

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

ZODIAC POOL SYSTEMS LLC and
ZODIAC POOL CARE EUROPE,

Plaintiff,

v.

WYBOTICS, CO. LTD. f/k/a Tianjin
Wangyuan Environmental Protection and
Technology Co., Ltd.,

Defendant.

Case No. 2:25-cv-582

**COMPLAINT FOR PATENT INFRINGEMENT
AGAINST WYBOTICS, CO. LTD.**

Plaintiffs Zodiac Pool Systems LLC (“ZPS”) and Zodiac Pool Care Europe (“ZPCE”) (collectively, “Plaintiffs” or “Zodiac”), for their Complaint against Defendant Wybotics, Co. Ltd. f/k/a Tianjin Wangyuan Environmental Protection and Technology Co., Ltd. (“Wybotics” or “Defendant”), allege as follows:

INTRODUCTION

1. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 271, et seq., arising from Defendant’s acts of infringement of United States Patent No 8,393,031 (the “’031 Patent”) and United States Patent No. 8,393,029 (the “’029 Patent”) (collectively the “Asserted Patents”).

THE PARTIES

2. Plaintiff Zodiac Pool Systems LLC is a Delaware limited liability company with its corporate headquarters located at 2077 Convention Center Concourse #300, Atlanta, GA 30337.

3. Plaintiff Zodiac Pool Care Europe is a French company with its corporate headquarters located at ZA La Balme, 31450 Belberaud, France.

4. Defendant Wybotics, Co. Ltd. f/k/a Tianjin Wangyuan Environmental Protection and Technology Co., Ltd. is a foreign company organized and existing under the laws of China with its principal place of business located at No. 30, Zhongnan 4th Street, West-Zone Teda, 300462, Tianjin, China. Defendant does business in Texas and in the Eastern District of Texas, directly or indirectly. *See* Ex. 1 (identifying Wybotics as a vendor at the November 2024 International Pool, Spa, Patio Expo in Dallas, TX); *see also* Ex. 2 (import records showing Wybotics' importation of products into Texas); Ex. 3 (Wybotics publication and advertisement in the Longview News-Journal in Longview, TX). Wybotics is responsible for importing making, marketing, distributing, offering for sale, and/or selling Wybotics-branded and/or Wybotics-manufactured robotic pool cleaners in the United States (directly or indirectly), including in this District.

5. Wybotics induces its affiliates, distributors, retail partners, and customers in the making, using, selling, offering for sale, and/or importing throughout the United States, including within this District, infringing products (such as Wybotics-branded and/or Wybotics-manufactured robotic pool cleaners) and placing such products into the stream of commerce via established distribution channels knowing or understanding that such products would be sold and used in the United States, including in the Eastern District of Texas. Wybotics purposefully has directed and directs its products, including but not limited to Wybot C1, Wybot C1 Pro, Wybot C1 Max, Wybot S2, Wybot S2 Pro, Wybot S2 Solar, AquaClean, Winny HJ3172, Bugson, Bugson Plus, and Aquamoto Scrubo Pro (the "Accused Products") into established distribution channels within this District and the U.S. nationally. *See* Ex. 4 ("Orders will be shipped by USPS, UPS or Amazon

Logistics US. We currently only ship to locations within the continental United States”); *see also* Ex. 5 (translated to: “All of our products can be sold normally in the United States”); Ex. 6 (showing U.S. on the “Customer Distribution Map” and stating “[w]e are selling worldwide including EU, US...”); Ex. 3 (Wybotics publication and advertisement in the Longview News-Journal in Longview, TX). Additionally, Wybotics sells and offers to sell the Accused Products through its websites, wybotpool.com and wybotics.com, which may be accessed throughout the United States, the State of Texas, and this District. *See* Ex. 7.

JURISDICTION AND VENUE

6. This action arises under the laws of the United States, 35 U.S.C. §§ 101, 271, 283, 284, and 285, for patent infringement. This Court has original subject matter jurisdiction over the asserted claims pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over Wybotics in this action because Wybotics has committed acts within Texas (and this District) giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction of Wybotics would not offend traditional notions of fair play and substantial justice. Wybotics has committed acts of patent infringement and induced and contributed to acts of patent infringement by others in this District and in Texas by, among other things, making, using, importing, offering to sell, and/or selling products that infringe the Asserted Patents. Moreover, Wybotics engages in other persistent courses of conduct and derives substantial revenue from products and/or services provided to individuals in this District and in Texas. Wybotics also has purposefully established systematic and continuous contacts with this District and should reasonably expect to be brought into court here. For example, on information and belief Wybotics has imported products, including potentially infringing products, through a port in Houston, TX which were destined for a buyer in

Georgetown, TX. *See* Ex. 2. Furthermore, Wybotics was a vendor at the International Pool, Spa, and Patio Expo in Dallas, TX November 12–14, 2024. *See* Ex. 1. Wybotics has also directly advertised its products, including the Accused Products, in a publication in the Longview News-Journal, a newspaper in the City of Longview, Texas in this District. *See* Ex. 3.

8. Alternatively, and/or in addition, this Court has jurisdiction over Wybotics under Federal Rule of Civil Procedure 4(k)(2). This action arises from actions of Wybotics directed toward the United States, including (1) committing at least a portion of the infringing acts alleged herein and (2) regularly transacting business, soliciting business, and deriving revenue from the sale of goods and services, including infringing goods and services, to individuals in the United States. Therefore, Wybotics has purposefully availed itself to the benefits of the United States including this District, and the exercise of jurisdiction over Wybotics would not offend traditional notions of fair play and substantial justice.

9. Venue over this action is proper in this Court pursuant to 28 U.S.C. § 1391(c)(3) because Wybotics is a foreign company, and a defendant not resident in the United States may be sued in any judicial district.

THE ASSERTED PATENTS

10. On March 12, 2013, the United States Patent and Trademark Office issued United States Patent No. 8,393,031 (the “’031 Patent”), entitled “Apparatus For Cleaning A Submerged Surface With Removable Filtration Device” naming Philippe Pichon and Emmanuel Mastio as inventors. A true and correct copy of the ’031 Patent is attached to this Complaint as Exhibit 8 and incorporated herein by reference.

11. The ’031 Patent is valid and enforceable.

12. The '031 Patent relates to a robotic pool cleaner that comprises a filtering device with two shells. See Ex. 8, Abstract. The first and second shell of the filtering device are fitted together such that the first shell “acts as a pocket for recovering debris” and the second shell “acts as a liquid inlet conduit.” *Id.* at 2:53-56. Furthermore, the two shells are capable of being separated for ease of emptying the collected debris and cleaning the filtering device. *Id.* at 2:59-67.

13. ZPCE owns by assignment all right, title and interest in, and has standing to sue for infringement of the '031 Patent.

14. ZPS holds an exclusive license from ZPCE granting it all substantial rights in and thus standing to sue for infringement of the '031 Patent.

15. Plaintiffs have the right to assert all causes of action arising under the '031 Patent and the right to recover any remedies for infringement of it, including the right to sue for past infringement.

16. On March 12, 2013, the United States Patent and Trademark Office issued United States Patent No. 8,393,029 (the “'029 Patent”), entitled “Apparatus For Cleaning A Submerged Surface Including A Brushing Device Driven By Members For Driving The Apparatus On The Submerged Surface” naming Philippe Pichon and Emmanuel Mastio as inventors. A true and correct copy of the '029 Patent is attached to this Complaint as Exhibit 9 and incorporated herein by reference.

17. The '029 Patent is valid and enforceable.

18. The '029 Patent relates to a robotic pool cleaner for cleaning an immersed surface that comprises a brush driven by the wheels of the cleaner. See Ex. 9, Abstract. In particular, the brush is joined to a wheel by means of a brush pinion engaged with a toothed ring on the wheel, causing the rotation of the brush in the same direction as the rotation of the wheel. *Id.* at 3:30-34.

19. ZPCE owns by assignment all right, title, and interest in, and has standing to sue for infringement of the '029 Patent.

20. ZPCE has the right to assert all causes of action arising under the '029 Patent and the right to recover any remedies for infringement of it, including the right to sue for past infringement.

FACTUAL BACKGROUND

21. On July 29, 2022, Zodiac filed a complaint in the ITC against several respondents including Wybotics for the infringement of the '031 and '029 Patents. *In the Matter of Certain Robotic Pool Cleaners, Products Containing the Same, and Components Thereof*, Inv. No. 337-TA-1326, Complaint (July 29, 2022) (the "ITC Investigation").

22. On the same day, July 29, 2022, ZPCE also filed a complaint in the District Court for the Central District of California against the entities named in the ITC complaint for the infringement of the '031 and '029 Patents. *Zodiac Pool Care Europe v. Wybotics, Co. Ltd. et al*, CDCA-2-22-cv-05271, Dkt. 1 (July 29, 2022) (the "CDCA Action").

23. During the ITC Investigation, Wybotics represented that it had stopped manufacturing, importing, and selling the Accused Products, and it would no longer manufacture, import, or sell the products at issue, which included Winny HJ3172, Bugson, Bugson Plus, and Aquamoto Scrubo Pro (the "ITC Accused Products"). See Ex. 10 (excerpt from *Certain Robotic Pool Cleaners*, Respondents' Initial Markman Brief (Dec. 20, 2022)); Ex. 11 (excerpt from *Id.*, Respondents Letter to ALJ (Feb. 22, 2023)); Ex. 12 (expert from *Id.*, Complainants Responsive Letter to ALJ (Feb. 24, 2023)).

24. As a result of Wybotics' representations, on February 20, 2023, Zodiac moved to terminate the investigation in the ITC as to Wybotics and TPS "because 'Wybotics [] provided

sworn representations that it [] stopped importing and selling the [ITC] Accused Products and will no longer import or sell the [ITC] Accused Products.” *Robotic Pool Cleaners*, Order No. 16, Initial Determination (February 21, 2023) (quoting Zodiac’s Unopposed Motion to Withdraw Complaint and Terminate Investigation as to Wybotics Respondents February 20, 2023).

25. On March 29, 2023, relying on the representations by Wybotics in the ITC Investigation, ZPCE filed a voluntary dismissal without prejudice as to Wybotics and TPS in the CDCA Action, electing not to seek damages for the sale of the Accused Products so long as Wybotics ceased its infringement. *Id.*, Dkt. 24 (March 29, 2023).

26. On information and belief, for a brief period of time, Wybotics abided by its representations to the ITC and sold non-infringing versions of its robotic pool cleaners. However, Wybotics has again started selling infringing products, including the Wybot C1, Wybot C1 Pro, Wybot C1 Max, Wybot S2, Wybot S2 Pro, and AquaClean, which are each non-materially different with respect to the infringing features covered by the ’031 Patent. Wybotics’ recent sales of products that are not materially different from the ITC Accused Products with respect to the infringing features flies in the face of the sworn representations that it made during the ITC Investigation—namely that Wybotics had stopped manufacturing, importing, and selling the ITC Accused Products and had no plans to do in the future.

27. Additionally, despite making the sworn representations, Wybotics began advertising on its website that it “did not make any commitments . . . or sign any agreement,” so “all of [its] products can be sold normally in the United States.” Ex. 5.

28. As a result, Zodiac now brings this action, seeking relief both as to the newly introduced infringing products (i.e., Wybot C1, Wybot C1 Pro, Wybot C1 Max, Wybot S2, Wybot S2 Pro, and AquaClean), which Wybotics represented would no longer be sold, and seeking

damages with respect to the ITC Accused Products and any others have met the limitations of the Asserted Patents.

COUNT 1

Infringement of U.S. Patent No. 8,393,031

29. Zodiac re-alleges and incorporates by reference the allegations of the preceding paragraphs as if set forth fully herein.

30. Without license or authorization and in violation of 35 U.S.C. § 271(a), Wybotics has infringed and continues to infringe the '031 Patent by importing into this district and elsewhere in the United States, using, offering for sale, and/or selling within this district and elsewhere in the United States, products related to swimming pool cleaners which incorporate each and every element of one or more of the claims of the '031 Patent and therefore are covered by the '031 Patent, including but not limited to the Accused Products.

31. Wybotics directly infringes one or more claims of the '031 Patent, including but not limited to claim 1, either literally or under the doctrine of equivalents by using, selling, offering for sale, or importing into the United States the Accused Products and will continue to do so unless enjoined by this Court.

32. The Accused Products meet each and every limitation of at least claim 1 of the '031 Patent. Exemplary infringement claim charts are attached to this Complaint for the Wybot C1 (see Exhibit 13) and Wybotics HJ3172 (see Exhibit 14) and are incorporated herein by reference.

33. Wybotics also indirectly infringes the '031 Patent within the United States by inducement under 35 U.S.C. § 271(b). Wybotics knowingly and intentionally induced, and continues to induce, others in this judicial district and throughout the United States, including but not limited to Wybotics' customers and/or ultimate end users, to directly infringe one or more

claims of the '031 Patent, such as claim 1. Wybotics does so, *inter alia*, by (1) providing instructions or information to explain how to use the Accused Products in an infringing manner; and (2) touting these infringing uses of the Accused Products in Wybotics' Wybot C1 Operating Manual. *See* Ex. 15; *see also* Ex. 16.

34. Wybotics also indirectly infringes the '031 Patent by contributing to direct infringement by Wybotics' customers and/or ultimate end users under 35 U.S.C. § 271(c) by providing the Accused Products, which, as evidenced by Wybotics' own advertising materials, are specifically made for use in a manner infringing one or more claims of the '031 Patent, such as claim 1, and have no substantial non-infringing uses.

35. On information and belief, Wybotics imports the Accused Products into the United States for further sale in the United States. *See* Ex. 2.

36. Zodiac has suffered and continues to suffer monetary damages and other injuries as a result of Wybotics' past and continuing infringement under 35 U.S.C. § 271. Zodiac has suffered damages in the form of lost profits, lost sales, and/or lost opportunities. Zodiac is entitled to recover damages to compensate Plaintiff for Wybotics' infringing activities in an amount to be determined at trial, but in no event less than a reasonable royalty.

37. Zodiac has been and continues to be irreparably injured by Wybotics' past and continuing infringement, inducement of infringement, and/or contributory infringement of the '031 Patent, and Wybotics' infringing activities will continue unless enjoined by this Court pursuant to 35 U.S.C. § 283.

38. Wybotics' infringement, inducement of infringement, and/or contributory infringement of the '031 Patent has been and continues to be willful, deliberate, and with knowledge of the '031 Patent, such that Zodiac is entitled to recover enhanced damages pursuant

to 35 U.S.C. § 284 and attorney's fees and other expenses of litigation pursuant to 35 U.S.C. § 285. For example, Wybotics learned of the '031 Patent at least as early as July 29, 2022, the filing date of the ITC Investigation and CDCA Action. Additionally, as stated above, Wybotics represented in the ITC Investigation that it was no longer manufacturing the Accused Products, but subsequently began manufacturing the Accused Products again while also advertising on its website that it had not made any commitments during the ITC Investigation and can freely manufacture, import, and sell in the United States. *Supra* Factual Background.

COUNT 2

Infringement of U.S. Patent No. 8,393,029

39. Zodiac re-alleges and incorporates by reference the allegations of the preceding paragraphs as if set forth fully herein.

40. Without license or authorization and in violation of 35 U.S.C. § 271(a), Wybotics has infringed and/or continues to infringe the '029 Patent by importing into this district and elsewhere in the United States, using, offering for sale, and/or selling within this district and elsewhere in the United States, products related to swimming pool cleaners which incorporate each and every element of one or more of the claims of the '029 Patent and therefore are covered by the '029 Patent, including but not limited to the Accused Products.

41. Wybotics directly infringed and/or infringes one or more claims of the '029 Patent, including but not limited to claim 1, either literally or under the doctrine of equivalents by using, selling, offering for sale, or importing into the United States the Accused Products that embody each element of at least one of the claims of the '029 Patent and will continue to do so unless enjoined by this Court.

42. The Accused Products meet each and every limitation of at least claim 1 of the '029 Patent. An infringement claim chart is attached to this Complaint for the Wybotics HJ3172 and is incorporated herein by reference. See Exhibit 17.

43. Wybotics also indirectly infringed and/or infringes the '029 Patent within the United States by inducement under 35 U.S.C. § 271(b). Wybotics learned of the '029 Patent at least as early as receipt of a letter dated February 12, 2016. Since then, Wybotics knowingly and intentionally induced, and continues to induce, others in this judicial district and throughout the United States, including but not limited to Wybotics' customers and/or ultimate end users, to directly infringe one or more claims of the '029 Patent, such as claim 1. Wybotics does so, *inter alia*, by (1) providing instructions or information to explain how to use the Accused Products in an infringing manner; and (2) touting these infringing uses of the Accused Products in Wybotics' HJ3172 Operating Manual. See Ex. 16.

44. Wybotics also indirectly infringed and/or infringes the '029 Patent by contributing to direct infringement by Wybotics' customers and/or ultimate end users under 35 U.S.C. § 271(c) by providing the Accused Products, which, as evidenced by Wybotics' own advertising materials, are specifically made for use in a manner infringing one or more claims of the '029 Patent, such as claim 1, and have no substantial non-infringing uses.

45. On information and belief, Wybotics imported and/or imports the Accused Products into the United States for further sale in the United States.

46. ZPCE has suffered and continues to suffer monetary damages and other injuries as a result of Wybotics' past and continuing infringement under 35 U.S.C. § 271. ZPCE has suffered damages in the form of lost profits, lost sales, and/or lost opportunities. ZPCE is entitled to recover

damages to compensate ZPCE for Wybotics' infringing activities in an amount to be determined at trial, but in no event less than a reasonable royalty.

47. ZPCE has been and continues to be irreparably injured by Wybotics' past and continuing infringement, inducement of infringement, and/or contributory infringement of the '029 Patent, and Wybotics' infringing activities will continue unless enjoined by this Court pursuant to 35 U.S.C. § 283.

48. Wybotics' infringement, inducement of infringement, and/or contributory infringement of the '029 Patent has been and continues to be willful, deliberate, and with knowledge of the '029 Patent, such that ZPCE is entitled to recover enhanced damages pursuant to 35 U.S.C. § 284 and attorney's fees and other expenses of litigation pursuant to 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Zodiac respectfully requests that the Court:

- A. Enter judgment that Wybotics has infringed at least one or more claims of the '031 Patent, directly and/or indirectly, literally and/or under the doctrine of equivalents;
- B. Enter judgment that Wybotics has infringed at least one or more claims of the '029 Patent, directly and/or indirectly, literally and/or under the doctrine of equivalents;
- C. Award Zodiac its actual damages as a result of Wybotics' infringing activities;
- D. Permanently enjoin Wybotics from continuing to infringe, induce infringement, or contribute to infringement of the '031 patent, pursuant to 35 U.S.C. § 283;
- E. Permanently enjoin Wybotics from continuing to infringe, induce infringement, or contribute to infringement of the '029 patent, pursuant to 35 U.S.C. § 283;

F. Award Zodiac damages in an amount to be proven at trial because of the injury suffered by reason of Wybotics' infringement of the '031 Patent;

G. Award ZPCE damages in an amount to be proven at trial because of the injury suffered by reason of Wybotics' infringement of the '029 Patent;

H. Increase the damages awarded to Zodiac by three times the amount found to be Zodiac's actual damages, as authorized by 35 U.S.C. § 284 as a result of Wybotics' willful infringement of the '031 Patent;

I. Increase the damages awarded to ZPCE by three times the amount found to be ZPCE's actual damages, as authorized by 35 U.S.C. § 284 as a result of Wybotics' willful infringement of the '029 Patent;

J. Award Zodiac its expenses of litigation, including reasonable attorney's fees pursuant to 35 U.S.C. § 285;

K. Award Zodiac prejudgment interest, post-judgment interest, and costs pursuant to 35 U.S.C. § 284; and

L. Award Zodiac such other and further relief as the Court deems just and proper.

JURY DEMAND

Zodiac, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury on all issues so triable.

Dated: May 23, 2025

Respectfully submitted,

/s/ Melissa R. Smith

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EXHIBIT 1



Document title:	Floor Plan - PSP/Deck Expo 2024
Capture URL:	https://ge24psp.mapyourshow.com/8_0/floorplan/?hallID=A&selectedBooth=2721
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Capture timestamp (UTC):	Tue, 12 Nov 2024 20:40:43 GMT
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Browser engine:	Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/126.0.6478.234 Safari/537.36
Operating system:	Linux (Node 20.17.0)
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Capture ID:	6pP4agawZPCJ164yfJaB1P
Display Name:	Cleah

PDF REFERENCE #: rrqxpq65NyJG5Z7R5LgS19



Keyword

Search by Keyword

Search

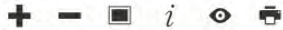
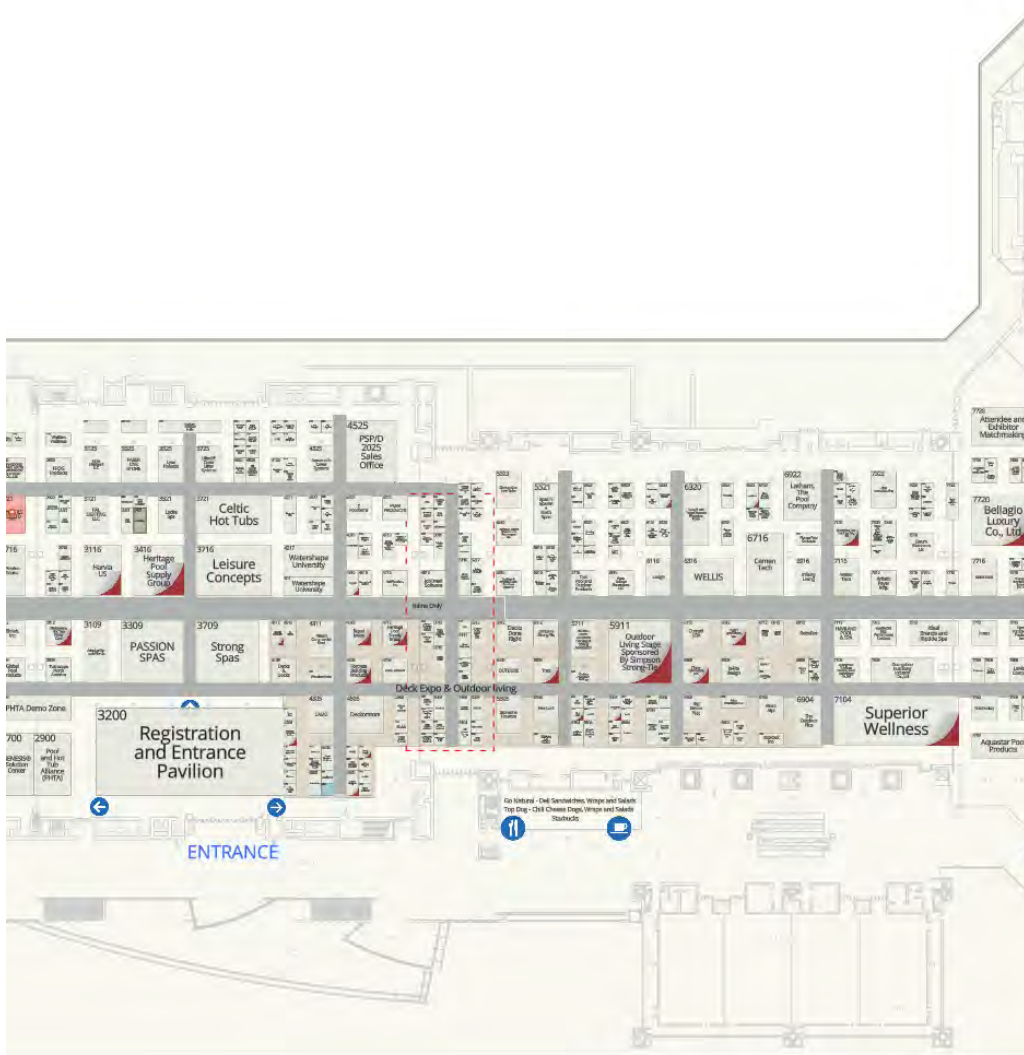


Exhibit Hall



WYBOTICS CO., LTD



Add Note



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BOOTHS

2721

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China

<http://www.wybotics.com>

Phone: +86 13920977945



Yaxue Guo

Sales Director

Wybot, the leading pool robots manufacturer

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Contact This Person

PRODUCT CATEGORIES

Cleaning Maintenance

Automatic Robotic

Cleaning Maintenance

Cleaning Products

Cleaning Maintenance

Leaf Rake

Cleaning Maintenance

Maintenance Equipment

Cleaning Maintenance



Fully Integrated
Remote Monitoring



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Document title: Floor Plan - PSP/Deck Expo 2024

Capture URL: https://ge24psp.mapyourshow.com/8_0/floorplan/?hallID=A&selectedBooth=2721

Capture timestamp (UTC): Tue, 12 Nov 2024 20:40:43 GMT

Page 1 of 2



Keyword

Search by Keyword

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Exhibit Hall



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Yaxue Guo
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Wybot, the leading pool robots manufacturer

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PRODUCT CATEGORIES

Cleaning Maintenance
Automatic Robotic

Cleaning Maintenance
Cleaning Products

Cleaning Maintenance
Leaf Rake

Cleaning Maintenance
Maintenance Equipment

Cleaning Maintenance
Skimmers

ADDITIONAL INFORMATION

Target Audience: Retailer,Deck
Pro,Dealer/Distributor,Other

Participation Goal: Brand Awareness,Support
the Industry,Gain New Customers,Take
Orders,Meet New Customers

NOTES

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notes.



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EXHIBIT

ACTUAL ARRIVAL DATE	SUPPLIER	BUYER	CARGO DESCRIPTION	BOL	HS CODES	NOTIFY PARTY NAME	MANIFEST QUANTITY	MANIFEST QUANTITY (UNIT)	WEIGHT	WEIGHT (UNIT)	PORT OF UNLADING	FOREIGN PORT OF LADING	PLACE OF RECEIPT	CARRIER CODE
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HOUSE BILL	BILL TYPE	VOYAGE NUMBER	MANIFEST	TRADE UPDATE DATE	RUN DATE	VESSEL COUNTRY CODE	VESSEL NAME	ESTIMATED ARRIVAL DATE	FOREIGN PORT OF LADING QUALIFIER	RECORD STATUS INDICATOR	CONVEYANCE ID QUALIFIER	CONVEYANCE ID	MODE OF TRANSPORTATION	NOTIFY PARTIES	CONTAINER NUMBER	PIECE COUNT	CONTAINER INFO FROM TYPE 20 RECORD
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EXHIBIT

Document title:	GET READY FOR SUMMER FUN WITH WYBOT'S EXPANDED POOL CLEANING LINEUP AND SAVINGS OF UP TO \$400 news-journal.com
Capture URL:	https://www.news-journal.com/get-ready-for-summer-fun-with-wybots-expanded-pool-cleaning-lineup-and-savings-of-up/article_fc193d61-349d-54c5-b04f-42b3688ae869.html
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Display Name:	Cleah

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River Flood Warning until TUE 3:30 AM CDT

GET READY FOR SUMMER FUN WITH WYBOT'S
EXPANDED POOL CLEANING LINEUP AND
SAVINGS OF UP TO \$400

By WYBOTICS INC Mar 13, 2025 Updated Mar 13, 2025

1 of 3



The WYBOT C2 Vision Robotic Floor Cleaner employs AI and a camera to see and detect larger amounts of dirt and debris, letting it clean up to 20X more efficiently by focusing on the areas that need it most.

By WYBOTICS INC



WYBOT revolutionizing pool cleaning from top to bottom with WYBOT S2 Solar Robotic Pool Cleaner, WYBOT C2 Vision Robotic Pool Cleaner, WYBOT F1 Robotic Pool Skimmer and more

ARCADIA, Calif., March 13, 2025 /PRNewswire/ -- WYBOT, a leader in cutting-edge pool cleaning technology, today announced it has expanded its pool cleaning lineup in the United States and is offering savings across its new product portfolio. Savings include \$120 off the [WYBOT C2 Vision Robotic Pool Cleaner \(\\$679\)](#), \$110 off the [WYBOT F1 Robotic Pool Skimmer \(\\$280\)](#) and \$120 off the [WYBOT S2 Solar Robotic Pool Cleaner \(\\$470\)](#).

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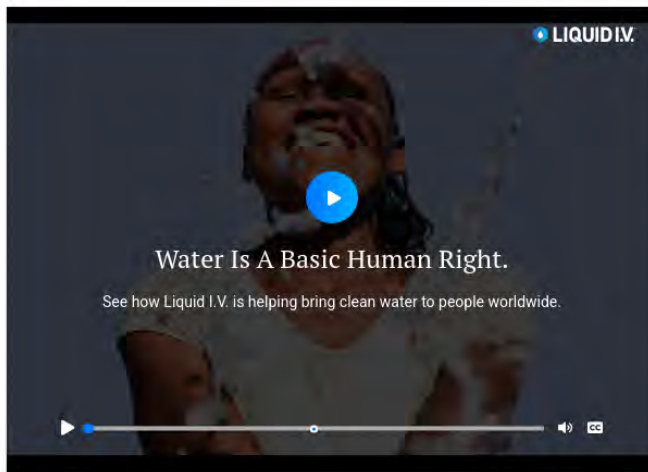
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"With 20 years of pool cleaning innovation and industry firsts, WYBOT is excited to expand its product lineup in the United States to include its newest, best-cleaning and most technologically advanced compact robots," said José Vallés, Vice President and General Manager of Americas at WYBOT. "We are also excited to be offering products that address a variety of consumer needs and at price points that will allow anyone to enjoy the benefits that robot pool cleaners provide. Put simply, WYBOT's products let you enjoy more swimming and less cleaning."

WYBOT S2 Solar Robotic Pool Cleaner (available soon for \$1399)

The WYBOT S2 Solar Robotic Pool Cleaner showcases advanced features designed to revolutionize pool maintenance. With Dual-Filtration, the robot is designed to powerfully clean even the finest of debris from pools of all sizes, shapes and materials. When the robot's battery is running low, the WYBOT S2 Solar automatically navigates to a solar-powered underwater docking station, allowing for continuous cleaning without human intervention. Solar charging is central to its eco-friendly design, reducing reliance on external power and lowering carbon emissions. The solar panel system also features a central control area that integrates all key functions into one cohesive unit. Traditional DC charging is also available for reliable performance in cloudy weather. Advanced cloud technology and underwater sonar communication enable efficient and reliable communication from anywhere at any time, letting users track cleaning progress in the WYBOT App and choose between a variety of cleaning modes, including Full, Floor, Wall, Waterline-only, Wall & Floor, Turbo, Eco and Dirt Hunting. Users can also remotely direct the robot to focus on specific areas for a customized cleaning experience. **The WYBOT S2 Solar Robotic Pool Cleaner will be available on promotion for \$1399 soon (will normally be priced at \$1799).**

WYBOT C2 Vision Robotic Pool Cleaner (NOW \$679)

The [WYBOT C2 Vision Robotic Pool Cleaner](#) works safely on tiles, concrete, vinyl and fiberglass – and cleans pools up to 2,152 square feet. Its brushless motor and cordless design delivers powerful, long-lasting performance while preventing cord tangles. The robot's Dual-Layer Filtration combines 180µm large-particle cartridges and 10µm HEPA filters to capture everything from leaves to fine dust. The robot also employs AI and a camera to see and detect larger amounts of dirt and debris, letting it clean up to 20X more efficiently by focusing on the areas that need it most. With 7 cleaning modes and 6 paths, you can choose between Full, Floor, Wall, Waterline-only, Wall & Floor, Turbo, and Eco modes and further customize cleanings through the WYBOT App. You can schedule up to 4 cleanings per week and cleaning duration for hands-free pool maintenance, and the robot automatically returns to the pool edge for easy retrieval. **The WYBOT C2 Vision Robotic Pool Cleaner is currently available on promotion for \$679 (normally \$799).**

WYBOT F1 Robotic Pool Skimmer (NOW \$289)





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Skimmer keeps your pool's surface perfectly clean with zero effort. Suitable for all pool shapes, its 7L large-capacity basket and fine filter lets the robot capture a variety of debris, including leaves, bugs, pine needles, and pet hair from your pool's surface. It features dual cleaning modes so you can choose between a standard 8-hour cleaning cycle or the robot's smart mode, which intelligently cycles between active cleaning and auto-pause cycles 24/7. The WYBOT F1 intelligently avoids obstacles like pool ladders, and its unique edge cleaning mode cleans the surface edges twice, ensuring a completely clear pool surface. Using the app, you can even manually control the robot to clean specific areas, select cleaning modes and monitor battery level to ensure you always stay on top of your pool's clean. **The WYBOT F1 Solar-Powered Robotic Pool Skimmer is currently available on promotion for \$289 (normally \$399).**

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WYBOT C2 Robotic Pool Cleaner (NOW \$479)

WYBOT is also making available its [WYBOT C2 Robotic Pool Cleaner](#), which brings with it the same user-friendly design and cleaning power as the WYBOT C2 Vision Robotic Pool Cleaner without that model's AI-enabled visual-based dirt identification. **The WYBOT C2 Robotic Pool Cleaner is currently available on promotion for \$479 (normally \$599).**

About WYBOT

WYBOT is a global leader in innovative pool maintenance solutions, dedicated to transforming pool cleaning into an effortless and intelligent experience. Known for its cutting-edge technology and design excellence, the company is a **2025 CES Best of Innovation Award Honoree**. WYBOT has also earned international acclaim, including the **2024 French Design Award**, **2024 New York Design Award**, and **2024 Paris Design Award**, recognizing the company's commitment to innovation, sustainability, and user-centric design.

WYBOT continues to set new benchmarks in robotic pool cleaning, driven by a vision to simplify pool ownership and enhance the user experience. Stay updated on WYBOT's latest innovations by following us on social media: **Instagram:** [@Wybot_official](#), **Twitter (X):** [@Wybot_official](#), **Facebook:** [WybotPool](#). For more information, visit www.wybotpool.com.

View original content to download multimedia: <https://www.prnewswire.com/news-releases/get-ready-for-summer-fun-with-wybots-expanded-pool-cleaning-lineup-and-savings-of-up-to-400-302401024.html>

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EXHIBIT

Document title:	Shipping Policy – WYBOT
Capture URL:	https://www.wybotpool.com/pages/shipping-policy
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Display Name:	Cleah

PDF REFERENCE #: 7mUr8ZXVmKPdfch7BT7bWG

Shipping Policy

Free Shipping on ALL Orders

Orders will be shipped by USPS, UPS or Amazon Logistics US. We currently only ship to locations within the continental United States , and do not currently ship to the following U.S. territories or States including:

Alaska, American Samoa, Guam, Hawaii, Marshall Islands, Northern Mariana Islands, Palau, Puerto Rico, Rhode Island, or the U.S. Virgin Islands.

Please note that we also do not ship to PO Box addresses.

If you are unsure if we deliver to your address, please reach out to our customer service team for assistance.

Processing Time

Orders will be processed within 2 business days after payment is received. Please note that processing time may vary during peak seasons.

Shipping Time

3-7 business days. (Note: The delivery time of pre-sale products is subject to the arrival time.)

Delivery

Delivery times are estimates and are not guaranteed. We are not responsible for any delays caused by the shipping carrier or customs clearance.

Delivery

Delivery times are estimates and are not guaranteed. We are not responsible for any delays caused by the shipping carrier or customs clearance.

Order Tracking

Once your order has been shipped, you will receive a tracking number via email. You can track your order by visiting our website and entering the tracking number in the Order Track.

Contact Us

If you have any questions or concerns regarding our shipping policy, please feel free to contact our customer service and we will get back to you within 24-48 hours

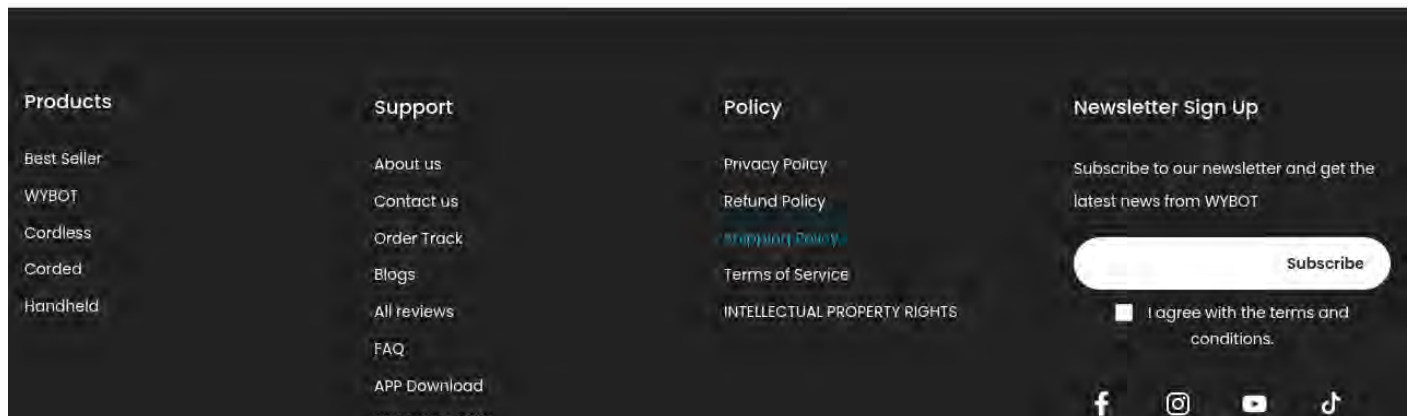
I ordered more than one item. Will they all be delivered at the same time?

We try to make sure all your items reach you at the same time. Sometimes our products are not always sent together since different shipping options can be used, depending on the product. Once an item has been shipped, you will receive a shipment notification email.

Can I change the delivery address of my package after it has been shipped out?

Unfortunately, we cannot change the shipment once the product is en route, but you can cancel an order within 60 minutes and reorder with accurate details.

Notes: If the order is canceled by the customer more than 1 hour after placing an order, the customer must bear any return shipping fees that may apply. If the wrong address is provided by the customer, and this leads to the package being lost or otherwise becoming unrecoverable, the customer shall bear the loss. WYBOT will not replace the order or issue a refund.



Order Tracking

Once your order has been shipped, you will receive a tracking number via email. You can track your order by visiting our website and entering the tracking number in the Order Track.

Contact Us

If you have any questions or concerns regarding our shipping policy, please feel free to contact our customer service and we will get back to you within 24-48 hours.

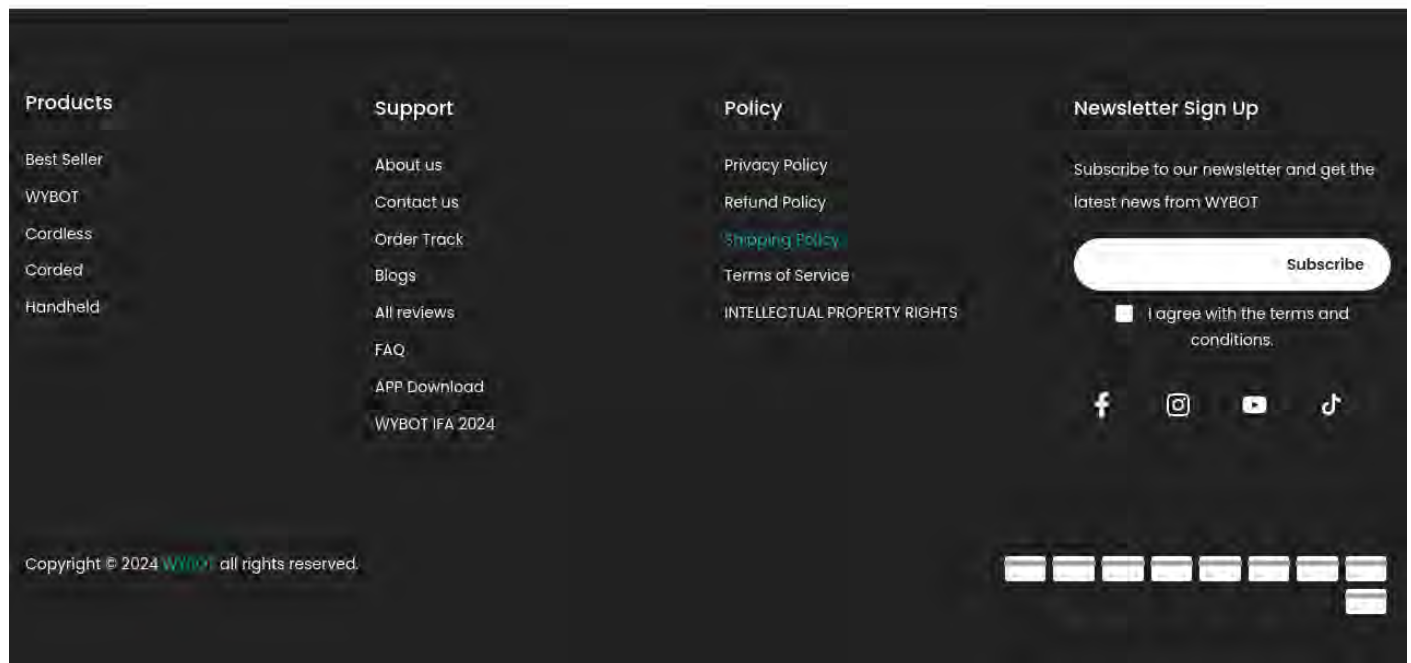
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声明

望圆科技公司各位合作伙伴：

近日，美国国际贸易委员会（ITC）公告，对本公司涉及的泳池清洁机器人及其下游产品和组件的337调查发出终裁信息。在此予以公开说明：

自2022年7月29日，美国Zodiac Pool Systems LLC of Carlsbad, CA、法国Zodiac Pool Care Europe of Belberaud, France向美国ITC提出337立案调查申请，主张对美出口、在美进口和在美销售的相关产品侵犯了其专利权（美国注册专利号8,393,029、8,393,031），请求美国ITC发布有限排除令、禁止令。同年8月29日，美国国际贸易委员会（ITC）投票决定对特定泳池清洁机器人及其下游产品和组件（Certain Robotic Pool Cleaners and Components Thereof）启动337调查（调查编码：337-TA-1326）。

2023年3月20日，ITC作出337部分终裁：基于申请方Zodiac主动无条件撤销了针对本公司的调查申请，本案调查终止。

本公司在此期间未向申请人美国Zodiac公司提供任何承诺或与其签订任何协议，本公司所有产品均可正常在美销售，不会对我公司正常经营构成影响。

在此，谨向一直关注并支持我方合法维权的相关政府部门、合作伙伴及媒体朋友致以深切谢意！经历此番意外风雨，更加坚定我们作为一家堂堂正正企业的自信，我公司将再接再厉，奋发向上，取得更为骄人业绩，以服务客户并回报全体员工和社会。



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Document title:	WYBOTICS
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PDF length:	5
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Display Name:	Cleah

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Intelligent Cordless Pool Cleaners in 2024



About Us



WYBOTICS CO., LTD Robots de piscine Winny

Wangyuan a une longue expérience dans le développement de robots de piscines privées et commerciales sur le marché mondial.

Fondée en 2005 avec un capital de 57 millions RMB, WANGYUAN est la première entreprise chinoise qui développe, fabrique et vend des robots de piscine. C'est la seule à disposer d'une gamme complète de robots adaptés aux spas et aux piscines privées et publiques.

Notre site a une superficie de 18000m², dont 2000 m² pour le centre de recherche et de développement et plus de 10000 m² pour le centre de production. Actuellement, WANGYUAN dispose de 6 lignes de production et d'assemblage, d'un atelier d'injection et de 4 entrepôts. La production annuelle atteint 100 000 unités.



New For 2024

WYBOT S2 series

A leader in underwater inductive charging way. The new generation WYBOT high-end series develop an in-pool docking station, your cleaner will automatically fully charge itself, keeping energetic all the time.

[View All New Products](#)



R&D Strength

WYBOTICS CO., LTD

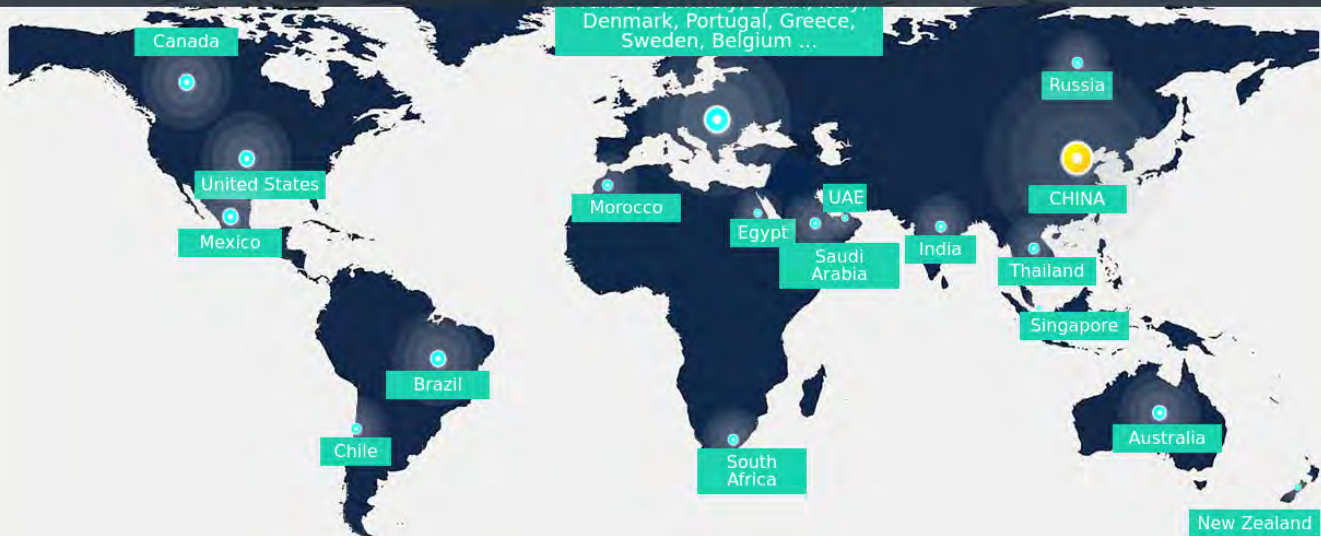
Winnie Cleaner

Till now we have obtained more than **106 international and domestic patents**. We follow **ISO9001** quality system, guarantee that the quality meets the requirements of customers around the world. Our products have obtained the certificates of CE, RoHs, CETL, SAA, etc., and we also respect society responsibility such as BSCI system.

