(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 033 565 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
11.03.2009 Bulletin 2009/11

(51) Int Cl.:
A47L 13/142 *(2006.01)*

(21) Application number: **08015431.3**

(22) Date of filing: **01.09.2008**

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

(30) Priority: **03.09.2007 ES 200702423**

(71) Applicant: **Inproat Ingenieria S.L.**
34002 Palencia (ES)

(72) Inventor: **Oroz Garcia, Jesús Angel**
34120 Carrión de los Condes
Palencia (ES)

(74) Representative: **Hess, Peter K. G.**
Patent- und Rechtsanwälte
Bardehle . Pagenberg . Dost .
Altenburg . Geissler
Postfach 86 06 20
81633 München (DE)

(54) **Mop handle and directional head with a mechanism to aid wringing out the mop**

(57) The present invention relates to the field of cleaning devices, and specifically to a mop with a handle and a directional head connected to a cleaning element comprising the mop or cloth. The handle, the head and the mop replacement of the device of the present invention have an internal mechanism and are coupled so as to considerably facilitate the wringing out of the mop.

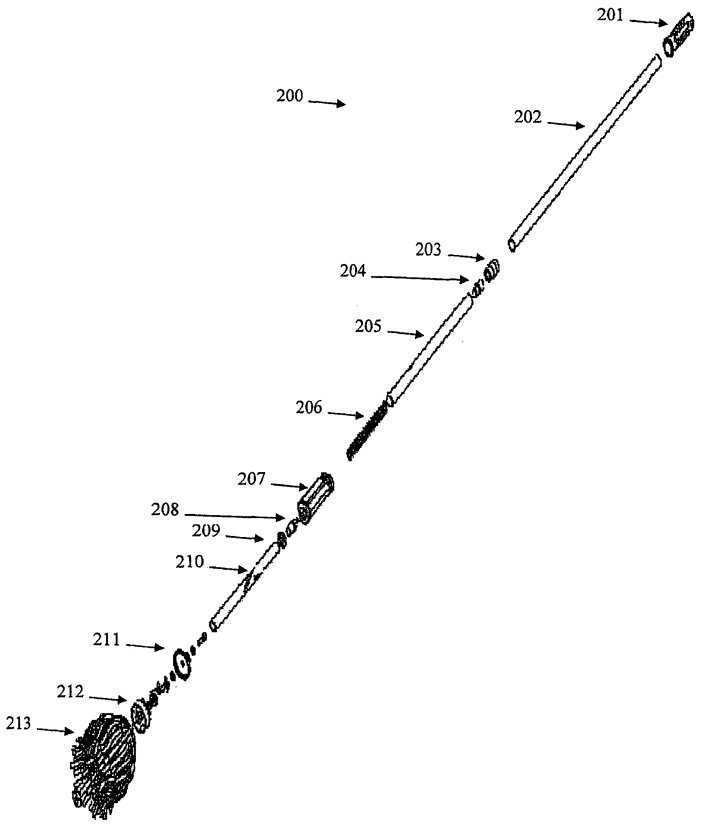

FIG. 2

EP 2 033 565 A2

Description

FIELD OF THE INVENTION

[0001] The present invention relates to the field of cleaning devices, specifically to a mop with a handle and a directional head to which a cleaning element comprised by an interchangeable cloth or mop head is attached.

BACKGROUND OF THE INVENTION

[0002] Typically mops that include cleaning elements in the form of mop heads or strips of absorbent material are wrung out using a bucket with cleaning liquid to rinse out the mop and a net-like element in order to wring out the liquid. Most of these mops are wrung out manually. The mop user must therefore twist and push with force towards the net-like element and the bucket in order to wring out the liquid.

[0003] A great disadvantage of known cleaning devices is that their efficacy when wringing out the liquid from the mop head depends directly on the strength, mainly the twisting strength, the user applies on the mop: The stronger the user twists and pushes upon the mop, the more liquid will be wrung out. It is for this reason that weaker users who cannot twist the mop with force encounter mop heads that do not wring out sufficiently. Given the little force applied, these users are forced to repeat the wringing action multiple times, thus worsening their physical condition.

