Stephenson D. Emery, Bar No. 5-2321
Thomas W. Rumpke, Bar No. 6-2974
Williams, Porter, Day & Neville, P.C.
159 North Wolcott, Suite 400
Casper, WY 82601
(307) 265-0700
(307) 266-2306 Facsimile
semery@wpdn.net
trumpke@wpdn.net

Attorneys for Masaba, Inc.

Tim R. Shattuck, *PHV*
Sander J. Morehead, *PHV*
Woods, Fuller, Shultz & Smith P.C.
300 South Phillips Avenue, Suite 300,
Sioux Falls, SD 57104
(605) 336-3890
(605) 339-3357 Facsimile
tim.shattuck@woodsfuller.com
sander.morehead@woodsfuller.com

Attorneys for Masaba, Inc.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF WYOMING

MASABA, INC., a South Dakota Corporation, Plaintiff, v. SOLARIS OILFIELD SITE SERVICES OPERATING, LLC, a Texas Company; and SOLARIS OILFIELD SITE SERVICES PERSONNEL, LLC, a Delaware Company, Defendants.	Civil Action No. 2:23-cv-000236-ABJ

AMENDED COMPLAINT AND JURY DEMAND

Masaba, Inc. ("Masaba"), for its Amended Complaint and Jury Demand against Solaris Oilfield Site Services Operating, LLC ("Solaris Operating") and Solaris Oilfield Site Services Personnel, LLC ("Solaris Personnel") (collectively "Solaris"), states and alleges:

PARTIES

1. Masaba is a South Dakota corporation with its principal place of business in Vermillion, South Dakota.

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2. Masaba designs, engineers, manufactures, and sells conveying and material-handling equipment, including custom-engineered systems and solutions.

3. Solaris Operating is a Texas limited liability company with its principal place of business in Houston, Texas. Solaris Operating is registered to do business in Wyoming.

4. Solaris Operating manufactures and owns specialized equipment and offers field technician support, last-mile logistics services, and software offerings, which together enable Solaris Operating to offer oil and natural gas operators and their suppliers efficiencies that reduce operation footprints and costs during the completion phase of well development. Solaris Operating's equipment and services are deployed across active oil and natural gas basins in the United States. Solaris Operating's primary customers are major exploration and production oilfield service companies. Upon information and belief, Solaris Operating executes master service agreements with its customers to provide specific equipment and services.

5. Significantly, Solaris Operating leases, uses, and operates a storage, maintenance, repair, and operational facility in Casper, Wyoming ("Casper Facility"). The facility is used by Solaris Operating to store, maintain, service, and manage various equipment owned by it and leased to customers, including the Infringing Systems (as defined below). Multiple Solaris Personnel employees are based and work at the Casper Facility on a regular and continual basis.

6. Solaris Personnel is a Delaware limited liability company with its principal place of business in Houston, Texas. Solaris Personnel employs all, or nearly all, individuals who work for Solaris Operating and its affiliates, including the numerous individuals who are based and regularly perform services at the Casper Facility.

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BACKGROUND

A. Masaba conceives, designs, engineers, and manufactures a revolutionary top fill silo loading system.

7. In mid-2020, Masaba was approached by Anchor Technical Equipment, LLC ("Anchor"), of Fort Worth, Texas, to design and build a portable system for Solaris Operating to top fill silos used to store sand used in the hydraulic fracturing (fracking) process.

8. In the summer of 2020, Masaba began working on conceptual ideas for the requested system.

9. In August 2020, an initial concept of a possible system was provided to Solaris Operating. The initial design included a long-inclined belt conveyor ("Beltwall Design") to move the frac sand from the ground to the top of the silos, with a two-piece arm extending from the top of the angled conveyor.

10. Solaris Operating liked the Beltwall Design and began directly communicating with Masaba.

11. Masaba provided an estimated budget of $680,000 +/- 10% for the first system, and Solaris Operating indicated that it was interested in initially purchasing ten systems and many more in the future.

12. Solaris Operating representatives, including employees of Solaris Personnel, stated that the top fill silo project was the most important project in the company and that it needed the top fill system to gain market share.

13. In November 2020, Solaris Operating, including employees of Solaris Personnel, instructed Masaba to proceed immediately with the engineering for the system.

14. To accommodate Solaris Operating's expedited and demanding timetable, Masaba gave the project top priority. Masaba pulled engineers from other jobs and assigned them to the

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project. Masaba also had engineers travel to Texas to meet with Solaris Operating, including employees of Solaris Personnel, and to visit a six-pack silo site.

15. Masaba then spent several months and thousands of manhours researching, developing, designing, and engineering a revolutionary, industry-changing top fill silo loading system.

16. As Masaba worked on the design of the system, Masaba discovered various practical and engineering limitations with the Beltwall Design.

17. In January 2021, Masaba began working on a new, different, and superior design concept. Unlike the Beltwall Design's long–inclined conveyer, the new concept included a substantially vertical bucket elevator in place of the inclined belt conveyor to transport the frac sand to the top of the silos ("Bucket Elevator Design"). The Bucket Elevator Design had multiple engineering and practical advantages over the initial Beltwall Design.

18. After initially being skeptical of Masaba's Bucket Elevator Design, in or about late February 2021, Solaris Operating reversed course and agreed to purchase a top fill silo loading system with the Bucket Elevator Design ("Top Fill System"). Masaba sold the system to Anchor, and Anchor resold the system to Solaris Operating.

19. After receiving the order, Masaba continued designing, engineering, and specifying the Top Fill System.

20. In early April 2021, Solaris Operating representatives, including employees of Solaris Personnel, visited Masaba in Vermillion, South Dakota, to meet Masaba's team and to tour its manufacturing facility.

21. Masaba began manufacturing the Top Fill System in April 2021.

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22. As Masaba worked on the Top Fill System, Solaris Operating, via Solaris Personnel employees, pushed Masaba to complete the project as soon as possible. Solaris Operating, through Solaris Personnel employees, represented that the top fill system was critical to its success and that it would ultimately purchase dozens of the systems.

23. In May 2021, Solaris Operating, via Solaris Personnel employees, indicated that it would order ten additional Top Fill Systems.

24. In early June 2021, Anchor and Solaris Operating representatives visited Masaba again to tour the facility and to review and hasten the progress of the Top Fill System.

25. In mid-June 2021, Anchor ordered a second Top Fill System, with an estimated sale price of $641,659, to be delivered to Solaris Operating. Anchor and Solaris advised Masaba that they wanted Masaba to manufacture and deliver 9 or 10 Top Fill Systems by the end of the year.

26. On July 21, 2021, Masaba filed a provisional patent application No. 63/223,124, entitled Aggregate Transferring System, for the Top Fill System it had conceived and designed. (*See* Ex. 1.)

27. In late July and early August 2021, Masaba tested the Top Fill System. Solaris Operating representatives, including Solaris Personnel employees, attended the testing and were extremely impressed. A Solaris engineer represented that he was not aware of any other company that could have successfully designed such a system, especially in such a short time. At the time of testing, the Top Fill System was marked "PATENT PENDING." (Ex. 2.)

28. After the initial testing, Masaba continued working on and testing the Top Fill System.

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29. In October 2021, Masaba delivered the Top Fill System to Anchor and Solaris Operating. The delivered system was marked "PATENT PENDING." (Ex. 2.)

30. With Masaba's assistance, Solaris Operating, using Solaris Personnel employees, promptly placed the system into service.

31. Masaba's final sale price for the initial Top Fill System was $570,701. Masaba sold the system at a loss of hundreds of thousands of dollars due to the extensive and unanticipated engineering and design work involved and an increase in steel prices that Masaba did not include in the sale price. Like the exceptional priority Masaba gave to the project, Masaba provided the discount pricing because Solaris repeatedly represented that it would purchase many more Top Fill Systems.

32. As Masaba was completing the first Top Fill System, Masaba began working on a second one.

33. Ultimately, Anchor and Solaris Operating could not reach an agreement regarding the sale price of the second unit, with Solaris Operating inexplicably and incorrectly claiming that the cost to manufacture the Top Fill System was not economically viable.

34. As a result, Masaba terminated its work on the second unit.

B. Solaris Operating and Solaris Personnel have infringed and continue to infringe Masaba's patent.

35. In November 2021, Solaris Operating demanded that Anchor immediately provide a full and complete set of engineering drawings for the Top Fill System, wrongfully claiming that the drawings were Solaris's "valuable intellectual property."

36. At that time, Anchor correctly advised Solaris Operating that Masaba owned all intellectual property related to the Top Fill System and reminded Solaris that Masaba had already filed a patent application claiming the Top Fill System.

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37. During subsequent conversations, Anchor continued to remind Solaris Operating, including Solaris Personnel employees, that Masaba was seeking to patent the Top Fill System.

38. In April 2022, Masaba's legal counsel formally advised Solaris that Masaba had applied for a patent on the Top Fill System purchased by Solaris Operating. (Ex. 3.) Masaba further informed Solaris that it anticipated obtaining a patent on the system and would protect and enforce its patent rights as necessary. (*Id.*)

39. In response, Solaris Operating misrepresented that it was unaware of Masaba's patent application, (Ex. 4), as the system delivered to Solaris was marked "PATENT PENDING," (Ex. 2), and Anchor had advised Solaris Operating multiple times that Masaba had filed a patent application on the Top Fill System.

40. On October 10, 2023, Masaba was duly and lawfully issued and assigned U.S. Patent No. 11,780,689 ("the '689 Patent"), entitled Aggregate Transferring System, claiming the Top Fill System. (Ex. 1.) The '689 Patent includes drawings of an exemplary embodiment of the Top Fill System, (Ex.1 at FIG.1A and FIG. 2A):

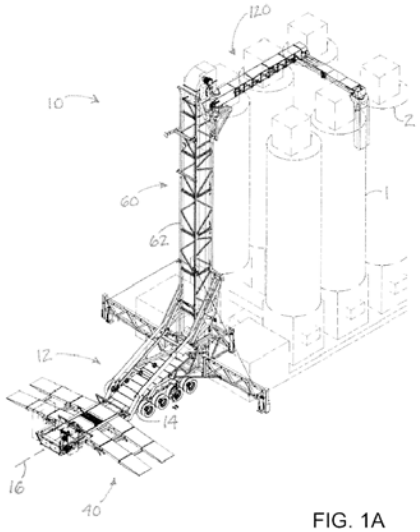


FIG. 1A

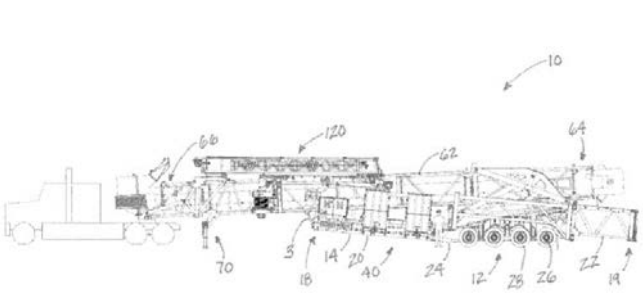
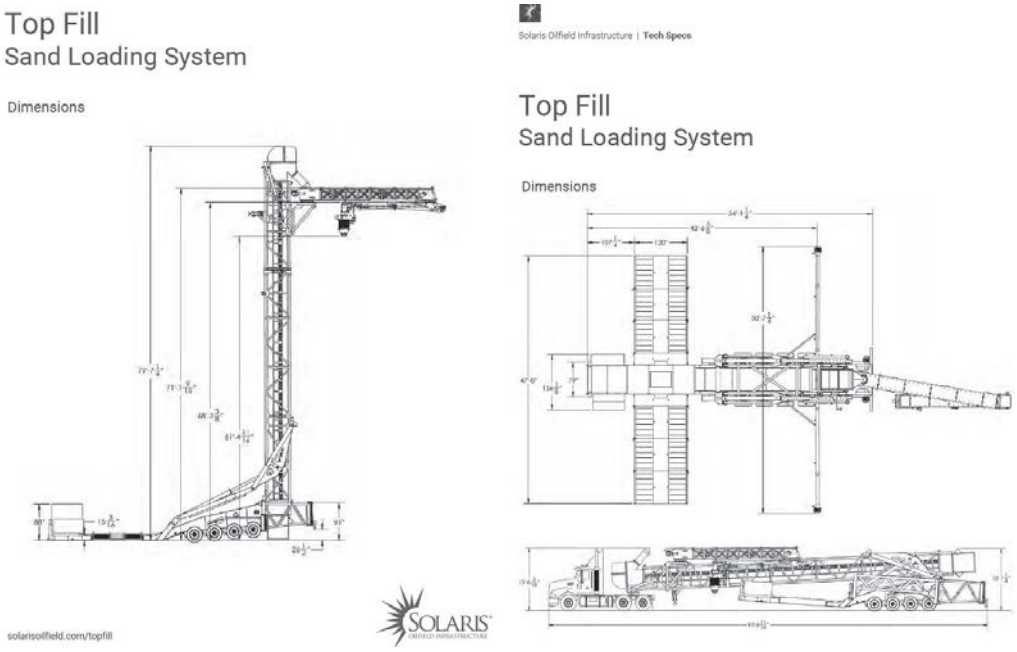


FIG. 2A

41. Knowing that Masaba owned the intellectual property related to the Top Fill System and that Masaba had filed a patent application on the entire system, Solaris Operating, using Solaris Personnel employees, nonetheless decided to copy and manufacture the Top Fill System itself ("Infringing System"). (Ex. 4.) Exemplary materials from Solaris's website about the Infringing System include dimensional drawings that are strikingly similar to those included in the '689 Patent, (Ex. 5):



42. Solaris Operating owns a fleet of more than 50 Infringing Systems. According to Solaris, in late 2023, it had 35 active Infringing Systems in service in eight states, including Wyoming. Solaris previously boasted that it had 46 Infringing Systems in service.

43. The Infringing System, as depicted in attached Exhibit 5 and above, is substantially identical to the one designed, constructed, and patented by Masaba and infringes all claims of the '689 Patent. (*Compare* figures in Ex. 1 *with* drawings in Ex. 5; Ex. 9.)

44. According to Solaris, the Infringing System provides "a new, faster alternative to sand loading at the wellsite." (Ex. 5.) "With increased payload and faster unloading, Solaris' Top Fill Sand Loading System increases truck utilization, turn rate and supply-chain reliability through multiple trucking options, resulting in lower cost per ton, reduced carbon footprint and higher logistics efficiency." (*Id.*)

45. The Infringing System has a truck offload rate of 400 tons per hour and can unload 54,000 pounds of sand in less than five minutes. (*Id.*)

46. According to Solaris, the Infringing Systems unloaded 13,000,000 tons (26 *billion* pounds) of sand through September 30, 2023.

47. According to Solaris, the Infringing System has enabled Solaris to work in new basins and for new customers. (Ex. 6.)

JURISDICTION AND VENUE

48. This action includes a patent-infringement claim arising under the patent laws of the United States, including 35 U.S.C. §§ 271 and 281, and two state-law claims.

49. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331, 1332, and 1338(a).

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50. This Court has personal jurisdiction over Solaris Operating, as Solaris Operating leases and operates a storage, service, repair, and operations facility (the Casper Facility) in this judicial district; is registered to do business in Wyoming; provides continuing and ongoing services in this district; and has committed and continues to commit acts of infringement in this district, including promoting, leasing, installing, maintaining, and servicing Infringing Systems, in violation of 35 U.S.C. § 271.

51. This Court has personal jurisdiction over Solaris Personnel, as it employs multiple individuals continually and regularly working in Wyoming, including employees who install, service, and repair Infringing Systems in the district. Solaris Personnel has committed acts of infringement in this district, including promoting, installing, maintaining, and servicing Infringing Systems, in violation of 35 U.S.C. § 271.

52. Venue is proper in this judicial district under 28 U.S.C. § 1400(b) because Solaris Operating and Solaris Personnel have committed acts of infringement in this district and have a regular and established place of business in this district.

53. According to Solaris, Solaris Operating, utilizing Solaris Personnel employees, has placed at least one Infringing System into service in Wyoming.

54. Additionally, Solaris Operating, using Solaris Personnel employees, leases and operates the Casper Facility to support its operations, workforce, and customers in the Rockies region. (Ex. 7.) Solaris publicly touts the Casper Facility on its website, *see About Us*, Solaris Oilfield Infrastructure, https://www.solarisoilfield.com/company, and, last year, it promoted the opening of the Casper Facility on at least one Solaris-affiliated social-media platform:

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Solaris Oilfield Infrastructure, LinkedIn (Oct. 2023), https://www.linkedin.com/posts/solaris-oilfield-infrastructure_rockies-newlocations-growth-activity-7109930529612828672-g35. (*See also* Ex. 7.) In May and June 2024, multiple Solaris Personnel employees have been actively working at the Casper Facility on a regular basis, including on at least one Saturday. Solaris maintains and utilizes at least a dozen Solaris-branded pick-ups at the Casper Facility. (Ex. 8.) Significantly, Solaris is currently using the Casper Facility to store and service two Infringing Systems. (*Id.*)

COUNT 1: PATENT INFRINGEMENT

55. Masaba incorporates the allegations in the preceding paragraphs as if fully set forth herein.

56. On October 10, 2023, Masaba was duly and lawfully issued and assigned the '689 Patent claiming the Top Fill System. (Ex. 1.)

57. The ‘689 Patent consists of 25 claims, including independent claims 1, 12, 13, 16, 22, 23, and 25. As described and depicted in extreme detail in attached Exhibit 9, the Infringing Systems read upon (incorporate) all the elements of all claims of the ‘689 Patent. (Ex. 9.)

58. Utilizing Solaris Personnel employees, Solaris Operating manufactured and now owns more than 50 Infringing Systems. With the assistance of Solaris Personnel employees, Solaris Operating has advertised, promoted, leased, and delivered at least 35 Infringing Systems to customers, including one or more customers in Wyoming. Using Solaris Personnel employees, Solaris Operating has installed, serviced, and repaired Infringing Systems for its customers. Solaris continues to advertise, promote, lease, install, maintain, service, and assist customers in operating Infringing Systems. By engaging in this and other conduct, Solaris Operating and Solaris Personnel have directly infringed and actively induced others, including its customers, to infringe the ‘689 Patent. Solaris Operating and Solaris Personnel are liable for such infringement under 35 U.S.C. § 271(a) and 35 U.S.C. § 271(b).

59. A copy of the Complaint filed in this action was provided to Solaris Oilfield Infrastructure, Inc., on December 15, 2023. Since that time, Solaris Oilfield Infrastructure, Inc., and its affiliates, including Solaris Operating and Solaris Personnel, have been on actual notice of the ‘689 Patent and Masaba’s assertion that the Infringing Systems infringe the ‘689 Patent. Since December 15, 2023, Solaris Operating, Solaris Personnel, and potentially other Solaris affiliates have willfully, deliberately, and intentionally infringed the ‘689 Patent. After receiving notice of the ‘689 Patent, Solaris knew that it was infringing, or at least knew that there was a high likelihood that it was infringing, multiple claims of a valid patent.

60. Despite their knowledge of infringement, Solaris Operating and Solaris Personnel deliberately and intentionally have continued to engage in obvious infringement of the ‘689

Patent in blatant disregard of Masaba's patent rights. Moreover, Solaris Operating and Solaris Personnel continue to encourage and induce their customers to infringe the '689 Patent. Solaris will continue to willfully, deliberately, and intentionally infringe and encourage others to infringe the '689 Patent unless enjoined from doing so by the Court under 35 U.S.C. § 283.

61. Solaris Operating's and Solaris Personnel's acts of infringement have caused damage to Masaba, entitling Masaba to recover damages in an amount to be proven at trial, but no less than a reasonable royalty for the use and exploitation of the patented invention, under 35 U.S.C. § 284.

62. Solaris's acts of infringement are particularly egregious and culpable. Solaris misled Masaba to believe that it would purchase and continue to purchase additional Top Fill Systems; deliberately copied Masaba's Top Fill System knowing there was a patent pending on the system; ignored communications about Masaba's intellectual-property rights; feigned ignorance of Masaba's patent application; blatantly, deliberately, and intentionally infringed the '689 Patent; and continues to encourage their customers to infringe the '689 Patent. As a result of this egregious conduct, Masaba in entitled to an award of treble damages under 35 U.S.C. § 284.

63. Due to Solaris's egregious and culpable conduct, Masaba is further entitled to a declaration that this case is an exceptional case and to recover its reasonable attorneys' fees and other litigation expenses under 35 U.S.C. § 285.

COUNT 2: UNJUST ENRICHMENT

64. Masaba incorporates the allegations in the preceding paragraphs as if fully set forth herein.

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65. Solaris Operating, through Solaris Personnel employees, repeatedly represented to Anchor and Masaba that Solaris Operating would purchase at least 10 Top Fill Systems and as many as 40 to 50 systems.

66. In reliance on those representations, Masaba manufactured a Top Fill System for Solaris Operating at a substantial loss and began working on a second system.

67. Masaba suffered a significant economic loss in manufacturing this Top Fill System, which Masaba incurred based on the understanding that Solaris would purchase at least 10 additional Top Fill Systems. These additional sales would have carried with them lower development costs and increased profit, and thus would have allowed Masaba to recoup the loss from the initial Top Fill System.

68. Masaba conferred upon Solaris Operating the Top Fill System.

69. Solaris Operating and Solaris Personnel were aware that Solaris Operating received a benefit in the form of acquiring the Top Fill System at a substantial discount.

70. Instead of purchasing additional Top Fill Systems as represented—and as would have been necessary to adequately compensate Masaba for the Top Fill System already provided to Solaris Operating—Solaris Operating decided to manufacture for itself multiple Infringing Systems that are substantially identical to the Top Fill System.

71. By retaining the Top Fill System without providing adequate compensation for it, Solaris Operating has been unjustly enriched at Masaba's expense.

72. Under the facts of this case, it would be inequitable for Solaris Operating to retain Masaba's Top Fill System without paying for the full benefit of such system.

73. As a result, Masaba is entitled to recover damages from Solaris Operating in an amount to be proven at trial that reflects the value of the benefit unjustly received by Solaris Operating from Masaba.

COUNT 3: PROMISSORY ESTOPPEL

74. Masaba incorporates the allegations in the preceding paragraphs as if fully set forth herein.

75. Solaris Operating, through employees of Solaris Personnel, represented to and promised Anchor and Masaba that if Masaba designed and engineered the Top Fill System, Solaris would purchase at least 10 Top Fill Systems and as many as 40 to 50 systems.

76. In substantial detrimental, justifiable, and reasonable reliance on these repeated representations and promises by Solaris, Masaba designed and engineered the Top Fill System and manufactured one Top Fill System for Solaris Operating at a significant economic loss.

77. Masaba's substantial economic loss was foreseeable to and known by Solaris.

78. As a result, Masaba is entitled to recover damages from Solaris Operating in an amount to be proven at trial that reflects the value of the design and engineering work performed by Masaba in developing the Top Fill System, the lost profits Masaba suffered as a consequence of Solaris's breach of its promises, and any other related damages.

PRAYER FOR RELIEF

Masaba respectfully prays that the Court enter judgment in its favor and award the following relief against Solaris:

a. A judgment that Solaris Operating and Solaris Personnel have infringed one or more claims of the '689 Patent and that such infringement was willful;

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b. An award of damages against Solaris Operating and Solaris Personnel for patent infringement under 35 U.S.C. § 284;

c. A judgment for a trebling of Masaba's damages particularly recovered under 35 U.S.C. § 284 and/or exemplary damages because of Solaris's willful, culpable, and egregious conduct;

d. A declaration that this case is an exceptional case and an award of Masaba's reasonable attorneys' fees and other expenses in this litigation under 35 U.S.C. § 285;

e. A preliminary and permanent injunction enjoining Solaris Operating, Solaris Personnel, and all of their affiliates from further infringing the '689 Patent under 35 U.S.C. § 283;

f. An award of damages on Masaba's state-law equitable claims;

g. An award of prejudgment and post-judgment interest on Masaba's damages;

h. An award of costs; and

i. An award of any such other and further relief as the Court deems proper.

DEMAND FOR JURY TRIAL

Masaba demands a jury trial on all issues so triable.

Dated this 14th day of June, 2024.

Masaba Exhibit 2037 -16
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PLAINTIFF MASABA, INC.

/s/ Thomas W. Rumpke
Thomas W. Rumpke, Bar No. 6-2974
Stephenson D. Emery, WSB #5-2321
Williams, Porter, Day & Neville, P.C.
702 Randall Avenue
Mailing: P.O. Box 748
Cheyenne, Wyoming 82003
(307) 637-5575 Telephone
(307) 637-5515 Facsimile
trumpke@wpdn.net
semery@wpdn.net

/s/ Tim R. Shattuck, PHV
Tim R. Shattuck, *PHV*
Sander J. Morehead, *PHV*
Woods, Fuller, Shultz & Smith P.C.
300 South Phillips Avenue, Suite 300,
Sioux Falls, SD 57104
(605) 336-3890
(605) 339-3357 Facsimile
tim.shattuck@woodsfuller.com
sander.morehead@woodsfuller.com

Attorneys for Masaba, Inc.

CERTIFICATE OF SERVICE

I do hereby certify that on this 14th day of June, 2024, a true and correct copy of the foregoing Amended Complaint and Jury Demand was served as indicated below:

Isaac N. Sutphin, P.C. (Wyo. State Bar # 6-3711)
Kasey J. Schlueter (Wyo. State Bar # 8-6521)
HOLLAND & HART LLP
2020 Carey Avenue, Suite 800
P.O. Box 1347
Cheyenne, WY 82003-1347
Telephone: 307.778.4200
Facsimile: 307.778.8175
INSutphin~hol1andhart.com
KJSchlueter@hollandhart.com

[✓] CM/ECF

Paul R. Morico, PHV
Elizabeth D. Flannery, PHV
Baker Botts LLP
910 Louisiana
Houston, TX 77002
Telephone: (713) 229-1234
paul.morico@bakerbotts.com
liz.flannery@bakerbotts.com

[✓] CM/ECF

/s/ Thomas W. Rumpke
Williams, Porter, Day & Neville, P.C.

4868-3919-0982, v. 5

US011780689B1

(12) **United States Patent**
Brenden et al.

(10) **Patent No.: US 11,780,689 B1**
(45) **Date of Patent: *Oct. 10, 2023**

(54) **AGGREGATE TRANSFERRING SYSTEM**

(71) Applicants: **Jason Brenden**, Elk Point, SD (US); **Tyler Dewitt**, Vermillion, SD (US)

(72) Inventors: **Jason Brenden**, Elk Point, SD (US); **Tyler Dewitt**, Vermillion, SD (US)

(73) Assignee: **Masaba, Inc.**, Vermillion, SD (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **17/988,854**

(22) Filed: **Nov. 17, 2022**

Related U.S. Application Data

(63) Continuation of application No. 17/550,073, filed on Dec. 14, 2021.

(60) Provisional application No. 63/223,124, filed on Jul. 19, 2021.

(51) **Int. Cl.**
B65G 67/08 (2006.01)

(52) **U.S. Cl.**
CPC ***B65G 67/08*** (2013.01); *B65G 2201/042* (2013.01)

(58) **Field of Classification Search**
CPC B65G 2201/042; B65G 67/08
See application file for complete search history.

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(Continued)

Primary Examiner — Saul Rodriguez
Assistant Examiner — Willie W Berry, Jr.
(74) *Attorney, Agent, or Firm* — Jeffrey A. Proehl; Woods, Fuller, Shultz & Smith, PC

(57) **ABSTRACT**

An aggregate transferring apparatus for elevating aggregate may include a base assembly with a base frame, an unloader structure on the base frame, and a base conveyor on the base frame positioned to receive aggregate from a vehicle positioned on the unloader structure. The apparatus may also include an aggregate elevating assembly with a deployable frame mounted on the base frame and being movable between storage and deploy positions, and an elevating conveyor for receiving aggregate from the base conveyor and conveying the aggregate upwardly on the deployable frame. The apparatus may further include a conveyor extension assembly for conveying aggregate horizontally outward from the elevating assembly. The extension assembly may include an extension conveyor movable between lowered and raised positions and being articulated with an inboard and outboard segments.

