



(11) **EP 3 549 503 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
09.10.2019 Bulletin 2019/41

(51) Int Cl.:
A47L 9/06 (2006.01)

(21) Application number: **17875326.5**

(86) International application number:
PCT/CN2017/114510

(22) Date of filing: **04.12.2017**

(87) International publication number:
WO 2018/099486 (07.06.2018 Gazette 2018/23)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD TN

(72) Inventors:
• **KONG, Zhao**
Suzhou
Jiangsu 215000 (CN)
• **LIU, Haiping**
Suzhou
Jiangsu 215000 (CN)
• **ZHANG, Xin**
Suzhou
Jiangsu 215000 (CN)

(30) Priority: **02.12.2016 CN 201611100361**
05.05.2017 CN 201720493125 U
05.05.2017 CN 201710311781

(74) Representative: **Stuttard, Garry Philip**
Urquhart-Dykes & Lord LLP
Arena Point
Merrion Way
Leeds LS2 8PA (GB)

(71) Applicant: **Skybest Electric Appliance (Suzhou) Co., Ltd.**
Jiangsu 215000 (CN)

(54) **WATER ABSORPTION BRUSH HEAD AND WET/DRY VACUUM CLEANER WITH SAME**

(57) The present invention relates to a water absorption brush head comprising a brush head housing (1). The brush head housing (1) is provided with a suction passage in communication with a vacuum source to generate a suction flow. The brush head housing (1) comprises a brush head portion (12). The brush head portion (12) is provided with a first scraping strip (2) and a second scraping strip (3). A suction inlet (11) in communication with the suction passage is formed between the first scraping strip (2) and the second scraping strip (3). The first scraping strip (2) and the second scraping strip (3) are formed in such a manner that at least one end thereof protrudes out of a boundary of the brush head portion (12) in the extension direction of a first axis (N). With the water absorption brush head, the proximity of left and right ends of a water brush can be improved, and the total width of the suction inlet is greater than that of the brush head housing, and both sides thereof protrude out of the margin of the brush head housing, so in marginal areas, such as a corner of a wall or a window frame, the scraping strips can be brought into contact with corner areas ahead of the brush head housing, so that the corner areas can be fully cleaned without any blind spots

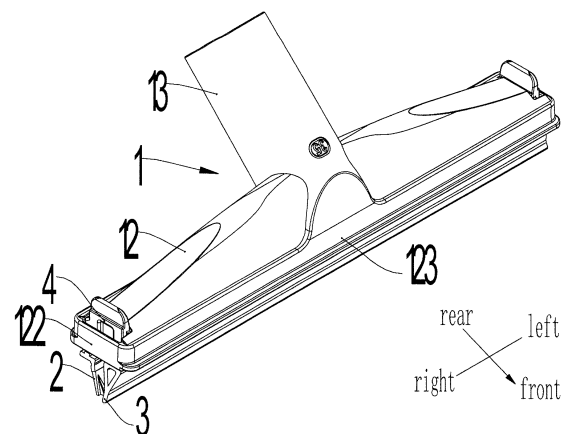


FIG. 1

EP 3 549 503 A1

Description

TECHNICAL FIELD

[0001] This disclosure relates to a fluid suction nozzle, and more particularly relates to a fluid suction nozzle for a vacuum cleaner. This disclosure further relates to a dry-wet vacuum cleaner comprising the fluid suction nozzle.

BACKGROUND

[0002] In the prior art, there has been a fluid suction nozzle mounted on a vacuum cleaner specially for drawing a liquid-air mixture from a hard surface such as a glass surface. Such a fluid suction nozzle has an upper squeegee and a lower squeegee, between which there is a gap forming a suction inlet.

[0003] Typically, Chinese utility model patent document CN204889859U discloses a suction nozzle of a vacuum cleaner for window, including a nozzle housing in which is defined a suction passage. The nozzle housing is provided with an upper squeegee and a lower squeegee, and there is defined a suction inlet that communicates with the suction passage between the first surface of the upper squeegee and the first surface of the lower squeegee. On the second side opposite to the first side of the lower squeegee is provided a plurality of channels or/and through holes configured along a length of the lower squeegee. The channel goes through the front end surface of the lower squeegee, the through holes run through the first side of the lower squeegee, and the suction unit communicating with the suction passage would generate a suction force near the suction inlet when in operation. Generally, both ends of the squeegee in length direction are enclosed within the range of the nozzle housing. By using such nozzle, a cleaning dead zone where the squeegees cannot reach because of the wider nozzle housing would be formed at the edges of a wall or a window, such that the edges cannot be conveniently cleaned up. In addition, in the prior art, the width of the gap between the upper and the lower squeegees is a constant. However, when the suction nozzle in operation, in the direction of the length, the portion near the midst of the fluid suction nozzle has better suction performance than the portion near the ends, resulting in a problem that both ends of the fluid suction nozzle cannot be thoroughly cleaned. Further, the ratios of area gradual variation are not matched with each other between the suction inlet formed by the upper the lower squeegees and that provided on the support, such that the area of suction inlet does not match with the maximum efficiency point of the entire vacuum cleaner. As such, the overall efficiency cannot be maximized.

SUMMARY

[0004] The technical problem to be solved by the

present disclosure is to provide a fluid suction nozzle that has a superior reaching performance at the edges and that has a high suction uniformity. In order to solve the above technical problem, the present disclosure provides a fluid suction nozzle that includes a nozzle housing, the nozzle housing having a suction passage that communicates with a vacuum source for generating a suction flow; the nozzle housing includes a head portion; the head portion is provided with a first squeegee and a second squeegee, and a suction inlet communicating with the suction passage is formed between the first squeegee and the second squeegee; the fluid suction nozzle is characterized in that at least one end of the first squeegee and the second squeegee protrudes outward from the boundary of the head portion along the extension direction of the first axis.

[0005] Preferably, the side edges of the first squeegee and/or the second squeegee form an angle α with the vertical direction.

[0006] Preferably, the angle α meets $5^\circ \leq \alpha \leq 15^\circ$.

[0007] Preferably, the angle α meets $\alpha = 10^\circ$.

[0008] In order to solve the above technical problem, the present disclosure further provides a fluid suction nozzle that includes a nozzle housing, the nozzle housing having a suction passage that communicates with a vacuum source for generating the suction flow; the nozzle housing includes a head portion that is provided with a first squeegee and a second squeegee, and a suction inlet communicating with the suction passage is formed between the first squeegee and the second squeegee; the head portion includes a support having a support suction inlet that extends along the direction of the length thereof; the fluid suction nozzle is characterized in that the area per unit length of the suction inlet that the fluid passes through decreases from both ends thereof toward the midst, and the area per unit length of the support suction inlet that the fluid passes through decreases from both ends thereof toward the midst.