[0004] For this reason, another great disadvantage of the usual cleaning devices is that they are not suited to people with physical disabilities or the elderly. Even for people with normal strength, ringing out mops is hard work and tiring. Therefore, the little efficacy of the mops does not help them complete their cleaning function correctly.

SUMMARY OF THE INVENTION

[0005] These disadvantages and others are overcome by the invention described below. The present invention solves the problems described above specifically by the use of a cleaning device according to claim 1, a cleaning element according to claim 12 and a selection control according to claim 15. The dependent claims offer even more advantageous options.

[0006] This invention relates to a novel mechanical system formed by a handle and a mop head that facilitates wringing out the mop. This invention can in turn be provided with a turn selector in order to turn clockwise or counterclockwise, improving its efficacy even further for right or left-handed people or even for people with a single arm. The handle incorporates an internal mechanism that makes it rotate about its own axis by subjecting it to a longitudinal force. The head turns in the opposite sense to that of the handle, thus facilitating the wringing without the need for twisting the spine, wrists or any other joints. The cleaning element has a system of crown-shaped clips that facilitates its connection and extraction with the head. The invention therefore helps weak people or people with physical disabilities or the elderly, or simply increases cleaning efficacy since it allows the user to both wring out the cleaning liquid and change a spent mop head with actions requiring very little energy.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] This invention will be described by reference to the corresponding drawings. In the drawings, the items having the same reference number refer to identical or functionally similar elements. The drawings are used only to better illustrate the features of the invention and do not limit in any way the possible embodiments described.

Fig. 1 shows the cleaning device according to a first preferred embodiment.
Fig. 2 shows the cleaning device according to the first preferred embodiment, unattached.
Fig. 3 shows a handle and a handgrip.
Fig. 4 shows a pin fastener.
Fig. 5 shows a spring guide.
Fig. 6 shows a stop.
Fig. 7 shows a spring.
Fig. 8 shows a guiding tube with a double groove according to the first preferred embodiment.
Fig. 9 shows a selection control according to the first preferred embodiment.
Fig. 10 shows a selection control controller according to the first preferred embodiment.
Fig. 11 shows a pin according to the first preferred embodiment.
Fig. 12 shows a seal for the selection control according to the first preferred embodiment.
Fig. 13 shows a casing for the selection control according to the first preferred embodiment.
Fig. 14 shows a spring rinse the selection control according to the first preferred embodiment.
Fig. 15 shows a dust seal.
Fig. 16 shows a head.
Fig. 17 shows a head support.
Fig. 18 shows a head turning spring.
Fig. 19 shows a spring turn limiter.
Fig. 20 shows a spare part for a mop.
Fig. 21 shows a clip for holding the mop head or cloth to the cleaning element of the mop.
Fig. 22 shows the mop spare part with the mop head.
Fig. 23 shows the cleaning device according to a second preferred embodiment.
Fig. 24 shows the cleaning device according to a second embodiment unassembled.
Fig. 25 shows a pin according to the second preferred embodiment.
Fig. 26 shows a guide tube with a groove according to the second preferred embodiment.
Fig. 27 shows the mop's non-rotating system accord-

ing to all the embodiments.

Fig. 28 shows the selection control according to the first preferred embodiment in its assembly position.

Fig. 29 shows the selection control according to the first preferred embodiment in its left-turning position.

Fig. 30 shows the selection control according to the first preferred embodiment in its right-turning position.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0008] Figures 1 and 2 show a first preferred embodiment of the invention. Fig. 1 shows the cleaning device with all its components assembled and ready for use. Fig. 2 shows the most relevant components of the cleaning device unassembled.

[0009] This embodiment has a handle 202 (Fig. 3) with a grip 201 to facilitate using the handle and the cleaning device. The upper handle houses the spring guide element inside it (Fig. 5) and is attached to it via a pin that crosses the handle and the spring guide element. This pin is hidden via the pin fastener (Fig. 4), in order to prevent it from falling off or causing accidents.