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Customer Distribution Map





Market

WYBOTICS CO., LTD

Winny Cleaner

Persistence on high quality, on-going development of up-to-date products and support from our worldwide partners make us become one of the major suppliers of robotic pool cleaner in the world. We are selling worldwide including EU,US, Canada, Australia, etc.,

WYBOT

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Tel: +86 22 66550576

Fax: +86 22 66550576

Email: sales@wyindustry.com

Web: www.wyindustry.com



EXHIBIT 7

Document title:	WYBOT – Tagged "WYBOT"
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WYBOT

Collection

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9 products

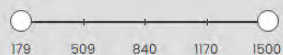
SORT BY: Manual

Features

- ☐ APP (8)
- ☐ Waterline (8)
- ☐ Delayed Start (2)
- ☐ Manual Control (3)
- ☐ Back to Waterline (3)
- ☐ Self Parking (8)
- ☐ Remote Control (3)
- ☐ Schedule Cleaning (9)
- ☐ Control Your WYBOT from Anywhere with Your Smartphone (2)
- ☐ Spot Cleaning (2)
- ☐ Temperature Sensor (1)
- ☐ Turbo Cleaning (3)

Price (\$)

\$ 179 - \$ 1500



Color

Suction power

- ☐ Above 3500 GPH (4)
- ☐ Below 3500 GPH (4)

Cable Length

- ☐ 60FT (1)

Cleaning Coverage



Wybot A1 Cordless Robotic Pool Cleaner

WYBOT

\$179.99 \$249.99



Wybot C1 Cordless Robotic Pool Cleaner

WYBOT

\$399.99 \$599.99



Wybot C1 Pro Robotic Pool Cleaner Vacuum With App

WYBOT

\$529.90 \$699.99



Wybot C1 Max Cordless Robotic Pool Cleaner

WYBOT

\$659.99 \$799.99



Wybot S2 High-End Cordless Robotic Pool Cleaner

WYBOT

\$799.99 \$999.99



Wybot L1 High-End Corded Robotic Pool Cleaner With App Control

WYBOT

\$899.99 \$1,599.99



\$ 179 - \$ 1500

179 509 840 1170 1500

► Color

▼ Suction power

☐ Above 3500 GPH (4)

☐ Below 3500 GPH (4)

▼ Cable Length

☐ 60Ft (1)

► Cleaning Coverage



Wybot C1 Max Cordless Robotic Pool Cleaner

WYBOT

\$659.99 ~~\$799.99~~



Wybot S2 High-End Cordless Robotic Pool Cleaner

WYBOT

\$799.99 ~~\$999.99~~



Wybot L1 High-End Corded Robotic Pool Cleaner With App Control

WYBOT

\$899.99 ~~\$1,599.99~~



Wybot M1 Ultra High-End Cordless Robotic Pool Cleaner With Solar Power

WYBOT

\$1,499.99 ~~\$1,699.99~~



Wybot S2 Pro With Charging Dock High-End Cordless Robotic Pool Cleaner - Pre-Order

WYBOT

\$1,199.99 ~~\$1,299.99~~



Wybot M2 Vision Tech High-End Cordless Robotic Pool Cleaner - Pre-Order

WYBOT

\$1,499.99 ~~\$1,699.99~~

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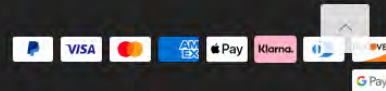


EXHIBIT 8



US008393031B2

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

(10) **Patent No.:** **US 8,393,031 B2**
(45) **Date of Patent:** **Mar. 12, 2013**

(54) **APPARATUS FOR CLEANING A
SUBMERGED SURFACE WITH REMOVABLE
FILTRATION DEVICE**

(75) Inventors: **Philippe Pichon**, Villeneuve de Riviere
(FR); **Emmanuel Mastio**, Fourquevaux
(FR)

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4/496; 134/109, 110, 167 R, 168 R

See application file for complete search history.

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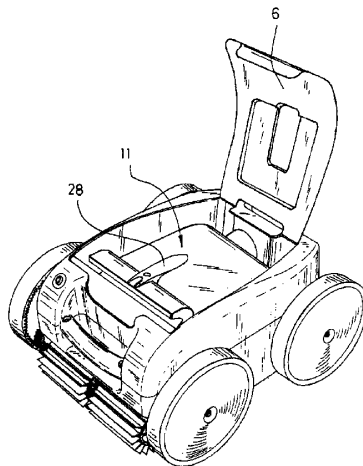
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(57) **ABSTRACT**

Detailed is a device for cleaning an immersed surface including a body and members for driving the body over the immersed surface; a filtration chamber which is provided in the body and which has: a liquid inlet; a liquid outlet; a hydraulic circuit for flow of liquid between the inlet and the outlet through a filtering device, wherein the filtering device includes a first filtering shell which extends towards the rear of the body, from a front opening; a second shell which is fitted to the first shell at the front thereof, these shells being able to be fitted together so as to form an integral filtering casing; in which case the second shell closes the front opening of the first shell, with the exception of a liquid inlet passage; the two shells being able to be separated from each other by disengaging the front opening of the first shell which acts as an opening for emptying this shell.

4 Claims, 8 Drawing Sheets



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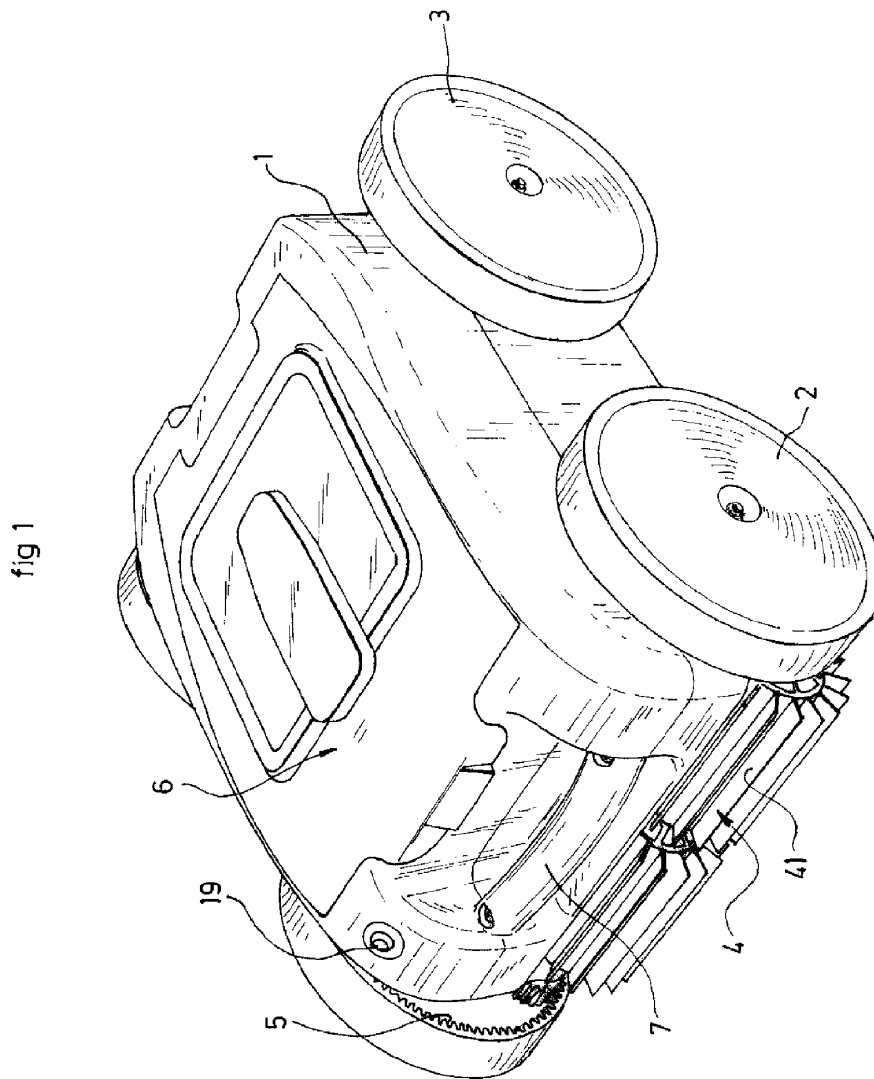
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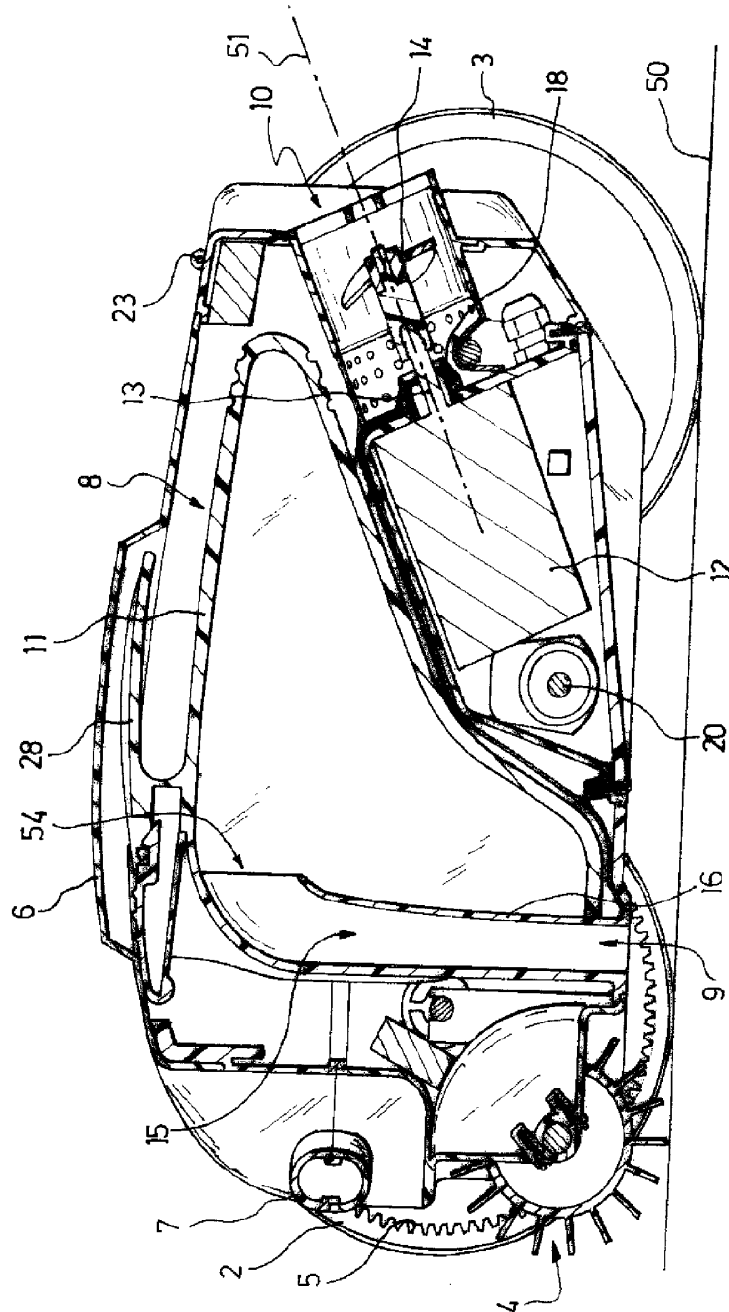
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Fig 2



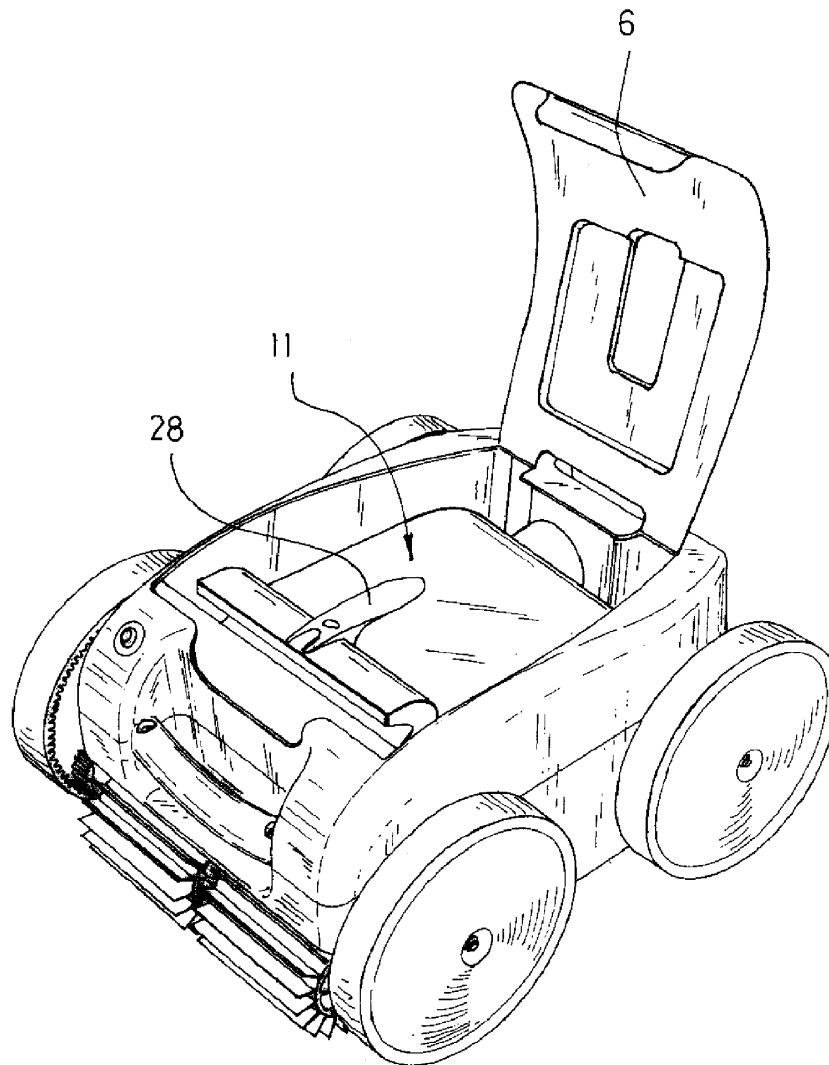
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Fig 3



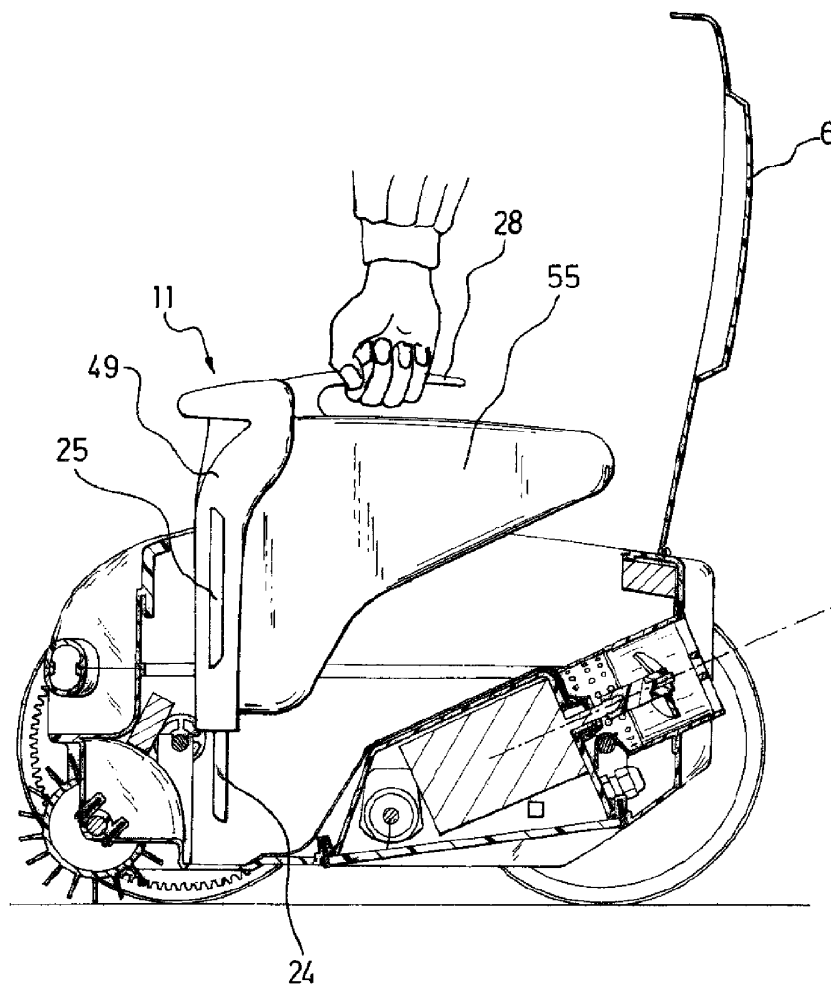
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Fig 4



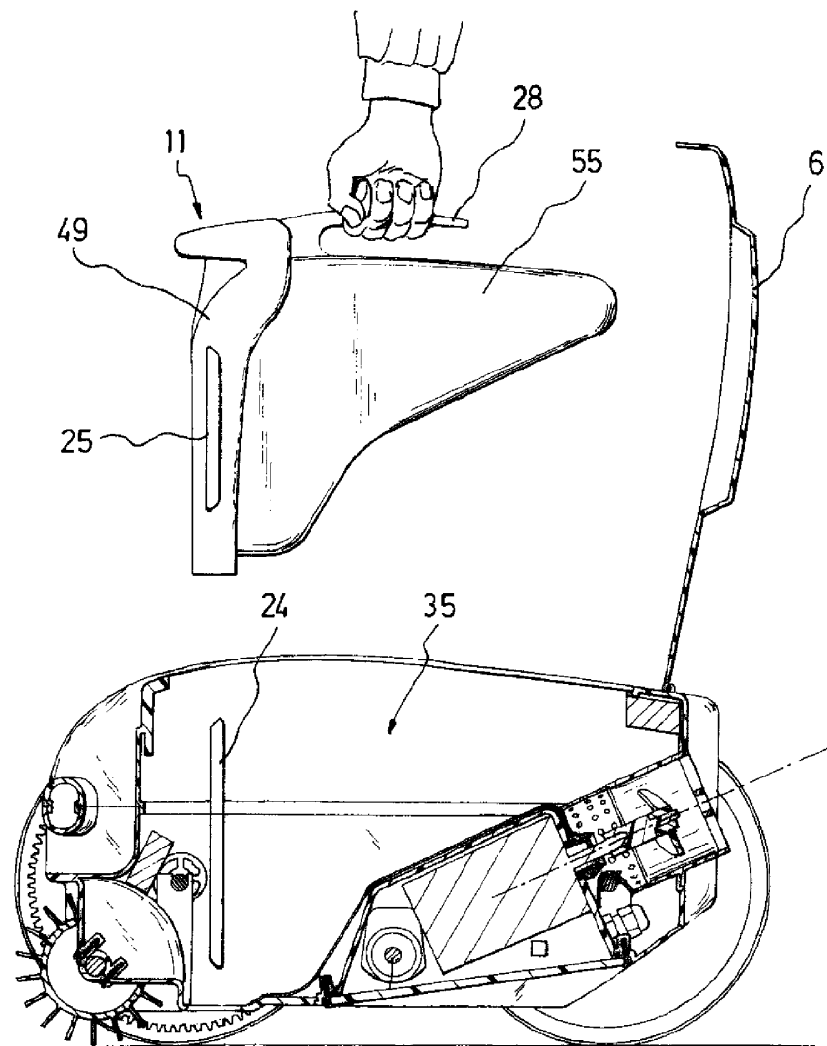
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Fig 5

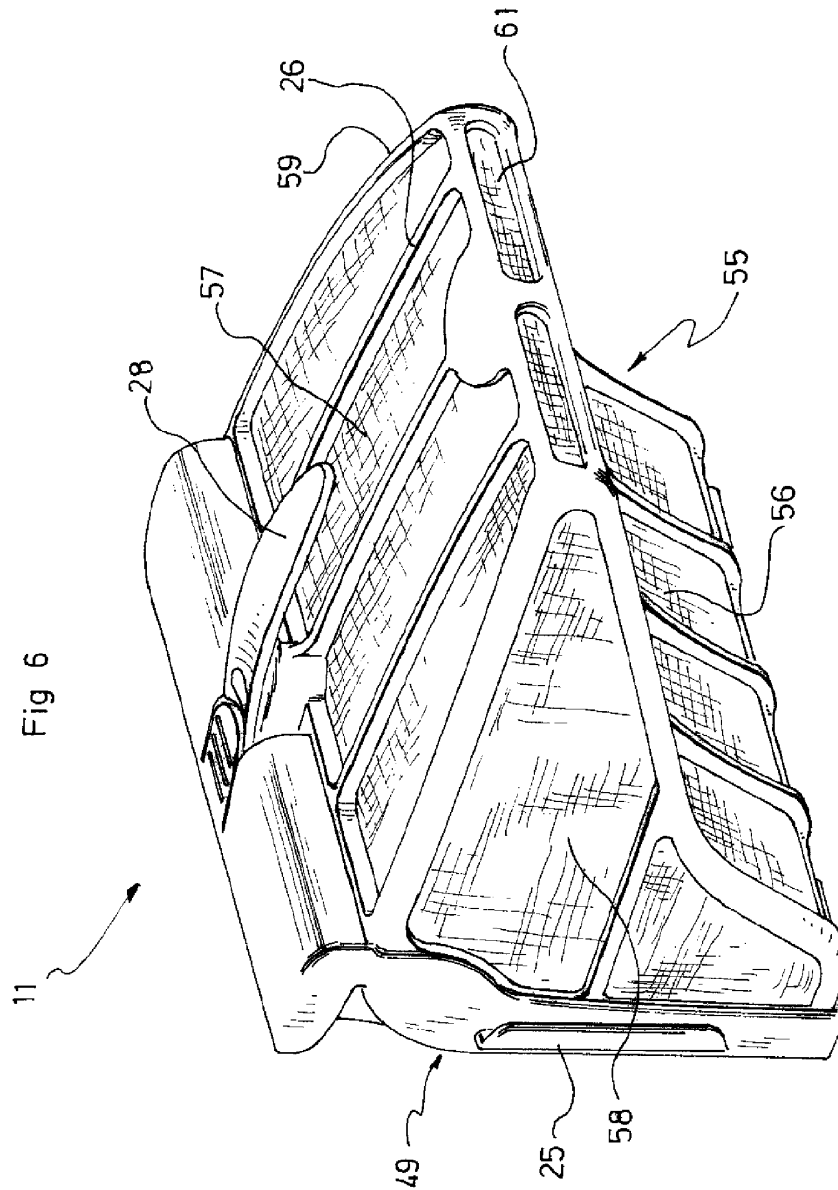


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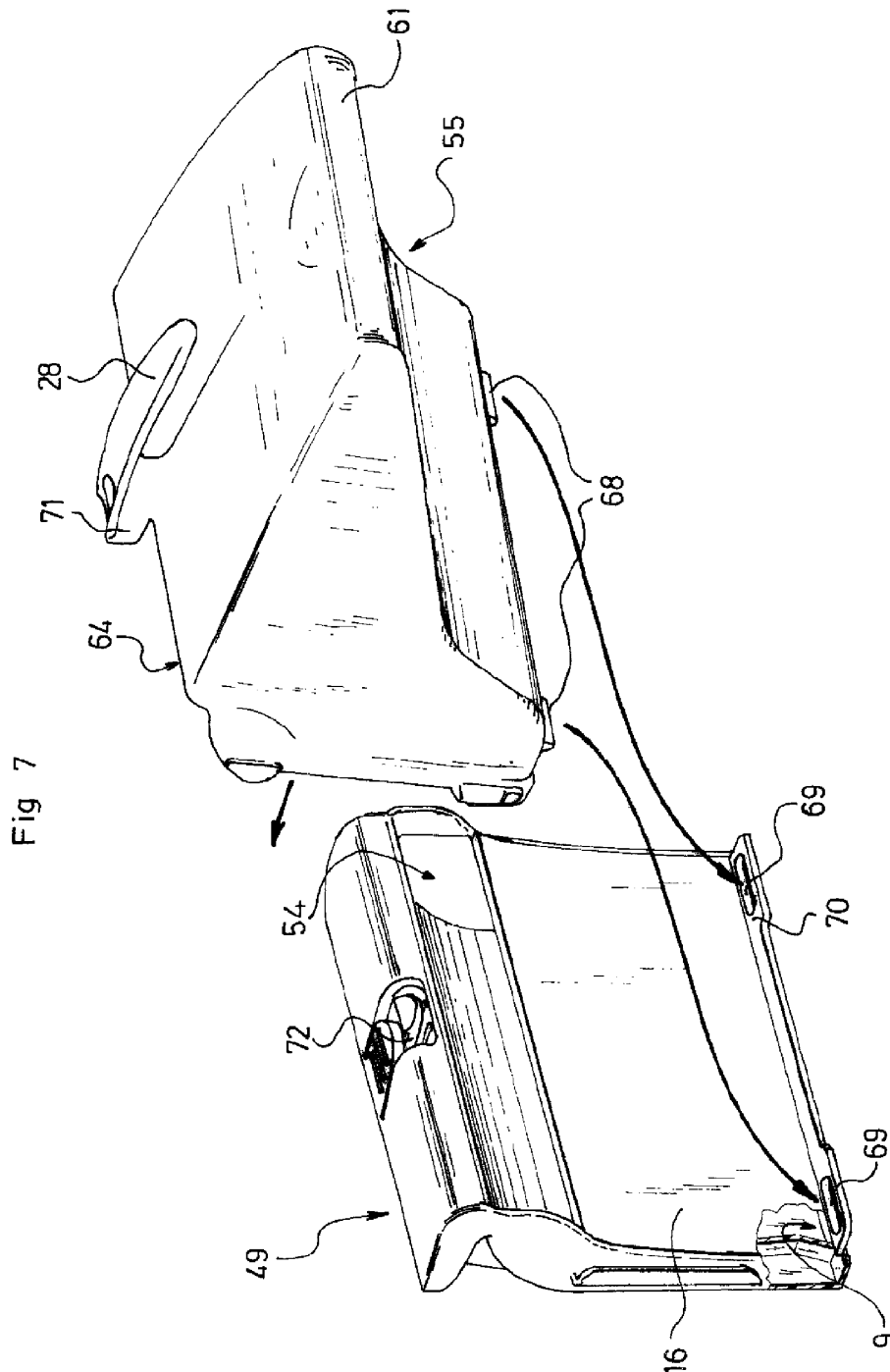


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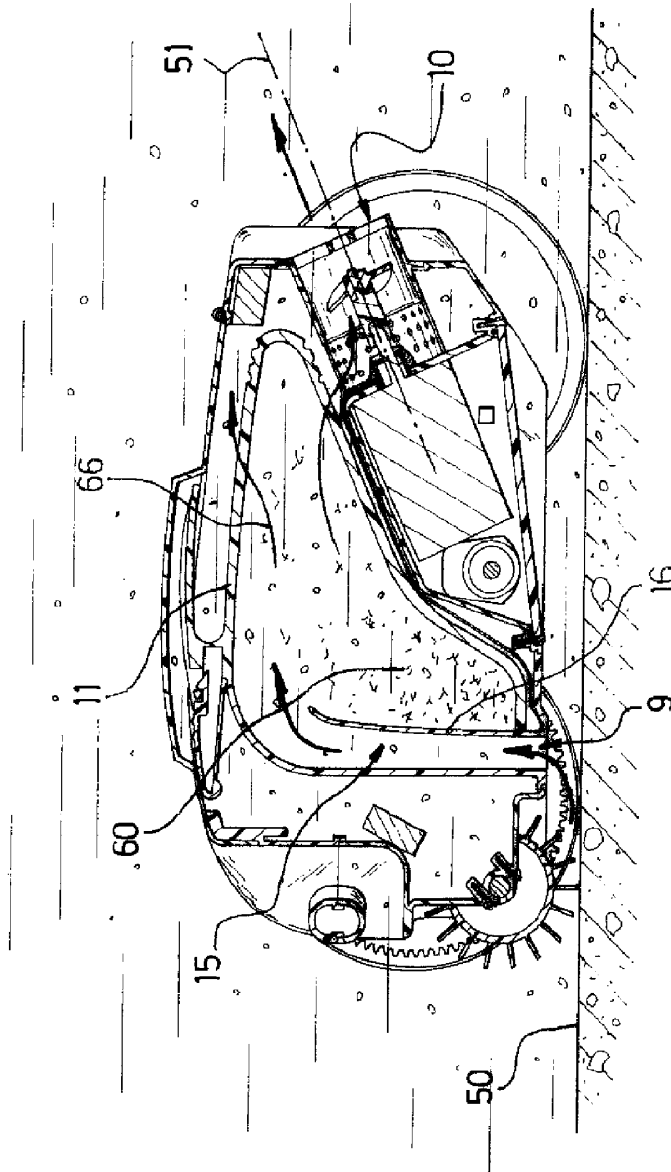
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Fig 8



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APPARATUS FOR CLEANING A SUBMERGED SURFACE WITH REMOVABLE FILTRATION DEVICE

CROSS REFERENCE TO RELATED APPLICATIONS

This application is the U.S. national phase of International Application No. PCT/FR2008/052339 filed on Dec. 17, 2008 and published on Jul. 2, 2009 as International Publication No. WO 2009/081038 A2, which application claims priority to French Patent Application No. 0708996 filed on Dec. 21, 2007, the entire contents of both of which are incorporated herein by reference.

The invention relates to a device for cleaning a surface which is immersed in a liquid, in particular a swimming pool surface.

A number of known swimming pool cleaning devices comprise:

- a hollow body and members for guiding and driving the body over the immersed surface in a main direction of advance, called the longitudinal direction,
- a filtration chamber which is provided in the hollow body and which has:
- at least one liquid inlet located at the base of the hollow body,
- at least one liquid outlet out of the hollow body, located remotely from the base of the hollow body,
- a hydraulic circuit which is capable of providing a flow of liquid between each liquid inlet and each liquid outlet through a filtering device which is removably mounted in the filtration chamber,
- a flap for access to the filtering device, which is provided on an outer wall of the hollow body and which is capable of allowing the filtering device to be disassembled and removed from the hollow body in order for it to be cleaned.

In a number of these known devices (cf., for example, U.S. Pat. No. 6,013,178), the flap for access to the filtering device is located at the base of the hollow body, the liquid inlets being necessarily provided with non-return devices, such as valves. This arrangement is not convenient for the user who must first invert the device, which may damage it and also further bring about undesirable untimely occurrences of liquid flow.

In other known devices (cf., for example, U.S. Pat. No. 6,409,916), the access flap is arranged above the device, but the hydraulic circuit has a particularly complex path which requires in particular the use of a pumping device which is powerful and therefore consumes energy.

In this context, an object of the invention is to provide, for cleaning an immersed surface, a device whose cost/performance ratio is greatly improved compared with that of prior devices. More specifically, an object of the invention is to provide such a device whose cost can be substantially reduced with performance levels which are equivalent to or even greater than those of known devices.

An object of the invention is also to provide a device of the type whose filtering device can be readily disassembled without any specific tool and removed from the filtration chamber with no major difficulties.

An object of the invention is also to provide a device of the type whose filtering device can be cleaned in a particularly convenient manner.

An object of the invention is also to provide a device of the type which has high levels of hydraulic performance (flow, suction, . . .) and filtering performance.

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An object of the invention is also to provide a device of the type which may have an access flap located at the upper portion of the device and with a filtering device which has a large storage volume for debris and a simple hydraulic circuit which brings about low pressure losses.

To this end, the invention relates to a device for cleaning an immersed surface comprising:

- a hollow body and members for guiding and driving the hollow body over the immersed surface in a main direction of advance, called the longitudinal direction,
- in the hollow body, a filtration chamber comprising:
- at least one liquid inlet located at the base of the hollow body,

- at least one liquid outlet out of the hollow body, located remotely from the base of the hollow body,

- a hydraulic circuit which is capable of providing a flow of liquid between each inlet and each outlet through a filtering device under the action of a pumping device, wherein the filtering device comprises:

- a first shell which has peripheral filtering walls which extend towards a longitudinal end of the hollow body defining the rear of the hollow body from a front opening of this first shell and which delimit, towards the rear, a space for recovering debris, the filtering walls being capable of retaining any debris conveyed by the liquid and allowing the flow of liquid from this first shell,

- a second shell which is fitted to the first shell at the front thereof, these two shells and their relative assembly being adapted in such a manner that:

- the two shells can be fitted together so as to form an integral filtering casing which is removably mounted in the filtration chamber whilst the device rests in the cleaning position on a horizontal surface, this filtering casing being able to be inserted into the filtration chamber in one piece and removed in one piece from this filtration chamber,

- when the two shells are fitted together, the second shell closes the front opening of the first shell, with the exception of a liquid inlet passage which constitutes a liquid inlet opening into the debris recovery space, the cross-section of this inlet opening being smaller than that of the front opening of the first shell,

- the two assembled shells can be moved relative to each other, after removing the filtering casing from the filtration chamber, by disengaging the front opening of the first shell which acts as an opening for emptying this first shell.

A device according to the invention, which comprises a filtering device of this type with two shells which are fitted together in such a manner that, when assembled, they form an integral filtering casing which can be readily removed from the device, is particularly practical to use. Such a filtering casing has a first shell which acts as a pocket for recovering debris and a second shell which acts as a liquid inlet conduit and partially blocks the debris recovery pocket so that, when the device is being operated over an immersed surface, the debris are received in the debris recovery pocket and are unable to be discharged via the liquid inlet. Furthermore, the two shells are capable of being able to be disengaged from each other after the filtering casing has been removed from the device. Consequently, it is particularly convenient to clean the filtering device by separating the two shells from each other and removing the debris which are lodged in the first shell. After the first shell which forms the debris recovery pocket has been cleaned, a user can fit the shells together and reinsert the filtering casing thus formed in the device.

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Furthermore, the inventors have found that this specific arrangement allows high levels of filtering and hydraulic performance (output, suction) to be maintained at the same time, whilst also improving the access to the filtering device and facilitating the cleaning of this filtering device. In particular, this filtering device may have a large volume for storage of debris with no detrimental pressure loss.

Advantageously and according to the invention, the two shells are fitted together so as to be able to be disengaged from each other by means of simple handling without any tools.

For example, according to a variant of the invention, the shells are fitted together using reversible fitting means.

Advantageously and according to the invention, the front opening of the first shell extends over the periphery of a rear wall of the second shell and the inlet opening.

Advantageously and according to the invention, the two shells are fitted together along a connection zone which generally extends transversely and orthogonally relative to the longitudinal direction.

Advantageously and according to the invention, the second shell forms at least one liquid inlet conduit which extends from a lower end of this inlet conduit and which opens at the base of the hollow body and which constitutes a liquid inlet.

Such an arrangement is particularly effective since the filtering casing formed in this manner comprises a lower end which opens at the base of the hollow body and which constitutes a liquid inlet. In this manner, this filtering casing forms the "unclean" portion, called the unclean circuit, of the hydraulic circuit of the device, that is to say, the portion of the hydraulic circuit which is capable of conveying debris. Since the filtering casing is removable, the unclean circuit can be integrally removed. A user is therefore able to clean all of the unclean circuit of the device and thus restore the initial performance levels to a device according to the invention.

Advantageously and according to the invention, the second shell has a rear transverse separation wall which extends transversely at the front of the debris recovery space, between each liquid inlet and the inlet opening provided at an upper end of the inlet conduit.

This transverse rear wall acts as a non-return wall in such a manner that the debris which have passed through this wall can no longer be discharged via the liquid inlet, including when the pumping device is idle, which eliminates the need to provide valves or other non-return devices at the liquid inlets.

The inventors have further found that the provision of this wall in the path of the liquid between each liquid inlet and each liquid outlet which at first may seem unfavorable with respect to the levels of hydraulic performance (flow, suction, . . .) in practice allows the filtering performance levels to be improved owing to the generation of occurrences of turbulence within the filtering device which permanently retain the debris in suspension in the filtering device, thus preventing the walls of the filtering device from becoming clogged, and finally promoting the hydrodynamic performance levels of the filtering device and the hydraulic circuit.

That is to say, the pressure losses brought about by the arrangement of a wall in the hydraulic path are compensated for by retaining the initial permeability of the filtering walls of the filtering device. Furthermore, the service periods between which the device must be cleaned are longer and in particular are of a substantially constant length of time, which leads to greater user comfort.

Advantageously and according to the invention, the first shell comprises a rigid frame which is capable of imposing a three-dimensional shape on these peripheral walls, and a filtering sheet which extends into openings which are provided by the rigid frame.

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Advantageously and according to the invention, the first shell has a regular cross-section which decreases from the front to the rear.

A filtering device whose regular cross-section decreases from the front to the rear allows substantially tangential filtration of the liquid flowing in the filtering device. Such a principally tangential filtration limits clogging caused by obstructive debris (such as dead leaves) on the filtering walls of the device, which ensures good suction and good filtering, including after a long period of operation. Furthermore, it would appear that such a convergent shell also brings about a swirling flow of the liquid flowing in this shell, which ensures continuous declogging of the walls of the shell which has the effect of restoring the initial permeability to the various walls of the shell.

Advantageously and according to the invention, the first shell has a horizontal upper wall which extends from the front opening and a lower rear wall which is inclined backwards and upwards from a base portion of the first shell as far as an upper rear extreme portion.

Advantageously and according to the invention, at least one of the shells has a handle for handling the filtering casing.

Such a handle allows the filtering casing to be readily handled when the two shells are fitted together.

Advantageously and according to the invention, the access flap is provided on an upper wall of the hollow body.

Such a device is particularly practical to handle since removing the filtering device from the device does not involve complex operations of the device. In particular, it is not necessary to invert the device in order to remove the filtering device in order to clean it. Disassembling the filtering device can be carried out when the device is in the rest position, in its normal position, on a horizontal surface.

Advantageously, a device according to the invention does not have any liquid non-return valve.

Advantageously, a device according to the invention comprises at least one liquid outlet out of the hollow body which is called the rear outlet and which is offset towards the rear relative to the filtering casing.

Advantageously, a device according to the invention comprises a rear outlet which generates a flow of liquid which is orientated with a longitudinal component towards the rear.

These means allow the device to be configured so as to recover directly at least part of the residual hydraulic energy in the discharge flow in order to contribute to driving the device.

Consequently, with equivalent suction and cleaning performance levels, a device according to the invention may be provided with a pumping motor—in particular an electric pumping motor—and a driving device—comprising in particular at least one electric drive motor—whose power is reduced and which therefore involves lower consumption and costs. Consequently, the device is also generally smaller and lighter which, in addition to the savings made, is a significant advantage for the user, in particular in terms of handling, transport and storage of the device.

Advantageously, a device according to the invention comprises a motorized device for pumping liquid between each liquid inlet and each liquid outlet via the filtering casing.

The invention further relates to a device for cleaning an immersed surface, characterized in combination by all or some of the features mentioned above or below.

Other features, objectives and advantages of the invention will be appreciated from a reading of the following description which sets out, by way of non-limiting example, an embodiment of the invention with reference to the appended drawings, in which:

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FIG. 1 is a schematic perspective view of a cleaning device according to an embodiment of the invention,

FIG. 2 is a schematic section of a cleaning device according to an embodiment of the invention,

FIG. 3 is a perspective view of a device according to an embodiment of the invention, the flap of which is open,

FIG. 4 is a schematic section of a cleaning device according to an embodiment whose filtering device is being removed from the device,

FIG. 5 is a schematic section of a cleaning device according to an embodiment whose filtering device is completely removed from the device,

FIG. 6 is a schematic perspective view of the filtering device of a device according to an embodiment of the invention comprising two shells which are fitted together,

FIG. 7 is a schematic perspective view of the filtering device of FIG. 6 illustrating the two shells separated from each other,

FIG. 8 is a simplified schematic section of FIG. 2 illustrating the device operating over an immersed surface.

In the Figures, the scales and proportions are not strictly complied with for the purposes of illustration and clarity.

In all of the following detailed description with reference to the Figures, unless indicated otherwise, each component of the cleaning device is described as it is arranged when the device is moving normally over a horizontal immersed surface in a preferred direction of advance, relative to which the front and the rear are defined.

A device according to the invention comprises a hollow body 1 and rolling members 2, 3, 4 for guiding and driving the hollow body 1 over an immersed surface in a main direction of advance, called the longitudinal direction, parallel with the immersed surface.

This hollow body 1 is formed principally by a concave housing which delimits a main chamber. This concave housing is, for example, produced by means of molding or rotational molding. This housing is preferably produced from a thermoplastic material, such as polyethylene, polypropylene, ABS, PMMA or any equivalent material.

This hollow body 1 has a central chamber which is capable of receiving a filtration chamber. This central chamber is delimited by a lower wall which extends in a substantially horizontal plane; by lateral walls which generally extend in vertical planes; by a front wall which generally extends in a vertical plane, orthogonal relative to the planes of the vertical lateral walls; and by a rear wall which generally extends in a vertical plane orthogonal relative to the planes of the vertical lateral walls.

The lower wall has an opening which extends transversely in the region of the front wall so that liquid is able to enter the central chamber via this lower transverse opening. This opening forms a liquid inlet 9 into the hollow body 1.

The rear wall comprises a cylindrical opening which forms a liquid outlet 10 out of the hollow body 1. This liquid outlet 10 which is provided in the rear wall of the housing is longitudinally offset from the liquid inlet 9 which is provided in the lower wall. Furthermore, this liquid outlet 10 is provided in the upper portion of the housing in such a manner that it is also vertically offset from the liquid inlet 9.

As illustrated in particular in FIG. 2, this central chamber, this liquid inlet 9 and this liquid outlet 10 form a filtration chamber 8. This filtration chamber 8 further comprises a hydraulic circuit which is capable of providing a flow of liquid between the liquid inlet 9 and the liquid outlet 10 through a filtering device 11.

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Preferably, the liquid inlet 9 and liquid outlet 10 are centered on the same longitudinal vertical center plane of the device.

The central chamber of the hollow body 1 is capable of receiving a filtering device 11. The filtering device 11 comprises two shells, a first shell 55 which forms a pocket for recovering debris and a second shell 49 which is capable of being fitted to the first shell 55 in order to form a filtering casing.

The first shell 55 which forms a debris recovery pocket of the filtering device 11 has peripheral filtering walls 56, 57, 58, 59 which extend towards the rear from a front opening 64. These filtering walls 56, 57, 58, 59 are capable of retaining any debris conveyed by the liquid and allowing liquid to flow out of this first shell 55.

The second shell 49 forms a liquid inlet conduit 15 in the hollow body 1 which extends from a lower end of this inlet conduit 15 which opens at the base of the hollow body 1 and which constitutes a liquid inlet 9.

The assembly between the first shell 55 and the second shell 49 can be produced using various means. For example, and as illustrated in FIG. 5, the first shell 55 comprises, in the region of the front lower end thereof, pins 68 which protrude from the plane of the opening 64 of the first shell 55. These pins 68 have shapes and dimensions which correspond to and complement the apertures 69 which are provided in tongues 70 which are fixedly joined to the rear lower end of the inlet conduit 15 and which are substantially perpendicular relative to the rear wall 16 of the conduit so that these pins 68 can engage in the apertures 69 and allow a mechanical connection of the lower ends of the first shell 55 and the second shell 49. Furthermore, the first shell 55 has, in the region of the front upper end thereof, an element 71 which is capable of engaging in a catch 72 which is provided in the region of the upper end of the front wall of the conduit 15 in order to allow the assembly between the upper ends of the first shell 55 and the second shell 49. This element 71 protrudes relative to the plane of the opening 64 and has a strip which extends downwards and which is not illustrated in the Figures and which is capable of engaging in the catch 72. The end of the catch 72 orientated towards the first shell 55 is further beveled in order to facilitate the insertion of the strip of the element 71 in the catch 72.

Furthermore, this strip 72 is flexible in terms of compression so that it can become slightly deformed in a downward direction during the engagement between the element 71 and this catch 72. This flexibility in terms of compression also allows a user to apply a downward pressure to the catch 72, for example, using his thumb, which allows the strip of the element 71 to be disengaged from the catch 72, thus bringing about a separation of the upper ends of the first shell 55 and the conduit 15. The assembly between the first shell 55 and the second shell 49 is produced by first fitting the lower ends to each other then by fitting the upper ends one inside the other. The shells are separated by first disengaging the upper ends from each other, then by disengaging the lower ends from each other. The assembly and the separation of the first shell 55 and the second shell 49 can therefore be readily carried out by a user without any tools.

This relative assembly between the first shell 55 and the second shell 49 is adapted so that, once assembled, the second shell 49 closes the front opening 64 of the first shell 55, with the exception of a liquid inlet passage which constitutes a liquid inlet opening 54 in the first shell 55, the cross-section of this inlet opening 54 being smaller than that of the front opening 64 of the first shell 55.

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The first shell 55 which forms the pocket for recovering debris is formed by a rigid frame 26 and a filtering sheet—in particular a filtering material—which extends in openings which are provided by this frame. The filtering device 11 is therefore self-supporting and can be readily handled by a user. Furthermore, this filtering device 11 forms a removable filtering casing whose lower end defined by the lower end of the inlet conduit 15 forms the liquid inlet 9 into the hollow body 1.

Furthermore, the first shell 55 has a regular cross-section which decreases from the front opening 64 towards the liquid outlet 10 in order to form a convergent chamber for tangential filtering of the liquid flowing between the opening 64 and the liquid outlet 10.

According to the embodiment of the Figures, the first shell 55 has a lower filtering wall 56 which is inclined backwards and upwards from a base portion of the first shell 55. This inclined lower wall 56 forms with the longitudinal direction an angle which, in the example illustrated, is in the order of 45°.

This first shell 55 further comprises a generally horizontal upper wall 57 which extends towards the rear from the front opening 64. This upper filtering wall 57 is connected to the lower filtering wall 56 via an upper rear extreme curved portion 61. The rear extreme curved portion 61 has a minimal regular cross-section whilst the portion of the first shell 55 opposite this curved portion 61, that is to say, in the region of the front opening 64, has a maximum regular cross-section. In this manner, the first shell 55 has a regular cross-section which decreases from the front opening 64 towards the rear extreme curved portion 61, that is to say, towards the rear outlet 10. That is to say, the first shell 55 has a regular cross-section which is in the form of a rectangular triangle, the inclined lower wall 56 forming the hypotenuse.

The device also comprises, as illustrated in particular in FIG. 3, a flap 6 for access to this filtering device 11. This access flap 6 forms an upper wall of the hollow body 1 and covers it. In the embodiment illustrated, this flap 6 is arranged on the upper portion of the device so that a person using the device can readily open the flap 6 and remove the filtering device 11. Preferably, the access flap 6 is articulated to the body 1 of the device by means of hinges 23 which are provided at the rear of the device.

Preferably, the filtering device 11 is a device which is mounted in the central chamber 35 of the hollow body 1 in the manner of a drawer. To this end, the rigid frame 26 of the filtering device 11 further has two ribs 25 which extend laterally at each side of the filtering device 11. These ribs are preferably provided on the lateral walls of the inlet conduit 15 since this conduit has no filtering walls. However, according to other embodiments, they could also be provided on the lateral walls of the filtering walls, for example, on the frame 26 of the first shell. Regardless of their position, these ribs 25 have shapes and dimensions which correspond to and complement the shapes and dimensions of grooves 24 which are fixedly joined to the hollow body 1. These grooves 24 which are fixedly joined to the hollow body 1 extend vertically along the inner faces of the vertical lateral walls of the hollow body 1. The ribs 25 of the filtering device 11 are therefore capable of co-operating with the grooves 24 of the hollow body 1 of the device.

In this manner, the removal of the filtering device 11 is the result of a translation movement of the filtering device 11 along the grooves 24 of the hollow body 1. A user can therefore readily remove the filtering device 11 from the hollow body 1, for example, in order to clean it. After the filtering device 11 has been removed, a user, as indicated above, can

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readily separate the two shells which form this device. This user can therefore clean the first shell which forms the debris recovery pocket and the second shell 49 which forms the inlet conduit 15 and the liquid inlet 9 which is arranged at the lower end of the inlet conduit 15. After the first shell 55 and the second shell 49 have been cleaned, the user can readily assemble the shells 49, 55 as indicated above and easily reintroduce the filtering device 11 in one piece into the hollow body 1 by orientating the filtering device 11 so that the ribs 25 of the filtering device 11 are opposite the grooves 24 of the hollow body, then by sliding the filtering device 11 in the hollow body 1.

The filtering device 11 further comprises a handle 28 which is provided on an upper portion of the filtering device 11 in order to facilitate handling of the filtering device 11. In particular, a user is able to readily assemble/disassemble the filtering device 11 using this handle 28 when the device is out of the liquid and resting on a horizontal surface. According to a particularly advantageous embodiment, the handle 28 is the continuation of the rear portion of the sliding bolt 71 to which a user can apply pressure in order to release the sliding bolt 71 from the catch 72 which is provided in the second shell 49 as mentioned above.

According to the invention, a device comprises a motorized liquid pumping device which comprises an electric pumping motor 12 which has a rotating drive shaft 13 which is coupled to a pumping propeller 14 which is interposed in the hydraulic circuit in order to generate therein a liquid flow between the liquid inlet 9 and the liquid outlet 10. The liquid outlet 10 is directly opposite the pumping propeller so that the liquid flows out of the liquid outlet 10 in a direction which corresponds to the liquid flow generated by the pumping propeller, this flow having a speed which is orientated in accordance with the rotation axis 51 of the propeller 14.

