



IPR2023-01322
U.S. Patent No. 10,433,687

Patent Owner Dyson Technology Limited's Demonstrative Exhibits

December 5, 2024

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Summary of Issues

- **GROUND 1: Conrad '630** in view of **Conrad '787**
 - No motivation to incorporate Conrad '787 handle at Conrad '630 rear
 - Proposed combination is inferior
- **GROUND 2: Conrad '630** in view of **Dyson**
 - Combination does not disclose limitation 1d and claim 2
 - No motivation to incorporate Dyson handle at Conrad '630 rear (see Ground 1)
 - Proposed combination is inferior (see Ground 1)
- **GROUND 3 & 4: Matsumoto** in view of **Conrad '787** or **Dyson**
 - Combination does not disclose limitation 1d and claim 2 (Ground 4 only)
 - No motivation to combine references as proposed
 - A POSA would not have understood **Matsumoto** to disclose miniaturizing its vacuum cleaner
- **Secondary considerations** support a finding of non-obviousness

The '687 Patent (Ex. 1001) Describes A Handheld Vacuum

US010431687B2

United States Patent
Dimlylow

(10) **Patent No.:** US 10,433,687 B2
(45) **Date of Patent:** Oct. 8, 2019

(54) VACUUM CLEANER

(71) Applicant: **Dyson Technology Limited, Wiltshire**
(GB)

(72) Inventor: **Stephen Robert Dimlylow, Wiltshire**
(GB)

(73) Assignee: **Dyson Technology Limited,**
Malmesbury, Wiltshire (GB)

(*) Notice: Subject to my disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 251 days.

(21) Appl. No.: **15/269,410**

(22) Filed: **Sep. 19, 2016**

(65) **Prior Publication Data**
US 20170079491 A1 Mar. 23, 2017

(30) Foreign Application Priority Data

Sep. 17, 2015 (GB) 1516499.9

(51) Int. Cl.

A47L 5/24 (2006.01)
A47L 9/24 (2006.01)
A47L 9/16 (2006.01)
A47L 5/28 (2006.01)
A47L 9/00 (2006.01)

(52) U.S. Cl.

CPC **A47L 5/24** (2013.01); **A47L 5/28**
(2013.01); **A47L 9/00** (2013.01); **A47L 9/16**
(2013.01); **A47L 9/1681** (2013.01); **A47L 9/24**
(2013.01)

(58) Field of Classification Search

CPC : A47L 5/24; A47L 5/28; A47L 9/1616; A47L
9/1621; A47L 9/1641; A47L 9/1651; A47L
9/1666; A47L 9/1683; A47L 9/00; A47L
9/242

See application file for complete search history.

(56)

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tion *

(Continued)

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(57)

ABSTRACT

A handheld vacuum cleaner including a handle by which the vacuum cleaner is supported during normal use and a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit. The cyclonic separating unit includes an end portion having a closed configuration in which dirt is retained within the dirt collector and an open configuration for the removal of dirt from the dirt collector. The handle has a pistol-grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between the handle and the longitudinal axis of the cyclonic separating unit.

11 Claims, 8 Drawing Sheets

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SharkNinja et al. v. Dyson Technology Limited,
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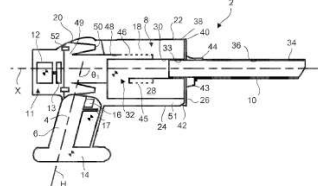
ABSTRACT

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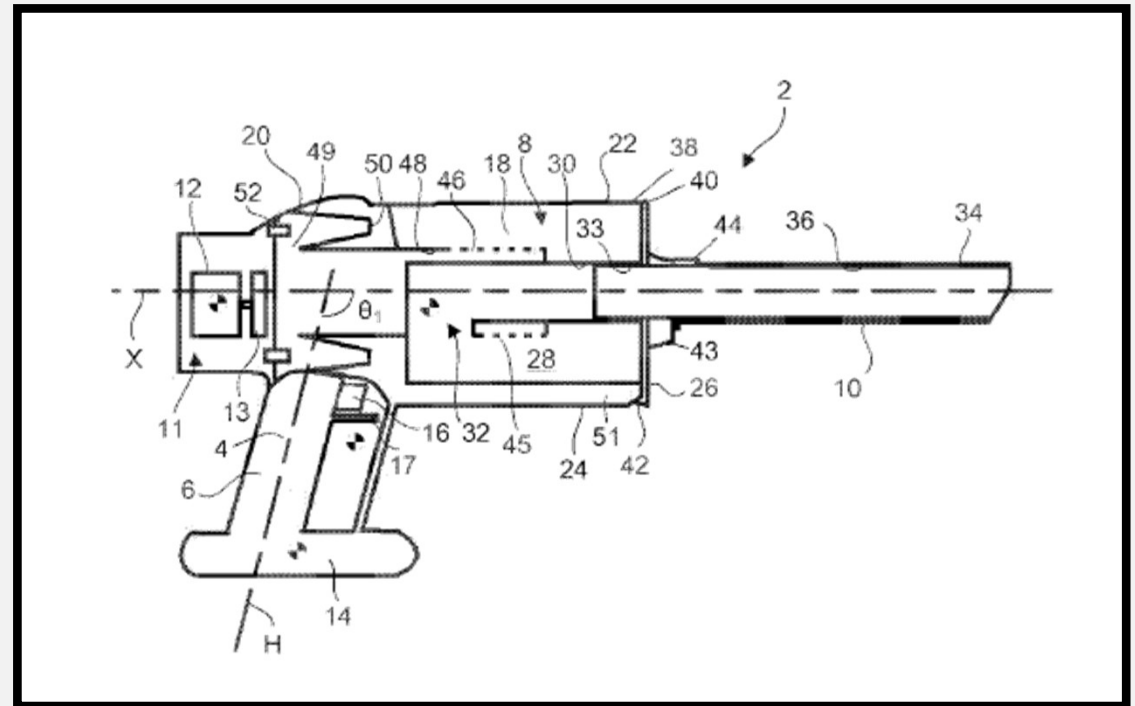
'687 Patent (Ex. 1001) at Abstract

The '687 Patent (Ex. 1001) Describes A Handheld Vacuum

 US 10,433,687 B2	
(12) United States Patent Dimbylow	(10) Patent No.: US 10,433,687 B2 (45) Date of Patent: Oct. 8, 2019
(54) VACUUM CLEANER	(56) References Cited
(71) Applicant: Dyson Technology Limited , Wiltshire (GB)	U.S. PATENT DOCUMENTS
(72) Inventor: Stephen Robert Dimbylow , Swindon (GB)	1,420,665 A 6/1922 Newcombe 6,371,279 A 10/2000 White 8,156,609 B2* 4/2012 Milne A47L 5/24 15/344
(73) Assignee: Dyson Technology Limited , Malmesbury, Wiltshire (GB)	(Continued)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 253 days.	FOREIGN PATENT DOCUMENTS
(21) Appl. No.: 15/269,430	CA 2,894,369 3/2009 CA 2,907,308 9/2019 (Continued)
(22) Filed: Sep. 19, 2016	OTHER PUBLICATIONS
(65) Prior Publication Data US 2017/0079491 A1 Mar. 23, 2017	DE 10 2008 044 184 A1—Jun. 2009—English Machine Translation* (Continued)
(30) Foreign Application Priority Data Sep. 17, 2015 (GB) 1516499.9	<i>Primary Examiner</i> —Marc Carlson (74) <i>Attorney, Agent, or Firm</i> —Morrison & Foerster LLP
(51) Int. Cl. <i>A47L 5/24</i> (2006.01) <i>A47L 9/24</i> (2006.01) <i>A47L 9/16</i> (2006.01) <i>A47L 5/28</i> (2006.01) <i>A47L 9/00</i> (2006.01)	(57) ABSTRACT A handheld vacuum cleaner including a handle by which the vacuum cleaner is supported during normal use and a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit. The cyclonic separating unit includes an end portion having a closed configuration in which dirt is retained within the dirt collector and an open configuration for the removal of dirt from the dirt collector. The handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between the handle and the longitudinal axis of the cyclonic separating unit.
(52) U.S. Cl. CPC <i>A47L 5/24</i> (2013.01); <i>A47L 5/28</i> (2013.01); <i>A47L 9/00</i> (2013.01); <i>A47L 9/16</i> (2013.01); <i>A47L 9/1641</i> (2013.01); <i>A47L 9/24</i> (2013.01)	
(58) Field of Classification Search CPC <i>A47L 5/24</i> ; <i>A47L 5/28</i> ; <i>A47L 9/1616</i> ; <i>A47L 9/1625</i> ; <i>A47L 9/1641</i> ; <i>A47L 9/165</i> ; <i>A47L 9/1666</i> ; <i>A47L 9/1683</i> ; <i>A47L 9/00</i> ; <i>A47L 9/242</i>	



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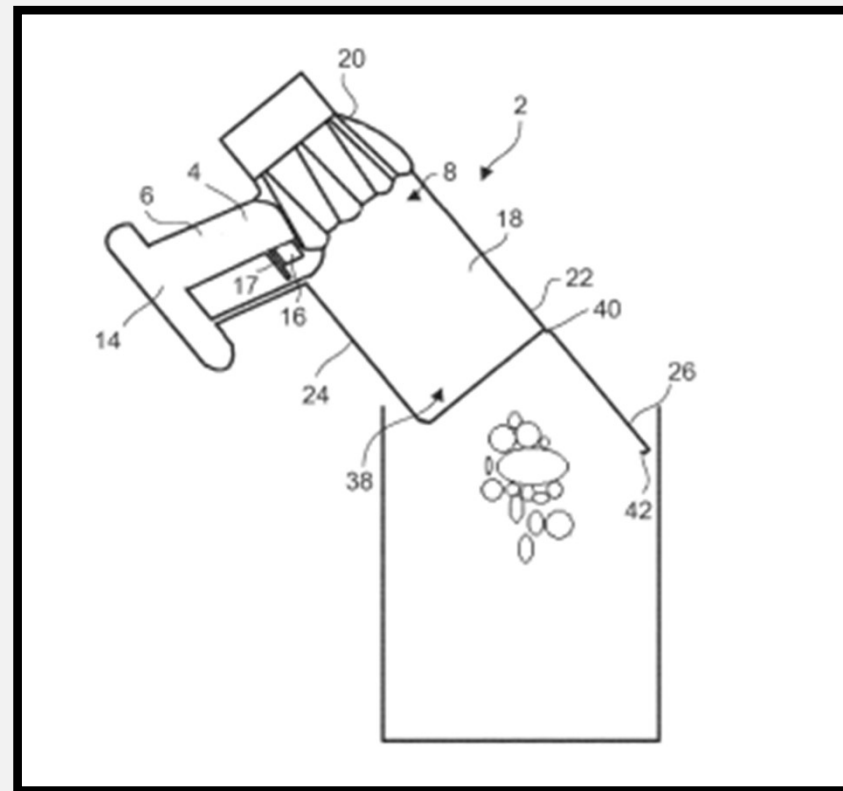
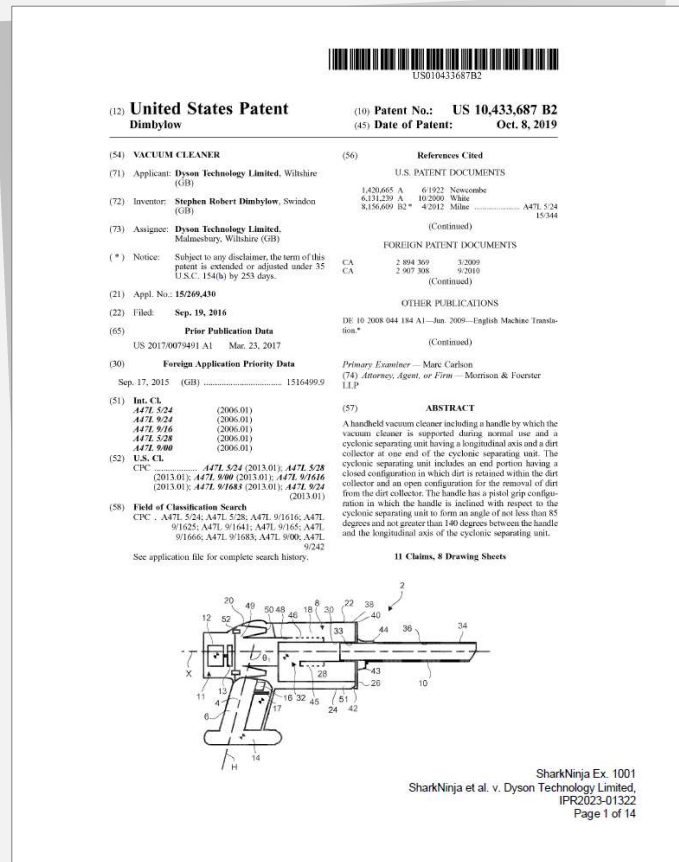


'687 Patent (Ex. 1001) at Fig. 2

POR (Paper 20) at 3-5.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 4

The '687 Patent (Ex. 1001) Describes a Point-and-Shoot Feature



'687 Patent (Ex. 1001) at Fig. 8

POR (Paper 20) at 3-5.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 5

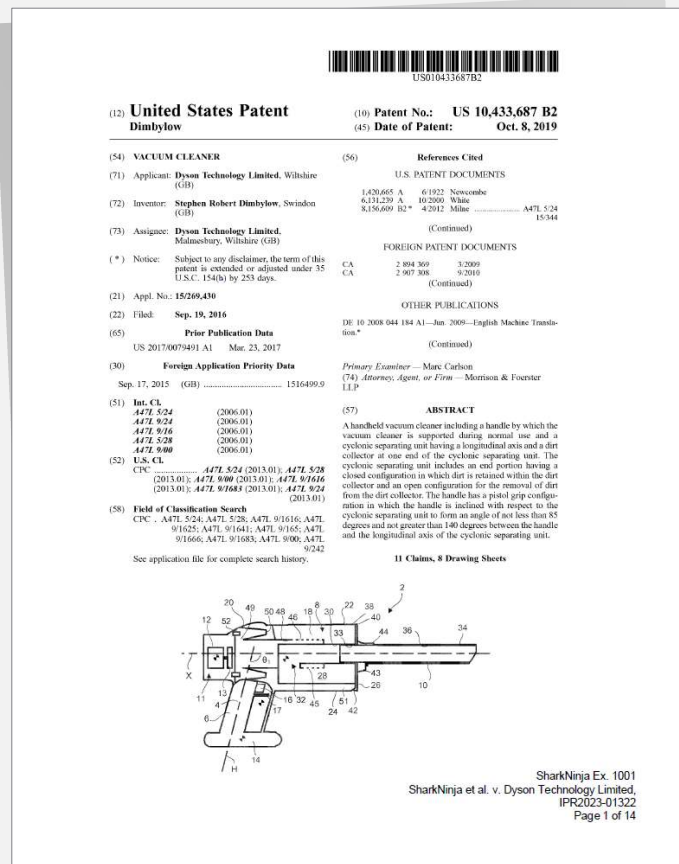
Challenged Claims

Ground	References	Basis	Claims Challenged
1	Conrad '630 (Ex. 1004) in view of Conrad '787 (Ex. 1006)	§103	1-4, 8, 10
2	Conrad '630 (Ex. 1004) in view of Dyson (Ex. 1007)	§103	1-4, 8, 10
3	Matsumoto (Ex. 1005) in view of Conrad '787 (Ex. 1006)	§103	1-4, 8, 10
4	Matsumoto (Ex. 1005) in view of Dyson (Ex. 1007)	§103	1-4, 8, 10

Petition (Paper 2) at 3-4.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 6

The '687 Patent (Ex. 1001) at Illustrative Challenged Claim 1

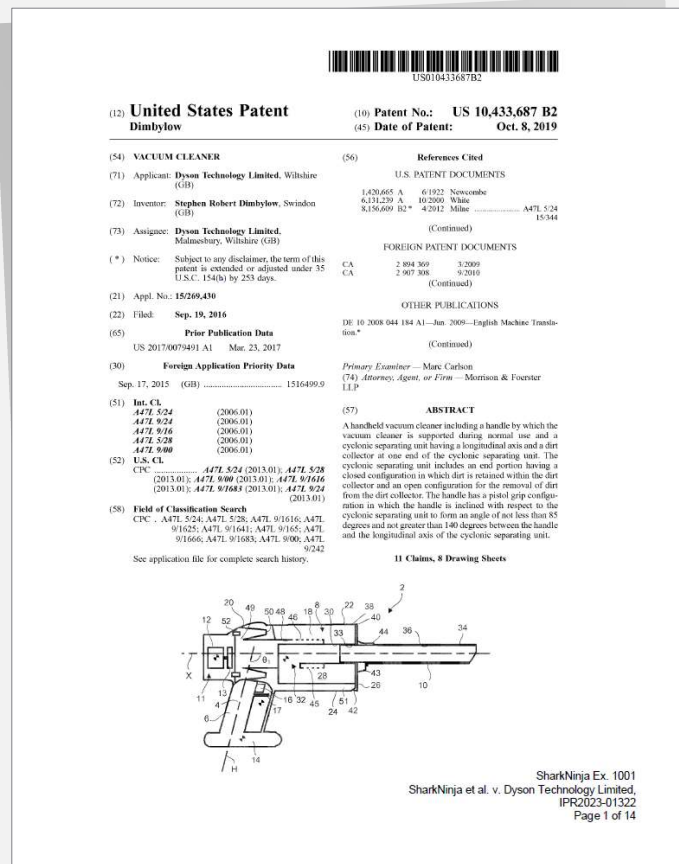


1. A handheld vacuum cleaner comprising:
a handle by which the vacuum cleaner is supported during normal use;
a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit, the cyclonic separating unit comprising an end wall having a closed configuration in which dirt is retained within the dirt collector by the end wall and an open configuration for the removal of dirt from the dirt collector, wherein the end wall is movable relative to the longitudinal axis and, when the end wall is in the closed configuration, the longitudinal axis extends through a region bounded by a perimeter of the end wall, wherein the handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between a handle axis and the longitudinal axis of the cyclonic separating unit, and wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner.

