressure and volume outputs to flow sufficient volumes of water and or foam or dry chemicals in a fire or hazardous material decontamination mission from a distance that can not endanger the operator or crew members of the vehicle 10 and enable one to quickly change from one flow rate and pressure to another as the mission dictates such from the fire hazmat to weapons to DEW (Directed Energy Weapons) to crowd control in seconds.	**[0024]** The vessel (12) is provided with a deck (34) and a power source (36). (FIG.1). While the power source (36) may be any suitable power source, in the preferred embodiment the power source (36) is a John Deere Tier 3 diesel engine. Depending on the desired size and efficiency of the agitator (10), the power source (36) is preferably between twenty and two-thousand horsepower, more preferably between fifty and five hundred

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
both the ground engaging propulsion structure and the fluid pump.	**Col. 5:40-46:** The unit 34 can be self powered (e.g., 40 independent engine) or can be powered by the vehicle engine unit 18 through stacked hydrostatic or hybrid electrical drive systems. Vehicle and secondary engines of the combustion type can be electrically started and all engine horse powers can be predetermined to be capable to give the necessary power to drive the intended function(s) of the engine. **Col. 6:41-54:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydrostatic, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. **Col. 6:60 – Col. 7:5:** This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electronically or the transmission or both using a combination of manual over electronic solenoid valves in the event the solenoid valve falls to open it can be opened manually.	horsepower, and most preferably between one hundred fifty and two hundred fifty horsepower.
4. The vehicle according to claim 3,	**Col. 6:41 – Col. 7:11:** It is contemplated that a direct drive system can be employed wherein one or more wheels is driven by a drive shaft with suitable yoke connections, a hydrostatic drive transmission or via a hydraulic system as	**[0024]** The vessel (12) is provided with a deck (34) and a power source (36). (FIG.1). While the power source (36) may be any suitable power source, in the preferred embodiment the power

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 511 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
wherein the ground engaging propulsion structure is operable at variable speed by a hydraulic motor.	is known in the art. One or more drive systems can be employed on the vehicle 10 providing the user with multiple drive mechanism options. The drive train connection can be either/or a combination of/direct drive shaft utilizing a suitable yoke system, hydrostatic, belt or chain. The direct shaft, hydro-static, belt or chain drive or drives or a combination thereof can connect to the driven axles within a housing which can be configured to be universally complementary with the chosen drive or drives, i.e., a chain system would utilize a suitable sprocket on each axle as the drive engagement mechanism. n objective achieved here is to incorporate a back up drive train for an "emergency switch-over" in the event one drive train becomes inoperable. This can be accomplished by using one or more methods: shaft over hydro-static, shaft over chain, shaft over belt, hydro-static over chain, hydro-static over belt, belt over chain. This can be accomplished by using a variety of mechanical components such as electromagnetic spring plates, electromagnetic clutches (such as the same used on simple automotive air conditioning systems), or air/hydraulic positive pressure clamps, centrifugal clutches using drive pulley to driven pulley (belt, chain, hydro-static actuated), power take off, (pto), back up configured separately from the transmission, located on the engine to be connected to the drive train, to independently stacked hydro-static drives that can be mechanically driven by either the engine, electronically or the transmission or both using a combination of manual over electronic solenoid valves in the event the solenoid valve falls to open it can be opened manually. The drive train can also be configured in such a manner where as one or more wheels can be driven by one or more drive component systems. In example, the front two wheels can be belt driven, the next two wheels being hydro-statically driven, the next two wheels can be chain or direct drive shaft driven or electronically driven in a multitude of various configurations. **Col. 7:46-54:** The transmission contemplated by the invention can be of a type configured using a torque converter driven, 3, 6 or more speed power-shift transmission. The transmission can be controlled by a microprocessor which can respond from the shift lever position input. The transmission can be programmed to be fully automatic through all three, six or more speeds or manually controlled, 1st through 3rd, and then automatically in 4th through 6th or more, in a 6 or more speed transmission.	source (36) is a John Deere Tier 3 diesel engine. Depending on the desired size and efficiency of the agitator (10), the power source (36) is preferably between twenty and two-thousand horsepower, more preferably between fifty and five hundred horsepower, and most preferably between one hundred fifty and two hundred fifty horsepower.