The pumping propeller 14 has an orientation which allows a flow of liquid to be generated with a horizontal component towards the rear.

Preferably, the pumping propeller 14 which is interposed in the hydraulic circuit between the liquid inlet 9 and liquid outlet 10 has an inclined rotation axis which forms, with the longitudinal direction and with the theoretical rolling plane 50, an angle α which is not equal to 90°. This propeller 14 is rotated by means of the electric pumping motor 12 which preferably has a rotating drive shaft 13 which is parallel with the rotation axis of the propeller 14.

According to the invention, the electric pumping motor 12 is arranged below the hydraulic circuit entirely at the outer side of this hydraulic circuit which completely bypasses the pumping motor 12 at the top. The rotating shaft 13 of the pumping motor 12 extends through a lower inclined wall 30 which delimits the hydraulic circuit. The sealing is provided by an O-ring 18.

FIG. 8 is an illustration of the flow of liquid in the hollow body 1 of the device. This flow is illustrated schematically in FIG. 8 by means of the arrows 66. Liquid enters the hollow body 1 via the liquid inlet 9 which is arranged below the device. This liquid passes into the second shell 49 which forms the liquid inlet conduit 15 in order to reach the first shell 55 which forms a debris recovery pocket. This debris recovery pocket allows the liquid to pass through the filtering material and retains the solid debris 60. The filtered liquid reaches the liquid outlet 10 and is discharged at the rear of the device into the pool from which it originates.

Since the liquid outlet 10 is opposite the pumping propeller 14, the liquid flows out of the device via this outlet with a speed V which is orientated along the axis 51 of the pumping propeller 14 and which has a longitudinal component towards

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the rear which brings about, by means of reaction, forces whose resultant has a longitudinal drive component which is orientated towards the front and which is involved in driving the device over the immersed surface.

The orientation of the hydraulic reaction force produced by the outlet flow and therefore the size of the longitudinal component thereof are dependent on the inclination a relative to the theoretical rolling plane 50, the rotation axis 51 of the propeller and the liquid outlet 10. Preferably, this inclination a is between 15° and 45°.

According to the invention, the electric pumping motor is arranged below the hydraulic circuit entirely at the outer side of this hydraulic circuit so that the filtering device 11 of the hydraulic circuit can be removed from the device via the top of the device as mentioned above, without being impeded by the pumping motor. Only the pumping propeller 14 is arranged in the hydraulic circuit so as to be able to provide the liquid flow. This pumping propeller 14 is arranged at the rear of the device, close to the liquid outlet 10. That is to say, the pumping propeller 14 and the liquid outlet 10 form the end portion of the hydraulic circuit.

The electric drive motor and the electric pumping motor may be of any known type. According to a preferred embodiment, these electric motors are low-voltage motors. They can be supplied with electrical power via an electrical power supply external to the device via an electrical cable which is not illustrated in the Figures and which is connected to the device in the region of a zone 19 for introducing the electrical cable into the device, as illustrated in FIG. 1.

In the preferred embodiment of the invention illustrated in the Figures, the rolling members for guiding and driving the device comprise a front axle which comprises front drive wheels 2, one at each side, and a rear axle which comprises rear non-drive wheels 3, one at each side.

Furthermore, preferably and as illustrated in the Figures, the device comprises brushes 4 which are arranged at the front of the device. These brushes 4 are intended to brush the immersed surface and move the debris which are brushed to the rear of the device in the direction of the liquid inlet 9 which is arranged below the device.

The device further comprises at least one electric motor 20 for driving the front drive wheels 2. Preferably, the device comprises two drive motors, one at each side, for independently driving each of the front wheels 2, respectively. To this end, each front wheel 2 has an internally toothed arrangement 5 which co-operates with a pinion which is driven by the corresponding drive motor 20.

These brushes 4 may be of any type. According to an embodiment of the invention, the device comprises two front coaxial brushes 4. Each brush 4 is capable of being rotated about an axis which extends in a direction perpendicular relative to the longitudinal direction. Each brush 4 comprises a plurality of fins 41 which extend radially from a brush shaft which forms the rotation axis of the brush 4. The fins 41 are, for example, of rubber or a strong plastics material.

Furthermore, the brushes 4 are preferably also rotated by at least one electric motor 20 for driving the front wheels 2 by means of a gear system.

In this manner, in the embodiment illustrated, the rolling members are constituted by front drive wheels 2, rear non-drive wheels 3 and brushes 4 which are involved in driving and guiding the device over the immersed surface. In any case, the rolling members 2, 3, 4 have zones which are intended to come into contact with the immersed surface and which are coplanar and define a theoretical rolling plane 50. The longitudinal direction of advance of the device is parallel with this theoretical rolling plane 50.

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The front wheels 2 preferably have a diameter of between 100 mm and 500 mm, in particular between 150 mm and 250 mm. According to the embodiment of the Figures, the front wheels 2 have a diameter in the order of 200 mm. In this manner, the front wheels 2 make it easier to overcome obstacles and have improved traction. Advantageously, their peripheral tread is formed by or covered with an anti-skid material.

The front wheels 2 and the brushes 4 constitute front drive rolling members 2, 4 which protrude forwards relative to the other constituent elements of the device, in particular the hollow body, in order to form the extreme front portion of the device and first come into contact with an obstacle which is encountered during the forward movement.

Furthermore, according to a preferred embodiment of the invention, the device also comprises an operating handle 7 which allows a user to carry the device in order to immerse it in a liquid and remove it therefrom. This handle 7 is preferably arranged opposite the liquid outlet 10 so that, when the hollow body 1 is suspended via this handle, the device tilts spontaneously under the effect of gravity into a position in which the liquid outlet 10 is located below the liquid inlet 9 which allows the device to be emptied. When the device moves from the cleaning position to the emptying position, the debris drawn in by the device are retained in the filtering device and cannot be discharged from the device.

Of course, the invention may involve numerous construction variants and applications.

For example, according to an embodiment which is not illustrated in the Figures, the filtering device 11 may form more than one liquid inlet.

Furthermore, the sizing and the configuration of the device, in particular the hydraulic circuit thereof, are subject to an infinite number of variants. In addition, the invention can be used for a bi-directional device which is capable of backward movement.

The invention claimed is:

1. A swimming pool cleaner comprising:

- a. a body comprising an inlet, an outlet, a filtration chamber, and a rear; and
- b. a filtering device positioned between the inlet and the outlet and comprising: (i) a first shell having (A) an opening with a first cross-section and (B) peripheral filtering walls extending toward the rear of the body so as to define a debris recovery space in which debris entrained in water entering the opening is retained; and (ii) a second shell fitted to the first shell so as to close the opening thereof except for a water inlet passage which forms a water inlet opening into the debris recovery space; and

in which (i) the water inlet opening has a smaller cross-section than the first cross-section, (ii) the first and second shells are configured to be fitted together to form an integral filtering casing mounted in the filtration chamber, (iii) the filtering casing is removable in one piece from the filtration chamber when the body is positioned upright on a horizontal surface, and (iv) when the filtering casing is removed in one piece from the filtration chamber of the body, one of the first and second shells may be movable relative to the other for emptying debris retained in the debris recovery space.

2. A swimming pool cleaner according to claim 1 in which, when the filtering casing is removed in one piece from the filtration chamber of the body, one of the first and second shells may be movable relative to the other without use of any tool.

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3. A swimming pool cleaner according to claim 1 in which the first shell comprises (a) a frame defining openings and (b) a filtering sheet extending across the openings, the frame and filtering sheet at least partially forming the peripheral filtering walls.

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4. A swimming pool cleaner according to claim 1 in which at least one of the first and second shells comprises a handle.

* * * * *

EXHIBIT 9



US008393029B2

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

(10) **Patent No.:** **US 8,393,029 B2**
(45) **Date of Patent:** **Mar. 12, 2013**

(54) **APPARATUS FOR CLEANING A SUBMERGED SURFACE INCLUDING A BRUSHING DEVICE DRIVEN BY MEMBERS FOR DRIVING THE APPARATUS ON THE SUBMERGED SURFACE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 216 days.

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(58) **Field of Classification Search** 15/1.7,
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210/167.17, 416.2, 459; 4/490, 496; 134/109,
134/110, 167 R, 168 R

See application file for complete search history.

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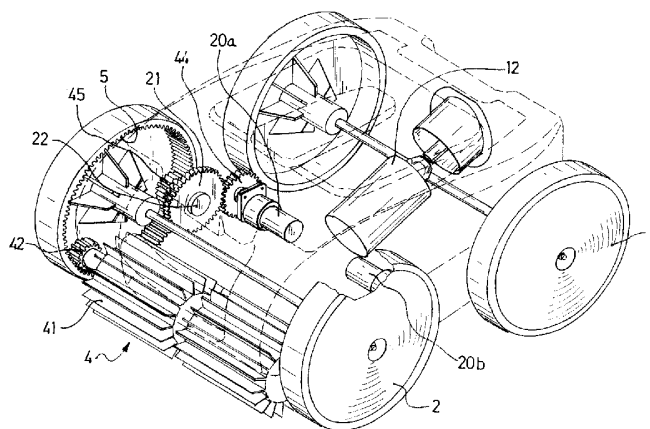
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(57) **ABSTRACT**

Detailed is a device for cleaning an immersed surface including a body, members for driving this body over the immersed surface in a longitudinal direction, including a wheel, a device for brushing the immersed surface, a mechanism for rotating the brushing device about a brushing axis, wherein the driving mechanism of the brushing device includes: an internally toothed ring which is fixedly joined to a wheel, a brush pinion which is fixedly joined to the brushing device and which is engaged in the ring of this drive wheel in such a manner that a rotation of this drive wheel brings about a rotation of the brushing device about the brushing axis thereof in the same rotation direction.

7 Claims, 6 Drawing Sheets



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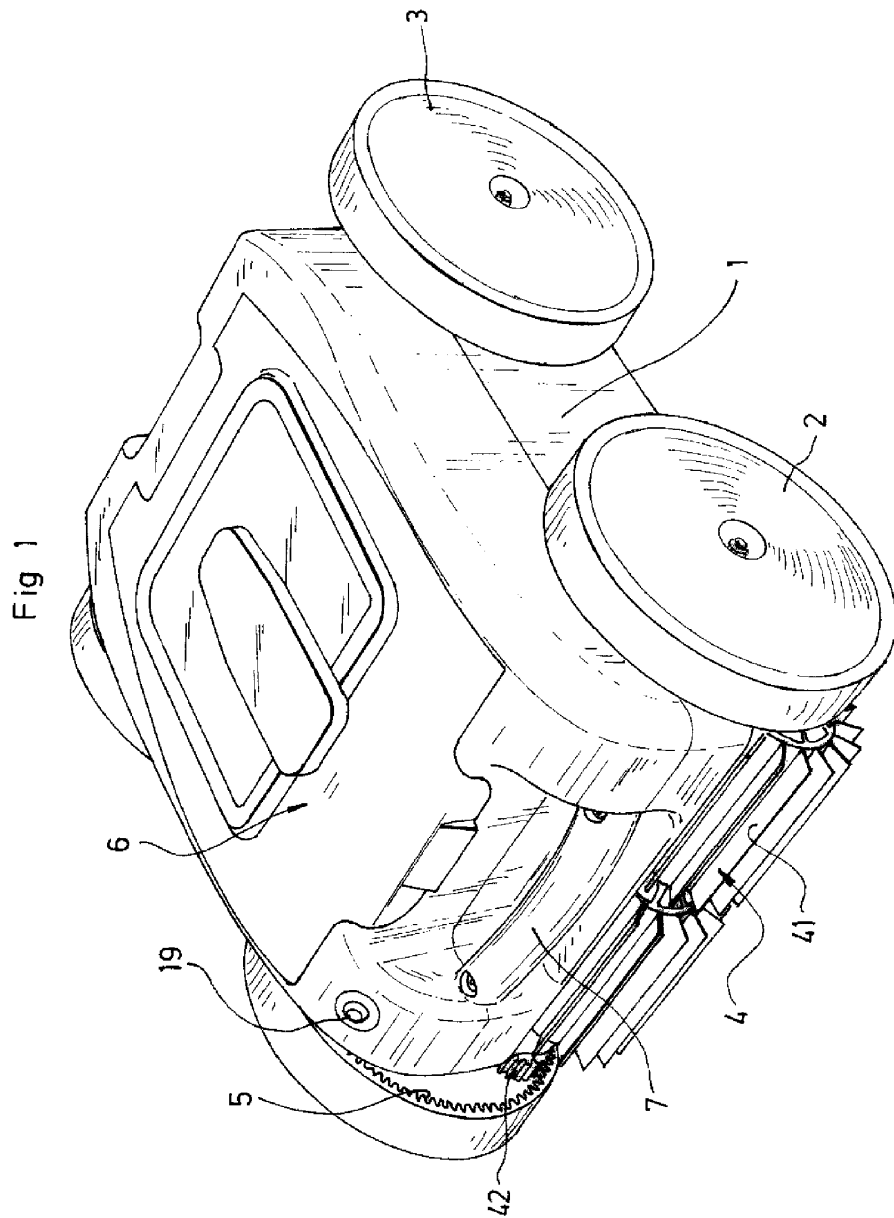
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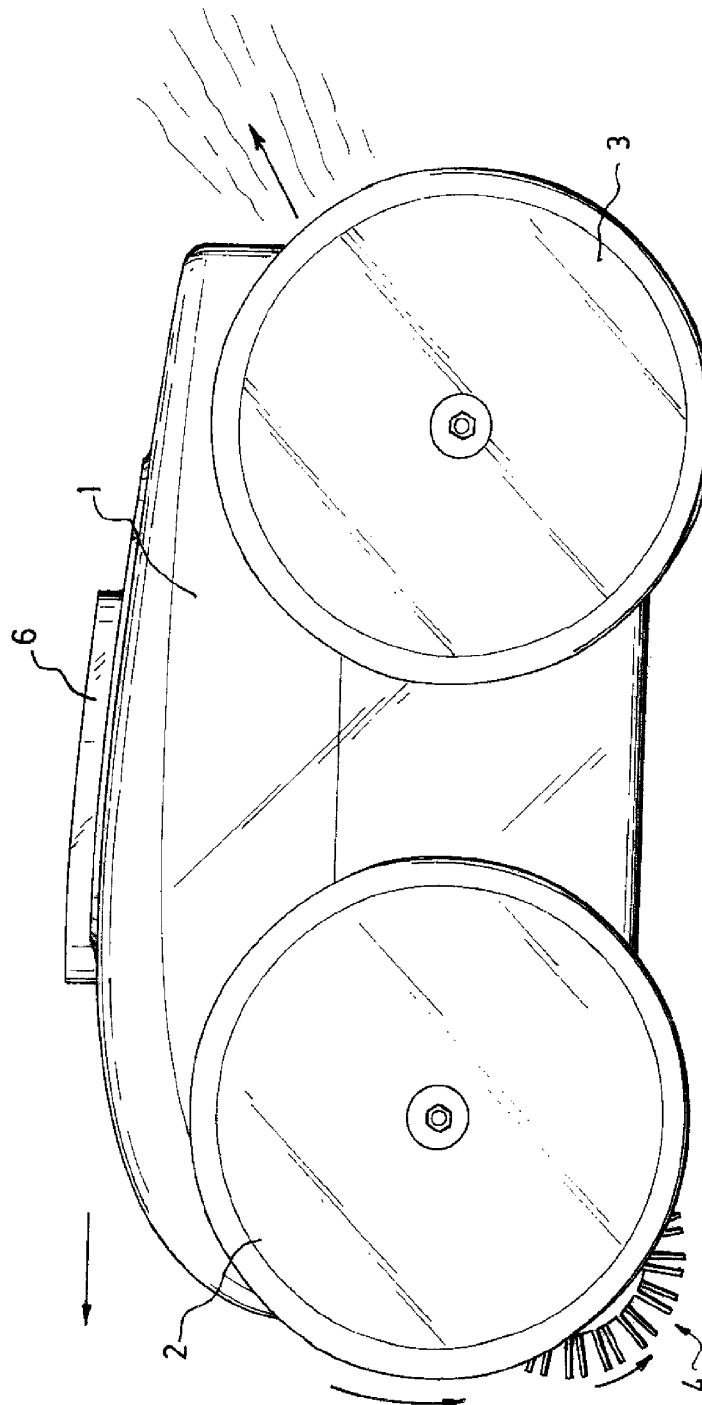
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Fig 2



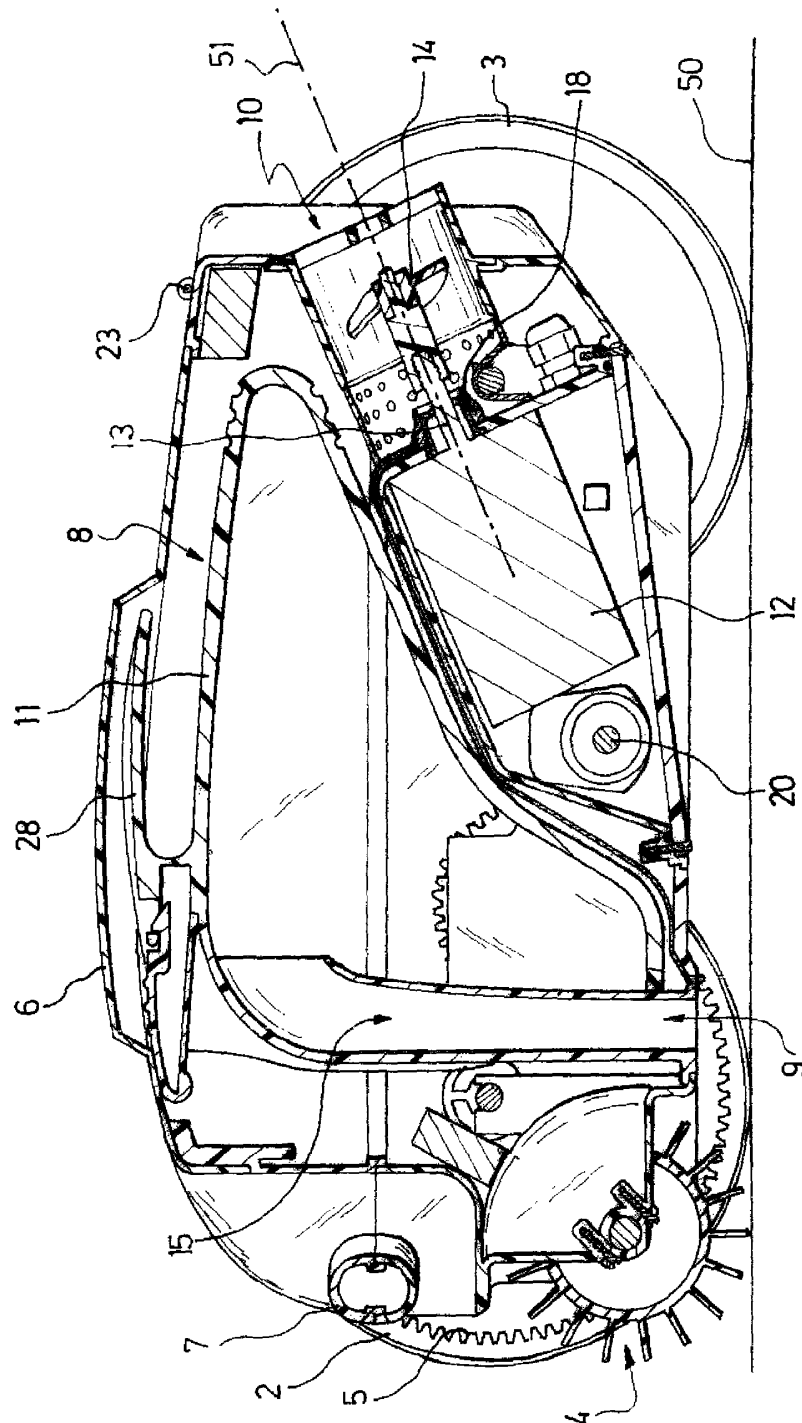
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Fig 3

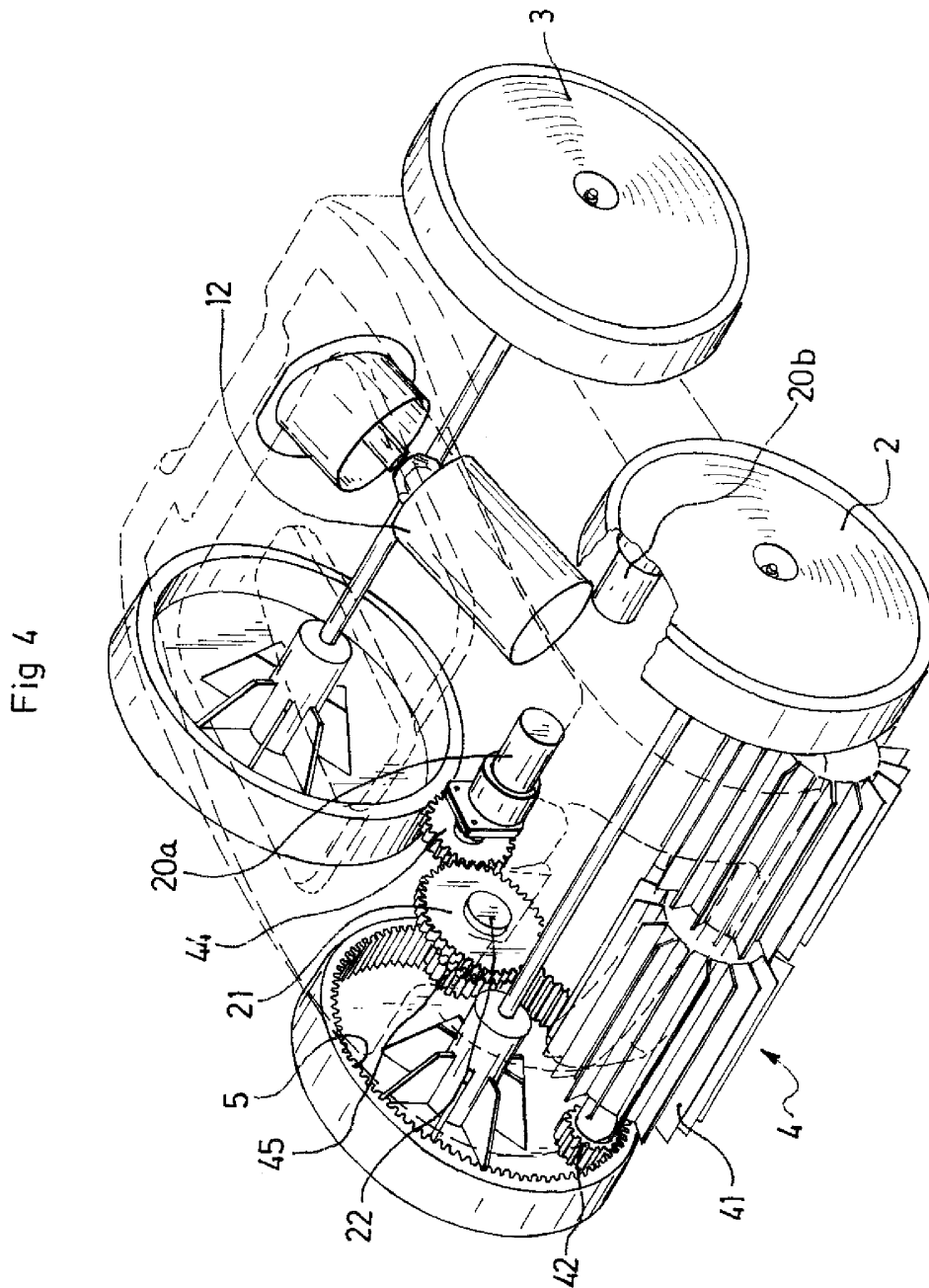


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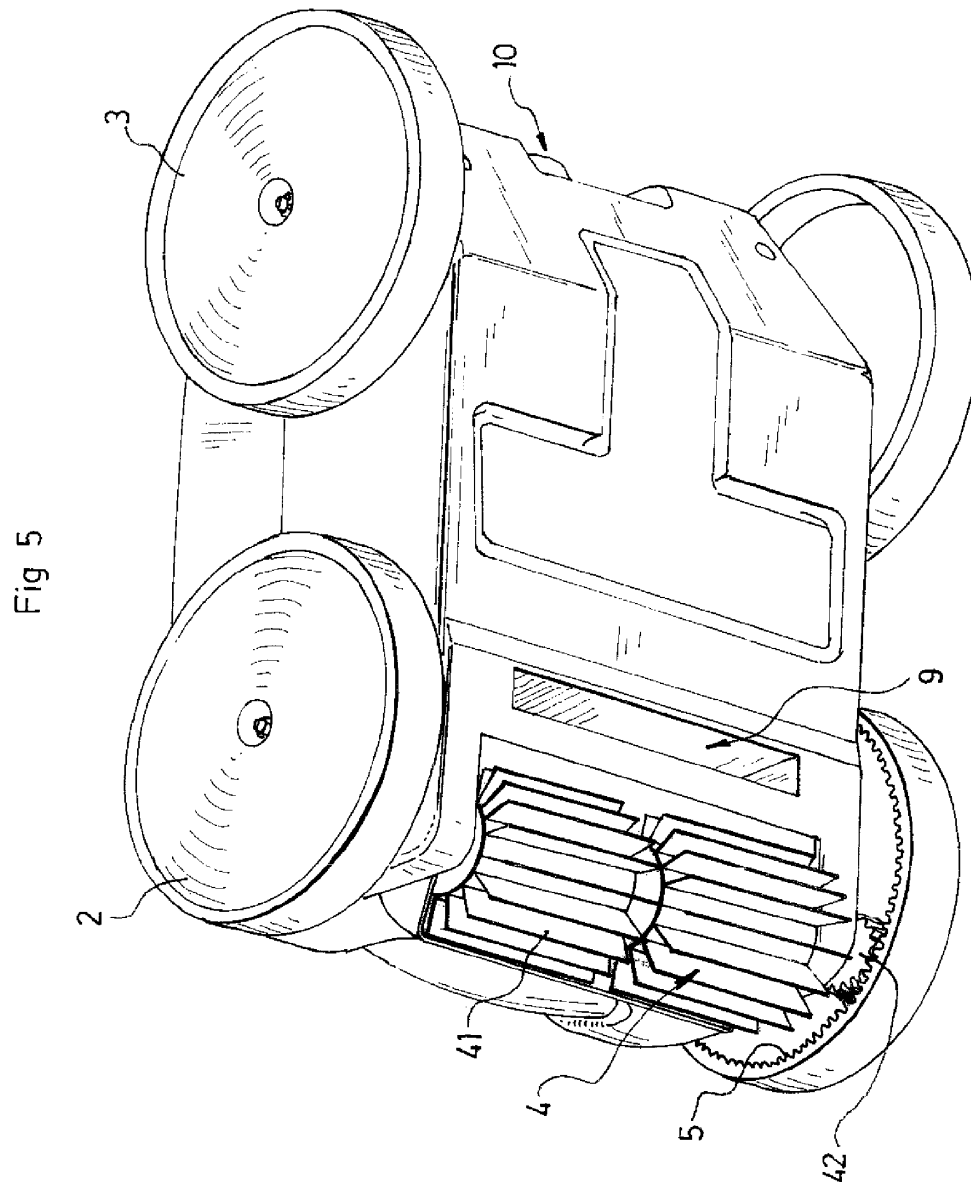


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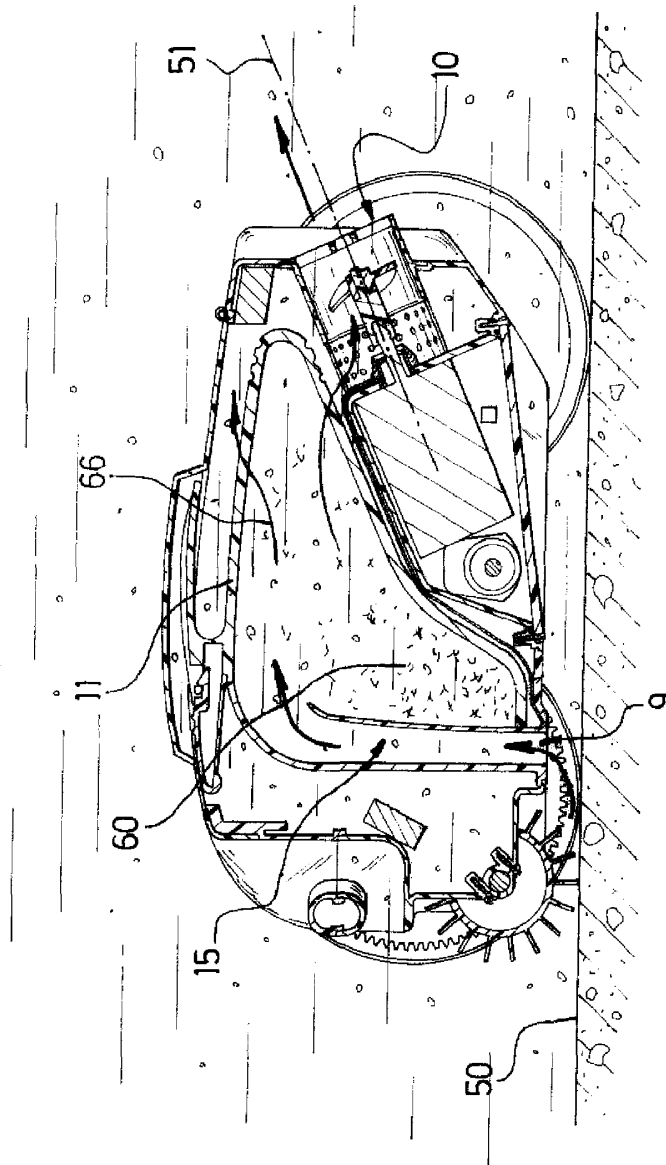
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Fig 6



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**APPARATUS FOR CLEANING A
SUBMERGED SURFACE INCLUDING A
BRUSHING DEVICE DRIVEN BY MEMBERS
FOR DRIVING THE APPARATUS ON THE
SUBMERGED SURFACE**

CROSS REFERENCE TO RELATED
APPLICATIONS

This application is the U.S. national phase of International Application No. PCT/FR2008/052336 filed on Dec. 17, 2008 and published on Jul. 2, 2009 as International Publication No. WO 2009/081036 A2, which application claims priority to French Patent Application No. 0708993 filed on Dec. 21, 2007, the entire contents of both of which are incorporated herein by reference.

The invention relates to a device for cleaning a surface which is immersed in a liquid, in particular a device for cleaning swimming pool walls.

Known swimming pool cleaning devices comprise:

- a hollow body,
- members for guiding and driving this hollow body over the immersed surface in a main direction of advance, called the longitudinal direction.

These devices clean the immersed surface of a pool by drawing in debris present on this immersed surface. The debris are drawn into the region of a liquid inlet and filtered by a filtering device. The filtered liquid is returned to the pool via a liquid outlet.

In order to improve the cleaning of the immersed surface, a number of devices further comprise:

- a device for brushing the immersed surface, mounted so as to rotate relative to the hollow body about a brushing axis,
- a mechanism for rotating the brushing device about the brushing axis thereof.

From these known devices, a number (cf., for example, EP 0 905 334) comprise separate members for driving the brushing device, that is to say, members which are independent of the members for driving the device over the immersed surface.

The members for driving the device over the immersed surface and the members for rotating the brushing device are heavy, have a large spatial requirement and consume energy. Consequently, such a device is large and heavy, which leads in particular to an increase in the hydraulic drag of this device.

There are other devices which comprise brushing devices which are directly rotated by the members for driving the device over the immersed surface. Of these devices, a number have driving members which comprise lateral chains (cf., for example, FR 2 729 995, U.S. Pat. No. 5,337,434, U.S. Pat. No. 4,168,557) which are capable of providing, on the one hand, the movement of the device over the immersed surface and, on the other hand, the rotation of the brushing devices.

Such devices do not allow easy maintenance. In particular, the replacement of a brushing device of such a device when it becomes worn, or in order to replace it with a device which is more suitable for the immersed surface to be cleaned or more suitable for the material of the immersed surface—liner, polyester, concrete, etc.—requires the driving members be disassembled, in particular the chains. This operation is complex and requires the involvement of a specialist technician.

Furthermore, these devices, owing to the existence of chains, do not allow the provision of a floor guard which prevents blockages of the device, for example, on a drainage plug of a swimming pool.

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Furthermore, the contact surfaces between the chains and the immersed surface are extensive, which brings about significant losses of energy owing to friction and involves the use of powerful electric motors.

There are also devices which have driving members with motorized wheels (cf., for example, EP 0 565 226). These wheels have surfaces with occurrences of roughness distributed over the periphery of the wheel in such a manner that these wheels have a brushing function.

In practice, the brushing which is carried out by such devices is not very effective taking into account that it is carried out in the region of the lateral wheels of the robot in such a manner that the debris are projected towards the rear of the wheels and not towards the liquid inlet of the device which is generally arranged in a central portion of the base of the device.

Furthermore, the brushing is carried out at the rotation speed of the wheels, which does not allow the brushes to slide over the immersed surface and therefore limits the efficiency of the brushing operation.

However, driving by means of wheels is effective and allows a substantial floor guard to be provided.

Another disadvantage of the known devices is that the movement speed of the device over the immersed surface is dependent on the material from which the brushes are formed. In these known devices, a brush of hard material provides traction for the device but does not allow effective brushing since the brush is not very suitable for sliding over the immersed surface. Such a brush simply travels over the immersed surface. However, a brush of less hard material provides less traction but quickly becomes worn and requires regular replacement in order to maintain good brushing properties.

Consequently, in known devices, the selection of the material for the brushes must be determined in accordance with the type of pool to be cleaned, in particular in accordance with its physical properties, dimensional properties and properties for use, et cetera.

An object of the invention is to overcome these disadvantages and provide a device for cleaning an immersed surface which is able to combine the advantages of brush devices with independent driving with the advantages of wheeled driving devices, without nonetheless having the respective disadvantages thereof.

In particular, an object of the invention is to provide such a device which can both be driven by at least one wheel and comprise at least one device for brushing the immersed surface.

An object of the invention is also to provide a device for cleaning an immersed surface which comprises at least one brushing device which can be disassembled and which can be replaced independently of the wheels for driving the device over the immersed surface.

An object of the invention is also to provide such a device which does not involve the antinomic selection between a brush of hard material and a brush of soft material.

In particular, the invention relates to a device of the type whose movement speed over an immersed surface is independent of the material from which the brushing device is formed.

An object of the invention is also to provide a device of the type in which at least one brushing device is rotated by means of at least one driving wheel.

An object of the invention is also to provide a device of the type whose cost is reduced compared with known devices and whose levels of cleaning performance are equivalent or even improved.

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The invention relates to any device for cleaning an immersed surface which may be driven in an electrical, hydraulic or mixed manner.

However, an object of the invention is more specifically to provide such a device of the type which is self-propelled with (an) on-board electric drive motor(s).

To this end, the invention relates to a device for cleaning an immersed surface comprising:

a hollow body,

members for guiding and driving this hollow body over an immersed surface in a main direction of advance, called the longitudinal direction, comprising at least one wheel,

at least one device for brushing the immersed surface, mounted so as to rotate relative to the hollow body about an axis, called the brushing axis,

a mechanism for rotating a brushing device relative to the hollow body about the brushing axis thereof, wherein the driving mechanism of a brushing device comprises: at least one internally toothed ring which is fixedly joined to a wheel,

at least one pinion, called a brush pinion, which is engaged in a ring of a wheel and which is connected to the brushing device in such a manner that a rotation of this wheel in one direction brings about a rotation of the brush pinion and a rotation of the brushing device about the brushing axis in the same direction as the rotation direction of the wheel.

Such a device allows a brush to be driven by means of at least one wheel. By means of its fixedly joined toothed ring and the brush pinion, this wheel brings about the rotation of the brush about a brushing axis in the same direction as the rotation direction of the wheel. Such a device is therefore smaller and lighter than previous devices with brushes with driving members which are independent of the driving of the device over the immersed surface. The hydraulic drag of such a device according to the invention is therefore reduced compared with known devices.

The mechanism for rotating the brushing device of a device according to the invention is also more compact than the driving mechanisms of the prior art with the brush being driven directly by the wheel, which enables a gear mechanism or a belt to be dispensed with. Such a mechanism is simple and comprises a limited number of components.

Furthermore, a device according to the invention enables a constant speed to be ensured for the device over an immersed surface, regardless of the brushing device mounted on the device. In particular, a device according to the invention allows the function of driving the device to be disassociated from the function of brushing the immersed surface. The wheels provide the movement of the device over the immersed surface and the brushing device provides the brushing of the immersed surface by sliding over the immersed surface regardless of the speed of the brush and the material of the brushing device.

Furthermore, since the brushing device is rotated by means of a brush pinion which is engaged in an internally toothed ring, this brushing device can be disassembled without requiring the disassembly of all of the elements for driving the device over the immersed surface.

According to a first variant, the disassembly of the brushing device can be carried out by disassembling only one wheel from the device. According to another variant, the disassembly of the brushing device can be carried out by staggering the brushing device in such a manner that the brush pinion can be disengaged from the internally toothed ring.

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Furthermore, such a wheeled device may have a substantial floor guard.

The wheel which is rotated by the members for guiding and driving the device over the immersed surface may be a drive wheel, that is to say, the driving members actuate the wheel directly which brings about the movement of the hollow body over the immersed surface—or a passive wheel—that is to say, the driving members bring about the movement of the hollow body over the immersed surface which brings about the rotation of the wheel which is rotatably mounted relative to the hollow body.

Advantageously and in accordance with the invention, at least one wheel for rotating a brushing device is a wheel for driving the hollow body over the immersed surface.

Such a drive wheel therefore initiates the movement of the hollow body of the device over the immersed surface to be cleaned.

The driving of the device over the immersed surface can be actuated by electrical means, hydraulic means, or a mixture of hydraulic and electrical means.

However, advantageously and according to the invention, the means for driving the hollow body over the immersed surface comprise:

at least one electric drive motor,

at least one pinion, called a wheel pinion, which is engaged in an internally toothed ring of a drive wheel and which is capable of being rotated by means of an electric drive motor, in such a manner that this wheel pinion being caused to rotate by the electric motor brings about the rotation of this drive wheel.

The internally toothed ring which is fixedly joined to the wheel not only allows a rotation movement to be transmitted to the brush pinion which allows the brush to be rotated about the brushing axis, but also allows a driving rotation movement to be transmitted to the wheel itself, via the wheel pinion, which provides the movement of the device over the immersed surface.

Advantageously and according to the invention, each internally toothed ring which is fixedly joined to a wheel—drive or passive—is a peripheral ring with an internal toothed arrangement.

The transmission between an electric motor and the wheel pinion may comprise different pinions, belts or equivalent means.

However, advantageously and according to the invention, each wheel pinion is arranged at one end of a shaft, called the intermediate transmission shaft, comprising, at the end opposite the wheel pinion, a pinion which is called an intermediate pinion, which is engaged in a pinion, called a drive pinion, which is fixedly joined to the drive shaft of an electric drive motor.

Such a device comprises at least one electric motor whose drive shaft comprises at least one drive pinion. This drive pinion is engaged in an intermediate pinion which is fixedly joined to an intermediate shaft. This intermediate shaft comprises, at the end of the shaft opposite the intermediate pinion, the wheel pinion which is engaged in the internally toothed peripheral ring. The wheel pinion, the intermediate pinion, the intermediate shaft and the drive pinion form a transmission system which is capable of transmitting to the wheels a torque which allows the device to be moved over the immersed surface. The structure of this transmission system is such that the electric motor rotates the drive shaft in the opposite direction to the rotation direction of the wheels. The intermediate pinion allows a conventional electric DC motor

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to be used, for example, a brush motor which has a rotation speed of approximately 120 rpm which develops a power of less than 5 W.

A device according to the invention therefore consumes little energy.

Preferably, the drive shaft, the intermediate shaft and the drive axle are parallel and extend in a direction, called the transverse direction, perpendicular relative to the longitudinal direction.

Advantageously and according to the invention, the members for driving the device over the immersed surface comprise two parallel axles which extend in the transverse direction, each axle comprising at least two wheels which are arranged at each of the transverse ends of the axle, respectively, at least one of the axles comprising at least one drive wheel.

According to one variant of the invention, the two parallel axles are drive axles which comprise at least two drive wheels which are arranged at each of the transverse ends of this axle, respectively.

According to this variant, each drive wheel is advantageously provided with an internally toothed ring which is capable of being rotated by means of a wheel pinion, which is in turn rotated by means of an intermediate shaft which is itself rotated by means of a drive pinion which is mounted on the drive shaft of an electric motor.

According to another variant of the invention, the members for driving the device over the immersed surface comprise a single drive axle.

Advantageously and according to the invention, each drive wheel of each drive axle is a non-guiding wheel with an internal toothed arrangement.

The absence of guiding wheels on the drive axle allows an axle to be provided whose production is facilitated owing to the absence of guiding members, such as steering journals. A device comprising such an axle is therefore economical to produce. Furthermore, an axle with non-guiding wheels is robust.

According to an advantageous variant of the invention, the device comprises two axles, a front drive axle which comprises non-guiding wheels to which the internally toothed rings are fixed and which are capable of driving, via brush pinions, a brush for cleaning the immersed surface which extends between these two wheels, and a rear non-drive axle which comprises non-guiding wheels.

According to a variant of the invention, the rear axle may also comprise a brushing device which is rotated about a transverse axis by the wheels of the rear axle.

According to another variant, only the front axle comprises a brushing device.

A brushing device according to the invention may have different shapes and structures.

Advantageously, however, and according to the invention, each brushing device is formed by at least one brush which comprises a central core which extends in the transverse direction and a plurality of fins which extend radially from the central core and parallel with the transverse direction.

The fins of the brush can be produced from different materials, in particular from rubber, a thermoplastic material or generally from a material which has elastic strain in terms of compression and flexion when the fin comes into contact with the immersed surface in order to allow the rotation of the brush and allow debris which are lodged on the immersed surface to be moved towards the liquid inlet which is provided at the base of the body of the device.

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Advantageously and according to the invention, the brushing device comprises two coaxial brushes, each brush being coupled to a wheel.

Advantageously and according to the invention, each wheel pinion has a pitch and diameter which are identical to the pitch and diameter of each brush pinion.

Advantageously and according to the invention, the brushing device has a smaller diameter than the diameter of the wheel which is fixedly joined to the ring in which the brush pinion which rotates it is engaged.

Such a device thus has a configuration in which the rotation speed of the brushing device about the brushing axis thereof is greater than the rotation speed of the wheels.

Advantageously, a device according to the invention further comprises a filtration chamber which is provided in the hollow body of the device and which has:

at least one liquid inlet into the hollow body, located at the base of the body,

at least one liquid outlet out of the hollow body, located remotely from the base of the body,

at least one hydraulic circuit which is capable of providing a flow of liquid between at least one liquid inlet and at least one liquid outlet through at least one filtering device, under the action of a pumping device.

Advantageously and according to the invention, the brushing device is arranged at a longitudinal end of the hollow body and extends in a direction, called the transverse direction, perpendicular relative to the longitudinal direction, in such a manner that the brushing axis extends in the transverse direction.

Advantageously and according to the invention, the brushing device is connected to the hollow body in such a manner that the device rests on the immersed surface, in the region of the longitudinal end where the brushing device is arranged, substantially on the brushing device.

Advantageously and according to the invention, the hollow body is formed principally by a concave housing which delimits a main chamber, this housing having openings which are provided at the base of the housing and at the rear of the housing, respectively, these openings forming each liquid inlet and each liquid outlet, respectively.

The invention further relates to a device for cleaning an immersed surface, characterized in combination by all or some of the features mentioned above or below.

Other features, objectives and advantages of the invention will be appreciated from a reading of the following description, which sets out by way of non-limiting example an embodiment of the invention with reference to the appended drawings, in which:

FIG. 1 is a schematic perspective plan view of a cleaning device according to an embodiment of the invention;

FIG. 2 is a schematic side view of a cleaning device according to an embodiment of the invention,

FIG. 3 is a schematic section of a cleaning device according to an embodiment of the invention;

FIG. 4 is a schematic perspective view of the mechanism for driving the brushing device by the wheels of the device according to an embodiment of the invention,

FIG. 5 is a schematic perspective bottom view of a cleaning device according to an embodiment of the invention;

FIG. 6 is a simplified schematic section of FIG. 3 illustrating the device during operation over an immersed surface.

In the Figures, the scales and the proportions have not been strictly complied with, for the purposes of illustration and clarity.

In all of the following detailed description with reference to the Figures, unless indicated otherwise, each component of

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the cleaning device is described as it is arranged when the device is moving normally over a horizontal immersed surface in a preferred direction of advance, relative to which the front and the rear of the device are defined.

A device according to the invention comprises, as illustrated in particular in FIGS. 1, 2 and 5, a hollow body 1 and rolling members 2, 3, 4 for guiding and driving the hollow body 1 over an immersed surface in at least one preferred direction of advance and in a main direction of advance, called the longitudinal direction, parallel with the immersed surface.

This hollow body 1 is formed principally by a concave housing which delimits a main chamber. This concave housing is, for example, produced by means of molding or rotational molding. This housing is preferably produced from a thermoplastic material, such as polyethylene, polypropylene, ABS, PMMA or any equivalent material.

This hollow body 1 has a central chamber which is capable of receiving a filtration chamber. This central chamber is delimited by a lower wall which extends in a substantially horizontal plane; by lateral walls which extend generally in vertical planes; by a front wall which extends generally in a vertical plane which is orthogonal relative to the planes of the vertical lateral walls; and by a rear wall which extends generally in a vertical plane orthogonal relative to the planes of the vertical lateral walls.

The lower wall has an opening which extends transversely in the region of the front wall so that liquid is able to return to the central chamber via this lower transverse opening. This opening forms a liquid inlet 9 in the hollow body 1.

The rear wall comprises a cylindrical opening which forms a liquid outlet 10 out of the hollow body 1. This liquid outlet 10 which is provided in the rear wall of the housing is longitudinally offset from the liquid inlet 9 which is provided in the lower wall. Furthermore, this liquid outlet 10 is provided in the upper portion of the housing so that it is also vertically offset from the liquid inlet 9.

As illustrated in particular in FIG. 3, this central chamber, this liquid inlet 9 and this liquid outlet 10 form a filtration chamber 8. This filtration chamber 8 further comprises a hydraulic circuit which is capable of providing a flow of liquid between the liquid inlet 9 and the liquid outlet 10 through a filtering device 11.

The transverse opening provided in the lower wall of the housing forms the liquid inlet 9 of the device and the cylindrical opening provided in the rear wall of the device forms the liquid outlet 10 of the device.

Preferably, the liquid inlet 9 and the liquid outlet 10 are offset longitudinally but are both centered on the same longitudinal vertical center plane of the device.

The central chamber of the hollow body 1 is capable of receiving a filtering device 11. The filtering device 11 is arranged between the liquid inlet 9 and the liquid outlet 10.

This filtering device 11 may be of any known type.

For example, the filtering device 11 comprises a rigid frame and a filtering sheet—in particular a filtering material—carried by this rigid frame. Such a filtering device 11 is therefore self-supporting and can be readily handled by a user.

The device also comprises a flap 6 for access to this filtering device. This access flap 6 forms an upper wall of the hollow body 1 and covers it. In the embodiment illustrated, this flap 6 is provided on the upper portion of the device so that a person using the device can readily open the flap 6 and remove the filtering device 11. Preferably, the access flap 6 is articulated to the body 1 of the device by means of hinges 23 which are provided at the rear of the device.