POR (Paper 20) at 3-5.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 7

The '687 Patent (Ex. 1001) at Challenged Claim 2



2. The handheld vacuum cleaner of claim 1, wherein the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 100 degrees and not greater than 125 degrees between the handle axis and the longitudinal axis of the cyclonic separating unit.

POR (Paper 20) at 3-5.

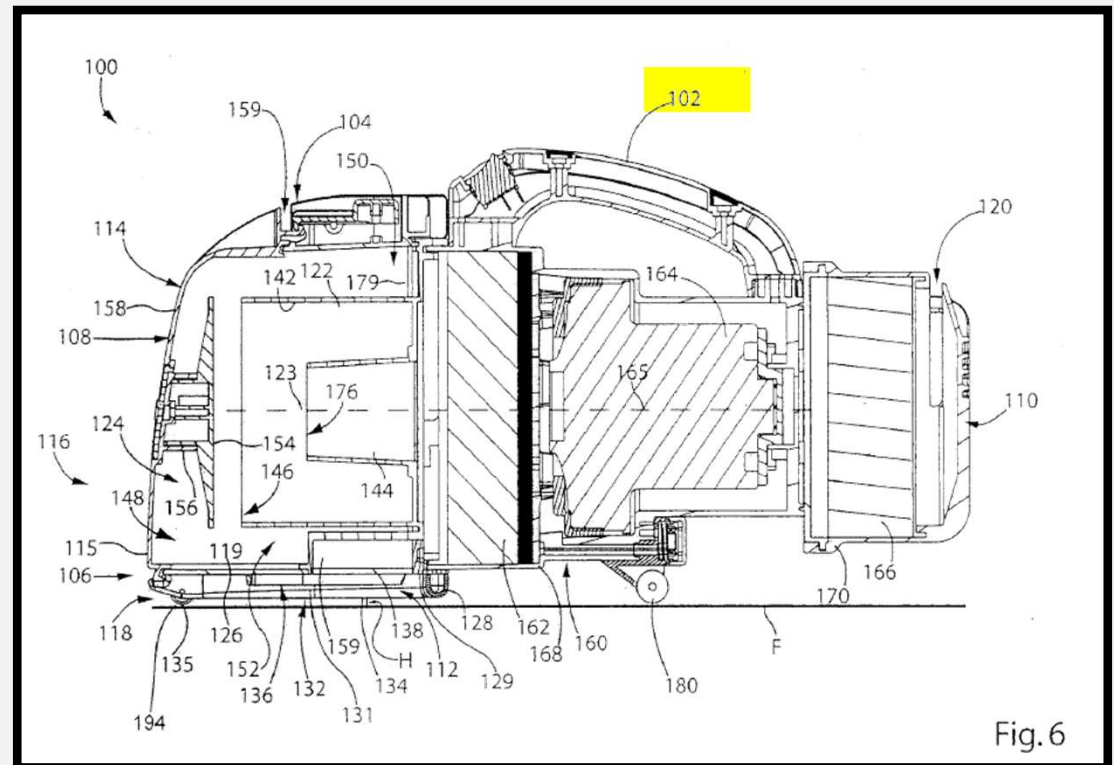
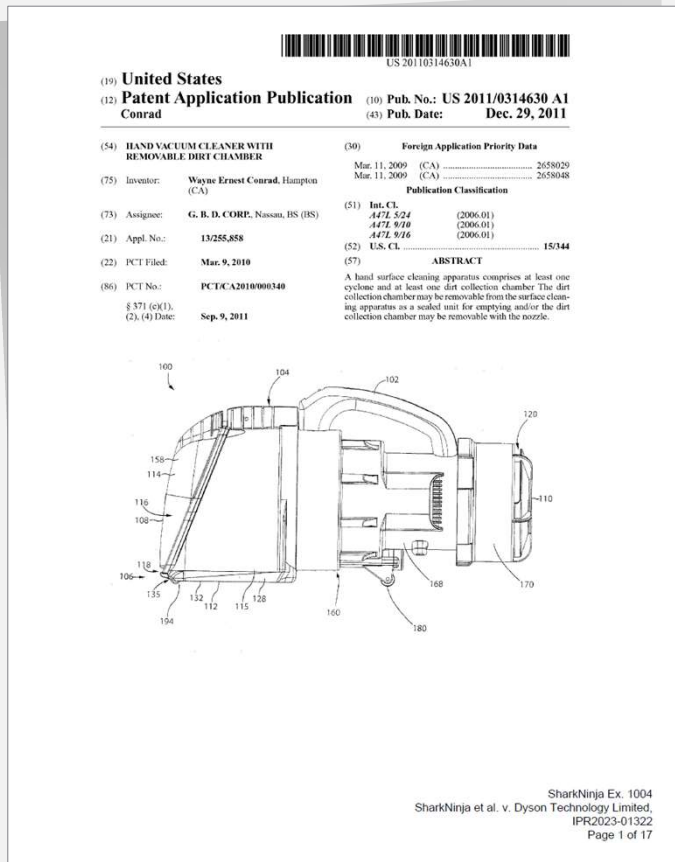
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 8

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Summary of Issues

- **GROUND 1: Conrad '630** in view of **Conrad '787**
 - No motivation to incorporate Conrad '787 handle at Conrad '630 rear
 - Proposed combination is inferior
- **GROUND 2: Conrad '630** in view of **Dyson**
 - Combination does not disclose limitation 1d and claim 2
 - No motivation to incorporate Dyson handle at Conrad '630 rear (see Ground 1)
 - Proposed combination is inferior (see Ground 1)
- **GROUND 3 & 4: Matsumoto** in view of **Conrad '787** or **Dyson**
 - Combination does not disclose limitation 1d and claim 2 (Ground 4 only)
 - No motivation to combine references as proposed
 - A POSA would not have understood **Matsumoto** to disclose miniaturizing its vacuum cleaner
- **Secondary considerations** support a finding of non-obviousness

Ground 1: Conrad '630 (Ex. 1004)

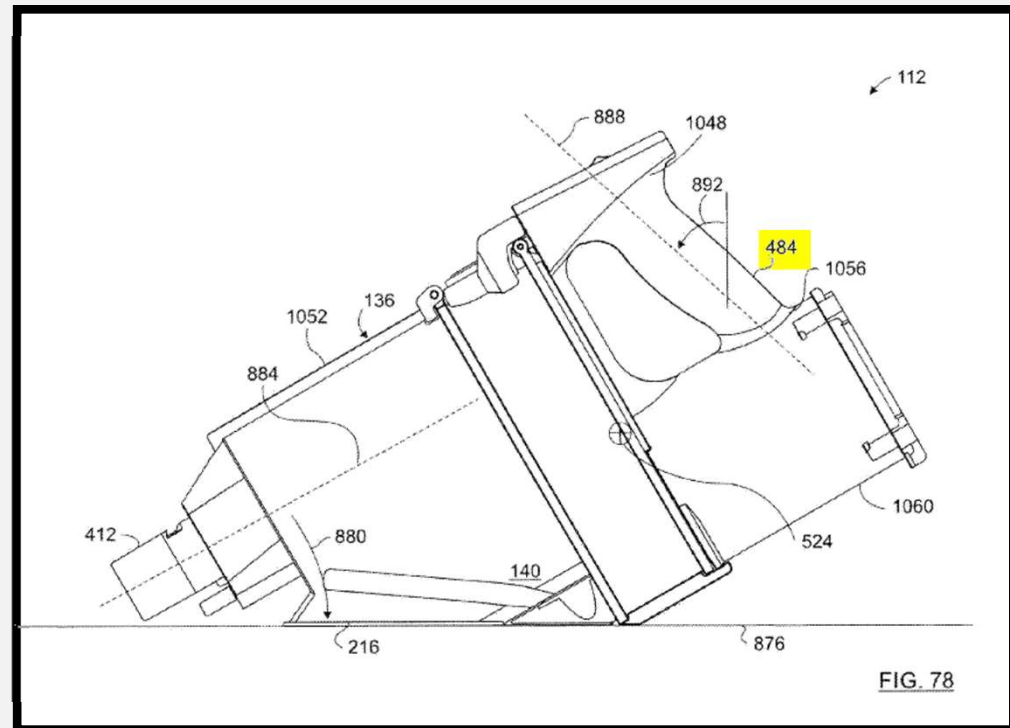
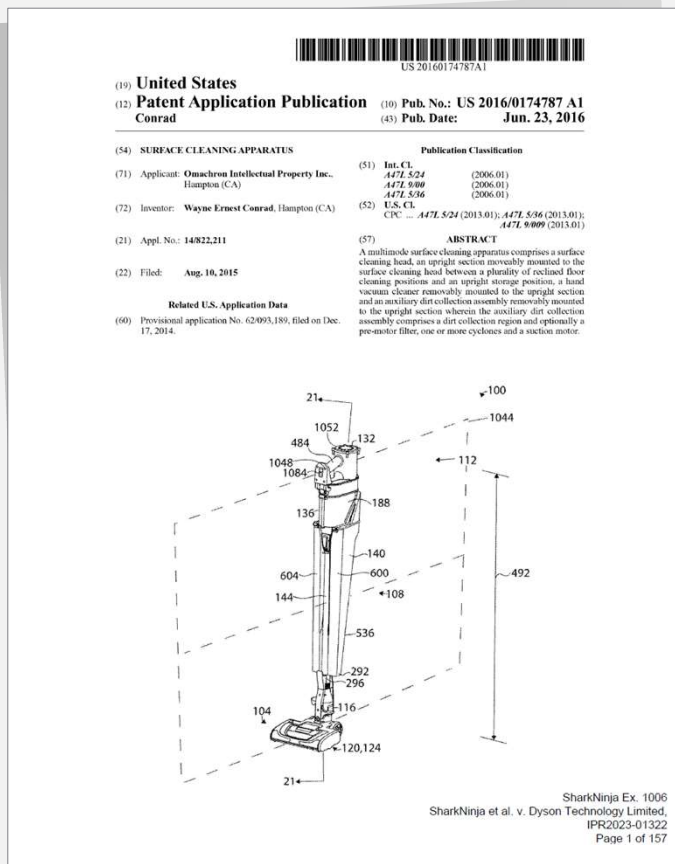


Conrad '630 (Ex. 1004) at Fig. 1

POR (Paper 20) at 6-7.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 10

Ground 1: Conrad '787 (Ex. 1006)

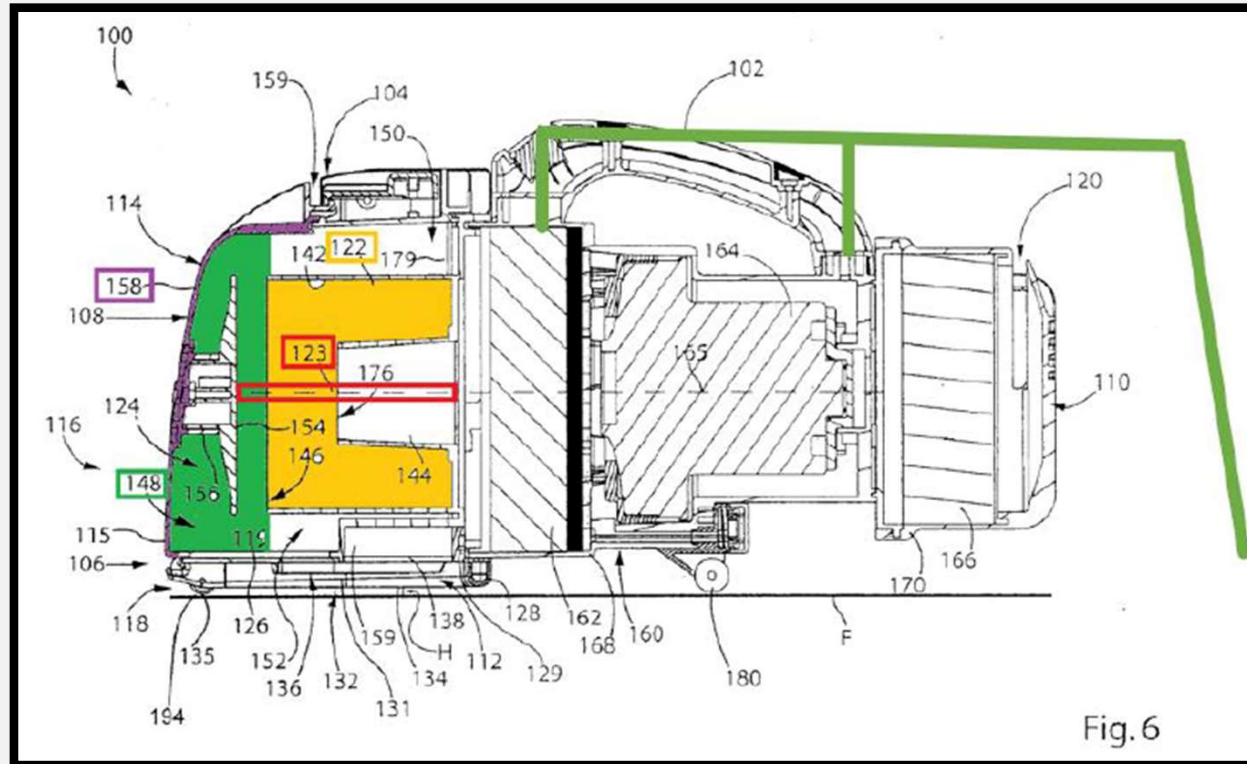


Conrad '787 (Ex. 1006) at Fig. 78

POR (Paper 20) at 7-8.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 11

Ground 1: Petitioners' Proposed Modification of Conrad '630



Petitioners' Proposed Combination

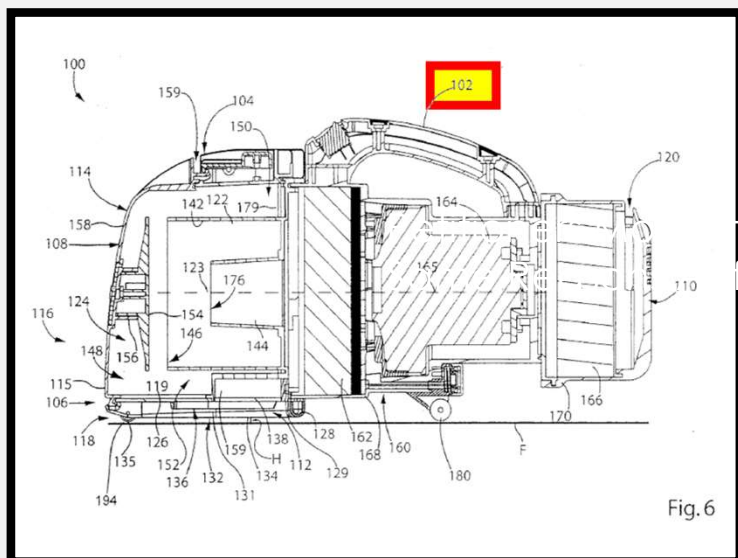
Fester Declaration (Ex. 1003) ¶75

POR (Paper 20) at 16; PO's Sur-Reply (Paper 31) at 1-3.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 12

Ground 1: Conrad '630 Disclosure Does Not Motivate Proposed Combination

Petitioners' Argument: "A POSITA reviewing Conrad '630 would have been motivated to explore alternative handle configurations . . ." Petition (Paper 2) at 29



Conrad '630 (Ex. 1004) at Fig. 6

[0052] Referring to FIGS. 1 to 7B, a first example of a vacuum cleaner 100 is shown. The vacuum cleaner 100 is a hand vacuum cleaner, and is movable along a surface to be cleaned by gripping and maneuvering handle 102. The vacuum cleaner includes an upper portion 104, a lower portion 106, a front 108, and a rear 110. In the example shown, handle 102 is provided at the upper portion 104. In alternate examples, handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design.