25 Claims, 20 Drawing Sheets

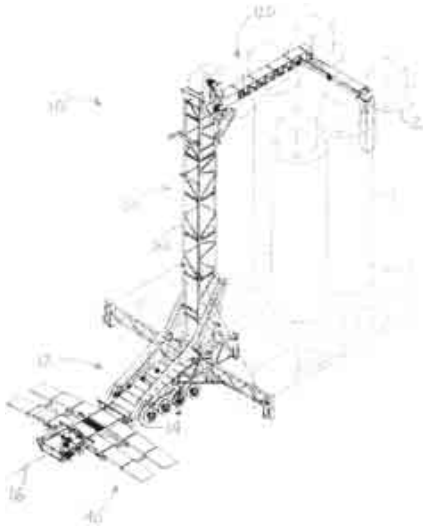


EXHIBIT 1

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EXHIBIT 1

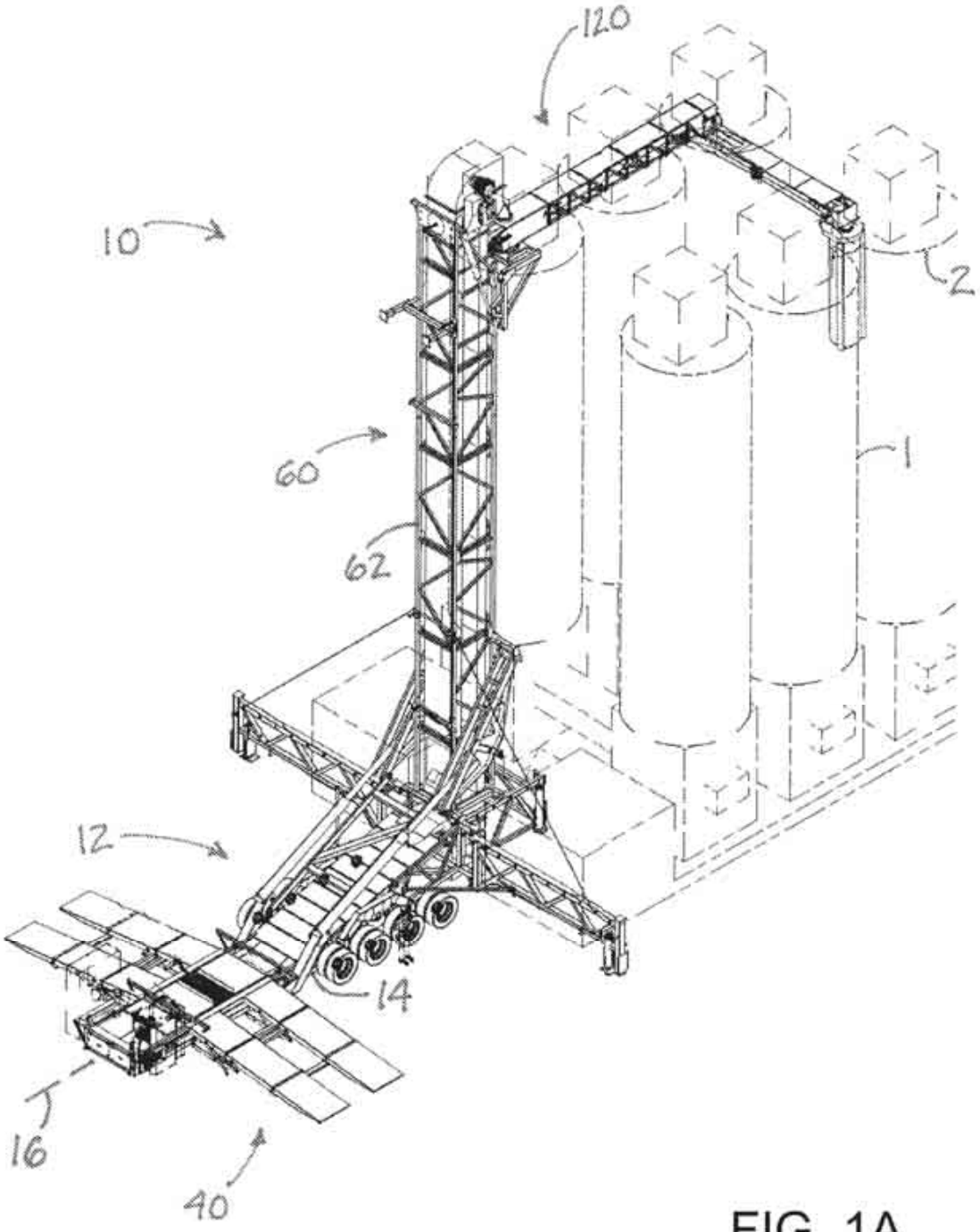


FIG. 1A

EXHIBIT 1

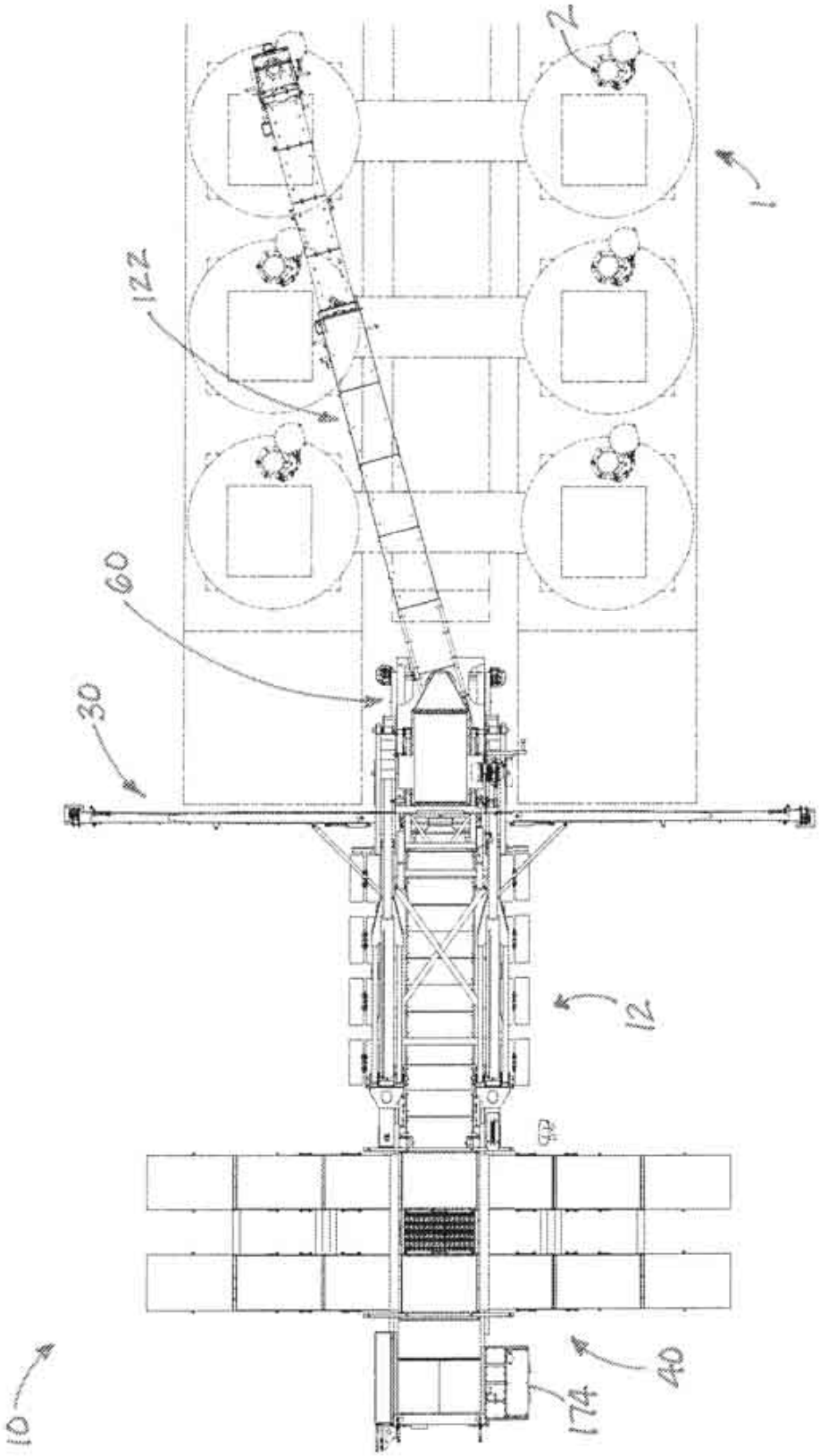


FIG. 1B

EXHIBIT 1

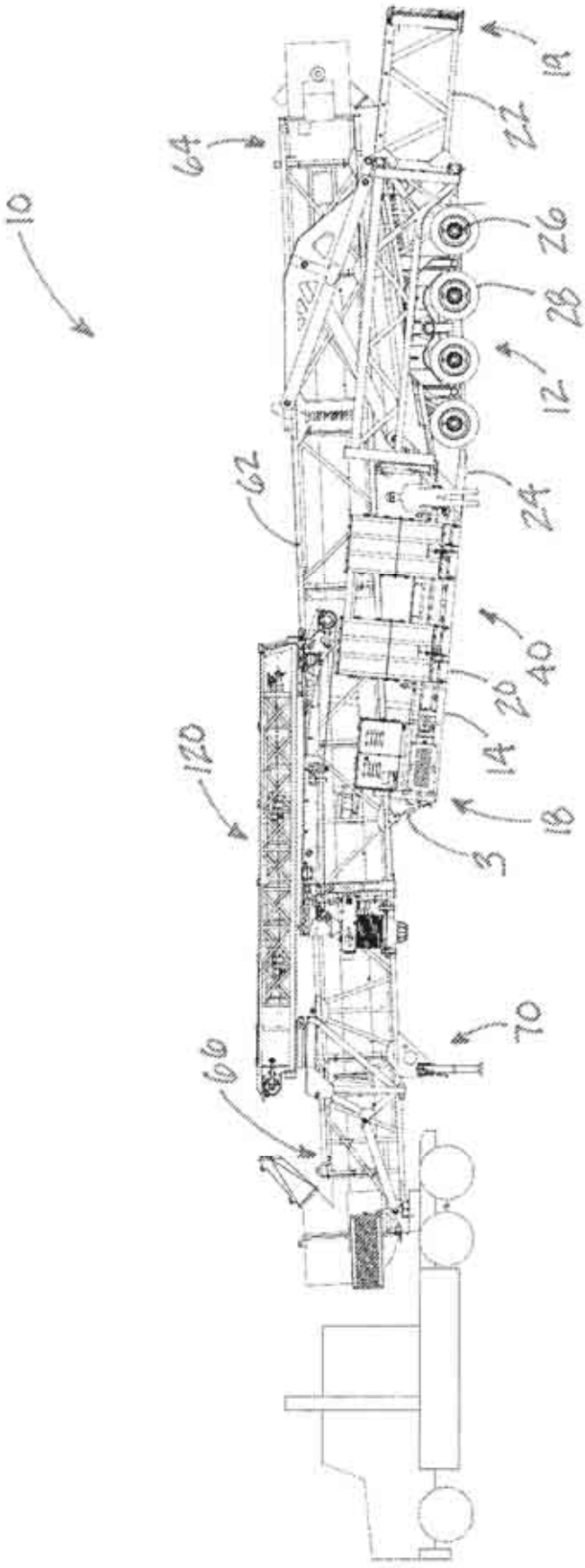


FIG. 2A

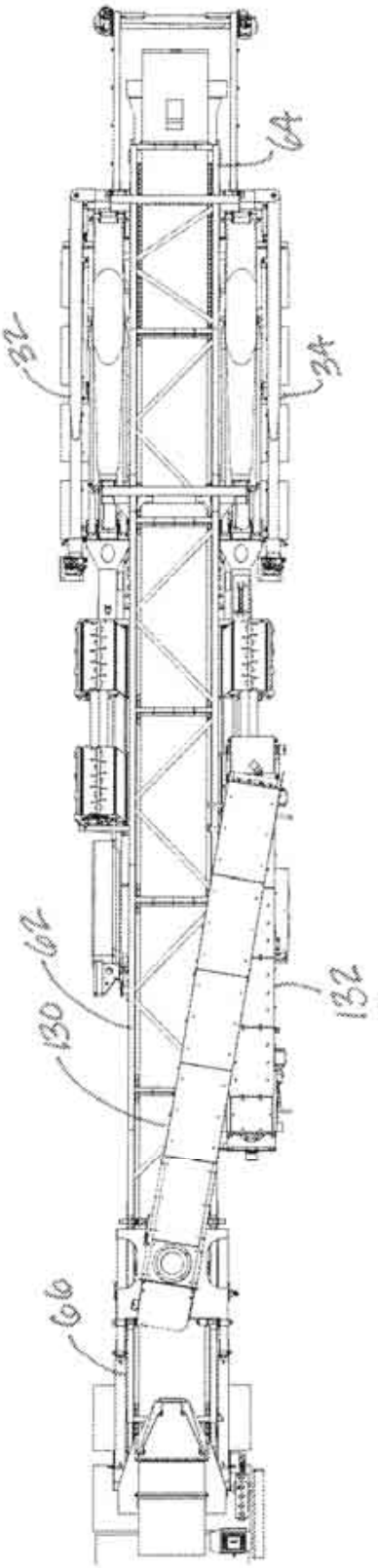


FIG. 2B

EXHIBIT 1

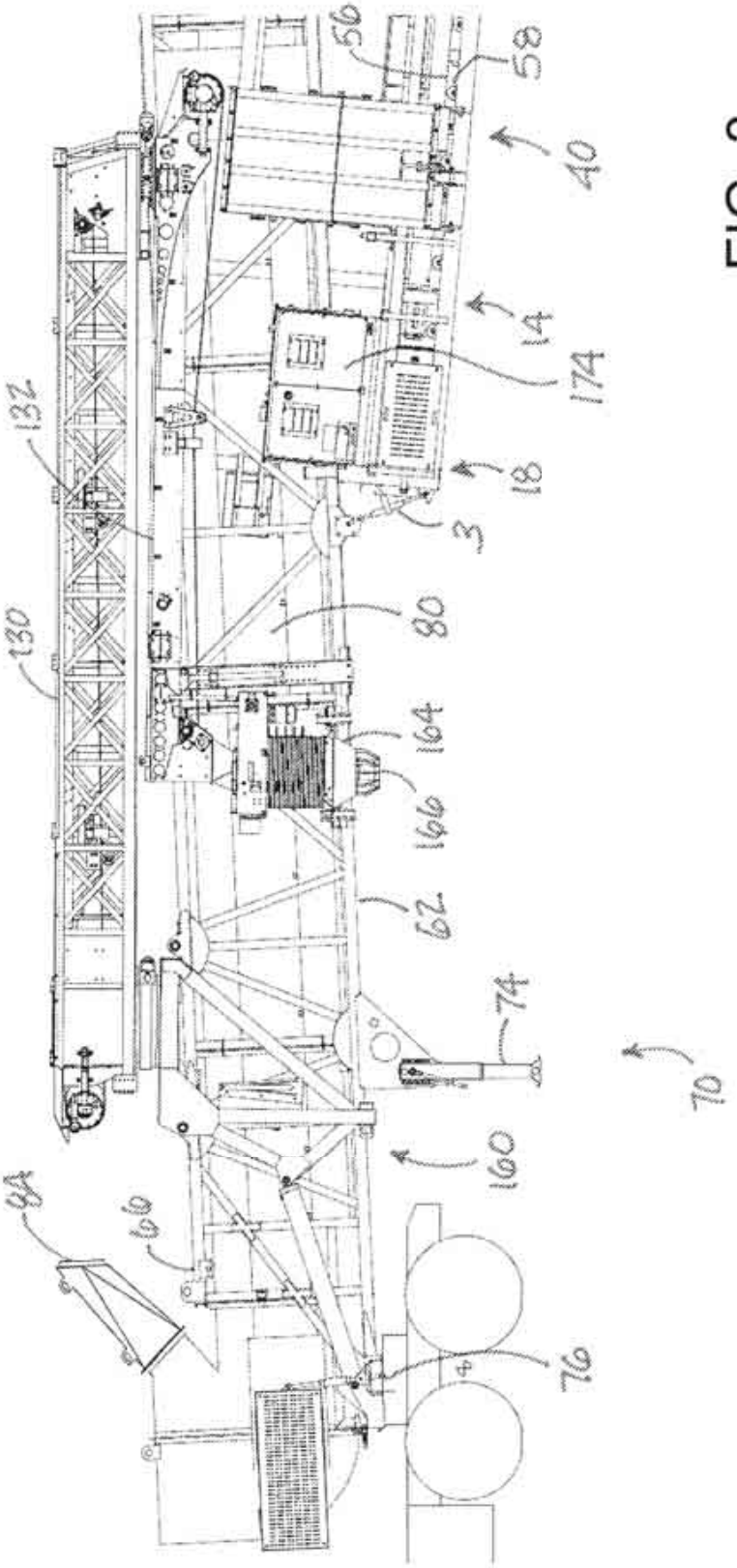


FIG. 3

EXHIBIT 1

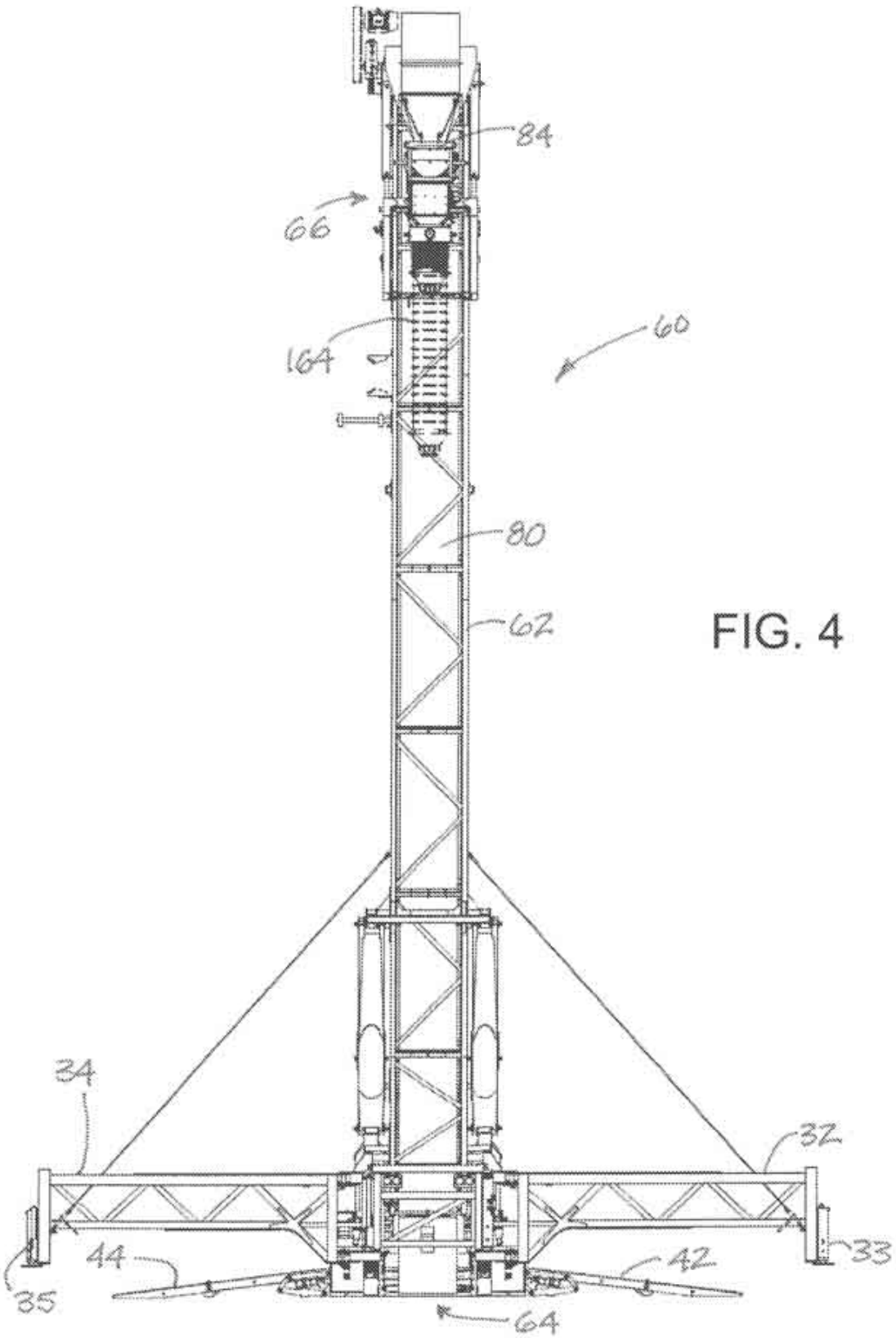


FIG. 4

EXHIBIT 1

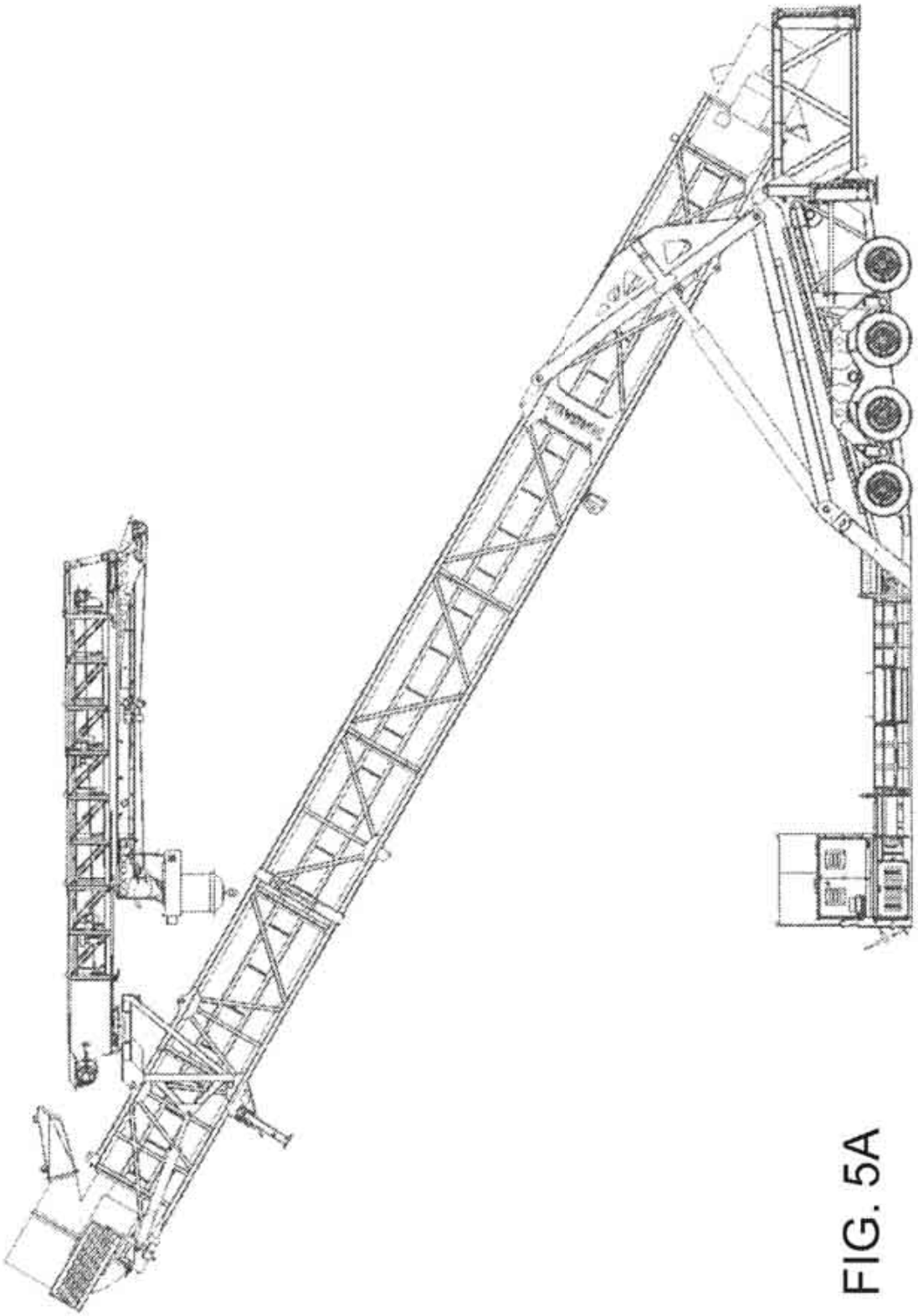


FIG. 5A

EXHIBIT 1

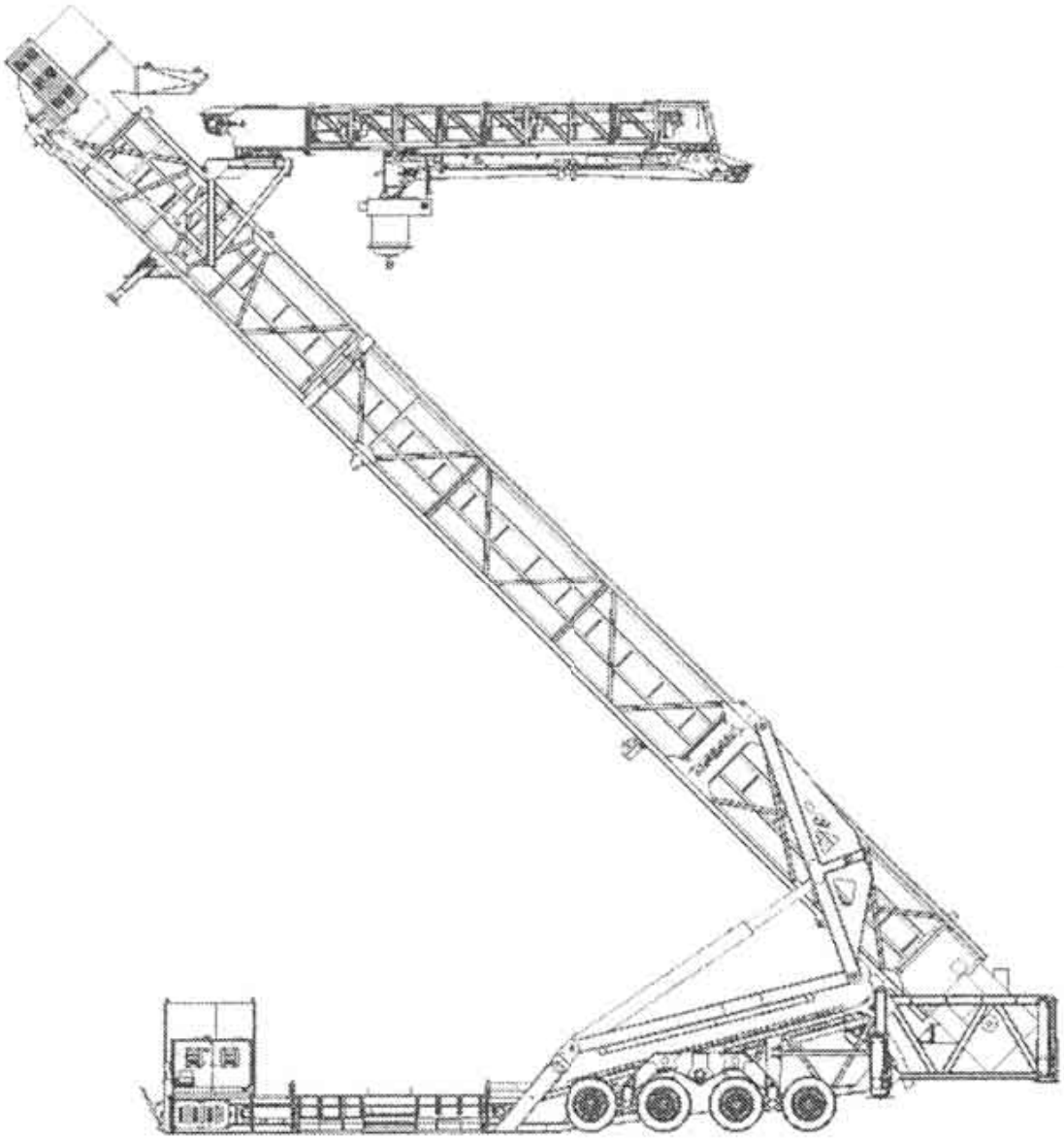


FIG. 5B

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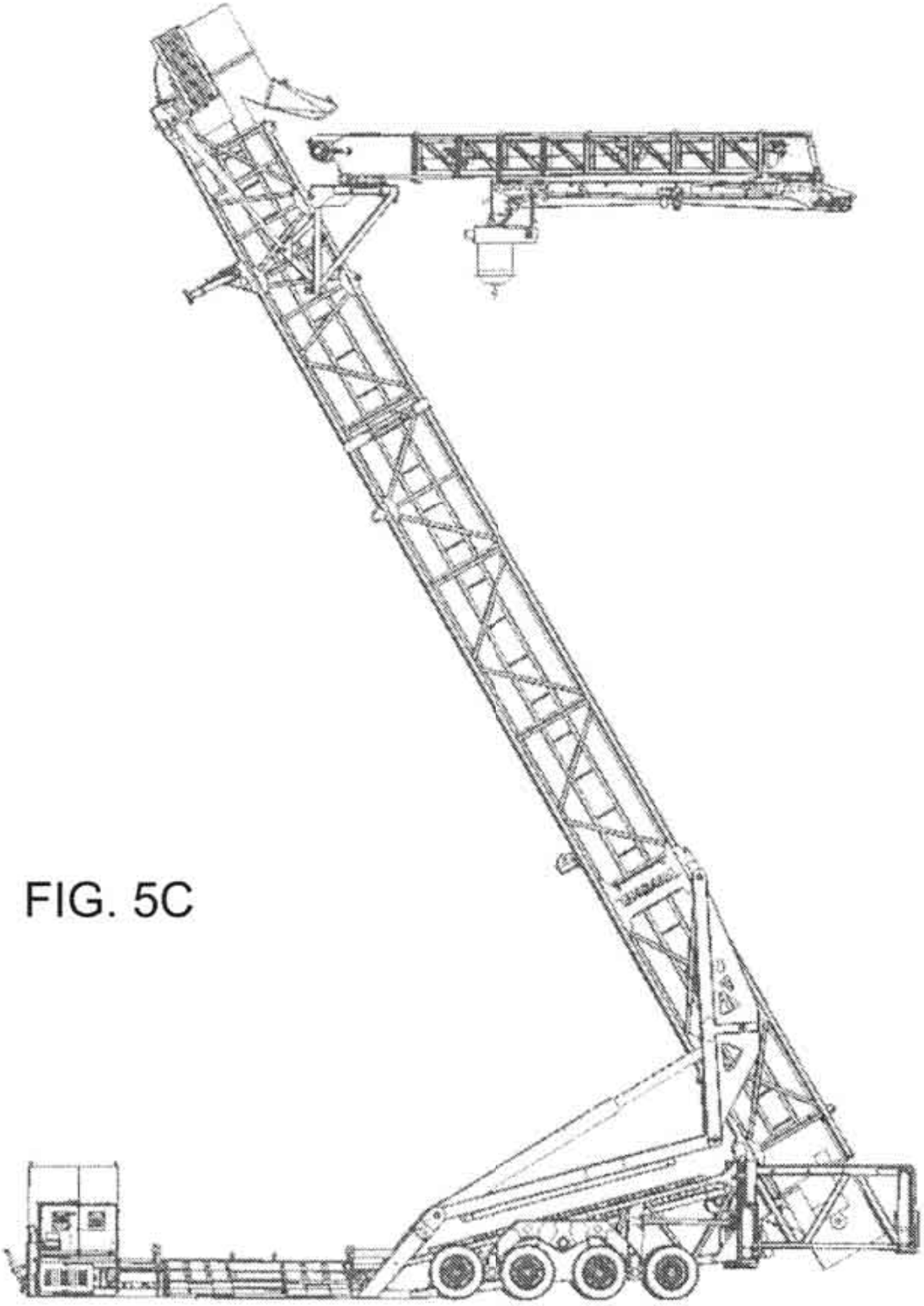