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Preferably, the filtering device 11 is a device which is mounted in the central chamber in the manner of a drawer. To this end, the rigid frame of the filtering device 11 has two ribs which extend laterally from each side of the filtering device 11. These ribs have shapes and dimensions which correspond to and complement the shapes and dimensions of grooves which are fixedly joined to the hollow body 1. These grooves which are fixedly joined to the hollow body 1 extend vertically along the inner faces of the vertical lateral walls of the hollow body 1. The ribs of the filtering device 11 are therefore capable of co-operating with the grooves of the hollow body 1 of the device.

In this manner, the removal of the filtering device 11 is the result of a translation movement of the filtering device 11 along the grooves of the hollow body 1. A user can therefore readily remove the filtering device 11 from the hollow body 1 in order, for example, to clean it. After the filtering device 11 has been cleaned, a user can readily reintroduce the filtering device 11 into the hollow body 1 by orientating the filtering device 11 so that the ribs of the filtering device 11 are opposite the grooves of the hollow body, then by sliding the filtering device 11 into the hollow body 1.

The filtering device 11 further comprises a handle 28 which is provided on an upper portion of the filtering device 11 in order to facilitate handling of the filtering device 11.

Preferably, a device comprises a motorized liquid pumping device which comprises a pumping motor 12 which has a rotating drive shaft 13 which is coupled to a pumping propeller 14 which is interposed in the hydraulic circuit in order to generate a flow of liquid between the liquid inlet 9 and the liquid outlet 10. The liquid outlet 10 is directly opposite the pumping propeller so that the liquid flows out of the liquid outlet 10 in a direction which corresponds to the liquid flow generated by the pumping propeller, this flow having a speed which is orientated in accordance with the rotation axis 51 of the propeller 14.

The pumping propeller 14 has an orientation which allows a flow of liquid to be generated with a horizontal component towards the rear.

Preferably, the pumping propeller 14 which is interposed in the hydraulic circuit between the liquid inlet 9 and liquid outlet 10 has an inclined rotation axis which forms, with the longitudinal direction and with the theoretical rolling plane 50, an angle α which is not equal to 90°. This propeller 14 is rotated by an electric pumping motor 12 which preferably has a rotating drive shaft 13 parallel with the rotation axis of the propeller 14.

According to the invention, the electric pumping motor 12 is arranged below the hydraulic circuit entirely at the outer side of this hydraulic circuit which completely bypasses the pumping motor 12 at the top. The rotating shaft 13 of the pumping motor 12 extends through an inclined lower wall which delimits the hydraulic circuit. The sealing is provided by an O-ring 18.

FIG. 6 illustrates the flow of liquid in the hollow body 1 of the device. This flow is illustrated schematically in FIG. 6 by means of arrows 66. Liquid enters the hollow body 1 via the liquid inlet 9 which is arranged below the device. This liquid passes into a liquid inlet column 15 in order to reach the filtering device 11. This filtering device 11 allows the liquid to pass through the filtering material and retains the solid debris 60. The filtered liquid reaches the liquid outlet 10 and is discharged at the rear of the device into the pool from which it originates.

Since the liquid outlet 10 is opposite the pumping propeller 14, the liquid flows out of the device via this outlet with a speed V which is orientated in accordance with the axis 51 of

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the pumping propeller **14** and which has a longitudinal component towards the rear which brings about, by means of reaction, forces whose resultant has a longitudinal drive component which is orientated towards the front and which is involved in driving the device over the immersed surface.

The orientation of the hydraulic reaction force created by the discharge flow and therefore the size of the longitudinal component thereof are dependent on the inclination a relative to the theoretical rolling plane **50**, the rotation axis **51** of the propeller and the liquid outlet **10**. Preferably, this inclination α is between 15° and 45°.

Preferably, the pumping motor is arranged below the hydraulic circuit, entirely outside this hydraulic circuit, in such a manner that the filtering device **11** of the hydraulic circuit can be removed from the device at the top of the device as mentioned above, without being impeded by the pumping motor. Only the pumping propeller **14** is arranged in the hydraulic circuit in order to be able to provide the flow of liquid. This pumping propeller **14** is arranged at the rear of the device, close to the liquid outlet **10**. That is to say, the pumping propeller **14** and the liquid outlet **10** form the end portion of the hydraulic circuit.

In the preferred embodiment of the invention illustrated in the Figures, the rolling members for guiding and driving the device comprise a front axle which comprises front drive wheels **2**, one at each side, and a rear axle which comprises rear non-drive wheels **3**, one at each side.

The device further comprises at least one electric motor **20** for driving the front drive wheels **2**. Preferably, the device comprises two drive motors **20a**, **20b**, one at each side, respectively, for independently driving each of the front wheels **2**. To this end, each front wheel **2** has a peripheral ring **5** which has an internal toothed arrangement and which is fixedly joined to this wheel **2**.

According to the embodiment in the Figures, the device comprises two coaxial front brushes **4** which are in continuation of each other in one direction, called the transverse direction, perpendicular relative to the longitudinal direction. Each brush **4** is capable of being caused to rotate about an axis which extends in the transverse direction by a wheel **2**. Each brush **4** comprises a plurality of fins **41** which extend radially from a brush shaft which forms the rotation axis of the brush **4**. The fins **41** are, for example, of rubber or a strong plastics material.

The brushes **4** are rotated by at least one electric motor **20a**, **20b** for driving the front wheels **2** via the wheels **2** and a gear system.

Each electric motor **20a**, **20b** comprises a drive shaft which comprises a drive pinion **44**. This drive pinion **44** is engaged in an intermediate pinion **21** which is fixedly joined to an intermediate shaft **22**. This intermediate shaft **22** comprises, at the end of the shaft opposite the intermediate pinion **21**, a wheel pinion **45** which is engaged in the internally toothed peripheral ring **5**. The wheel pinion **45**, the intermediate pinion **21**, the intermediate shaft **22** and each drive pinion **44** form a transmission system which is capable of transmitting to the wheels **2** a torque which allows the device to be moved over the immersed surface. The structure of this transmission system is such that each electric motor **20a**, **20b** rotates a drive shaft in an opposite direction to the rotation direction of the wheels **2**.

That is to say, the internally toothed peripheral ring **5** of each front drive wheel **2** co-operates with a brush pinion **42** which is fixed to one end of the shaft of a brush **4** in such a manner that a rotation of the wheel **2** brings about, by means

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of the internally toothed ring **5** and the brush pinion **42**, the rotation of the shaft of the brush **4** and therefore the rotation of the brush **4**.

The various pinions of the transmission system may be pinions which have regular tooth arrangements or helical tooth arrangements.

Preferably, the wheel pinion **45** and the internally toothed peripheral ring **5** are produced from a thermoplastic material which is water-resistant. These pinions may be, for example, produced from Delrin®, Nylon®, or an equivalent material. According to the embodiment of the Figures, the peripheral ring **5** comprises 94 teeth and the wheel pinion **45** has seventeen teeth so that the step-down ratio is in the order of 5. According to the embodiment of the Figures, the brush pinion **42** is identical to the wheel pinion **45**.

Preferably, each brush **4** has an outer diameter of between 40 mm and 200 mm. According to the embodiment of the Figures, the brush **4** has an outer diameter of approximately 100 mm. According to this embodiment, the brush **4** has during operation an outer diameter of approximately 100 mm whilst, in the idle state, it has a diameter of approximately 102 mm. This is explained by the fact that the brush **4** has a structure which is flexible in terms of compression so that it is slightly crushed during the operation of the device and provides effective brushing of the immersed surface.

The electric motors **20a**, **20b** and the pumping motor **12** may be of any known type. According to a preferred embodiment, these electric motors are low-voltage motors. They may be supplied by an electrical power supply which is external to the device via an electrical cable which is not illustrated in the Figures and which is connected to the device in the region of a zone **19** for introducing the electrical cable into the device, as illustrated in FIG. 1.

According to the embodiment illustrated in the Figures, the rolling members are constituted by the front drive wheels **2**, rear non-drive wheels **3** and brushes **4** which are involved in driving and guiding the device over the immersed surface. The rolling members **2**, **3**, **4** have zones which are intended to come into contact with the immersed surface and which are co-planar and define a theoretical rolling plane **50**. The longitudinal direction of advance of the device is parallel with this theoretical rolling plane **50**.

The front wheels **2** preferably have a diameter of between 100 mm and 500 mm, in particular between 150 mm and 250 mm. According to the embodiment of the Figures, the front wheels **2** have a diameter in the order of 200 mm. In this manner, these wheels facilitate the passing of obstacles and have improved traction. Advantageously, their peripheral tread is formed by or covered with a non-skid material.

The front wheels **2** and the brushes **4** constitute front drive members which protrude forwards relative to the other constituent elements of the device, in particular the hollow body, in order to form the extreme front portion of the device and first come into contact with an obstacle which is encountered during forward movement.

Furthermore, according to a preferred embodiment of the invention, the device also comprises an operating handle **7** which allows a user to carry the device in order to immerse it in a liquid and to remove it therefrom. This handle **7** is preferably arranged opposite the liquid outlet **10** so that, when the hollow body **1** is suspended by this handle, the device tilts spontaneously under the effect of gravity into a position in which the liquid outlet **10** is located below the liquid inlet **9** which allows the device to be emptied. When the device moves from the cleaning position to the emptying position, the debris drawn in by the device are retained in the filtering device and cannot be discharged from the device.

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Of course, the invention may involve numerous construction variants and applications.

For example, according to an embodiment which is not illustrated in the Figures, the pinions may have different original diameters, pitches and numbers of teeth.

Furthermore, the sizing and the configuration of the device, in particular the hydraulic circuit thereof, are subject to an infinite number of variants. In addition, the invention can be used for a bi-directional device which is capable of backward movement.

The invention claimed is:

1. A swimming pool cleaner adapted to travel along an immersed surface and comprising:

- a. a body comprising (i) an inlet and (ii) an outlet separate from the inlet;
- b. a pumping device configured to cause water to flow from the inlet to the outlet;
- c. a wheel configured for rotation and having an internally toothed ring;
- d. a brush assembly (i) configured to contact the immersed, surface and (ii) comprising a brush and a shaft about which the brush rotates; and
- e. a pinion engaging the internally toothed ring and connected to the shaft so that rotation of the wheel in a first direction causes rotation of the pinion and the brush in the first direction.

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2. A swimming pool cleaner according to claim 1 further comprising a filtering device positioned between the inlet and the outlet and through which water may flow under action of the pumping device.

3. A swimming pool cleaner according to claim 1 further comprising (a) an electric motor and (b) a wheel pinion engaging the internally toothed ring and configured to be rotated under action of the electric motor.

4. A swimming pool cleaner according to claim 3 in which the electric motor comprises a drive shaft, further comprising (a) a drive pinion connected to the drive shaft and (b) an intermediate pinion engaging the drive pinion.

5. A swimming pool cleaner according to claim 4 further comprising an intermediate transmission shaft to which both of the intermediate and wheel pinions are connected.

6. A swimming pool cleaner according to claim 3 in which each of the brush pinion and the wheel pinion has a pitch and a diameter, the pitches of the brush and wheel pinions being identical and the diameters of the brush and wheel pinions being identical.

7. A swimming pool cleaner according to claim 1 in which the body defines a forwardmost portion and the wheel extends forward of the forwardmost portion.

* * * * *

EXHIBIT 10

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Cameron R. Elliot
Administrative Law Judge**

In the matter of:

**CERTAIN ROBOTIC POOL CLEANERS
AND COMPONENTS THEREOF**

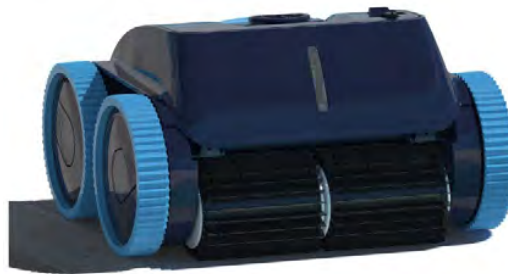
Investigation No. 337-TA-1326

RESPONDENTS' INITIAL MARKMAN BRIEF

As is evident from the images above, the Wybotics Respondents' pool cleaning robots closely resemble those that have been around for decades.

Of the more than two dozen pool cleaning robots that the Wybotics Respondents have manufactured and sold over the last three years, only two related models (one relevant design for purposes of this Investigation) have been accused of infringement in this Investigation. The two models are the HJ3172 and HJ3182. Sales of both have been discontinued. The HJ3182 was never even imported, sold for importation or sold after importation into the U.S. An exemplary model (HJ3172 Plus) representative of both is shown below.

HJ3172 PLUS BUGSON PLUS



The Aiper Respondents are a distributor of the Wybotics Respondents' pool cleaning robots. Aiper no longer sells the two related models accused of infringement.

The Tianjin Respondent is a distributor of the Wybotics Respondents pool cleaning equipment. It has never sold any products accused of infringement in this Investigation.

Dated: December 20, 2022

Respectfully submitted,

/s/ Ryan McCrum

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d/b/a Winny Pool Cleaner, f/k/a Tianjin
Wangyuan Environmental Protection and
Technology Co., Ltd., Tianjin Pool & Spa
Corporation, Shenzhen Aiper Intelligent Co.,
Ltd., Aiper Intelligent LLC, and Aiper Inc.*

*Certain Robotic Pool Cleaners and
Components Thereof*

Investigation No. 337-TA-1326

CERTIFICATE OF SERVICE

I, Catherine Pizarro, hereby certify that on December 20, 2022 copies of the foregoing document were delivered, pursuant to Commission regulations, to the following interested parties as indicated:

<i>For Complainant Zodiac Pool Care Europe; Zodiac Pool Systems LLC</i>	
Steven D. Moore, Lead Representative Kilpatrick Townsend & Stockton LLP Two Embarcadero Center, Suite 1900 San Francisco, CA 94111 Zodiac-1326-Service@kilpatricktownsend.com	☐ Via U.S. Mail ☐ Via Hand Delivery ☐ Via Overnight Courier ☐ Via Facsimile ☒ Via Electronic Mail

December 20, 2022

/s/ Catherine Pizarro
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cpizarro@jonesday.com | 216.586.

EXHIBIT 11

JONES DAY

February 22, 2023

Hon. ALJ Cameron Elliot
U.S. International Trade Commission
500 E Street, S.W., Room 317
Washington, D.C. 20436

Re: *Certain Robotic Pool Cleaners and Components Thereof*, Inv. No. 1326:
Complainants' Discovery Deficiencies

Dear Hon. Judge Elliot:

Respondents Wybotics Co. Ltd. d/b/a Winny Pool Cleaner, f/k/a Tianjin Wangyuan Environmental Protection and Technology Co., Ltd., and Tianjin Pool & Spa Corporation (collectively, "Wybotics") submit this letter to correct the record with respect to certain misrepresentations made by Complainants Zodiac Pool Systems LLC and Zodiac Pool Care Europe (collectively, "Complainants"). In their motion to terminate the Investigation filed two days ago (on a federal holiday), Complainants asserted that "Wybotics has provided sworn representations that it has stopped importing or selling, **and will not import or sell, the Accused Products**. See, e.g., Respondents' Initial Markman Brief, Dkt. ID 786669, at 5." (EDIS No. 790631 at 3 (emphasis added).) Complainants' motion was granted yesterday—the day after it was filed—pursuant to Order 16. (EDIS No. 790733) Relying on Complainants' misrepresentation, the statement quoted above was repeated in Order 16. Wybotics advised Complainants that they would not oppose a motion to terminate the Investigation, but Complainants never shared the draft before filing and, thus, never gave Wybotics an opportunity to correct the inaccurate statement that was subsequently repeated in Order 16.

In fact, Wybotics never made any representations about the future with respect to the Accused Products, including any unconditional "sworn representation" that it "will not import or sell the Accused Product." In the course of this Investigation, Wybotics stated only that they had *stopped* selling the Accused Products or any products having that same design, but did not make any unequivocal representations about the future. For example, Complainants cite to Respondents' Initial *Markman* brief, but in that brief Respondents actually stated the following: "[t]he two models are the HJ3172 and HJ3182. Sales of both have been discontinued." (EDIS NO. 786669 at 5.) Respondents' verified response to Interrogatory Number 1 similarly stated that Wybotics "has stopped selling any products from the HJ3172 and HJ3182 families, and is not selling any products having the same design as the HJ3172 or HJ3182 families." Further, Wybotics' corporate representative testified "we do not have inventory of these two [accused] products" available to sell. (Tr. at 65:5-12.) He confirmed that when the HJ3172 and HJ3182

JONES DAY

sales were stopped in May and July of 2022, Wybotics also stopped manufacturing those products. (Tr. a75:14-17.) And, when asked “[d]oes Wybotics have plans to restart production and sales of either the HJ3172 or HJ3182 products,” the witness testified “No plan.” (Tr. at 75:18-21.)

While it remains true that sales of the HJ3172 and HJ3182 have been discontinued and Wybotics has no current inventory or current plan to restart sales, Respondents never said categorically, as Complainants misrepresented, that it “will not import or sell the Accused Products.” Representing that products have been discontinued and that there is no current inventory or plan to restart production is not the same as a representation that Wybotics will never import or sell the Accused Products. Plans can change based on number of factors or developments. Here, there was a significant development—Complainants withdrew their claims in this Investigation.

Moreover, Respondents never suggested that they would not have the right to sell the Accused Products or products with the same design in the future if, for example, the ITC or district court were to rule that the Asserted Patents are not infringed or invalid or in the event Complainants voluntarily terminated this Investigation. To the contrary, Respondents have vigorously litigated their defenses in good faith in this Investigation, believing the Accused Products would ultimately be cleared of Complainants’ claims. Complainants, however, voluntarily walked away from their claims and decided to terminate all claims in this Investigation against Wybotics.

Now, because Complainants’ have moved to withdraw its claims against Wybotics, the Commission will not have the opportunity to determine whether the Accused Products infringe, whether the Asserted Patents are invalid, or whether a domestic industry exists with respect to the Asserted Patents. Nor will there be an exclusion order, cease-and-desist order, or consent order prohibiting Wybotics’ importation and/or sale of the Accused Products. Thus, the ITC case initiated and ultimately withdrawn by Complainants—as well as any representations Wybotics made about discontinuing the Accused Products—places no restrictions on Wybotics with respect to the Accused Products.

Wybotics asked that Complainants provide by 5 PM ET today all support for their statement that Wybotics “provided sworn representations that it ... will not import or sell, the Accused Products.” Complainants response identifies only the representations and testimony discussed above, none of which establish that Wybotics made any kind of unequivocal representation that it would never sell the accused products at any point in the future.

Wybotics did not and does not oppose Complainants’ requested relief in their motion to terminate the Investigation. It seeks no other remedy by submitting this letter other than to

JONES DAY

Hon. ALJ Cameron Elliot
February 22, 2023
Page 3

correct the record to make clear the representations that Wybotics actually made during this Investigation.

Respectfully submitted,

/s/ Ryan B. McCrum

Ryan B. McCrum

cc: Complainants' counsel

*Certain Robotic Pool Cleaners and
Components Thereof*

Investigation No. 337-TA-1326

CERTIFICATE OF SERVICE

I, Catherine Pizarro, hereby certify that on February 23, 2023 copies of the foregoing document were delivered, pursuant to Commission regulations, to the following interested parties as indicated:

The Honorable Katherine M. Hiner Acting Secretary to the Commission U.S. International Trade Commission 500 E Street S.W., Room 112 Washington, DC 20436	☐ Via U.S. Mail ☐ Via Hand Delivery ☐ Via Overnight Courier ☐ Via Facsimile ☒ Via Electronic Mail - EDIS
The Honorable Cameron R. Elliot Administrative Law Judge U.S. International Trade Commission 500 E Street S.W. Washington, DC 20436 Jason Heidemann jason.heidemann@usitc.gov	☐ Via U.S. Mail ☐ Via Hand Delivery ☐ Via Overnight Courier ☐ Via Facsimile ☒ Via Electronic Mail
Steven D. Moore, Lead Representative KILPATRICK TOWNSEND & STOCKTON LLP 607 14th St. NW Washington, DC 20005 Zodiac-1326-service@kilpatricktownsend.com	☐ Via U.S. Mail ☐ Via Hand Delivery ☐ Via Overnight Courier ☐ Via Facsimile ☒ Via Electronic Mail

Date: February 23, 2023

/s/ Catherine Pizarro

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EXHIBIT 12



KILPATRICK TOWNSEND & STOCKTON LLP
www.kilpatricktownsend.com

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Certain Robotic Pool Cleaners, Products Containing the Same, and Components Thereof

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d d r r d Counsel for Respondents	
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/s/ Pamela A. Freitik
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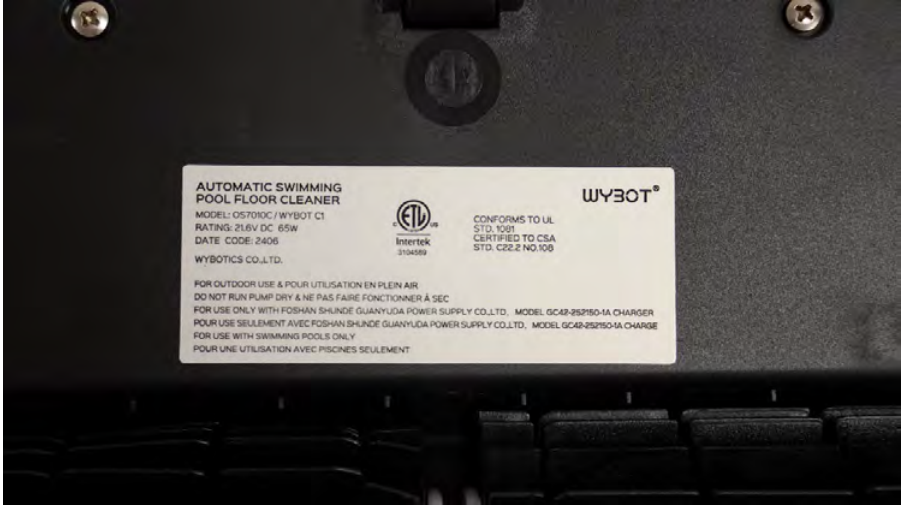
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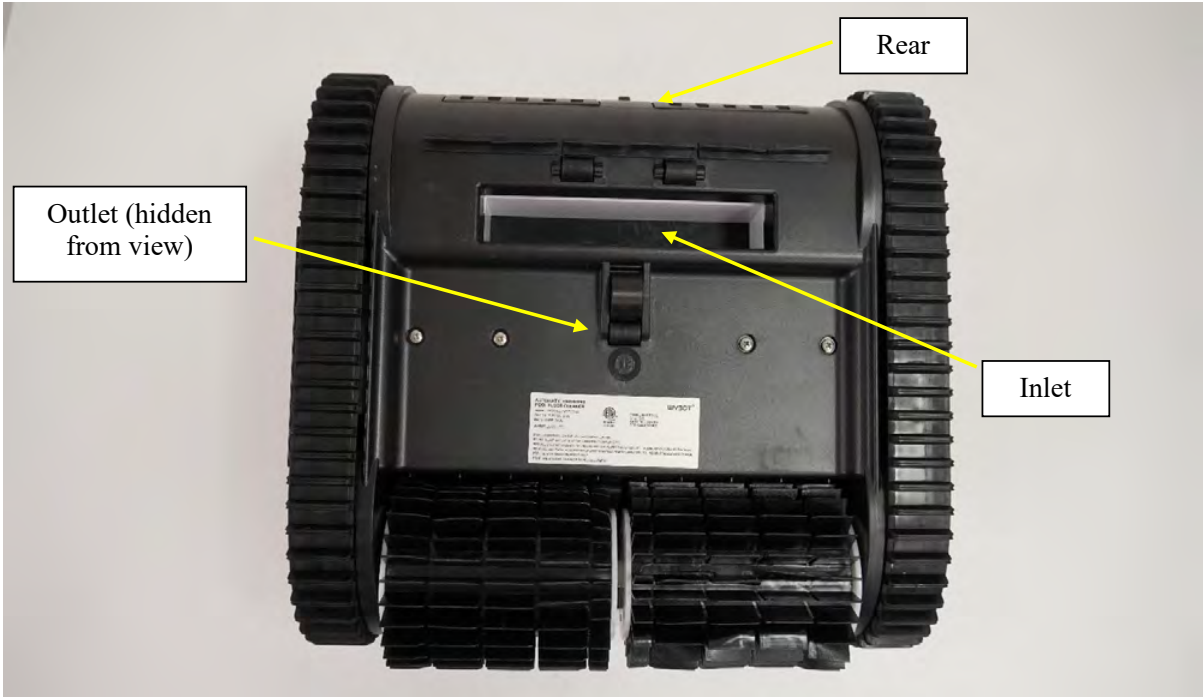
EXHIBIT 13

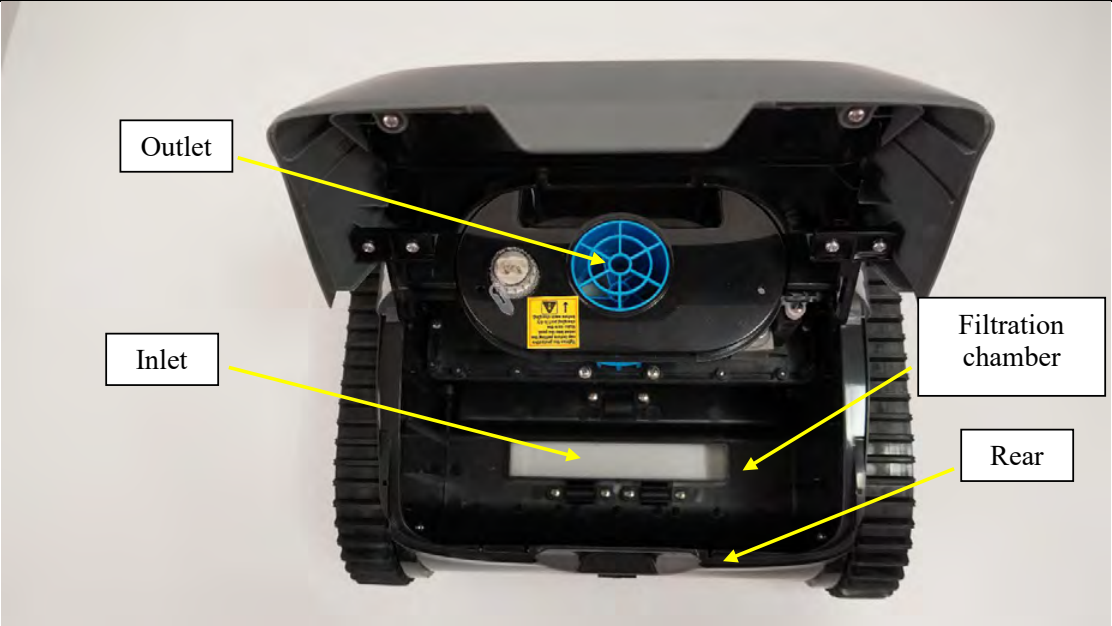
Infringement of U.S. Patent No. 8,393,031 by Wybot C1 Robotic Pool Cleaner

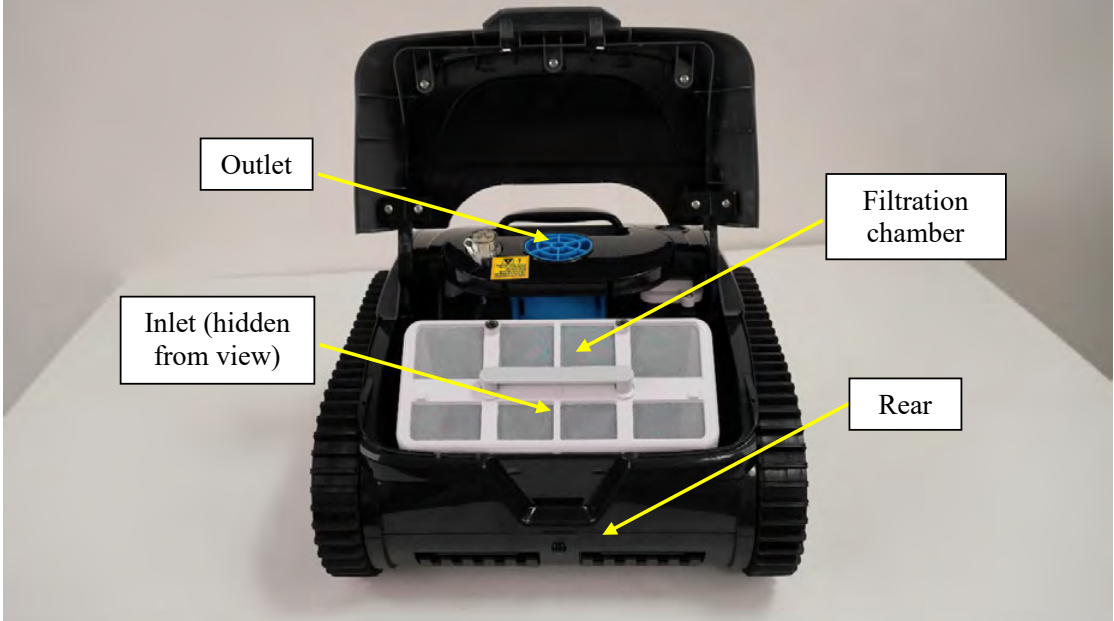
Claims Charted: 1, 2, 3, 4.

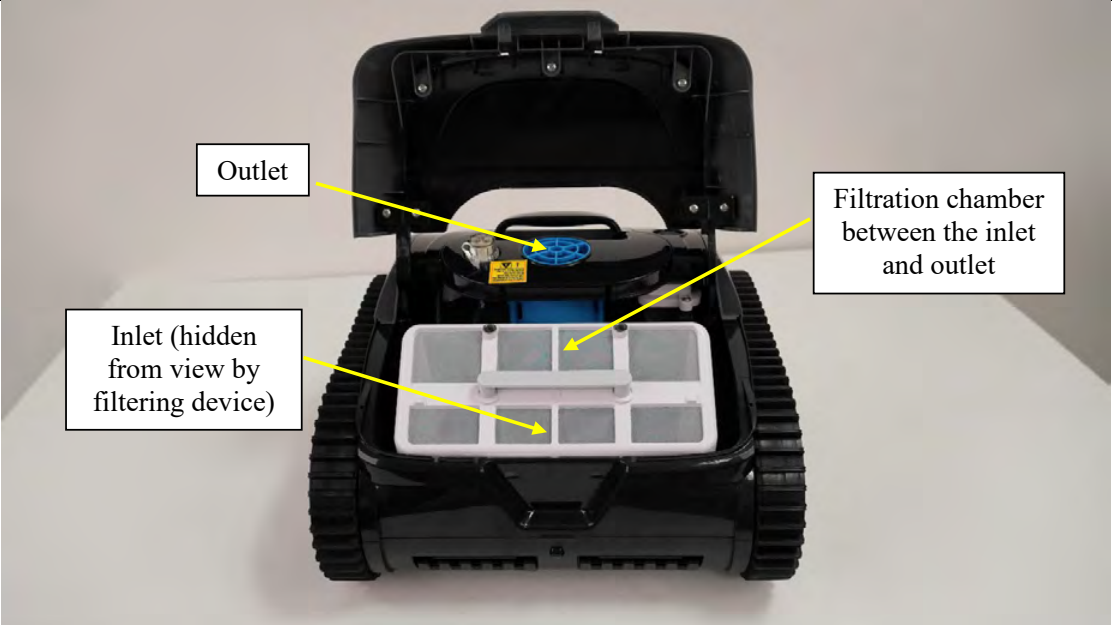
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
[Element 1 Preamble] A swimming pool cleaner comprising:	To the extent the preamble is limiting Wybot C1 Cordless Robotic Pool Cleaner (“Wybot”) is a swimming pool cleaner as shown in the exemplary images below. 

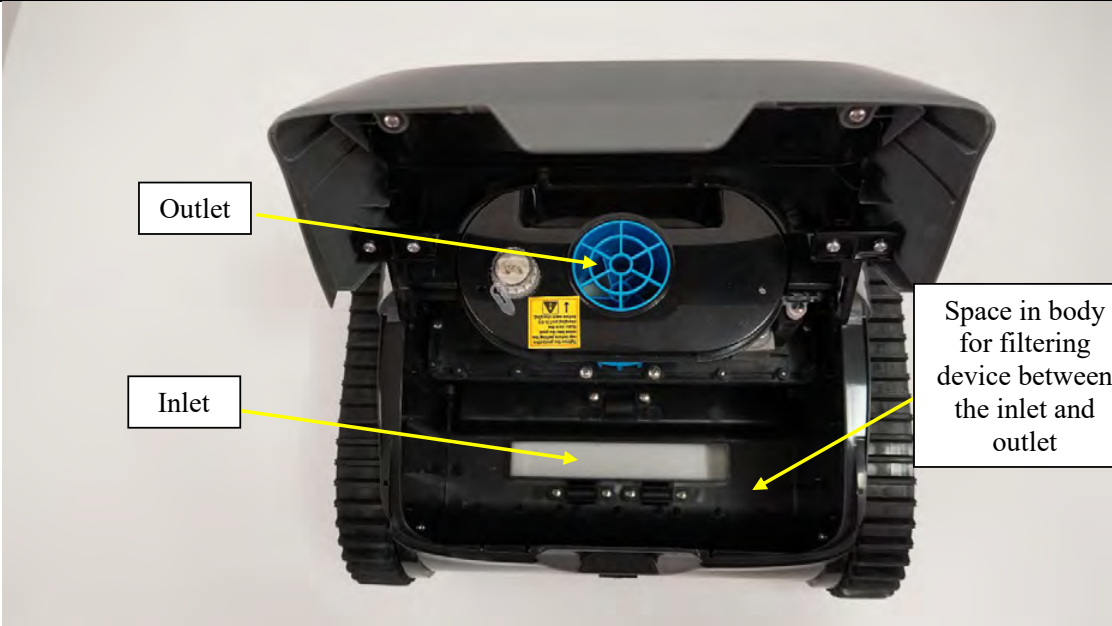
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	  AUTOMATIC SWIMMING POOL FLOOR CLEANER MODEL: OST010C / WYBOT C1 RATING: 21.6V DC 85W DATE CODE: 2406 WYBOTICS CO., LTD. WYBOT® CONFORMS TO UL STD. 1001 CERTIFIED TO CSA STD. C22.2 NO.100 FOR OUTDOOR USE & POUR UTILISATION EN PLEIN AIR DO NOT RUN PUMP DRY & NE PAS FAIRE FONCTIONNER À SEC FOR USE ONLY WITH FOSHAN SHUNDE GUANYUDA POWER SUPPLY CO., LTD. MODEL GC4R-25P150-1A CHARGER POUR USE SEULEMENT AVEC FOSHAN SHUNDE GUANYUDA POWER SUPPLY CO., LTD. MODEL GC4R-25P150-1A CHARGE FOR USE WITH SWIMMING POOLS ONLY POUR UNE UTILISATION AVEC PISCINES SEULEMENT

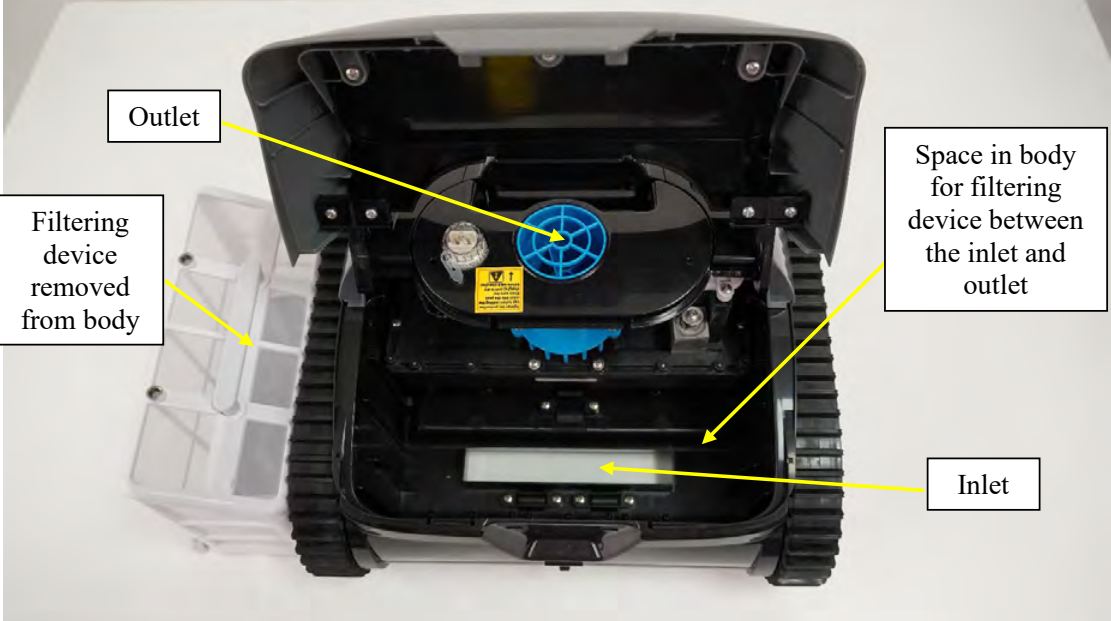
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
[Element 1(a)] a body comprising an inlet, an outlet, a filtration chamber, and a rear;	The Wybot has a body comprising an inlet, an outlet, a filtration chamber, and a rear as shown in the exemplary images below:  The image shows the rear view of the Wybot C1 Cordless Robotic Cleaner. It is a black, rectangular device with a textured, treaded surface on the sides. A label is visible on the bottom center. Three yellow arrows point to specific features: one points to the top edge labeled 'Rear', one points to the bottom center labeled 'Outlet (hidden from view)', and one points to the right side labeled 'Inlet'.

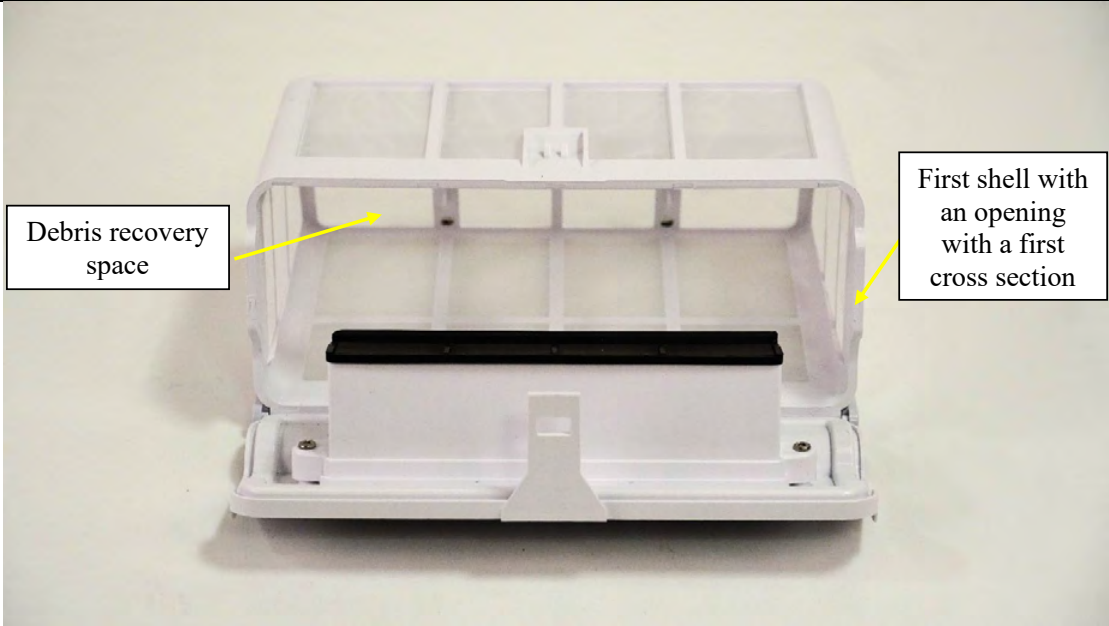
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 The diagram shows the internal components of the Wybot C1 Cordless Robotic Cleaner. The device is black and has a rectangular shape. The top cover is removed, revealing the internal components. A blue circular fan is located in the center, with a yellow label pointing to it labeled "Outlet". Below the fan is a rectangular white filter, with a yellow label pointing to it labeled "Inlet". To the right of the filter is a rectangular white chamber, with a yellow label pointing to it labeled "Filtration chamber". At the bottom of the device is a black rectangular component, with a yellow label pointing to it labeled "Rear".

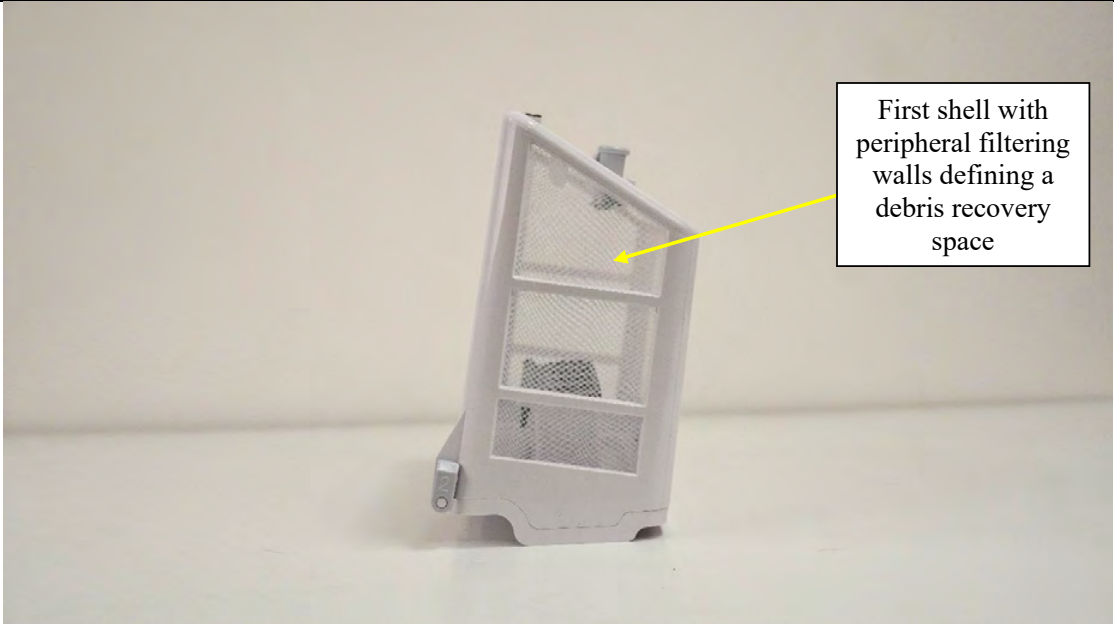
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	
[Element 1(b)] a filtering device positioned between the inlet and the outlet and comprising:	The Wybot has a filtering device positioned between the inlet and the outlet as shown in the exemplary images below.

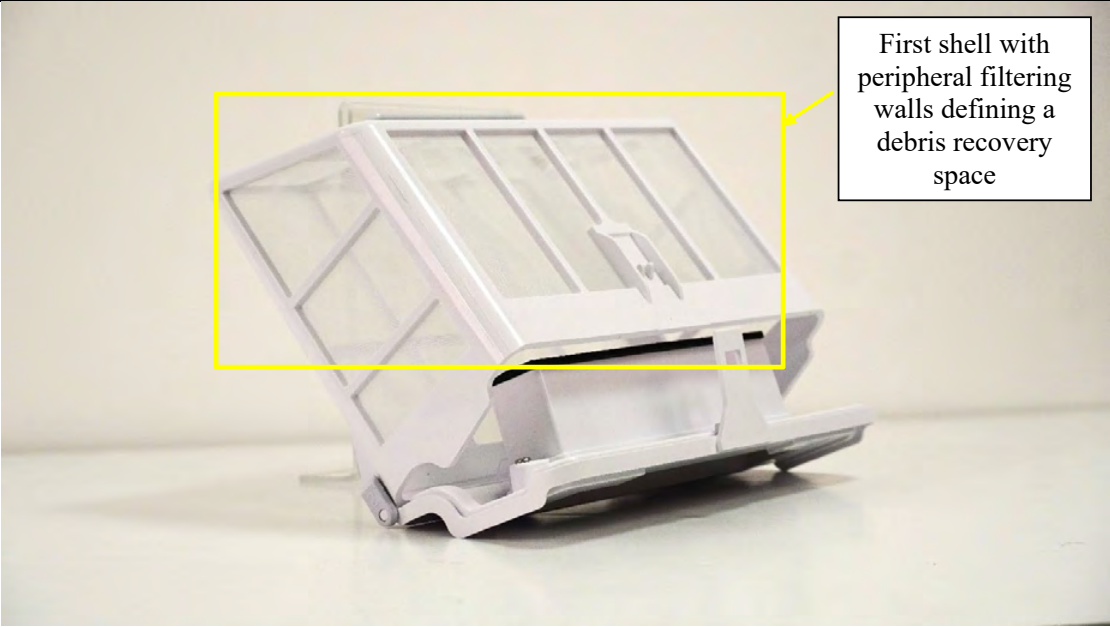
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 The diagram shows the internal components of the Wybot C1 Cordless Robotic Cleaner. The device is a black, tracked robot with a white plastic housing. The housing is open, revealing the internal components. Three labels with yellow arrows point to specific parts: 'Outlet' points to a blue circular filter at the rear; 'Inlet (hidden from view by filtering device)' points to a white rectangular filter at the front; and 'Filtration chamber between the inlet and outlet' points to the space between the two filters. The robot is shown from a top-down perspective on a light gray surface.

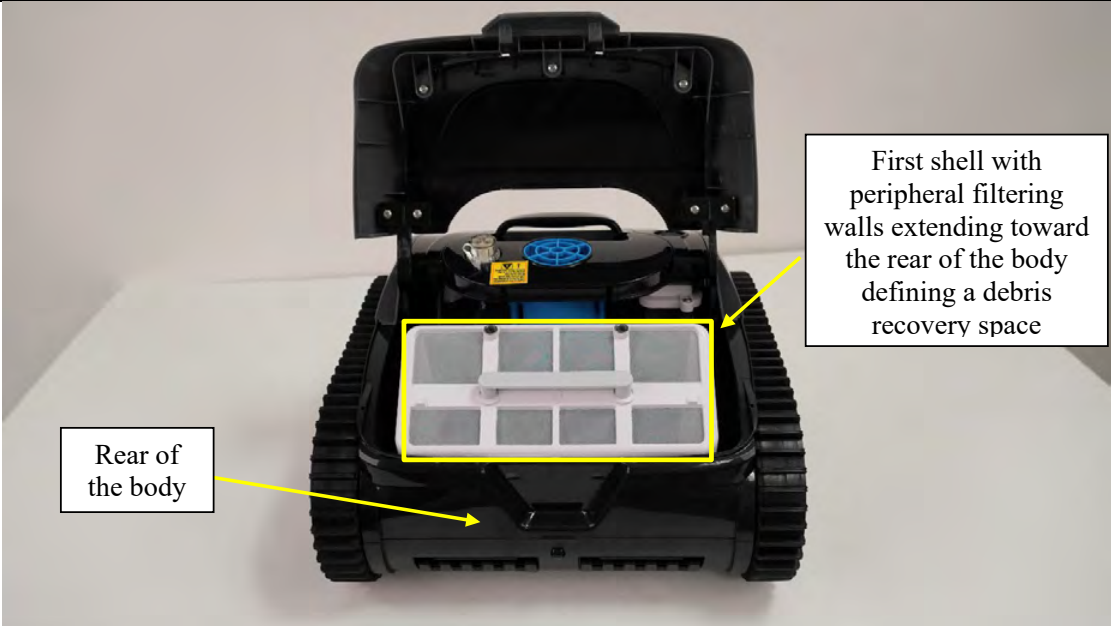
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	

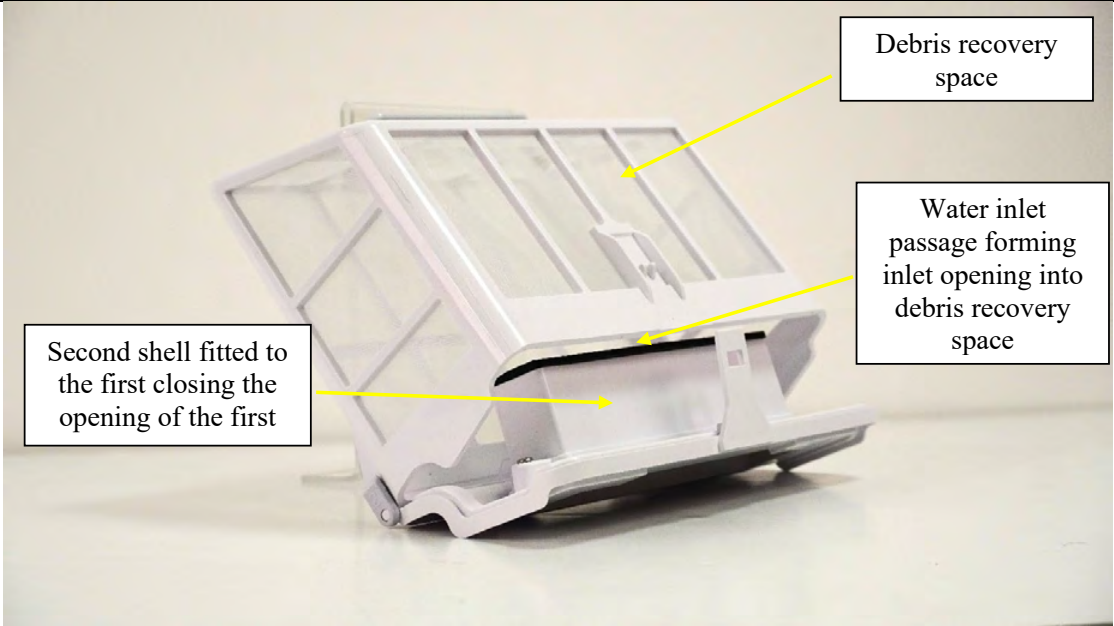
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	
[Element 1(b)(i)] (i) a first shell having (A) an opening with a first cross-section and (B) peripheral filtering walls extending toward the rear of the body	The Wybot has a first shell with an opening of a first cross-section and peripheral filtering walls extending toward the rear of the body defining a debris recovery space in which debris entrained in water entering the opening is retained as shown in the exemplary images below.