Conrad '630 (Ex. 1004) at ¶ 52

PO's Sur-Reply (Paper 31) at 3-5; POR (Paper 20) at 15.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 13

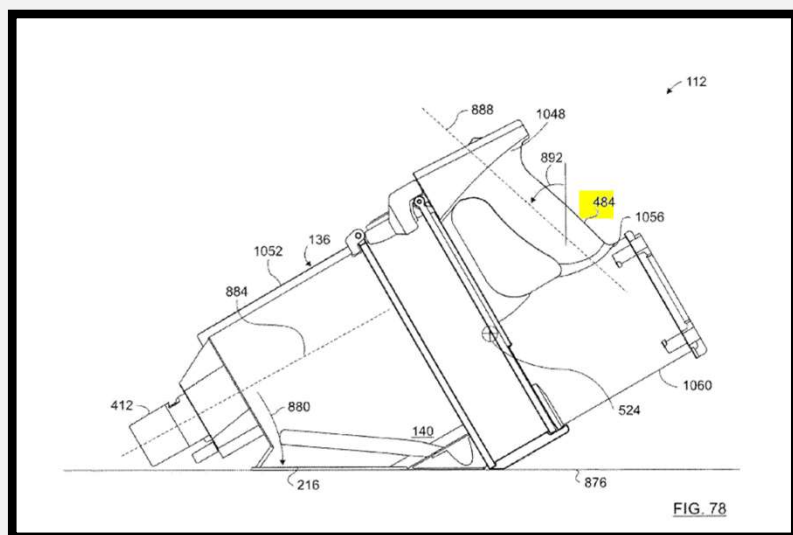
Ground 1: Conrad '630 Provides No Guidance As to Alternative Handle

57. Conrad '630 provides no further guidance as to the alternative handle design. Conrad '630 does not refer to a handle such as that in Conrad '787 and there were other alternative handle designs available at the time. For example,

Davidshofer Declaration (Ex. 2017) ¶ 57

Ground 1: Conrad '787 Disclosure Does Not Motivate Proposed Combination

Petitioners' Argument: “Conrad'787 discloses that its handle configuration allows the handheld vacuum to be ‘comfortably operated . . .’” Petition (Paper 2) at 23.



Conrad '787 (Ex. 1006) at Fig. 78

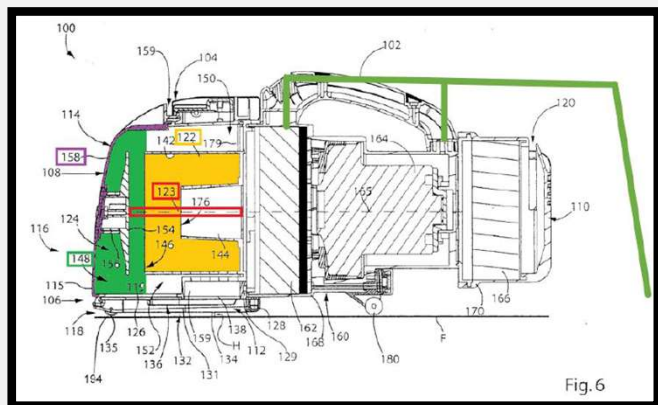
[0314] Handvac 112 may have an in-use orientation relative to horizontal surface 876 at which a user may comfortably operate handvac 112 during cleaning. Typically, handvac 112 is most comfortably operated in an orientation that does not require an application of torque by the user's hands when the handvac 112 is held by handle 484. This may be the case where the center of gravity 524 of the handvac 112 is aligned vertically below the user's hand. Accordingly, the center of gravity 524 may be vertically aligned below handle 484 in comfortable in-use orientations of handvac 112.

Conrad '787 (Ex. 1006) at ¶ [0314]

PO's Sur-Reply (Paper 31) at 6-7; POR (Paper 20) at 20-23.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 15

Ground 1: Conrad '787 Disclosure Does Not Motivate Proposed Combination



Fester Declaration (Ex. 1003) at ¶ 75

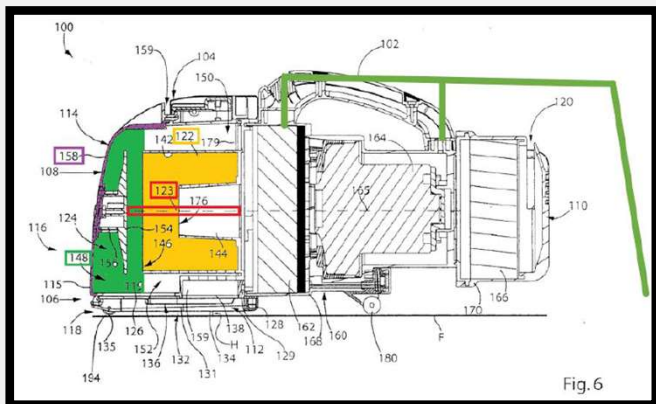
63. Petitioners and Mr. Fester allege that one motivation to modify Conrad '630's handle configuration is that Conrad '787 discloses that its handle configuration allows the handheld vacuum cleaner to be "comfortably operated in an orientation that does not require an application of torque by the user's hands when the handvac 112 is held by handle 484." Pet., 23-24; EX-1003 ¶ 65. However, Petitioners' proposed combination where a user is operating Conrad '630's vacuum cleaner using Conrad '787's handle at the rear is an orientation that creates greater torque on the user's hand than Conrad '630's vacuum.

Davidshofer Declaration (Ex. 2017) at ¶ 63

PO's Sur-Reply (Paper 31) at 6-7.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 16

Ground 1: Conrad '787 Disclosure Does Not Motivate Proposed Combination

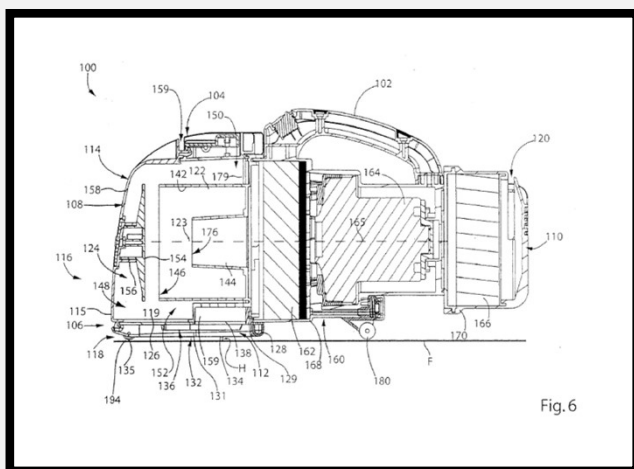


Petitioners' Proposed Combination
Fester Declaration (Ex. 1003) ¶75

[0315] Preferably, center of gravity 524 is aligned vertically below handle 484 when handvac 112 is supported on horizontal surface 876. In the illustrated embodiment, center of gravity 524 is aligned vertically below handle 484 when bottom wall 216 is horizontal and supporting handvac 112 on a horizontal surface 876. Thus, the resting orientation of handvac 112 supported by bottom wall 216 on a horizontal surface 876 may be substantially the same as the in-use orientation of handvac 112. Accordingly, when a user grasps handvac 112 by handle 484 and lifts handvac 112, handvac 112 may already be in a balanced in-use position with the center of gravity 524 aligned below the user's hands.

Conrad '787 (Ex. 1006) at ¶ [0315]

Ground 1: Petitioners' Proposed Modification Increases Arm & Wrist Strain



Conrad '630 (Ex. 1004) at Fig. 1

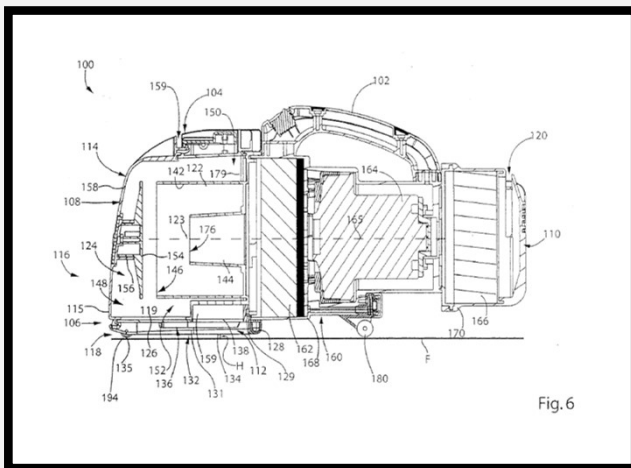
52. Petitioners and Mr. Fester rely heavily on the single sentence in Conrad '630's paragraph [0052] that recites "handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design." Pet., 23; EX-1003 ¶65; *see also* ID, 26. Although this statement may imply that a handle may be provided at Conrad '630's rear, the arm and wrist strain caused by increased torque created by utilizing Conrad '787's handle at the rear would have led a POSITA away from this proposed modification.

Davidshofer Declaration (Ex. 2017) at ¶ 52

PO's Sur-Reply (Paper 31) at 3-5; POR (Paper 20) at 15.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 18

Ground 1: Petitioners' Proposed Modification Adds Stress on Wrist



Conrad '630 (Ex. 1004) at Fig. 1

53. Torque is force times distance, and thus torque increases as the distance between the handle and the heavy components of the object increases. Accordingly, a POSITA would have understood it is more difficult to hold an object in a fixed orientation when all the heavy weight is distributed horizontally away from the hand in one direction (Petitioners' hypothetical Conrad '630 with handle in rear) compared to holding an object where the weight is distributed on opposing horizontal sides of the hand (EX-1004 Fig. 6) or distributed closer to the hand. The strain on the user caused by torque is compounded if the handle is rotated from an orientation substantially transverse to gravity (as shown in EX-1004, Fig. 6) to an orientation substantially parallel to gravity (as shown in Petitioners' proposal below), because the torque adds additional stress on the wrist.

Davidshofer Declaration (Ex. 2017) at ¶ 53

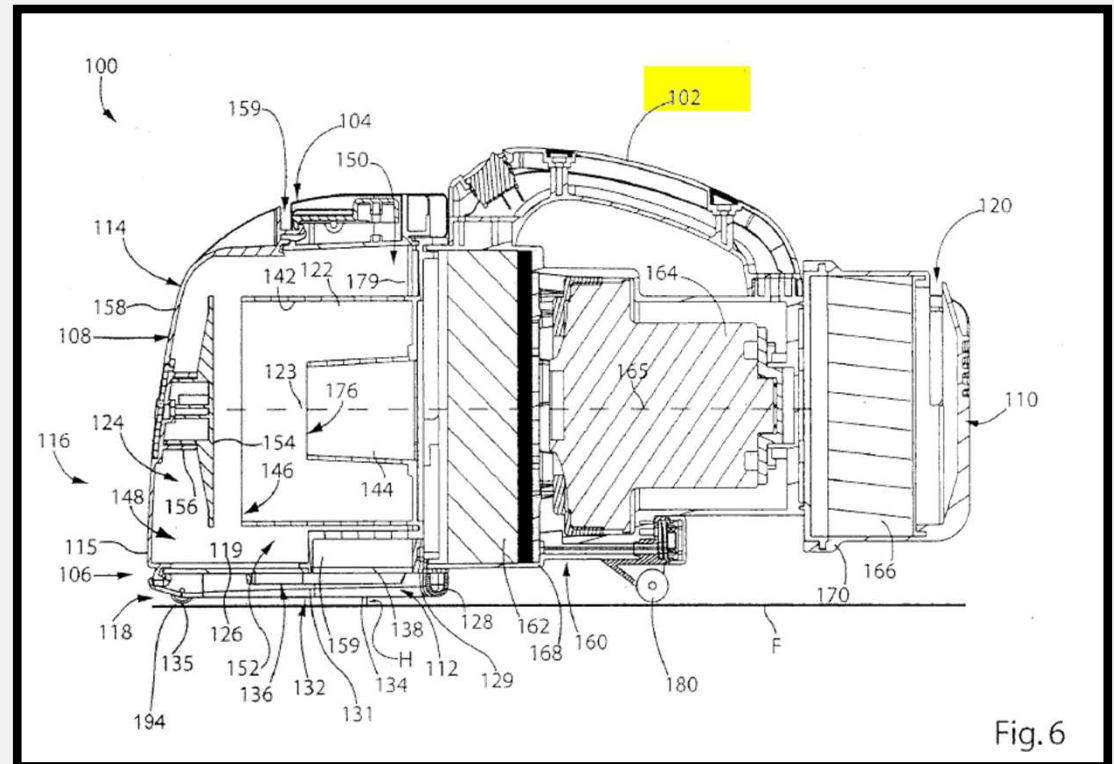
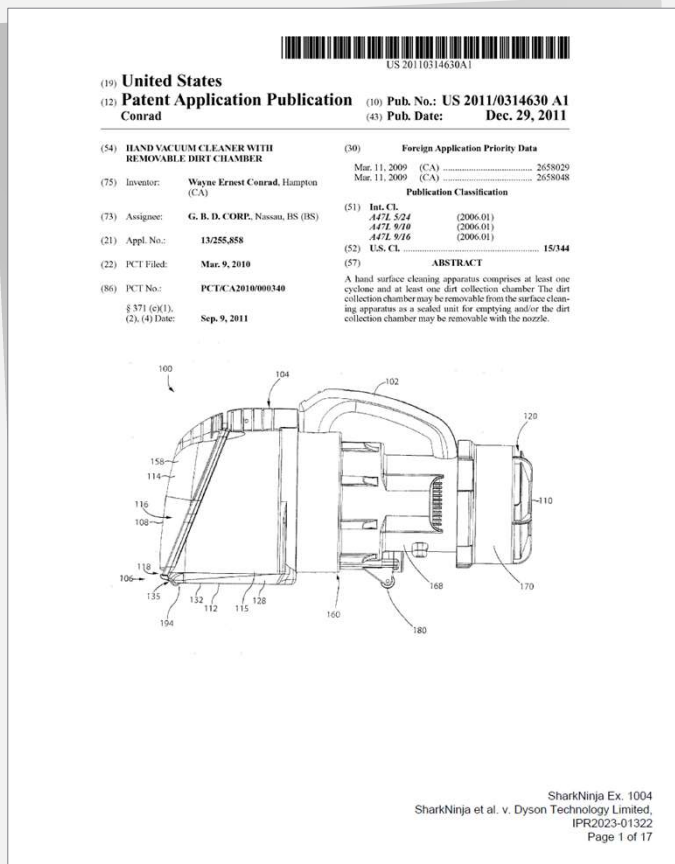
PO's Sur-Reply (Paper 31) at 1-3; POR (Paper 20) at 15.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 19

Summary of Issues

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Ground 2: Conrad '630 (Ex. 1004)



Conrad '630 (Ex. 1004) at Fig. 1

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 21

Ground 2: Dyson (Ex. 1007)

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

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International Bureau

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24 January 2008 (24.01.2008)

(10) International Publication Number
WO 2008/009888 A1

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A47L 5/24 (2006.01)

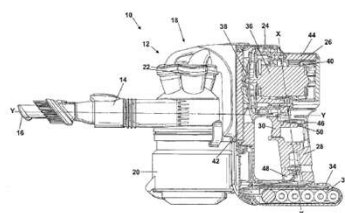
(74) Agents: SMITH, Gillian Ruth et al.; Dyson Technology Limited, Intellectual Property Department, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, NG, SN, TD, TG).