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 512 of 894

Ground II – Carrier in view of Puck		
U.S. Patent No. 10,974,557	**U.S. Patent No. 7,478,817 (Carrier)**	**U.S. Patent Application Publication No. 2014/0112093 (Puck)**
5. The vehicle according to claim 1, wherein the at least one fluid nozzle comprises a plurality of fluid nozzles connected to the fluid conduit.	**Col. 9:26-30:** The water cannon is capable of flowing water, and or foamed water and or dry chemicals at the same time or independently through a dual chambered water cannon with the appropriate corresponding nozzle affixed to each independent chambers output end.	**[0008]** It would, therefore, be desirable to provide a vehicle which floats on the manure pond and which is maneuverable. It would also be desirable to provide the vehicle with multiple outlet nozzles to direct the fluid downward into the lagoon a sufficient distance to agitate the solids in the bottom of the lagoon into suspension and create vortices within the lagoon to assist in carrying solids within the sludge into suspension in the supernatant. It would additionally be desirable to direct the nozzles to create vortices that mix the solids of the sludge into suspension with the supernatant, while minimizing the amount of unpleasant smelling hydrogen sulfide rising to the surface and escaping into the air. **[0027]** Coupled to the slurry pump (38) by a transport pipe (42) is a first slurry output (44). (FIG. 5). The first slurry output (44) is an angled pipe (46) pivotably coupled to the transport pipe (42). Releasably coupled to the angled pipe (46) is a tapered liquid manure nozzle (48) to increase the velocity of slurry (50) passing through the nozzle (48). (FIGS. 4-5). If desired, different sizes and configurations of nozzles (48) may be coupled to the angled pipe (46) to adjust the direction and velocity of slurry (50) exiting through the first slurry output (44). Coupled between the angled pipe (46) and the frame (14) is a steering control hydraulic cylinder (52). The hydraulic cylinder (52) is coupled to a hydraulic pump (54) that, in turn, is coupled to a 12-volt battery (56). (FIGS. 1 and 5). **[0029]** Releasably coupled to the second slurry output (62) and third slurry output (64) are a pair of nozzles (66) and (68) pivotably coupled to the vessel (12). The second slurry output (62) and third slurry output (64) are oriented and configured to direct the slurry (50) as desired and to increase the velocity with which the slurry (50) exits the nozzles (66) and (68). The second slurry output (62) is preferably directed between five and eighty degrees port, more preferably directed between ten and sixty degrees port and, most preferably, between fifteen and forty-five

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 513 of 894

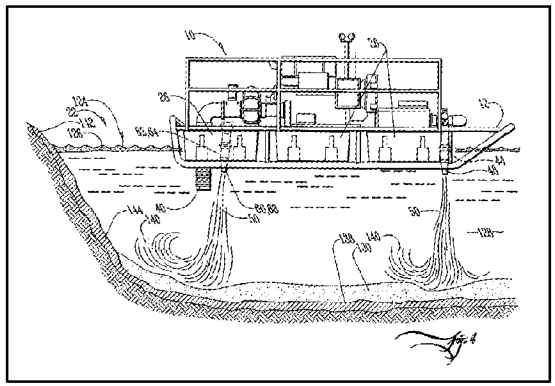
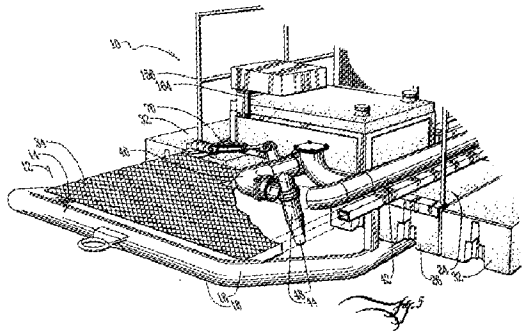
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		degrees port. The third slurry output (64) is preferably directed between five and eighty degrees star-board, more preferably between ten and sixty degrees star-board and, most preferably, between fifteen and forty-five degrees starboard. The intake pipe (40) is preferably posi-tioned between the first slurry output (44) and the second slurry output (62). **Figure 4:**  **Figure 5:**  **Figure 6:**

Exhibit 2033
Bazooka v. Nuhn - IPR2024-00098
Page 514 of 894