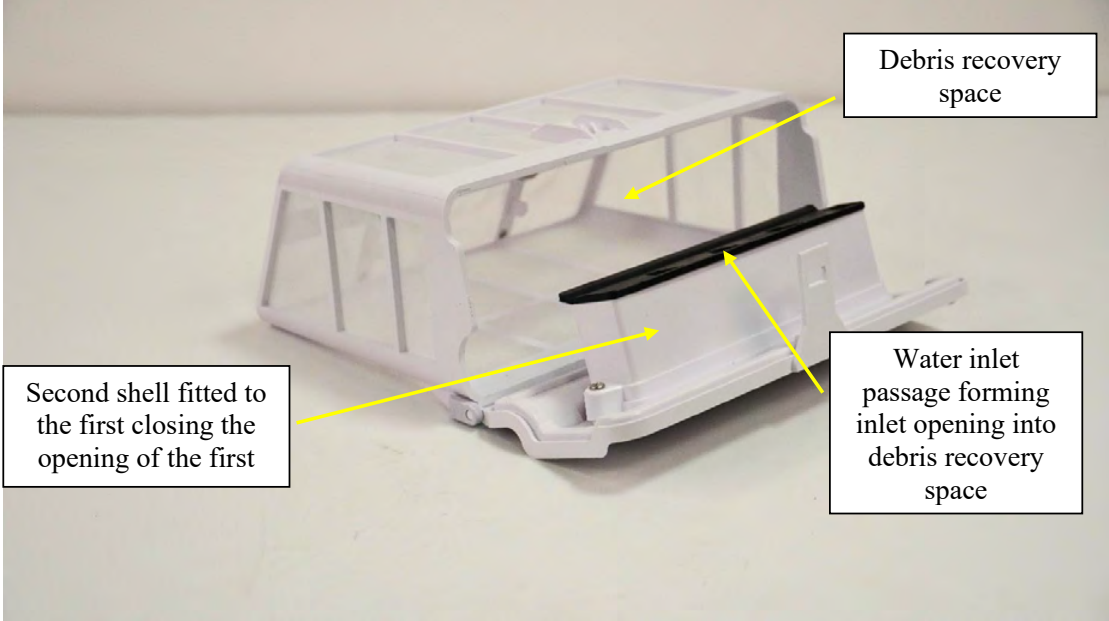
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
so as to define a debris recovery space in which debris entrained in water entering the opening is retained; and	 Debris recovery space First shell with an opening with a first cross section

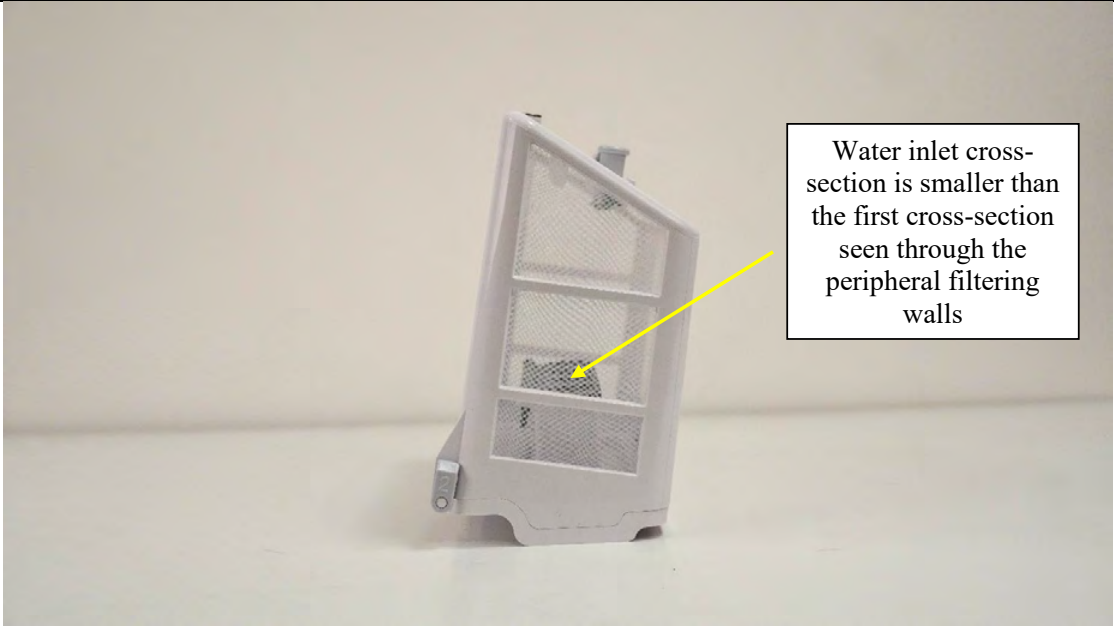
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 First shell with peripheral filtering walls defining a debris recovery space

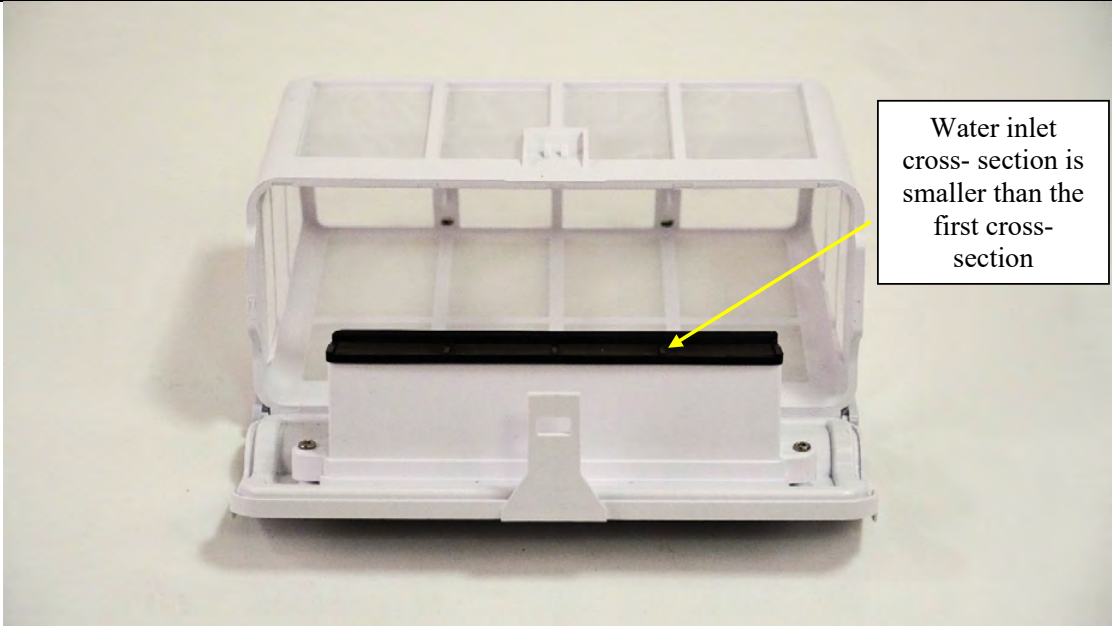
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 First shell with peripheral filtering walls defining a debris recovery space

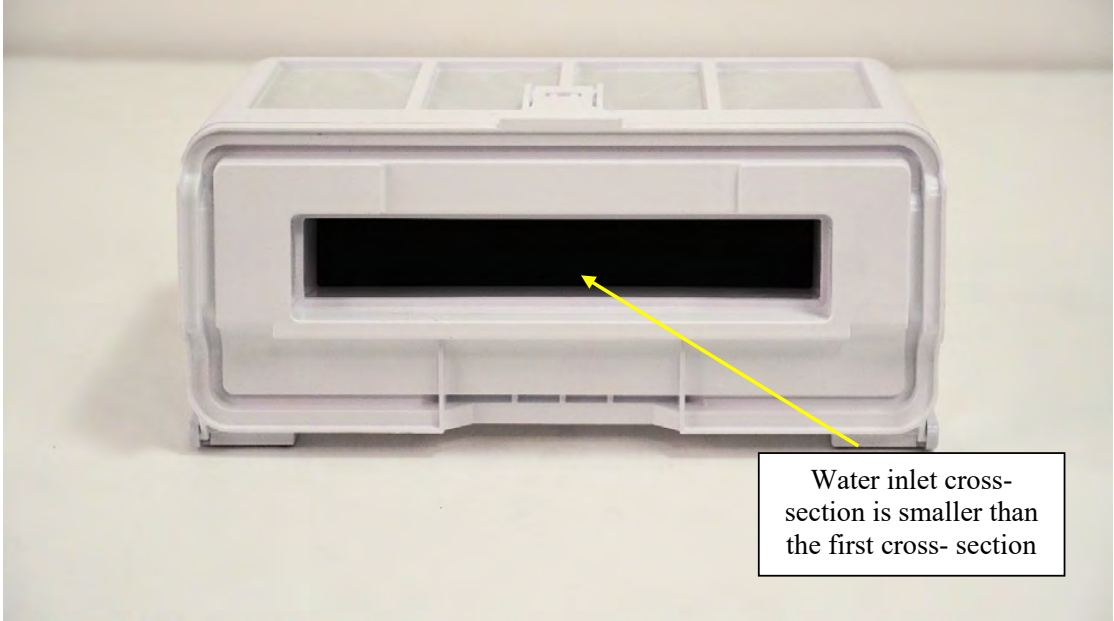
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Rear of the body First shell with peripheral filtering walls extending toward the rear of the body defining a debris recovery space
[Element 1(b)(ii)] (ii) a second shell fitted to the first shell so as to close the opening thereof except for a water inlet passage which forms a water inlet opening into the debris recovery space; and	The Wybot has a second shell fitted to the first shell that closes the opening except for a water inlet passage which forms a water inlet opening into the debris recovery space as shown in the exemplary images below.

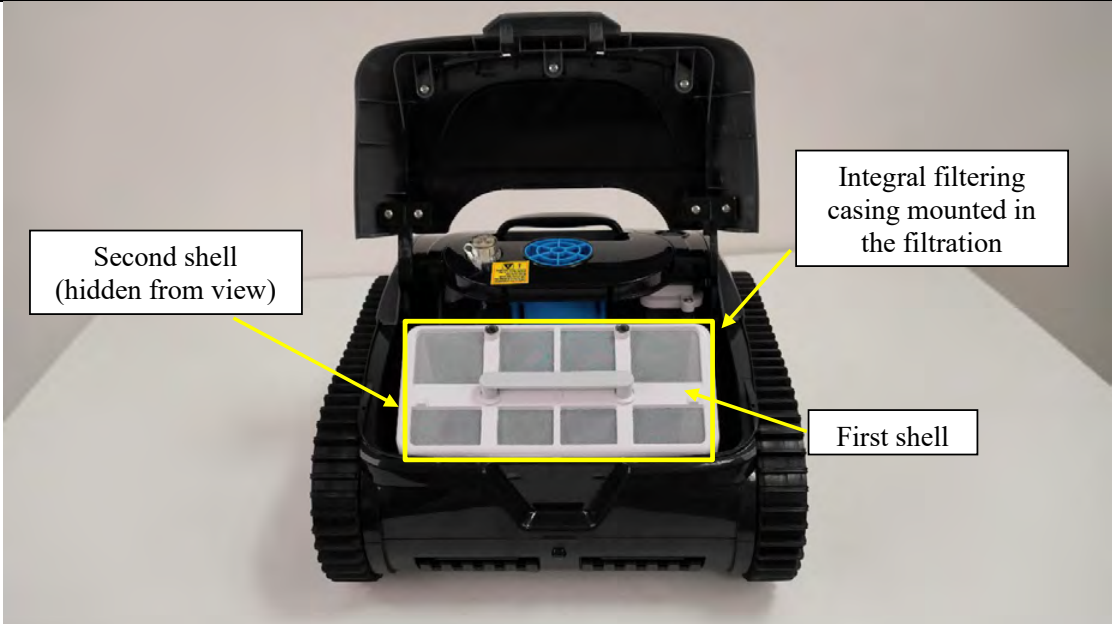
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 The diagram shows a perspective view of the Wybot C1 Cordless Robotic Cleaner. The device is white and has a rectangular, box-like shape. It is shown from a low angle, highlighting its base and the front panel. The front panel is slightly angled upwards. Three yellow arrows point to specific features: one points to the top of the front panel, another points to a narrow opening on the front panel, and a third points to the bottom of the front panel. Three text boxes with black borders and white backgrounds are connected to these arrows by yellow lines. The first text box, located at the top right, contains the text 'Debris recovery space'. The second text box, located in the middle right, contains the text 'Water inlet passage forming inlet opening into debris recovery space'. The third text box, located on the left side, contains the text 'Second shell fitted to the first closing the opening of the first'. Debris recovery space Water inlet passage forming inlet opening into debris recovery space Second shell fitted to the first closing the opening of the first

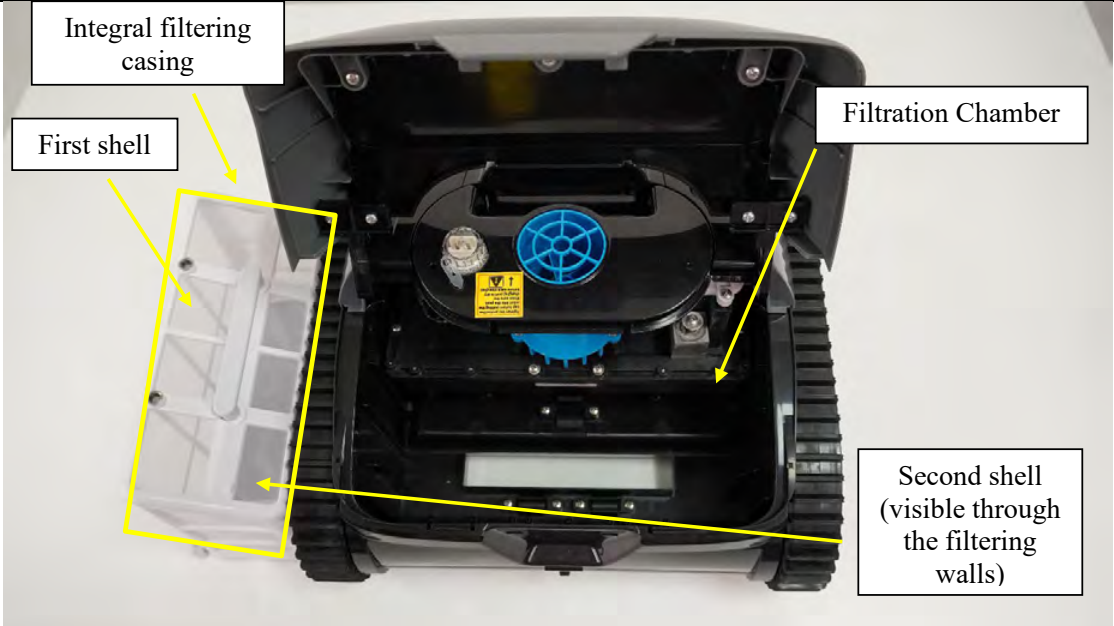
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	
[Element 1(c)(i)] in which (i) the water inlet opening has a smaller cross-section than the first cross-section,	The Wybot has a water inlet opening with a smaller cross-section than the first cross-section as shown in the exemplary images below (and above).

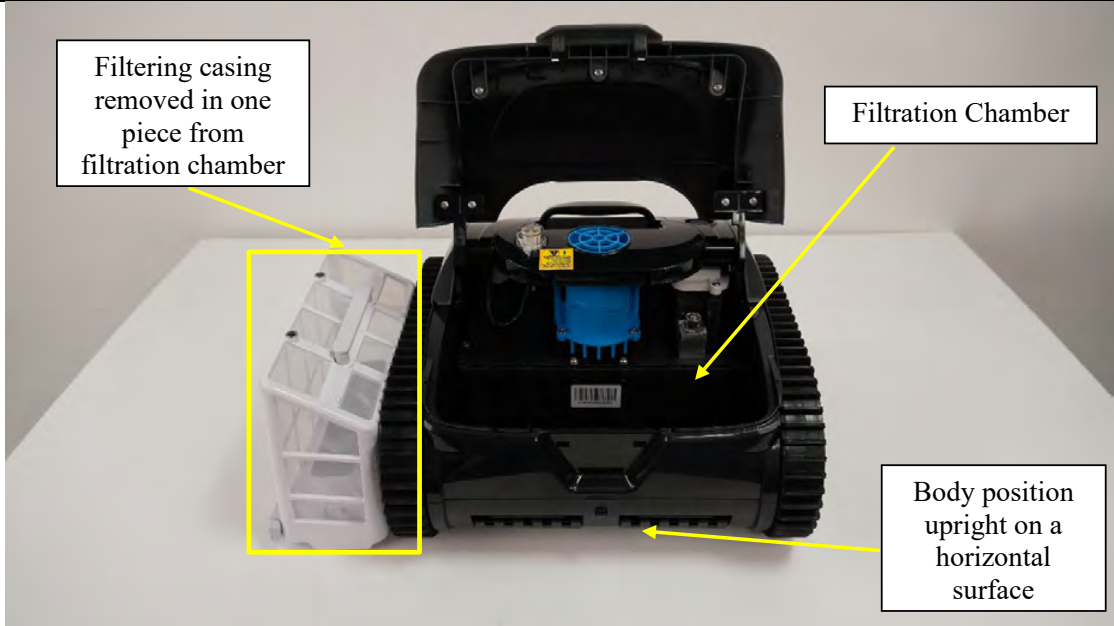
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Water inlet cross-section is smaller than the first cross-section seen through the peripheral filtering walls

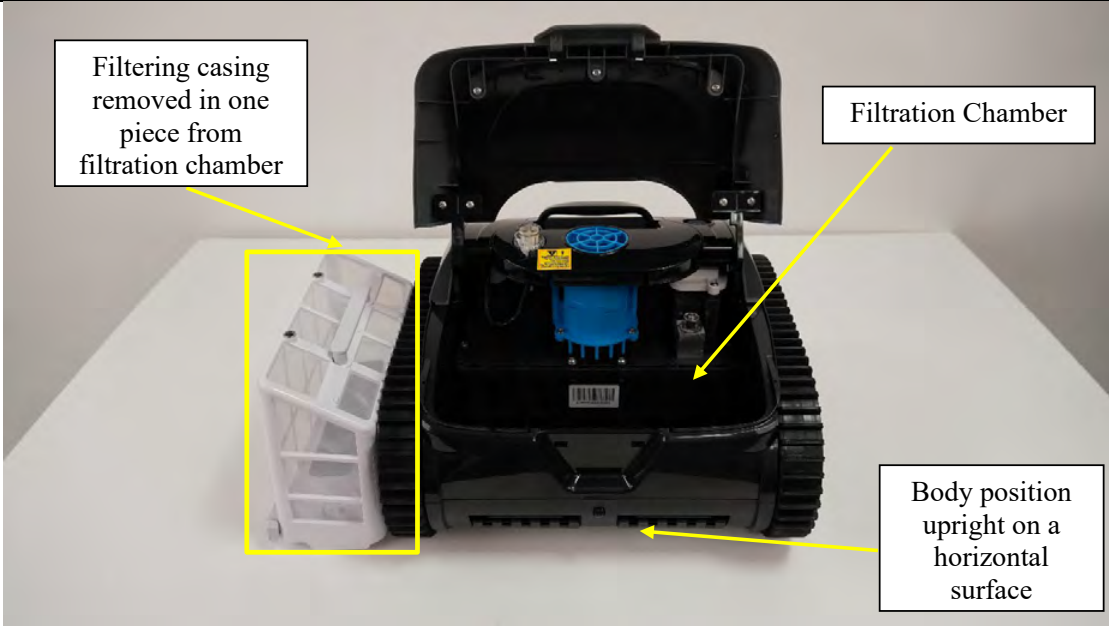
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Water inlet cross-section is smaller than the first cross-section

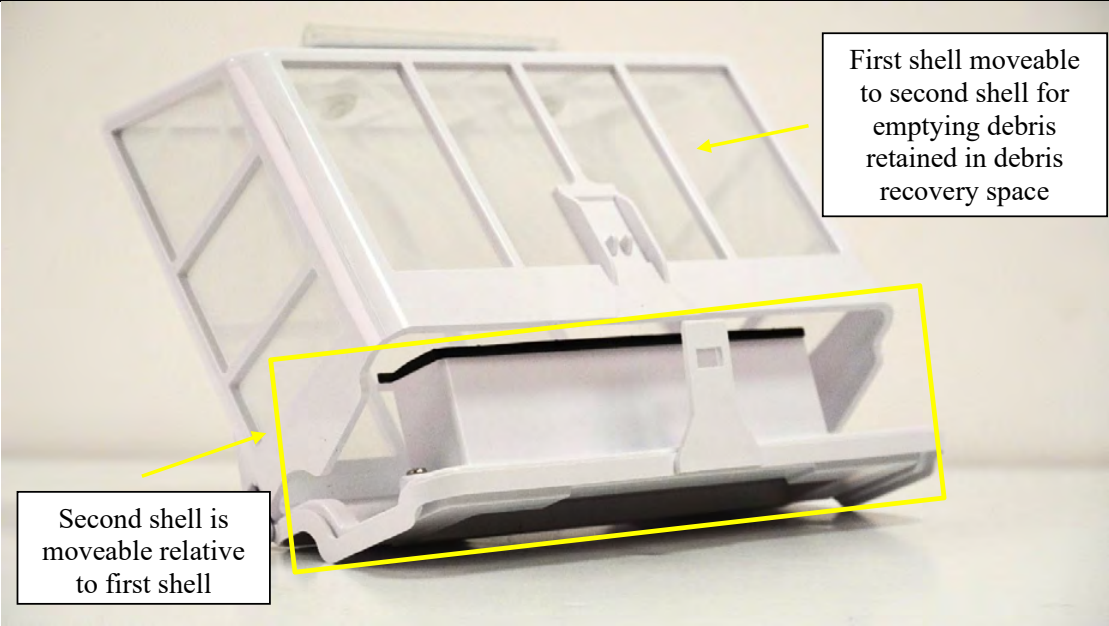
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Water inlet cross-section is smaller than the first cross-section
[Element 1(c)(ii)] (ii) the first and second shells are configured to be fitted together to form an integral filtering casing mounted in the filtration chamber,	The Wybot has the first and second shells fitted together to form an integral filtering casing mounted in the filtration chamber as shown in the exemplary images below.

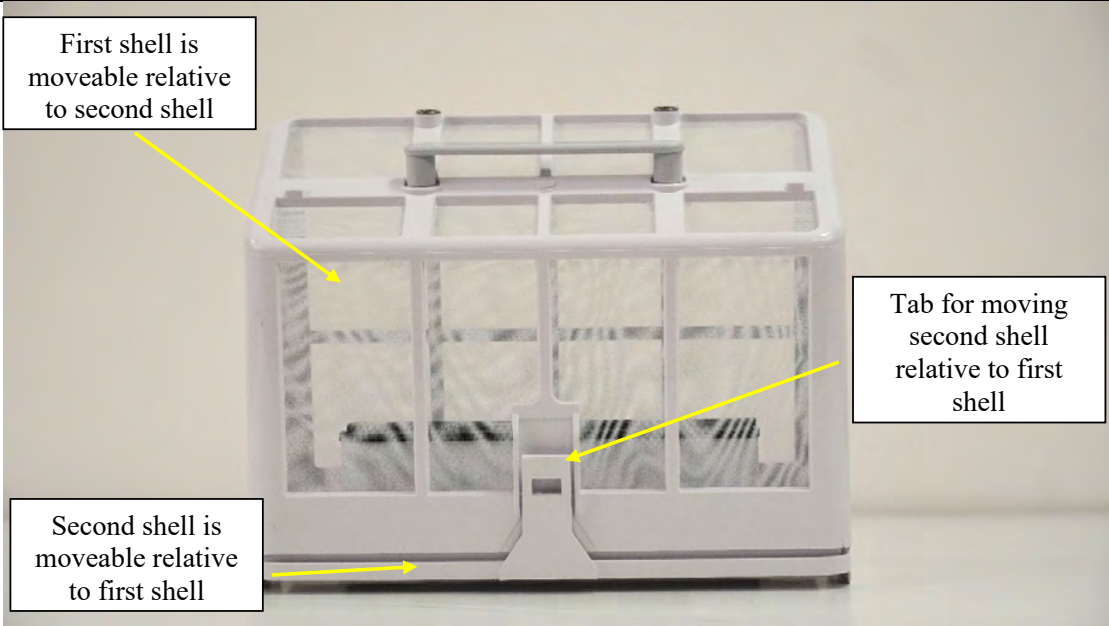
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Second shell (hidden from view) Integral filtering casing mounted in the filtration First shell

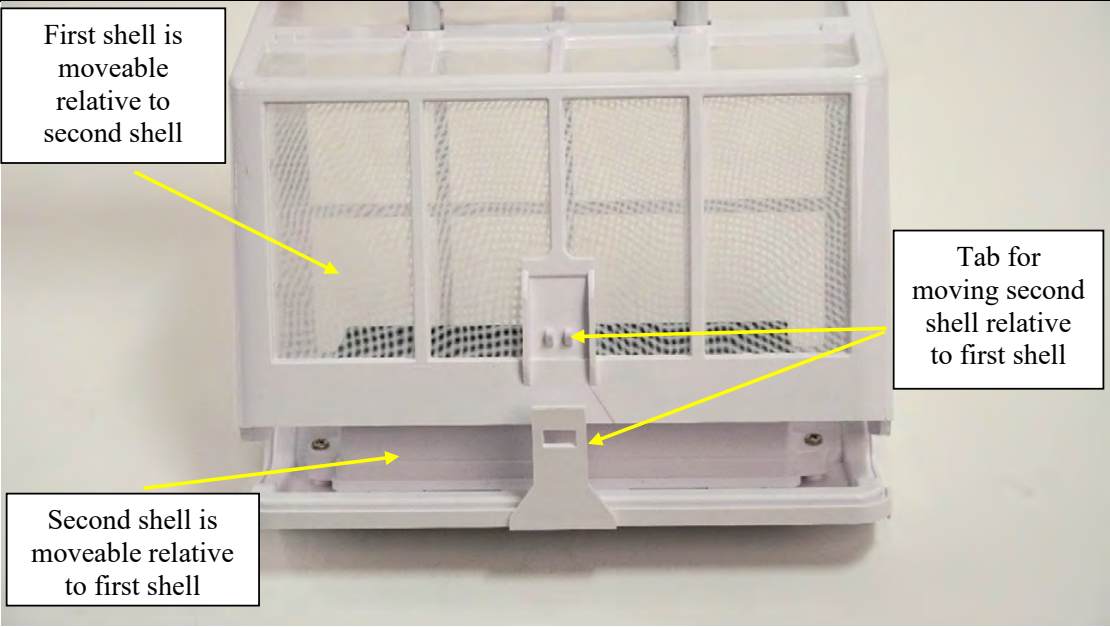
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Integral filtering casing First shell Filtration Chamber Second shell (visible through the filtering walls)
[Element 1(c)(iii)] (iii) the filtering casing is removable in one piece from the filtration chamber when the body is positioned upright on a horizontal surface, and	The Wybot has a filtering casing that is removable in one piece from the filtration chamber when the body is positioned upright on a horizontal surface as shown in the exemplary images below.

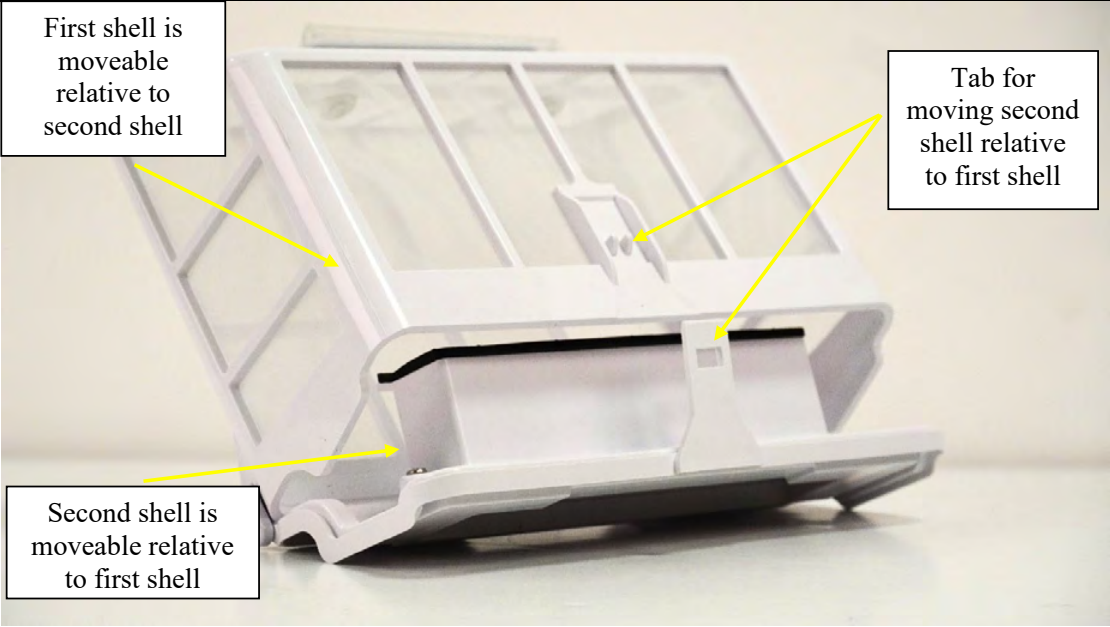
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 Filtering casing removed in one piece from filtration chamber Filtration Chamber Body position upright on a horizontal surface
[Element 1(c)(iv)] (iv) when the filtering casing is removed in one piece from the filtration chamber of the body, one of the first and second shells may be movable relative to the other for	The Wybot has a filtering casing that, when removed in one piece from the filtration chamber of the body, has one of the first and second shells able to move relative to the other for emptying debris retained in the debris recovery space as shown in the exemplary images below:

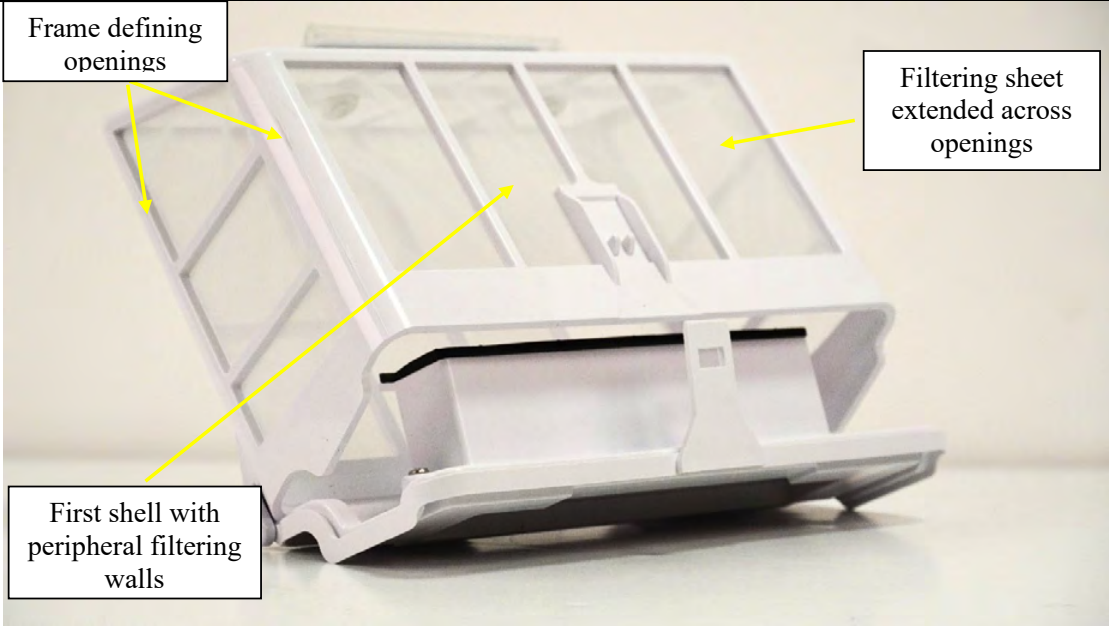
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
emptying debris retained in the debris recovery space.	 Filtering casing removed in one piece from filtration chamber Filtration Chamber Body position upright on a horizontal surface

'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	
[Element 2] A swimming pool cleaner according to claim 1 in which, when the filtering casing is removed in one piece from the filtration chamber of the body, one of the first and second	The Wybot has a filtering casing that, when removed in one piece from the filtration chamber of the body, one of the first and second shells is able to move relative to the other without the use of a tool. For example, the two shells move relative to one another when the user opens the tab, which allows the shells to separate without the use of a tool. This is shown in the exemplary images below.

'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
shells may be movable relative to the other without use of any tool.	 First shell is moveable relative to second shell Tab for moving second shell relative to first shell Second shell is moveable relative to first shell

'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 First shell is moveable relative to second shell Tab for moving second shell relative to first shell Second shell is moveable relative to first shell

'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	 First shell is moveable relative to second shell Tab for moving second shell relative to first shell Second shell is moveable relative to first shell
[Element 3] A swimming pool cleaner according to claim 1 in which the first shell comprises (a) a frame defining openings and (b) a filtering sheet extending across	The Wybot has a first shell with a frame defining opening and a filtering sheet extending across the openings, which at least partially forms the peripheral filtering walls as shown in the exemplary images below.

'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
the openings, the frame and filtering sheet at least partially forming the peripheral filtering walls.	 Frame defining openings Filtering sheet extended across openings First shell with peripheral filtering walls
[Element 4] A swimming pool cleaner according to claim 1 in which at least one of the first and second shells comprises a handle.	The Wybot has at least a first shell with a handle as shown in the exemplary images below.

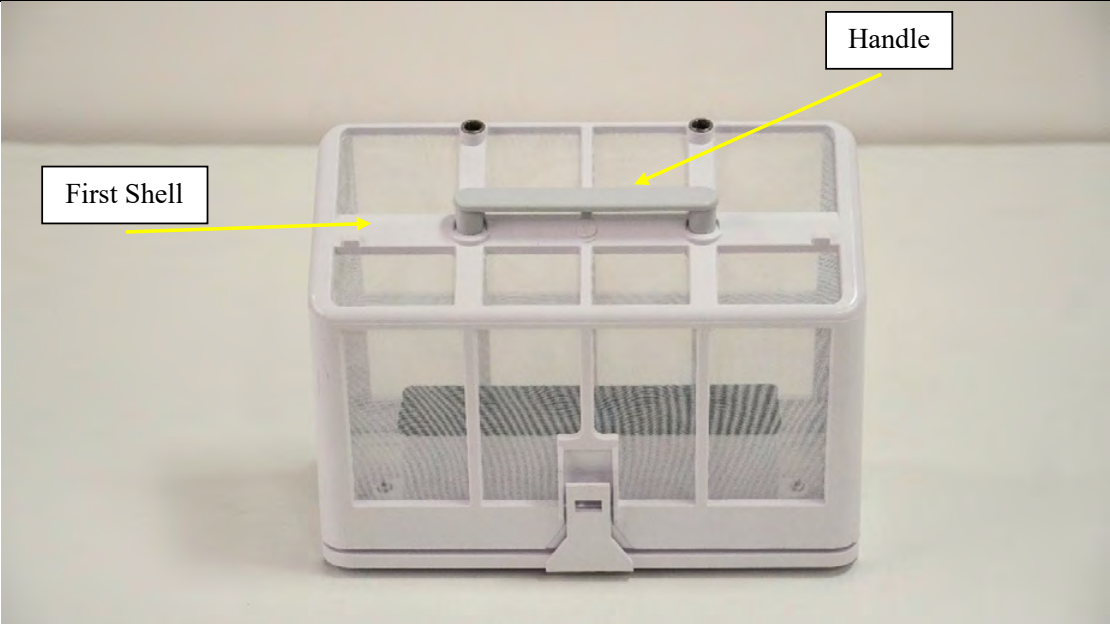
'031 Patent Claim Limitations	Wybot C1 Cordless Robotic Cleaner
	

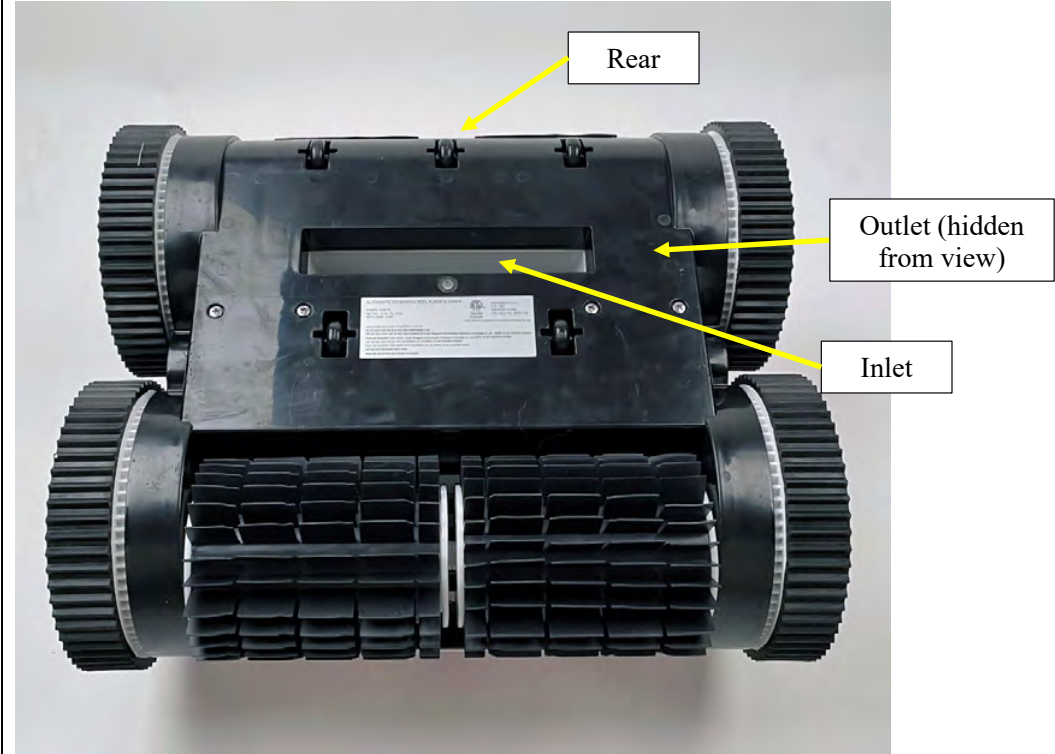
EXHIBIT 14

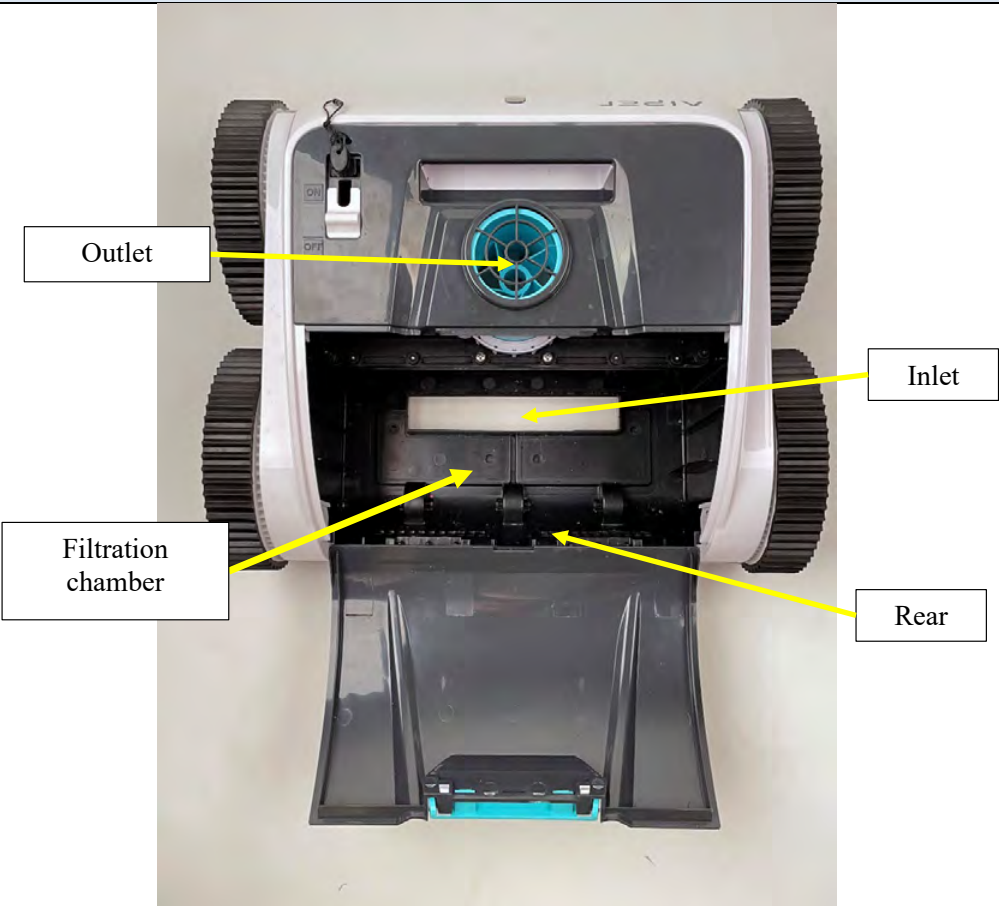
Infringement of U.S. Patent No. 8,393,031 by Wybotics HJ3172

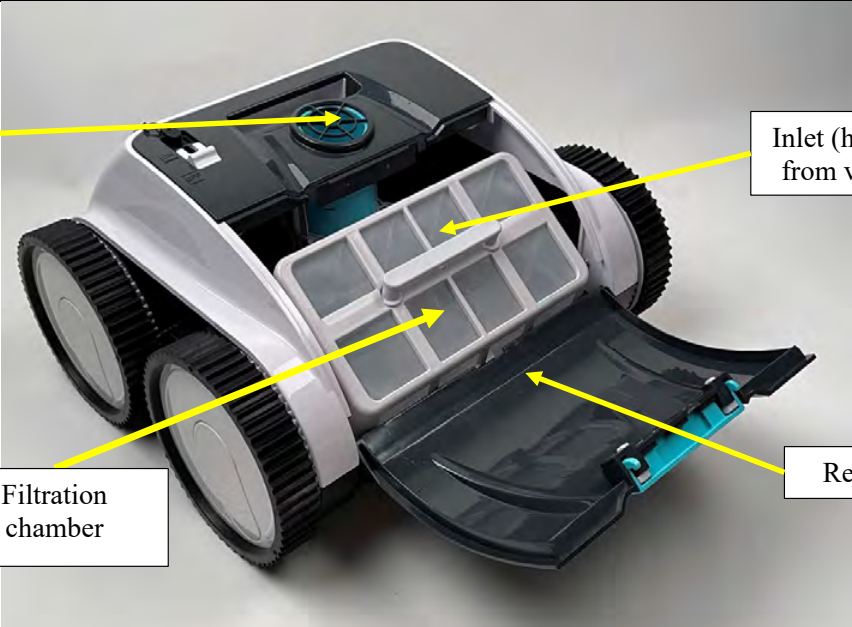
Claims Charted: 1, 2, 3, 4.

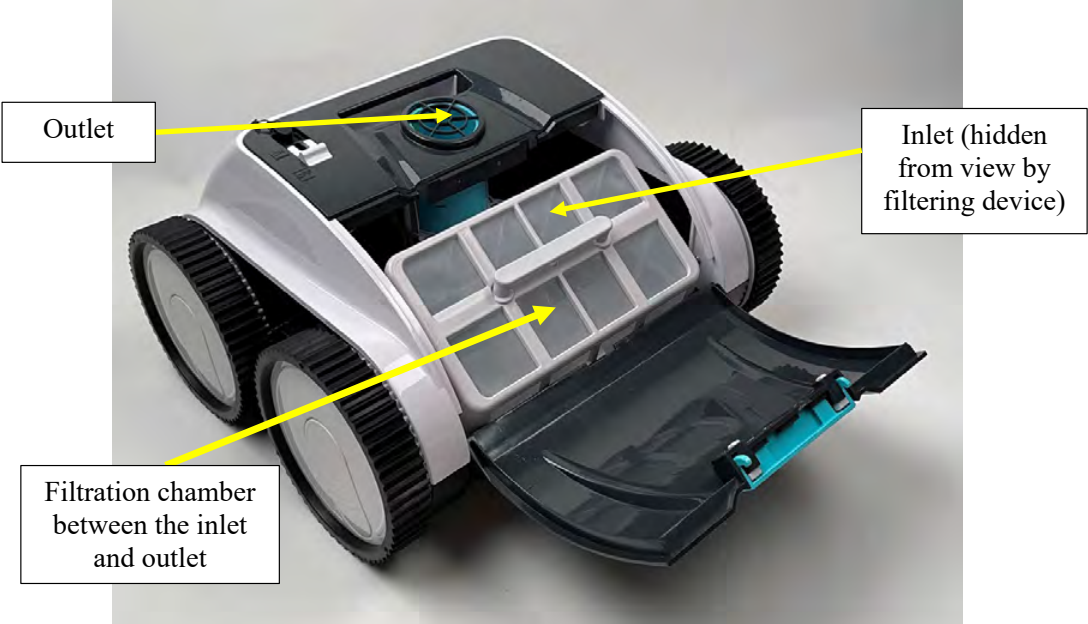
'031 Patent Claim Limitations	Wybotics HJ3172
[Element 1 Preamble] A swimming pool cleaner comprising:	To the extent the preamble is limiting, Wybotics HJ3172 (“HJ3172”) is a swimming pool cleaner as shown in the exemplary images below.  A photograph of a white and black swimming pool cleaner robot. The robot has a white upper body with the word "AIPER" printed on it. It has two large, black, treaded wheels on the sides and a central black brush or roller assembly. The robot is shown from a front-three-quarter view on a light-colored surface.