FIG. 5C

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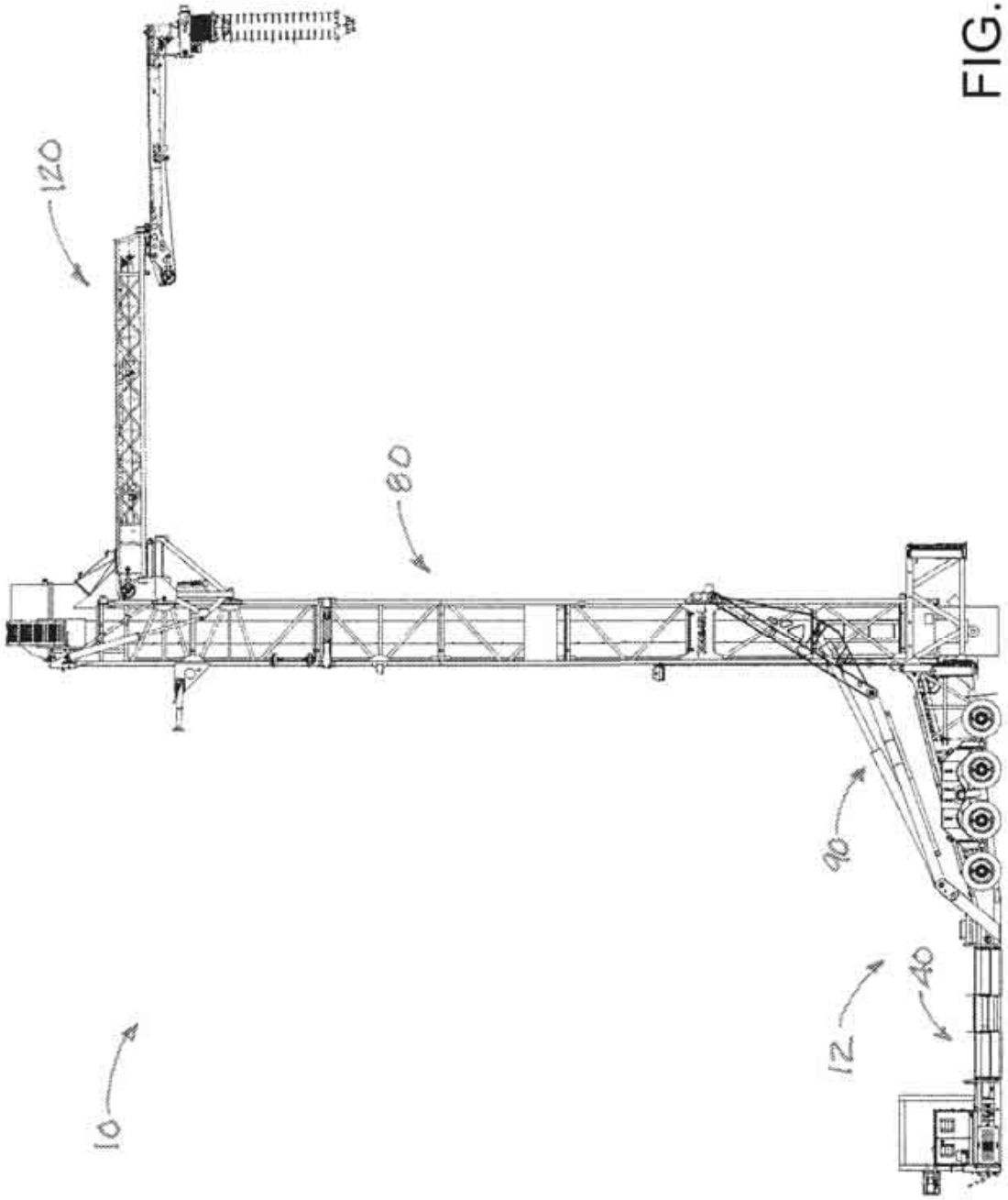