(72) Inventors and
(75) Inventor/Applicants (for US only): DYSON, James (GB/GB); Dyson Technology Limited, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB), HICKMOTT, Richard Morgan (GB/GB); Dyson Technology Limited, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB), GAMMACK, Peter David (GB/GB); Dyson Technology Limited, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB).

(54) Title: A HAND-HELD CLEANING APPLIANCE



(57) Abstract: The invention provides a hand-held cleaning appliance (10) comprising a suction conduit (14) having a longitudinal axis (Y-Y), an airflow generator (36) for generating an airflow along the suction conduit (14), separating apparatus (18) arranged in communication with the suction conduit (14) for separating dirt and dust from the airflow, a power source (32) for supplying power to the airflow generator (36) and an elongate handle (28) disposed between the airflow generator (36) and the power source (32). The elongate handle (28) is dimensioned and arranged to be gripped by a user's hand and the elongate handle (28) has transverse to the longitudinal axis (Y-Y) of the suction conduit. By providing a hand-held vacuum cleaner (10) with such an arrangement, the hand-held vacuum cleaner (10) is easier and more comfortable to manipulate in use.

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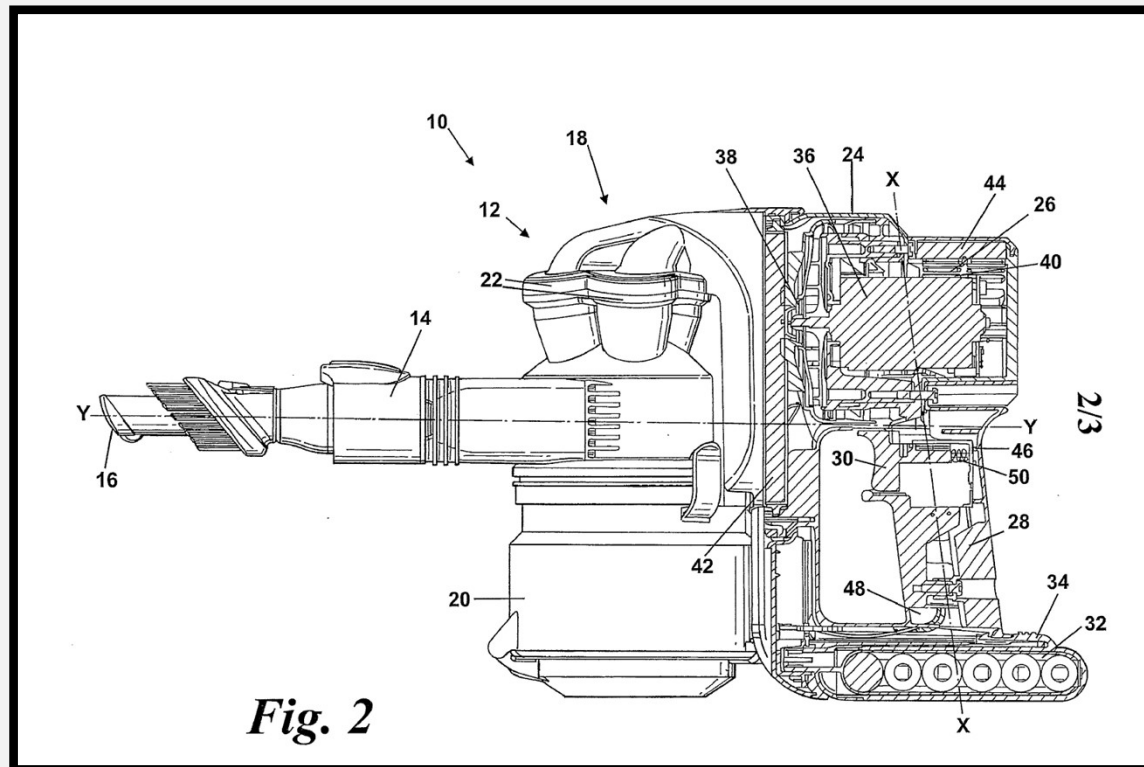
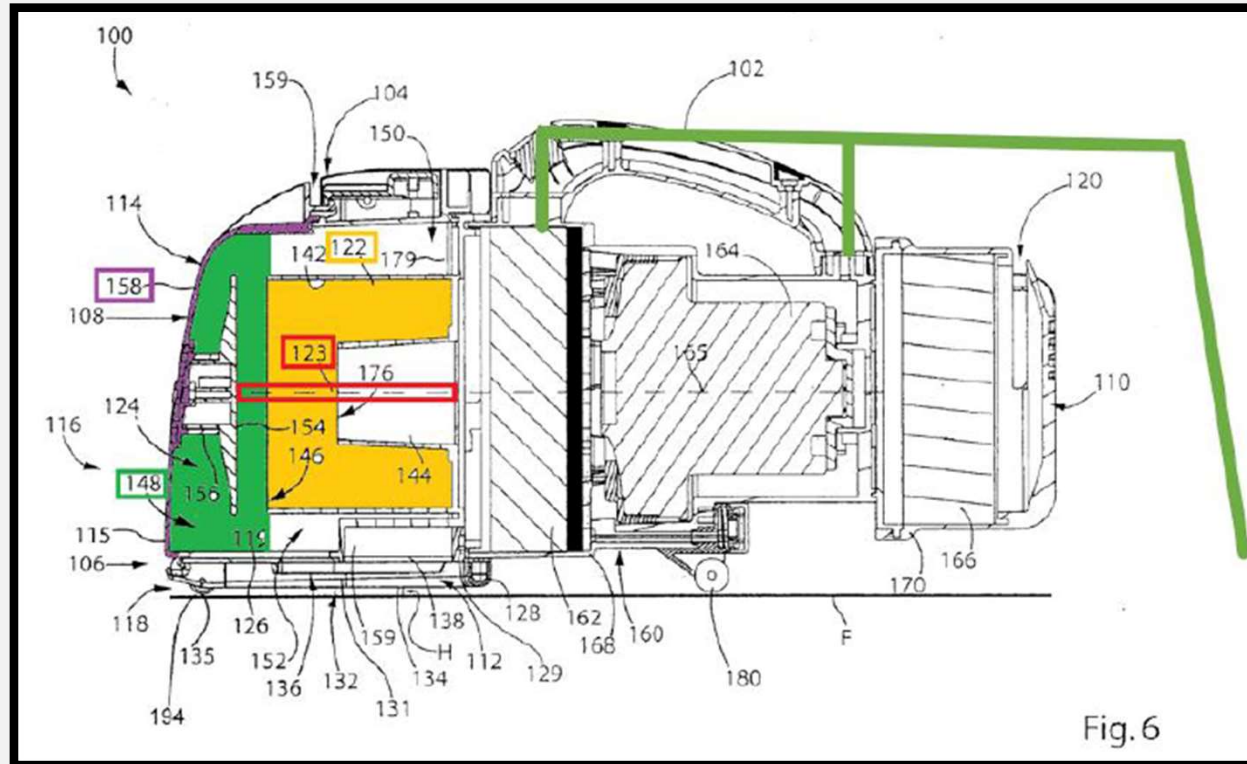


Fig. 2

Dyson (Ex. 1007) at Fig. 2

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 22

Ground 2: Petitioners' Proposed Modification of Conrad '630



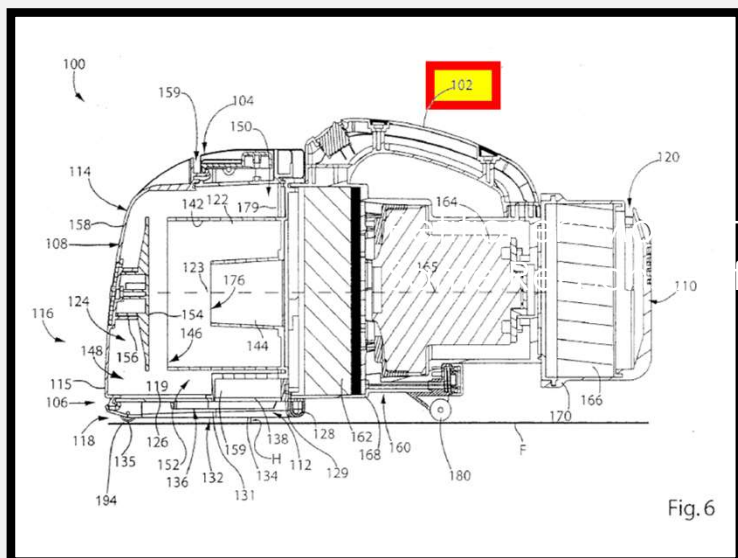
Petitioners' Proposed Combination

Fester Declaration (Ex. 1003) ¶130

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 23

Ground 2: Conrad '630 Disclosure Does Not Motivate Proposed Combination

Petitioners' Argument: "A POSITA reviewing Conrad '630 would have been motivated to explore alternative handle configurations . . ." Petition (Paper 2) at 29



Conrad '630 (Ex. 1004) at Fig. 6

[0052] Referring to FIGS. 1 to 7B, a first example of a vacuum cleaner 100 is shown. The vacuum cleaner 100 is a hand vacuum cleaner, and is movable along a surface to be cleaned by gripping and maneuvering handle 102. The vacuum cleaner includes an upper portion 104, a lower portion 106, a front 108, and a rear 110. In the example shown, handle 102 is provided at the upper portion 104. In alternate examples, handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design.

Conrad '630 (Ex. 1004) at ¶ 52

PO's Sur-Reply (Paper 31) at 3-5; POR (Paper 20) at 15.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 24

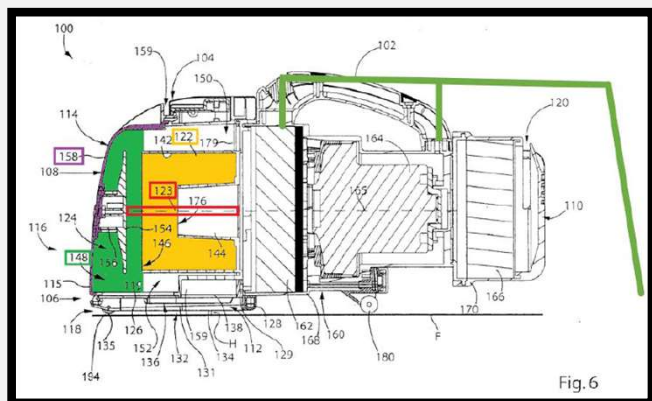
Ground 2: Conrad '630 Provides No Guidance As to Alternative Handle

57. Conrad '630 provides no further guidance as to the alternative handle design. Conrad '630 does not refer to a handle such as that in Conrad '787 and there were other alternative handle designs available at the time. For example,

Davidshofer Declaration (Ex. 2017) ¶ 57

Ground 2: Dyson Would Lead POSA Away From Proposed Combination

Dyson Discusses Disadvantages of Handheld Vacuums Where Heavy Components Are Forward of the Handle



Petitioners' Proposed Combination
Fester Declaration (Ex. 1003) ¶130

25 arrangements disclosed in GB 1 207 278 and JP 2004-041760. However, the heavy components of the vacuum cleaner (for example, the motor and fan assembly) are located forwardly of the handgrip relative to a user's hand when the vacuum cleaner is in use. Therefore, the centre of mass of the respective hand-held vacuum cleaner will be located forwardly of the handgrip. This may result in the hand-held vacuum cleaner
30 described above being tiring and uncomfortable to use because the user will have to exert additional effort in order to maintain the hand-held vacuum cleaner in a fixed orientation.

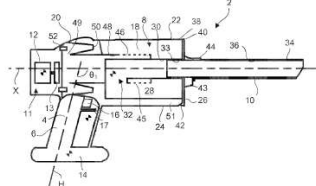
Dyson (Ex. 1007) at 1:25-2:2

POR (Paper 20) at 9, 16, 43-44.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 26

The '687 Patent (Ex. 1001) Claim Limitation 1d

United States Patent Dmilynov		(10) Patent No.: US 10,433,687 B2 (45) Date of Patent: Oct. 8, 2019	
(54) VACUUM CLEANER		(56) References Cited	
(7) Applicant: Dyson Technology Limited, Wiltshire (GB)		U.S. PATENT DOCUMENTS	
(8) Inventor: Stephen Robert Dmilynov, Swinden (GB)		1,420,655 A 6/1922 Newcombe 1,832,289 A 10/2000 Wake 6,139,690 B2* 4/2012 Miller	
(9) Assignee: Dyson Technology Limited, Malmesbury, Wiltshire (GB)		(Continued)	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(h) by 253 days.		FOREIGN PATENT DOCUMENTS	
(21) Appl. No.: 15/209,410		CA 2,804,369 3/2009 CA 2,907,308 5/2010	
(22) Filed: Sept. 19, 2016		OTHER PUBLICATIONS	
(45) Pub. No. 15/209,410		DE 10 2008 044 184 A1—(Jun. 2009) English Machine Transla- tion.	
(57) Priority Publication Data		(Continued)	
US 20170079491 A1 Mar. 23, 2017		<i>Primary Examiner</i>—Mark Carlson (74) <i>Attorney, Agent, or Firm</i>—Morrison & Foerster LLP	
(30) Foreign Application Priority Data		(57) ABSTRACT	
Sep. 17, 2015 (GB) 1516499.9		A household vacuum cleaner including a handle by which the vacuum cleaner is supported during normal use and a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit. The cyclonic separating unit includes an end portion having a closed configuration in which the handle is retained within the dirt collector and an open configuration for the removal of dirt from the dirt collector. The handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between the handle and the longitudinal axis of the cyclonic separating unit.	
(51) Int. Cl. <i>A47 5/24</i> (2006.01) <i>A47 5/22</i> (2006.01) <i>A47 9/16</i> (2006.01) <i>A47 5/28</i> (2006.01) <i>A47 9/00</i> (2006.01)		(57) CLAIMS	
(52) U.S. Cl. <i>CPC</i> <i>A47 5/24</i> (2013.01), <i>A47 5/28</i> (2013.01), <i>A47 9/00</i> (2013.01), <i>A47 9/16</i> (2013.01), <i>A47 9/16B1</i> (2013.01), <i>A47 5/24</i> (2013.01)		(57) CLAIMS	
(58) Field of Classification Search <i>CPC</i> <i>A47 5/24</i>, <i>A47 5/28</i>, <i>A47 9/16B1</i>, <i>A47 9/16</i>, <i>A47 9/16B1</i>, <i>A47 9/16B3</i>, <i>A47 9/16B4</i>, <i>A47 9/16B5</i>, <i>A47 9/16B6</i>, <i>A47 9/16B7</i>, <i>A47 9/16B8</i>, <i>A47 9/16B9</i>, <i>A47 9/16B10</i>, <i>A47 9/16B11</i>, <i>A47 9/16B12</i>, <i>A47 9/16B13</i>, <i>A47 9/16B14</i>, <i>A47 9/16B15</i>, <i>A47 9/16B16</i>, <i>A47 9/16B17</i>, <i>A47 9/16B18</i>, <i>A47 9/16B19</i>, <i>A47 9/16B20</i>, <i>A47 9/16B21</i>, <i>A47 9/16B22</i>, <i>A47 9/16B23</i>, <i>A47 9/16B24</i>, <i>A47 9/16B25</i>, <i>A47 9/16B26</i>, <i>A47 9/16B27</i>, <i>A47 9/16B28</i>, <i>A47 9/16B29</i>, <i>A47 9/16B30</i>, <i>A47 9/16B31</i>, <i>A47 9/16B32</i>, <i>A47 9/16B33</i>, <i>A47 9/16B34</i>, <i>A47 9/16B35</i>, <i>A47 9/16B36</i>, <i>A47 9/16B37</i>, <i>A47 9/16B38</i>, <i>A47 9/16B39</i>, <i>A47 9/16B40</i>, <i>A47 9/16B41</i>, <i>A47 9/16B42</i>, <i>A47 9/16B43</i>, <i>A47 9/16B44</i>, <i>A47 9/16B45</i>, <i>A47 9/16B46</i>, <i>A47 9/16B47</i>, <i>A47 9/16B48</i>, <i>A47 9/16B49</i>, <i>A47 9/16B50</i>, <i>A47 9/16B51</i>, <i>A47 9/16B52</i>, <i>A47 9/16B53</i>, <i>A47 9/16B54</i>, <i>A47 9/16B55</i>, <i>A47 9/16B56</i>, <i>A47 9/16B57</i>, <i>A47 9/16B58</i>, <i>A47 9/16B59</i>, <i>A47 9/16B60</i>, <i>A47 9/16B61</i>, <i>A47 9/16B62</i>, <i>A47 9/16B63</i>, <i>A47 9/16B64</i>, <i>A47 9/16B65</i>, <i>A47 9/16B66</i>, <i>A47 9/16B67</i>, <i>A47 9/16B68</i>, <i>A47 9/16B69</i>, <i>A47 9/16B70</i>, <i>A47 9/16B71</i>, <i>A47 9/16B72</i>, <i>A47 9/16B73</i>, <i>A47 9/16B74</i>, <i>A47 9/16B75</i>, <i>A47 9/16B76</i>, <i>A47 9/16B77</i>, <i>A47 9/16B78</i>, <i>A47 9/16B79</i>, <i>A47 9/16B80</i>, <i>A47 9/16B81</i>, <i>A47 9/16B82</i>, <i>A47 9/16B83</i>, <i>A47 9/16B84</i>, <i>A47 9/16B85</i>, <i>A47 9/16B86</i>, <i>A47 9/16B87</i>, <i>A47 9/16B88</i>, <i>A47 9/16B89</i>, <i>A47 9/16B90</i>, <i>A47 9/16B91</i>, <i>A47 9/16B92</i>, <i>A47 9/16B93</i>, <i>A47 9/16B94</i>, <i>A47 9/16B95</i>, <i>A47 9/16B96</i>, <i>A47 9/16B97</i>, <i>A47 9/16B98</i>, <i>A47 9/16B99</i>, <i>A47 9/16B100</i>, <i>A47 9/16B101</i>, <i>A47 9/16B102</i>, <i>A47 9/16B103</i>, <i>A47 9/16B104</i>, <i>A47 9/16B105</i>, <i>A47 9/16B106</i>, <i>A47 9/16B107</i>, <i>A47 9/16B108</i>, <i>A47 9/16B109</i>, <i>A47 9/16B110</i>, <i>A47 9/16B111</i>, <i>A47 9/16B112</i>, <i>A47 9/16B113</i>, <i>A47 9/16B114</i>, <i>A47 9/16B115</i>, <i>A47 9/16B116</i>, <i>A47 9/16B117</i>, <i>A47 9/16B118</i>, <i>A47 9/16B119</i>, <i>A47 9/16B120</i>, <i>A47 9/16B121</i>, <i>A47 9/16B122</i>, <i>A47 9/16B123</i>, <i>A47 9/16B124</i>, <i>A47 9/16B125</i>, <i>A47 9/16B126</i>, <i>A47 9/16B127</i>, <i>A47 </i>			