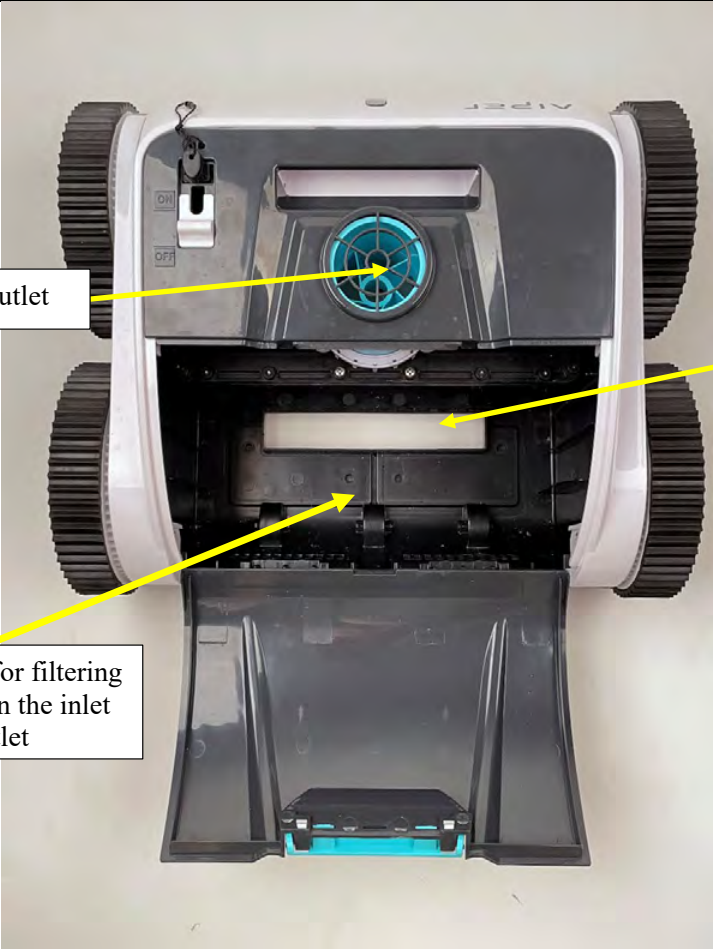
'031 Patent Claim Limitations	Wybotics HJ3172
	 

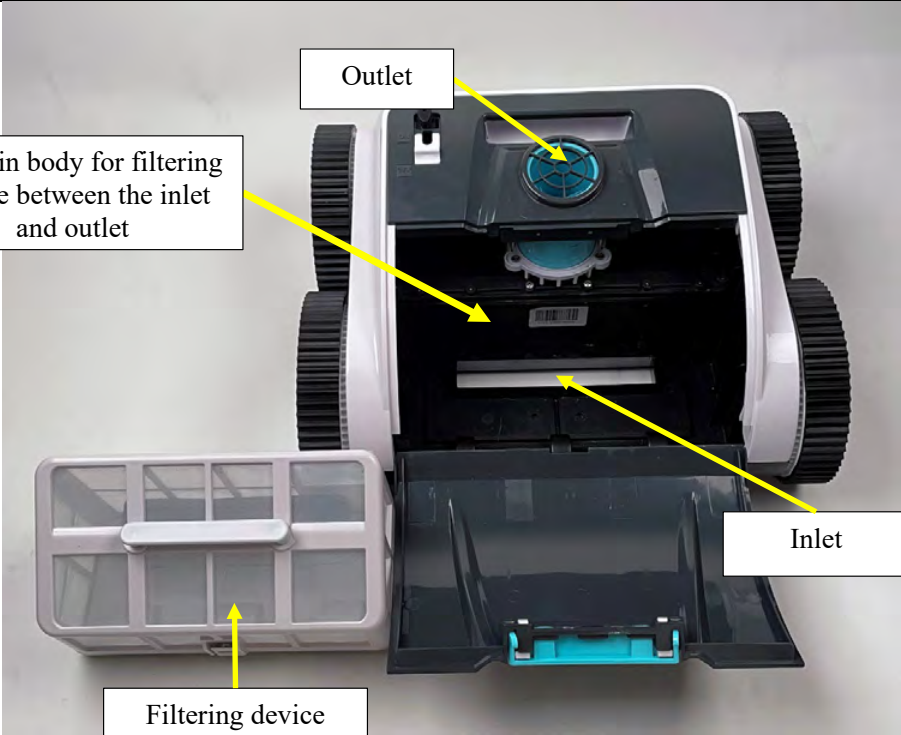
'031 Patent Claim Limitations	Wybotics HJ3172
[Element 1(a)] a body comprising an inlet, an outlet, a filtration chamber, and a rear;	The HJ3172 has a body comprising an inlet, an outlet, a filtration chamber, and a rear as shown in the exemplary images below:  The image shows a top-down view of the Wybotics HJ3172 robot. It is a rectangular, black, autonomous underwater vehicle (AUV) with four large, treaded wheels. A central rectangular opening on the top surface is labeled 'Inlet' with a yellow arrow. To the right of this opening, a small circular feature is labeled 'Outlet (hidden from view)' with a yellow arrow. At the rear of the device, a small rectangular protrusion is labeled 'Rear' with a yellow arrow. A white label with technical specifications is visible on the top surface, centered below the inlet.

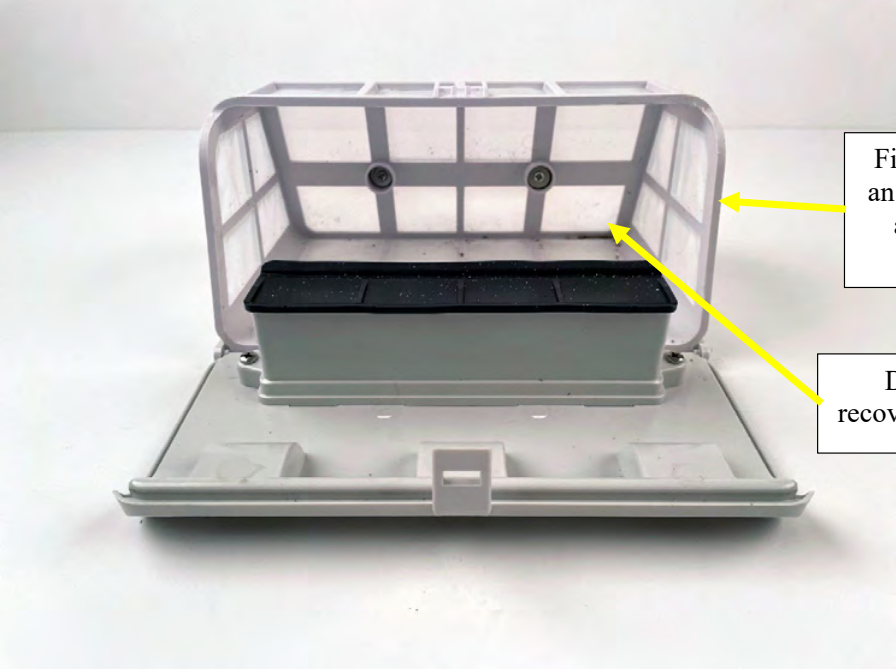
'031 Patent Claim Limitations	Wybotics HJ3172
	 The image shows a top-down view of the Wybotics HJ3172 robotic pool cleaner. The device is white with black tracks. A central blue fan is labeled 'Outlet'. Below the fan is a rectangular white filter labeled 'Inlet'. Below the filter is a black rectangular component labeled 'Filtration chamber'. The rear of the device is labeled 'Rear'. Yellow arrows point from the labels to the corresponding parts of the device.

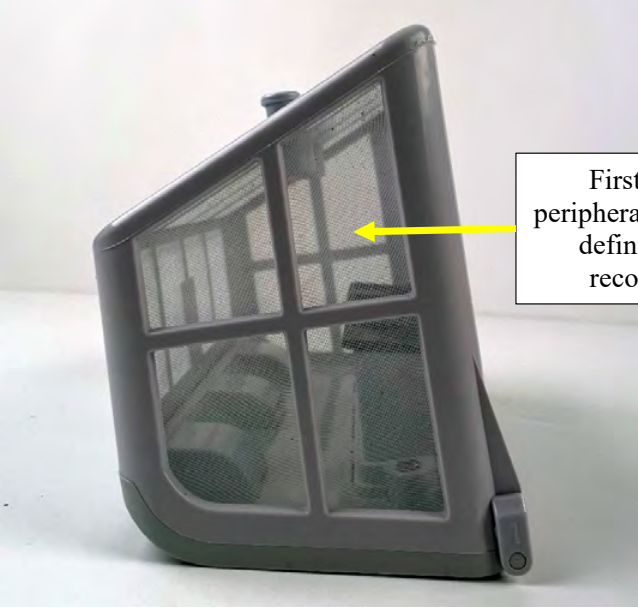
'031 Patent Claim Limitations	Wybotics HJ3172
	
[Element 1(b)] a filtering device positioned between the inlet and the outlet and comprising:	The HJ3172 has a filtering device positioned between the inlet and the outlet as shown in the exemplary images below.

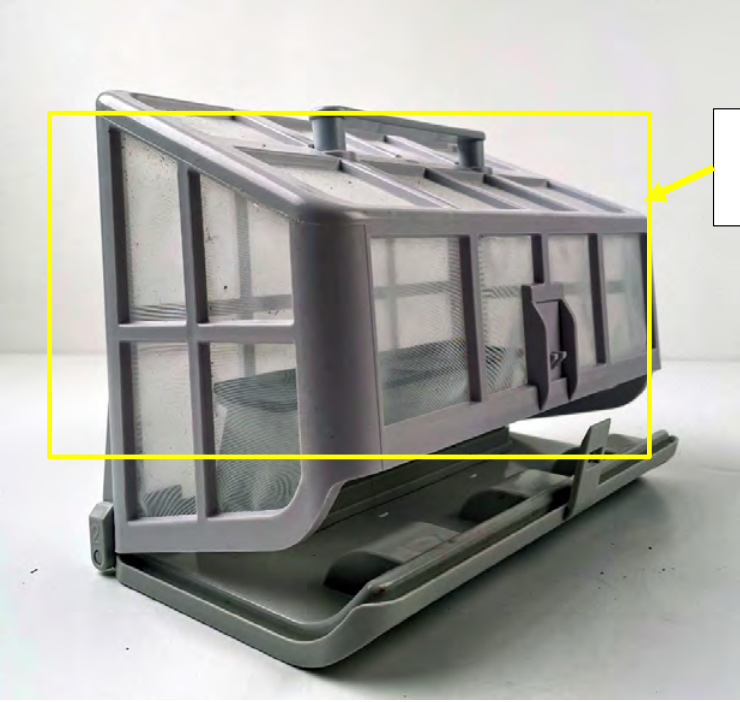
'031 Patent Claim Limitations	Wybotics HJ3172
	 The diagram shows a top-down view of the Wybotics HJ3172, a small, white, tracked cleaning robot. The robot has a central white rectangular component with a grid pattern, which is the filtration chamber. A black circular port is located at the top of the robot, labeled 'Outlet'. A yellow arrow points from the 'Inlet (hidden from view by filtering device)' label to the bottom of the filtration chamber. Another yellow arrow points from the 'Filtration chamber between the inlet and outlet' label to the grid pattern. A third yellow arrow points from the 'Outlet' label to the black circular port. The robot is shown with its black tracks and a black plastic cover that is partially open.

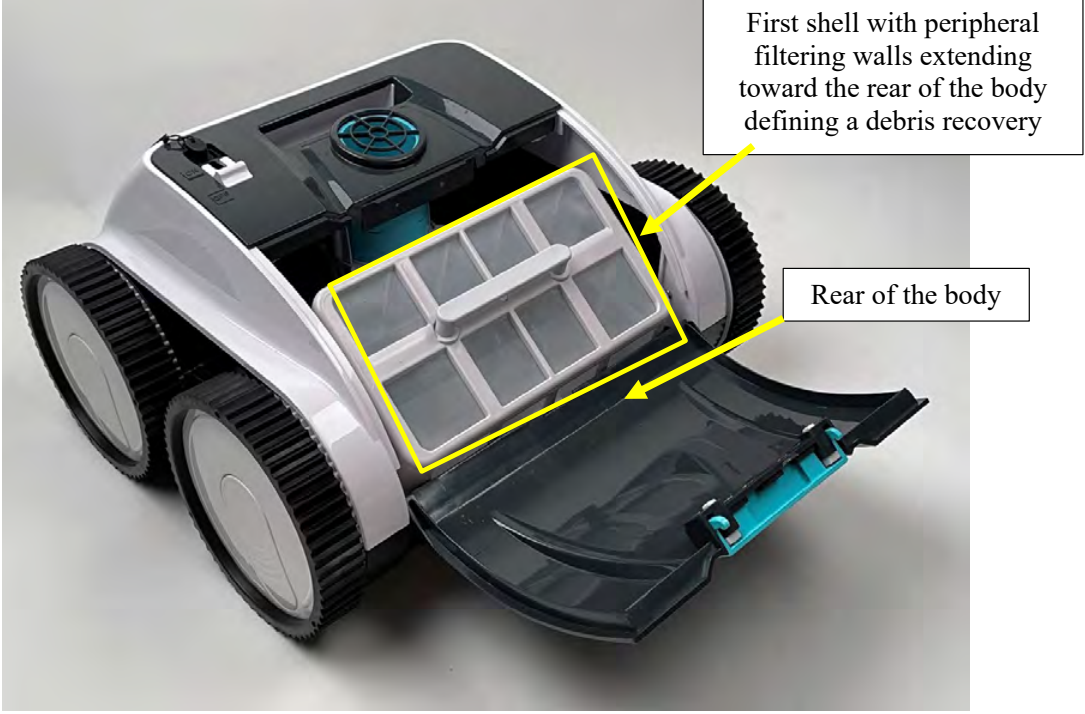
'031 Patent Claim Limitations	Wybotics HJ3172
	 Outlet Inlet Space in body for filtering device between the inlet and outlet The image shows a top-down view of a white and black robotic pool cleaner, the Wybotics HJ3172. The robot has four large, treaded wheels. In the center, there is a circular blue mesh filter. Below this, there is a rectangular white component. At the bottom, there is a black rectangular component. Three yellow arrows point from text boxes to these components: 'Outlet' points to the blue mesh filter, 'Inlet' points to the white rectangular component, and 'Space in body for filtering device between the inlet and outlet' points to the black rectangular component.

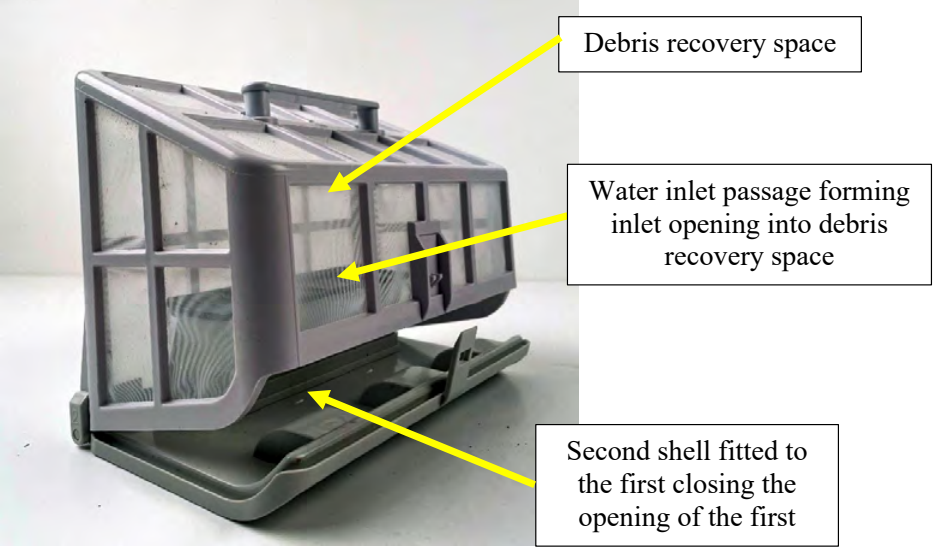
'031 Patent Claim Limitations	Wybotics HJ3172
	 The image shows the Wybotics HJ3172 robot from a top-down perspective. The robot is white with black tracks. A transparent plastic housing is shown detached from the front, revealing the internal components. Labels with yellow arrows point to specific parts: 'Outlet' points to a circular blue filter at the rear; 'Inlet' points to a rectangular opening at the front; 'Space in body for filtering device between the inlet and outlet' points to the internal cavity; and 'Filtering device removed from body' points to the detached transparent housing.
[Element 1(b)(i)] (i) a first shell having	The HJ3172 has a first shell with an opening of a first cross-section and peripheral filtering walls extending toward the rear of the body defining a debris recovery space in which debris entrained in water entering the opening is retained as shown in the exemplary images below.

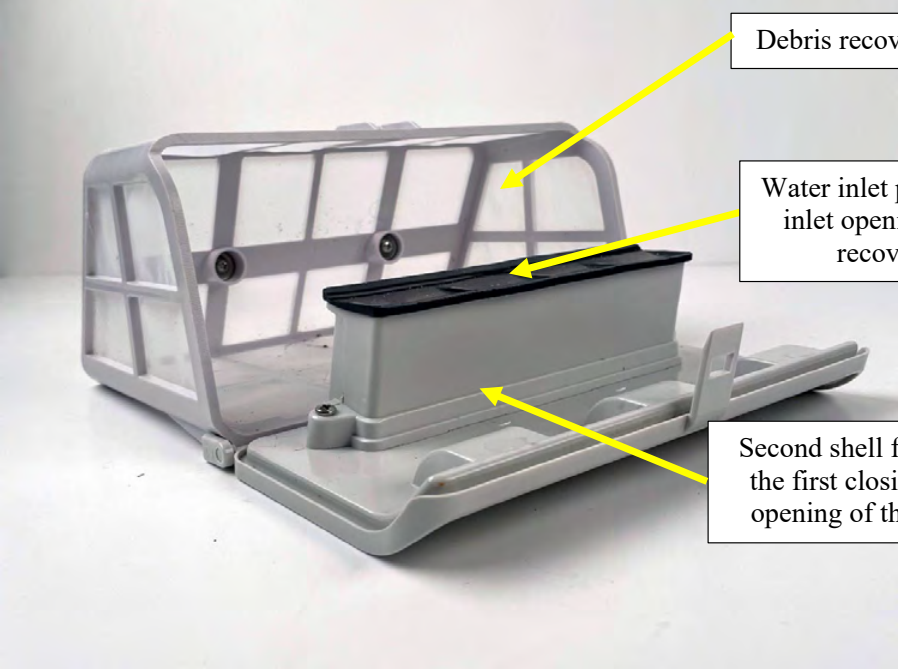
'031 Patent Claim Limitations	Wybotics HJ3172
(A) an opening with a first cross-section and (B) peripheral filtering walls extending toward the rear of the body so as to define a debris recovery space in which debris entrained in water entering the opening is retained; and	 First shell with an opening with a first cross section Debris recovery space

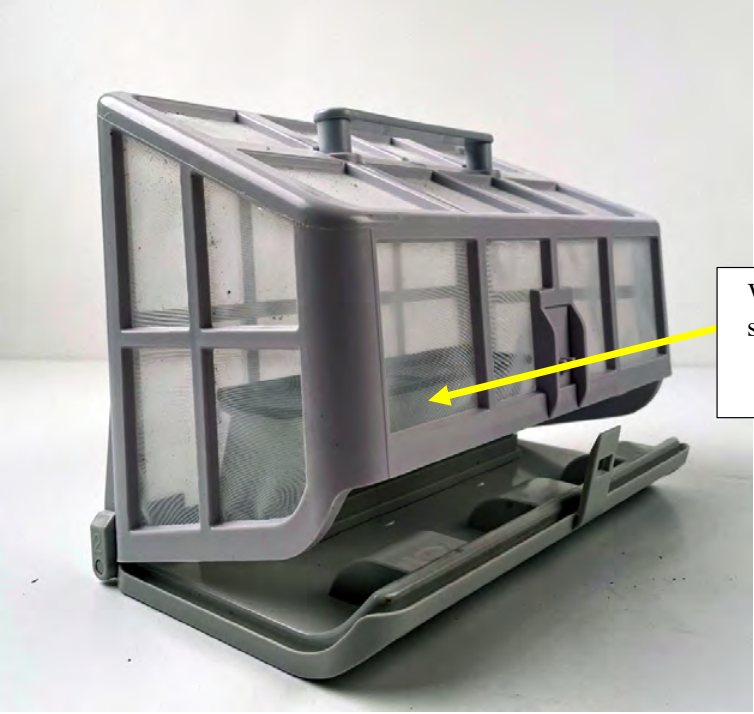
'031 Patent Claim Limitations	Wybotics HJ3172
	 First shell with peripheral filtering walls defining a debris recovery space

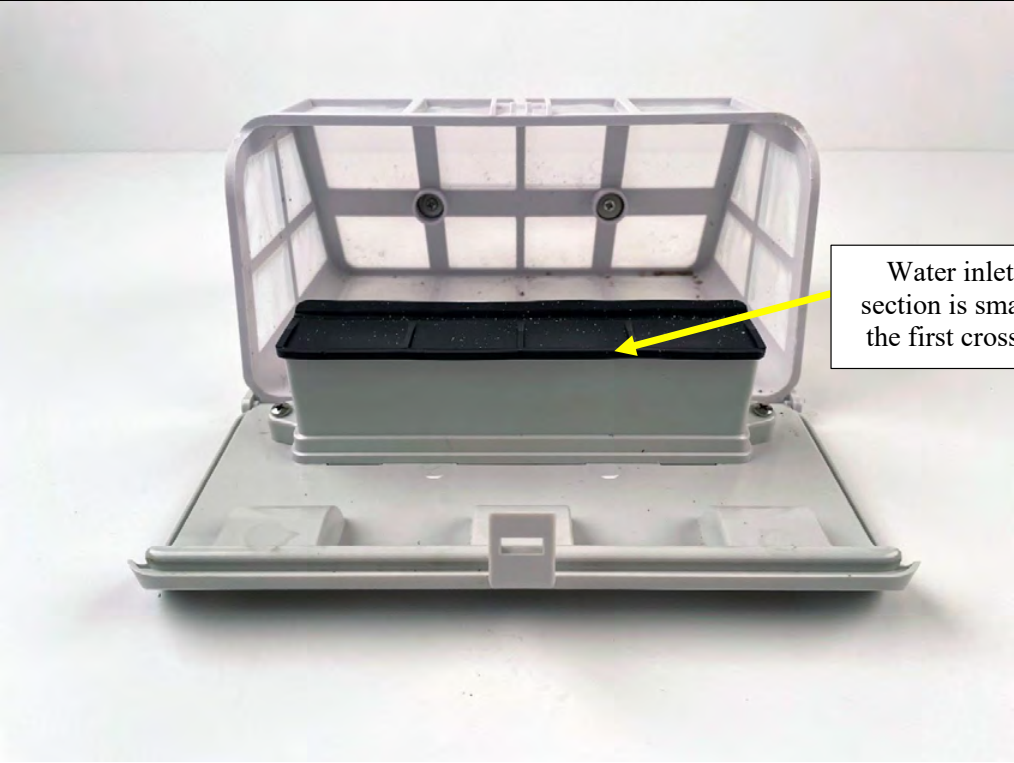
'031 Patent Claim Limitations	Wybotics HJ3172
	 First shell with peripheral filtering walls defining a debris recovery space

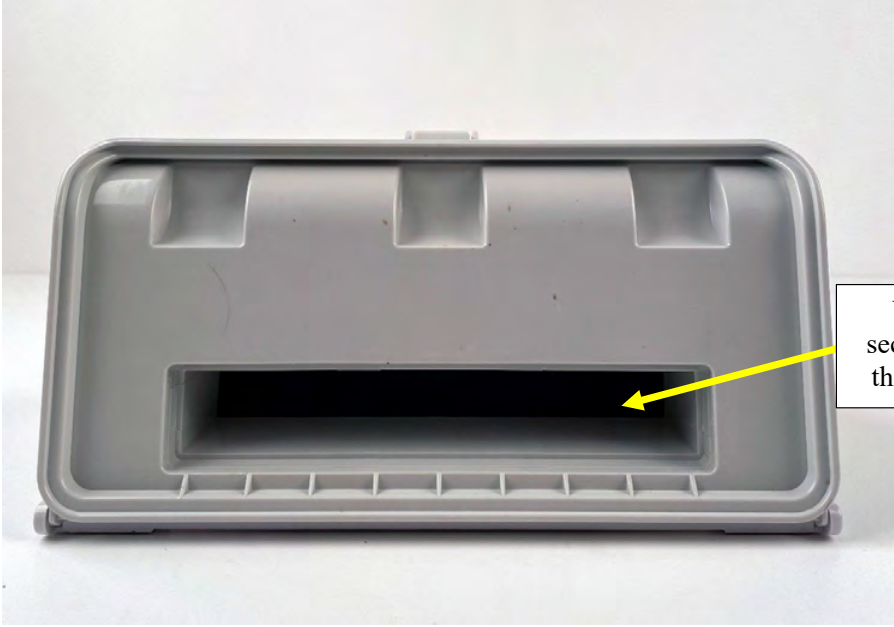
'031 Patent Claim Limitations	Wybotics HJ3172
	 First shell with peripheral filtering walls extending toward the rear of the body defining a debris recovery Rear of the body
[Element 1(b)(ii)] (ii) a second shell fitted to the first shell so as to close the opening thereof except for a water inlet passage which forms a water inlet	The HJ3172 has a second shell fitted to the first shell that closes the opening except for a water inlet passage which forms a water inlet opening into the debris recovery space as shown in the exemplary images below.

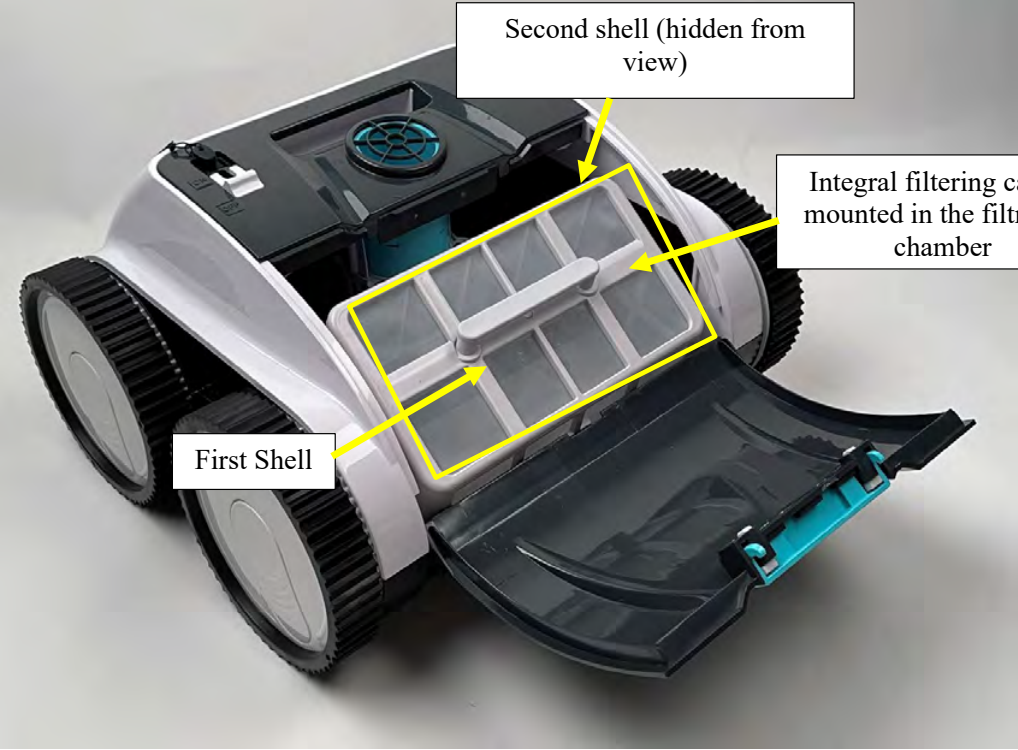
'031 Patent Claim Limitations	Wybotics HJ3172
opening into the debris recovery space; and	 The diagram shows a perspective view of the Wybotics HJ3172 debris recovery system. It consists of a main housing with a slanted front panel and a base. A second shell is shown fitting into the bottom of the housing. Three yellow arrows point to specific features: the top interior space, the water inlet passage, and the second shell. - Debris recovery space - Water inlet passage forming inlet opening into debris recovery space - Second shell fitted to the first closing the opening of the first

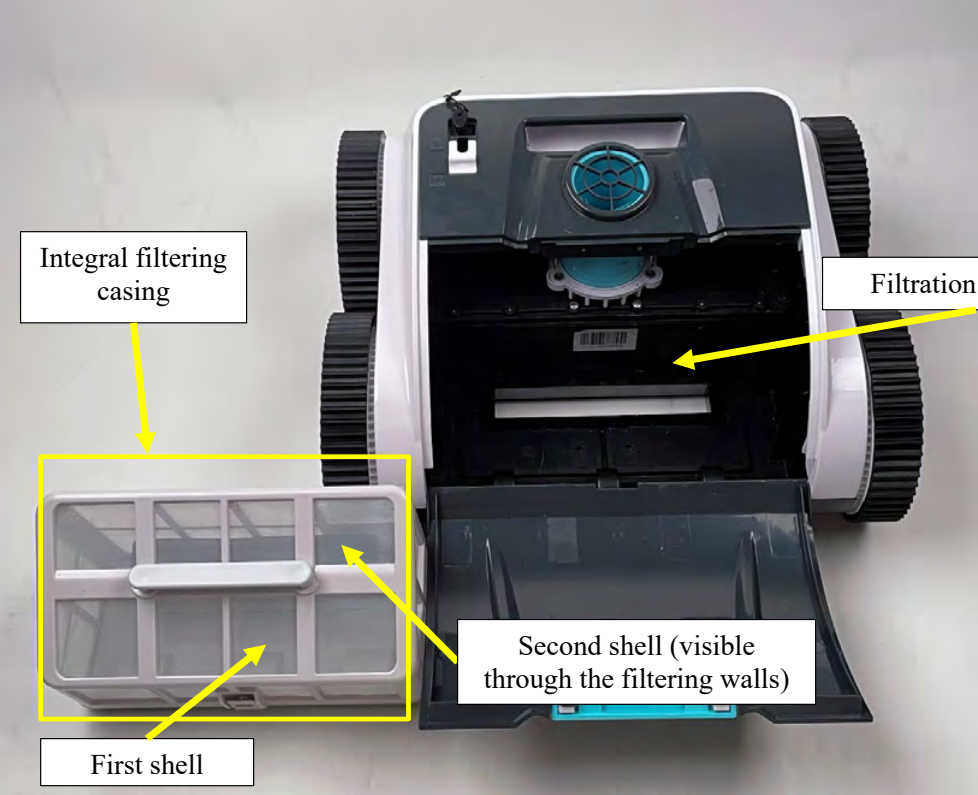
'031 Patent Claim Limitations	Wybotics HJ3172
	 Debris recovery space Water inlet passage forming inlet opening into debris recovery space Second shell fitted to the first closing the opening of the first
[Element 1(c)(i)] in which (i) the water inlet opening has a smaller cross-section than the first cross-section,	The HJ3172 has a water inlet opening with a smaller cross-section than the first cross-section as shown in the exemplary images below (and above).

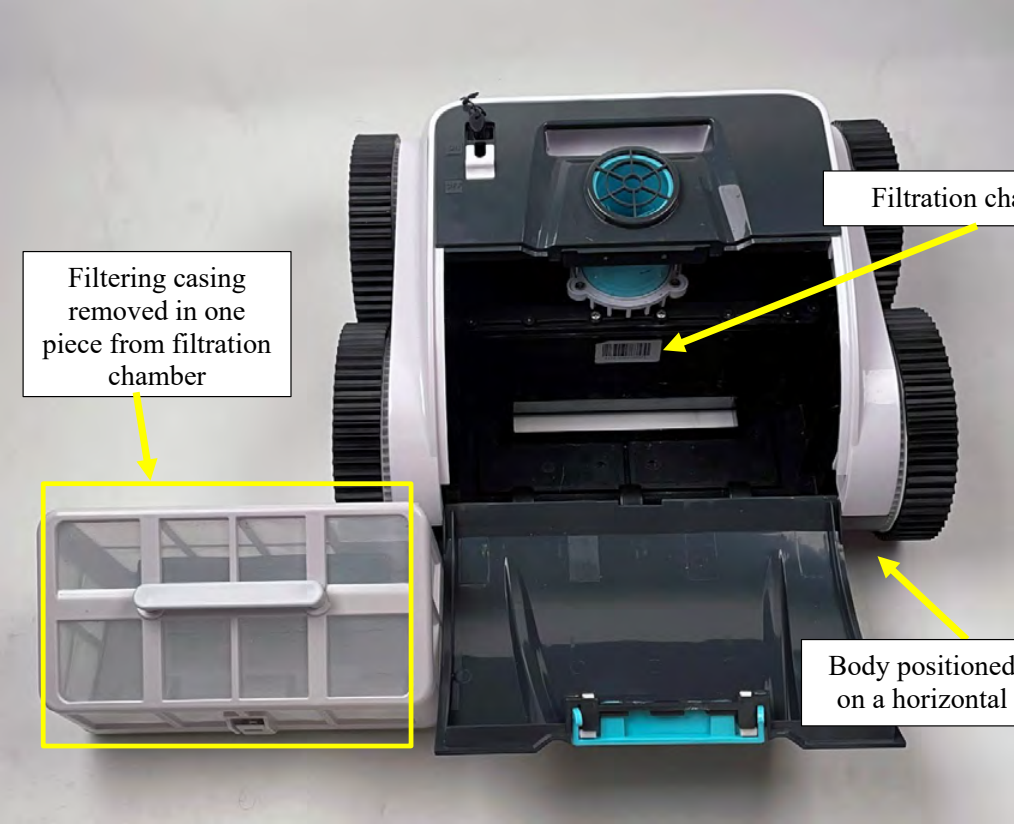
'031 Patent Claim Limitations	Wybotics HJ3172
	 Water inlet cross-section is smaller than the first cross-section seen through the peripheral filtering walls

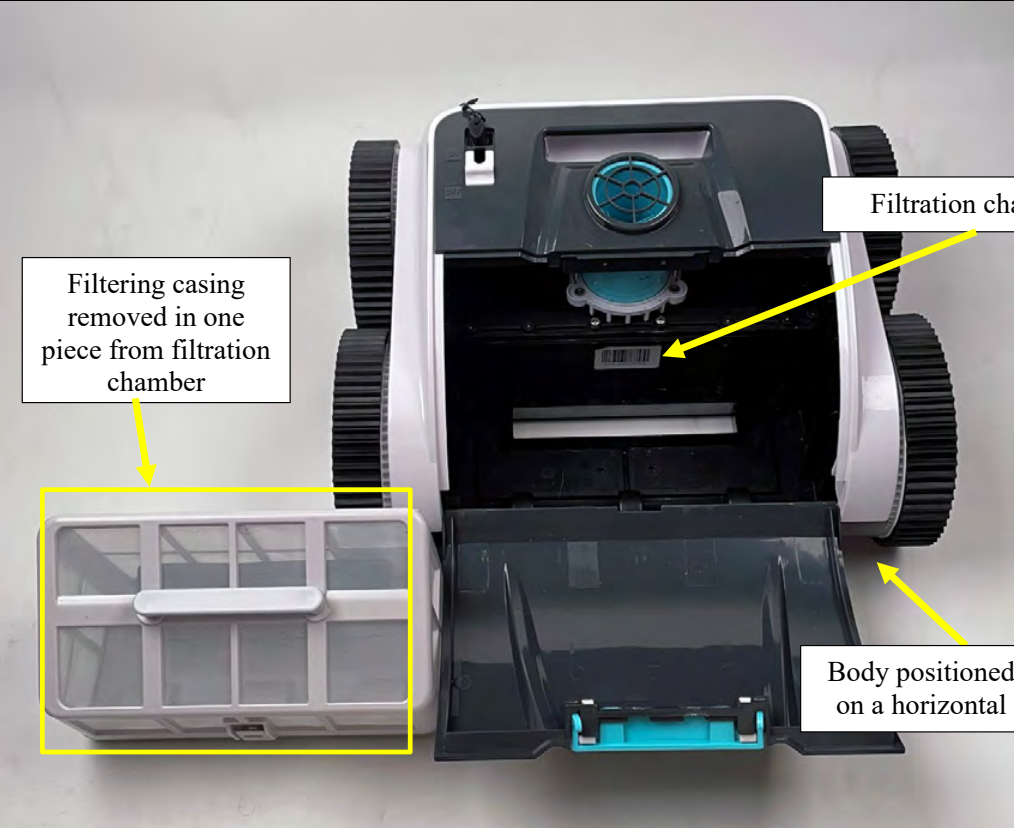
'031 Patent Claim Limitations	Wybotics HJ3172
	 Water inlet cross-section is smaller than the first cross-section

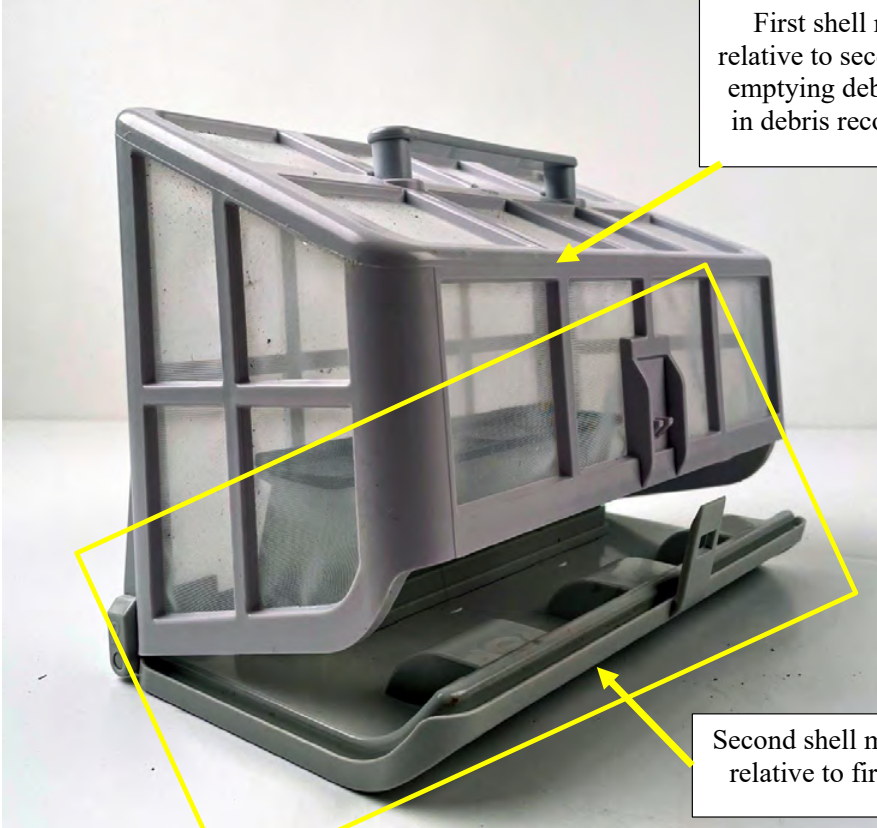
'031 Patent Claim Limitations	Wybotics HJ3172
	 Water inlet cross-section is smaller than the first cross-section
[Element 1(c)(ii)] (ii) the first and second shells are configured to be fitted together to form an integral filtering casing mounted in the filtration chamber,	The HJ3172 has the first and second shells fitted together to form an integral filtering casing mounted in the filtration chamber as shown in the exemplary images below.

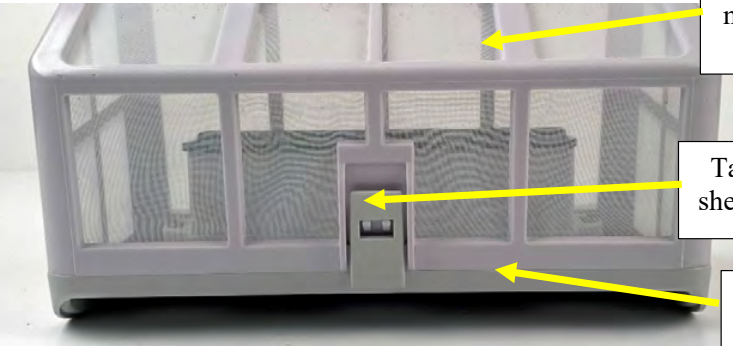
'031 Patent Claim Limitations	Wybotics HJ3172
	 Second shell (hidden from view) Integral filtering casing mounted in the filtration chamber First Shell

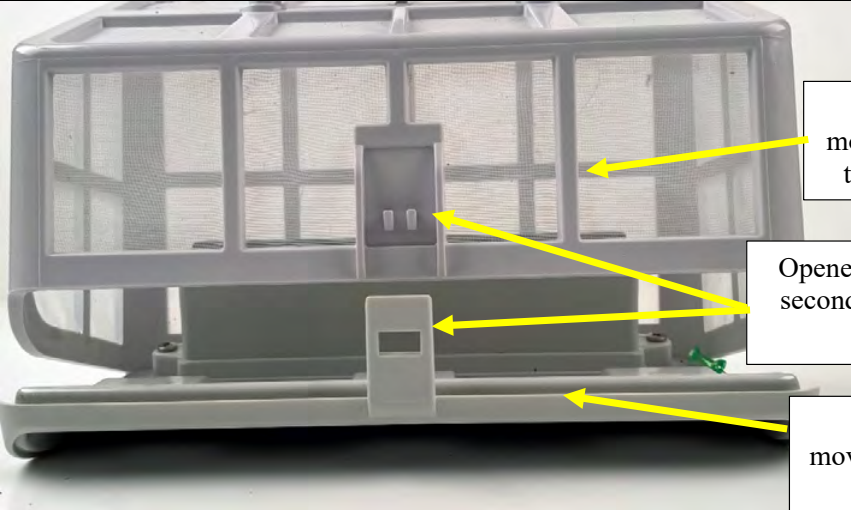
'031 Patent Claim Limitations	Wybotics HJ3172
	 Integral filtering casing Filtration chamber Second shell (visible through the filtering walls) First shell
[Element 1(c)(iii)] (iii) the filtering casing is removable in one piece from the filtration chamber when the	The HJ3172 has a filtering casing that is removable in one piece from the filtration chamber when the body is positioned upright on a horizontal surface as shown in the exemplary images below.

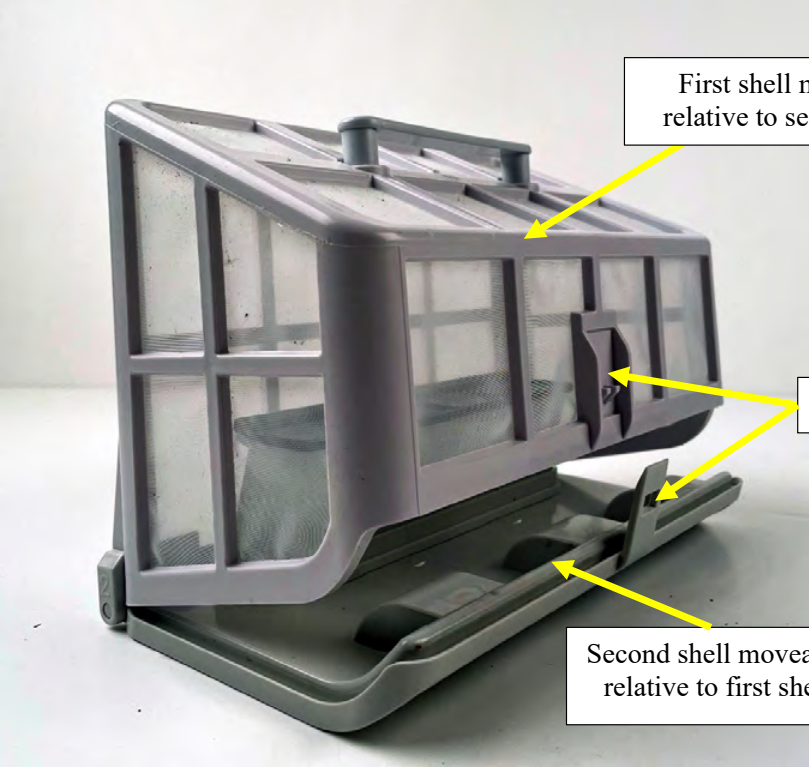
'031 Patent Claim Limitations	Wybotics HJ3172
body is positioned upright on a horizontal surface, and	 Filtration chamber Filtering casing removed in one piece from filtration chamber Body positioned upright on a horizontal surface
[Element 1(c)(iv)] (iv) when the filtering casing is removed in one piece from the	The HJ3172 has a filtering casing that, when removed in one piece from the filtration chamber of the body, has one of the first and second shells able to move relative to the other for emptying debris retained in the debris recovery space as shown in the exemplary images below:

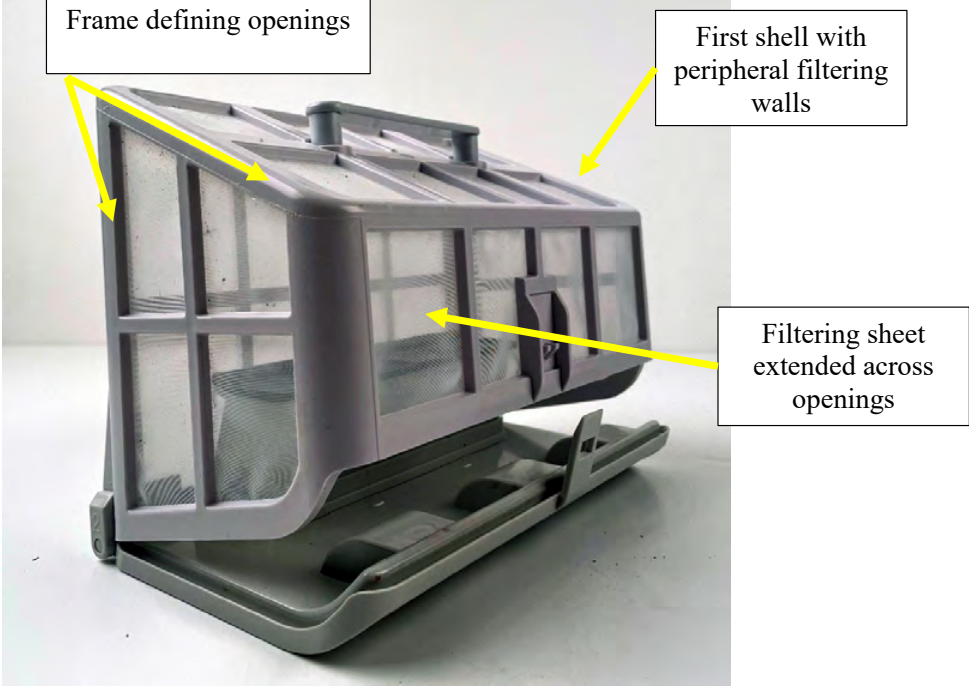
'031 Patent Claim Limitations	Wybotics HJ3172
filtration chamber of the body, one of the first and second shells may be movable relative to the other for emptying debris retained in the debris recovery space.	 Filtering casing removed in one piece from filtration chamber Filtration chamber Body positioned upright on a horizontal surface

'031 Patent Claim Limitations	Wybotics HJ3172
	 First shell moveable relative to second shell for emptying debris retained in debris recovery space Second shell moveable relative to first shell
[Element 2]	The HJ3172 has a filtering casing that, when removed in one piece from the filtration chamber of the body, one of the first and second shells is able to move relative to the other without the use of a tool. For example,

'031 Patent Claim Limitations	Wybotics HJ3172
A swimming pool cleaner according to claim 1 in which, when the filtering casing is removed in one piece from the filtration chamber of the body, one of the first and second shells may be moveable relative to the other without use of any tool.	the two shells move relative to one another when the user opens the tab, which allows the shells to separate without the use of a tool. This is shown in the exemplary images below.  First shell moveable relative to second shell Tab for moving second shell relative to first shell Second shell moveable relative to first shell

'031 Patent Claim Limitations	Wybotics HJ3172
	 The photograph shows a grey plastic device with a rectangular frame and a central vertical component. Three yellow arrows point from text boxes to specific parts of the device: - Top arrow: Points to the upper frame section. Text box: "First shell moveable relative to second shell". - Middle arrow: Points to a small tab on the central vertical component. Text box: "Opened tab for moving second shell relative to first shell". - Bottom arrow: Points to the lower base section. Text box: "Second shell moveable relative to first shell".