[0009] Preferably, the variation tendency of the area per unit length of the suction inlet the fluid passes through is the same as of that the area per unit length of the support suction inlet. Preferably, along the extending direction of the first axis from one side to the other, the cumulative area increment of the suction inlet coincides with the cumulative area increment of the support suction inlet.

[0010] Preferably, the ratio of the cumulative area increment of the suction inlet to the cumulative area increment of the support suction inlet is a constant.

[0011] Preferably, the area of the suction inlet the fluid passes through coincides with the area of the support suction inlet the fluid passes through.

[0012] Preferably, at least one airflow guiding member is further disposed on both sides of the support suction inlet, and the airflow guiding member defines the support suction inlet as trumpet-shaped. Preferably, the suction inlet includes a plurality of suction inlet units spaced apart from each other and the area of the suction inlet units

decreases from both ends toward the midst.

[0013] With the disclosure above, the reaching capability of left and right ends of the fluid suction nozzle can be improved. A total width of the suction inlet is greater than the nozzle housing, and both sides of the suction inlet protrude from the edges of the nozzle housing, so that when cleaning edges such as a corner or a window frame, the squeegees can reach the corner area before the nozzle housing do, resulting in all corner areas being cleaned up without leaving a blind spot.

[0014] With the disclosure above, the suction uniformity of the fluid suction nozzle can be improved. Since the flow rate away from the midst of the suction inlet (*i.e.*, adjacent to both ends) is low, increasing the suction inlet area at both ends can make the flow of each suction inlet unit substantially the same when sucking. This solution can overcome the shortcoming of the suction non-uniformity of the traditional fluid suction nozzle. The area design of the suction inlet and the support suction inlet can well distribute the vacuum degree and flow of the vacuum cleaner well, and the first squeegee and the second squeegee can work in parallel thereby well scraping the water into the suction inlet, which greatly improves the working efficiency of the suction nozzle.

BRIEF DESCRIPTION OF DRAWINGS

[0015]

FIG. 1 is a schematic view illustrating the fluid suction nozzle according to the present disclosure;
 FIG. 2 is a rear view of the fluid suction nozzle according to the present disclosure;
 FIG. 3 is a partial enlarged view of portion P1 of FIG. 2;
 FIG. 4 is a sectional view taken along A-A of FIG. 2;
 FIG. 5 is a partial enlarged view of portion P3 of FIG. 4;
 FIG. 6 is a bottom view of the fluid suction nozzle according to the present disclosure;
 FIG. 7 is a partial enlarged view of portion P2 of FIG. 6;
 FIG. 8 is a schematic view illustrating the support in the fluid suction nozzle according to the present disclosure;
 FIG. 9 is a side view illustrating the support in the fluid suction nozzle according to the present disclosure;
 FIG. 10 is a sectional view taken along B-B of FIG. 9;
 FIG. 11 is a plan view illustrating the support in the fluid suction nozzle according to the present disclosure;
 FIG. 12 is a cross-sectional view illustrating the first squeegee in the fluid suction nozzle according to the present disclosure; and
 FIG. 13 is a cross-sectional view illustrating the second squeegee in the fluid suction nozzle according to the present disclosure.

DETAILED DESCRIPTION

[0016] An illustrative embodiment of the fluid suction nozzle according to the present disclosure is illustrated in FIG. 1. The fluid suction nozzle includes a nozzle housing 1. The nozzle housing 1 includes a head portion 12 extending in left-right direction and in which a cavity with a lower opening is formed. In this embodiment, the contour of the head portion 12 is substantially a cuboid, and comprises a left wall 121, a right wall 122 opposite to the left wall 121, a front wall 123 connecting the front ends of the left wall 121 and the right wall 122, and a rear wall opposite to the front wall 123. A top wall is provided above the left wall 121, the right wall 122, the front wall 123, and the rear wall. The cavity surrounded by the left wall 121, the right wall 122, the front wall 123, and the rear wall are open at the lower part. In other embodiments, the head portion 12 can be changed into other shapes. Specifically, at least one of the left wall 121, the right wall 122, the front wall 123, the rear wall or the top wall may be changed; for example, a curved surface and the like may be added. The head housing 1 further includes a connecting tube 13 that extends rearward and upward from the top wall of the head portion 12. The connecting tube 13 has a tubular cavity, which has lower end that is in fluid communication with the cavity inside the head portion 12, and the upper end of the tubular cavity is configured to fluid communicate with a vacuum generator.

[0017] The fluid suction nozzle according to the present disclosure further includes a first squeegee 2, a second squeegee 3, and a support 4. The first squeegee 2 and the second squeegee 3 are both strip-shaped flexible squeegees. The support 4 is mounted in the cavity inside the head portion 12, and the first squeegee 2 and the second squeegee 3 are mounted below the support 4. In other embodiments, the first squeegee 2 and the second squeegee 3 may also be directly mounted below the head portion 12 without the support 4, as long as the head portion 12 has a corresponding mounting structure. In this embodiment, the support 4 is detachably connected to the nozzle housing 1. In other embodiments, the support 4 may also be integrally formed with or non-detachably connected to the nozzle housing 1.

[0018] As illustrated in FIG. 8 to FIG. 11, the external shape of the support 4 is substantially adapted to the shape of the cavity inside the head portion 12. Two snap hooks 41 are configured to be the outstretched portions respectively extending upwardly from the two ends of the support 4, and correspondingly, the top wall of the head portion 12 is provided with two snap slots respectively. The snap hook 41 is connected to the snap slot to fix the support 4 in or below the head portion 12. In this embodiment, the snap slot is a through slot, and the snap hook 41 passes through the snap slot from the lower side of the head portion 12 to engage the support 4 with the head portion 12. In other embodiments, the support 4 can be fixed with the head portion 12 by other means, such as

sticking by an adhesive, bolting by a bolt, or the like.

[0019] The support 4 includes a support suction inlet 44 extending along the direction of the length thereof, and the length dimension of the support suction inlet 44 is much larger than the width dimension thereof. In this embodiment, the support 4 has a third axis M2 extending along the width (i.e., a front-rear direction) thereof and a first axis N extending along the length (i.e., a left-right direction) thereof. As illustrated in FIG 11, the support 4 is substantially symmetrical about the third axis M2 and is substantially symmetrical about the first axis N. The support suction inlet 44 is disposed along the axis N and has a certain width in the direction of the third axis M2.