FIG. 5D

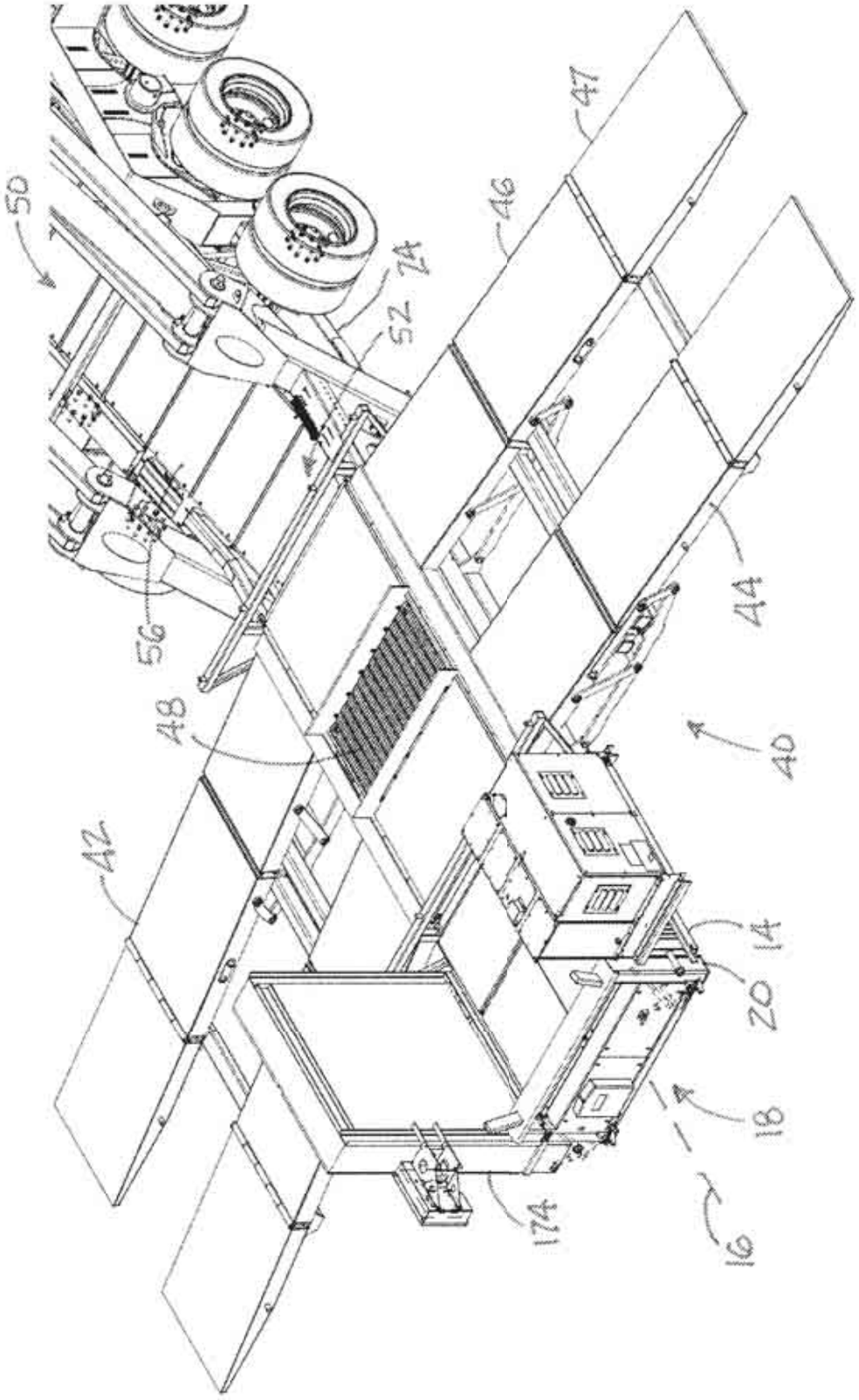


FIG. 6

EXHIBIT 1

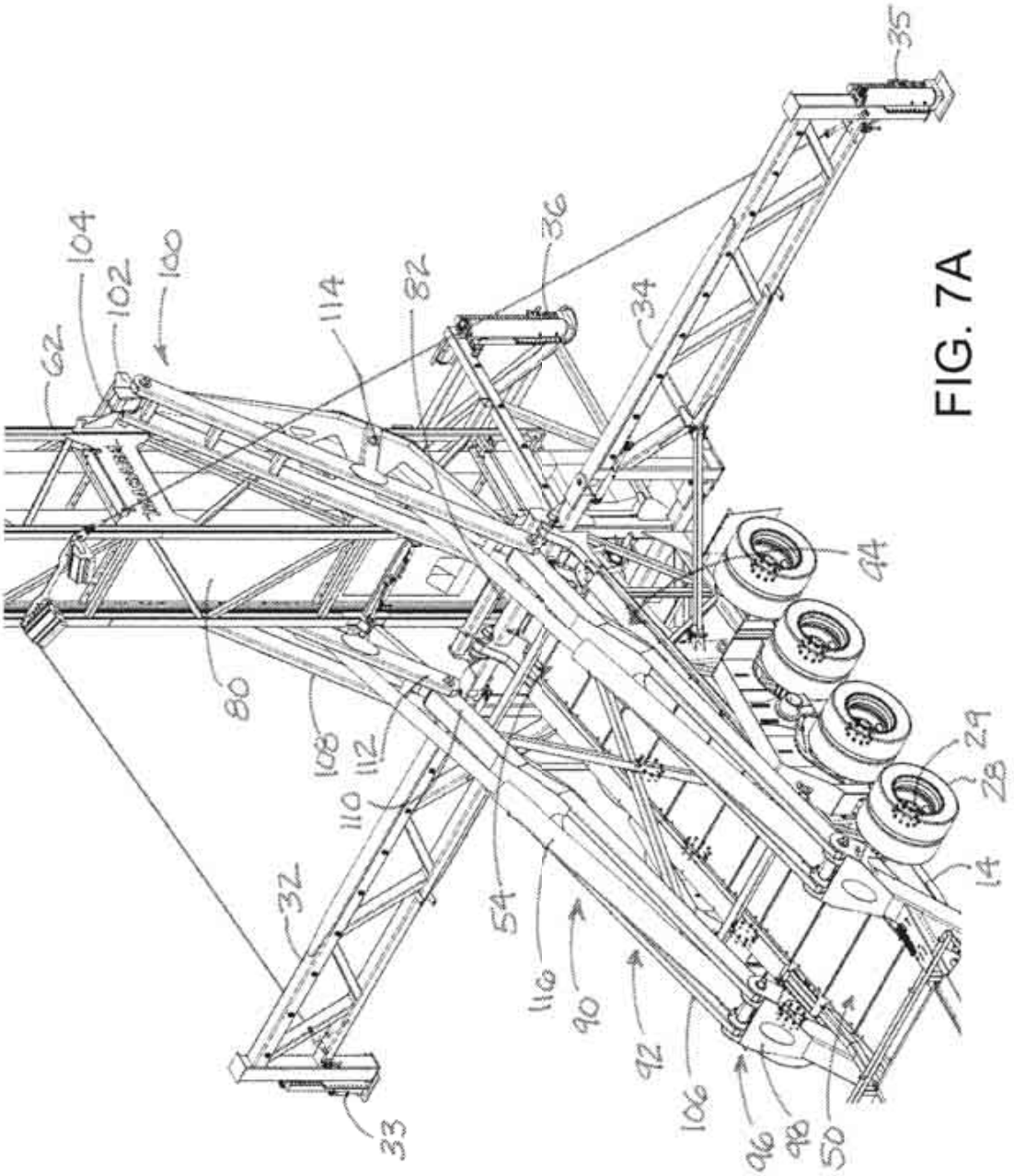


FIG. 7A

EXHIBIT 1

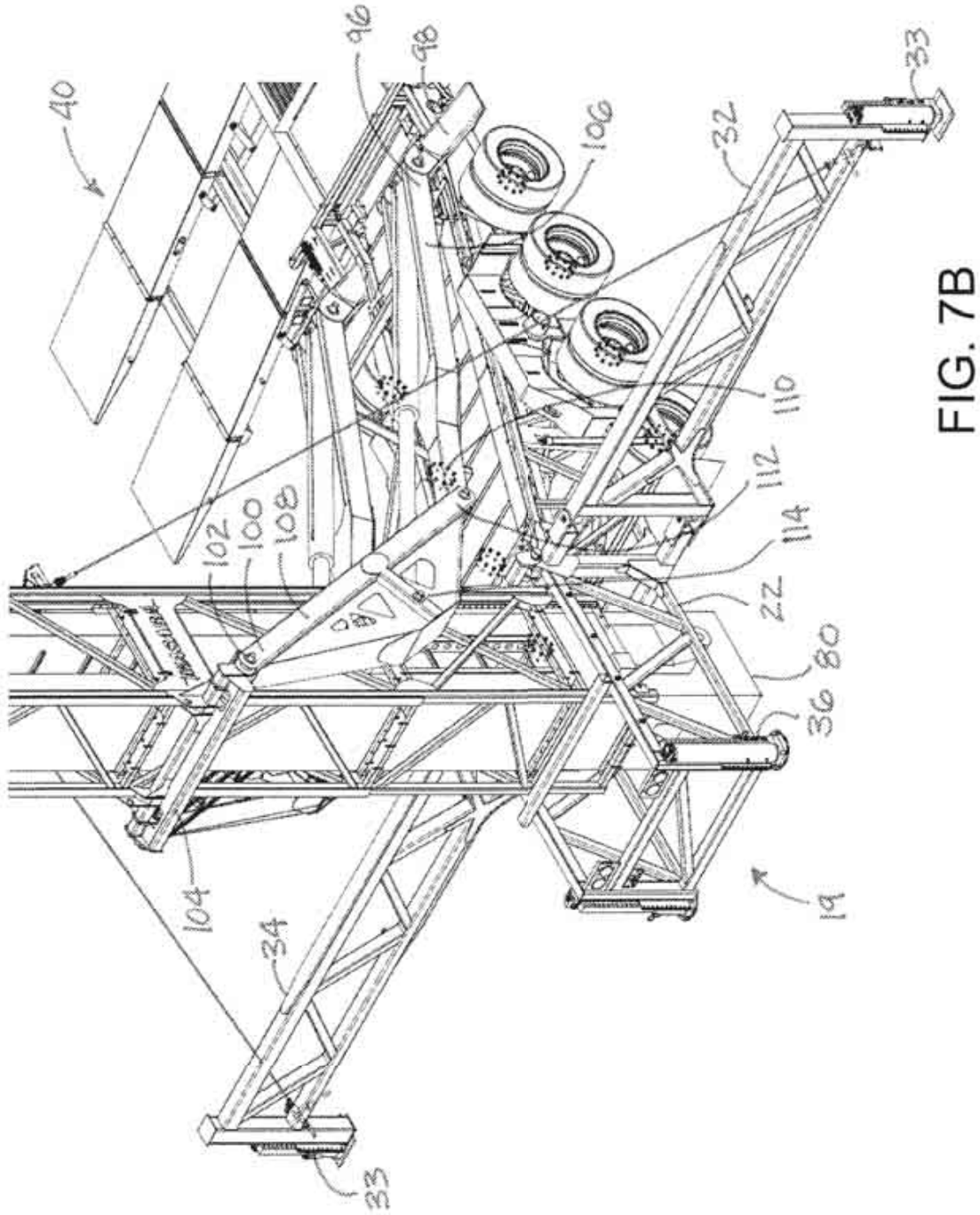


FIG. 7B

EXHIBIT 1

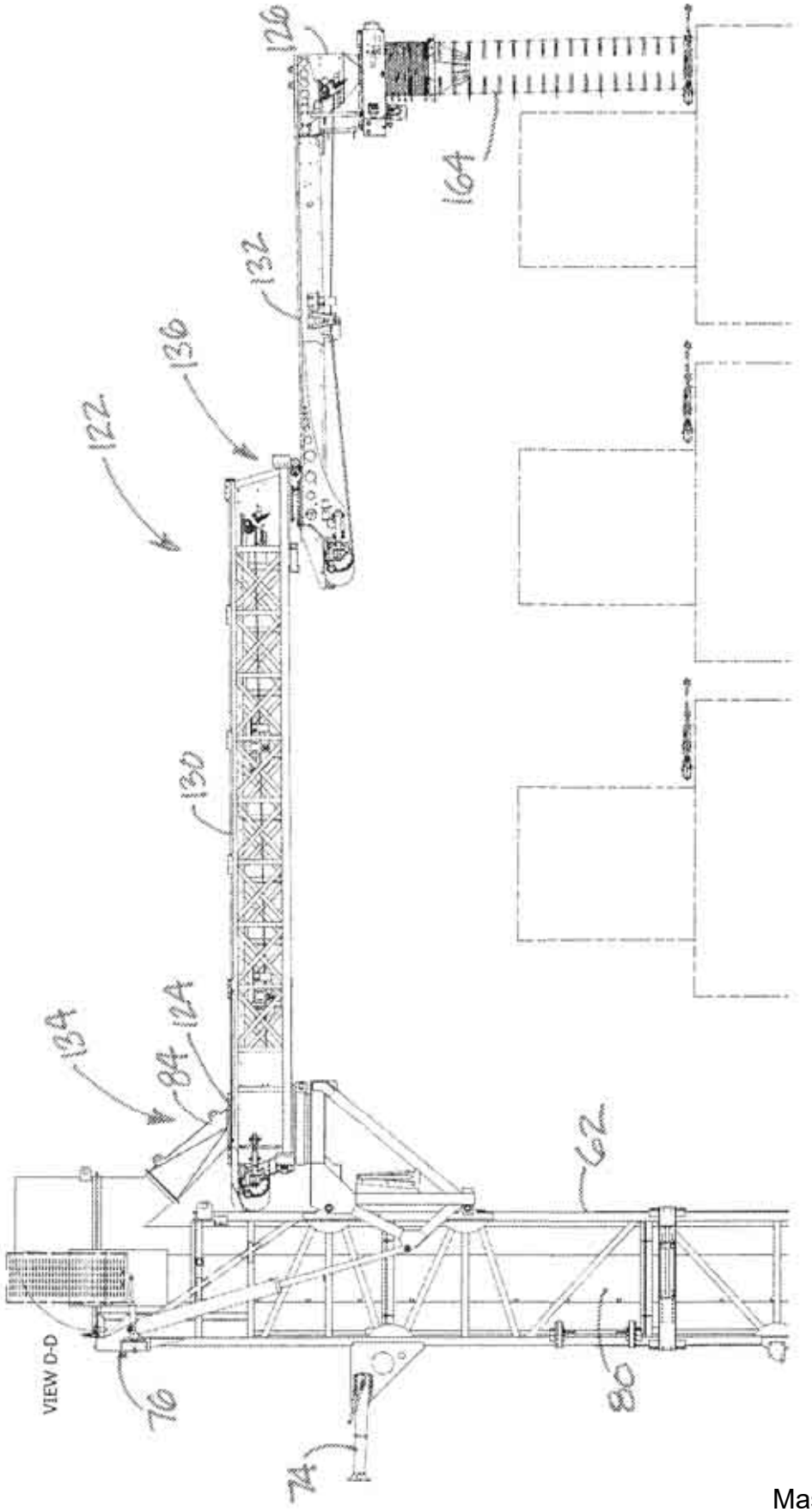


FIG. 8A

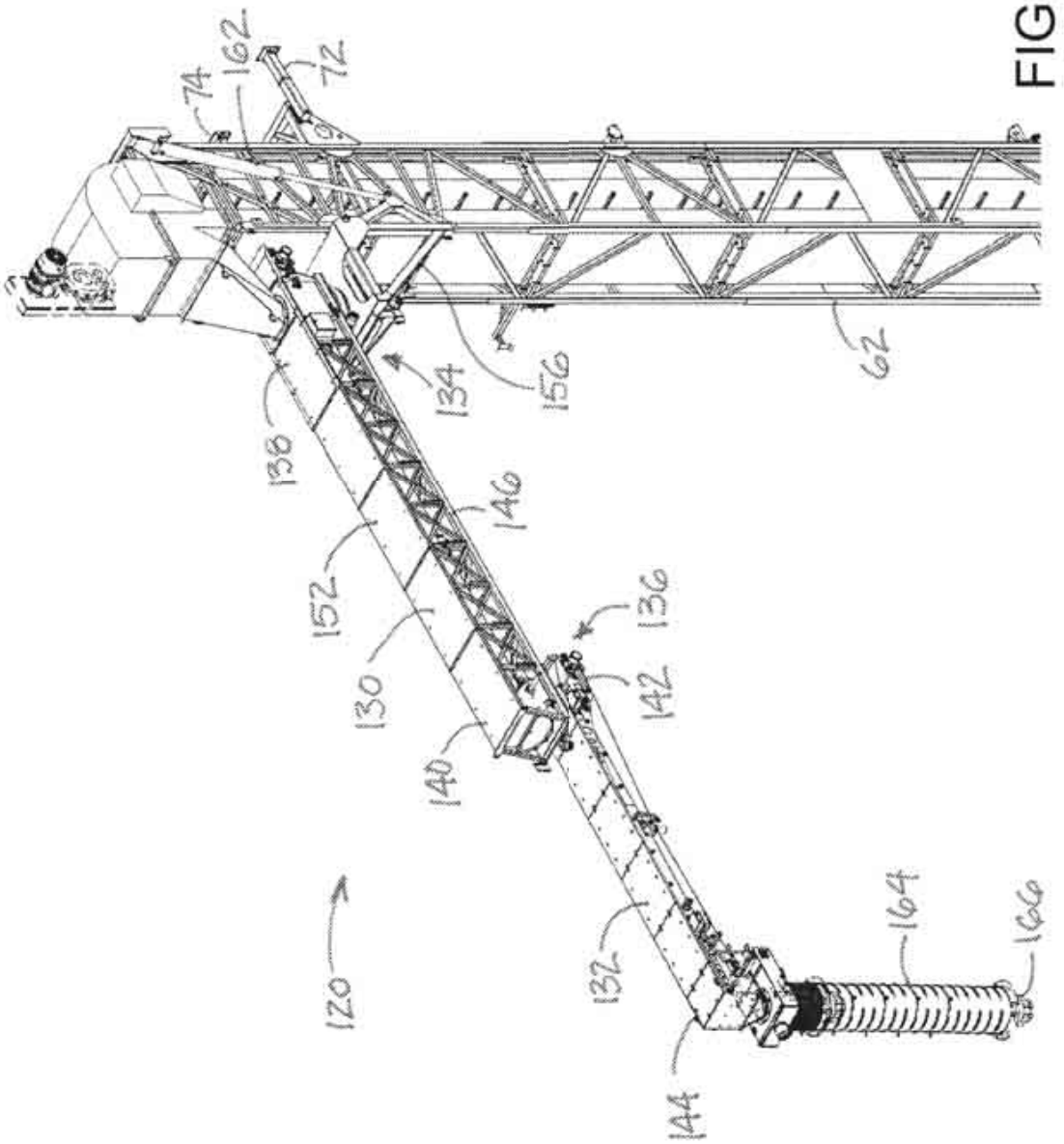


FIG. 8B

EXHIBIT 1

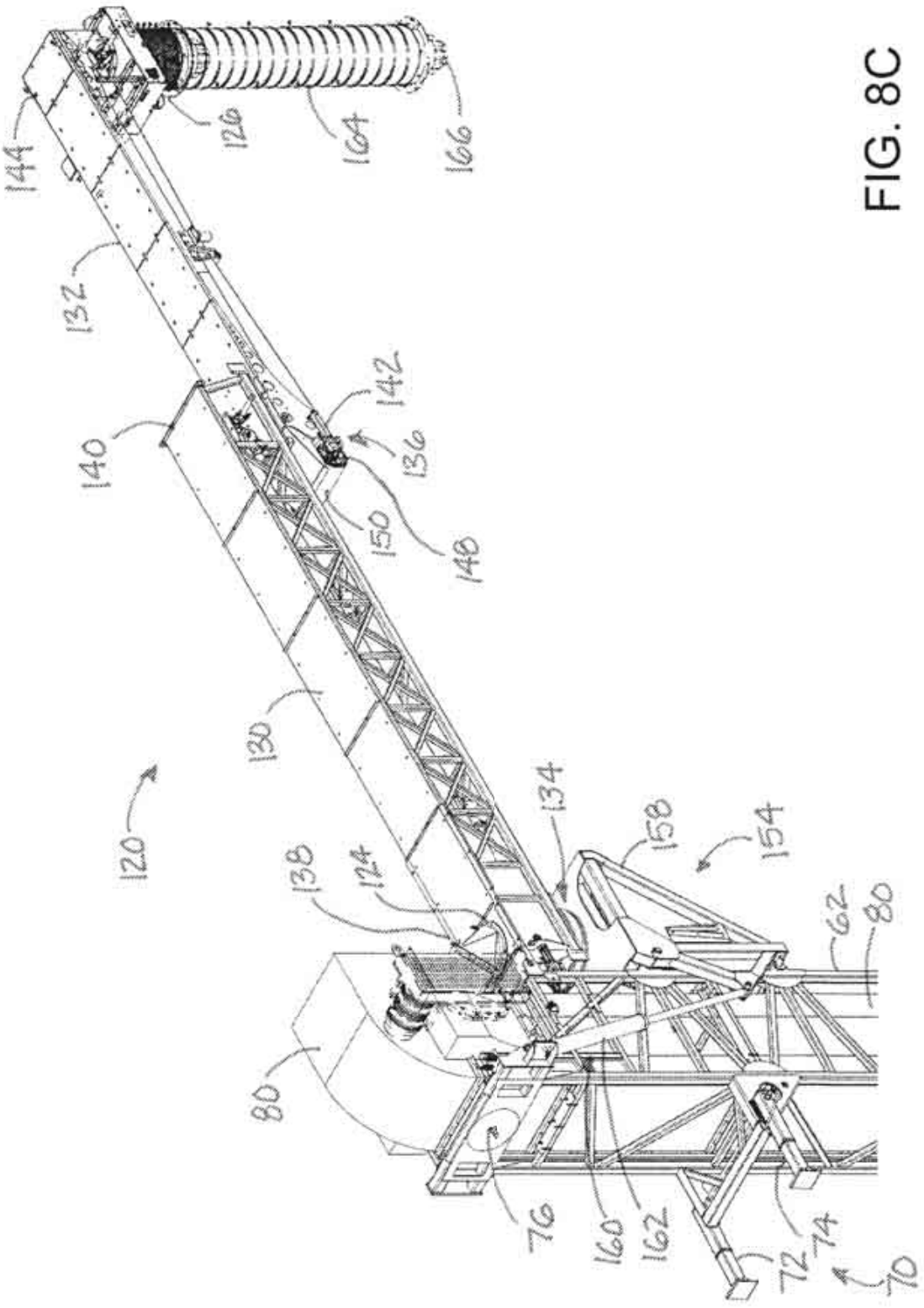


FIG. 8C

EXHIBIT 1

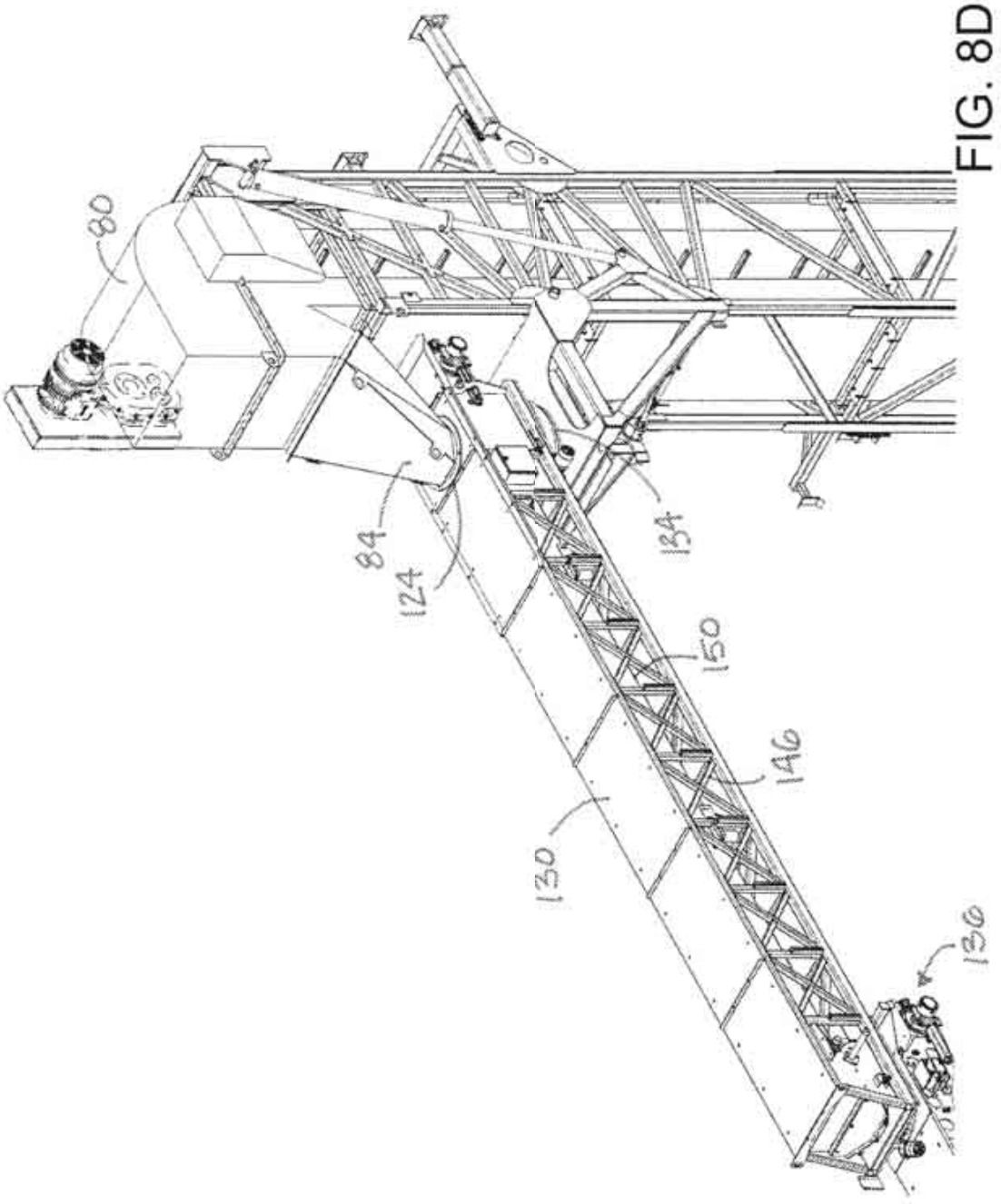


FIG. 8D

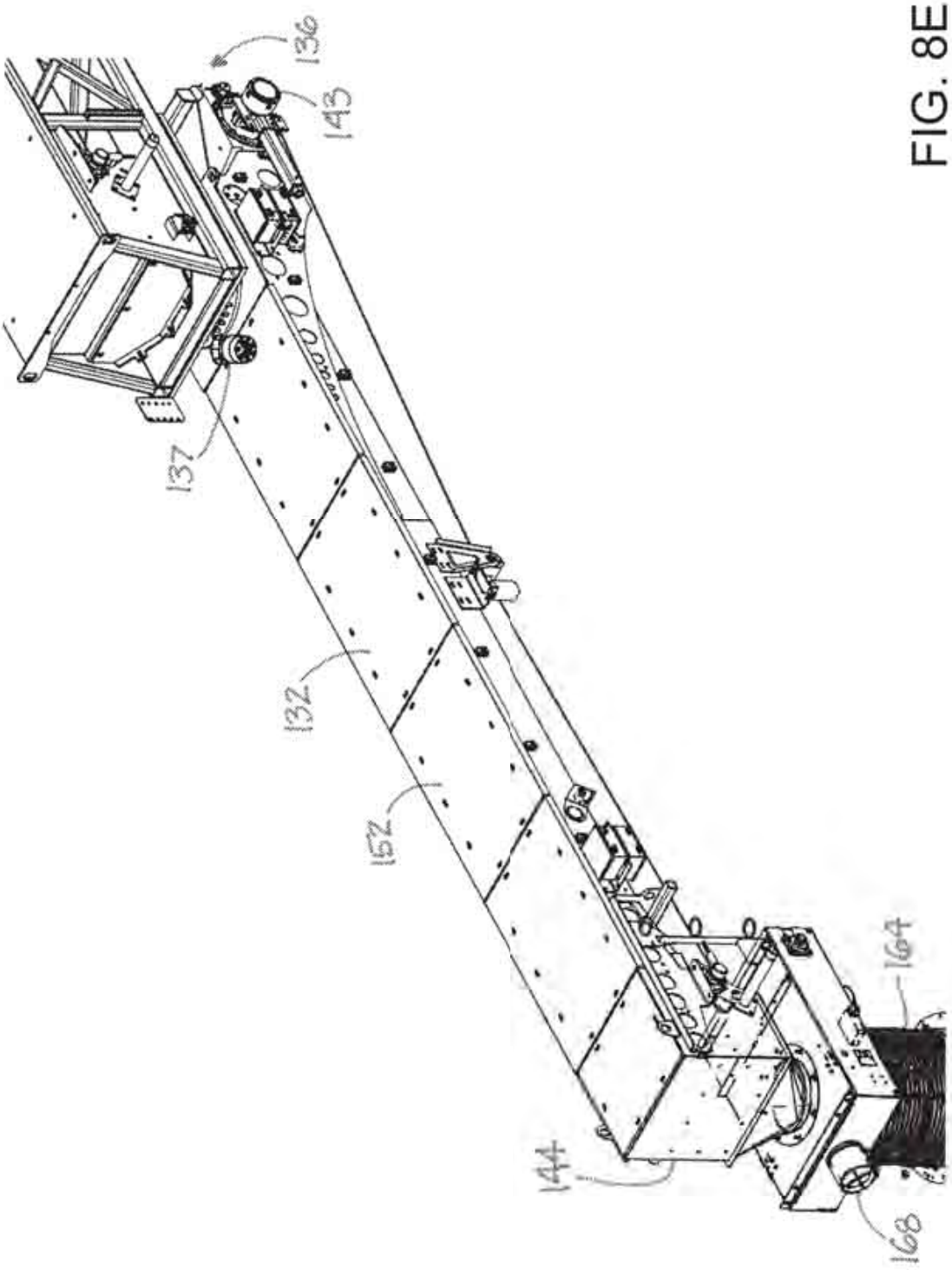


FIG. 8E

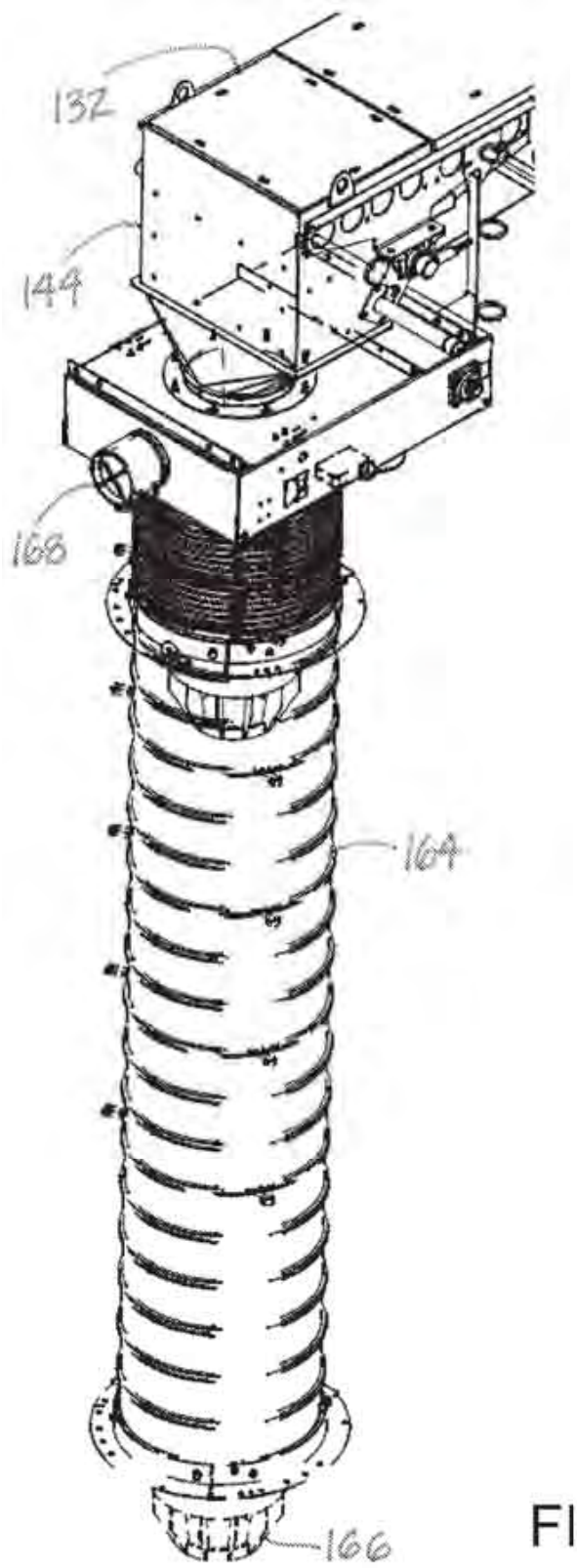


FIG. 8F

EXHIBIT 1

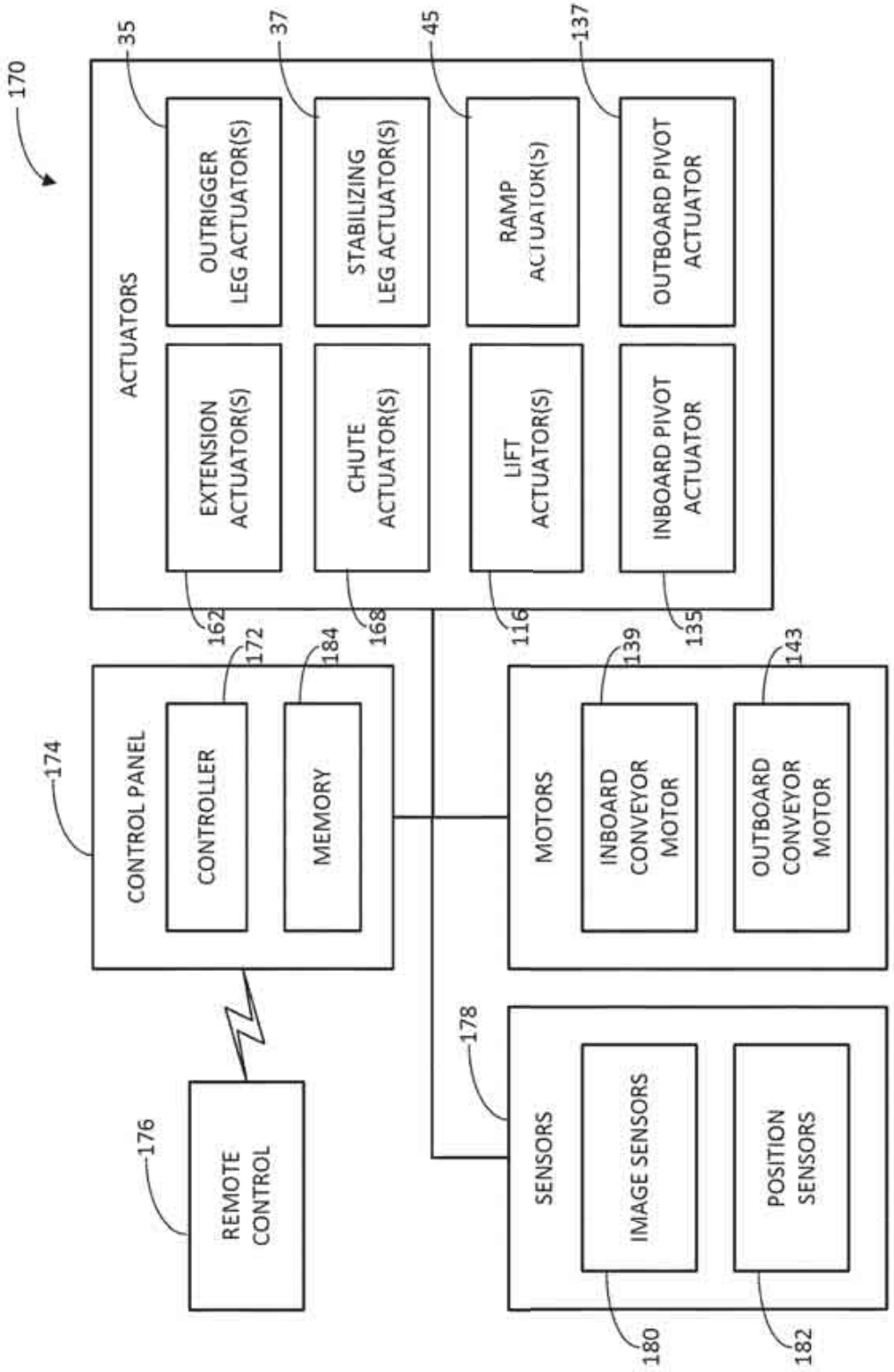


FIG. 9

EXHIBIT 1

AGGREGATE TRANSFERRING SYSTEM

REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of the priority of U.S. Provisional Patent Application No. 63/223,124, filed Jul. 19, 2021, which is hereby incorporated by reference in its entirety.

BACKGROUND

Field

The present disclosure relates to material handling apparatus and more particularly pertains to a new aggregate transferring system for receiving aggregate from a vehicle and elevating the aggregate to a higher vertical level for deposit into, for example, a silo.

SUMMARY

The present disclosure relates to an aggregate transferring apparatus for elevating and transferring aggregate. The apparatus may comprise a base assembly for receiving aggregate to be conveyed by the transferring apparatus. The base assembly may include a base frame being elongated along a longitudinal axis and having a leading end and a trailing end, an unloader structure mounted on the base frame to receive aggregate from a vehicle at least partially positioned over the base frame, and a base conveyor mounted on the base frame and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame. A portion of the base conveyor may be positioned adjacent to the unloader structure to receive aggregate from the vehicle positioned over the base frame. The aggregate transferring apparatus may further comprise an aggregate elevating assembly for elevating aggregate from the base assembly. The aggregate elevating assembly may include a deployable frame mounted on the base frame and being movable between a storage position and a deploy position, with the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus. Further, the deployable frame may be elongated with a base end and a free end. The aggregate elevating assembly may further include an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward the free end of the deployable frame. The aggregate transferring apparatus may also comprise a conveyor extension assembly for conveying aggregate to locations horizontally outward from the aggregate elevating assembly. The conveyor extension assembly may include an extension conveyor for moving aggregate from an inlet of the extension conveyor to an outlet of the extension conveyor at a location outward from the aggregate elevating assembly. The extension conveyor may be movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus. The lowered position may be characterized by the extension conveyor being positioned adjacent to the deployable frame of the aggregate elevating assembly, and the raised position may be characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly. The extension conveyor may be articulated between the inlet and outlet with an inboard segment and an outboard segment. The inboard segment may be pivotally connected to the deployable frame of the aggregate elevating assembly by an inboard pivot, and the outboard segment may be pivotally connected to the inboard segment by an outboard pivot.

There has thus been outlined, rather broadly, some of the more important elements of the disclosure in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional elements of the disclosure that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment or implementation in greater detail, it is to be understood that the scope of the disclosure is not limited in its application to the details of construction and to the arrangements of the components, and the particulars of the steps, set forth in the following description or illustrated in the drawings. The disclosure is capable of other embodiments and implementations and is thus capable of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present disclosure. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present disclosure.

The advantages of the various embodiments of the present disclosure, along with the various features of novelty that characterize the disclosure, are disclosed in the following descriptive matter and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The disclosure will be better understood and when consideration is given to the drawings and the detailed description which follows. Such description makes reference to the annexed drawings wherein:

FIG. **1**A is a schematic perspective view of a new aggregate transferring system according to the present disclosure shown with respect to silos depicted in broken lines.

FIG. **1**B is a schematic top view of a new aggregate transferring system according to the present disclosure shown with respect to silos depicted in broken lines.

FIG. **2**A is a schematic side view of the aggregate transfer apparatus shown in a transport or travel configuration and attached to a towing vehicle, according to an illustrative embodiment.

FIG. **2**B is a schematic top view of the aggregate transfer apparatus in the travel configuration, according to an illustrative embodiment.

FIG. **3** is a schematic side view of a forward portion of the aggregate transfer apparatus in the travel configuration, according to an illustrative embodiment.

FIG. **4** is a schematic rear end view of the aggregate transfer apparatus in an operational configuration, according to an illustrative embodiment.

FIG. **5**A is a schematic side view of the aggregate transfer apparatus raised out of the transport configuration into a first position, according to an illustrative embodiment.

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FIG. **5**B is a schematic side view of the aggregate transfer apparatus raised out of the transport configuration into a second position, according to an illustrative embodiment.

FIG. **5**C is a schematic side view of the aggregate transfer apparatus raised out of the transport configuration in a fourth position, according to an illustrative embodiment.

FIG. **5**D is a schematic side view of the aggregate transfer apparatus in an operational configuration, according to an illustrative embodiment.

FIG. **6** is a schematic perspective view of a forward portion of the aggregate transfer apparatus in the operational configuration including the unloader structure of the base assembly shown in an operational condition, according to an illustrative embodiment.

FIG. **7**A is a schematic perspective view of a rearward portion of the aggregate transfer apparatus in the operational configuration including the aggregate elevating assembly, according to an illustrative embodiment.

FIG. **7**B is a schematic second perspective view of the rearward portion of the aggregate transfer apparatus shown in FIG. **7**A, according to an illustrative embodiment.

FIG. **8**A is a schematic side view of an upper portion of the aggregate transfer apparatus in the operational configuration with the extension conveyor shown in the raised position, according to an illustrative embodiment.

FIG. **8**B is a schematic perspective view of the upper portion of the aggregate transfer apparatus in the operational configuration with the extension conveyor shown in the raised position, according to an illustrative embodiment.

FIG. **8**C is a schematic second perspective view of the upper portion of the aggregate transfer apparatus in the operational configuration with the extension conveyor shown in the raised position, according to an illustrative embodiment.

FIG. **8**D is a schematic perspective view of the inboard segment of the extension conveyor of the aggregate transfer apparatus, according to an illustrative embodiment.

FIG. **8**E is a schematic perspective view of the outboard segment of the extension conveyor of the aggregate transfer apparatus, according to an illustrative embodiment.

FIG. **8**F is a schematic perspective view of the chute of the extension conveyor of the aggregate transfer apparatus, according to an illustrative embodiment.

FIG. **9** is a schematic block diagram of elements of control-related elements of the aggregate transfer apparatus, according to an illustrative embodiment.

DETAILED DESCRIPTION

With reference now to the drawings, and in particular to FIGS. **1** through **9** thereof, a new aggregate transferring system embodying the principles and concepts of the disclosed subject matter will be described.

The applicants have recognized that an apparatus for transferring aggregate, such as from a vehicle to a storage silo, would be particularly advantageous if the apparatus had the capability to deploy itself at the location of transfer without the need for any significant assistance from other apparatus, such as cranes or telescopic handlers (e.g., "telehandlers"). The ability of the apparatus to "self deploy" can minimize the complexity of the deployment operation by eliminating any need to provide the additional apparatus at a work site, likely reducing the number of personnel involved in the deployment operation, as well as eliminating the need to coordinate the movements of the additional apparatus with respect to the aggregate transferring apparatus (as well as the dangers inherent with such coordination). Moreover, the applicants have also recognized the advantages provided by an aggregate transfer apparatus which is highly integrated such that all of the major components of the apparatus are able to be transported as a unit between locations without elements being hauled by separate transport.

In one aspect, the disclosure relates to an aggregate transferring apparatus **10** for transferring aggregate, as will be illustratively described. The apparatus **10** is suitable for performing the transfer of aggregate from one location to another, such as, for example, from a vehicle carrying the aggregate to a silo **1** for storing the aggregate. Illustratively, the aggregate transferring apparatus **10** may be utilized for transferring an aggregate such as sand, and in some implementations the sand may be of the type utilized in the process of hydraulic fracturing in connection with subterranean petroleum drilling. The vehicle may comprise a truck suitable for carrying the aggregate, and dumping or otherwise dispensing the aggregate, such as a bottom dump trailer. The silo may be positioned on the ground surface and may be vertically elongated with a top elevated above the ground surface, and the top have a port **2** which may be open, or openable (and closable), to receive the aggregate into the interior of the silo. In some applications, more than one silo may be grouped together adjacent to each other, such as in a two silo wide by three silo length array.

The aggregate transferring apparatus **10** may have an operational configuration (see, e.g., FIGS. **1**A, **1**B, **4**. **5**D, **7**A, **7**D, and **8**A through **8**F) in which the apparatus is configured to receive the aggregate, and then transport or convey the aggregate to a position elevated above the ground surface so that the aggregate may be dispensed into a silo, such as through the open top of the silo. The aggregate transferring apparatus **10** may also have a transport or travel configuration (see, e.g., FIGS. **2**A, **2**B and **3**) in which the apparatus is suitable to be moved from one location to another, such as by towing the apparatus over roads and highways. In general, in the operational configuration, the apparatus may be relatively extended and expanded, while in the transport configuration the apparatus may be relatively collapsed and compact to facilitate movements on roads.

In greater detail, the aggregate transferring apparatus **10** may include a base assembly **12** for receiving aggregate to be conveyed by the transferring apparatus and forming the portion of the apparatus **10** generally extending along and engaging the ground surface, particularly in the operational configuration. The base assembly **12** may comprise a base frame **14** which may be elongated along a longitudinal axis **16** of the frame **14** and the assembly **12**. The base frame **14** has a leading end **18** and a trailing end **19**, with the leading end being generally oriented toward the normal direction of movement of the apparatus **10** when the apparatus is being moved in the transport configuration. The frame **14** may have a leading portion **20** which includes the leading end **18** as well as the portion of the base frame adjacent to the leading end, a trailing portion **22** which includes the trailing end **19** as well as the portion of the base frame adjacent to the trailing end. The base frame **14** may also include a medial portion **24** which is positioned between the leading **20** and trailing **22** portions.

The base assembly **12** may also include at least one axle **26** which is mounted on the base frame **14**, and a pair of wheels **28** which are mounted on opposite ends of the axle **26**. Typically, to enhance the move ability of the apparatus **10** over highways, the base assembly will include a plurality of axles positioned along the base frame in the longitudinal direction of the base frame. Illustratively, the plurality of

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axles **26** and corresponding wheels **28** are located on the medial portion **24** of the base frame. In some embodiments, the axles are mounted on the base frame **14** utilizing one or more tandem walking beams, although other suspension structures may be utilized.

In some embodiments, the base assembly **12** may include an outrigger structure **30** mounted on the base frame **14** for enhancing the stability of the operational configuration of the apparatus **10**, as well as the stability as the apparatus moves between the operational and transport configurations. The outrigger structure **30** may be positioned on the base frame **14** toward the trailing end **19**, such as on the trailing portion **22** of the frame **14**. The outrigger structure may be movable with respect to the base frame **14**, and may be movable between a stabilizing condition (see, e.g., FIGS. **1**A, **1**B and **4**) and a non-stabilizing condition (see, e.g., FIGS. **2**A, **2**B and **3**). In general, the non-stabilizing condition of the outrigger structure **30** may correspond to the transport configuration of the apparatus **10** while the stabilizing condition of the structure **30** may correspond to the operational configuration of the apparatus. The stabilizing condition of the outrigger structure **30** may also be utilized when the apparatus **10** is moving from the transport condition to the operational condition, and also when the apparatus is moving from the operational condition to the transport condition.

In some greater detail, the outrigger structure **30** may include at least one outrigger arm **32** which is mounted on the base frame **14**, and the outrigger arm may be pivotable with respect to the base frame. The outrigger arm **32** may be oriented substantially perpendicular to the longitudinal axis **16** of the base frame in the stabilizing condition of the outrigger structure, and may be oriented substantially parallel to the longitudinal axis in the non-stabilizing condition of the outrigger structure. In some of the most preferable embodiments, a pair of the outrigger arms **32**, **34** is utilized and each arm is pivotally mounted on the base frame. The pair of outrigger arms **32**, **34** may extend in substantially opposite directions from each other in the stabilizing condition and the arms may extend substantially parallel to each other in the non-stabilizing condition. Further, the pair of outrigger arms **32**, **34** may be positioned astride of the wheels **28** on the axles when the outrigger structure is in the non-stabilizing condition.

The outrigger structure **30** may further include at least one outrigger leg **33** that is configured to extend downwardly from one of the outrigger arms **32**, **34** to contact the ground surface below the outrigger arm. The outrigger leg **33** may have an extended position in which the leg **33** is extended away from the outrigger arm toward the ground surface to contact the ground surface for providing stability to the apparatus **10**. The outrigger leg **33** may also have a retracted position in which the leg **33** is retracted toward the outrigger arm and away from the ground surface. A pair of the outrigger legs **33** may be provided, with each outrigger leg being mounted on one of the outrigger arms **32**, **34**. The extended position of the outrigger legs **33** may correspond to the deployed mode of the apparatus **10** and the retracted position of the outrigger leg may correspond to the storage mode of the apparatus. An outrigger leg actuator **35** may be provided for each outrigger leg **33** to move the outrigger leg between the extended position and the retracted position, and the actuator **35** may be connected to the outrigger arm and the outrigger leg to act between the arm and leg.

Additionally, at least one stabilizing leg **36** may be provided that is extendable downwardly from the base frame **14** to contact the ground surface below the apparatus **10**. The stabilizing leg **36** may have an extended position in which the leg **36** is extended away from the base frame **14** toward the ground surface to contact with the ground surface and a retracted position in which the leg **36** is retracted toward the base frame and away from the ground surface. A plurality of the stabilizing legs **36** may be utilized, and may include a pair of the stabilizing legs each being mounted on the base frame **14**. The pair of stabilizing legs **36** may be located toward the trailing end **19** of the base frame, and may be laterally offset from a central longitudinal axis of the base frame, such as or locations between the outrigger legs **33** mounted on the outrigger arms **32**, **34** (see, e.g., FIG. **4**). The extended position of the stabilizing legs **36** may correspond to the deployed mode of the apparatus and the retracted position of the stabilizing legs may correspond to the storage mode of the apparatus, A stabilizing leg actuator **37** being configured to move the at least one stabilizing leg between the extended position in the retracted position, the stabilizing leg actuator acting between the base frame and the stabilizing leg,

The base assembly **12** may further comprise an unloader structure **40** for receiving the aggregate from the vehicle carrying the aggregate to the apparatus **10**. The unloader structure **40** may be mounted on the base frame **14**, and may be positioned toward the leading end **18** of the frame **14** and on the leading portion **20** of the frame (but also may be spaced from the leading end of the frame). The unloader structure **40** may have a transport condition and an operational condition, with the transport condition generally corresponding to the transport configuration of the apparatus **10** and the operational condition generally corresponding to the operational configuration of the apparatus. The unloader structure may include a pair of ramps **42**, **44** mounted on the base frame **14**, with each of the ramps being pivotable with respect to the base frame. In the operational condition, the ramps **42**, **44** may extend laterally from the base frame **14** in substantially opposite directions in the operational condition, and may be oriented substantially horizontally for contacting the ground surface. In the transport condition, the ramps may be oriented substantially parallel with respect to each other, and may extend substantially vertically upwardly from the base frame **14**. Illustratively, each of the ramps **42**, **44** may comprise a pair of ramp portions **46**, **47** positioned adjacent to each other, although a ramp comprised of a single ramp portion may also be utilized. Each of the ramps **42**, **44**, and ramp portions **46**, **47** if utilized, may have a position corresponding to the transport condition of the unloader structure **40** and also have a position corresponding to the operational condition of the unloader structure. At least one ramp actuator **45** may be provided which is configured to move at least one of the ramps between the position corresponding to the transport condition and the position corresponding to the operational condition. Typically, a plurality of the ramp actuators **45** may act on the ramps **42**, **44** (and ramp portions **46**, **47** if utilized) to move the ramps, and/or the portions of the ramps, between the positions corresponding to the transport and operational conditions of the unloader structure.

The unloader structure **40** may further include a grate **48** mounted on the base frame **14** that may be substantially horizontally oriented and positioned between the pair of ramps **42**, **44**, and at least a portion of the grate may be reticulated with holes to permit aggregate landing on the grate to pass through the grate.

Further included in the base assembly **12** may be a base conveyor **50** mounted on the base frame **14** and which extends along a longitudinal portion of the base frame

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between the leading **18** and trailing ends of the base frame. The base conveyor **50** may tend to move aggregate falling onto the conveyor toward the trailing end **19** of the frame **14**. The base conveyor **50** may have a receiving end **52** and a dispensing end **54**, with the receiving end being located toward the leading end **18** and the dispensing end being located toward the trailing end **19** of the base frame. The base conveyor **50** may comprise a base conveyor belt **56** for carrying aggregate away from the unloader structure **40**, and at least a portion of the belt **56** may be positioned below the grate **48** such that gravity moves the aggregate through the grate and onto an upper stretch or portion of the belt supporting aggregate being carried by the belt. The base conveyor **50** may have a plurality of support rollers **58** which are mounted on the base frame **14** and extend laterally with respect to the longitudinal axis **16** of the base frame to support the upper stretch of the base conveyor belt.

The aggregate transferring apparatus **10** may further include an aggregate elevating assembly **60** for elevating aggregate received from the base assembly to a relatively higher vertical level or elevation above the ground surface. The aggregate elevating assembly **60** may include a deployable frame **62** which is movably mounted on the base assembly **12**. The deployable frame **62** may be mounted on the base frame **14**, and may be located toward the trailing end **19**. The deployable frame **62** may be elongated with a base end **64** and a free end **66**, with the base end being mounted on the base assembly **12**. The deployable frame **62** may be movable between a storage position generally corresponding to the transport configuration of the apparatus **10**, and a deploy position generally corresponding to the operational configuration of the apparatus. The storage position of the deployable frame **62** may be characterized by the frame **62** being substantially horizontally oriented and generally parallel to the base frame **14** and the ground surface. The deploy position of the deployable frame **14** may be characterized by the frame **14** being oriented substantially vertical, and oriented substantially perpendicular to the base frame **16** and the ground surface. In illustrative embodiments, the deployable frame **62** comprises a truss frame with a space frame about a substantially hollow interior.

The aggregate elevating assembly **60** may also include trailer structure **70** which is configured to provide trailer functionality to the elevating assembly, and by extension the aggregate transferring apparatus **10**, when the apparatus **10** is in the transport configuration such that the apparatus **10** may be towed across the ground surface. The trailer structure **70** may be positioned adjacent to, and typically in contact with, the ground surface when the deployable frame is in the storage position (and other elements of the apparatus **10** are in the transport configuration). In greater detail, the trailer structure **70** may include at least one landing leg **72** mounted on the deployable frame **62** to rest upon the ground surface when the deployable frame is in the storage position, and the leg may extend outwardly from the frame **62**. Typically, a pair of the landing legs **72**, **74** may be utilized with each of the legs having similar orientation with respect to the frame **62**. The trailer structure **70** may further include a kingpin **76** mounted on the deployable frame **62** which is able to engage the fifth wheel hitch structure of a vehicle, such as a semi-tractor, for towing the apparatus **10** in the transport configuration. The kingpin **76** may be located toward the free end **66** of the deployable frame **62**, and may be directed in the same direction as the landing leg or legs such that the kingpin and the landing legs are directed downwardly toward the ground surface when the apparatus **10** is in the transport configuration. In some embodiments, the free end **66** of the deployable frame **62** may extend beyond the leading end **18** of the base frame **14** when the deployable frame is in the storage position so that the trailer structure is able to move past the base assembly **12** and engage the ground surface.

The aggregate elevating assembly **60** may further include an elevating conveyor **80** for conveying aggregate upwardly from the base assembly **12**. The elevating conveyor **80** may extend longitudinally with respect to the deployable frame **62**, and may extend from the base end **64** to the free end **66** of the frame **62**. The elevating conveyor **60** may be configured to receive aggregate from the base conveyor, and may have an intake **82** and an output **84**. The intake **82** may be being located toward the base end **64** of the deployable frame **62** and also may be located adjacent to the dispensing and **54** of the base conveyor **50** to receive aggregate from the conveyor **50**. The output **84** may be located toward the free end **66** of the deployable frame, and may be configured to output the conveyed aggregate on the side of the frame **62** that is opposite of the side of the frame **62** at which the intake is located. In some embodiments, the elevating conveyor **80** may comprise a bucket conveyor, and the conveyor **80** may be at least partially within the truss frame of the deployable frame **62**. Illustratively, the elevating conveyor **8** may have a length of support to 70 feet or more.

The aggregate transferring apparatus **10** may also include a frame deployment assembly **90** which is configured to move the deployable frame **62** of the elevating assembly **60** with respect to the base frame **14** of the base assembly **12**. The frame deployment assembly **90** may be configured to move the deployable frame between the storage and deploy positions for converting the apparatus **10** between the transport and operational configurations. The frame deployment assembly **90** may be mounted on the base frame **14** and the deployable frame **62**.

In illustrative embodiments, the frame deployment structure **90** may comprise at least one lift arm structure **92** mounted on the base frame **16** and the deployable frame **62** which may form a linkage between the base frame and the deployable frame.

Illustratively, the frame deployment assembly **90** may include a pair of the lift arm structures **92**, **94** mounted on the base **14** and deployable **62** frames. In general, the pair of lift arm structures **92**, **94** may be laterally spaced with respect to the longitudinal axis **16** of the base frame, and may be located on opposite lateral sides of the deployable frame **62**. Each of the lift arm structures **92**, **94** may have a first end **96** which is mounted on a base mount point **98** on the base frame **14** which may permit pivotal movement of the first end **96** with respect to the base mount point **98**. Further, each of the lift arm structures **92**, **94** may have a second end **100** mounted on an upper mount point **102** on the deployable frame **62**. The upper mount point **102** may include a cross-member **104** that extends between the pair of lift arm structures **92**, **94** and that is mounted on the deployable frame.

In some embodiments, each of the lift arm structures **92**, **94** may be articulated between the first **96** and second **100** ends such that the structures **92**, **94** articulate as the deployable frame **62** moves between the storage and deploy positions and the apparatus moves between the transport and operational configurations. Each of the lift arm structures **92**, **94** may include a first link member **106** and a second link member **108** which are pivotally mounted together. The first link member **106** may have the first end **96** of the respective lift arm structure, and the first link member may be pivotally mounted on the base mount point **98** to pivot with respect to

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the base frame **14**. The first link member **106** may be elongated in shape and have a first intermediate end **110** located on the member **106** opposite of the first end **96** of the lift arm structure. Illustratively, the first link member **106** may be formed by a bar. The second link member **108** may have the second end **100** of the respective lift arm structure, and the second link member may be pivotally mounted on the upper mount point **102** to pivot with respect to the deployable frame **62**. The second link member **108** may be elongated in shape and have a second intermediate end **112** located on the member **108** opposite of the second end **100** of the lift arm structure. The second intermediate end **112** of the second link member may be pivotally mounted to the first intermediate end **110** of the first link member. The second link member may form a medial mount point **114**. Illustratively, the second link member **108** may comprise a bar and a weldment.