'031 Patent Claim Limitations	Wybotics HJ3172
	 First shell moveable relative to second shell Tab Second shell moveable relative to first shell
[Element 3] A swimming pool cleaner according to claim 1 in which the first shell comprises (a) a	The HJ3172 has a first shell with a frame defining opening and a filtering sheet extending across the openings, which at least partially forms the peripheral filtering walls as shown in the exemplary images below.

'031 Patent Claim Limitations	Wybotics HJ3172
frame defining openings and (b) a filtering sheet extending across the openings, the frame and filtering sheet at least partially forming the peripheral filtering walls.	
[Element 4] A swimming pool cleaner according to claim 1 in which at least one of the first and second shells comprises a handle.	The HJ3172 has at least a first shell with a handle as shown in the exemplary images below.

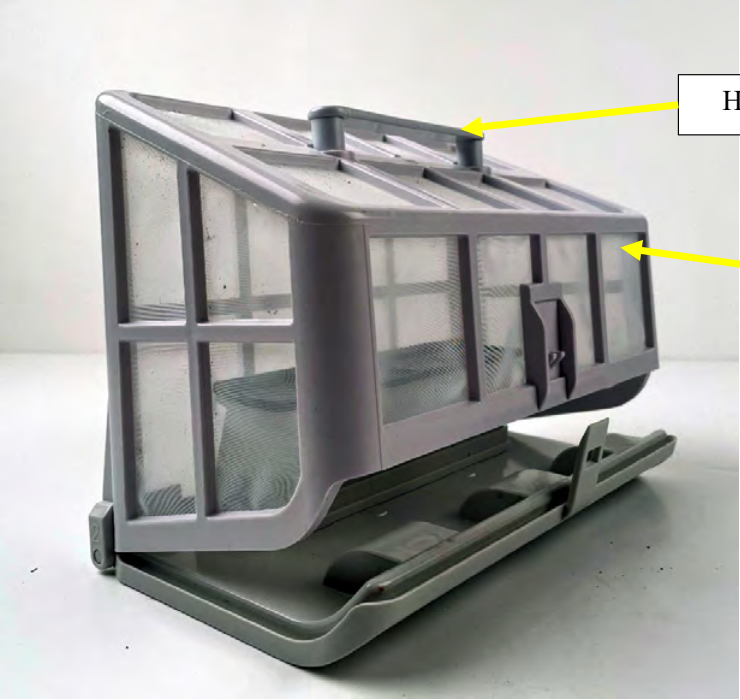
'031 Patent Claim Limitations	Wybotics HJ3172
	 Handle First shell

EXHIBIT 15



Notes

1. Fully charge the cleaner before first use; power off it after each use and then recharge it within 12 hours.
2. Fully charge and store the cleaner after use at the recommended temperature (5°C-35°C). Store the charger indoor.
3. Fully charge the cleaner every 6 months for battery maintenance if it needs to be stored for a long time.
4. Fully charge the cleaner before use if the cleaner has been stored for over 6 months.
5. Please use original charger only and charge the cleaner indoor.
6. Always keep the charging port dry.



Précautions importantes

1. Charger complètement le robot avant utilisation. L'éteindre après utilisation et le recharger sous 12 heures.
2. Stocker le robot complètement chargé, à une température entre 5°C et 35°C. Conserver le chargeur à l'abri à l'intérieur.
3. Recharger le robot tous les 6 mois lors d'un stockage de longue durée.
4. Recharger le robot avant utilisation après un stockage de longue durée.
5. Charger le robot à l'abri en utilisant uniquement le chargeur fourni.
6. Toujours garder le port de charge bien sec.



Dear Valued Customer

Thank you for choosing WYBOT. With WYBOT, you can spend more time swimming and enjoy the swimming pool, enjoy the pleasures brought by clear water, and clean the pool with less time and cost.

If you have any problems while using, or have any suggestions for improving the product. Please contact our customer service team, we will solve the problem for you as soon as possible! We will try our best to improve the product and user experience.



Contact Information:

Customer Service Email: support@wybotpool.com

We are committed to providing you with a fantastic pool-cleaning experience.



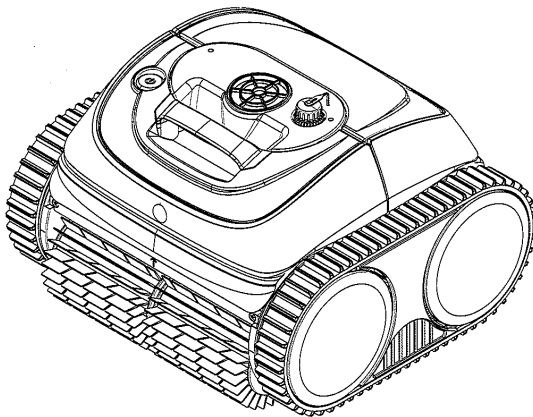
Best Regards,

WYBOT Pool Cleaner Robot

WYBOT

Robotic Pool Cleaner User Manual

WYBOT C1



Read through the entire manual before running your new robotic pool cleaner, and keep this manual handy for your reference.

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WYBOT

Thank you for choosing WYBOT products, your support means a lot to us. Continuous providing the best solution to free you up from pool cleaning and enjoy your family time is always our pursuit.

WYBOT Robotic Pool Cleaner is dedicated to serving you high efficiency, low power consumption, easy operation and thorough pool cleaning work.

Its unique appearance and reliable functions as one-button activation, powerful suction and scrubbing, fine filtration, smart navigation, remote control, and high compatibility with various pool shapes and constructions materials assure you a convenient, intelligent, and optimal pool cleaning.

Feel free to contact us by Email or visit our website with any questions. We are very glad to hear your advice on our continuous improvement.

Read the manual carefully before you use the cleaner. Your safety is the most important thing. Please read through and operate the device as per instructions, WYBOTICS Co., Ltd. is not held liable for any loss or injury caused by improper use.

Warning

Failure to operate the device as per the warnings can result in serious injury, electrocution or death.

1. Use only the accessories recommended or sold by WYBOTICS Co., Ltd.
2. Dry the charging port after each cleaning. Humidity charging socket may cause an electric shock.
3. Do not charge the cleaner when it is running (the indicator is on).
4. Use only the original and authorized power charger. Avoid charging any other devices with this charger. Improper use may result in overheating or corrosive liquid leakage from the battery.
5. Make sure the electrical outlet is protected by a ground fault circuit interrupter (GFCI) and an earth leakage interrupter (ELI).
6. Do not use a cord-damaged charger to avoid any electrical shock.
7. Do not try to use extension cord to connect the charger.
8. Never allow children to ride on the cleaner or play with it as a toy.
9. Do not allow child to operate or maintain the device.
10. Do not enter the pool when the cleaner is working in it.
11. Never expose or charge the device in flammable environments.
12. Only licensed professionals can disassemble the sealing parts of the cleaner.
13. Do not operate the cleaner while pool filter is running.

Caution

Failure to operate the device as per the cautions can cause a damage to the device or personal injury.

1. Charge the unit before first use.
2. Do not over charge the cleaner, which will reduce the battery life.
3. Charge the cleaner prior to being stored for a long time (over 6 months) to maintain an optimal battery life.
4. Remember to wash and clean the filter basket after each use.
5. Store the cleaner in a cool and ventilated place, away from direct sunshine or any heat source.
6. Use only the pool cleaner in the following water conditions:

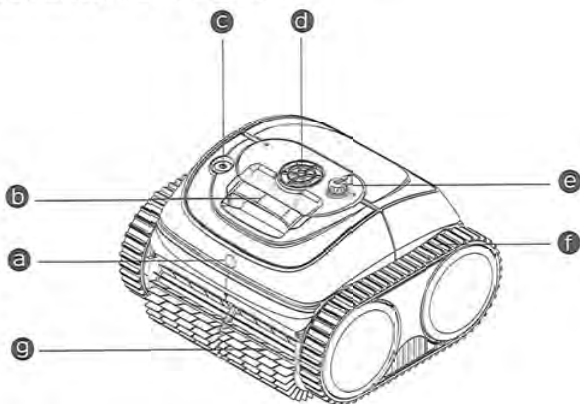
Chlorine	Max 4 mg/L
pH	7.0 - 7.8
Temperature	41 - 95 °F (5 - 35 °C)
NaCl	Maximum 5000 PPM

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WYBOT C1 AT A GLANCE

Product External Overview



a LED Indicator

Different light colors to indicate device status

b Handle

Remove and transport the device with it

c on/off Button

Turn on/off the device

d Pump

Suck debris and pump out water through the window

e Charging Port

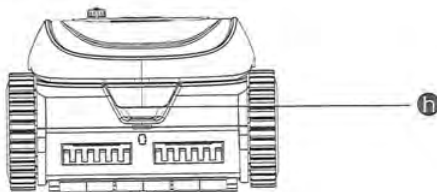
Connect the charging cable

f Track

Enhance device's capability in climbing walls and various obstacles

g Scrubbing Brush

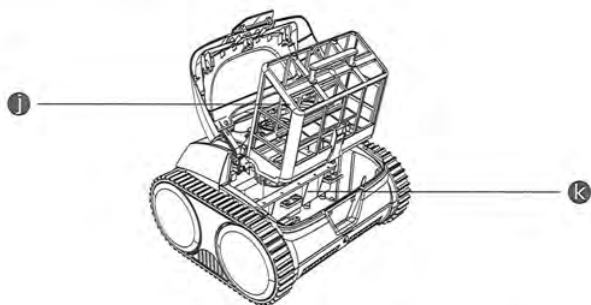
Knock loose all dirt and roll them all into the device



h Filter Cover Handle

Hold it and press the edge to open the cover

Product Internal Overview



j Filter Basket

Store collected dirt and debris, need be washed after each use.

k Sealed Part

Important components are sealed there. For your safety, do not try to disassemble it without authorization.

Do not operate the device when the top cover or scrubbing brushes are broken. If there is any liquid leakage from the sealing part, stop charging or running the device.

Packing List

 Device x 1	 Filter Basket x 1	 Quick Start Guide x 1	 User Manual x 1
 Floating Parts	 Charger x 1	 Hook x 1	

GET STARTED

Charge your new WYBOT C1

The device has a lithium-ion rechargeable battery, and you need to charge the battery before first use and when the battery is low.

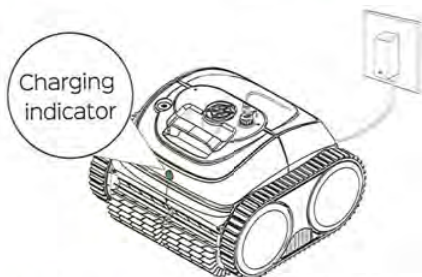
Connect your device to a power outlet using the included cable and adaptor.

Note:

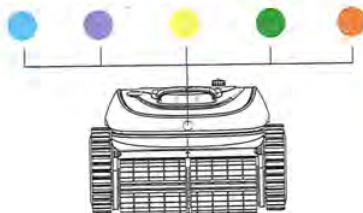
1. When charging, you should ensure your device at least 3m (appr. 10ft) away from the edge of the pool.
2. For reducing fire risk, keep your device and adaptor away from direct sunshine or water when charging.
3. For your important safety, you need to double check the device is powered off and the charging port is dry before charging.
4. The best charging environment is temperature at 32°F -95°F (0°C -35°C), RH at 5%-95%.

The adaptor has an indicator, which will display blue light indicating the power supply status.

The LED indicator in the front of the device will turn starting from a flashing yellow light to a flashing green light during charging, and turn a solid green light when fully charged.



Below is the indication of the LED lights, you may refer it to know different device status.



LED Light	Indication	Status
	Solid	Power On
	Flashing	Under working
	Solid	Connecting to App
	Flashing	Charging in progress, low battery or under self-parking in the pool
	Flashing	Charging in progress
	Solid	Fully charged
	Solid or flashing	Fault

Note:

1. When yellow light flashes, you should remove your device out of water and charge it.
2. If red LED light is on, you can find solution from trouble shooting in this manual or call for service.

Setup your new WYBOT C1

You can turn on the device by pressing the on/off button. The LED indicator on the front will display a solid  when the device is on.



Note:

The LED will continue a flashing  indicating low battery when powering on the device, and you should charge it immediately.

Connect to your App

You can download the WYBOT App to your smart mobile device by scanning QR code below, or from Google Play or App Store.

	iOS	Android
	iOS 15.0 or later	Android 8.0 or later

Choose your cleaning mode

After connecting to your App, you can preset a suitable cleaning mode for your device. There are 5 cleaning modes, and you can see details below.

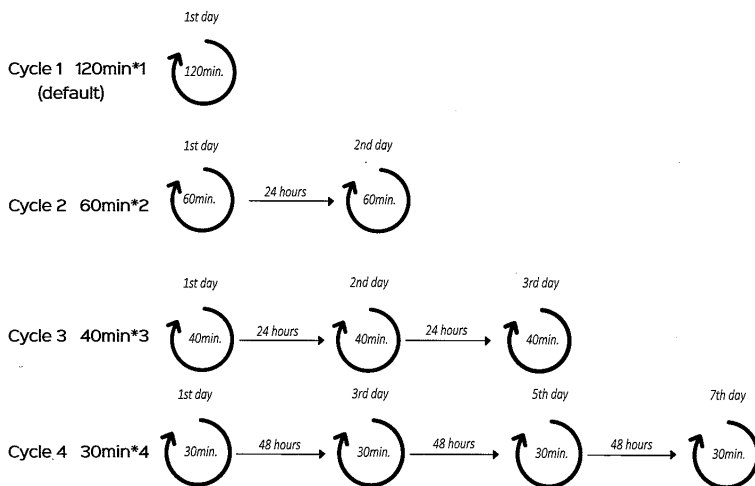
Mode	Cleaning Range
Full pool cleaning	Wall+ Floor+Waterline
Floor only	Floor
Wall only	Wall
Wall then floor	Wall *1+ Floor *1
Eco Floor	Longer runtime than 'Floor only' cleaning mode

Note:

1. You can preset your cleaning modes via App before device is put into the pool. The default mode is Wall then floor.
2. If the device restarts, it will automatically enter the cleaning mode you set last time

Preset your cleaning cycle via the app

You can start to schedule your cleaning cycle through clicking the "cycle timer" on the app, and select the one you prefer. You may refer to below for a better understanding of the working principle.

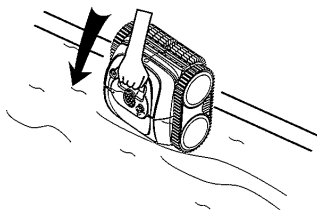


Note:

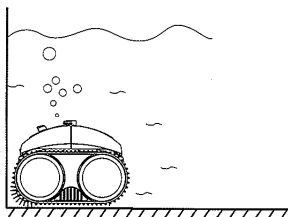
1. If you have selected a cycle cleaning mode, *you should ensure the cleaner is fully charged before use.*
2. The default cleaning cycle is one time cleaning for 2 hours.
3. If you select cycles other than the default one, *you should keep the cleaner in the pool to complete whole cycles.*

Run your new WYBOT C1

Hold the handle of the cleaner and put it into the pool within 3 minute, otherwise the device will be turned off.

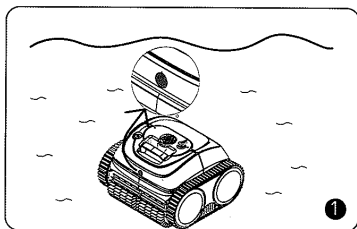


Let it sink down to the floor to empty trapped air inside.

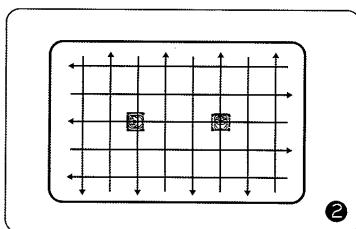


Note:

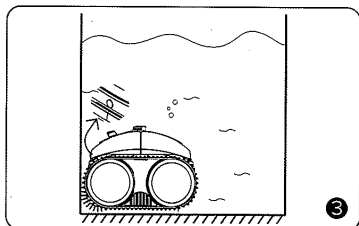
To achieve an optimal cleaning performance, you should ensure the water depth of the pool is at least 19.5 in (50 cm) high from the top of the device.



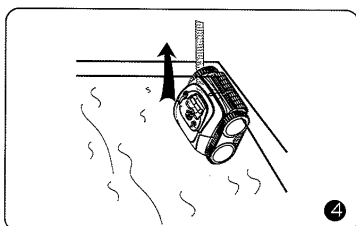
① About 20 seconds of auto calibration on the floor, the indicator light will turn flashing blue. The cleaner is ready to clean.



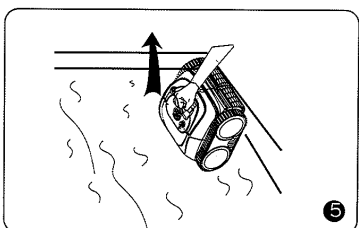
② The cleaner begins to clean walls, floor and waterline as default or your set.



③ The device will automatically move to stop by the edge of wall when finishing cleaning or battery low.



④ You can insert the included hook into a pool rod and lift the cleaner out of the pool.



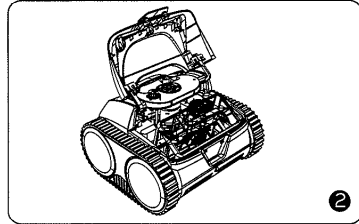
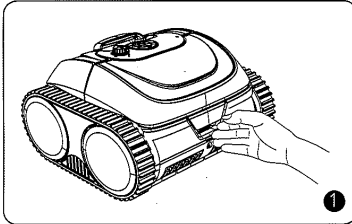
⑤ You should take the cleaner out vertically to drain inside water out quickly.

Note:

If you have preset a cleaning cycle other than the default one, you should leave the cleaner in the pool to complete the whole cycle.

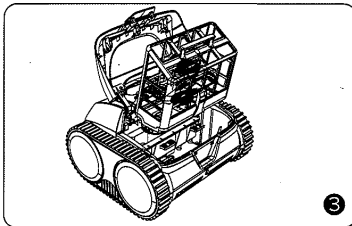
DO A FILTER CLEANING

Hold the filter cover handle, press and open it.

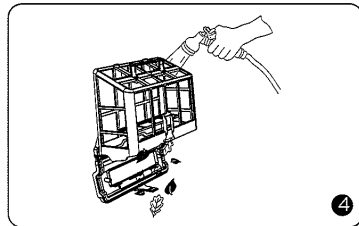


Note:

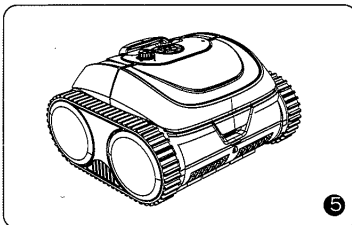
1. You should ensure the device is powered off when open the top cover.
2. You need to clean the filter basket before being dry.



Take out the filter basket.



Empty all debris and rinse it with clean water.



After rinsing, put the filter basket into the cleaner and close the cover.

DEVICE SPECIFICATION

Name	WYBOT C1
Pool Size	120m ² ~150m ²
Depth	9.8ft (3m)
Device Dimension	360(L)*390(W)*260(H) mm
Weight	8kg
Runtime	120min.~150min.
Charging Time	3 hours
Power	65W
Charger Input	100-240V, 50-60Hz
Charger Output	25.2V/1.5A
Battery Capacity	4600mAh
Filter	180µm
Flow Rate	11.5 m ³ /H
Moving Speed	16m/min
Water Resistance	IPX8
App Connection	Available
OTA Update	Available

LIMITED WARRANTY

1. All WYBOT pool cleaners in the market have been inspected and licensed to be sold as per local laws.
2. The warranty duration for battery, motor and PCB is two (2) years from the purchasing date. Consumable parts, including filter basket, brush, wheels etc., are beyond warranty.
3. The warranty apply only to original buyers, and not valid to resale and any other

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kinds of transfer.

4. Any damages to the unit caused by improper use, unauthorized repair or disassembly are not covered by WYBOTICS Co., Ltd.'s warranty.
5. The order number or record must be presented for any claim or repair within the warranty period.

HOW TO MAINTAIN YOUR DEVICE

You should follow the steps to store your cleaner to maintain good performance.

- a) Ensure the device is powered off
- b) Dry out the cleaner and filter basket
- c) Fully charge the battery
- d) Store the cleaner in a cool and ventilated place, away from direct sunshine, heat source, frost and squeezing with an ambient temperature between 5°C/ 41°F and 45°C / 113°F.
- e) Charge the cleaner every three months to ensure an optimal battery life.

Note:

If your device do not work after a long-term low battery life or being off, please contact after-sale team for help. For your safety, do not try to disassemble it without authorization.

FAQ & TROUBLE SHOOTING

Q: What pool shapes and construction materials is the cleaner suitable for?

A: The machine can be applied to rectangle, oval, or irregular shapes of in-ground swimming pools. Applicable construction materials include PVC, gunite and other high friction materials. (Slippery materials such as tiles, mosaics, and acrylic may not work well, and you need to do some modification.)

Q: Will obstacles such as steps, shallow water areas, drains, slopes etc. in the swimming pool affect the running?

A: The machine can climb steps, drains, and shallow water areas.

If you encounter the following situations when using the cleaner, you can check the table and solve them by yourself.

Note:

If you can not find a solution from the table, please contact after-sale team.

No.	Issues	Details	Possible Causes	Suggested Solution
1	Device does not work	A solid red light	Impeller is stuck	Check the impeller and clean foreign
		A flashing red light	Motor protection	Restart
		A flashing red light	Not put the device into the water or the pool water is too shallow	Restart and put it into the pool immediately. Be sure the water depth is over 0.5m.
		A flashing yellow light	Battery low	Fully charge the device and restart
2	Unable to charge	Charger light flashes	Poor contact	Re-plug the charger
3	Do not climb walls		Slippery construction materials	Stick floating parts (Contact service team for instruction.)
			Too dirty water	Clean the filter basket
4	Abnormal wall climbing	Climbing slowly	Filter basket blocked	Clean the filter basket
		Sinking down away from wall or floating on the water	Intake air	Stick floating parts (Contact service team for instruction.)
			Filter basket blocked	Clean the filter basket
5	only clean part area and cannot clean the entire pool		Wrong cleaning mode	Connect to the App and re-choose a suitable cleaning mode
			Firmware not the latest	Connect to the App and update the firmware
6	front side up when on the floor		Filter basket blocked	Clean the filter basket
7	Do not clean as set cleaning path		Encounter Obstacles	Clean the filter basket
	Unable to connect to the App		Device power off	Restart
8	The APP cannot be connected when the device is in the pool		Not available	Connect the device on the shore

CERTIFICATION

WYBOT robotic pool cleaners have passed all performance and reliability tests and also has obtained relevant certifications from the countries in which they are sold. you can rest assured.



WYBOT CUSTOMER CARE

Due to the need for continuous products improvement, the products in the manual are subject to the real products, and WYBOTICS Co., Ltd. reserves the right to update products.

If you encounter any problems during use, please contact after-sale team.
For more details, please contact WYBOTICS website www.wybotpool.com

Wybot Customer Service:

Email: support@wybotpool.com

Facebook: @WybotPool

Tel: 1-866-777-6655

Document No. A20247010C02

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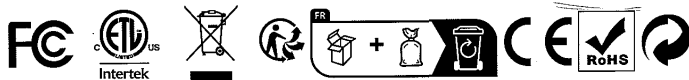


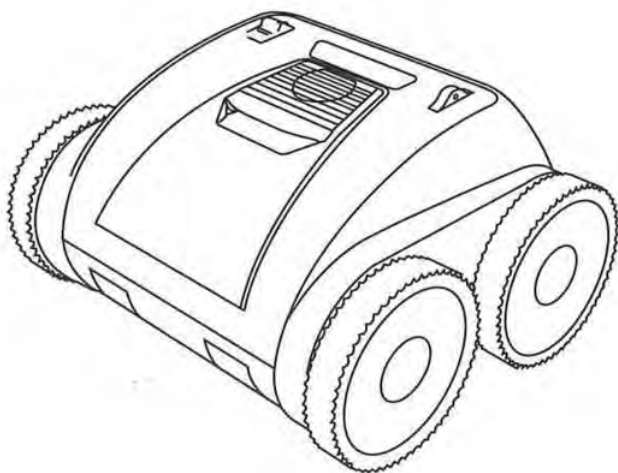
EXHIBIT 16

AIPEX[®]

ROBOTIC POOL CLEANER

User Manual

Seagull 1500



AIPER

Thank you for choosing Aiper robotic pool cleaner.

You have joined millions of people to enjoy the convenience of robotic pool cleaning.

This user manual helps you to keep your robot performing at its best. Please take a few moments to read through it.

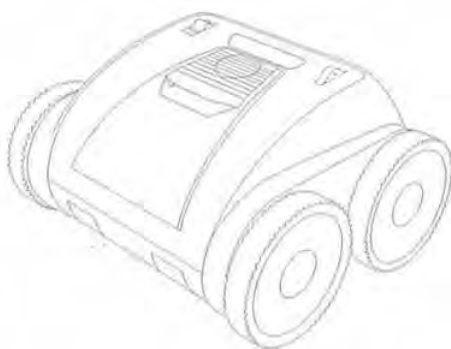
If you have any questions, please contact our customer service for assistance or visit www.aiper.com for more information.

Aiper Customer Service:

US Toll Free: 1-866-850-0666

Email: service@aiper.com

Facebook: @AiperOfficial



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1. Introduction -----	2
2. Structure -----	2
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4. Operations -----	4
Important Notes -----	4
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4.6 Filter Basket Cleaning -----	10
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6. Packing List -----	13
7. Warranty -----	14

⚠ Important Precautions

1. Read the manual carefully, and use the cleaner according to the manual. We are not liable for any losses or injuries caused by improper use.
2. Only use the accessories recommended or sold by the manufacturer.
3. Do not allow children to ride on the cleaner or play with it.
4. Use the original and authorized power adapter only.
5. The adapter cord should only be replaced by a qualified electrician.
6. Do not turn on the cleaner when it is out of water.
7. The charging adapter must be connected to a leakage protected and earthed socket when charging.
8. Do not operate the cleaner when people or animals are in the pool.
9. Always clean and wash the filter tray after using.
10. Turn off the cleaner when maintaining, cleaning or when it is not in use.
11. The cleaner should be stored in a cool and ventilated place, away from direct sunshine.
12. While charging, the cleaner should be kept in a cool place, and not covered with anything to prevent the damage of internal electrical components caused by overheating.
13. Only certified professionals can disassemble the sealed driving kit of the cleaner.
14. Do not operate the cleaner while pool filter is running.
15. Oil sealing for motor contains grease, which may cause water pollution if grease leaks.

16. Due to the limitation of battery capacity, the cleaner is only suitable for swimming pools with size up to 1614 sq.ft (150m²); otherwise the cleaning effect will be affected.
17. If the cleaner needs to be stored for a long period of time, it should be charged every three months to maintain battery life between 40%-60%. Please use the original and authorized power adapter only. If the cleaner is not charged for a long time, the battery voltage will be lower than the overdischarge protection voltage due to the self-discharge of the battery, which may cause fatal damage.
18. Do not use or store the cleaner near any heat source.
19. Do not pierce the shell of the cleaner with nails or other sharp objects. Do not hammer, impact, or throw the cleaner.
20. Since the robot contains precision components, please don't smash or drop the machine.
21. Make sure the charging socket and cleaner charging pins are dried before charging.

1. Introduction

The robotic pool cleaner Seagull 1500 is a new type of highly efficient and energy-saving swimming pool cleaning robot. It cleans the pool walls and floor automatically without replacing the pool water. It's totally environment-friendly.

Read this user manual carefully before use.

2. Structure



Charger

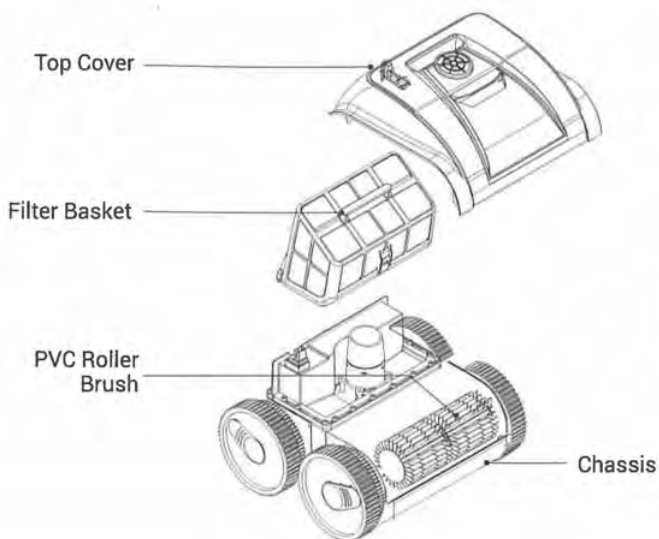


Retrieving Hook



Floating Blocks

ALPET



3. Specifications

1. Model	Seagull 1500
2. Rated Working Voltage	12.6V
3. Power	65W
4. Run Time	90 Minutes
5. Charger Input	100~240V, 50/60Hz
6. Charger Output	Max 12.6V/2A
7. Battery Capacity	8600mAh
8. Charging Time	7~8 Hours
9. Pool Size	Up to 1614sq.ft (150m ²)
10. Filter Capacity	44GPM (167LPM)

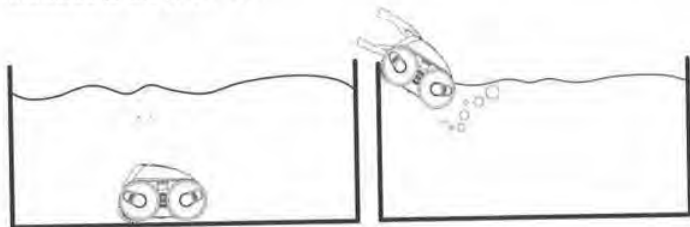
AIPEE

11. Filter Density	250µm
12. Moving Speed	36.1ft/min (11m/min)
13. Waterproof Grade	IPX8
14. Pool Water Temperature	50°F~95°F (10°C~35°C)
15. Pool Water PH Value	7.0~7.4
16. Charging Environment Temperature	41°F~95°F (5°C~35°C)
17. Max Water Depth	8.2ft (2.5m)
18. Product Size	14.17(L)x16.06(W)x9.45(H) inches 360(L)x408(W)x240(H) mm
19. Weight	17.64lbs (8kg)
20. Storage Temperature	-4°F~113°F (-20°C~45°C), RH≤75%

4. Operations

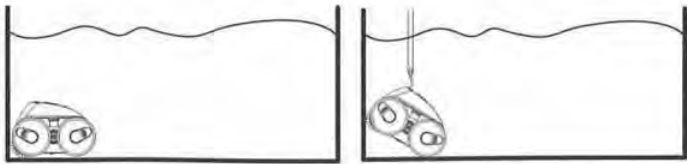
Important Notes:

1. Put the cleaner into the pool with the bottom towards the wall. Hold the top handle and turn on the cleaner. The cleaner will start working after 20 seconds after emptying the trapped air inside (make sure to empty the air inside till the the cleaner is fully submersed in water and no more air bubbles come from the cleaner), then the cleaner can immerse to the pool floor.



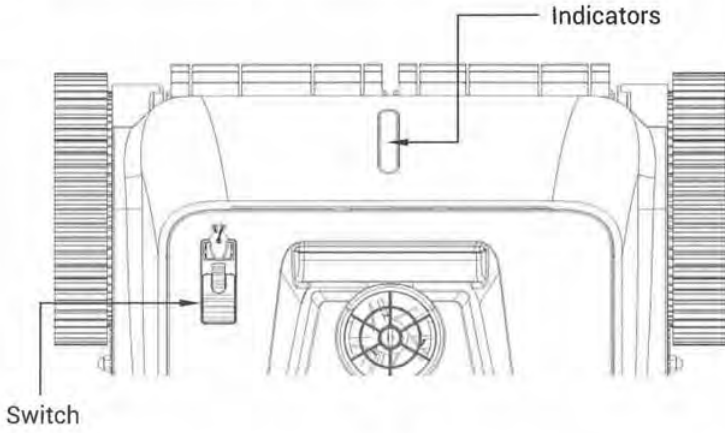
2. The cleaner will move to the pool edge when it completes working. Use the hook to lift it out of the pool.

ALPET



3. The climbing mode is "single front climbing", which means the front side with the indicators will climb and the opposite side does not climb.

4.1 Switch and Indicator Instructions



1	Switch	Turn on: Turn the switch to the upper side, the blue light is on Turn off: Turn the switch to the down side, the blue light is off
---	--------	---

AIPEP

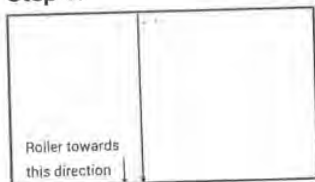
2	Indicators	(1) Blue indicator on: switch on Blue indicator turns to red for 2 seconds then off: switch off
		(2) Blue indicator flashes: working normally
		(3) Yellow indicator flashes: low battery, moving to the edge of the pool wall
		(4) Yellow indicator stays solid: successfully stops beside the pool wall
		(5) Red indicator during working: motor failure
		(6) Purple indicator stays solid: working out of water/motor failure/motor overcurrent warning if the cleaner is stuck

4.2 Running Routes

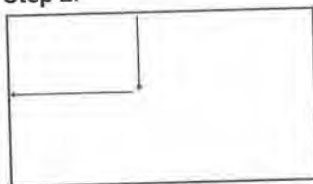
Initial Cross Route-->Climbing Route-->Floor Cross Route-->
Floor Route-->Climbing Route-->Floor Cross Route-->Floor Route-->
Auto Sub-docking-->Stop

① Initial Cross Route: Detect/Calculate the pool size.

Step 1:

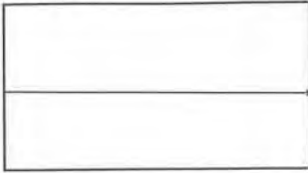


Step 2:

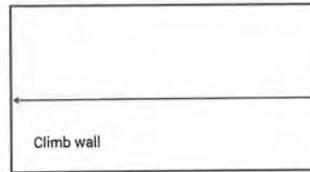


ALPER

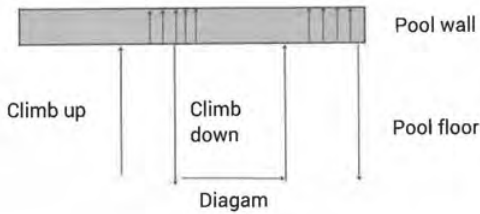
Step 3:



Step 4:

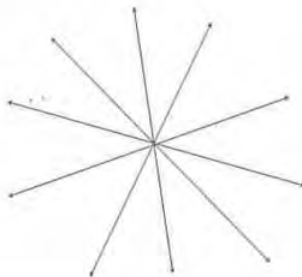


② Climbing Route



③ Floor Cross Route: Detect/Calculate pool size

④ Floor Route



AIPER

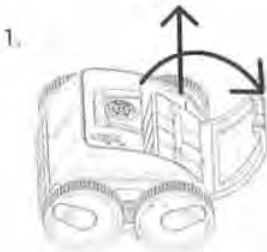
4.3 General Cleaning Time/Modes

- A. After putting the cleaning into your pool, it will start to detect/ calculate the pool size with Initial Cross Route & Floor Cross Route. Please note that the detection time depends on the pool size.
- B. The cleaner will start wall climbing and waterline scrubbing for about 15 minutes with Climbing Route.
- C. It goes to floor cleaning mode (Floor Route) which is a full cleaning cycle and takes around 35 minutes. Please note that the cleaning time depends on the pool size.
- D. It turns to wall climbing and waterline scrubbing mode again for around 15 minutes.

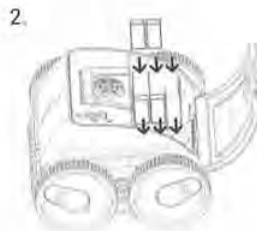
After the cycles above are completed, and if the battery is still alive, it will repeat C and B until the battery drains out. The cleaner will not climb walls if the battery level is under 15%.

4.4 Installation of Floating Blocks

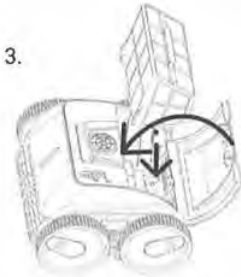
NOTE: Please intall the foams only if your cleaner can't cover most areas and it has issues with wall climbing.



Open the filter cover and pick up the filter basket



Tear off the protective film on the back of the floater and stick one by one according to the position shown in the figure

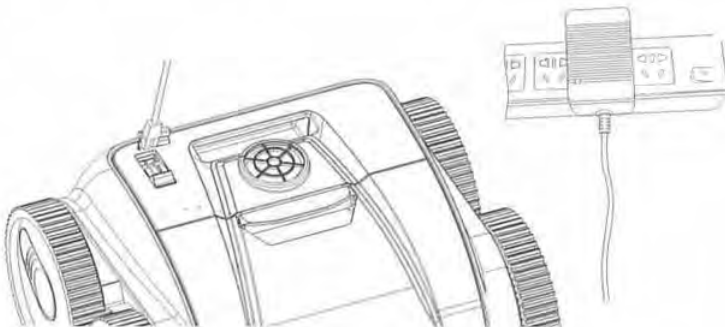


Install the filter basket and
close the filter cover

4.5 Charging

Please switch off the cleaner till no indicators flash and charge it out of the pool. Please charge it indoors.

IMPORTANT NOTE: After each use, wipe and dry the charging pin with paper towel or cotton swab. Wait for a few minutes to let the moisture dry out before charging.



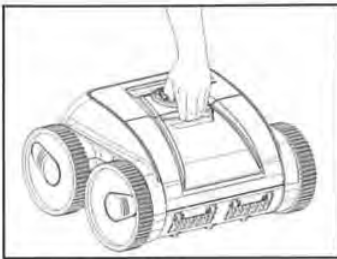
Charger Indicators

Red light stays on: the battery is being charged.

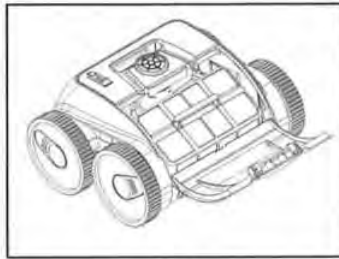
Green light stays on: 1. The charger is not plugged to the cleaner;
2. The charging is completed.

4.6 Filter Basket Cleaning

a. Open the top cover (4-1) and find the filter basket (4-2)

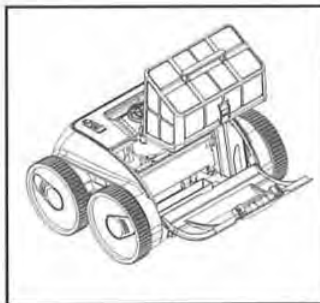


4-1



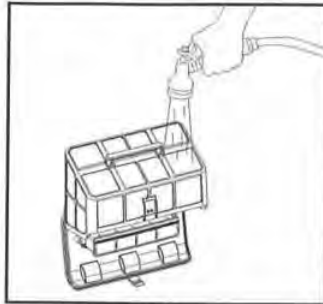
4-2

b. Take out the filter basket (4-3)



4-3

c. Wash the filter basket (4-4)



4-4

d. Install the filter basket back to the cleaner and close the top cover

5. Frequently Asked Questions (FAQ)

Q: Why does my cleaner get stuck on the main drain?

A: Each swimming pool has a different drain size. If yours is stuck at the drain, please contact the customer service to get the accessory kit.

Q: What is the function for the included floating blocks?

A: It's for increasing the buoyancy of the cleaner and improving the obstacle-surmounting ability and wall climbing function.

Q: Why do the front wheels raise up?

- A:
1. Please make sure the air inside the cleaner is totally emptied.
 2. The filter basket or impeller is blocked by pool dirt. Please clean the filter basket first in this case.
 3. If the color of the filter basket changes, please use a brush to clean it;
 4. If the tough dirt can't be removed from the filter basket, please purchase a new filter.

Q: Why does the switch get stuck?

A: This is the internal failure of the machine. Please contact the customer service to replace the drive kit or the machine.

Q: The charging pin is corroded because of electrolysis

- A: 1. Please contact the customer service to replace the driver kit for this condition.
2. Please mind that after each use, wipe the charging pin clean and dry with paper towel or cotton swab. Wait for a few minutes to let the moisture dry out before charging.

Q: The light indicator in the charger is abnormal and flashes other colors

- A: 1. Please note that the charger indicator light has two colors, red means charging, and green means fully charged.
2. When the charger is not plugged into the product after the power is on, the light will be green.
3. When the charger is powered off, and the charging port is not unplugged from the machine, the light will be green.
4. The machine itself will not have any light indication when charging.

Q: The red light indicator is on when the machine is running.

A: It means motor failure, please contact the customer service to replace the drive kit.

Q: The robot can not run for 90 minutes.

- A: 1. Please charge the robot for 8 hours till the green indicator on the charger stays on;
2. If the battery life still can't reach 90 minutes after charging for 8 hours, it is necessary to consider whether the machine is stuck or suspended somewhere in the pool, resulting in the machine idling all the time and power-consuming.
3. Please check if it has been charged since the last run.
4. If it's none of the above, please contact the customer service to replace the machine.

Q: Why doesn't it climb walls?

- A:** 1. Check if the PVC roller brush is under excessive wear, if yes, please contact the customer service to replace the PVC roller brush;
2. Check if the gear teeth are off, if yes, please contact the customer service to replace the gear.
3. The wall radian is too big or the wall surface is too slippy. It doesn't work for ceramic tile walls.

Q: Why doesn't my cleaner sink into the water? It just floats.

- A:** The filter basket is blocked by pool dirt so that the air can't be emptied easily.
1. Please wash the filter basket IMMEDIATELY after each use in case of incrustations after dirt becomes dry, resulting in blockage to the filter grill;
2. Please hold the cleaner and fully submerge it into the water till no air bubbles come out before each use.

6. Packing List

Item	Description	Name	Model	QTY (pc)
1	Cordless Robotic Pool Cleaner	Cleaner	Seagull 1500	1
2		Charger		1
3		User Manual		1
4		Retrieving Hook		1
5		Floating Blocks		2

7. Warranty

This product has passed all quality control and safety tests, conducted by the technical department of the factory.

Warranty Information

1. The warranty is covered for 24 months (only for battery and motor) from the date of its original purchase.
2. This warranty is voided if the product has been altered, misused, or has been repaired by unauthorized personnels.
3. The warranty extends only to manufacturing defects and does not cover any damage resulting from mishandling of the product by the owner.
4. The order number or record must be presented for any claim or repair during the warranty period.



Aiper Customer Service:

US Toll Free: 1-866-850-0666

Email: service@aiper.com

Facebook: [@AiperOfficial](#)

EXHIBIT 17

Infringement of U.S. Patent No. 8,393,029 Wybotics HJ3172

Claims Charted: 1, 2, 7.

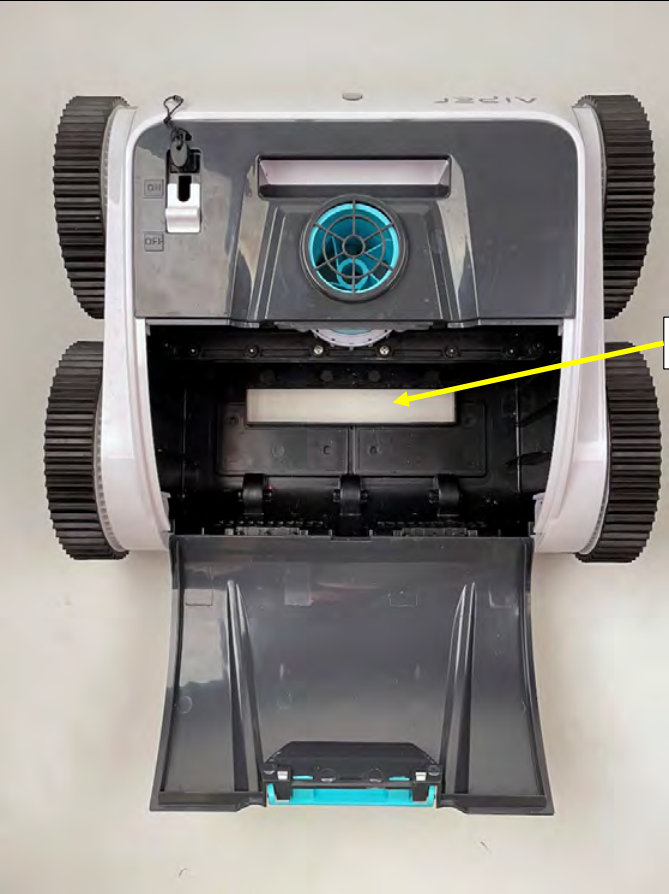
Claim Limitation	Wybotics HJ3172
[Element 1 Preamble] A swimming pool cleaner adapted to travel along an immersed surface and comprising:	To the extent the preamble is limiting, the Wybotics HJ3172 (“HJ3172”) embodies a swimming pool cleaner adapted to travel along an immersed surface as shown in the exemplary images below. 