SharkNinja Ex. 1001
SharkNinja et al. v. Dyson Technology Limited,
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Page 1 of 14

1. A handheld vacuum cleaner comprising:
a handle by which the vacuum cleaner is supported during normal use;
a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit, the cyclonic separating unit comprising an end wall having a closed configuration in which dirt is retained within the dirt collector by the end wall and an open configuration for the removal of dirt from the dirt collector, wherein the end wall is movable relative to the longitudinal axis and, when the end wall is in the closed configuration, the longitudinal axis extends through a region bounded by a perimeter of the end wall, wherein the handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between a handle axis and the longitudinal axis of the cyclonic separating unit, and wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner.

Ground 2: Petitioners Admit Conrad '630 Does Not Disclose Limitation 1d

e. **Element 1[d]**

“wherein the handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between a handle axis and the longitudinal axis of the cyclonic separating unit, and wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner.”

Conrad'630 discloses one embodiment where handle 102 is mounted on an upper portion of vacuum clean 100 and also teaches that handle 102 may be moved such that “handle 102 may be provided elsewhere on the vacuum cleaner 100, for example at the rear 110 and may be of any design,” but does not explicitly disclose a “pistol grip configuration” as claimed. Ex-1004, ¶52; Ex-1003, ¶88.

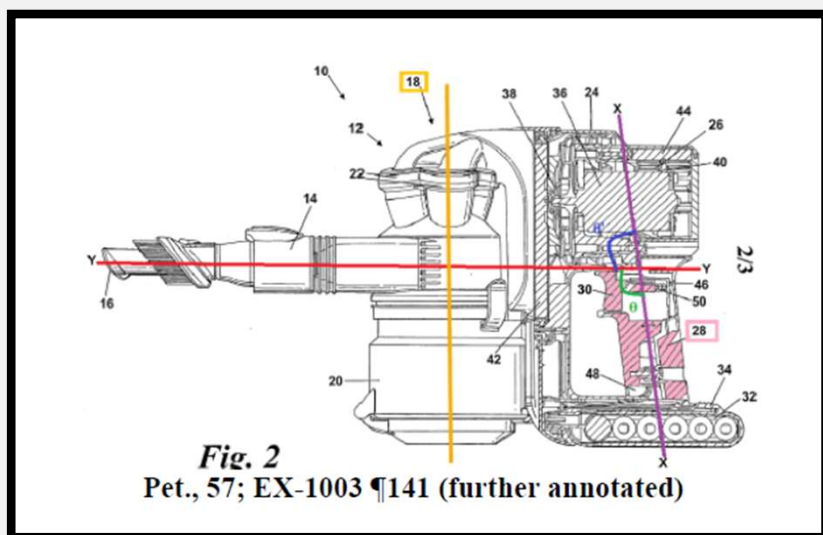
Petition (Paper 2) at 37

PO's Sur-Reply (Paper 31) at 10.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 28

Ground 2: Petitioners' Expert Admits Dyson Does Not Disclose Limitation 1d

Dyson does not disclose that “the handle axis and the longitudinal axis intersect within the vacuum cleaner”



POR (Paper 20) at 42

- 11 Q. Given that we've established that 18 is comprised
12 of 22 and 20, wouldn't the longitudinal axis of
13 the Dyson cyclonic separating unit be
14 perpendicular to the Y-Y axis in Dyson?
15 A. It appears that's a true statement.
16 Q. Okay. And if the longitudinal axis of the
17 cyclonic separating unit in Dyson is
18 perpendicular to the Y-Y axis in Dyson, then the
19 handle axis and the longitudinal axis would not
20 intersect within the vacuum cleaner, correct?
21 A. That appears to be true.

Fester Deposition (Ex. 2018) 157:11-21

PO's Sur-Reply (Paper 31) at 11; POR (Paper 20) at 42.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 29

Summary of Issues

- **GROUND 1: Conrad '630** in view of **Conrad '787**
 - No motivation to incorporate Conrad '787 handle at Conrad '630 rear
 - Proposed combination is inferior
- **GROUND 2: Conrad '630** in view of **Dyson**
 - Combination does not disclose limitation 1d and claim 2
 - No motivation to incorporate Dyson handle at Conrad '630 rear (see Ground 1)
 - Proposed combination is inferior (see Ground 1)
- **GROUND 3 & 4: Matsumoto** in view of **Conrad '787** or **Dyson**
 - Combination does not disclose limitation 1d and claim 2 (Ground 4 only)
 - No motivation to combine references as proposed
 - A POSA would not have understood **Matsumoto** to disclose miniaturizing its vacuum cleaner
- **Secondary considerations** support a finding of non-obviousness

Ground 3 & 4: Matsumoto (Ex. 1005)

(19)  (11) **EP 1 199 023 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
17.03.2010 Bulletin 2010/11

(21) Application number: 00946373.8

(22) Date of filing: 17.07.2000

(51) Int. Cl.:
A47L 5/10 (2006.01) A47L 5/28 (2006.01)
A47L 5/00 (2006.01) A47L 5/28 (2006.01)
A47L 5/20 (2006.01)

(86) International application number:
PCT/JP2000/004804

(87) International publication number:
WO 2001/005291 (25.01.2001 Gazette 2001/04)

(54) **VACUUM CLEANER**
STAUBSAUGER
ASPIRATEUR

(84) Designated Contracting States:
DE ES GB NL SE

(30) Priority: 19.07.1999 JP 20452459

(43) Date of publication of application:
24.04.2002 Bulletin 2002/17

(60) Divisional application:
08021934.8 / 2 033 563

(73) Proprietor: Sharp Kabushiki Kaisha
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Osaka 545-0013 (JP)

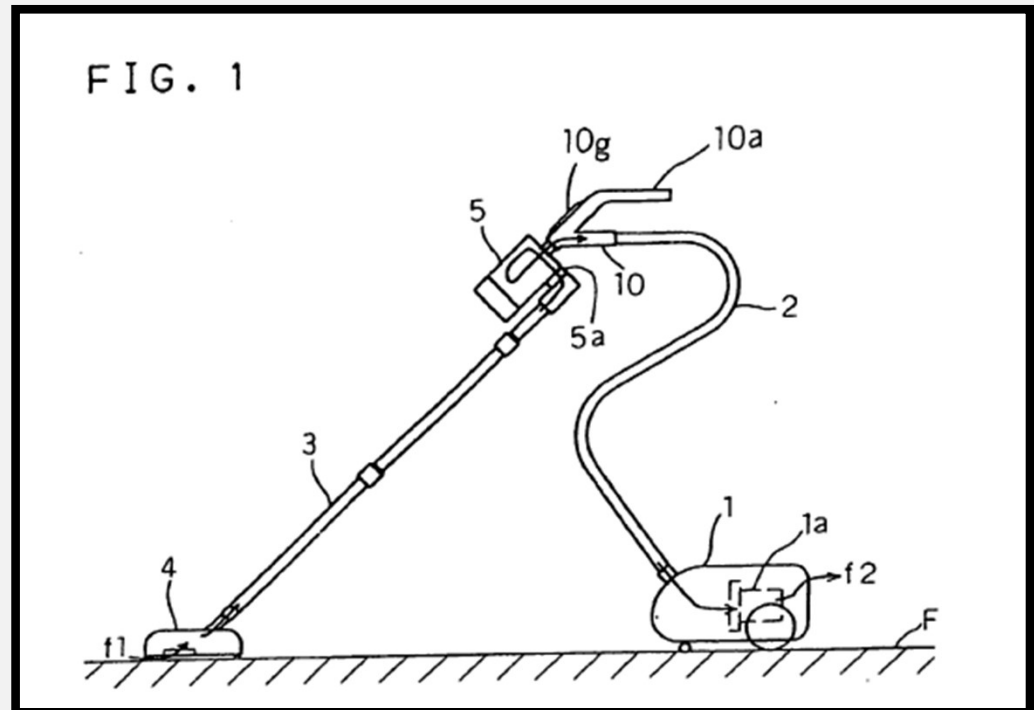
(74) Representative: Müller, Frithjof E.
Müller Hoffmann & Partner
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81667 München (DE)

(56) References cited:
EP-A-1 136 028 WO-A-00/74548
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JP-A-2000 166 829 JP-B2-55 047 163
JP-U-03 065 545 JP-U-48 054 260
JP-U-49 020 966 JP-U-52 034 571
JP-U-54 060 953 JP-U-55 095 642
JP-U-58 165 148 JP-Y1-43 024 793
JP-Y1-43 029 416 JP-Y2-2 583 345
JP-Y2-59 029 628 JP-Y2-59 037 163
US-A-5 078 761

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

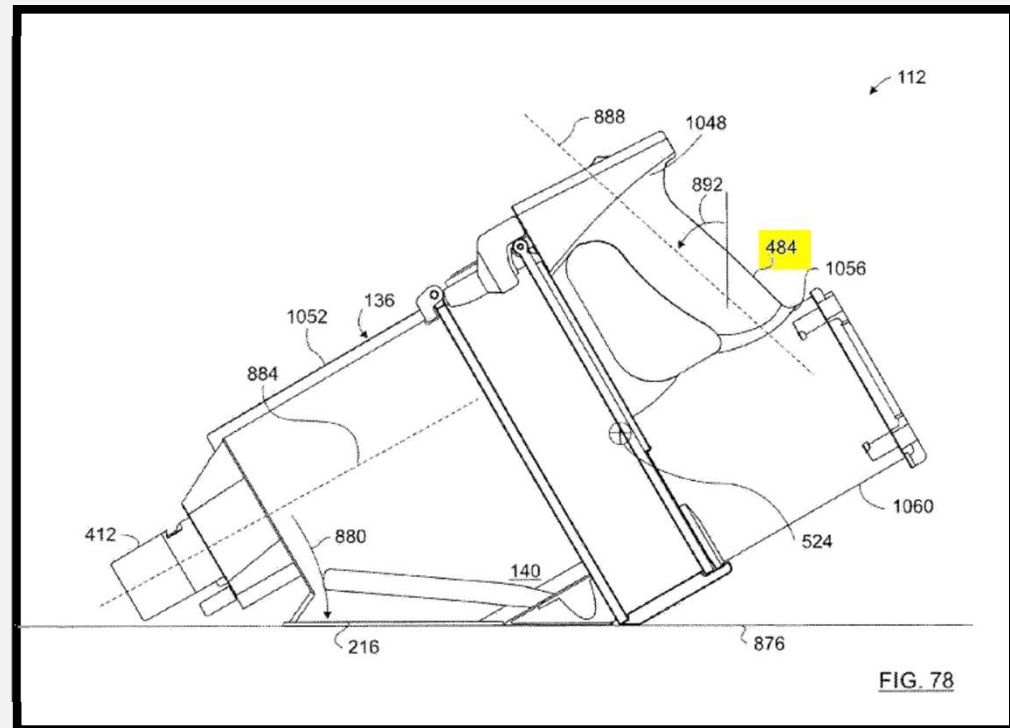
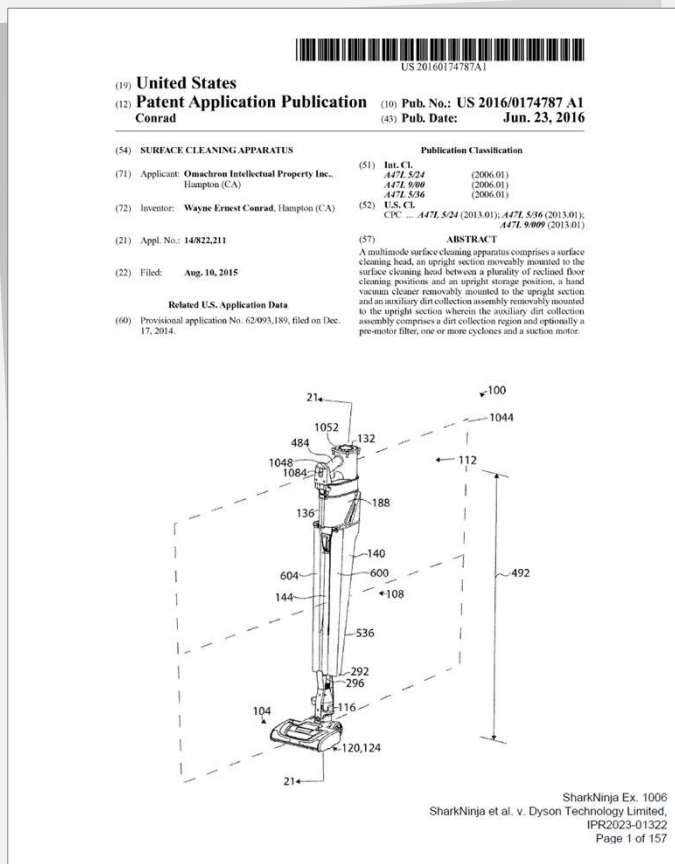
Printed by Jouve, 15021 PAF03 (FR)

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Matsumoto (Ex. 1005) at Fig. 1

Ground 3: Conrad '787 (Ex. 1006)



Conrad '787 (Ex. 1006) at Fig. 78

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Ground 4: Dyson (Ex. 1007)

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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
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(10) International Publication Number
WO 2008/009888 A1

(51) International Patent Classification:
A47L 5/24 (2006.01)

(74) Agents: SMITH, Gillian Ruth et al.; Dyson Technology Limited, Intellectual Property Department, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, NG, SN, TD, TG).

(72) Inventors and
(75) Inventor/Applicants (for US only): DYSON, James (GB/GB); Dyson Technology Limited, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB), HICKMOTT, Richard Morgan (GB/GB); Dyson Technology Limited, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB), GAMMACK, Peter David (GB/GB); Dyson Technology Limited, Tetbury Hill, Malmesbury Wiltshire SN16 0RP (GB).