[0020] The support 4 further includes a first mounting groove 42 and a second mounting groove 43 extending along the direction of the first axis N. The first mounting groove 42 and the second mounting groove 43 are located below the support suction inlet 44, and along the extending direction of the third axis M2 of the support 4, the first mounting groove 42 and the second mounting groove 43 are respectively disposed at front and rear sides of the support suction inlet 44. In the present embodiment, as illustrated in FIG. 8 and FIG. 9, the first mounting groove 42 and the second mounting groove 43 have the same shape and are symmetrically disposed below the support suction inlet 44. More specifically, taking the first mounting groove 42 as an example, the first mounting groove 42 has a substantially T-shaped cross section. In other embodiments, the first mounting groove 42 and the second mounting groove 43 may adopt other identical or different shapes as long as the installation requirements of the first squeegee 2 and the second squeegee 3 can be satisfied. Certainly, the first squeegee 2 and the second squeegee 3 may also be mounted on the support 4 in other detachable or non-detachable manners.

[0021] As illustrated in FIG. 12, the first squeegee 2 includes a first main body 21 extending upwardly to form a first connecting portion 22, and the cross-sectional shape of the first connecting portion 22 matches that of the first mounting portion 42. The first main body 21 extends obliquely forward and downward to form the first lip 23. The first lip 23 has a first convex portion 231 at the end of the side (front side) facing toward the oblique direction thereof, and has a second convex portion 232 at the end of the side (rear side) facing away from the oblique direction thereof. As illustrated in FIG. 6 and FIG. 7, the first convex portions 231 are spaced apart from each other on the side of the end of the first lip 23 along the length (the extending direction of the third axis M2) of the first squeegee 2. The second convex portions 232 are spaced apart from each other on the other side of the end of the first lip 23 along the length (the extending direction of the third axis M2) of the first squeegee 2. The first convex portion 231 is disposed corresponding to the second convex portion 232. In other embodiments, the first convex portion 231 and the second convex portion 232 may also be arranged in a staggered manner.

[0022] As illustrated in FIG. 13, the second squeegee 3 includes a second main body 31 extending upwardly to form a second connecting 32, and the cross-sectional shape of the second connecting portion 32 matches that of the second mounting portion 43. The width of the second main body 31 is reduced from the top to the bottom. Specifically, the second main body 31 is substantially inverted triangle-shaped. More specifically, the second main body 31 is substantially inverted isosceles triangle-shaped. Preferably, the second main body 31 has a hollow structure. The second main body 31 extends downwardly to form the second lip 33.

[0023] As illustrated in FIG. 4 and FIG. 5, the first squeegee 2 and the second squeegee 3 are mounted in pairs below the head portion 12. Specifically, the first squeegee 2 is mounted behind the support suction inlet 44, and the first lip 23 is inclined forward and the second squeegee 3 is mounted in front of the support suction inlet 44. A fluid passage is formed between the first squeegee 2 and the second squeegee 3. When the fluid suction nozzle is connected to the vacuum generator and in operation, the first lip 23 would move toward the second lip 33 under the action of the vacuum generator because the first squeegee 2 and the second squeegee 3 are of a flexible material. The first lip 23 has the first convex portion 231 spaced apart from each other, so that the first convex portion 231 is adjacent to the second lip 33, and a suction inlet 11 for allowing fluid to pass through is formed between adjacent two first convex portions 231, as illustrated in FIG 6 and FIG 7. A suction passage is formed from the suction inlet 11 to the connecting tube 13. The fluid enters between the first squeegee 2 and the second squeegee 3 via the suction inlet 11, and sequentially passes through the support suction inlet 44, the cavity inside the head portion 12, and the connecting tube 13, and eventually flows to the vacuum generator.

[0024] When in operation, the fluid suction nozzle of the present disclosure is usually moved forward and backward along the extending direction of the third axis M2 to be operated.

Embodiment 1

[0025] In this embodiment, at least one end of the suction inlet 11 protrudes from the nozzle housing 1 along the extending direction (i.e., the length extending direction of the suction inlet 11) of the first axis N. In this embodiment, the suction inlet 11 protrudes from the nozzle housing 1 at both the left and right ends. As illustrated in FIG. 2 and FIG. 3, the left and right sides of the fluid suction nozzle have the same or similar structure, and the left side of the fluid suction nozzle is taken as an example for description herein. The suction inlet 11 has a left side boundary S1 substantially perpendicular to the length extending direction of the head portion 12, and the left side boundary S1 of the suction inlet 11 is defined by at least one of the left side edge of the first squeegee 2 and the left side edge of the second squeegee 3. The

left wall of the nozzle housing 1 has a left side boundary S2 substantially perpendicular to the length extending direction of the head portion 12, and the S1 is at the left side of the S2. Specifically, the first squeegee 2 has a left side edge that is inclined downward to the left, and the second squeegee 3 has a left side edge that is inclined downward to the left. The left side edge of the first squeegee 2 and the left side edge of the second squeegee 3 collectively define the suction inlet portion that protrudes from the left side of the nozzle housing 1. Preferably, the upper edges of the first squeegee 2 and the second squeegee 3 are substantially flush with the left side boundary S2 of the nozzle housing 1. The left side of the first squeegee 2 and the second squeegee 3 form an angle α with the vertical direction, and $0 \leq \alpha < 90^\circ$, more preferably, $5^\circ \leq \alpha \leq 15^\circ$, and in the present embodiment, $\alpha = 10^\circ$. When the left side of the fluid suction nozzle is cleaning corners, such as a left side corner, the nozzle housing 1 does not interfere with the left side boundary S1 of the suction inlet 11 to reach the left side wall, so that the left side corner can be sufficiently cleaned. The structure and configuration on the right side of the nozzle housing 1 are the same as those on the left side, and will not be described herein again.

[0026] The present embodiment can improve the reaching capability of the left and right ends of the suction nozzle. The total width of the suction inlet is greater than that of the nozzle housing, and both sides protrude from the edge of the nozzle housing, so that when cleaning edges such as a corner or a window frame, the squeegee can reach the corner area before the nozzle housing, so that all corner areas can be cleaned up without leaving a blind spot.

Embodiment 2

[0027] In this embodiment, the area per unit length of the suction inlet like the fluid passes through gradually decreases from both ends toward the midst. Specifically, as illustrated in FIG. 6, pluralities of gaps are formed by the separateness between the first lip 23 and the second lip 33 by the adjacent two first convex portions 231. Each of the gaps is defined as a suction inlet unit 110, and the suction inlet 11 is formed by a plurality of suction inlet units 110 that are spaced apart from each other. The area of the suction inlet unit 110 gradually decreases from both ends toward the midst of the suction inlet, and the area of the suction inlet unit 110 is adjusted by the change in a height of the first convex portion 231 and the change in a distance between adjacent two first convex portions 231. In the present embodiment, the height of the first convex portion 231 gradually decreases from both ends toward the midst, and the distance between the adjacent two first convex portions 231 does not change. In another embodiment, the height of the first convex portion 231 does not change, and the distance between the adjacent two first convex portions 231 gradually decreases from both ends toward the midst. Cer-

tainly, the height of the first convex portion 231 and the distance between the adjacent two first convex portions 231 may be simultaneously changed, as long as the area of the suction inlet unit 110 gradually decreases from both ends toward the midst. In the present embodiment, the suction inlet unit having the largest area is located at both ends of the suction inlet 11. The area of the suction inlet unit 110 having the largest area is 6.8mm^2 , and the area of the suction inlet unit 110 having the smallest area is located at the midst of the suction inlet 11, which is 3.8mm^2 . Since the flow rate near the end of the suction inlet 11 is small, increasing the area of the suction inlet unit 110 near both ends of the suction inlet 11 enables the flow rate to be substantially uniform when each of the suction inlet units 110 is sucking.