The frame deployment structure **90** may further include lift actuator **116** which acts on at least one of the lift arm structures **92**, **94**. The lift actuator **116** may be mounted on the base frame **14** and the respective lift arm structure, and may be mounted on the base mount point **98** on the base frame and the medial mount point **114** on the second link member **108** of the respective lift arm structure. The lift actuator **116** may be extendable and retractable in length to move the second link member **108** with respect to the base frame. Illustratively, the lift actuator may comprise a hydraulic actuator, although other types of actuators may also be employed.

The aggregate transferring apparatus **10** may further include a conveyor extension assembly **120** for conveying aggregate to locations horizontally outward from the aggregate elevating assembly **60**, such as, for example, one or more silos to which the apparatus **10** is positioned adjacent. The conveyor extension assembly **120** may include an extension conveyor **122** for moving aggregate from the aggregate elevating assembly **60** to a location outward from the assembly **60**. The extension conveyor **122** may be movable with respect to the elevating assembly **60**, and may be extendable outwardly from the assembly **60** in a substantially horizontal orientation. The extension conveyor **122** may be movable between a lowered position (see. e.g., FIG. **2**A) and a raised position (see. e.g., FIG. **5**D). FIGS. **5**A through **5**C illustrate three illustrative intermediate positions of the extension conveyor **122** between the lowered position of FIG. **2**A and the raised position of FIG. **5**D. The lowered position of the extension conveyor **122** may correspond to the transport configuration of the apparatus **10**, and the raised position of the conveyor **122** may correspond to an operational configuration of the apparatus. The lowered position may be further characterized by the extension conveyor **122** being positioned adjacent to the deployable frame **62** of the aggregate elevating assembly **60**, and the extension conveyor may be oriented substantially parallel to the deployable frame **62** in the lowered position. The raised position of the conveyor **122** may also be characterized by the extension conveyor being positioned generally away from the deployable frame **62**, and the extension conveyor may be cantilevered outwardly from the deployable frame in the raised position. The raised position of the extension conveyor **122** may further be characterized by the conveyor **122** being oriented substantially perpendicular to the deployable frame **62** of the aggregate elevating assembly. As illustrated in FIGS. **5**A through **5**D, the extension conveyor **122** may be maintained in a substantially horizontal orientation (e.g., substantially parallel to the base frame **14**) as the deployable frame **62** of the elevating assembly **60** is raised from the storage position to the deploy position, and similarly the conveyor **122** may be maintained and the substantially horizontal orientation as the frame **62** is lowered from the deploy position to the storage position.

The extension conveyor **122** may have an inlet **124** for receiving aggregate from the aggregate elevating assembly **60** and an outlet **126** for dispensing aggregate from the extension conveyor to a desired location, such as into the port **2** at the top of a silo.

The conveyor extension assembly **120** may comprise an inboard segment **130** and an outboard segment **132**, with the inboard and outboard segments being articulated with respect to each other to permit adjustment of the position of the outlet **126** with respect to the inlet **124** including the effective distance between the outlet **126** and the inlet **124**. The inboard segment **130** may be pivotally connected to the deployable frame **62** of the aggregate elevating assembly by an inboard pivot **134**, which may permit pivoting of the inboard segment **130** with respect to the deployable frame about a substantially vertical axis. The outboard segment **132** may be pivotally connected to the inboard segment **130** by an outboard pivot **136**, which may permit pivoting of the outboard segment **132** with respect to the inboard segment **130** about a substantially vertical axis. The inboard segment **130** has a first inboard segment end **138** mounted on the deployable frame **62**, and may be configured to receive aggregate from the output **84** of the elevating conveyor **80**. The inboard segment **130** may also have a second inboard segment end **140** which is located opposite of the first inboard segment end **138** on the segment **130**, and may also be located at the outboard pivot **136**. The outboard segment **132** has a first outboard segment end **142** which is located at the outboard pivot **136** and which may be pivotally mounted on the second inboard segment end **140** of the inboard segment **130**. The outboard segment **132** has a second outboard segment end **144** which is located opposite of the first outboard segment end **142**, and the outlet **126** of the extension conveyor may be located at the second outboard segment end. Movement of the inboard segment with respect to the deployable frame at the inboard pivot, and the outboard segment with respect to the inboard segment at the outboard pivot, may be accomplished using any suitable mechanism. In some embodiments, an inboard pivot actuator **135** may be configured to pivot the inboard segment **130** with respect to the deployable frame **62**, and the inboard pivot actuator may act between the deployable frame and the truss frame of the inboard segment. Additionally, an outboard pivot actuator **137** may be configured to pivot the outboard segment **132** with respect to the inboard segment **130**, and the outboard pivot actuator may act between the inboard and outboard segments. Illustratively, the inboard pivot actuator **135** and the outboard pivot actuator **137** may comprise, such as, for example, a slew drive mechanism which may be highly suitable for permitting transfer of aggregate from the elevating conveyor **80** to inboard segment **130** of the extension conveyor **122**, and from the inboard segment to the outboard segment **132** of the extension conveyor.

Each of the inboard **130** and outboard **132** segments may have substantially similar constructions. Illustratively, each segment may include a truss frame **146** and a plurality of support rollers **148** rotatably mounted on the truss frame **146**. Each segment may further include a conveyor belt **150** which may be an endless belt supported on the support rollers **148**, and an upper wall **152** may be mounted on the truss frame in a position above the conveyor belt to at least

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partially cover an upper stretch of the conveyor belt as well is aggregate carried by the upper stretch.

In some embodiments, when in the transport configuration of the apparatus **10**, the inboard segment **130** of the extension conveyor **122** may be positioned over a portion of the deployable frame **62** of the aggregate elevating assembly, and the outboard segment **132** of the extension conveyor may be positioned laterally alongside a portion of the deployable frame **62**.

The conveyor extension assembly **120** may also comprise a conveyor support frame **154** for supporting the segments **130**, **132** of the extension conveyor on the aggregate elevating assembly **60**. The conveyor support frame **154** may be movable with respect to the deployable frame **62** of the elevating assembly when the extension conveyor **122** moves between the lowered and raised positions, and the conveyor support frame may be pivotally mounted on the deployable frame to permit pivoting of the support frame **154** with respect to the deployable frame about a substantially horizontal axis. The inboard segment **130** may be pivotally mounted on the support frame by the inboard pivot **134**. Illustratively, the conveyor support frame **154** may include a pair of lateral sections **156**, **158** which are positionable on the lateral sides of the deployable frame **62**, particularly when the extension conveyor **122** is in the lowered position.

A conveyor extension assembly **120** may further comprise an extension conveyor lift structure **160** for moving the extension conveyor **122** between the lowered position and the raised position. The extension conveyor lift structure **160** may act on the conveyor support frame **154** and may be mounted on the conveyor support frame and the deployable frame **66**. The extension conveyor lift structure **160** may comprise at least one extension actuator **162** which may be extendable to pivot the conveyor support frame **154** away from the deployable frame **62** and move the extension conveyor **122** to the raised position. The extension actuator **162** may be retractable to pivot the conveyor support frame **154** toward the deployable frame and move the extension conveyor **122** to the lowered position. In some highly preferred embodiments, a pair of the extension actuators **162** may be provided and may be positioned along the lateral side of the deployable frame.

The conveyor extension assembly **120** may further include an inboard conveyor motor **139** which is configured to move the conveyor belt of the inboard conveyor segment **130**, and may be mounted on the truss frame of the inboard conveyor segment. Additionally, the conveyor extension assembly **120** may include an outboard conveyor motor **143** which is configured to move the conveyor belt of the outboard conveyor segment **132**, and may be mounted on the truss frame of the outboard conveyor segment.

The conveyor extension assembly **120** may further include a chute **164** for receiving aggregate from the extension conveyor **122**. The chute **164** may be mounted on the outboard segment **136** of the extension conveyor, and may be in communication with the outlet **126** of the conveyor **122** to receive aggregate from the conveyor. The chute **164** may be located at the second outboard segment end **144**, and may extend downwardly from the outlet. The chute **164** may terminate in a spout **166** where the conveyed aggregate exits the chute. In some embodiments, the chute **164** may be extendable to selectively increase the length of the chute to permit the spout **166** at the end of the chute to be moved closer to (and optionally into) the port **2** at the top of the silo to reduce the potential generation of dust in the air, and then raise the spout **166** to permit the end to avoid contact with elements such as the perimeter wall of the silo while repositioning the chute to another silo or removing the chute from proximity to the silo grouping. The chute **164** may be movable between an extended condition (see, e.g., FIG. **8**F) and a retracted condition (see, e.g., FIG. **3**), and the spout **166** may have an extended position corresponding to the extended condition of the chute and a retracted position corresponding to the retracted condition of the chute. The retracted position of the spout **166** may be relatively closer to the outboard segment **132** of the extension conveyor **122** than the extended position of the spout. In embodiments, the chute **164** may be moved between the extended and retracted conditions by a chute actuator **168**. Illustratively, the chute may be formed of a flexible material to permit portions of the chute to more readily pass over structures such as the tops of silos.

The apparatus **10** may further include a control assembly **170** for providing control and monitoring of various elements of the apparatus **10**. The control assembly **170** may include a controller **172** which may automatically, or at the input of the operator, control elements of the apparatus. The control assembly **170** may also include manually-operated controls. Elements of the control assembly **170**, such as the controller **172**, may be located on a control panel **174** which may be positioned on the base frame **14** of the base assembly or any other suitable position which is accessible by an operator (such as an operator standing on the ground surface adjacent to the apparatus). Various operator controls may be provided on the control panel **174** which directly or indirectly control the operation of elements of the apparatus **10**. In addition to the control panel **174**, a remote control device **176** may be provided to control some or all of the functions of the apparatus **10** at a location away from the control panel **174**, and the remote control device may communicate with the control panel through a wired or wireless communication connection. Advantageously, the remote control device **176** may be configured to control elements or functions for which it is desirable that the operator and other personnel are located away from the control panel **174** for purposes of safety or observation.

The controller **172** may receive and process information from a plurality of sensors **178** of the apparatus **10**, through one or more suitable interfaces. The plurality of sensors **184** may sense various conditions or positions of elements of the apparatus or the environment about the apparatus. The plurality of sensors may include sensors for sensing conditions of various elements, such as a plurality of image sensors **180** positioned on the apparatus for capturing video or still images from perspectives on the apparatus. Illustratively, image sensors **176** may be positioned adjacent to the chute **164**, and may be directed downwardly from the second outboard segment end **140** for capturing images of the position of the spout **166** below with relation to, for example, the port **2** of a silo **1**. Additionally, image sensors **176** may be positioned at other locations on the apparatus **10** where visual information would be helpful, such as, for example, the upper free end **66** of the deployable frame **62** looking downwardly on the apparatus **10** using one or more of the image sensors. Images produced by the image sensors may be displayed on a display screen or monitor. The control assembly **170** may further include sensors for sensing positions of various elements, such as a plurality of segment position sensors **182** for sensing positions of the inboard **130** and outboard **132** segments of the extension conveyor. Illustratively, each of the segment position sensors **178** may be located at one or all of the inboard **134** and outboard **136** pivots, and each position sensor may be associated with one of the pivot actuators **135**, **137** to sense and communicate the

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relative positions of the elements connected at the respective pivot. For example, an encoder device may be associated with each slew drive mechanism of the pivot actuators.

Broadly, the control assembly **170** may also include elements of the apparatus **10** which receive commands or signals from the controller **172** (or operator-manipulated manual controls) in order to operate elements of the apparatus **10**, such as the power control circuitry which provides electrical power to elements of the apparatus such as the motors and valves which control the supply of hydraulic fluid to elements of the apparatus such as hydraulic actuators.

The control assembly **170** may implement automatic or semi-automatic functionality in the operation of the various powered elements of the apparatus **10** to provide safety and convenience in the operation of the apparatus. As an example, for elements for which the initiation or termination of operation of the elements in a sequential manner is desirable or necessary, the controller **172** may be programmed to initiate or terminate the operation in the sequence in response to a single input or command from the operator. Further, memory **184** associated with the controller **172** may retain information for enabling repeated movements by or positioning of elements of the apparatus. For example, the relative positions of the inboard **134** and outboard **136** segments of the extension conveyor **122** corresponding to the loading of specific silos in the silo array may be stored in memory **184** such that the controller **172** is able to recall the position and orientation information of the elements from the memory when invoked or requested by the operator in order for the controller to operate elements of the apparatus **10** to cause the chute **164** to be moved to a location suitable to dispense aggregate to the identified silo of the array from the spout **166**.

Another aspect of the disclosure is a method of setting up an apparatus, such as an apparatus of the type of the aggregate transferring apparatus **10** of the disclosure, may include providing an apparatus which may have a base assembly including a base frame and an outrigger structure and an unloader structure, an aggregate elevating assembly including a deployable frame, a frame deployment assembly including at least one lift arm structure, a conveyor extension assembly including an extension conveyor with an inboard segment, an outboard segment, and a chute, and a control assembly. The method may include identifying an area of ground surface for deployment of the apparatus, and that may include determining that the area of ground surface is substantially level and is suitably compacted for bearing the weight of the apparatus. The identification of the area of ground surface may also include determining that a space about the area of ground surface is clear of obstructions for deploying elements of the apparatus such as, for example, the outrigger structure of the base assembly and the deployable frame of the aggregate elevating assembly.

The method may also include positioning the apparatus **10** on the area of ground surface, which may involve towing the apparatus to the area of ground surface by a towing vehicle, such as a semi-tractor. The method may further include connecting a power source to the apparatus **10** to provide power to the control assembly **170** and the various elements of the control assembly. Such power source may be an electrical power source, and may involve the connection of an electrical power cord between the controller assembly **170** and an electrical power source.

Another aspect of the method may include removing the apparatus **10** from a travel configuration, or a configuration of the apparatus suitable for transporting the apparatus on roads and highways. This aspect of the method may include retracting a lift actuator **116** acting on at least one lift arm structure **92** of the flame deployment assembly **90** to move at least a portion of the base assembly **12** upwardly in a supportive manner to at least partially remove the weight of the base assembly **12** from travel binders **3** (see, e.g., FIG. **3**) utilized to secure the base assembly and aggregate elevating assembly **60** together during transport in the travel configuration. This aspect of the method may also include removing the travel binders from the base assembly **12** and elevating assembly **60** after the retraction of the lift actuator **116**. Removing the apparatus from the travel configuration may further include extending at least one landing leg **72** of the trailer structure **70** of the deployable frame **62** to contact the ground surface, and may involve engaging a brake on the wheels of the towing vehicle prior to extending the landing gear and disconnecting the apparatus from the power source after extending the landing gear. Removing the apparatus from the travel configuration may also include extending the lift actuator **116** acting on the lift arm structure to permit the base assembly to contact the area of ground surface.

Another aspect of the method may include deploying the outrigger structure **30** of the base assembly to contact the area of ground surface, and may involve swinging at least one outrigger arm **32** of the outrigger structure **30** outwardly from the non-stabilizing condition to the stabilizing condition, and may further involve extending one or more outrigger legs **33** associated with the outrigger arm or arms **32** to contact the ground surface. Additionally, extending a stabilizer leg **36** to contact the ground surface may also be initiated. Extending of the outrigger leg **33** and the stabilizer leg **36** may be performed by operating the outrigger leg actuator **35** and the stabilizing leg actuator **37** (respectively).

In still another aspect of the method, the unloader structure may be moved from the transport condition to the operational condition, which may involve deploying ramps of the unloader structure. In greater detail, some implementations of this aspect may include removing travel restraint links from the ramps **42**, **44** of the unloader structure, and pivoting the ramps from a position corresponding to the transport condition to a position corresponding to the operational condition. In embodiments in which the ramps include multiple portions, the pivoting of the ramps may include pivoting the ramp portions of each ramp to the position corresponding to the operational condition.

A further aspect of the method may include deploying the aggregate elevating assembly **60**, which may involve rotating the deployable frame **62** upwardly into the deploy position of the frame **62**, which may be performed while maintaining the inboard **130** and outboard **132** segments of the extension conveyor **122** in a substantially horizontal orientation as the deployable frame rotates into the deploy position. The deployment of the elevating assembly **60** may further include engaging lock pins to secure the deployable frame **62** in the deploy position, and attaching guy wires or cables to the frame **62** and the outrigger structure **30** such that the wires extend from the outrigger arms **32**, **34** to on the frame **62** at locations spaced upwardly from the base end **64** of the frame **62**. In some implementations, the travel binders may be utilized to tension the guy wires.

Yet another aspect of the disclosure is a method of operating an apparatus, such as an apparatus of the type of the aggregate transferring apparatus **10** of the disclosure. The method may include positioning the chute **164** over the port **2** of a silo to which the aggregate is to be transferred, and extending the chute so that the spout **166** of the chute moves into proximity of the port **2** of the silo, such as

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positioning the spout of the chute in the port. The method may further include positioning an aggregate transporting vehicle on the unloader structure **40**, which may involve moving a gate of the aggregate transporting vehicle into a position above the grate **48** of the unloader structure. The method may also include initiating operation of the extension conveyor **122**, the elevating conveyor **80**, and the base conveyor **50**, and may involve first initiating operation of the extension conveyor, then second initiating operation of the elevating conveyor, and then third initiating operation of the base conveyor.

Another aspect of the method of operating the apparatus may include unloading aggregate from the aggregate transporting vehicle into the unloader structure **40**, and moving the unloaded aggregate along the base conveyor **50** to the elevating conveyor **80**, and along the elevating conveyor **80** to the extension conveyor **122**, and along the extension conveyor **122** to the chute **164** of the extension conveyor. The method of operating the apparatus may also include periodically or occasionally relocating the chute **164** to the port **2** of another silo, and may involve emptying aggregate from the apparatus prior to the relocating movement, including emptying aggregate from the base conveyor, emptying aggregate from the elevating conveyor, and emptying aggregate from the extension conveyor. The relocation of the chute may also include retracting the chute to elevate the spout toward the retracted position, positioning the spout of the chute over a port **2** of another silo, and extending the chute to lower the spout toward the extended position adjacent to the second silo port. Further, the method may implement initiating operation of the conveyors of the apparatus, and may involve first initiating operation of the extension conveyor, then second initiating operation of the elevating conveyor, and then third initiating operation of the base conveyor, and unloading aggregate from the aggregate transporting vehicle into the unloader structure to move the aggregate from unloader structure of the base assembly to the spout of the conveyor extension assembly.

It should be appreciated that in the foregoing description and appended claims, that the terms "substantially" and "approximately," when used to modify another term, mean "for the most part" or "being largely but not wholly or completely that which is specified" by the modified term.

It should also be appreciated from the foregoing description that, except when mutually exclusive, the features of the various embodiments described herein may be combined with features of other embodiments as desired while remaining within the intended scope of the disclosure.

Further, those skilled in the art will appreciate that steps set forth in the description and/or shown in the drawing figures may be altered in a variety of ways. For example, the order of the steps may be rearranged, substeps may be performed in parallel, shown steps may be omitted, or other steps may be included, etc.

In this document, the terms "a" or "an" are used, as is common in patent documents, to include one or more than one, independent of any other instances or usages of "at least one" or "one or more." In this document, the term "or" is used to refer to a nonexclusive or, such that "A or B" includes "A but not B," "B but not A," and "A and B," unless otherwise indicated.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the disclosed embodiments and implementations, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art in light of the foregoing disclosure, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present disclosure.

Therefore, the foregoing is considered as illustrative only of the principles of the disclosure. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the disclosed subject matter to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to that fall within the scope of the claims.

We claim:

1. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising:

a base assembly for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:

a base frame being elongated along a longitudinal axis and having a leading end and a trailing end;

an unloader structure mounted on the base frame to receive aggregate from a vehicle at least partially positioned over the base frame; and

a base conveyor mounted on the base frame and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure to receive aggregate from the vehicle positioned over the base frame;

an aggregate elevating assembly for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position, the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward the free end of the deployable frame; and

a conveyor extension assembly for conveying aggregate to locations horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor to an outlet of the extension conveyor at a location outward from the aggregate elevating assembly, the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame of the aggregate elevating assembly, the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly,

wherein the extension conveyor is articulated between the inlet and outlet with an inboard segment and an outboard segment, the inboard segment being pivot-

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ally connected to the deployable frame of the aggregate elevating assembly by an inboard pivot, the outboard segment being pivotally connected to the inboard segment by an outboard pivot; and

wherein the inboard segment of the extension conveyor of the conveyor extension assembly is pivotable at the inboard pivot about a substantially vertical axis with respect to the deployable frame at the inboard pivot when the extension conveyor is in the raised position, the outboard segment of the extension conveyor being pivotable at the outboard pivot about a substantially vertical axis with respect to the inboard segment when the extension conveyor is in the raised position.

2. The apparatus of claim **1** wherein the base assembly has at least one axle and a pair of wheels mounted on the at least one axle such that the base assembly is transportable across the ground surface.

3. The apparatus of claim **2** wherein the aggregate elevating assembly includes trailer structure configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame is in the storage position.

4. The apparatus of claim **1** wherein the lowered position of the extension conveyor of the conveyor extension assembly is characterized by the extension conveyor being oriented substantially parallel to the deployable frame of the aggregate elevating assembly, the raised position of the extension conveyor being characterized by the extension conveyor being oriented substantially perpendicular to the deployable frame of the aggregate elevating assembly.

5. The apparatus of claim **1** wherein the raised position of the extension conveyor of the conveyor extension assembly is characterized by the extension conveyor being cantilevered outwardly from the deployable frame of the aggregate elevating assembly.

6. The apparatus of claim **1** wherein the conveyor extension assembly additionally comprises:

a conveyor support frame supporting the segments of the extension conveyor on the aggregate elevating assembly, the conveyor support frame being movable with respect to the deployable frame of the aggregate elevating assembly when the extension conveyor moves between the lowered position and the raised position; and

an extension conveyor lift structure acting on the conveyor support frame for moving the extension conveyor between the lowered position and the raised position.

7. The apparatus of claim **1** wherein the extension conveyor lift structure comprises at least one extension actuator extendable to pivot the conveyor support frame away from the deployable frame and move the extension conveyor to the raised position, the at least one extension actuator being retractable to pivot the conveyor support frame toward the deployable frame and move the extension conveyor to the lowered position.

8. The apparatus of claim **1** wherein the conveyor extension assembly includes a chute mounted on the extension conveyor to extend downward from the extension conveyor and receive aggregate from the outlet of the extension conveyor.

9. The apparatus of claim **1** wherein the base assembly includes an outrigger structure mounted on the base frame, the outrigger structure being movable with respect to the base frame between a stabilizing condition corresponding to an operational configuration of the apparatus and a non-stabilizing condition corresponding to a transport configuration of the apparatus.

10. The apparatus of claim **1** wherein the unloader structure includes a pair of ramps and a grate mounted on the base frame, the grate being positioned between the pair of ramps, at least a portion of the grate being reticulated to permit aggregate to pass through the grate and fall onto the base conveyor.

11. The apparatus of claim **10** wherein each of the ramps of the unloader structure is pivotable with respect to the base frame, the ramps extending laterally in substantially horizontal and opposite directions from the base frame in the operational condition of the apparatus, the ramps extending substantially vertical and parallel to each other in the transport condition of the apparatus.

12. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising:

a base assembly for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:

a base frame being elongated along a longitudinal axis and having a leading end and a trailing end;

an unloader structure mounted on the base frame to receive aggregate from a vehicle at least partially positioned over the base frame; and

a base conveyor mounted on the base frame and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure to receive aggregate from the vehicle positioned over the base frame;

an aggregate elevating assembly for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position, the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward the free end of the deployable frame; and

a conveyor extension assembly for conveying aggregate to locations horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor to an outlet of the extension conveyor at a location outward from the aggregate elevating assembly, the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame of the aggregate elevating assembly, the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly; and

wherein the extension conveyor is articulated between the inlet and outlet with an inboard segment and an outboard segment, the inboard segment being pivot-

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ally connected to the deployable frame of the aggregate elevating assembly by an inboard pivot, the outboard segment being pivotally connected to the inboard segment by an outboard pivot;

wherein the base assembly has at least one axle and a pair of wheels mounted on the at least one axle such that the base assembly is transportable across the ground surface;

wherein the aggregate elevating assembly includes trailer structure configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame is in the storage position;

wherein the trailer structure comprises:

at least one landing leg mounted on the deployable frame to rest upon the ground surface when the deployable frame is in the storage position; and

a kingpin mounted on the deployable frame toward the free end of the deployable frame, the kingpin being directed in a same direction as the at least one landing leg to engage a hitch of a towing vehicle when the deployable frame is in the storage position.

13. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising:

a base assembly for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:

a base frame being elongated along a longitudinal axis and having a leading end and a trailing end;

an unloader structure mounted on the base frame to receive aggregate from a vehicle at least partially positioned over the base frame; and

a base conveyor mounted on the base frame and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure to receive aggregate from the vehicle positioned over the base frame;

an aggregate elevating assembly for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position, the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward the free end of the deployable frame; and

a conveyor extension assembly for conveying aggregate to locations horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor to an outlet of the extension conveyor at a location outward from the aggregate elevating assembly, the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame of the aggregate elevating assembly, the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly,

wherein the extension conveyor is articulated between the inlet and outlet with an inboard segment and an outboard segment, the inboard segment being pivotally connected to the deployable frame of the aggregate elevating assembly by an inboard pivot, the outboard segment being pivotally connected to the inboard segment by an outboard pivot; and

wherein the aggregate elevating assembly includes a frame deployment assembly configured to move the deployable frame with respect to the base frame between the storage and deploy positions, the frame deployment structure comprising:

at least one lift arm structure mounted on the base frame and the deployable frame and forming a linkage between the base frame and the deployable frame, the at least one lift arm structure being articulated between opposite first and second ends of the arm structure; and

an actuator mounted on the base frame and the at least one lift arm structure to move the at least one lift arm structure with respect to the base frame.

14. The apparatus of claim **13** wherein the at least one lift arm structure comprising a pair of the lift arm structures mounted on the base frame and the deployable frame, the pair of lift arm structures being located on opposite lateral sides of the deployable frame.

15. The apparatus of claim **13** wherein the at least one lift arm structure comprises a first link member and a second link member pivotally mounted together; and

wherein the actuator of the frame deployment assembly is mounted on a base mount point on the base frame and a medial mount point on the second link member.

16. An aggregate transferring apparatus

for elevating and transferring aggregate, the apparatus comprising:

a base assembly for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:

a base frame being elongated along a longitudinal axis and having a leading end and a trailing end;

an unloader structure mounted on the base frame to receive aggregate from a vehicle at least partially positioned over the base frame; and

a base conveyor mounted on the base frame and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure to receive aggregate from the vehicle positioned over the base frame;

an aggregate elevating assembly for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position, the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end; and

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an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward the free end of the deployable frame; and

a conveyor extension assembly for conveying aggregate to locations horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor to an outlet of the extension conveyor at a location outward from the aggregate elevating assembly, the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame of the aggregate elevating assembly, the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly;

wherein the extension conveyor is articulated between the inlet and outlet with an inboard segment and an outboard segment, the inboard segment being pivotally connected to the deployable frame of the aggregate elevating assembly by an inboard pivot, the outboard segment being pivotally connected to the inboard segment by an outboard pivot; and

wherein the outboard pivot of the extension conveyor of the conveyor extension assembly is configured to permit transfer of aggregate from the inboard segment to the outboard segment.

17. The apparatus of claim **16** wherein the inboard segment of the extension conveyor of the conveyor extension assembly is pivotable at the inboard pivot about a substantially vertical axis with respect to the deployable frame at the inboard pivot when the extension conveyor is in the raised position, the outboard segment of the extension conveyor being pivotable at the outboard pivot about a substantially vertical axis with respect to the inboard segment when the extension conveyor is in the raised position.

18. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:

a base assembly configured to receive aggregate to be conveyed by the transferring apparatus, the base assembly including:

an elongated base frame; and

a base conveyor extending longitudinally of the base frame;

an aggregate elevating assembly configured to elevate aggregate from the base conveyor of the base assembly, the aggregate elevating assembly including:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward a free end of the deployable frame; and

a conveyor extension assembly configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor at the aggregate elevating assembly to an outlet of the extension conveyor at a location outward from the elevating assembly;

wherein the extension conveyor includes an inboard segment and an outboard segment, the inboard and outboard segments being articulated between the inlet and outlet such that the inboard and outboard segments are pivotable with respect to each other and with respect to the aggregate elevating assembly about substantially vertical axes to permit adjustment of a position of the outlet with respect to the aggregate elevating assembly; and

wherein the inboard and outboard segments of the extension conveyor are pivotable with respect to each other in a substantially horizontal operational plane.

19. The apparatus of claim **18** wherein the extension conveyor is movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus for movement of the inboard and outboard segments in a substantially horizontal operational plane.

20. The apparatus of claim **18** wherein the inboard segment of the extension conveyor is pivotable with respect to the aggregate elevating assembly at an inboard pivot, the outboard segment of the extension conveyor being pivotable with respect to the inboard segment at an outboard pivot spaced from the elevating assembly by the inboard segment.

21. The apparatus of claim **18** wherein the aggregate elevating assembly includes trailer structure configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame is in the storage position.

22. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:

a base assembly configured to receive aggregate to be conveyed by the transferring apparatus, the base assembly including:

an elongated base frame; and

a base conveyor extending longitudinally of the base frame;

an aggregate elevating assembly configured to elevate aggregate from the base conveyor of the base assembly, the aggregate elevating assembly including:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward a free end of the deployable frame; and

a conveyor extension assembly configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor at the aggregate elevating assembly to an outlet of the extension conveyor at a location outward from the elevating assembly;

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EXHIBIT 1

wherein the extension conveyor includes an inboard segment and an outboard segment, the inboard and outboard segments being articulated between the inlet and outlet such that the inboard and outboard segments are pivotable with respect to each other and with respect to the aggregate elevating assembly about substantially vertical axes to permit adjustment of a position of the outlet with respect to the aggregate elevating assembly;

wherein the inboard segment of the extension conveyor is pivotable with respect to the aggregate elevating assembly at an inboard pivot, the outboard segment of the extension conveyor being pivotable with respect to the inboard segment at an outboard pivot spaced from the elevating assembly by the inboard segment; and

wherein the inboard segment of the extension conveyor of the conveyor extension assembly is pivotable at the inboard pivot about a substantially vertical axis with respect to the deployable frame at the inboard pivot when the extension conveyor is in the raised position, the outboard segment of the extension conveyor being pivotable at the outboard pivot about a substantially vertical axis with respect to the inboard segment when the extension conveyor is in the raised position.

23. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:

a base assembly configured to receive aggregate to be conveyed by the transferring apparatus, the base assembly including:

an elongated base frame; and

a base conveyor extending longitudinally of the base frame;

an aggregate elevating assembly configured to elevate aggregate from the base conveyor of the base assembly, the aggregate elevating assembly including:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward a free end of the deployable frame; and

a conveyor extension assembly configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor at the aggregate elevating assembly to an outlet of the extension conveyor at a location outward from the elevating assembly;

wherein the extension conveyor includes an inboard segment and an outboard segment, the inboard and outboard segments being articulated between the inlet and outlet such that the inboard and outboard segments are pivotable with respect to each other and with respect to the aggregate elevating assembly about substantially vertical axes to permit adjustment of a position of the outlet with respect to the aggregate elevating assembly;

wherein the inboard segment of the extension conveyor is pivotable with respect to the aggregate elevating assembly at an inboard pivot, the outboard segment of the extension conveyor being pivotable with respect to the inboard segment at an outboard pivot spaced from the elevating assembly by the inboard segment; and

wherein the outboard pivot of the extension conveyor of the conveyor extension assembly is configured to permit transfer of aggregate from the inboard segment to the outboard segment.

24. The apparatus of claim **23** wherein the inboard and outboard segments of the extension conveyor are pivotable with respect to each other in a substantially horizontal operational plane.

25. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:

a base assembly configured to receive aggregate to be conveyed by the transferring apparatus, the base assembly including:

an elongated base frame; and

a base conveyor extending longitudinally of the base frame;

an aggregate elevating assembly configured to elevate aggregate from the base conveyor of the base assembly, the aggregate elevating assembly including:

a deployable frame mounted on the base frame and being movable between a storage position and a deploy position; and

an elevating conveyor configured to receive aggregate from the base conveyor and convey the aggregate upwardly from the base assembly toward a free end of the deployable frame; and

a conveyor extension assembly configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly, the conveyor extension assembly comprising:

an extension conveyor for moving aggregate from an inlet of the extension conveyor at the aggregate elevating assembly to an outlet of the extension conveyor at a location outward from the elevating assembly;

wherein the extension conveyor includes an inboard segment and an outboard segment, the inboard and outboard segments being articulated between the inlet and outlet such that the inboard and outboard segments are pivotable with respect to each other and with respect to the aggregate elevating assembly about substantially vertical axes to permit adjustment of a position of the outlet with respect to the aggregate elevating assembly;

wherein the aggregate elevating assembly includes trailer structure configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame is in the storage position; and

wherein the trailer structure comprises:

at least one landing leg mounted on the deployable frame to rest upon the ground surface when the deployable frame is in the storage position; and

a kingpin mounted on the deployable frame toward a free end of the deployable frame, the kingpin being directed in a same direction as the at least one landing leg to engage a hitch of a towing vehicle when the deployable frame is in the storage position.

* * * * *

EXHIBIT 1



EXHIBIT 2


EXHIBIT 2

WOODS FULLER

April 7, 2022

Tim R. Shattuck
Tim.Shattuck@woodsfuller.com
605-336-3890 Ext. 614

VIA E-MAIL AND U.S. MAIL
Christopher.powell@solarisoilfield.com

Mr. Christopher Powell
Chief Legal Officer
Solaris Oilfield Infrastructure, Inc.
9811 Katy Freeway, Suite #700
Houston, TX 77024

Re: Masaba, Inc./Top Fill Sand Loading System

Dear Mr. Powell:

I represent Masaba, Inc. regarding intellectual property matters. I understand that Anchor Technical Equipment, LLC sold to Solaris Oilfield Infrastructure, Inc. ("Solaris") a Top Fill Sand Loading System designed, engineered, manufactured, and assembled by Masaba. I also understand that the parties discussed Solaris purchasing multiple similar systems, but that such additional sales have not occurred and will not occur.

In case Solaris is considering constructing or selling a similar system without the involvement of Masaba, please be advised that Masaba has applied for a patent on the system sold to Solaris and that Masaba anticipates obtaining a patent on its invention. Also, certain components of the system are patented. Masaba will protect and enforce its patent rights as necessary and appropriate.

Please acknowledge receipt of this letter.

Very truly yours,

WOODS, FULLER, SHULTZ & SMITH P.C.

Tim R. Shattuck

Tim R. Shattuck

cc: Dan Trantham (via E-mail)
dan@anchor-industrial.com

EXHIBIT 3

ReedSmith
Driving progress
through partnership

Robert R. Riddle
Direct Phone: +1 713 469 3881
Email: rriddle@reedsmith.com

Reed Smith LLP
Suite 1700
811 Main Street
Houston, TX 77002-6110
+1 713 469 3800
Fax +1 713 469 3899
reedsmith.com

April 11, 2022

Via Email (Tim.Shattuck@woodsfuller.com)
Tim R. Shattuck
Woods, Fuller, Shultz & Smith P.C.
300 South Phillips Ave, Suite 300
Sioux Falls, SD 57104

Dear Mr. Shattuck:

We are intellectual property counsel for Solaris Oilfield Infrastructure, Inc. and are writing in response to your letter dated April 7, 2022 regarding Masaba, Inc./Top Fill Sand Loading System.

You letter notes that Masaba has applied for a patent on the system Anchor sold to Solaris. We are unaware of such patent application. Please provide a copy of the patent application, as-filed, and current claims.

Your letter also refers to "certain components of the system being patented." Please identify for us the specific components Masaba believes are patented and the corresponding patent numbers that apply.

Without the above information, there is no way to evaluate the situation.

Sincerely,

Robert Riddle

CC: Christopher Powell

Top Fill
Sand Loading System



Application

Provides a new, faster alternative to sand loading at the wellsite. With increased payload and faster unloading, Solaris' Top Fill Sand Loading System increases truck utilization, turn rate and supply-chain reliability through multiple trucking options, resulting in lower cost per ton, reduced carbon footprint and higher logistics efficiency.

Features and Benefits

- All-electric design powered by system provided generator, or alternate source used for an electric fleet
- Vertical design and flexible placement, it can be positioned along the sides or at the end of the silos based on wellsite dimensions
- Fewer drivers required
- Higher truck utilization
- Truck offload rate: 400 tons/hour (13,300 lbs./min)
- Unloads 54,000 lbs. truck in less than 5 minutes
- Allows use of belly dump and pneumatic trucks individually or simultaneously
- Requires same permit load dimensions as our silo transport trailer

solarisoilfield.com/topfill

SOLARIS
OILFIELD INFRASTRUCTURE

EXHIBIT 5

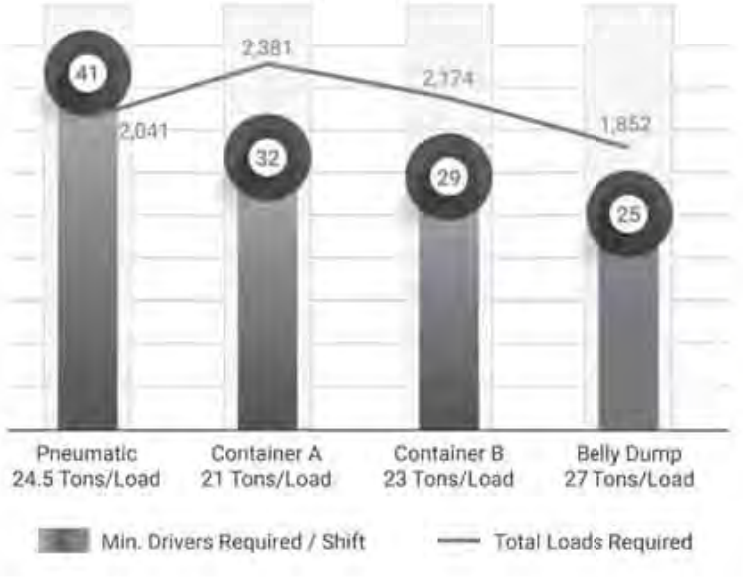
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Top Fill
Sand Loading System

Top Fill By the Numbers

TOP FILL VS OTHER SYSTEMS	PNEUMATIC	BOXES	BELLY DUMP
Load Time (hrs.)	0.25	0.25	0.25
Total Travel Time (hrs.)	3.00	3.00	3.00
Offload Time (hrs.)	1.00	0.25	0.25
Cycle Time (hrs.)	**4.25**	**3.50**	**3.50**
Max Cycles / 12 Hr. Shift	**2.0**	**3.0**	**3.0**
Tons / Load	24.5	22.0	27.0
Max Tons Deliverable / 12 Hr. Shift	49.0	66.0	81.0
Loads Required / Day	81.6	90.9	74.1
Min Drivers Required / Day	41.0	30.0	25.0
# of Truck Loads / Job	2,041	2,273	1,852

Assumptions: Mileage: 60; Pumping Days: 25; Tons/Day: 2,000; Total Job: 50,000



Up to

39%

Reduction of Drivers Required

Up to

22%

Reduction of Loads Required

solarisoilfield.com/topfill

SOLARIS OILFIELD INFRASTRUCTURE

EXHIBIT 5

Top Fill
Sand Loading System

Dimensions

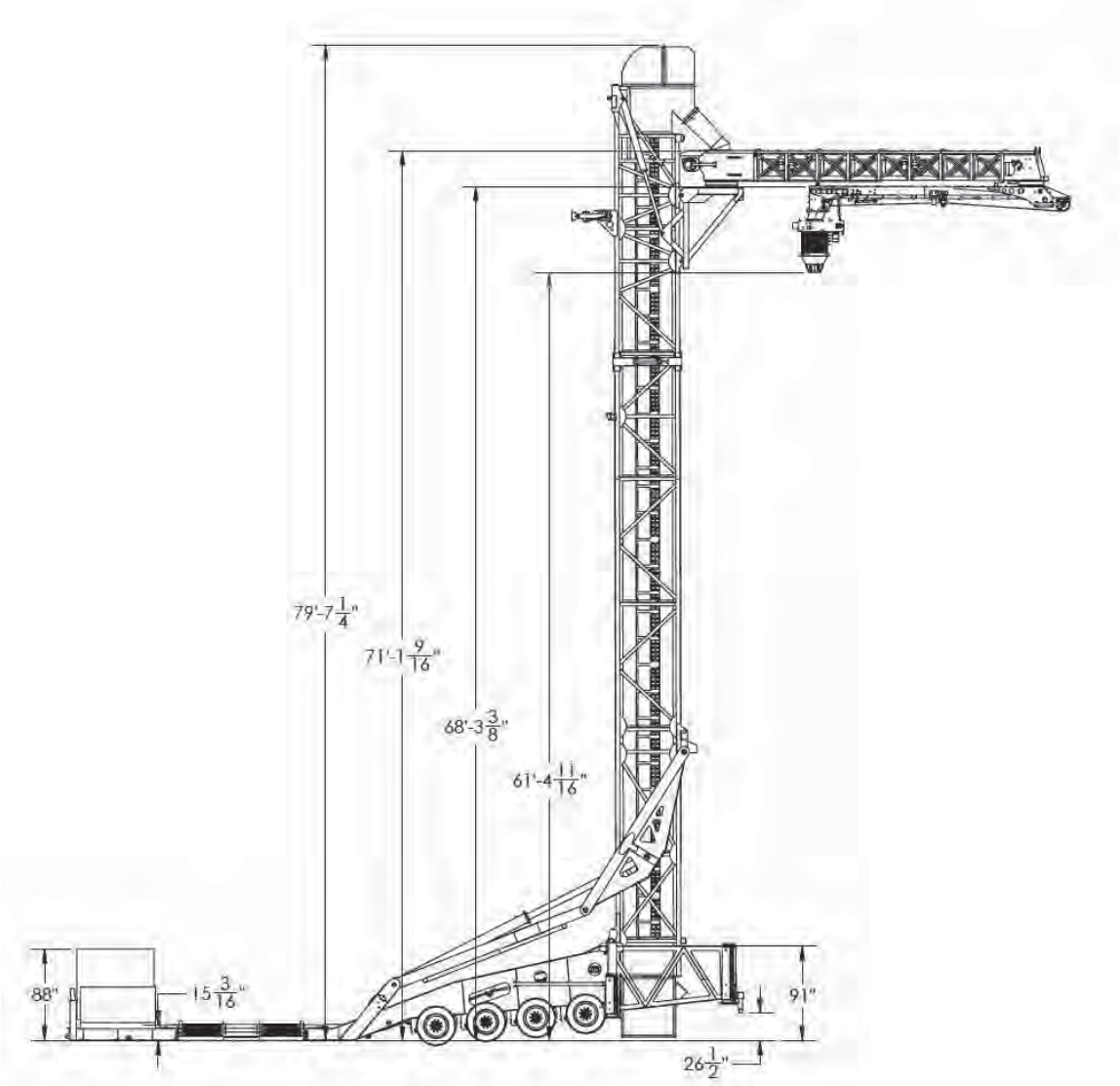
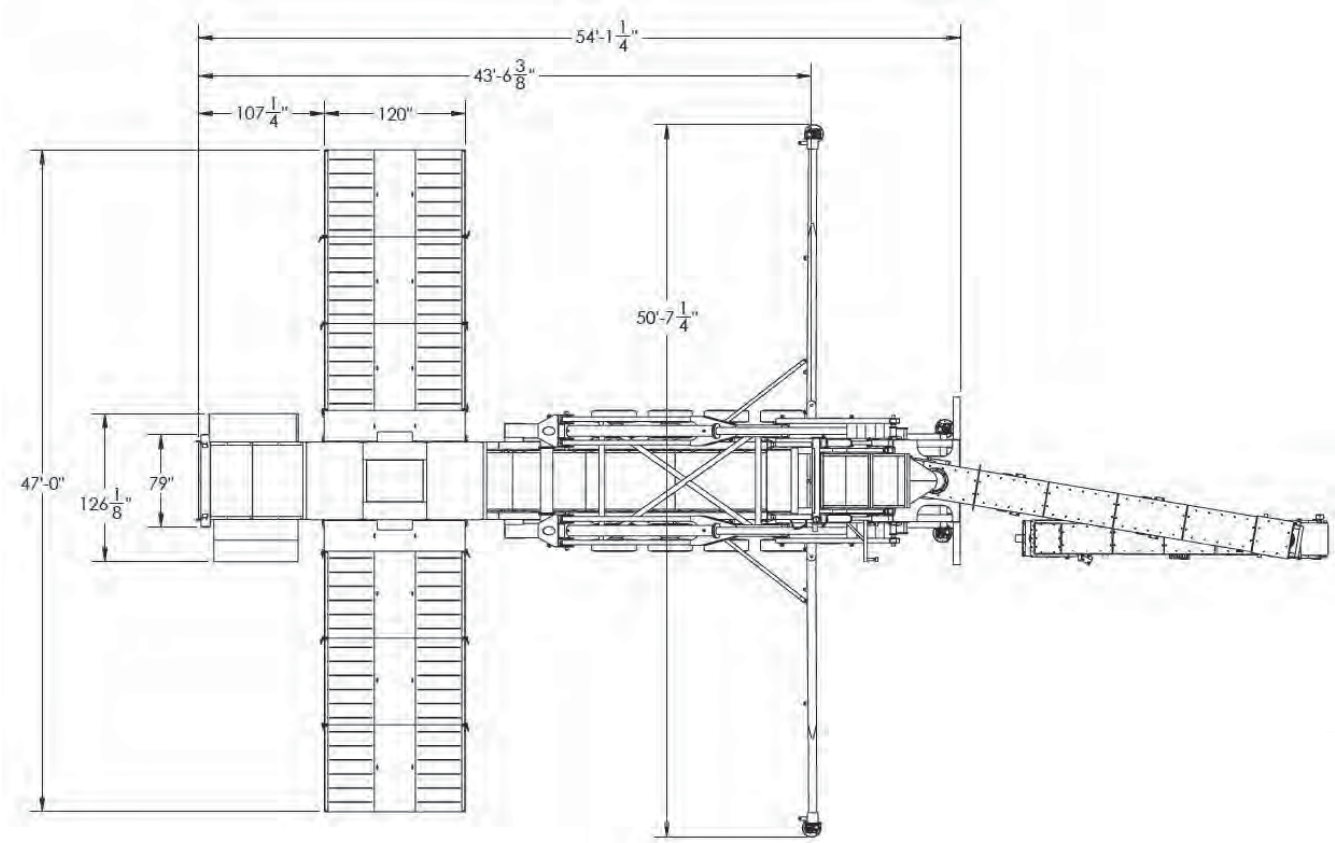
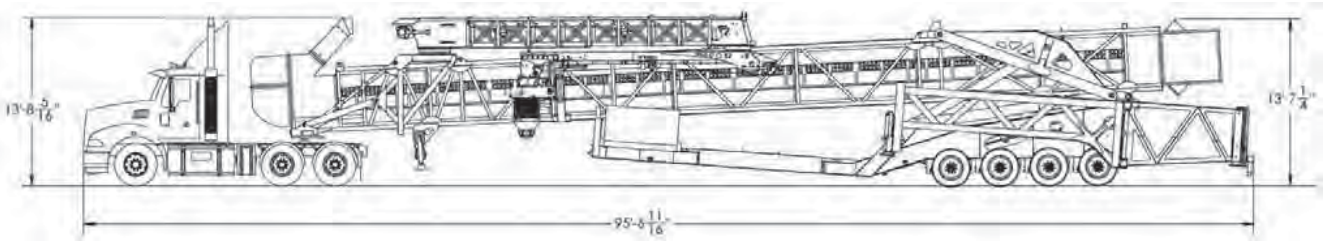


EXHIBIT 5

Top Fill
Sand Loading System

Dimensions





solarisoilfield.com/topfill

EXHIBIT 5

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1:39
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Last week, Kyle Ramachandran, Solaris President and CFO, joined a panel with a esteemed group of industry executives to discuss North American Oilfield Services at the CapitalOne Securities, Inc 2022 Energy Conference.
When discussing business expansion and the introduction of new technologies in the market, Kyle commented "We were able to take our new Top Fill Sand Loading System from design, to testing and development very quickly to meet market demand. This has led to us working in new basins and for new customers we didn't work for in the past."
#panel #technology #energy #oilfield
Mike Stanton and 18 others
1 repost
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EXHIBIT 6


Solaris Oilfield Infrastructure
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As Solaris grows as a company, so grows our footprint.
We are proud to announce that we are opening two new locations in Vernal, UT and in Casper, WY, which will serve as repair, warehousing and equipment storage facilities to support our operations, workforce and customers in the Rockies region.
Learn more about Solaris at https://lnkd.in/g8a34V94
#rockies #newlocations #growth
NEW LOCATIONS
VERNAL, UT & CASPER, WY
SOLARIS
119
1 comment • 6 reposts
Like
Comment
Repost
Send

EXHIBIT 7



6/2/2024

EXHIBIT 8



6/2/2024

EXHIBIT 8



6/2/2024

EXHIBIT 8



6/2/2024

EXHIBIT 8



6/10/2024

EXHIBIT 8

Infringement Allegations for Amended Complaint Re: U.S. Patent No. 11,780,689 ("'689 Patent") and Solaris Infringing System

Alphanumeric Labels for claim elements/requirements:

A – base assembly
A1 – base frame
A2 – base conveyor
A3 – outrigger structure
A4—axle with wheels
B – aggregate elevating assembly
B1 – deployable frame
B1a – storage position of deployable frame
B1b – deployed position of deployable frame
B2 – elevating conveyor
B3 – free end of deployable frame
C – conveyor extension assembly
C1 – extension conveyor
C2 – inlet of extension conveyor
C3 – outlet of extension conveyor
C4 – inboard segment of extension conveyor
C5 – outboard segment of extension conveyor
C6 – axis about which inboard and outboard segments pivot with respect to each other
C7 – axis about which inboard and outboard segments pivot with respect to elevating assembly
C8 – horizontal operational plane of movement of inboard and outboard segments
C9 – inboard pivot between inboard segment and aggregate elevating assembly
C10 – outboard pivot between inboard and outboard segments
D – trailer structure
E – unloader structure
E1 – ramp
E2 – grate
F – conveyer support frame
F1 – extension actuator / extension conveyor lift structure
G1 – lift arm structure
G2 – arm structure actuator
G3 – lift arm structure link members

‘689 Patent claim elements as read upon by the Infringing System (“Solaris apparatus”)

Claim elements	Solaris apparatus
1. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising:	--Solaris apparatus is intended for use to transfer aggregate from a vehicle into an elevated position above a storage silo.
a base assembly (A) for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:	--Solaris apparatus has a base assembly (A) designed to be driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
a base frame (A1) being elongated along a longitudinal axis and having a leading end and a trailing end;	--Solaris apparatus has a base frame (A1) that is elongated, including a leading and trailing end (FIGS. 1-5).
an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame (A1); and	--Solaris apparatus has an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame (FIGS. 1 & 2).
a base conveyor (A2) mounted on the base frame (A1) and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame;	--Solaris apparatus has a base conveyor (A2) mounted on the base frame (A1) and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame. A portion of the base conveyor is located adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame (FIGS 1, 2, & 5).
an aggregate elevating assembly (B) for elevating aggregate from the base assembly, (A) the aggregate elevating assembly comprising:	--Solaris apparatus has an aggregate elevating assembly (B), which receives aggregate from the base conveyor on the base assembly (A) and elevates the aggregate (FIGS. 1-7).
a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b), the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame (B1) being elongated with a base end and a free end (B3); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage position (B1a) and a deploy position (B1b). The storage position (FIG. 3) is the transport configuration and the deploy position (FIGS. 1 & 5) is the operational configuration. The deployable frame (B1) is elongated with a base end and a free end (B3).
an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1).

EXHIBIT 9

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a conveyor extension assembly (C) for conveying aggregate to locations horizontally outward from the aggregate elevating assembly (B), the conveyor extension assembly comprising:	--Solaris apparatus has a conveyor extension assembly (C) that conveys aggregate from the elevating conveyor to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1 & 5-7).
an extension conveyor (C1) for moving aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B), the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame (B1) of the aggregate elevating assembly (B), the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly,	--Solaris apparatus has an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B). The extension conveyor is movable with respect to the aggregate elevating assembly between a lowered transport position/configuration (FIG. 3) and a raised operational position/configuration (FIG. 1). In the lowered position (FIG. 3) the extension conveyor is adjacent to the deployable frame (B1) of the aggregate elevating assembly (B). In the raised position (FIG. 1), the extension conveyor is positioned generally away from the deployable frame.
wherein the extension conveyor (C1) is articulated between the inlet and outlet (C2 and 3) with an inboard segment (C4) and an outboard segment (C5), the inboard segment being pivotally connected to the deployable frame (B1) of the aggregate elevating assembly (B) by an inboard pivot (C9), the outboard segment being pivotally connected to the inboard segment by an outboard pivot (C10); and	--Solaris apparatus has a conveyor extension assembly (C) with an extension conveyor (C1) which moves aggregate from an inlet (C2) to an outlet (C3) at a location outward from the elevating assembly. (FIGS. 1, 2 6, & 7). The extension conveyor includes inboard (C4) and outboard (C5) segments (FIGS. 1, 2, & 4-7). The inboard and outboard segments are articulated between the inlet and outlet so that they are pivotable with respect to each other about a substantially vertical axis (C6) (FIGS. 1, 2, & 4-7). The inboard segment is also pivotally mounted on the deployable frame (B1) of the elevating assembly (B) to pivot about a substantially vertical axis (C7), which adjusts the position of the outlet.
wherein the inboard segment of the extension conveyor (C4) of the conveyor extension assembly (C) is pivotable at the inboard pivot (C9) about a substantially vertical axis (C7) with respect to the deployable frame (B1) at the inboard pivot when the extension	--Solaris apparatus has an inboard segment (C4) that is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9) about a substantially vertical axis (C7) with respect to the deployable frame (B1) (FIGS. 1, 2, & 6). It

conveyor is in the raised position, the outboard segment (C5) of the extension conveyor being pivotable at the outboard pivot (C10) about a substantially vertical axis (C6) with respect to the inboard segment when the extension conveyor is in the raised position.	also has an outboard segment (C5), which is pivotable with respect to the inboard segment at an outboard pivot (C10) about a substantially vertical axis (C6) with respect to the inboard segment (FIGS. 1, 2, 6, & 7).

Claim elements	Solaris apparatus
2. The apparatus of claim 1 wherein the base assembly (A) has at least one axle and a pair of wheels (A4) mounted on the at least one axle such that the base assembly is transportable across the ground surface.	--Solaris apparatus has a base assembly (A) with at least one axle and a pair of wheels (A4) mounted on the at least one axle (FIG. 3) so that the base assembly can be transported on the ground.

Claim elements	Solaris apparatus
3. The apparatus of claim 2 wherein the aggregate elevating assembly (B) includes trailer structure (D) configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a).	--Solaris apparatus has an aggregate elevating assembly (B) with a trailer structure (D) configured to permit the apparatus to be towed across a ground surface. The trailer structure is positioned near or adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a) (FIG. 3).

Claim elements	Solaris apparatus
4. The apparatus of claim 1 wherein the lowered position of the extension conveyor (C1) of the conveyor extension assembly (C) is characterized by the extension conveyor being oriented substantially parallel to the deployable frame (B1) of the aggregate elevating assembly (B), the raised position of the extension conveyor being characterized by the extension conveyor being oriented substantially perpendicular to the deployable frame of the aggregate elevating assembly.	--When the Solaris apparatus extension conveyor (C1) of the conveyor extension assembly (C) is in a lowered position (FIG. 3), the extension conveyor is substantially parallel to the deployable frame (B1) of the aggregate elevating assembly (B), and when the Solaris apparatus extension conveyor of the conveyor extension assembly is in a raised position (FIG. 1), the extension conveyor is substantially perpendicular to the deployable frame of the aggregate elevating assembly.

Claim elements	Solaris apparatus
5. The apparatus of claim 1 wherein the raised position of the extension conveyor (C1) of the conveyor extension assembly (C) is characterized by the extension conveyor being cantilevered outwardly from the deployable frame (B1) of the aggregate elevating assembly (B).	When the extension conveyor (C1) of the conveyor extension assembly (C) of the Solaris apparatus is in a raised position (FIGS. 1, 5, 6, & 7), the extension conveyor is cantilevered outwardly, i.e., projects outward like a beam, from the deployable frame (B1) of the aggregate elevating assembly (B).

Claim elements	Solaris apparatus
6. The apparatus of claim 1 wherein the conveyor extension assembly (C) additionally comprises: a conveyor support frame (F) supporting the segments of the extension conveyor (C4, C5) on the aggregate elevating assembly (B), the conveyor support frame being movable with respect to the deployable frame (B1) of the aggregate elevating assembly when the extension conveyor moves between the lowered position and the raised position.	--Solaris apparatus has a conveyor support frame (F) (FIGS. 1, 5, 6, & 7) that supports the inward and outward segments of the extension conveyor (C4, C5) on the aggregate elevating assembly (B). The conveyor support frame is movable with respect to the deployable frame (B1) of the aggregate elevating assembly when the extension conveyor moves between the lowered position and raised position.
an extension conveyor lift structure (F1) acting on the conveyor support frame for moving the extension conveyor between the lowered position and the raised position.	--Solaris apparatus has a conveyor lift structure (F1) that moves the extension conveyor between a lowered and raised position (which is visible as extension actuator) (FIGS. 5, 6, & 7).

Claim elements	Solaris apparatus
7. The apparatus of claim 1 wherein the extension conveyor lift structure comprises at least one extension actuator (F1) extendable to pivot the conveyor support frame (F) away from the deployable frame (B1) and move the extension conveyor (C1) to the raised position, the at least one extension actuator being retractable to pivot the conveyor support frame toward the deployable frame and move the extension conveyor to the lowered position.	--Solaris apparatus has an extension conveyor lift structure with at least one extension actuator (F1) extendable to pivot the conveyor support frame (F) away from the deployable frame (B1) and move the extension conveyor (C1) to the raised position. The actuator is retractable to pivot the conveyor support frame toward the deployable frame and move the extension conveyor to the lowered position (FIGS. 5, 6, & 7).

Claim elements	Solaris apparatus
8. The apparatus of claim 1 wherein the conveyor extension assembly (C) includes a chute (C11) mounted on the extension conveyor (C1) to extend downward from the extension conveyor and receive aggregate from the outlet (C3) of the extension conveyor.	--Solaris apparatus has a chute (C11) mounted on the extension conveyor (C1) extending downward from the extension conveyor to receive aggregate from the outlet (C3) of the extension conveyor (FIG.1).

Claim elements	Solaris apparatus
9. The apparatus of claim 1 wherein the base assembly (A) includes an outrigger structure (A3) mounted on the base frame (A1), the	--Solaris apparatus has a base assembly (A) with an outrigger structure (A3) mounted on the base frame (A1) (visible as frame

outrigger structure being movable with respect to the base frame between a stabilizing condition corresponding to an operational configuration of the apparatus and a non-stabilizing condition corresponding to a transport configuration of the apparatus.	members on either side of the base frame and perpendicular to base frame). It is movable with respect to the base frame between a stabilizing operational configuration and a non-stabilizing transport configuration (FIGS. 2, 4, & 5, where FIG. 4 shows the outrigger structure in the process of being deployed).

Claim elements	Solaris apparatus
10. The apparatus of claim 1 wherein the unloader structure (E) includes a pair of ramps (E1) and a grate (E2) mounted on the base frame (A1), the grate being positioned between the pair of ramps, at least a portion of the grate being reticulated to permit aggregate to pass through the grate and fall onto the base conveyor (A2).	--Solaris apparatus has an unloader structure (E) that includes a pair of ramps (E1) and a grate (E2) mounted on the base frame (A1) that is positioned between the pair of ramps, and at least a portion of the grate is reticulated to permit aggregate to pass through the grate and fall onto the base conveyor (A2).

Claim elements	Solaris apparatus
11. The apparatus of claim 10 wherein each of the ramps (E1) of the unloader structure (E) is pivotable with respect to the base frame (A1), the ramps extending laterally in substantially horizontal and opposite directions from the base frame in the operational condition of the apparatus, the ramps extending substantially vertical and parallel to each other in the transport condition of the apparatus.	--Solaris apparatus has a pair of ramps (E1) pivotable with the base frame (A1) that extend laterally and horizontally in operational condition (FIGS. 2 & 5) and vertically and parallel with one another in transport condition (FIG. 4).