(54) Title: A HAND-HELD CLEANING APPLIANCE

(57) Abstract: The invention provides a hand-held cleaning appliance (10) comprising a suction conduit (14) having a longitudinal axis (Y-Y), an airflow generator (36) for generating an airflow along the suction conduit (14), separating apparatus (18) arranged in communication with the suction conduit (14) for separating dirt and dust from the airflow, a power source (32) for supplying power to the airflow generator (36) and an elongate handle (28) disposed between the airflow generator (36) and the power source (32). The elongate handle (28) is dimensioned and arranged to be gripped by a user's hand and the elongate handle (28) has transverse to the longitudinal axis (Y-Y) of the suction conduit. By providing a hand-held vacuum cleaner (10) with such an arrangement, the hand-held vacuum cleaner (10) is easier and more comfortable to manipulate in use.

SharkNinja Ex. 1007
SharkNinja et al. v. Dyson Technology Limited
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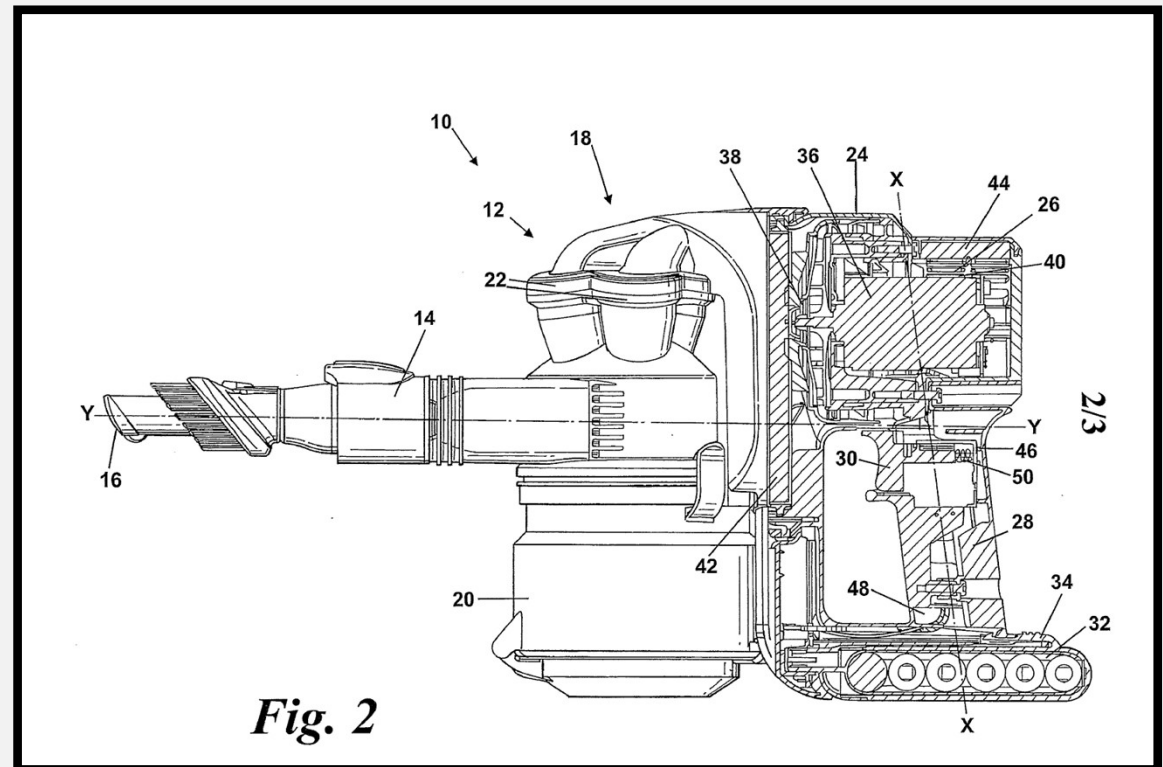
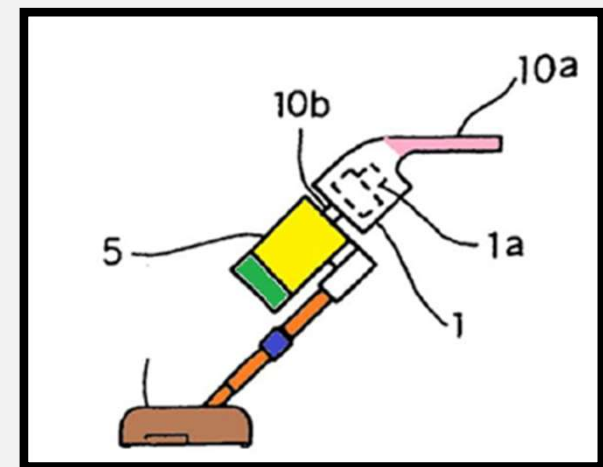
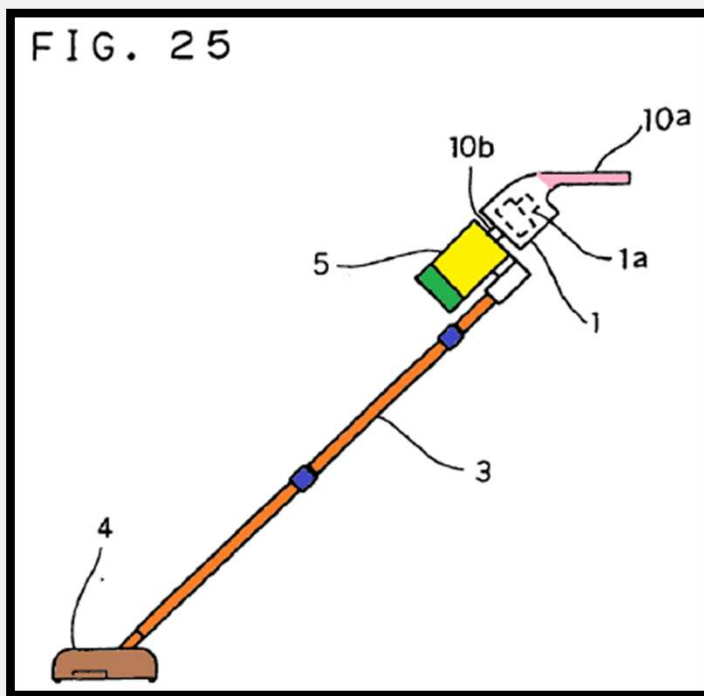


Fig. 2

Dyson (Ex. 1007) at Fig. 2

Ground 3 & 4: Petitioners' Proposed Miniaturization of Matsumoto



Petition (Paper 2) at 65-66

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 34

Ground 3 & 4: Petitioners' Proposed Miniaturization of Matsumoto

Petitioners' Argument: “. . . a POSITA would have been motivated to ‘miniaturize [the] vacuum cleaner’ in order to operate it in a handheld configuration.” Petition (Paper 2) at 64

[0068] Moreover, according to the present invention, a connection pipe is bent so as to function as a handle held by the user during cl. This helps reduce the space occupied by the handle. In this way, it is possible to miniaturize a vacuum cleaner and enhance the operability thereof.

Matsumoto (Ex. 1005) at ¶ [0068]

POR (Paper 20) at 12, 48, 58, 61.

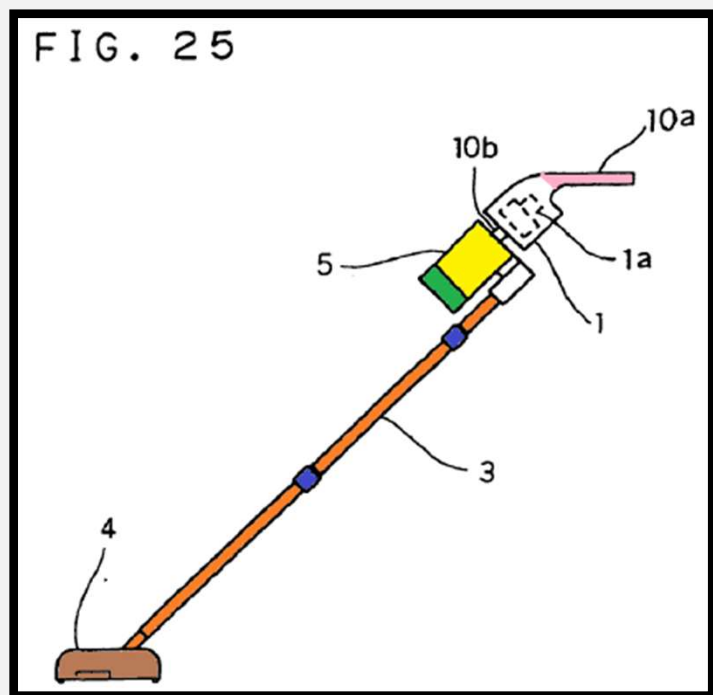
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 35

Ground 3 & 4: Petitioners' Proposed Miniaturization of Matsumoto

164. Thus, a POSITA would have understood that Matsumoto could be used as a handheld vacuum by using only the uppermost connection pipe 3, and connecting suction port body 4 (or another attachment) to the shortened connection pipe 3, as illustrated in the mockup of Figure 25 shown below.

Fester Declaration (Ex. 1003) at ¶ 164

Petitioners' Expert Admits Matsumoto Does Not Disclose A Miniaturized Handheld Vacuum



Petition (Paper 2) at 78-79

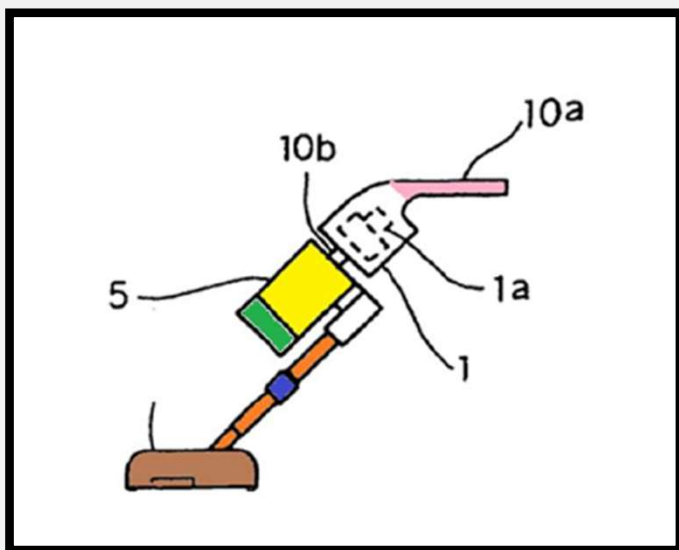
2 Q. I think you were going to tell us. I think you
3 had the right mock-up. I think I interrupted you
4 mistakenly.
5 A. That's fine. So paragraph 162 does a pretty good
6 job of kind of pointing to why, so though
7 Matsumoto in the figure 25, it just -- it
8 basically is disclosing there a handheld
9 stick-type vacuum cleaner that's more for kind of
10 cleaning floors. Matsumoto does not explicitly
11 disclose a miniature handheld vacuum to be used
12 as a handheld configuration that would be suited
13 for cleaning other types of surfaces such as
14 couches and bedding; however, Matsumoto explains
15 that miniaturizing the vacuum cleaner would
16 enhance the operability thereof, and additionally
17 kind of looking at the Matsumoto reference, there
18 are several indications where miniaturizing is
19 used as it's referring to the overall space that
20 the vacuum cleaner takes up.

Fester Dep. Tr. (Ex. 2018) at 163:2-20

PO's Sur-Reply (Paper 31) at 23-24; POR (Paper 20) at 53, 57.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 37

Petitioners' Expert Admits Matsumoto Does Not Disclose A Miniaturized Handheld Vacuum

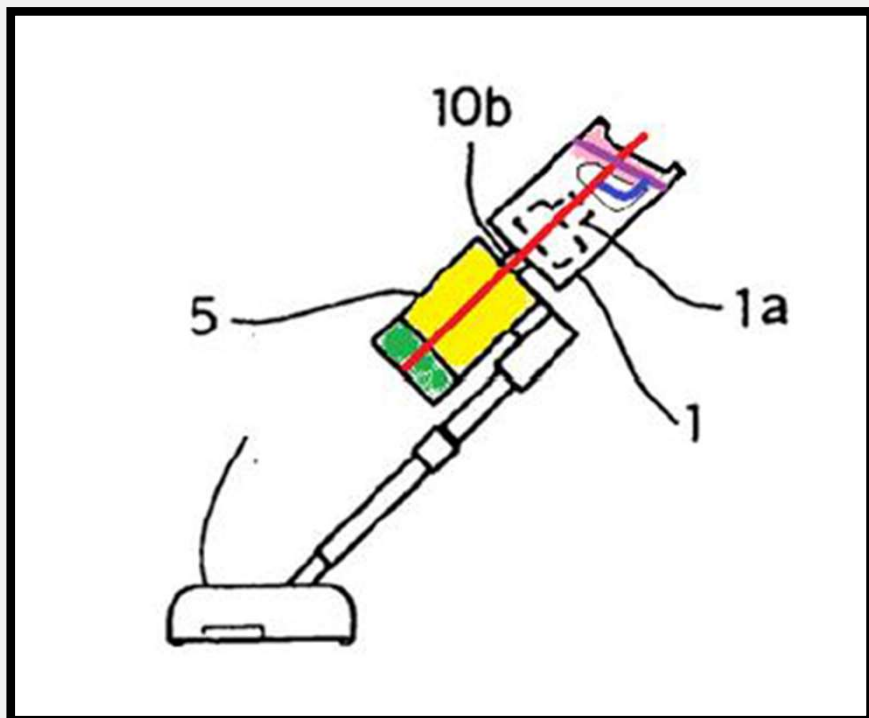


Fester Declaration (Ex. 1003) at

19	Q.	Okay. And there is no disclosure in Matsumoto of
20		miniaturizing the vacuum in the way that you have
21		done in the mock-up in paragraph 164, correct?
22		MR. EL DESSOUKI: Objection.
23		THE WITNESS: <u>There is no such</u>
24		<u>disclosure, no.</u>

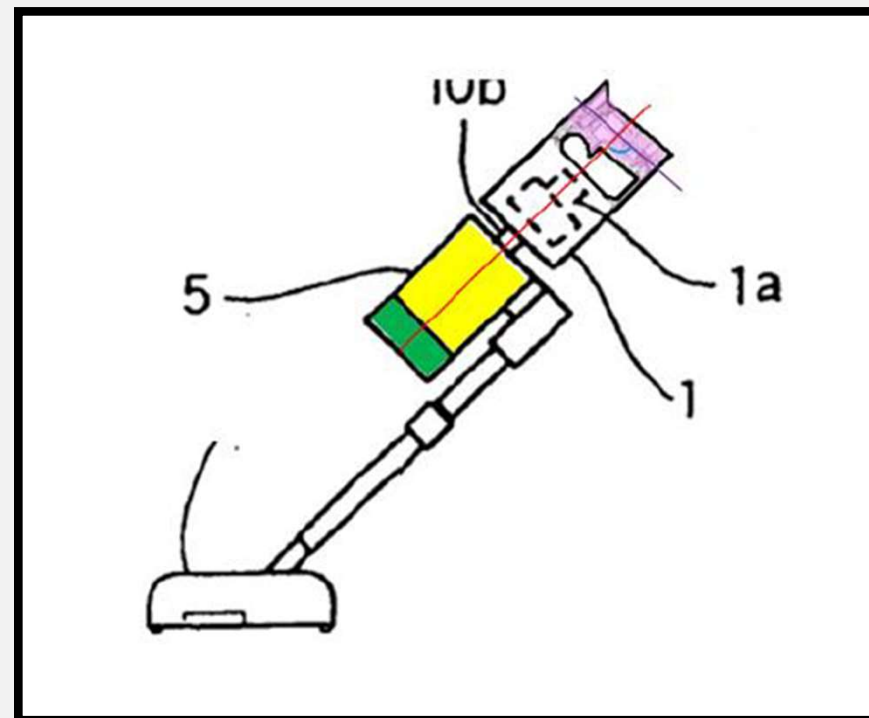
Fester Dep. Tr. (Ex. 2018) at 164:19-24

Grounds 3 & 4: Petitioners' Proposed Modifications of Miniaturized Matsumoto



**Petitioners' Proposed Matsumoto/Conrad '787
Combination (Ground 3)**

Fester Declaration (Ex. 1003) ¶ 170



**Petitioners' Proposed Matsumoto/Dyson Combination
(Ground 4)**

Fester Declaration (Ex. 1003) ¶ 218

POR (Paper 20) at 61.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 39

Petitioners' Expert's Opinions About Matsumoto's Handle Are Unsupported

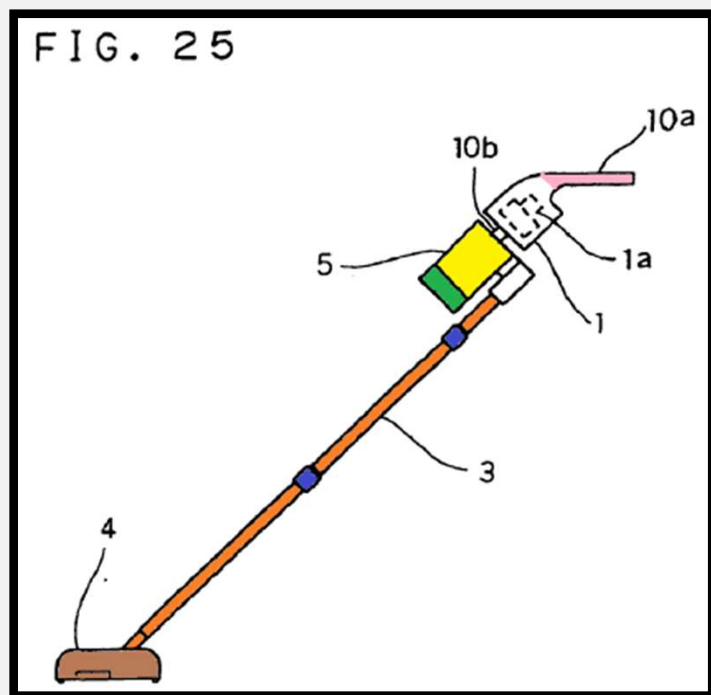
A POSITA would have also recognized that Matsumoto's handle is unergonomic and uncomfortable because of its shape and angle. *Id.*, ¶165. As shown in Figure 25, the angle of the handle during use is approximately parallel to the ground. *Id.*, ¶165. A POSITA would have recognized that such an angle would strain a user's wrist over extended use. *Id.* A POSITA would have also recognized that Matsumoto's handle would be likely to break because of its shape and because it acts as a cantilever that absorbs force during use. *Id.*, ¶166.