[0028] In the present embodiment, the area per unit length of the support suction inlet 44 the fluid passes through decreases from both ends toward the midst, and the variation tendency of the area per unit length of the suction inlet the fluid passes through is the same as of that the area per unit length of the support suction inlet 44. Specifically, as illustrated in FIG. 11, the width of the support suction inlet 44 gradually decreases from both ends (away from the third axis M2) toward the midst (toward the third axis M2). In the present embodiment, the total area (*i.e.*, the sum of the areas of all the suction inlet units 110, recorded as SA_1) that the fluid passes through of the suction inlet 11 is substantially equal to the area (SA_2) that the fluid passes through of the support suction inlet 44. Preferably, the total area that the fluid passes through the suction inlet 11 is equal to the area that the fluid passes through the support suction inlet 44, that is, $SA_1 = SA_2$. More preferably, from one side of the fluid suction nozzle along the length thereof to the other side, such as from the left side to the right side, the cumulative area increment of the suction inlet 11 corresponds to the cumulative area increment of the support suction inlet 44. Preferably, the ratio of the cumulative area increment of the suction inlet 11 to the cumulative area increment of the support suction inlet 44 is approximately a constant. Specifically, assuming that the suction inlet 11 is divided into a number of n small segments with equal length along the length thereof, and the support suction inlet 44 is also divided into a number of n small segments with equal length along the length thereof, wherein the n is any positive integer. The area that the fluid passes through the leftmost segment of the suction inlet 11 is recorded as x_1 , and the area of the suction inlet 11 that the fluid passes through each small segment from left to right are recorded as x_2, x_3, \dots , then the area that the fluid passes through the far right segment is x_n , and $SA_1 = \sum x_n$. Similarly, the area of the support suction inlet 44 that the fluid of each small segment passes through from left to right are recorded as y_1, y_2, \dots, y_n , and $SA_2 = \sum y_n$. For any integer m , and

$$1 \leq m \leq n, \quad \sum_{i=1}^n x_i / \sum_{j=1}^m y_j = k \quad \sum_{i=1}^n x_i / \sum_{j=1}^m y_j = k,$$

wherein k is a constant, i and j are integers, and $1 \leq i \leq m$, $1 \leq j \leq m$. In particular, $k = 1$.

[0029] Further, in this embodiment, as illustrated in FIG. 2, FIG. 6 and FIG. 10, the first squeegee 2 and the second squeegee 3 are both substantially trapezoid-shaped. The lower base length $L1$ of the trapezoid is substantially the length of the suction inlet 11, and the upper base length $L2$ of the trapezoid is substantially the length of the bottom of the support suction inlet 44. Airflow guiding members 441 are respectively disposed at the left and right ends of the support suction inlet 44. The airflow guiding member 441 extends obliquely upward from the left/right bottom portion of the support suction inlet 44, and an upper end portion of the airflow guiding member 441 is closer to the central axis (the second axis M1) of the support 4 than a lower end portion thereof. By employing such configuration, the airflow guiding member 441 defines the support suction inlet 44 as trumpet-shaped, and the top length $L3$ of the support suction inlet 44 is smaller than the bottom length $L2$ of the support suction inlet 44. As a whole, from the suction inlet 11 to the top of the support suction inlet, the suction passage gradually decreases in the length direction of the fluid suction nozzle, that is, $L1 > L2 > L3$. Since the length of the support suction inlet 44 varies in the vertical direction, the above SA_2 is an area defined by a plane perpendicular to the flow direction of the airflow from the bottom of the support suction inlet 44 to the top thereof.

[0030] The present embodiment can improve the suction uniformity of the fluid suction nozzle. Since the flow rate of the suction inlet far from the midst (*i.e.*, near the both ends) of the fluid suction nozzle is small, increasing the suction inlet area near both ends can make the flow rate of each inlet substantially the same when sucking. The solution can overcome the shortcoming of the non-uniformity of the suction effect of the traditional fluid suction nozzle. The area design of the suction inlet and the support suction inlet can well distribute the vacuum degree and the flow of the vacuum cleaner, and the first squeegee and the second squeegee can well scrap the water into the suction inlet, which greatly improves the working efficiency of the suction nozzle. The total area of the suction inlet is approximately the same as the suction inlet area of the maximum efficiency point of the whole machine, so that the maximum efficiency of the vacuum cleaner can be obtained when the fluid suction nozzle is in operation.

Claims

1. A fluid suction nozzle that includes a nozzle housing (1), the nozzle housing (1) having a suction passage that communicates with a vacuum source for gener-

ating a suction flow; the nozzle housing (1) includes a head portion (12); the head portion (12) is provided with a first squeegee (2) and a second squeegee (3), and a suction inlet (11) communicating with the suction passage is formed between the first squeegee (2) and the second squeegee (3); the fluid suction nozzle is **characterized in that** at least one end of the first squeegee (2) and the second squeegee (3) protrudes outward from the boundary of the head portion (12) along the extension direction of the first axis (N).

2. A fluid suction nozzle in accordance with claim 1, wherein the side edges of the first squeegee and/or the second squeegee form an angle α with the vertical direction.
3. A fluid suction nozzle in accordance with claim 2, wherein the angle α meets $5^\circ \leq \alpha \leq 15^\circ$.
4. A fluid suction nozzle in accordance with claim 2, wherein the angle α meets $\alpha = 10^\circ$.
5. A fluid suction nozzle in accordance with claim 1, wherein the area per unit length of the suction inlet (11) that the fluid passes through decreases from both ends thereof toward the midst.
6. A fluid suction nozzle in accordance with claim 5, wherein the suction inlet (11) includes a plurality of suction inlet units (110) spaced apart from each other and the area of the suction inlet units (110) decreases from both ends toward the midst.
7. A fluid suction nozzle in accordance with claim 5, wherein the head portion (12) further includes a support (4) having a support suction inlet (44) that extends along the direction of the length thereof and fluid communicates with the suction inlet (11).
8. A fluid suction nozzle in accordance with claim 7, wherein the variation tendency of the area per unit length of the suction inlet (11) the fluid passes through is the same as that of the area per unit length of the support suction inlet (44).
9. A fluid suction nozzle in accordance with claim 7, wherein along the extending direction of the first axis (N) from one side to the other, the cumulative area increment of the suction inlet (11) coincides with the cumulative area increment of the support suction inlet (44).
10. A fluid suction nozzle in accordance with claim 9, wherein the ratio of the cumulative area increment of the suction inlet (11) to the cumulative area increment of the support suction inlet (44) is a constant.