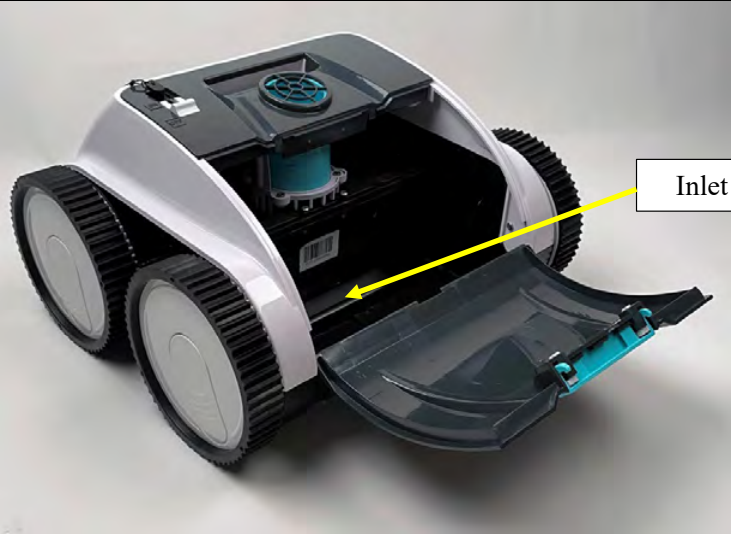
Claim Limitation	Wybotics HJ3172
	  AUTOMATIC SWIMMING POOL FLOOR CLEANER MODEL: HJ3172 RATING: 10.8V DC, 65W; DATE CODE: 2109 CONFORMS TO UL STD. 1081 CERTIFIED TO CSA STD. C22.2 NO. 108 & 0.23 Intertek 3104589 Tianjin Wangyuan Environmental Protection & Technology Co., Ltd. FOR OUTDOOR USE & POUR UTILISATION EN PLEIN AIR DO NOT RUN PUMP DRY & NE PAS FAIRE FONCTIONNER A SEC FOR USE ONLY WITH FOR USE ONLY WITH CHARGER OF Tianjin Wangyuan Environmental Protection & Technology Co., Ltd. MODEL HT-A07-12620WB CHARGER POUR USE SEULEMENT AVEC WEIHAI Tianjin Wangyuan Environmental Protection & Technology Co., Ltd. MODEL HT-A07-12620WB CHARGER FOR USE ONLY WITH WEIHAI HITAI ELECTRONICS CO.,LTD.MODEL HT-A07-12620WB CHARGER POUR USE SEULEMENT AVEC WEIHAI HITAI ELECTRONICS CO.,LTD. MODEL HT-A07-12620WB CHARGE FOR USE WITH SWIMMING POOLS ONLY POUR LINE UTILISATION AVEC PISCINES SEULEMENT

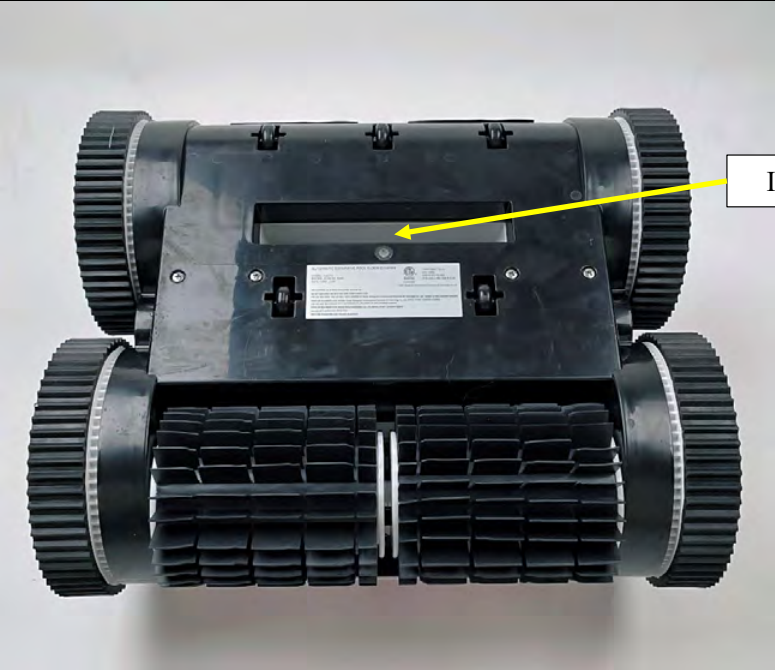
Claim Limitation	Wybotics HJ3172
[Element 1(a)] a body comprising	The HJ3172 has a body comprising an inlet and an outlet separate from the inlet as shown in the exemplary images below. A photograph of a white, rectangular autonomous underwater vehicle (AUV) with a black track system. The vehicle is shown from a front-three-quarter view. The word "AIPEP" is printed in black on the front of the white body. The track system consists of two large black wheels on the sides and a central black track with a series of rectangular links. The vehicle is positioned on a light gray surface against a plain white background.

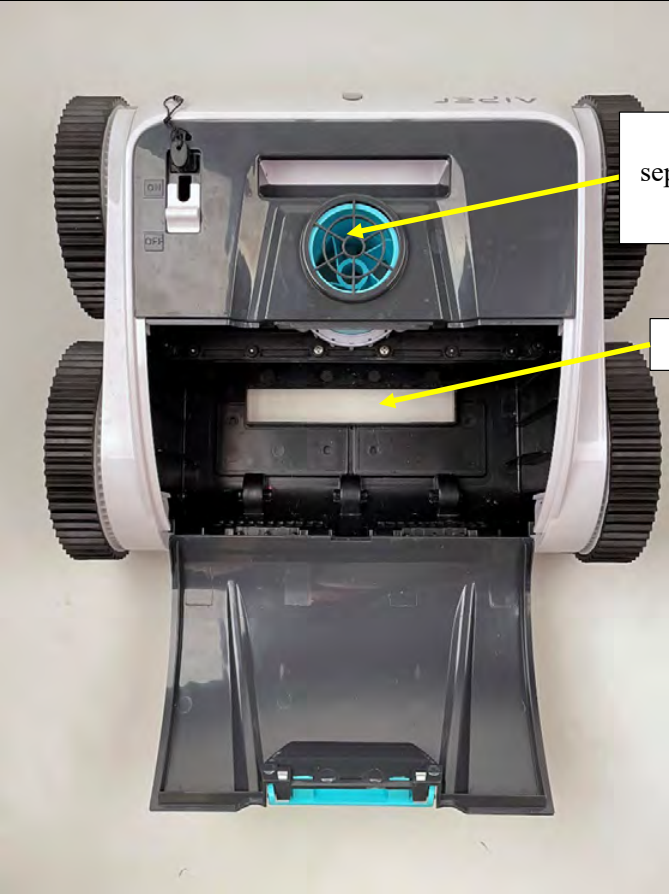
Claim Limitation	Wybotics HJ3172
	

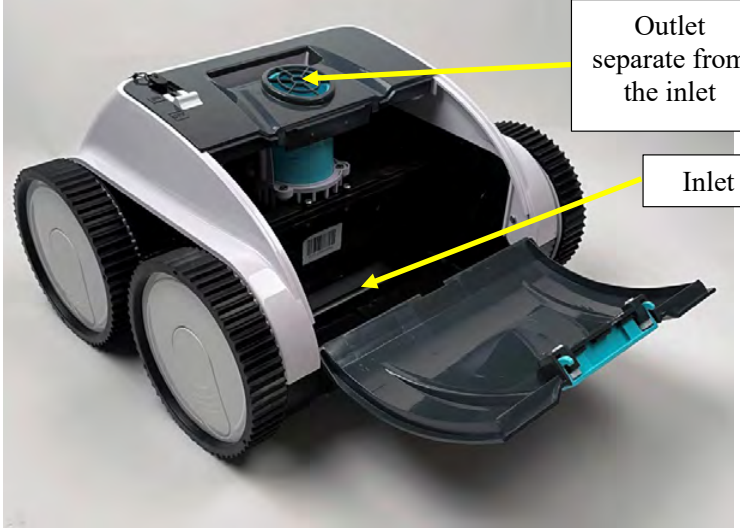
Claim Limitation	Wybotics HJ3172
	
[Element 1(a)(1)] (i) an inlet and	The HJ3172 has a body comprising an inlet as shown in the exemplary images below.

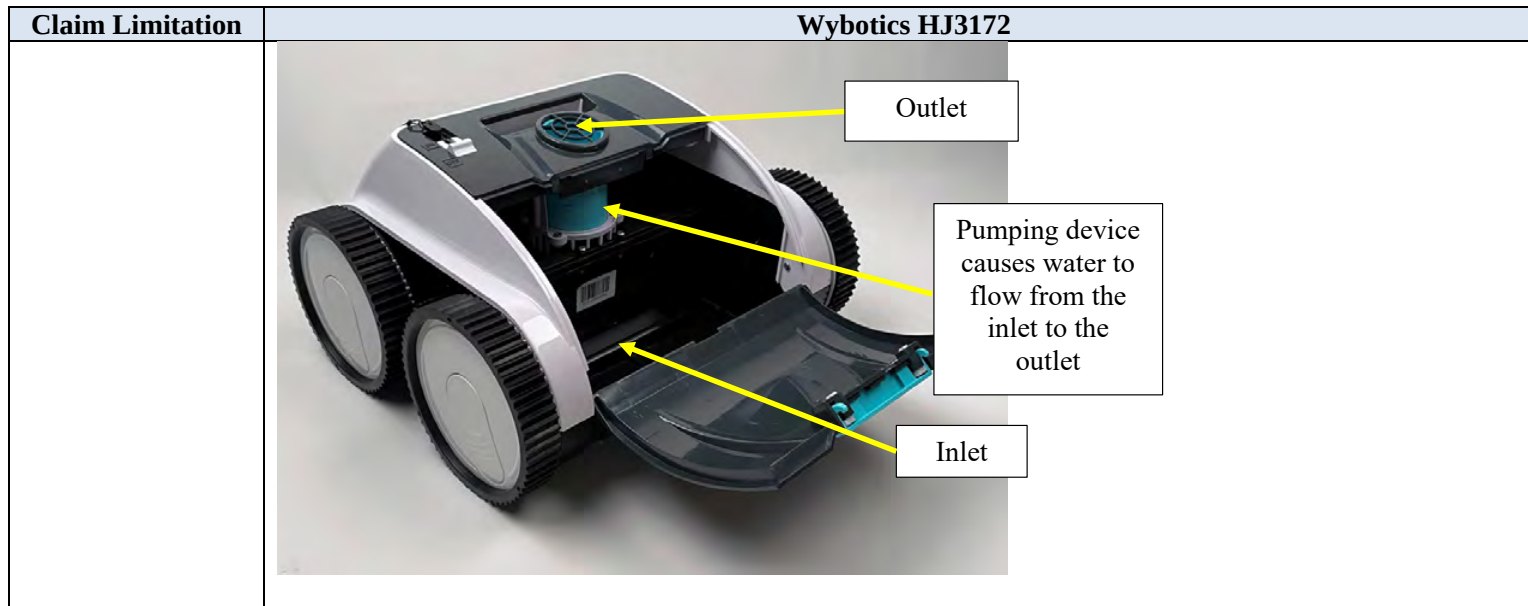
Claim Limitation	Wybotics HJ3172
	 Inlet The image shows a top-down view of the Wybotics HJ3172 robotic pool cleaner. The device is primarily white with black accents and large, treaded black wheels. A central circular vent with a blue mesh is visible. Below the vent, a yellow arrow points to a rectangular opening in the white upper housing, which is labeled 'Inlet'. The lower section of the device is a black, funnel-shaped skirt that is currently open, revealing internal components including a battery pack and various mechanical parts.

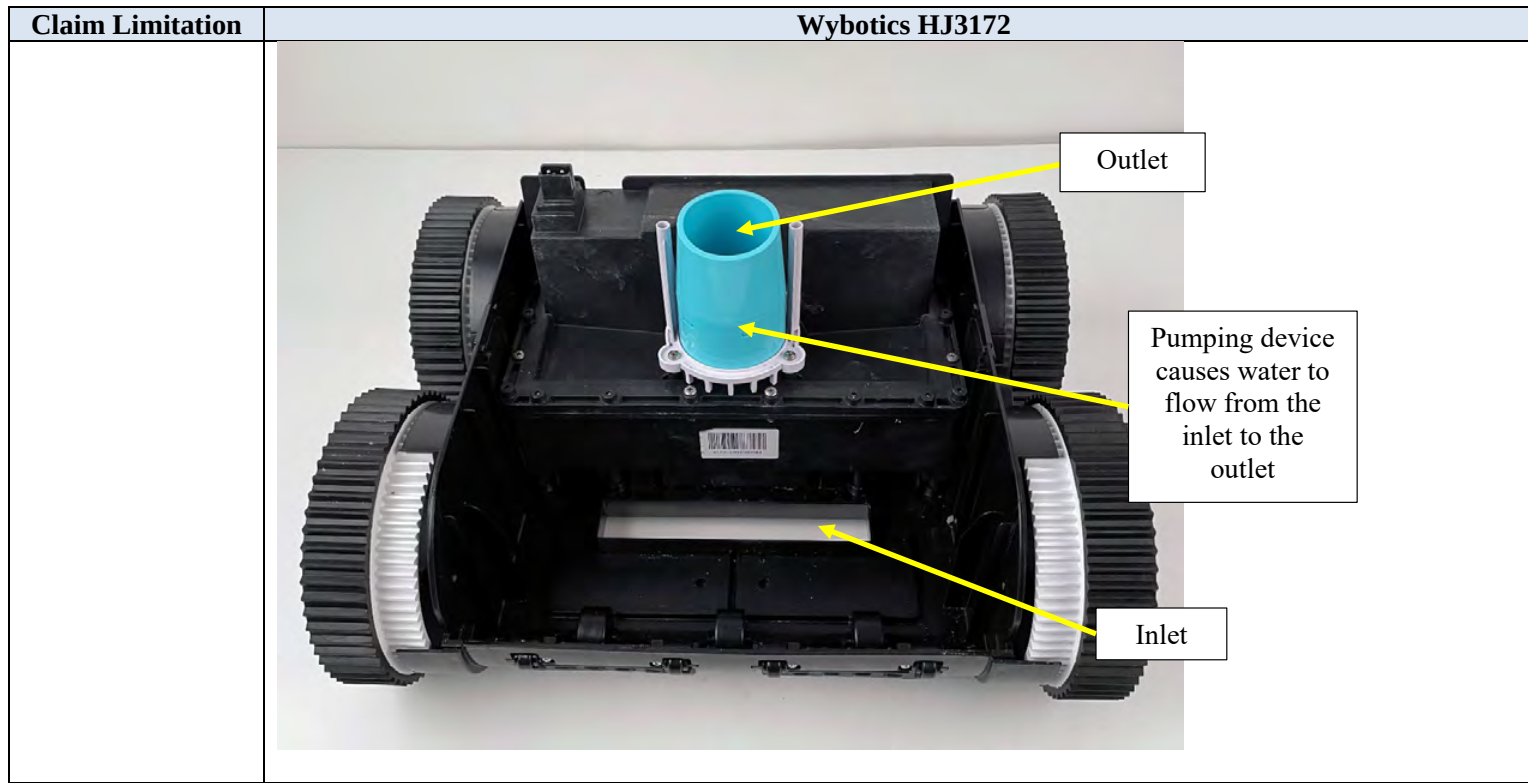
Claim Limitation	Wybotics HJ3172
	 Inlet

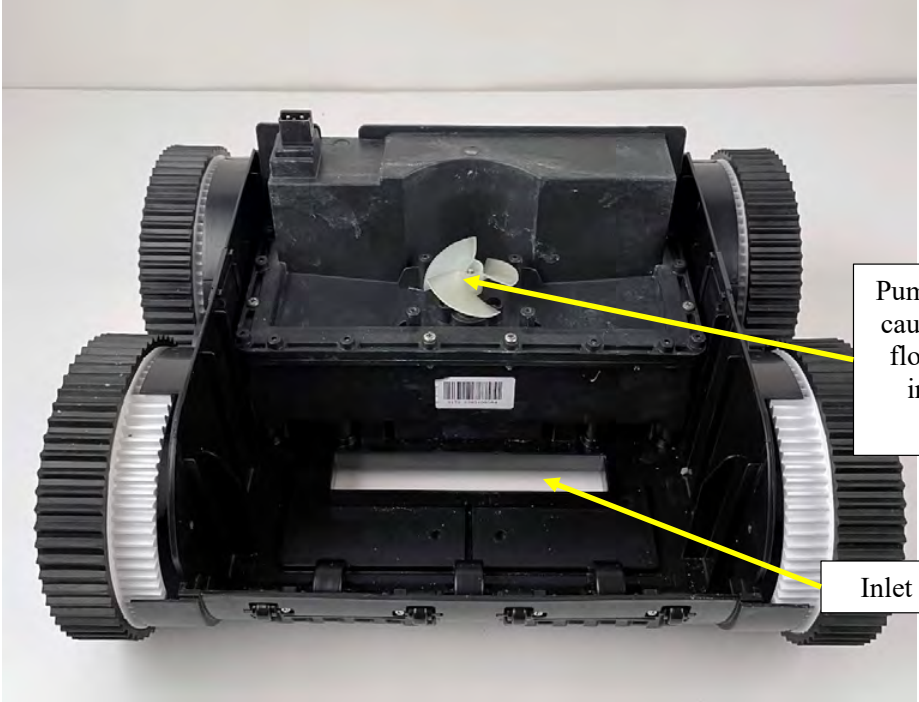
Claim Limitation	Wybotics HJ3172
	 Inlet
[Element 1(a)(2)] (ii) an outlet separate from the inlet;	The HJ3172 has a body comprising an outlet separate from the inlet as shown in the exemplary images below.

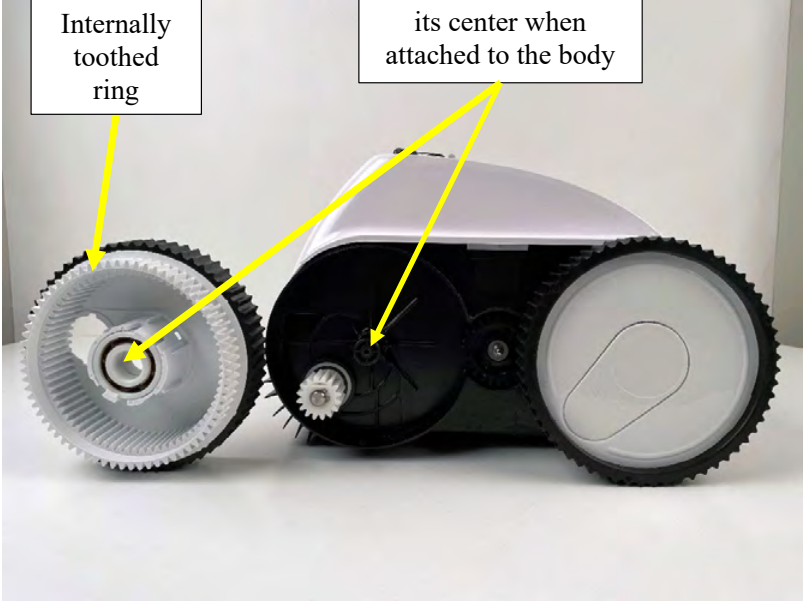
Claim Limitation	Wybotics HJ3172
	 Outlet separate from the inlet Inlet The image shows a top-down view of the Wybotics HJ3172 pool cleaner. The device has a white upper housing and a black lower housing. A blue circular fan is visible in the center of the white housing. A yellow arrow points from the text 'Outlet separate from the inlet' to the fan. Another yellow arrow points from the text 'Inlet' to a rectangular opening in the black housing. The device has four large, treaded black wheels. A battery pack is visible at the bottom of the black housing.

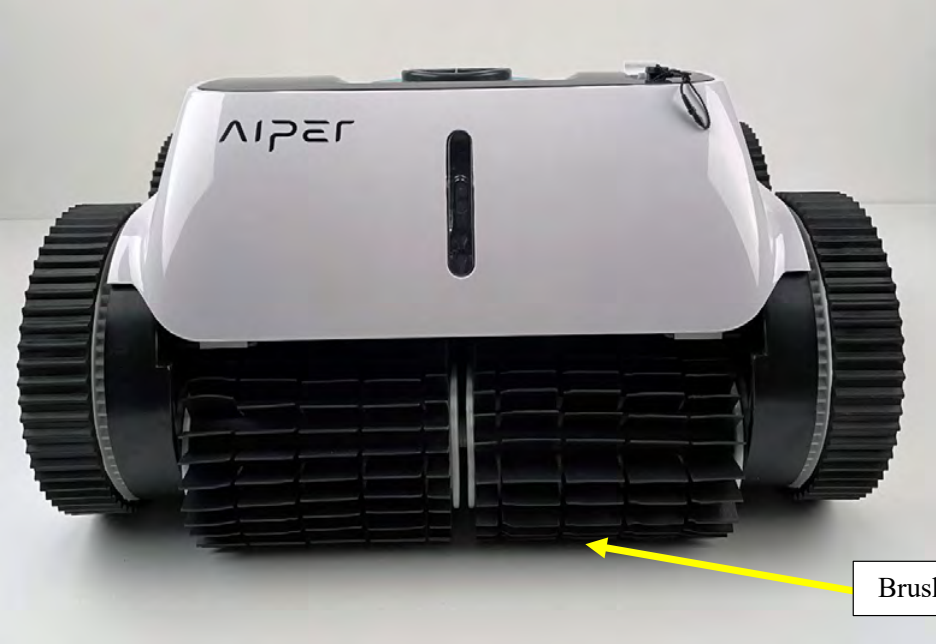
Claim Limitation	Wybotics HJ3172
	
[Element 1(b)] a pumping device configured to cause water to flow from the inlet to the outlet;	The HJ3172 contains a pumping device configured to cause water to flow from the inlet to the outlet as shown in the exemplary images below. The body has been disassembled in some images to further show this limitation.

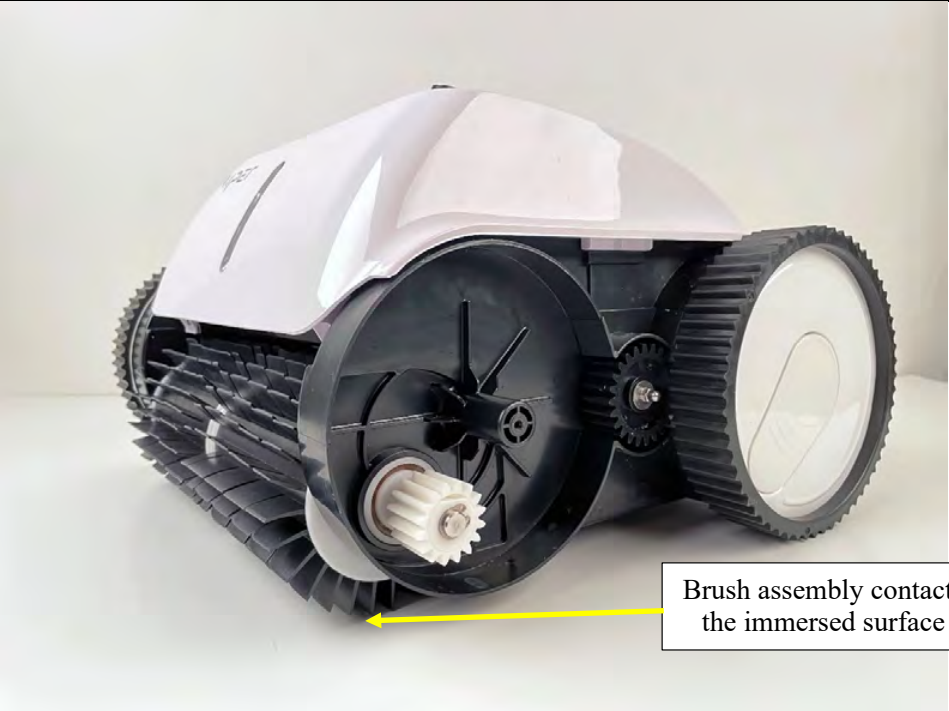




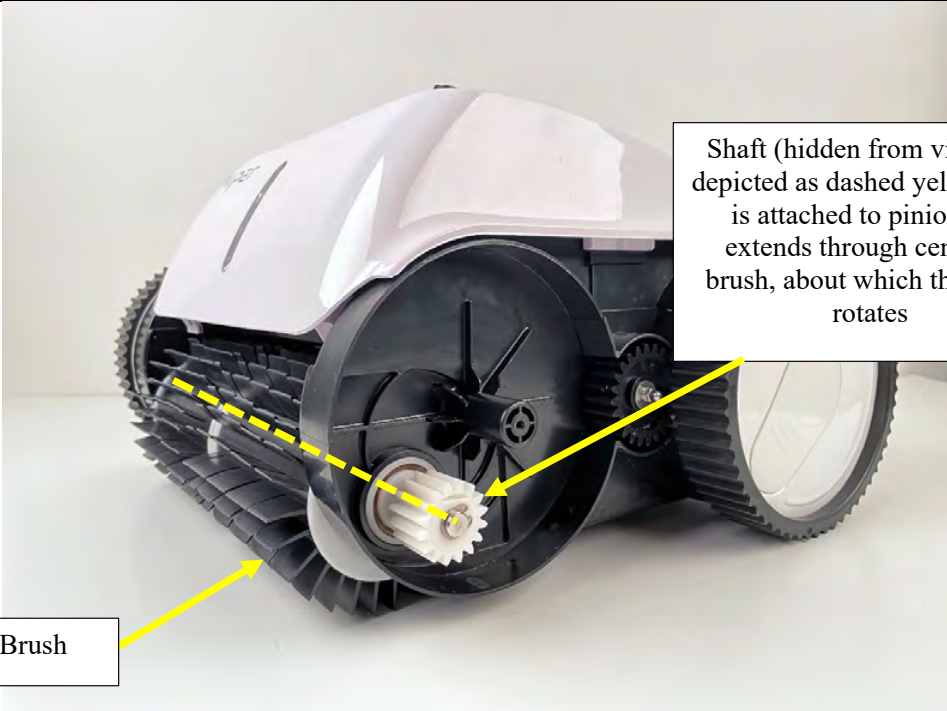
Claim Limitation	Wybotics HJ3172
	 Pumping device causes water to flow from the inlet to the outlet Inlet
[Element 1(c)] a wheel configured for rotation and having an internally toothed ring;	The HJ3172 has a wheel configured for rotation and has an internally toothed ring as shown in the exemplary images below. The wheels from the HJ3172 have been removed to show this limitation.

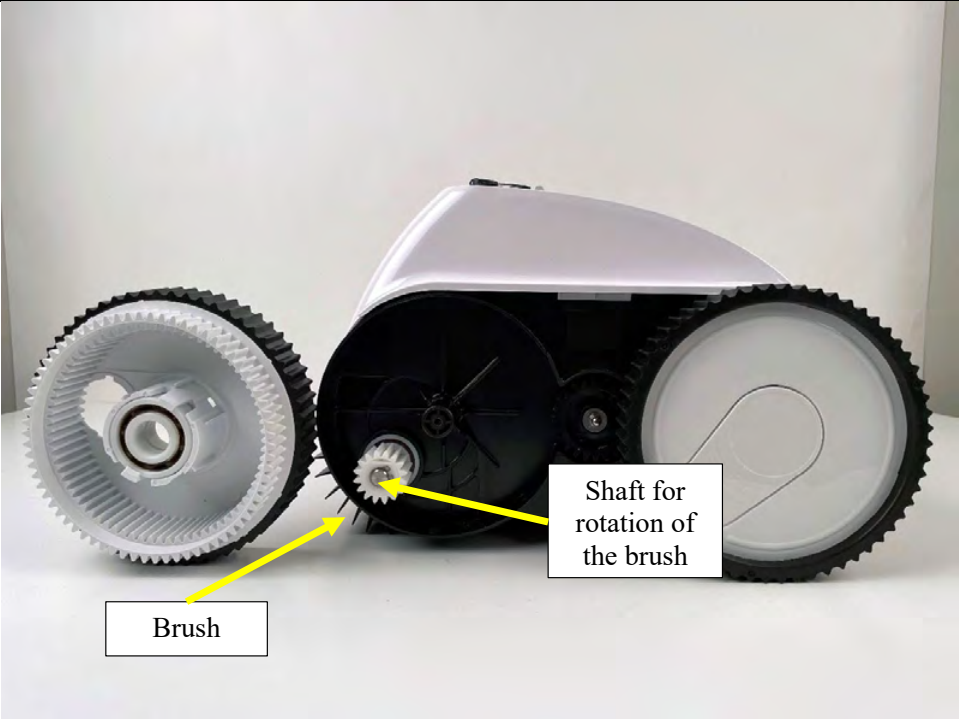
Claim Limitation	Wybotics HJ3172
	 Internally toothed ring Wheel rotates about its center when attached to the body
[Element 1(d)] a brush assembly	The HJ3172 has a brush assembly configured to contact the immersed surface and comprising a brush and a shaft about which the brush rotates as shown in the exemplary images below.

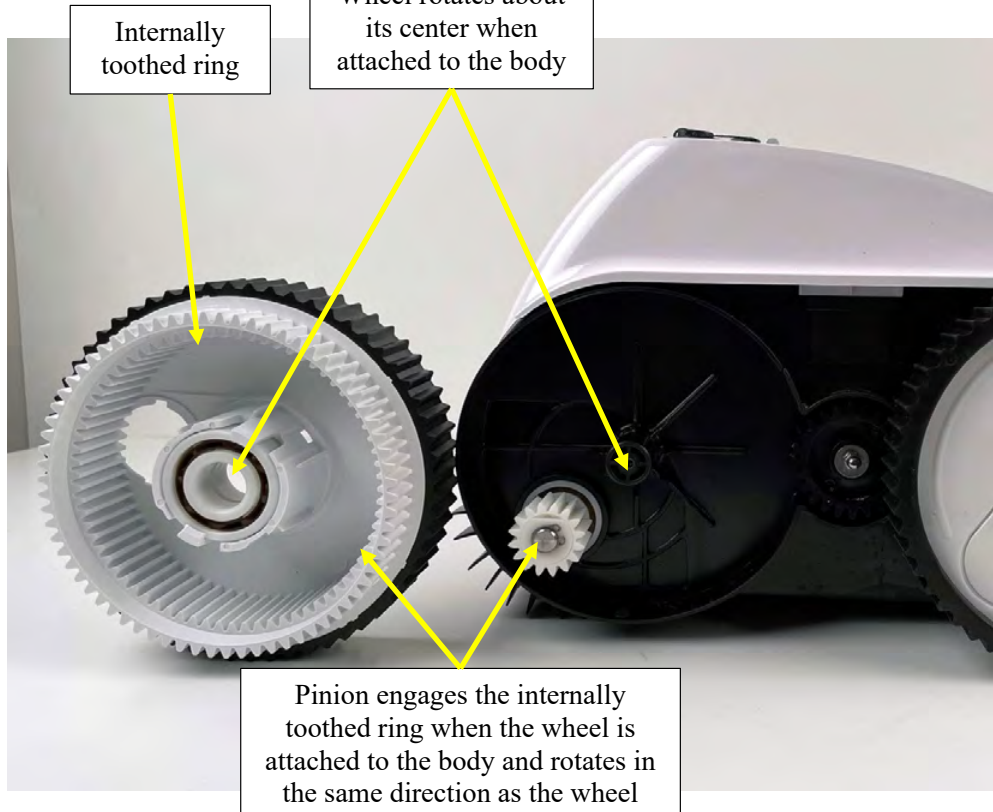
Claim Limitation	Wybotics HJ3172
	 Brush assembly
[Element 1(d)(1)] (i) configured to contact the immersed surface; and	The HJ3172 has a brush assembly configured to contact the immersed surface as shown in the exemplary images below. The wheels from the HJ3172 have been removed to show this limitation.

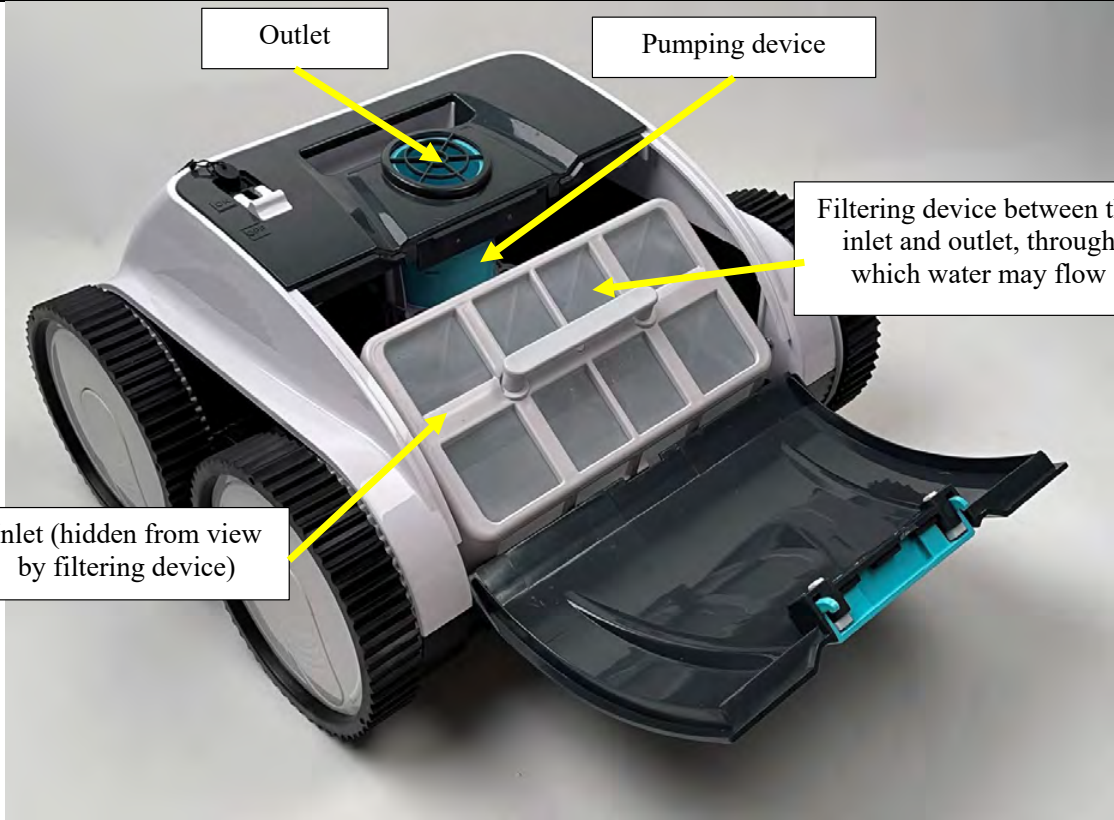
Claim Limitation	Wybotics HJ3172
	 Brush assembly contacts the immersed surface

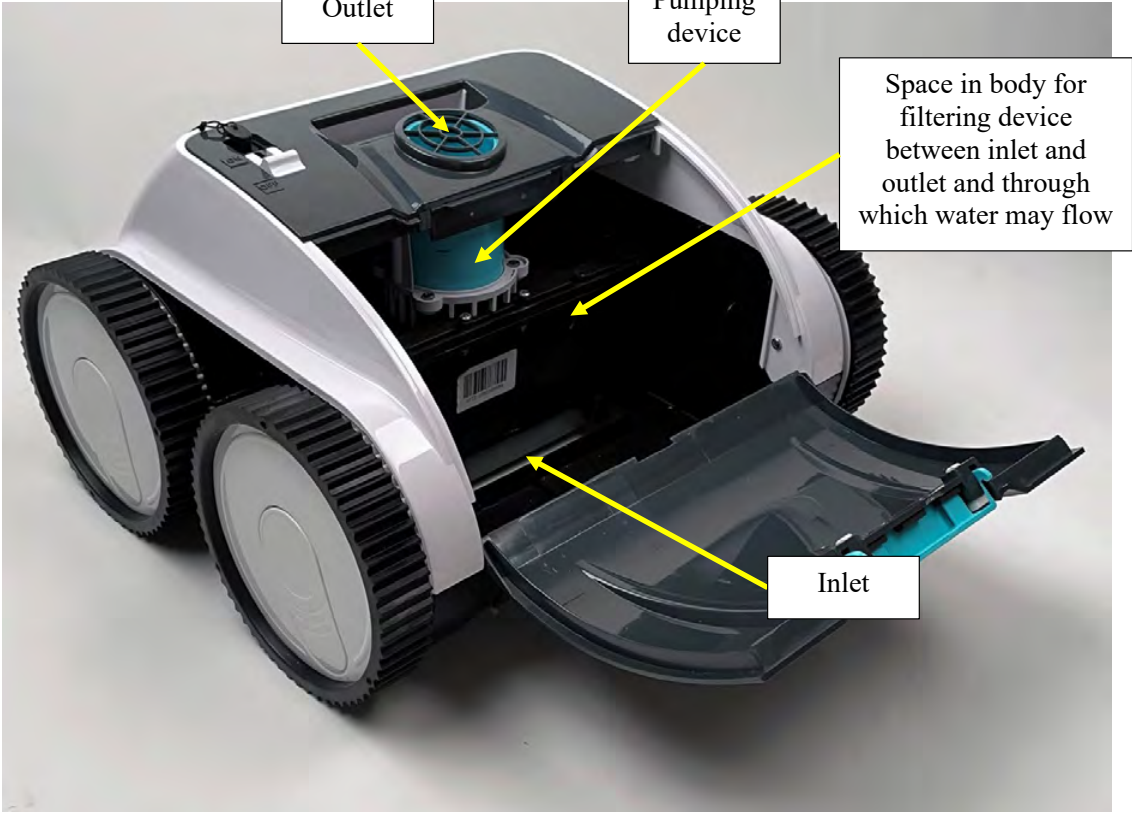
Claim Limitation	Wybotics HJ3172
	 AUTOMATIC SWIMMING POOL FLOOR CLEANER MODEL: HJ3172 RATING: 10.8V DC, 65W; DATE CODE: 2109 CONFORMS TO UL STD. 1081 CERTIFIED TO CSA STD. C22.2 NO. 108 & 0.23 Intertek 3104589 Tianjin Wangyuan Environmental Protection & Technology Co., Ltd. FOR OUTDOOR USE & POUR UTILISATION EN PLEIN AIR DO NOT RUN PUMP DRY & NE PAS FAIRE FONCTIONNER A SEC FOR USE ONLY WITH: FOR USE ONLY WITH CHARGER OF Tianjin Wangyuan Environmental Protection & Technology Co., Ltd. MODEL HT-A07-12620WB CHARGER POUR USE SEULEMENT AVEC WEIHAI: Tianjin Wangyuan Environmental Protection & Technology Co., Ltd. MODEL HT-A07-12620WB CHARGER FOR USE ONLY WITH WEIHAI HITAI ELECTRONICS CO.,LTD. MODEL HT-A07-12620WB CHARGER POUR USE SEULEMENT AVEC WEIHAI HITAI ELECTRONICS CO.,LTD. MODEL HT-A07-12620WB CHARGE FOR USE WITH SWIMMING POOLS ONLY POUR UNE UTILISATION AVEC PISCINES SEULEMENT
[Element 1(d)(2)] (ii) comprising a brush and a shaft about which the brush rotates; and	The HJ3172 has a brush assembly comprising a brush and a shaft about which the brush rotates as shown in the exemplary images below. The wheels from the HJ3172 have been removed to show this limitation.

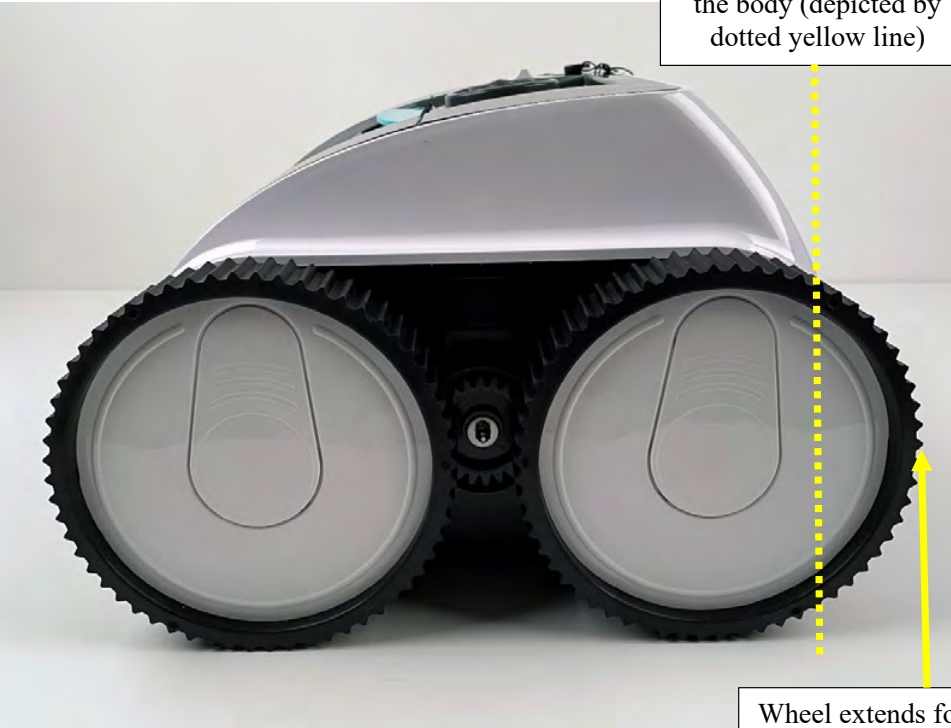
Claim Limitation	Wybotics HJ3172
	 Shaft (hidden from view and depicted as dashed yellow line) is attached to pinion and extends through center of brush, about which the brush rotates Brush

Claim Limitation	Wybotics HJ3172
	
[Element 1(e)] A pinion engaging the internally toothed ring and connected to the shaft so that rotation of the wheel in a first	The HJ3172 includes a pinion engaging the internally toothed ring and is connected to the shaft so that rotation of the wheel in a first direction causes rotation of the pinion and the brush in the first direction as shown in the exemplary images below. The wheels from the HJ3172 have been removed to show this limitation.

Claim Limitation	Wybotics HJ3172
direction causes rotation of the pinion and the brush in the first direction.	 Internally toothed ring Wheel rotates about its center when attached to the body Pinion engages the internally toothed ring when the wheel is attached to the body and rotates in the same direction as the wheel
[Element 2] A swimming pool cleaner according to claim 1 further	The HJ3172 is further comprised by a filtering device positioned between the inlet and the outlet, through which water may flow under action of the pumping device as shown in the exemplary images below.

Claim Limitation	Wybotics HJ3172
comprising a filtering device positioned between the inlet and the outlet and through which water may flow under action of the pumping device.	 The photograph shows the Wybotics HJ3172 robotic pool cleaner, a white and black tracked device. Four callout boxes with yellow arrows point to specific components: 'Outlet' points to a circular opening on the top; 'Pumping device' points to a blue circular component on the top; 'Filtering device between the inlet and outlet, through which water may flow' points to a white rectangular filter housing in the center; and 'Inlet (hidden from view by filtering device)' points to the front of the device where the inlet is located.

Claim Limitation	Wybotics HJ3172
	 The image shows a top-down view of the Wybotics HJ3172 swimming pool cleaner. The device has a white upper body and a black lower body. A black flexible track is visible around the perimeter. A blue circular component is labeled 'Outlet'. A blue cylindrical component is labeled 'Pumping device'. A rectangular area in the center of the body is labeled 'Space in body for filtering device between inlet and outlet and through which water may flow'. A black rectangular component at the front is labeled 'Inlet'. Yellow arrows point from each label to its corresponding component in the image.
[Element 7] A swimming pool cleaner according to claim 1 in which the body defines a	In the HJ3172 the body defines a forwardmost portion and the wheel extends forward of the forwardmost portion as shown in the exemplary images below.

Claim Limitation	Wybotics HJ3172
forwardmost portion and the wheel extends forward of the forwardmost portion.	Forwardmost portion of the body (depicted by dotted yellow line)  Wheel extends forward of the forwardmost portion of the body (depicted by dotted yellow line)

JS 44 (Rev. 08/18)

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)

I. (a) PLAINTIFFS

Zodiac Pool Systems LLC and Zodiac Pool Care Europe

(b) County of Residence of First Listed Plaintiff **Fulton**
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys (Firm Name, Address, and Telephone Number)

Steven D. Moore, Kilpatrick Townsend & Stockton (415) 576-0200
Two Embarcadero Center, Ste. 1900, San Francisco CA 94111

DEFENDANTS

Wybotics, Co., LTD. f/k/a Tianjin Wangyuan Environmental Protection and Technology., Ltd.

County of Residence of First Listed Defendant **Unknown**
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys (If Known)

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

- | | PTF | DEF | | PTF | DEF |
|---|----------------------------|----------------------------|---|----------------------------|----------------------------|
| Citizen of This State | ☐ 1 | ☐ 1 | Incorporated or Principal Place of Business In This State | ☐ 4 | ☐ 4 |
| Citizen of Another State | ☐ 2 | ☐ 2 | Incorporated and Principal Place of Business In Another State | ☐ 5 | ☐ 5 |
| Citizen or Subject of a Foreign Country | ☐ 3 | ☐ 3 | Foreign Nation | ☐ 6 | ☐ 6 |

IV. NATURE OF SUIT (Place an "X" in One Box Only)

Click here for: [Nature of Suit Code Descriptions.](#)

CONTRACT	TORTS	FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
☐ 110 Insurance ☐ 120 Marine ☐ 130 Miller Act ☐ 140 Negotiable Instrument ☐ 150 Recovery of Overpayment & Enforcement of Judgment ☐ 151 Medicare Act ☐ 152 Recovery of Defaulted Student Loans (Excludes Veterans) ☐ 153 Recovery of Overpayment of Veteran's Benefits ☐ 160 Stockholders' Suits ☐ 190 Other Contract ☐ 195 Contract Product Liability ☐ 196 Franchise	PERSONAL INJURY ☐ 310 Airplane ☐ 315 Airplane Product Liability ☐ 320 Assault, Libel & Slander ☐ 330 Federal Employers' Liability ☐ 340 Marine ☐ 345 Marine Product Liability ☐ 350 Motor Vehicle ☐ 355 Motor Vehicle Product Liability ☐ 360 Other Personal Injury ☐ 362 Personal Injury - Medical Malpractice	PERSONAL INJURY ☐ 365 Personal Injury - Product Liability ☐ 367 Health Care/Pharmaceutical Personal Injury Product Liability ☐ 368 Asbestos Personal Injury Product Liability PERSONAL PROPERTY ☐ 370 Other Fraud ☐ 371 Truth in Lending ☐ 380 Other Personal Property Damage ☐ 385 Property Damage Product Liability	☐ 625 Drug Related Seizure of Property 21 USC 881 ☐ 690 Other	☐ 422 Appeal 28 USC 158 ☐ 423 Withdrawal 28 USC 157 PROPERTY RIGHTS ☐ 820 Copyrights ☒ 830 Patent ☐ 835 Patent - Abbreviated New Drug Application ☐ 840 Trademark SOCIAL SECURITY ☐ 861 HIA (1395ff) ☐ 862 Black Lung (923) ☐ 863 DIWC/DIWW (405(g)) ☐ 864 SSID Title XVI ☐ 865 RSI (405(g))
REAL PROPERTY ☐ 210 Land Condemnation ☐ 220 Foreclosure ☐ 230 Rent Lease & Ejectment ☐ 240 Torts to Land ☐ 245 Tort Product Liability ☐ 290 All Other Real Property	CIVIL RIGHTS ☐ 440 Other Civil Rights ☐ 441 Voting ☐ 442 Employment ☐ 443 Housing/Accommodations ☐ 445 Amer. w/Disabilities - Employment ☐ 446 Amer. w/Disabilities - Other ☐ 448 Education	PRISONER PETITIONS Habeas Corpus: ☐ 463 Alien Detainee ☐ 510 Motions to Vacate Sentence ☐ 530 General ☐ 535 Death Penalty Other: ☐ 540 Mandamus & Other ☐ 550 Civil Rights ☐ 555 Prison Condition ☐ 560 Civil Detainee - Conditions of Confinement	☐ 710 Fair Labor Standards Act ☐ 720 Labor/Management Relations ☐ 740 Railway Labor Act ☐ 751 Family and Medical Leave Act ☐ 790 Other Labor Litigation ☐ 791 Employee Retirement Income Security Act	FEDERAL TAX SUITS ☐ 870 Taxes (U.S. Plaintiff or Defendant) ☐ 871 IRS—Third Party 26 USC 7609

V. ORIGIN (Place an "X" in One Box Only)

- ☒ 1 Original Proceeding
- ☐ 2 Removed from State Court
- ☐ 3 Remanded from Appellate Court
- ☐ 4 Reinstated or Reopened
- ☐ 5 Transferred from Another District (specify)
- ☐ 6 Multidistrict Litigation - Transfer
- ☐ 8 Multidistrict Litigation - Direct File

VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing (Do not cite jurisdictional statutes unless diversity):
35 U.S.C. §§ 101, 271, 283, 284, and 285

Brief description of cause:
Patent Infringement

VII. REQUESTED IN COMPLAINT:

☐ CHECK IF THIS IS A CLASS ACTION UNDER RULE 23, F.R.Cv.P.

DEMAND \$

CHECK YES only if demanded in complaint:

JURY DEMAND: ☒ Yes ☐ No

VIII. RELATED CASE(S) IF ANY

(See instructions):

JUDGE

DOCKET NUMBER

DATE

05/23/2025

SIGNATURE OF ATTORNEY OF RECORD

/s/ Melissa R. Smith

FOR OFFICE USE ONLY

RECEIPT #

AMOUNT

APPLYING IFP

JUDGE

MAG. JUDGE