Petition (Paper 2) at 66

POR (Paper 20) at 62-64; PO's Sur-Reply (Paper 31) at 15-16.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 40

Petitioners' Expert Admits Matsumoto Does Not Disclose A Miniaturized Handheld Vacuum

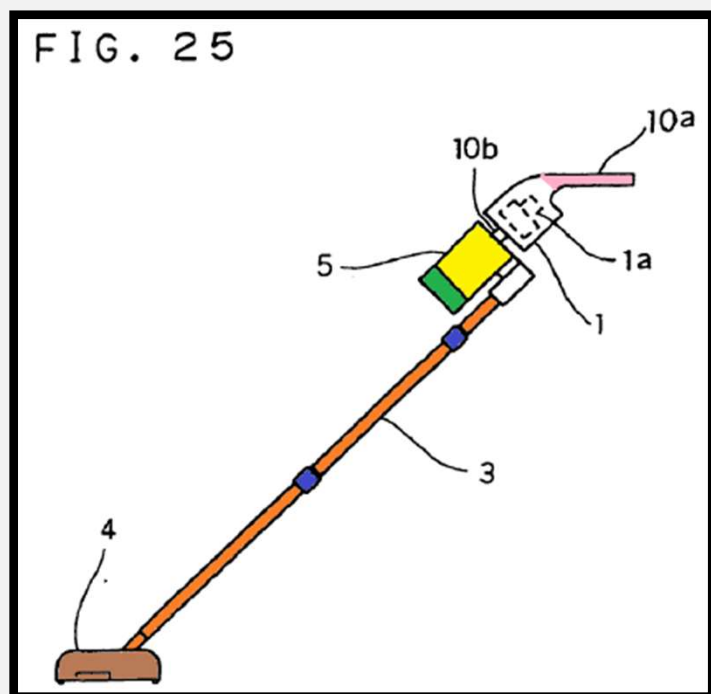


Petition (Paper 2) at 78-79

5 A. So Matsumoto shows exclusively a stick vacuum
6 which would be partially supported by the floor.
7 Indeed, most of the weight would be supported by
8 the floor and would have -- the weight at the
9 handle would be less because of that so -- but
10 the center of gravity for that unit would be
11 below the handle but not directly vertically
12 beneath it.

Fester Dep. Tr. (Ex. 2018) at 173:5-12

Grounds 3 & 4: Severe Disadvantages To Proposed Modifications



Petition (Paper 2) at 78-79

132. In Matsumoto Figure 25, the vacuum cleaner's weight is distributed between the user and the floor on which the suction port is resting during use. EX-2018, 173:5-12. Because much of the weight is distributed to the floor and the handle is maintained at a comfortable height based on the length of connection pipe 3, the design considerations for the handle placement and design are substantially different than for Conrad '787 or Dyson. Recognizing these differences in design considerations, Mr. Fester acknowledged that the motivations he alleged for modifying Matsumoto with Conrad '787's or Dyson's handle at the claimed angle require a miniaturized version of Figure 25's embodiment, in which the weight would be borne solely by the user in much of the use scenarios. EX-2018, 163:7-14. However, a POSITA would have understood change in weight distribution of the vacuum cleaner in making such a modification would have led to severe disadvantages in adding Conrad '787's or Dyson's handle to the rear of Petitioners' and Mr. Fester's proposed miniaturized version of Matsumoto.

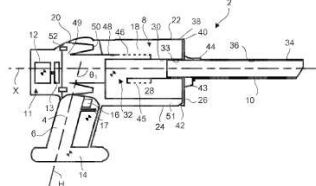
Davidshofer Declaration (Ex. 2017) ¶ 132

POR (Paper 20) at 53; PO's Sur-Reply (Paper 31) at 24.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 42

The '687 Patent (Ex. 1001): Claim Limitation 1d

 US 10,433,687 B2	
(12) United States Patent Dimbylow	(10) Patent No.: US 10,433,687 B2 (45) Date of Patent: Oct. 8, 2019
(54) VACUUM CLEANER	(56) References Cited
(71) Applicant: Dyson Technology Limited , Wiltshire (GB)	U.S. PATENT DOCUMENTS
(72) Inventor: Stephen Robert Dimbylow , Swindon (GB)	1,420,665 A 6/1922 Newcombe 6,371,279 A 10/2000 White 8,156,609 B2* 4/2012 Milne A47L 5/24 15/344
(73) Assignee: Dyson Technology Limited , Malmesbury, Wiltshire (GB)	(Continued)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 253 days.	FOREIGN PATENT DOCUMENTS
(21) Appl. No.: 15/269,430	CA 2,894,309 3/2009 CA 2,907,308 9/2019 (Continued)
(22) Filed: Sep. 19, 2016	OTHER PUBLICATIONS
(65) Prior Publication Data US 2017/0079491 A1 Mar. 23, 2017	DE 10 2008 044 184 A1—Jun. 2009—English Machine Transla- tion.* (Continued)
(30) Foreign Application Priority Data Sep. 17, 2015 (GB) 1516499.9	<i>Primary Examiner</i> —Marc Carlson (74) <i>Attorney, Agent, or Firm</i> —Morrison & Foerster LLP
(51) Int. Cl. A47L 5/24 (2006.01) A47L 9/24 (2006.01) A47L 9/16 (2006.01) A47L 5/28 (2006.01) A47L 9/00 (2006.01)	(57) ABSTRACT
(52) U.S. Cl. CPC A47L 5/24 (2013.01); A47L 5/28 (2013.01); A47L 9/00 (2013.01); A47L 9/16 (2013.01); A47L 9/1641 (2013.01); A47L 9/24 (2013.01)	A handheld vacuum cleaner including a handle by which the vacuum cleaner is supported during normal use and a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit. The cyclonic separating unit includes an end portion having a closed configuration in which dirt is retained within the dirt collector and an open configuration for the removal of dirt from the dirt collector. The handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between the handle and the longitudinal axis of the cyclonic separating unit.
(58) Field of Classification Search CPC : A47L 5/24; A47L 5/28; A47L 9/1616; A47L 9/1625; A47L 9/1641; A47L 9/165; A47L 9/1666; A47L 9/1683; A47L 9/00; A47L 9/242	
See application file for complete search history.	



SharkNinja Ex. 1001
SharkNinja et al. v. Dyson Technology Limited,
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1. A handheld vacuum cleaner comprising:
a handle by which the vacuum cleaner is supported during normal use;
a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit, the cyclonic separating unit comprising an end wall having a closed configuration in which dirt is retained within the dirt collector by the end wall and an open configuration for the removal of dirt from the dirt collector, wherein the end wall is movable relative to the longitudinal axis and, when the end wall is in the closed configuration, the longitudinal axis extends through a region bounded by a perimeter of the end wall, wherein the handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between a handle axis and the longitudinal axis of the cyclonic separating unit, and wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 43

Ground 4: Petitioners Rely Exclusively on Dyson for Claim Limitation 1[d]

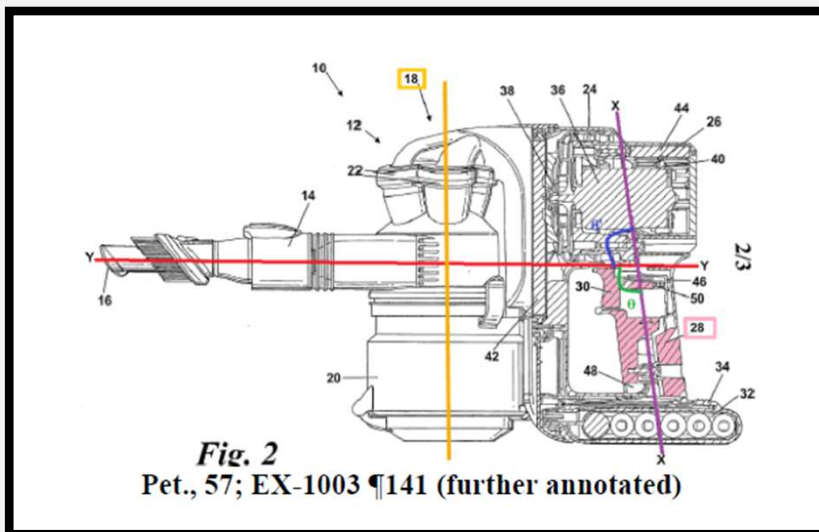
b. Element 1[d]

Dyson discloses this limitation, as explained above. *See* Section IV.B.2.b (Ground 2, Element 1[d]) (incorporated herein by reference). Ex-1003, ¶¶184-188, 224-229.

Petition (Paper 2) at 94

Ground 4: Petitioners' Expert Admits Dyson Does Not Disclose Limitation 1d

Dyson does not disclose that “the handle axis and the longitudinal axis intersect within the vacuum cleaner”



POR (Paper 20) at 42

- 11 Q. Given that we've established that 18 is comprised
12 of 22 and 20, wouldn't the longitudinal axis of
13 the Dyson cyclonic separating unit be
14 perpendicular to the Y-Y axis in Dyson?
15 A. It appears that's a true statement.
16 Q. Okay. And if the longitudinal axis of the
17 cyclonic separating unit in Dyson is
18 perpendicular to the Y-Y axis in Dyson, then the
19 handle axis and the longitudinal axis would not
20 intersect within the vacuum cleaner, correct?
21 A. That appears to be true.

Fester Deposition (Ex. 2018) 157:11-21

PO's Sur-Reply (Paper 31) at 11; POR (Paper 20) at 42.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 45

Summary of Issues

- **GROUND 1: Conrad '630** in view of **Conrad '787**
 - No motivation to incorporate Conrad '787 handle at Conrad '630 rear
 - Proposed combination is inferior
- **GROUND 2: Conrad '630** in view of **Dyson**
 - Combination does not disclose limitation 1d and claim 2
 - No motivation to incorporate Dyson handle at Conrad '630 rear (see Ground 1)
 - Proposed combination is inferior (see Ground 1)
- **GROUND 3 & 4: Matsumoto** in view of **Conrad '787** or **Dyson**
 - Combination does not disclose limitation 1d and claim 2 (Ground 4 only)
 - No motivation to combine references as proposed
 - A POSA would not have understood **Matsumoto** to disclose miniaturizing its vacuum cleaner
- **Secondary considerations** support a finding of non-obviousness

Secondary Considerations Support A Finding of Nonobviousness

- There is a sufficient **nexus** between the secondary considerations and the claimed and novel features of the Challenged Claims
- There is strong evidence of **long-felt need** and **industry praise** for the claimed **point-and-shoot feature**

PO's Sur-Reply (Paper 31) at 25-27; POR (Paper 20) at 69-76.

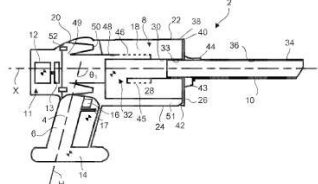
DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 47

Point-and-Shoot Feature Is Reflected in Limitation 1d of '687 Patent

 US 10,433,687 B2	
(12) United States Patent Dimbylow	(10) Patent No.: US 10,433,687 B2 (45) Date of Patent: Oct. 8, 2019
(54) VACUUM CLEANER	(56) References Cited
(71) Applicant: Dyson Technology Limited , Wiltshire (GB)	U.S. PATENT DOCUMENTS
(72) Inventor: Stephen Robert Dimbylow , Swindon (GB)	1,420,665 A 6/1922 Newcombe 6,371,239 A 10/2000 White 8,156,609 B2* 4/2012 Milne A47L 5:24 15:344
(73) Assignee: Dyson Technology Limited , Malmesbury, Wiltshire (GB)	(Continued)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 253 days.	FOREIGN PATENT DOCUMENTS
(21) Appl. No.: 15/269,430	CA 2,894,309 3/2009 CA 2,907,308 9/2019 (Continued)
(22) Filed: Sep. 19, 2016	OTHER PUBLICATIONS
(65) Prior Publication Data US 2017/0079491 A1 Mar. 23, 2017	DE 10 2008 044 184 A1—Jun. 2009—English Machine Translation*
(30) Foreign Application Priority Data Sep. 17, 2015 (GB) 1516499.9	(Continued)
(51) Int. Cl. A47L 5:24 (2006.01) A47L 9:24 (2006.01) A47L 9:16 (2006.01) A47L 5:28 (2006.01) A47L 9:00 (2006.01)	(57) ABSTRACT
(52) U.S. Cl. CPC A47L 5:24 (2013.01); A47L 5:28 (2013.01); A47L 9:00 (2013.01); A47L 9:16 (2013.01); A47L 9:16A1 (2013.01); A47L 9:24 (2013.01)	A handheld vacuum cleaner including a handle by which the vacuum cleaner is supported during normal use and a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit. The cyclonic separating unit includes an end portion having a closed configuration in which dirt is retained within the dirt collector and an open configuration for the removal of dirt from the dirt collector. The handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between the handle axis and the longitudinal axis of the cyclonic separating unit.
(58) Field of Classification Search CPC A47L 5:24; A47L 5:28; A47L 9:1616; A47L 9:1625; A47L 9:1641; A47L 9:165; A47L 9:1666; A47L 9:1683; A47L 9:00; A47L 9:242	

See application file for complete search history.