11. A fluid suction nozzle in accordance with claim 9, wherein the area of the suction inlet (11) the fluid passes through coincides with the area of the support suction inlet (44) the fluid passes through. 5
12. A fluid suction nozzle in accordance with claim 7, wherein at least one airflow guiding member (441) is further disposed on both sides of the support suction inlet (44), and the airflow guiding member (441) defines the support suction inlet as trumpet-shaped. 10
13. A dry-wet vacuum cleaner comprises the fluid suction nozzle in accordance with any one of claim 1 ~ 12. 15

20

25

30

35

40

45

50

55

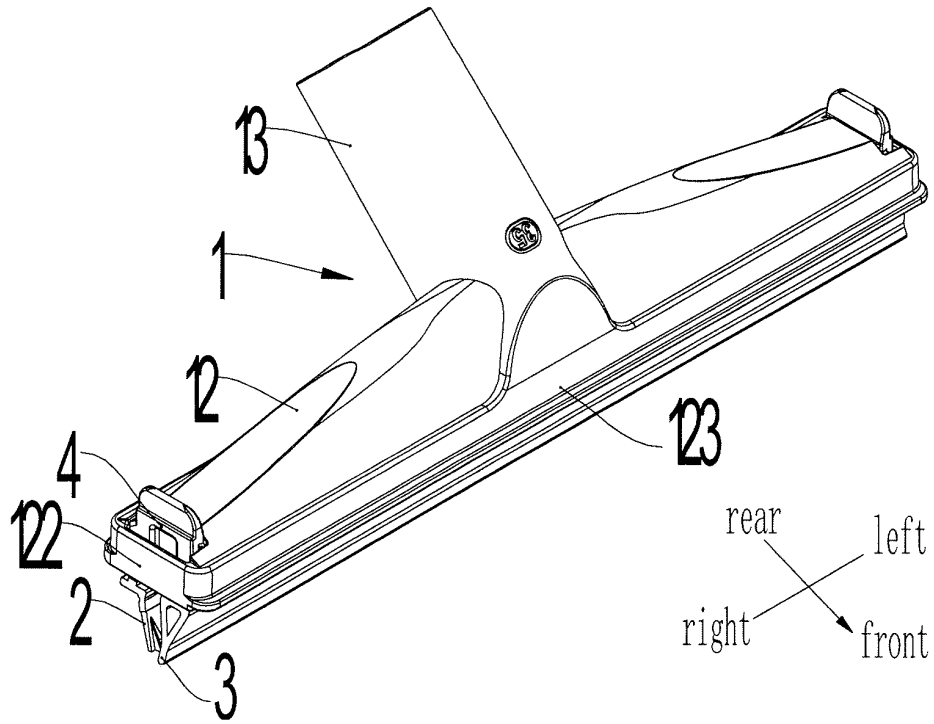


FIG. 1

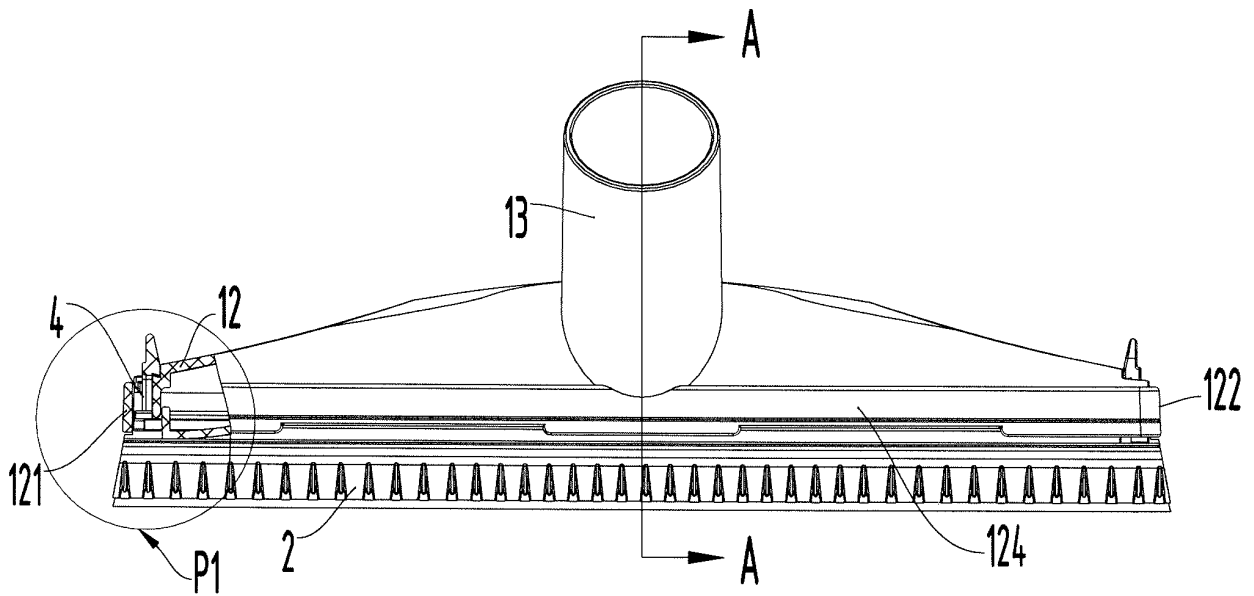


FIG. 2

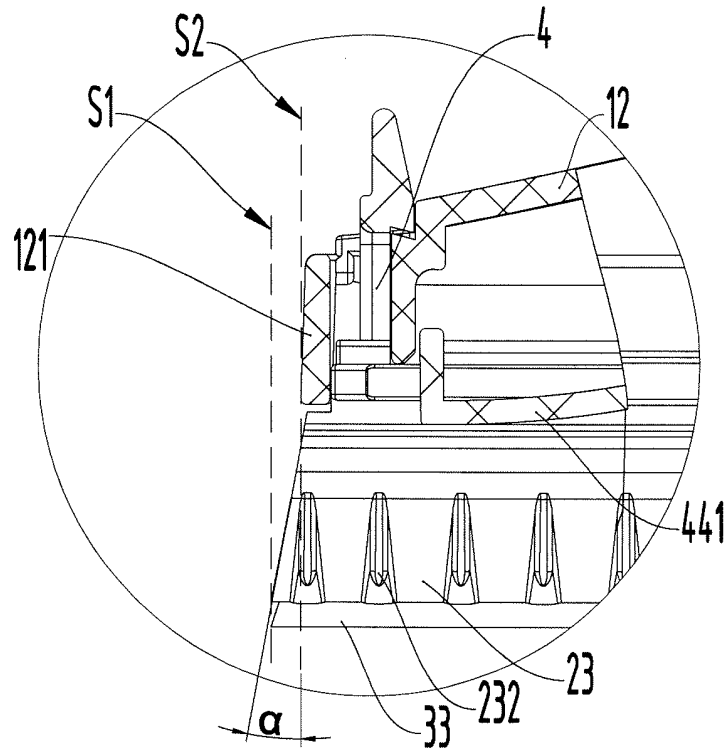


FIG. 3

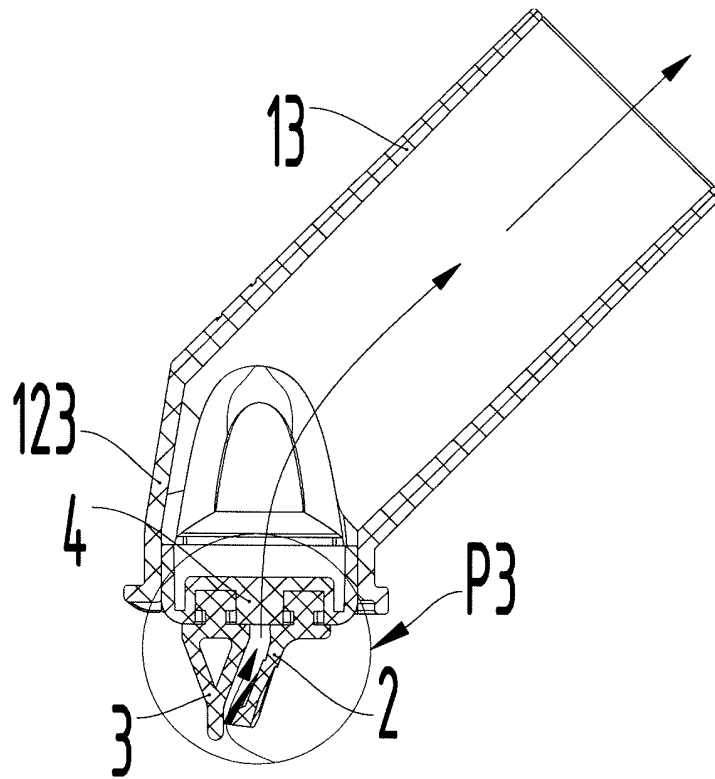


FIG. 4

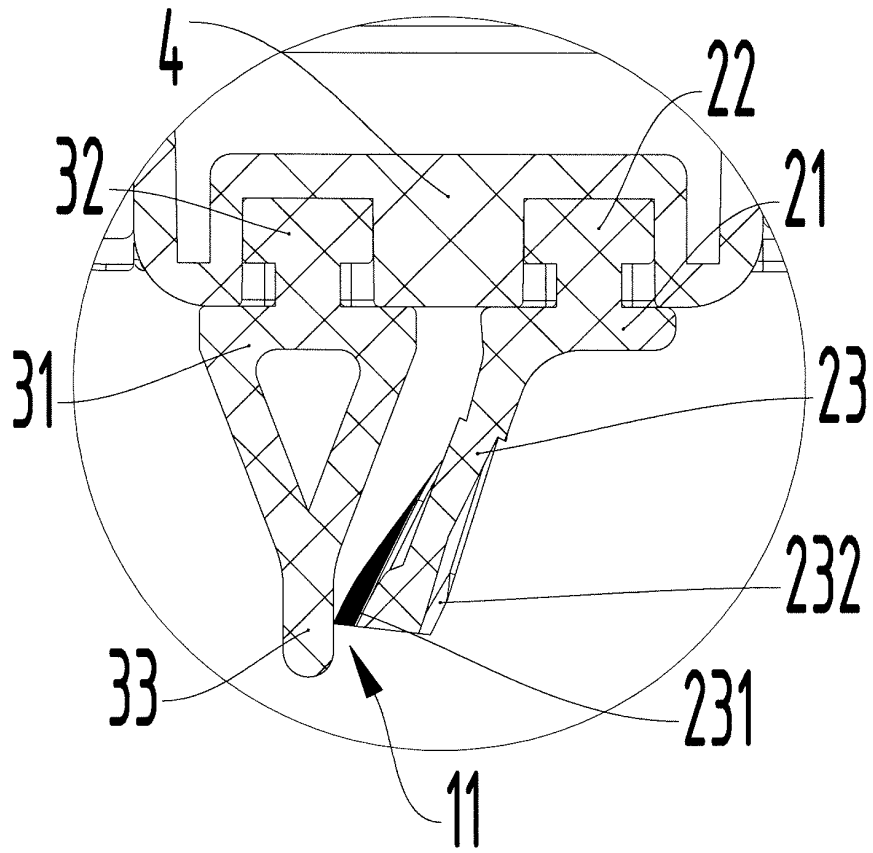


FIG. 5

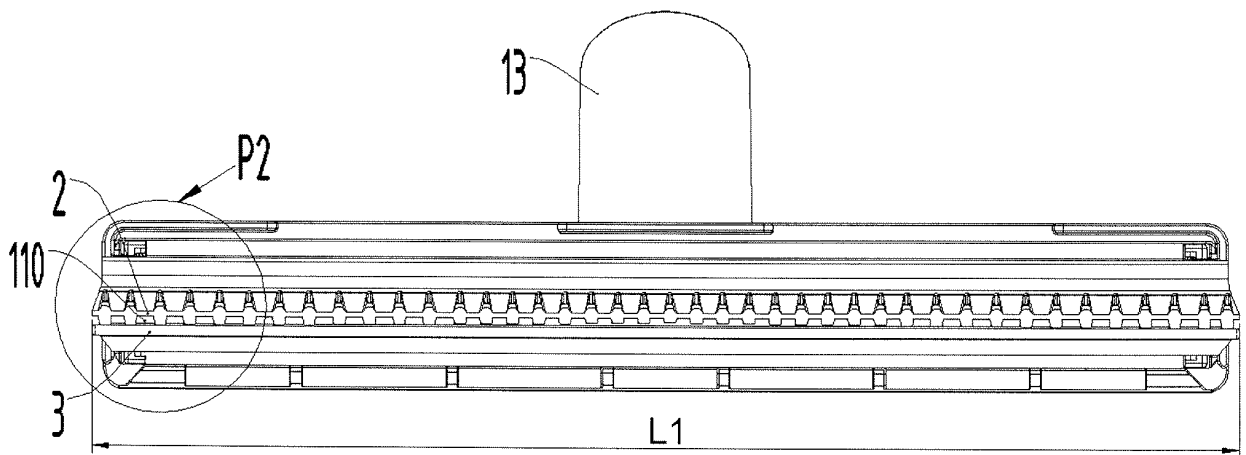


FIG. 6

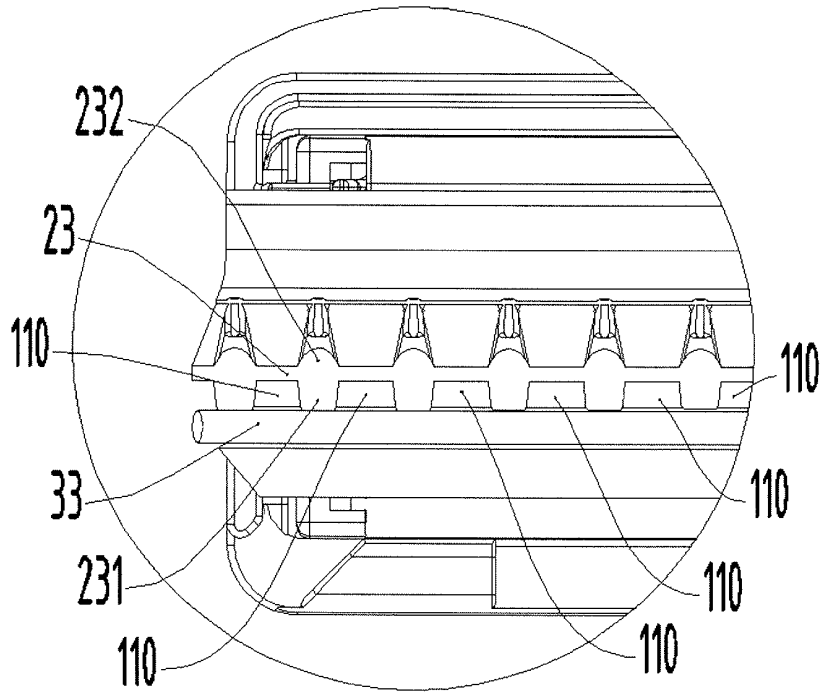


FIG. 7

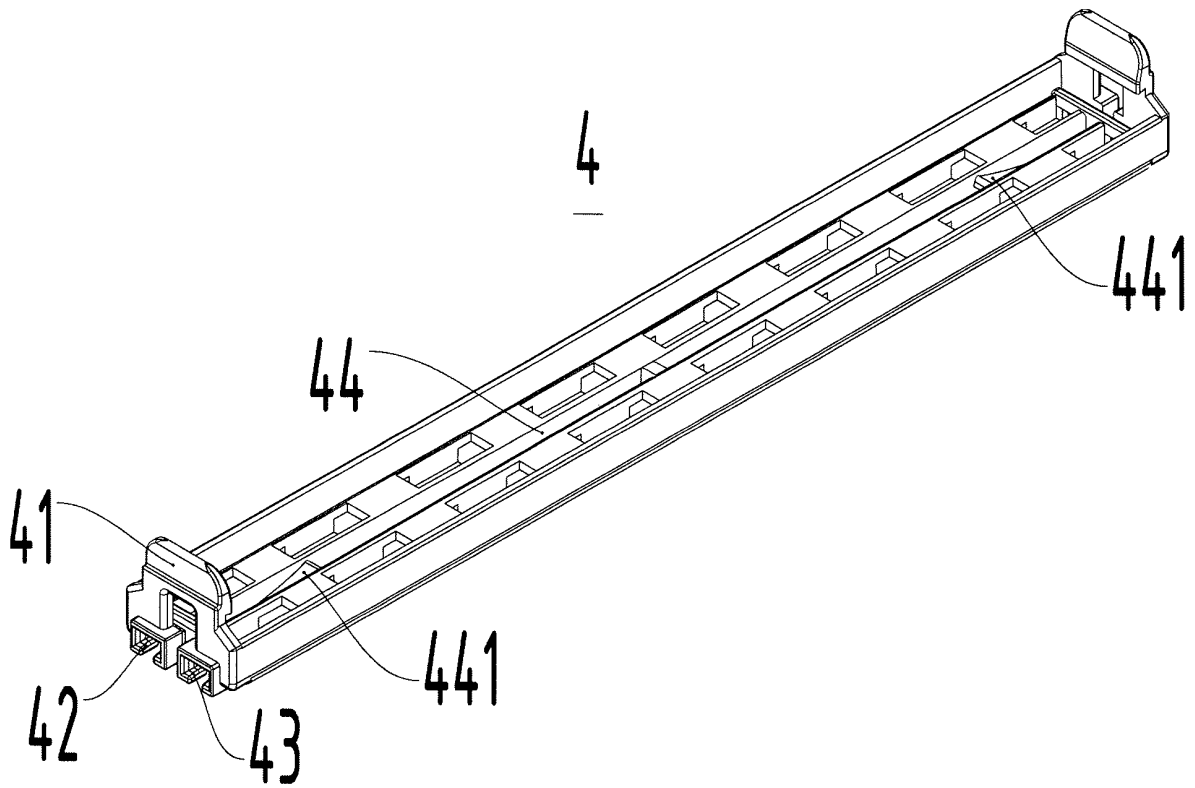


FIG. 8

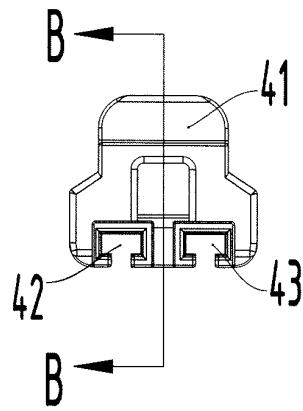


FIG. 9

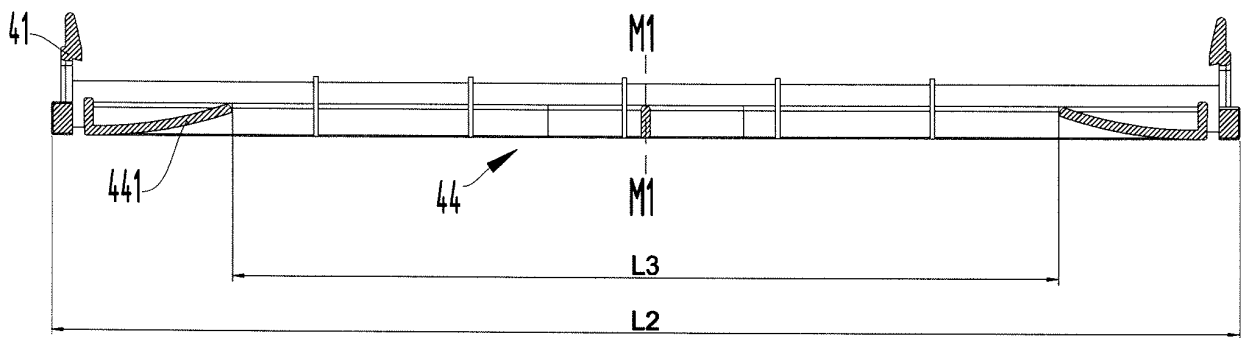
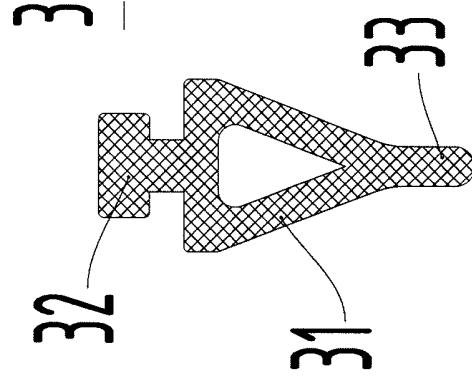
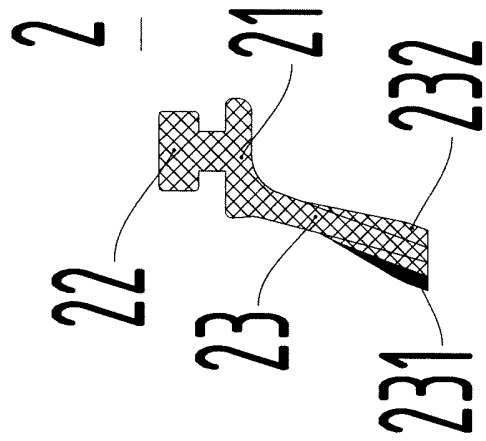