Claim elements	Solaris apparatus
12. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising:	--Solaris apparatus is designed to elevate and transfer aggregate materials from a vehicle into an elevated position above a storage silo.
a base assembly (A) for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:	--Solaris apparatus has a base assembly (A) designed to be driven over in order to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
a base frame (A1) being elongated along a longitudinal axis and having a leading end and a trailing end;	--Solaris apparatus has a base assembly (A) with a base frame (A1) that is elongated to include a leading and trailing end (FIGS. 1-5).
an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame; and	--Solaris apparatus has an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame (A1) (FIGS. 1 & 2).

a base conveyor (A2) mounted on the base frame (A1) and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame;	--Solaris apparatus has a base conveyor (A2) mounted on the base frame (A1) and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame. A portion of the base conveyor is positioned adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame (FIGS 1, 2, & 5).
an aggregate elevating assembly (B) for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:	--Solaris apparatus has an aggregate elevating assembly (B) which receives aggregate from the base conveyor and elevates the aggregate (FIGS. 1-7).
a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b), the storage position (B1a) corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end (B3); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage position (B1a) and a deploy position (B1b), where the storage position (FIG. 3) corresponds to a transport configuration and the deploy position (FIGS. 1 & 5) corresponds to an operational configuration, and the deployable frame (B1) is elongated with a base end and a free end (B3).
an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1).
a conveyor extension assembly (C) for conveying aggregate to locations horizontally outward from the aggregate elevating assembly (B), the conveyor extension assembly comprising	--Solaris apparatus has a conveyor extension assembly (C) able to carry aggregate from the elevating conveyor to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7).
an extension conveyor (C1) for moving aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B), the extension conveyor being movable with respect to the aggregate elevating assembly (B) between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the	--Solaris apparatus has an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B) and is movable with respect to the aggregate elevating assembly (B) between a lowered transport position (FIG. 3) and a raised operational position (FIG. 1). In the lowered position (FIG. 3) the extension conveyor is adjacent to the deployable frame (B1) of the aggregate elevating assembly. In the raised

extension conveyor being positioned adjacent to the deployable frame (B1) of the aggregate elevating assembly, the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly; and	position (FIG. 1) the extension conveyor is positioned generally away from the deployable frame of the aggregate elevating assembly.
wherein the extension conveyor (C1) is articulated between the inlet (C2) and outlet (C3) with an inboard segment (C4) and an outboard segment (C5), the inboard segment being pivot ally connected to the deployable frame (B1) of the aggregate elevating assembly (B) by an inboard pivot (C9), the outboard segment being pivotally connected to the inboard segment by an outboard pivot (C10);	--Solaris apparatus has a conveyor extension assembly (C) having an extension conveyor (C1) that moves aggregate from an inlet (C2) to an outlet (C3) location outward from the elevating assembly (FIGS. 1, 2 6, & 7). The extension conveyor includes inboard (C4) and outboard (C5) segments (FIGS. 1, 2, & 4-7). The inboard segment is pivotable with respect to the deployable frame (B1) of aggregate elevating assembly (B) at an inboard pivot (C9) (FIGS. 1, 2, & 6). The outboard segment (C5) is pivotable with respect to the inboard segment at an outboard pivot (C10) (FIGS. 1, 2, 6, & 7).
wherein the base assembly (A) has at least one axle and a pair of wheels (A4) mounted on the at least one axle such that the base assembly is transportable across the ground surface;	--Solaris apparatus has a base assembly (A) that has at least one axle and a pair of wheels (A4) mounted on the at least one axle (FIG. 3) so that the base assembly can be transported on the ground.
wherein the aggregate elevating assembly (B) includes trailer structure (D) configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a);	--Solaris apparatus has an aggregate elevating assembly (B) with a trailer structure (D) configured to permit the apparatus to be towed across a ground surface. The trailer structure is positioned near or adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a) (FIG. 3).
wherein the trailer structure (D) comprises: at least one landing leg (D1) mounted on the deployable frame (B1) to rest upon the ground surface when the deployable frame is in the storage position (B1a); and	--Solaris apparatus has a trailer structure (D) that includes at least one landing leg (D1) mounted on the deployable frame (B1), which rests upon the ground surface when the deployable frame is in the storage position (B1a) (FIGS. 1 & 3).
a kingpin (D2) mounted on the deployable frame (B1) toward the free end (B3) of the deployable frame, the kingpin being directed in a same direction as the at least one landing leg (D1) to engage a hitch of a towing vehicle when the deployable frame is in the storage position (B1a).	--Solaris apparatus has a trailer structure (D) that includes a kingpin (D2) located toward the free end (B3) of the deployable frame (B1). The kingpin (D2) is directed in the same direction as the landing leg (D1) and engages a hitch of a towing vehicle when the

	deployable frame is in the storage position (B1a) (FIGS. 1 & 3).

Claim elements	Solaris apparatus
13. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising:	--Solaris apparatus is designed to elevate and transfer aggregate materials from a vehicle into an elevated position above a storage silo.
a base assembly (A) for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:	--Solaris apparatus has a base assembly (A) designed to driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
a base frame (A1) being elongated along a longitudinal axis and having a leading end and a trailing end	--Solaris apparatus base assembly (A) has a base frame (A1) that is elongated with a leading and trailing end (FIGS. 1-5).
an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame; and	--Solaris apparatus has an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame (A1) (FIGS. 1 & 2).
a base conveyor (A2) mounted on the base frame (A1) and sides of the deployable frame (B1) extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame;	--Solaris apparatus has a base conveyor (A2) mounted on the base frame (A1) and the sides of the deployable frame (B1) extend along a longitudinal portion of the base frame between its leading and trailing ends. A portion of the base conveyor is located adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame (FIGS 1, 2, & 5).
an aggregate elevating assembly (B) for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:	--Solaris apparatus has an aggregate elevating assembly (B) that receives aggregate from the base conveyor (A2) of the base assembly (A) and elevates the aggregate (FIGS. 1-7).
a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b), the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end (B3); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage/transport position/configuration (B1a) and a deployed/operational position/configuration (B1b) (FIGS. 1 & 3), and the deployable frame (B1) is elongated with a base end and a free end (B3).
an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly

	(A) toward the free end (B3) of the deployable frame (B1).
a conveyor extension assembly (C) for conveying aggregate to locations horizontally outward from the aggregate elevating assembly (B), the conveyor extension assembly comprising:	--Solaris apparatus has a conveyor extension assembly (C) able to carry aggregate from the elevating conveyor to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7).
an extension conveyor (C1) for moving aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B), the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame (B1) of the aggregate elevating assembly (B), the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly,	--Solaris apparatus has an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B) and is movable with respect to the aggregate elevating assembly between a lowered/transport position/configuration (FIG. 3) and a raised/operational position/configuration (FIG. 1). In the lowered position, the extension conveyor is adjacent to the deployable frame (B1) of the aggregate elevating assembly (B). In the raised position, the extension conveyor is positioned generally away from the deployable frame of the aggregate elevating assembly.
wherein the extension conveyor (C1) is articulated between the inlet and outlet (C2, C3) with an inboard segment and an outboard segment (C4, C5), the inboard segment being pivotally connected to the deployable frame (B1) of the aggregate elevating assembly (B) by an inboard pivot (C9), the outboard segment being pivotally connected to the inboard segment by an outboard pivot (C10); and	--Solaris apparatus has a conveyor extension assembly (C) having an extension conveyor (C1) that moves aggregate from an inlet (C2) to an outlet (C3) location outward from the elevating assembly (FIGS. 1, 2, 6, & 7). The extension conveyor includes an inboard segment (C4) and an outboard segment (C5) (FIGS. 1, 2, & 4-7). The inboard and outboard segments are articulated between the inlet and outlet so that the segments are pivotable with respect to each other (FIGS. 1, 2, & 4-7). The inboard segment is also pivotally mounted on the deployable frame (B1) of the elevating assembly (B) by an inboard pivot (C9), and the outboard segment is pivotally connected to the inboard segment by an outboard pivot (C10).
wherein the aggregate elevating assembly (B) includes a frame deployment assembly (G1,	--Solaris apparatus has an aggregate elevating assembly (B) that includes a frame

G2, G3) configured to move the deployable frame (B1) with respect to the base frame (A1) between the storage (B1a) and deploy (B1b) position, the frame deployment structure comprising:	deployment assembly comprised of a lift arm structure of link members (G1, G3) and an arm structure actuator (G2), configured to move the deployable frame (B1) with respect to the base frame (A1) between storage (B1a) and deploy (B1b) positions (FIGS. 1 & 5).
at least one lift arm structure (G1) mounted on the base frame (A1) and the deployable frame (B1) and forming a linkage between the base frame and the deployable frame, the at least one lift arm structure being articulated between opposite first and second ends of the arm structure; and	--The aggregate elevating assembly (B) of Solaris apparatus has at least one lift arm structure (G1) mounted on the base frame (A1) and the deployable frame (B1) that forms a linkage between the base frame and the deployable frame and is articulated between opposite first and second ends of the arm structure (FIGS. 1 & 5).
an actuator (G2) mounted on the base frame (B1) and the at least one lift arm structure (G1) to move the at least one lift arm structure with respect to the base frame.	Solaris apparatus has an actuator (G2) mounted on the base frame (A1) and the at least one lift arm structure (G1) to move the at least one lift arm structure with respect to the base frame (B1) (FIGS. 1 & 5).

Claim elements	Solaris apparatus
14. The apparatus of claim 13 wherein the at least one lift arm structure (G1) comprising a pair of the lift arm structures mounted on the base frame (A1) and the deployable frame (B1), the pair of lift arm structures being located on opposite lateral and sides of the deployable frame.	--Solaris apparatus has a pair of lift arm structures (G1) mounted on opposite and lateral sides of the deployable frame (B1) and base frame (A1) (FIG. 5).

Claim elements	Solaris apparatus
15. The apparatus of claim 13 wherein the at least one lift arm structure (G1) comprises a first link member and a second link member pivotally mounted together (G3); and wherein the actuator of the frame deployment assembly (G2) is mounted on a base mount point on the base frame (A1) and a medial mount point on the second link member.	--Solaris apparatus has lift arms structures (G1) with two link members pivotally mounted together (G3), where the actuator of the frame deployment assembly (G2) is mounted on a base mount point on the base frame (A1) and a medial mount point on the second link member.

Claim elements	Solaris apparatus
16. An aggregate transferring apparatus for elevating and transferring aggregate, the apparatus comprising	--Solaris apparatus is designed to elevate and transfer aggregate materials from a vehicle into an elevated position above a storage silo.

a base assembly (A) for receiving aggregate to be conveyed by the transferring apparatus, the base assembly comprising:	--Solaris apparatus has a base assembly (A) designed to driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
a base frame (A1) being elongated along a longitudinal axis and having a leading end and a trailing end;	--Solaris apparatus base assembly (A) has a base frame (A1) elongated to include a leading and trailing end (FIGS. 1-5).
an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame; and	--Solaris apparatus has an unloader structure (E) mounted on the base frame (A1) to receive aggregate from a vehicle at least partially positioned over the base frame (A1) (FIGS. 1 & 2).
a base conveyor (A2) mounted on the base frame (A1) and extending along a longitudinal portion of the base frame between the leading and trailing ends of the base frame, a portion of the base conveyor being positioned adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame;	--Solaris apparatus has a base conveyor (A2) mounted on the base frame (A1) extending along a longitudinal portion of the base frame between the base frame's leading and trailing ends (FIGS. 1, 2, & 5). A portion of the base conveyor is positioned adjacent to the unloader structure (E) to receive aggregate from the vehicle positioned over the base frame (FIGS 1, 2, & 5).
an aggregate elevating assembly (B) for elevating aggregate from the base assembly, the aggregate elevating assembly comprising:	--Solaris apparatus has an aggregate elevating assembly (B) that receives aggregate from the base conveyor and elevates the aggregate (FIGS. 1-7).
a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b), the storage position corresponding to a transport configuration of the apparatus and the deploy position corresponding to an operational configuration of the apparatus, the deployable frame being elongated with a base end and a free end (B3); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage/transport position/configuration (B1a) (FIG. 3) and a deploy/operational position/configuration (B1b) (FIGS. 1 & 5), and the deployable frame (B1) is elongated with a base end and a free end (B3).
an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1).
a conveyor extension assembly (C) for conveying aggregate to locations horizontally outward from the aggregate elevating assembly (B), the conveyor extension assembly comprising:	--Solaris apparatus has a conveyor extension assembly (C), which is able to carry aggregate from the elevating conveyor (B2) to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7).

an extension conveyor (C1) for moving aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B), the extension conveyor being movable with respect to the aggregate elevating assembly between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus, the lowered position being characterized by the extension conveyor being positioned adjacent to the deployable frame (B1) of the aggregate elevating assembly, the raised position being characterized by the extension conveyor being positioned generally away from the deployable frame of the aggregate elevating assembly;	--Solaris apparatus has an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet (C3) at a location outward from the aggregate elevating assembly (B) and is movable with respect to the aggregate elevating assembly between a lowered/transport position/configuration (FIG. 3) and a raised/operational position/configuration (FIG. 1). In the lowered position, the extension conveyor is adjacent to the deployable frame (B1) of the aggregate elevating assembly. In the raised position, the extension conveyor is positioned generally away from the deployable frame.
wherein the extension conveyor (C1) is articulated between the inlet (C2) and outlet (C3) with an inboard segment (C4) and an outboard segment (C5), the inboard segment being pivotally connected to the deployable frame of the aggregate elevating assembly by an inboard pivot (C9), the outboard segment being pivotally connected to the inboard segment by an outboard pivot (C10); and	--Solaris apparatus has an extension conveyor (C1) articulated between the inlet (C2) and outlet (C3) with an inboard segment (C4) and an outboard segment (C5) (FIGS. 1, 2, & 4-7). The inboard segment is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9) (FIGS. 1, 2, & 6). The outboard segment is pivotable with respect to the inboard segment at an outboard pivot (C10) (FIGS. 1, 2, 6, & 7).
wherein the outboard pivot (C10) of the extension conveyor (C1) of the conveyor extension assembly (C) is configured to permit transfer of aggregate from the inboard segment (C4) to the outboard segment (C5).	--Solaris apparatus has an outboard pivot (C10) of the extension conveyor (C1) of the conveyor extension assembly (C) configured to permit transfer of aggregate from the inboard segment (C4) to the outboard segment (C5) (FIGS. 1, 2, 6, & 7).

Claim elements	Solaris apparatus
17. The apparatus of claim 16 wherein the inboard segment (C4) of the extension conveyor (C1) of the conveyor extension assembly (C) is pivotable at the inboard pivot (C9) about a substantially vertical axis (C7) with respect to the deployable frame (B1) at the inboard pivot when the extension conveyor is in the raised position, the outboard segment (C5) of the extension	--When the extension conveyor (C1) of the Solaris apparatus is in the raised position, the inboard segment (C4) of the extension conveyor is pivotable at the inboard pivot (C9) about a substantially vertical axis (C7) with respect to the deployable frame (B1) and the outboard segment (C5) of the extension conveyor is pivotable at the outboard pivot (C10) about a substantially vertical axis with

conveyor being pivotable at the outboard pivot (C10) about a substantially vertical axis with respect to the inboard segment (C6) when the extension conveyor is in the raised position	respect to the inboard segment (C6) (FIGS. 1, 2, & 4-7.)

Claim elements	Solaris apparatus
18. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:	--Solaris apparatus is designed to elevate and transfer aggregate materials from a vehicle into an elevated position above a storage silo.
a base assembly (A) configured to receive aggregate to be conveyed by the transferring apparatus, the base assembly including: an elongated base frame (A1); and a base conveyor (A2) extending longitudinally of the base frame;	--Solaris apparatus has a base assembly (A) designed to driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5). The base assembly has a base frame (A1) that is elongated and has a base conveyor (A2) extending longitudinally of the base frame (FIGS. 1-5).
an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A), the aggregate elevating assembly including:	--Solaris apparatus has an aggregate elevating assembly (B) which receives aggregate from the base conveyor (A2) of the base assembly (A) and elevates the aggregate (FIGS. 1-7).
a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage position (B1a) (FIG. 3) and a deploy position (B1b) (FIGS. 1 & 5).
an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward a free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1).
a conveyor extension assembly (C) configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly (B), the conveyor extension assembly comprising:	--Solaris apparatus has a conveyor extension assembly (C), which is able to carry aggregate from the elevating conveyor (B2) to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7).
an extension conveyor (C1) for moving aggregate from an inlet (C2) of the extension conveyor at the aggregate elevating assembly (B) to an outlet (C3) of the extension conveyor at a location outward from the elevating assembly;	--Solaris apparatus has an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 4-7).

wherein the extension conveyor (C1) includes an inboard segment (C4) and an outboard segment (C5), the inboard and outboard segments being articulated between the inlet (C2) and outlet (C3) such that the inboard and outboard segments are pivotable with respect to each other (C10) and with respect to the aggregate elevating assembly (C9) about substantially vertical axes (C6, C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly; and	--Solaris apparatus has an extension conveyor (C1) that includes an inboard segment (C4) and an outboard segment (C5) (FIGS. 1, 2, & 4-7). The inboard and outboard segments are articulated between the inlet (C2) and outlet (C3) so that the segments are pivotable with respect to each other about substantially vertical axes (C6, C7) (FIGS. 1, 2, & 4-7). The outboard segment is pivotally connected (C10) to the inboard segment about a substantially vertical axis (C6), and the inboard segment is pivotally mounted (C9) on the deployable frame (B1) of the elevating assembly (B) to pivot about a substantially vertical axis (C7), which adjusts the position of the outlet (C3) (FIGS. 1, 2, & 4-7).
wherein the inboard and outboard segments (C4, C5) of the extension conveyor (C1) are pivotable with respect to each other in a substantially horizontal operational plane (C8).	--Solaris apparatus has an extension conveyor (C1) with inboard (C4) and outboard (C5) segments that pivot in a substantially horizontal operational plane (C8) (FIGS. 1 & 5-7).

Claim elements	Solaris apparatus
19. The apparatus of claim 18 wherein the extension conveyor (C1) is movable with respect to the aggregate elevating assembly (B) between a lowered position corresponding to the transport configuration of the apparatus and a raised position corresponding to the operational configuration of the apparatus for movement of the inboard and outboard segments (C4, C5) in a substantially horizontal operational plane (C8).	--Solaris apparatus has an extension conveyor (C1) that is moveable with respect to the aggregate elevating assembly (B) between a lowered transport position and a raised operational position, where the inboard and outboard segments (C4, C5) are then in a substantially horizontal plane (C8) (FIGS. 1 & 5-7).

Claim elements	Solaris apparatus
20. The apparatus of claim 18 wherein the inboard segment (C4) of the extension conveyor (C1) is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9), the outboard segment (C5) of the extension conveyor being pivotable with respect to the inboard segment at an outboard pivot (C10) spaced from the elevating assembly by the inboard segment	--Solaris apparatus has an extension conveyor (C1) with an inboard segment (C4) that is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9), and an outboard segment (C5) pivotable with respect to the inboard segment at an outboard pivot (C10) spaced from the elevating assembly by the inboard segment.

Claim elements	Solaris apparatus
21. The apparatus of claim 18 wherein the aggregate elevating assembly (B) includes trailer structure (D) configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a)	--Solaris apparatus has an aggregate elevating assembly (B) with a trailer structure (D) configured to permit the apparatus to be towed across a ground surface. The trailer structure is positioned near or adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a) (FIG. 3).

Claim elements	Solaris apparatus
22. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:	--Solaris apparatus is intended for use to transfer aggregate from a vehicle into an elevated position above a storage silo.
a base assembly (A) configured to receive aggregate to be conveyed by the transferring apparatus, the base assembly (A) including:	--Solaris apparatus has a base assembly (A) designed to driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
an elongated base frame (A1); and	--Solaris apparatus has base assembly (A) with a base frame (A1), which is elongated. (FIGS. 1-5).
a base conveyor (A2) extending longitudinally of the base frame (A1);	--Solaris apparatus base assembly (A) has a base conveyor (A2) extending longitudinally of the base frame (A1).
an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A),	--Solaris apparatus has an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A).
the aggregate elevating assembly (B) including: a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage position (B1a) (FIG. 3) and a deploy position (B1b) (FIGS. 1 & 5).
[the aggregate elevating assembly including:] an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward a free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1).
a conveyor extension assembly (C) configured to convey aggregate to locations elevated from the ground surface and	--Solaris apparatus has a conveyor extension assembly (C) that is able to carry aggregate from the elevating conveyor to a location

horizontally outward from the aggregate elevating assembly (B),	horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7.)
the conveyor extension assembly (C) comprising: an extension conveyor (C1) for moving aggregate from an inlet (C2) of the extension conveyor at the aggregate elevating assembly (B) to an outlet of the extension conveyor (C3) at a location outward from the elevating assembly, and	--Solaris apparatus has a conveyor extension assembly (C) with an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet (C3) at a location outward from the elevating assembly (B) (FIGS. 1, 2, & 4-7).
wherein the extension conveyor (C1) includes an inboard segment (C4) and an outboard segment (C5), the inboard and outboard segments being articulated between the inlet (C2) and outlet (C3) such that the inboard and outboard segments are pivotable with respect to each other and	--Solaris apparatus has an extension conveyor (C1) with an inboard segment (C4) and an outboard segment (C5) that are articulated between the inlet (C2) and outlet (C3) so that the inboard and outboard segments are pivotable with respect to each other (FIGS. 1, 2, & 4-7).
[such that the inboard and outboard segments are pivotable] with respect to the aggregate elevating assembly (B) about substantially vertical axes (C6, C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly;	--Solaris apparatus has inboard and outboard segments (C4, C5) that are pivotable with respect to the aggregate elevating assembly (B) and each other about substantially vertical axes (C6, C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly (B) (FIGS. 1, 2, & 4-7).
wherein the inboard segment (C4) of the extension conveyor (C1) is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9),	--Solaris apparatus has an inboard segment (C4) that is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9) (FIGS. 1, 2, & 6).
the outboard segment (C5) of the extension conveyor (C1) being pivotable with respect to the inboard segment (C4) at an outboard pivot (C10) spaced from the elevating assembly (B) by the inboard segment; and	--Solaris apparatus has an outboard segment (C5) that is pivotable with respect to the inboard segment (C4) at an outboard pivot (C10), which is spaced from the elevating assembly (B) by the inboard segment (FIGS. 1, 2, 6, & 7).
wherein the inboard segment (C4) of the extension conveyor (C1) of the conveyor extension assembly (C) is pivotable at the inboard pivot (C9) about a substantially vertical axis (C7) with respect to the deployable frame (B1) at the inboard pivot (C9) when the extension conveyor (C1) is in the raised position,	--Solaris apparatus has an inboard segment (C4) that is pivotable at an inboard pivot (C9) about a substantially vertical axis (C7) with respect to the deployable frame (B1) (FIGS. 1 & 6).
the outboard segment (C5) of the extension conveyor (C1) being pivotable at the outboard pivot (C10) about a substantially vertical axis	--Solaris apparatus has an outboard segment (C5) that is pivotable at an outboard pivot (C10) about a substantially vertical axis (C6)

(C6) with respect to the inboard segment (C4) when the extension conveyor is in the raised position.	with respect to the inboard segment (C4) (FIGS. 1 & 6).

Claim elements	Solaris apparatus
23. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:	--Solaris apparatus is intended for use to transfer aggregate from a vehicle into an elevated position above a storage silo.
a base assembly (A) configured to receive aggregate to be conveyed by the transferring apparatus,	--Solaris apparatus has a base assembly (A) designed to driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
the base assembly (A) including: an elongated base frame (A1); and	--Solaris apparatus has base assembly (A) with a base frame (A1), which is elongated (FIGS. 1-5).
[the base assembly including:] a base conveyor (A2) extending longitudinally of the base frame (A1);	--Solaris apparatus base assembly (A) has a base conveyor (A2) extending longitudinally of the base frame (A1) (FIGS. 1-5).
an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A),	--Solaris apparatus has an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A).
the aggregate elevating assembly (B) including: a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage position (B1a) (FIG. 3) and a deploy position (B1b) (FIGS. 1 & 5).
[the aggregate elevating assembly including:] an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward a free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1).
a conveyor extension assembly (C) configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly (B),	--Solaris apparatus has a conveyor extension assembly (C) that is able to carry aggregate from the elevating conveyor to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7).
the conveyor extension assembly (C) comprising: an extension conveyor (C1) for moving aggregate from an inlet (C2) of the extension conveyor at the aggregate elevating assembly (B) to an outlet (C3) of the	--Solaris apparatus has a conveyor extension assembly (C) with an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet (C3) at a location outward from the elevating assembly (B) (FIGS. 1, 2, & 4-7).

extension conveyor at a location outward from the elevating assembly, and	
wherein the extension conveyor (C1) includes an inboard segment (C4) and an outboard segment (C5), the inboard and outboard segments being articulated between the inlet (C2) and outlet (C3) such that the inboard and outboard segments are pivotable with respect to each other (C6) and	--Solaris apparatus has an extension conveyor (C1) with an inboard segment (C4) and an outboard segment (C5) that are articulated between the inlet (C2) and outlet (C3) so that the inboard and outboard segments are pivotable with respect to each other (C6) (FIGS. 1, 2, & 4-7).
[such that the inboard and outboard segments are pivotable] with respect to the aggregate elevating assembly (B) about substantially vertical axes (C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly;	--Solaris apparatus has inboard and outboard segments (C4, C5) that are pivotable with respect to the aggregate elevating assembly (B) about substantially vertical axes (C6, C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly (B) (FIGS. 1, 2, & 4-7).
wherein the inboard segment (C4) of the extension conveyor (C1) is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9),	--Solaris apparatus has an inboard segment (C4) that is pivotable with respect to the aggregate elevating assembly (B) at an inboard pivot (C9) (FIGS. 1, 2, & 4).
the outboard segment (C5) of the extension conveyor (C1) being pivotable with respect to the inboard segment (C4) at an outboard pivot (C10) spaced from the elevating assembly by the inboard segment; and	--Solaris apparatus has an outboard segment (C5) that is pivotable with respect to the inboard segment (C4) at an outboard pivot (C10) spaced from the elevating assembly by the inboard segment (FIGS. 1, 2, 6, & 7).
wherein the outboard pivot (C10) of the extension conveyor (C1) of the conveyor extension assembly (C) is configured to permit transfer of aggregate from the inboard segment (C4) to the outboard segment (C5).	--Solaris apparatus has an outboard pivot (C10) through which aggregate moves from the inboard segment (C4) to the outboard segment (C5) (FIGS. 1, 2, 6, & 7).

Claim elements	Solaris apparatus
24. The apparatus of claim 23 wherein the inboard and outboard segments (C4, C5) of the extension conveyor (C1) are pivotable with respect to each other in a substantially horizontal operational plane.	--Solaris apparatus has inboard and outboard segments (C4, C5) of the extension conveyor (C1) that are pivotable with respect to each other in a substantially horizontal operational plane (C8) (FIGS. 1, 2, 6, & 7).

Claim elements	Solaris apparatus
25. An aggregate transferring apparatus for elevating and transferring aggregate to elevated locations above a ground surface, the apparatus comprising:	--Solaris apparatus is intended for use to transfer aggregate from a vehicle into an elevated position above a storage silo.

a base assembly (A) configured to receive aggregate to be conveyed by the transferring apparatus,	--Solaris apparatus has a base assembly (A) designed to driven over to have aggregate dropped onto the base assembly for conveyance (FIGS. 1-5).
the base assembly (A) including: an elongated base frame (A1); and	--Solaris apparatus has base assembly (A) with a base frame (A1), which is elongated (FIGS. 1-5).
[the base assembly including:] a base conveyor (A2) extending longitudinally of the base frame (A1) ;	--Solaris apparatus base assembly (A) has a base conveyor (A2) extending longitudinally of the base frame (A1) (FIGS. 1-5).
an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A),	--Solaris apparatus has an aggregate elevating assembly (B) configured to elevate aggregate from the base conveyor (A2) of the base assembly (A) (FIGS. 1-5).
the aggregate elevating assembly (B) including: a deployable frame (B1) mounted on the base frame (A1) and being movable between a storage position (B1a) and a deploy position (B1b); and	--Solaris apparatus has a deployable frame (B1) mounted on the base frame (A1) that is movable between a storage position (B1a) (FIG. 3) and a deploy position (B1b) (FIGS. 1 & 5).
[the aggregate elevating assembly including:] an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and convey the aggregate upwardly from the base assembly (A) toward a free end (B3) of the deployable frame (B1); and	--Solaris apparatus has an elevating conveyor (B2) configured to receive aggregate from the base conveyor (A2) and to convey the aggregate upwardly from the base assembly (A) toward the free end (B3) of the deployable frame (B1)
a conveyor extension assembly (C) configured to convey aggregate to locations elevated from the ground surface and horizontally outward from the aggregate elevating assembly (B),	--Solaris apparatus has a conveyor extension assembly (C), which is able to carry aggregate from the elevating conveyor to a location horizontally outward from the aggregate elevating assembly (B) (FIGS. 1, 2, & 5-7).
the conveyor extension assembly (C) comprising: an extension conveyor (C1) for moving aggregate from an inlet (C2) of the extension conveyor at the aggregate elevating assembly (B) to an outlet (C3) of the extension conveyor at a location outward from the elevating assembly, and	--Solaris apparatus has a conveyor extension assembly (C) with an extension conveyor (C1) that moves aggregate from an inlet of the extension conveyor (C2) to an outlet of the extension conveyor (C3) at a location outward from the elevating assembly (B).
wherein the extension conveyor (C1) includes an inboard segment (C4) and an outboard segment (C5), the inboard and outboard segments being articulated between the inlet (C2) and outlet (C3) such that the inboard and outboard segments are pivotable with respect to each other (C6) and	--Solaris apparatus has an extension conveyor (C1) with an inboard segment (C4) and an outboard segment (C5) that are articulated between the inlet (C2) and outlet (C3) so that the inboard and outboard segments are pivotable with respect to each other (C6 and C10) (FIGS. 1, 2, & 4-7).

[such that the inboard and outboard segments are pivotable] with respect to the aggregate elevating assembly about substantially vertical axes (C6, C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly (B);	--Solaris apparatus has inboard and outboard segments (C4 and C5) that are pivotable with respect to the aggregate elevating assembly (B) about substantially vertical axes (C6, C7) to permit adjustment of a position of the outlet (C3) with respect to the aggregate elevating assembly (B) (FIGS. 1, 2, 6, & 7).
wherein the aggregate elevating assembly (B) includes trailer structure (D) configured to permit the apparatus to be towed across a ground surface, the trailer structure being positioned adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a); and	--Solaris apparatus has a trailer structure (D) which permits the apparatus to be towed across the ground surface and is positioned adjacent to the ground surface when the deployable frame (B1) is in the storage position (B1a) (FIGS. 1 & 3).
wherein the trailer structure comprises: at least one landing leg (D1) mounted on the deployable frame (B1) to rest upon the ground surface when the deployable frame is in the storage position (B1a); and	--Solaris apparatus has a trailer structure (D) that includes at least one landing leg (D1) mounted on the deployable frame (B1) and that rests upon the ground surface when the deployable frame is in the storage position (B1a) (FIGS. 1 & 3).
[wherein the trailer structure comprises:] a kingpin (D2) mounted on the deployable frame (B1) toward a free end (B3) of the deployable frame, the kingpin being directed in a same direction as the at least one landing leg (D1) to engage a hitch of a towing vehicle when the deployable frame is in the storage position (B1a).	--Solaris apparatus has a trailer structure (D), which includes a kingpin (D2) that is located toward the free end (B3) of the deployable frame (B1). The kingpin (D2) is directed in the same direction as the landing leg (D1) and engages a hitch of a towing vehicle when the deployable frame (B1) is in the storage position (B1a) (FIGS. 1 & 3).