11 Claims, 8 Drawing Sheets

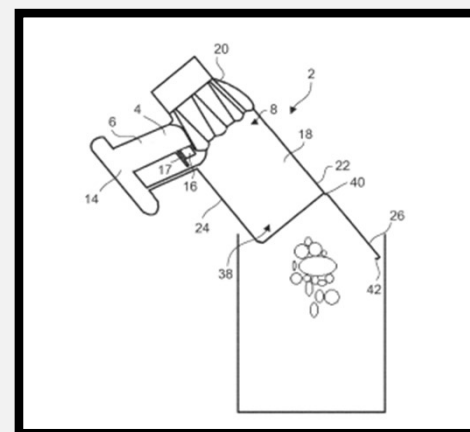
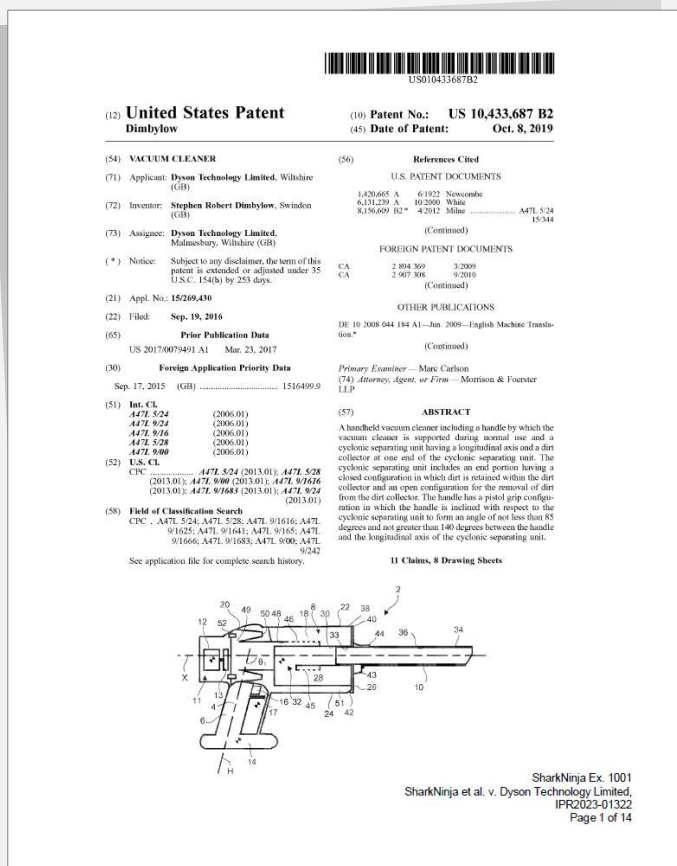


SharkNinja Ex. 1001
SharkNinja et al. v. Dyson Technology Limited,
IPR2023-01322
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1. A handheld vacuum cleaner comprising:
a handle by which the vacuum cleaner is supported during normal use;
a cyclonic separating unit having a longitudinal axis and a dirt collector at one end of the cyclonic separating unit, the cyclonic separating unit comprising an end wall having a closed configuration in which dirt is retained within the dirt collector by the end wall and an open configuration for the removal of dirt from the dirt collector, wherein the end wall is movable relative to the longitudinal axis and, when the end wall is in the closed configuration, the longitudinal axis extends through a region bounded by a perimeter of the end wall, wherein the handle has a pistol grip configuration in which the handle is inclined with respect to the cyclonic separating unit to form an angle of not less than 85 degrees and not greater than 140 degrees between a handle axis and the longitudinal axis of the cyclonic separating unit, and wherein the handle axis and the longitudinal axis intersect within the vacuum cleaner.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 48

Point-and-Shoot Feature Is Reflected in Limitation 1d of '687 Patent



A handheld vacuum cleaner in accordance with the invention can be emptied by pointing the cyclonic separating unit away from the user and opening the end portion while maintaining a natural grip on the handle. The process of

'687 Patent (Ex. 1001) at Fig 8; 1:52–55

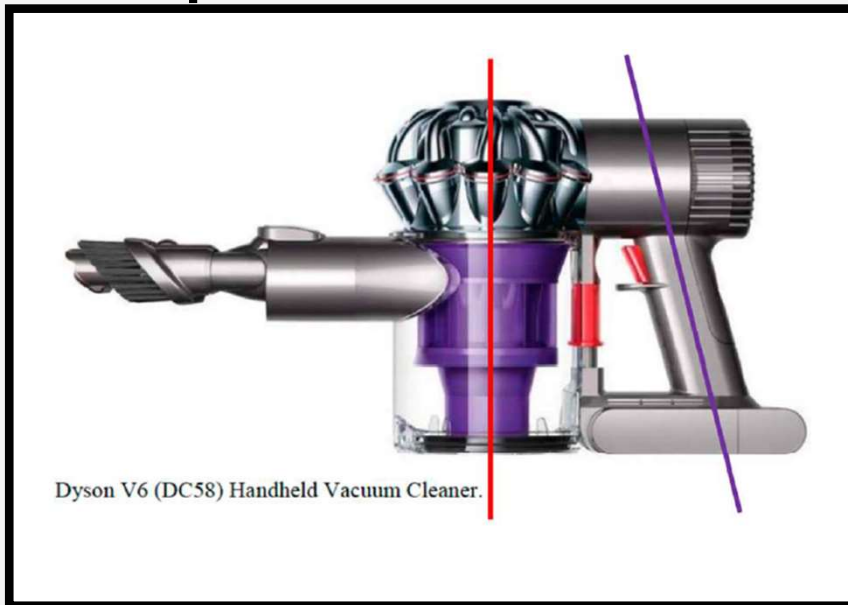
PO's Sur-Reply (Paper 31) at 25; POR (Paper 20) at 5, 70.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 49

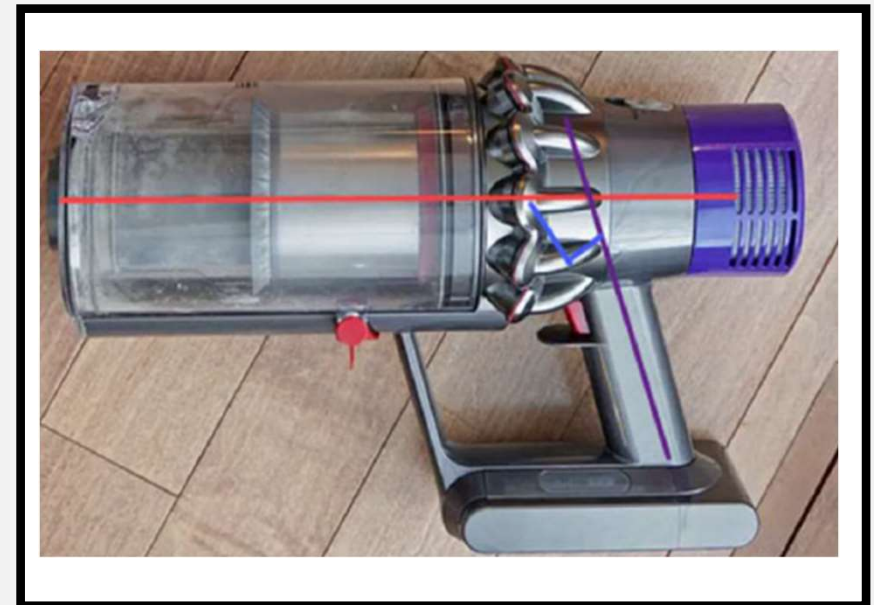
Dyson EX-2028
IPR2023-01322
Page 49 of 53

Secondary Considerations: Point-and-Shoot

V6 and V10 Handles are inclined in different angles and positions with respect to the dustbin



Dyson V6
Ex. 1003 at 5 (annotated)

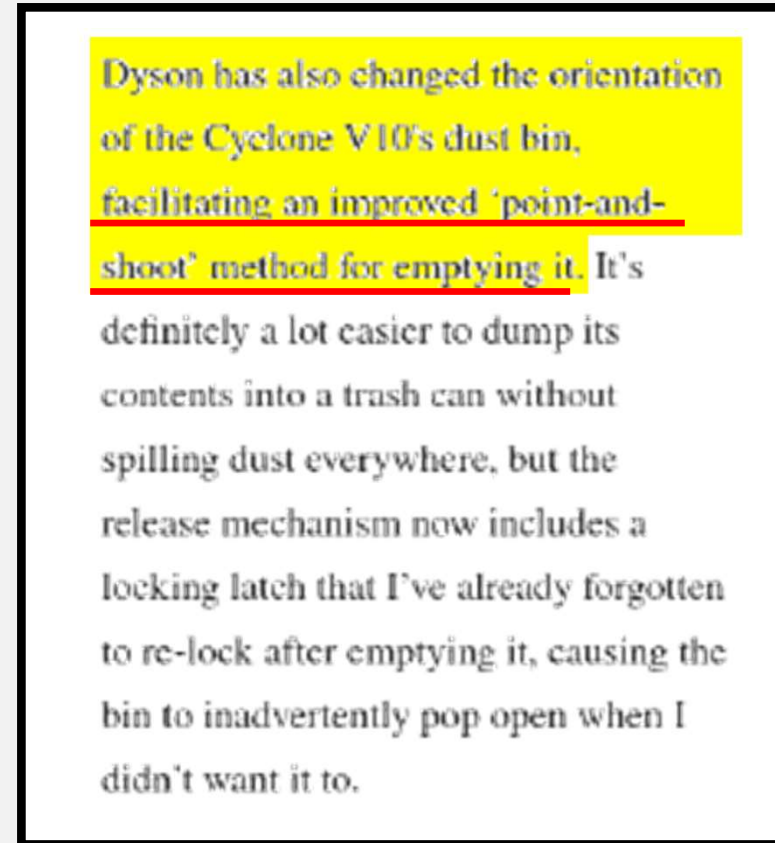
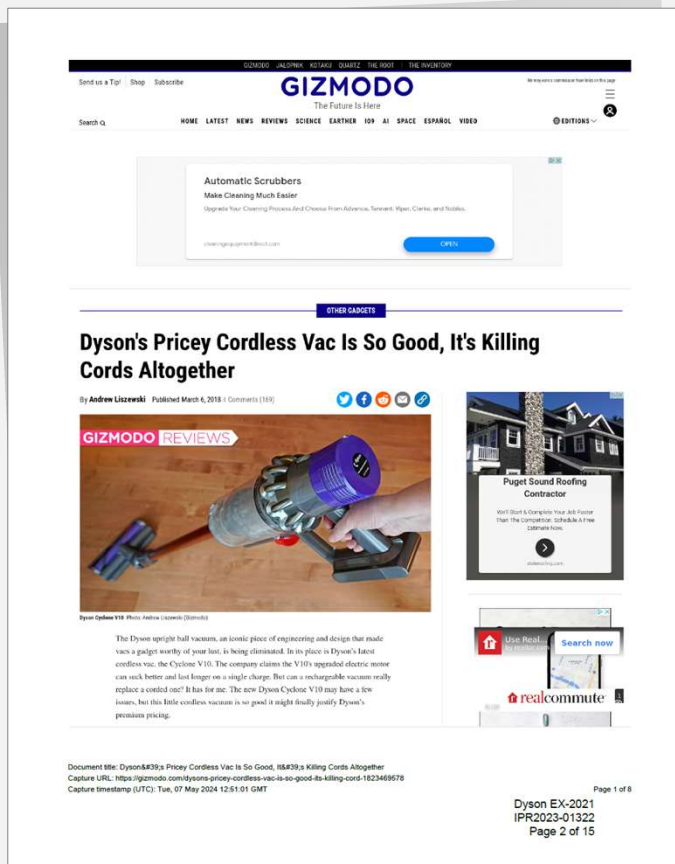


Dyson V10
Ex. 2021 (annotated)

PO's Sur-Reply (Paper 31) at 26.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 50

Secondary Considerations: Industry Praise & Long-Felt Need

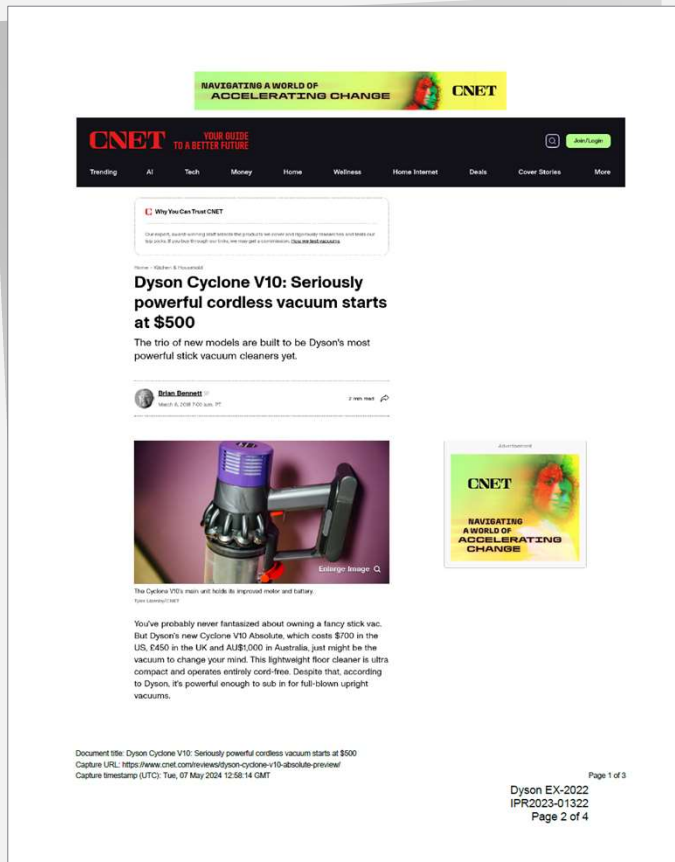


Ex. 2021 at 5

POR (Paper 20) at 74.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 51

Secondary Considerations: Industry Praise & Long-Felt Need



New and improved abilities

All this flexibility is possible because the Cyclone V10's critical parts reside in its handled motor unit. This includes an air filter dirt bin, and rechargeable battery. Dyson claims the battery offers more runtime than the V8 too (60 minutes compared with 40 minutes). Even so, Dyson says the V10 will have 20 percent more suction (150 Air Watts) than the V8 (120 Air Watts). You'll still need to devote some time to charge the V10's battery, which should take about three and a half hours.

The dustbin now empties from the front, not the bottom like the old model. That improvement may sound minor but it's quite welcome. This solution is easier to aim towards the trash can. That prevents less collected dirt from escaping back to the floor. Also new is an indicator light for the filter. It's designed to light up when your filter needs a cleaning.

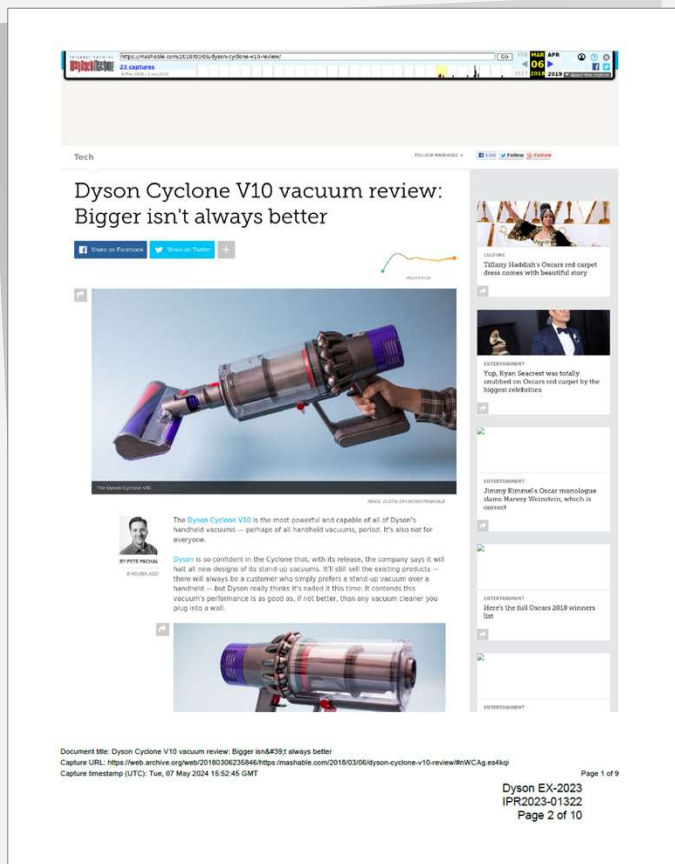
Ex. 2022 at 4

PO's Sur-Reply (Paper 31) at 26-27; POR (Paper 20) at 75.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 52

Dyson EX-2028
IPR2023-01322
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Secondary Considerations: Industry Praise & Long-Felt Need



What it has going for it: What makes Dyson's new flagship vac tempting for everyone are its multitude of improvements over previous designs, like the new bin that's 40 percent bigger and points forward for easier dumping, the robust battery that lasts up to 60 minutes, and three-speed switch for cranking up suction power when you need it. It also looks more like a badass ray gun than any previous Dyson handheld.

Ex. 2023 at 3

The first time you pick it up, though, you may be a little surprised by the weight. The V10 weighs 5.9 pounds, which is just 0.2 pounds more than the most recent top-of-the-line model, the V8. But it's not just the extra ounces: In this new design, the bin faces forward, whereas every pervious Dyson handheld had it facing downward, just in front of the trigger handle.

Ex. 2023 at 4

PO's Sur-Reply (Paper 31) at 26-27; POR (Paper 20) at 75.

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE 53