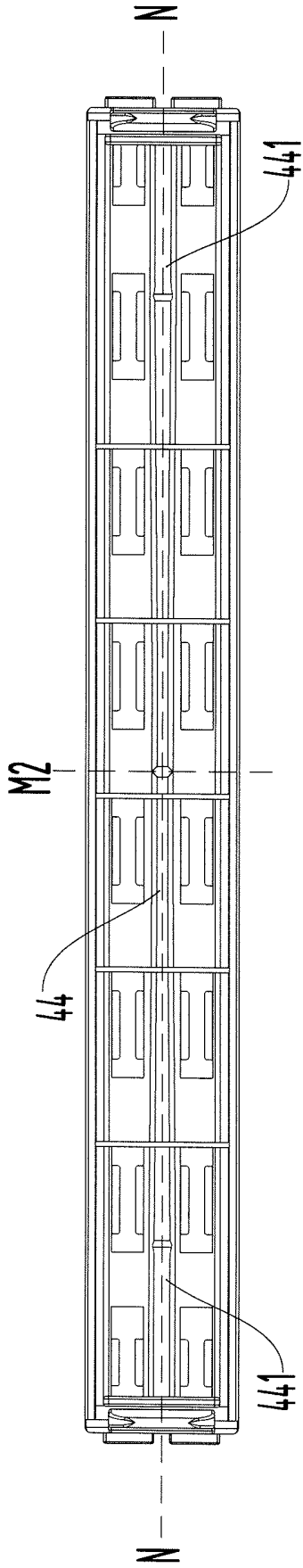


FIG. 10



INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2017/114510

5	A. CLASSIFICATION OF SUBJECT MATTER	
	A47L 9/06 (2006.01) i	
	According to International Patent Classification (IPC) or to both national classification and IPC	
10	B. FIELDS SEARCHED	
	Minimum documentation searched (classification system followed by classification symbols)	
	A47L+	
15	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched	
	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)	
20	CNABS, CNTXT, DWPI, SIPOABS, VEN: 吸尘器, 吸水, 吸头, 刷头, 刮条, 刮片, 刷条, 刷片, 宽, 两, 上, 第一, 倾斜, 角度, absorb+, water, nozzle, vocuum, cleaner	
	C. DOCUMENTS CONSIDERED TO BE RELEVANT	
25	Category*	Citation of document, with indication, where appropriate, of the relevant passages
		Relevant to claim No.
	A	CN 101427899 A (HUANG, Youguang), 13 May 2009 (13.05.2009), entire document
	A	CN 204889859 U (ZHONGSHAN XINHUOLI INTELLIGENT HOUSEHOLD ELECTRICAL APPLIANCE CO., LTD.; CHEN, Yongtai), 23 December 2015 (23.12.2015), entire document
30	A	CN 103919508 A (SUZHOU SHUANGRONG RUBBER AND PLASTIC CO., LTD.), 16 July 2014 (16.07.2014), entire document