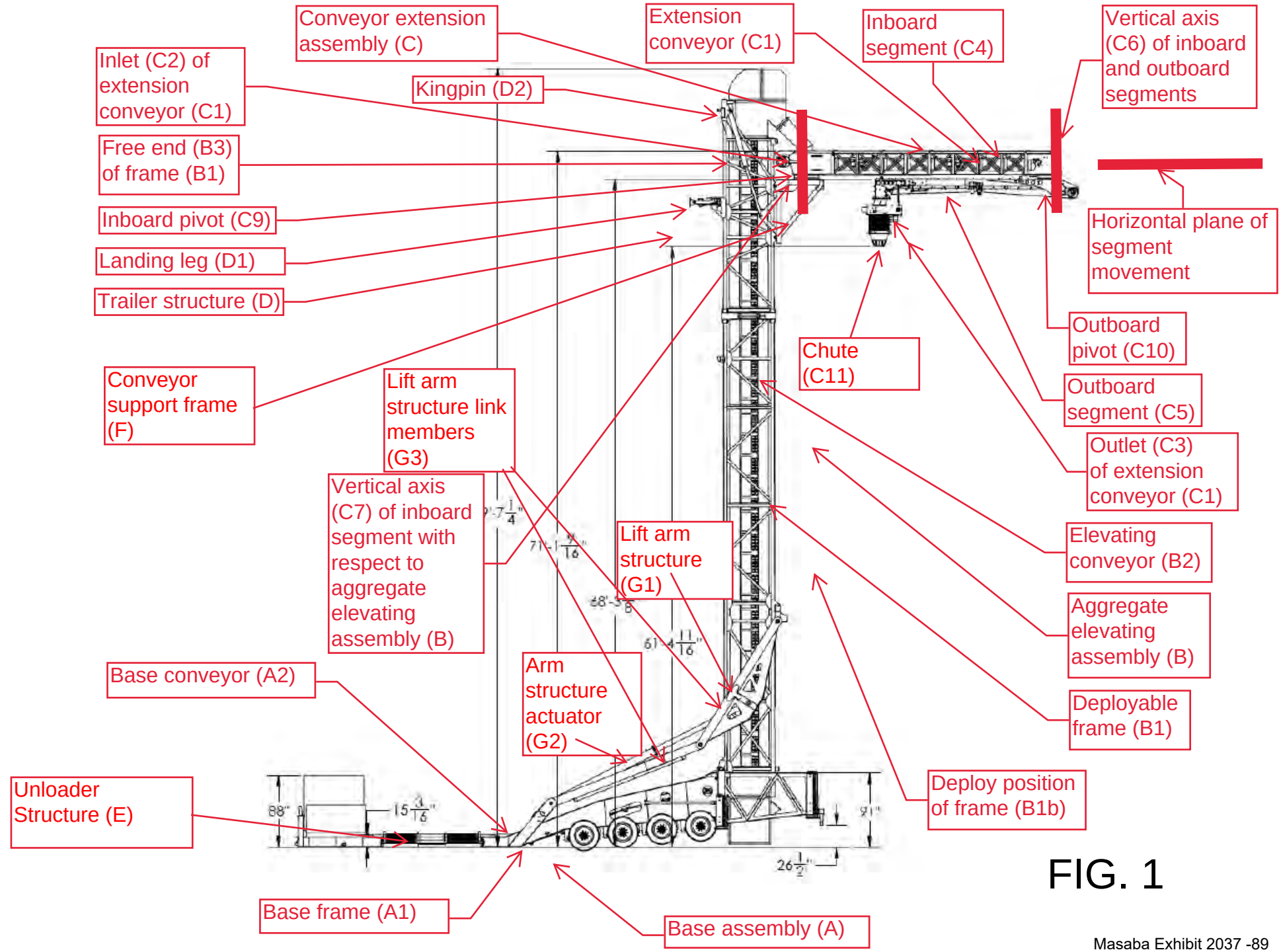

Conveyor extension assembly (C)
Extension conveyor (C1)
Inboard segment (C4)
Vertical axis (C6) of inboard and outboard segments
Inlet (C2) of extension conveyor (C1)
Kingpin (D2)
Free end (B3) of frame (B1)
Inboard pivot (C9)
Landing leg (D1)
Trailer structure (D)
Horizontal plane of segment movement
Outboard pivot (C10)
Chute (C11)
Conveyor support frame (F)
Lift arm structure link members (G3)
Outboard segment (C5)
Outlet (C3) of extension conveyor (C1)
Vertical axis (C7) of inboard segment with respect to aggregate elevating assembly (B)
Lift arm structure (G1)
Elevating conveyor (B2)
Aggregate elevating assembly (B)
Base conveyor (A2)
Arm structure actuator (G2)
Deployable frame (B1)
Unloader Structure (E)
Deploy position of frame (B1b)
Base frame (A1)
Base assembly (A)

FIG. 1

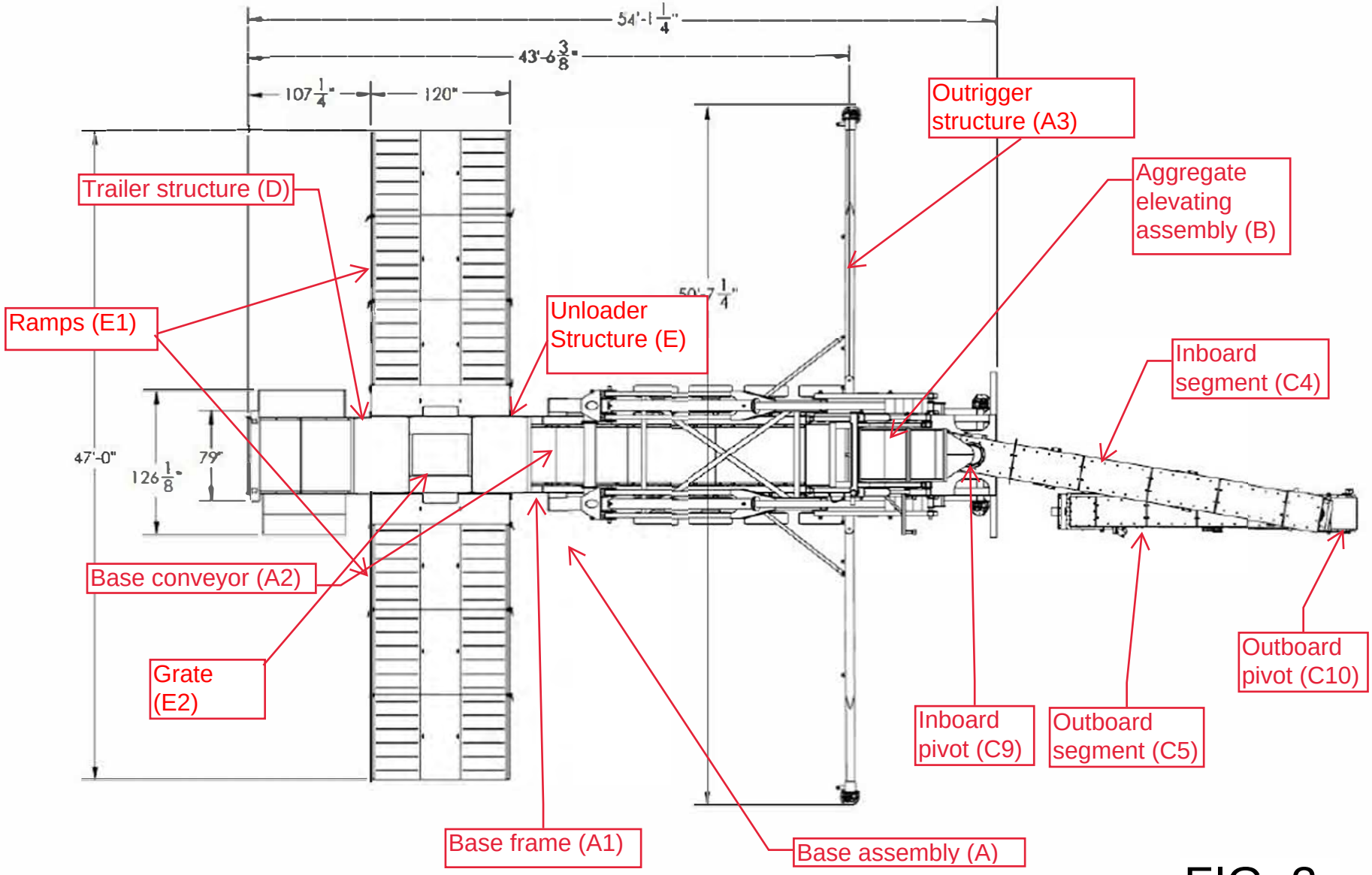

54'-1 1/4"
43'-6 3/8"
107 1/4"
120"
Outrigger structure (A3)
Aggregate elevating assembly (B)
Trailer structure (D)
Ramps (E1)
Unloader Structure (E)
50'-7 1/4"
Inboard segment (C4)
47'-0"
126 1/8"
79"
Base conveyor (A2)
Grate (E2)
Outboard pivot (C10)
Inboard pivot (C9)
Outboard segment (C5)
Base frame (A1)
Base assembly (A)

FIG. 2

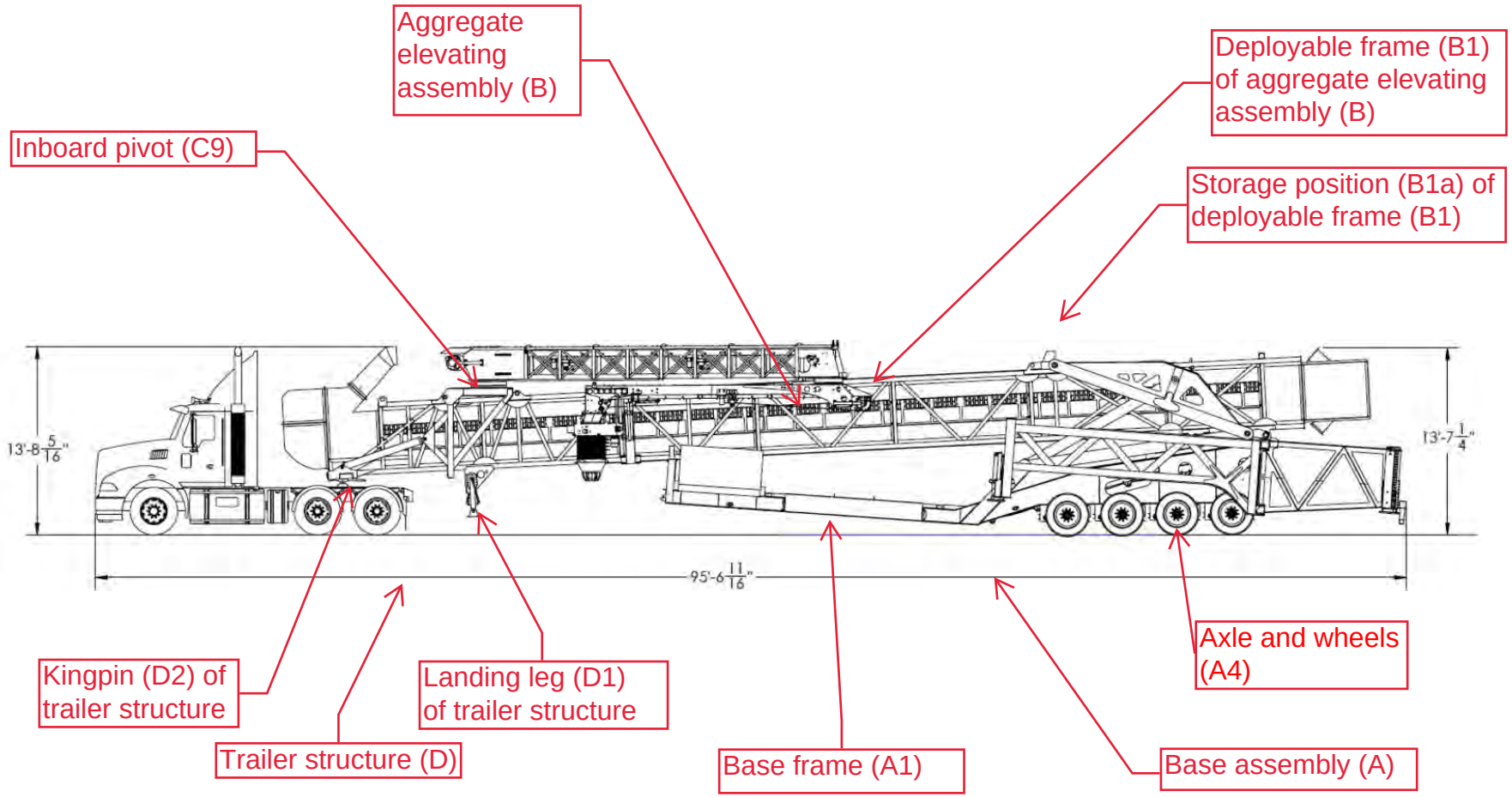

Aggregate elevating assembly (B)
Deployable frame (B1) of aggregate elevating assembly (B)
Inboard pivot (C9)
Storage position (B1a) of deployable frame (B1)
13'-8 5/16"
13'-7 1/4"
95'-6 11/16"
Axle and wheels (A4)
Kingpin (D2) of trailer structure
Landing leg (D1) of trailer structure
Trailer structure (D)
Base frame (A1)
Base assembly (A)

FIG. 3

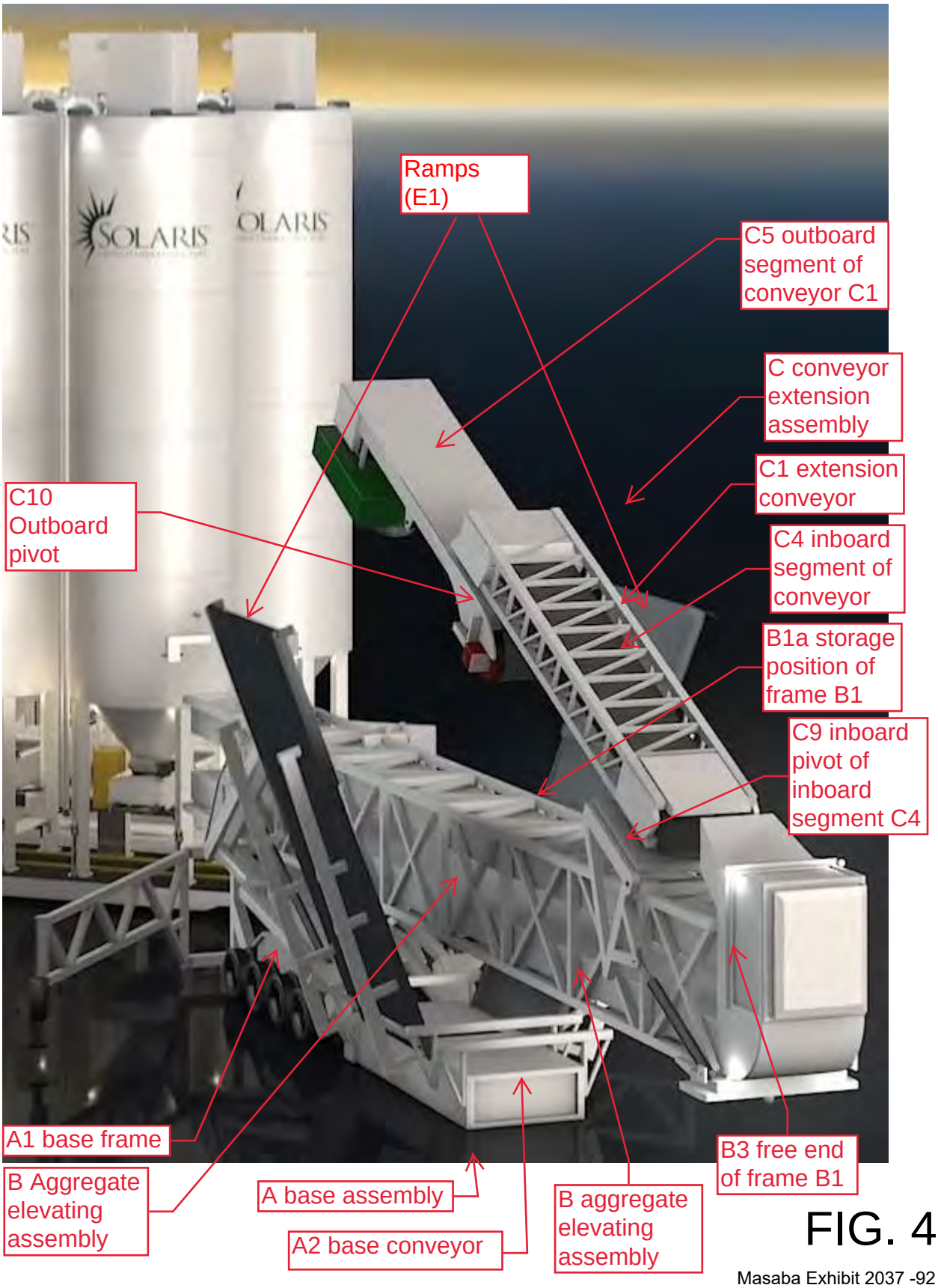

Ramps (E1)
C5 outboard segment of conveyor C1
C conveyor extension assembly
C1 extension conveyor
C10 Outboard pivot
C4 inboard segment of conveyor
B1a storage position of frame B1
C9 inboard pivot of inboard segment C4
A1 base frame
B3 free end of frame B1
B Aggregate elevating assembly
A base assembly
B aggregate elevating assembly
A2 base conveyor

FIG. 4

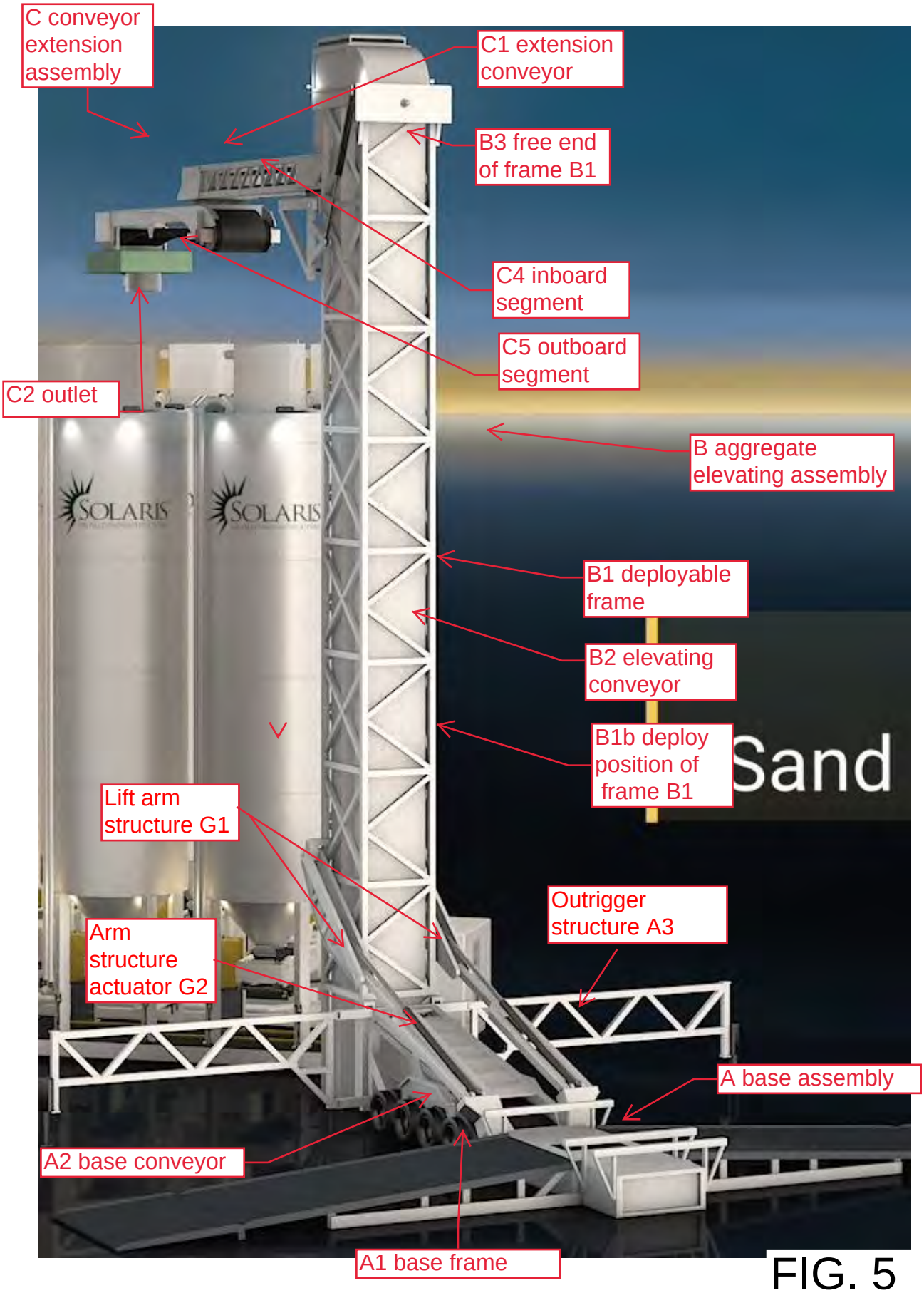

C conveyor extension assembly
C1 extension conveyor
B3 free end of frame B1
C4 inboard segment
C5 outboard segment
C2 outlet
B aggregate elevating assembly
B1 deployable frame
B2 elevating conveyor
B1b deploy position of frame B1
Lift arm structure G1
Outrigger structure A3
Arm structure actuator G2
A base assembly
A2 base conveyor
A1 base frame
SOLARIS
SOLARIS
Sand

FIG. 5

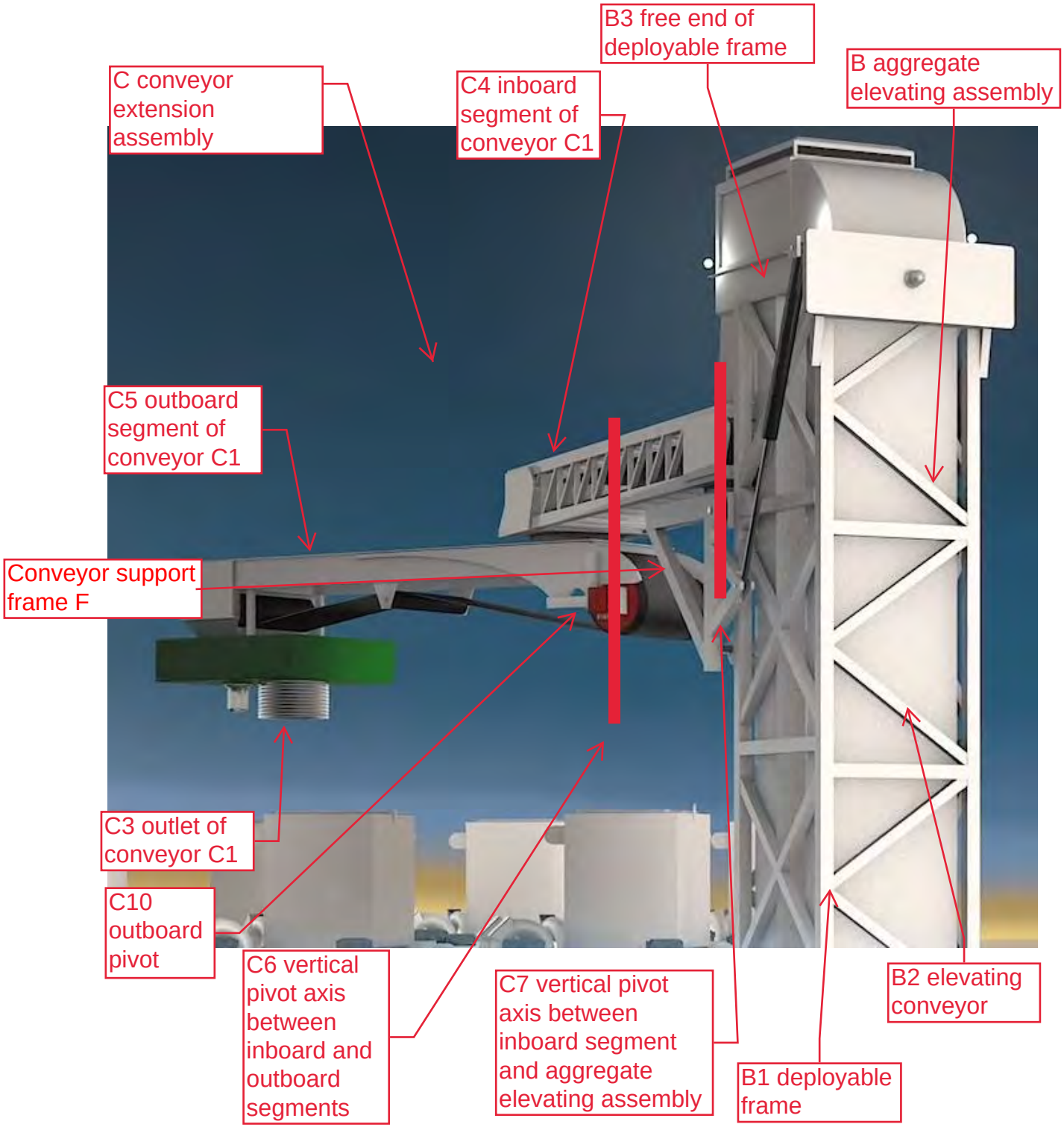

B3 free end of deployable frame
B aggregate elevating assembly
C conveyor extension assembly
C4 inboard segment of conveyor C1
C5 outboard segment of conveyor C1
Conveyor support frame F
C3 outlet of conveyor C1
C10 outboard pivot
C6 vertical pivot axis between inboard and outboard segments
C7 vertical pivot axis between inboard segment and aggregate elevating assembly
B2 elevating conveyor
B1 deployable frame

FIG. 6

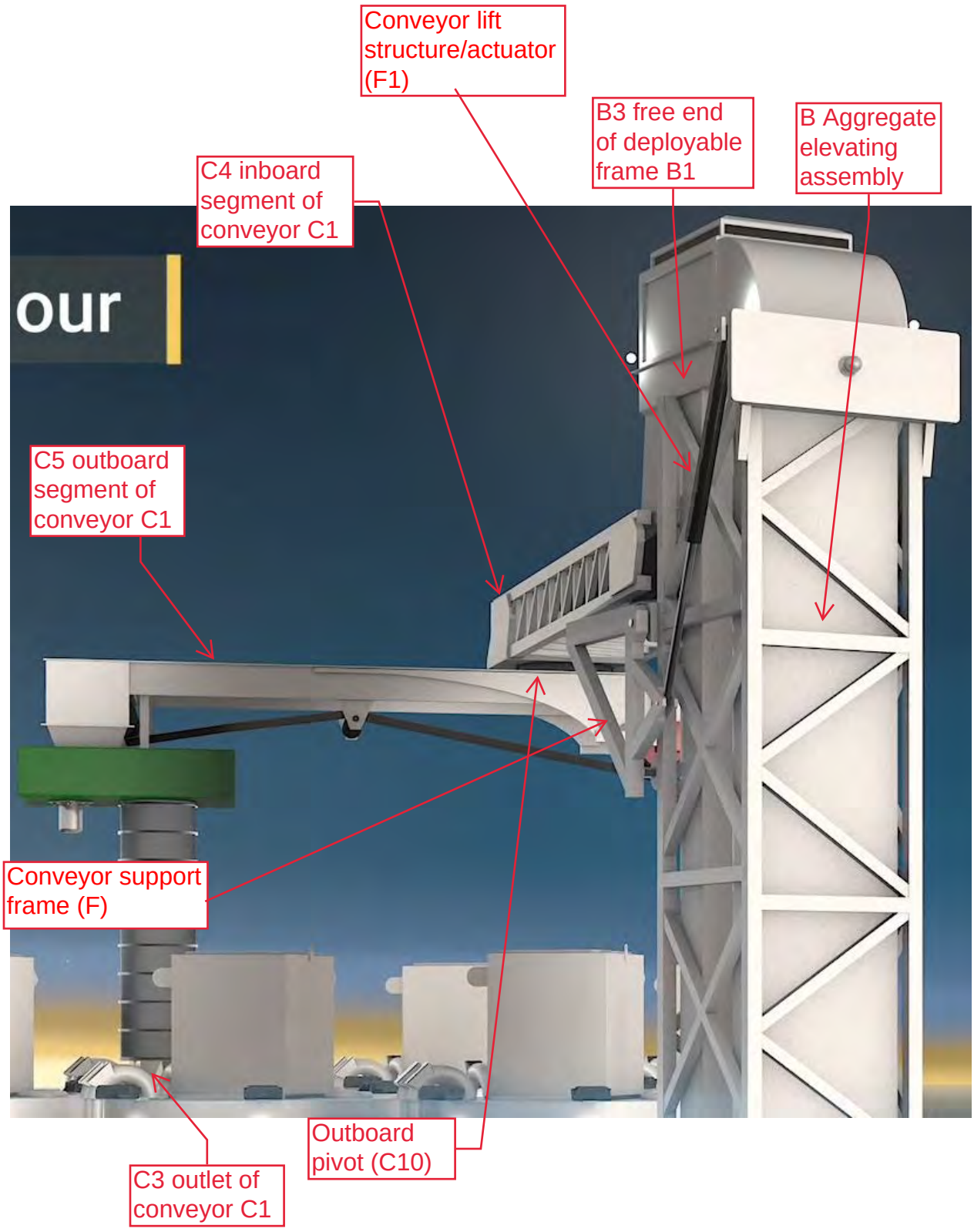

Conveyor lift structure/actuator (F1)
B3 free end of deployable frame B1
B Aggregate elevating assembly
C4 inboard segment of conveyor C1
C5 outboard segment of conveyor C1
Conveyor support frame (F)
Outboard pivot (C10)
C3 outlet of conveyor C1

FIG. 7