	A	EP 0244172 A1 (ROTOWASH LTD.), 04 November 1987 (04.11.1987), entire document
	A	CN 1351477 A (SEB S.A.), 29 May 2002 (29.05.2002), entire document
	A	US 4244080 A (WESSEL, H.), 13 January 1981 (13.01.1981), entire document
	A	US 3538535 A (STANDARD OIL CO), 10 November 1970 (10.11.1970), entire document
35	<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.	
	* Special categories of cited documents:	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
40	“A” document defining the general state of the art which is not considered to be of particular relevance	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
	“E” earlier application or patent but published on or after the international filing date	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
45	“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	“&” document member of the same patent family
	“O” document referring to an oral disclosure, use, exhibition or other means	
	“P” document published prior to the international filing date but later than the priority date claimed	
50	Date of the actual completion of the international search 01 March 2018	Date of mailing of the international search report 08 March 2018
55	Name and mailing address of the ISA State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No. (86-10) 62019451	Authorized officer GAO, Yiyang Telephone No. (86-10) 62085655

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2017/114510

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 101427899 A	13 May 2009	CN 101427899 B	11 August 2010
CN 204889859 U	23 December 2015	WO 2017020594 A1	09 February 2017
CN 103919508 A	16 July 2014	CN 103919508 B	13 January 2016
EP 0244172 A1	04 November 1987	DK 216387 D0	28 April 1987
		DK 216387 A	29 October 1987
		GB 8610373 D0	04 June 1986
CN 1351477 A	29 May 2002	FR 2792817 A1	03 November 2000
		WO 0065979 A1	09 November 2000
		EP 1173085 B1	26 March 2003
		DE 60001818 D1	30 April 2003
		AU 4125900 A	17 November 2000
		TR 200103089 T2	21 May 2002
		KR 20020021092 A	18 March 2002
		EP 1173085 A1	23 January 2002
		FR 2792817 B1	29 June 2001
		DE 60001818 T2	11 December 2003
		AT 235182 T	15 April 2003
US 4244080 A	13 January 1981	DK 152251 B	15 February 1988
		DK 269479 A	04 November 1980
		DK 152251 C	15 August 1988
		DE 7912825 U1	09 October 1980
US 3538535 A	10 November 1970	None	

Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 204889859 U [0003]