[0010] The guide element called spring guide in Fig. 5 serves as a guide to the spring that rests in turn against the spring stop (Fig. 6). The spring (Fig. 7), which is an elastic element, can be any other element that tends towards its maximum length when subjected to a longitudinal force, e.g. an elastic sheet, a compressed air shock absorber or other elastic elements (e.g. rubber bands).

[0011] The spring stop is joined to a guide tube 210 (Fig. 8) which has a spiral-shaped double groove with opposite directions of rotation. Surrounding the tube guide 210 is the element called selection control 207 (Fig. 9). The handle is connected to the tube guide 210 via the selection control 207, thus being able to choose the sense of rotation of the guide tube 210, as described in the embodiments of Figs. 28 to 30.

[0012] The control 207 is formed by a hollow control selector 1002 (Fig. 10), that the guide tube 210 moves through, two elongated openings 1001 to insert two pins (Fig. 11), a casing (Fig. 13) enclosing the assembly and a seal (Fig. 12). The casing is formed by two identical elements with two internal nipples 1301 by which they are firmly attached to the handle. The casing has two notches that two springs rest upon (Fig. 14), providing tension to the pins. The pins are introduced in the openings of the control selector 207 and in turn into those corresponding to the tube guide 210. The selection control 207 can slide over the casing, shifting vertically upwards and downwards.

[0013] These movements allow the pins to slide over the relief formed by the control selector 207, extracting or introducing the pins into the opening of the lower handle via the two openings on the selection control 207. Thus, by shifting the selector 207 vertically upwards or downwards, only one of the pins can be introduced into its corresponding groove, and the other pin is not introduced into any openings. There is a third arrangement wherein it is not introduced into any of the openings and which serves for assembly, as described in the embodiment of Fig. 28.

[0014] Fig. 28 shows the selection control in the assembly position. The selector 2801 is introduced into the casing 2802 to the assembly position, as in Fig. 28. The tubes can then be introduced into the selector 2801. The position of the casing 2802 can now be changed, defining the direction of rotation towards the left or the right. The assembly is completed by placing the seal of the control 2803. Fig. 29 shows the assembly in its left-turning position. Fig. 30 shows the assembly in its right-turning position.

[0015] The system thus described allows the guide tube 210 to turn on its axis in the chosen direction when subjecting the upper handle to a vertical movement. Due to the pressure on the spring 206, the system will tend to be always stretched towards its maximum length. The guide tube 210 remains completely inside the selection control 207, since accidents may occur due to the presence of a mobile element that slides along the groove. This in turn protects the groove from the insertion of foreign elements that may prevent it from performing the movement described above. The element called dust seal is at the end of the handle (Fig. 15), which prevents foreign elements from entering through the lower portion.

[0016] The guide tube 210 is connected on the other end to a head 1600 (Fig. 16) that is formed by an element called support 1603 (211; Fig. 17) and incorporates a circular elastic element. This circular element can be a turning spring 1606 (Fig. 18) that allows turning the head in the opposite direction of the guide tube 210. This circular element can also be any other elastic element that tends to decontract when subjected to radial force, for example rubber bands, magnets with opposing poles or sheets that can buckle, amongst others. This spring 1606 is fixed to a plate 1605 (Fig. 19) that allows the head to return to its initial position in the absence of vertical force on the upper handle. The non-rotating spring element (Fig. 27) prevents these parts from being disassembled.

[0017] The cleaning element (Fig. 22) is joined to the head via a cleaning element exchange device 2000 (Fig. 20) and a clip (Fig. 21) that attaches it firmly via a clip system. The exchange element can be a spare part or replacement of the cleaning element. The clip has on its upper portion, towards the lower handle, a circular crown of clips 2001 that allows it to join the head via the support 1603. This element has a mechanism for easy extraction of the mop head from the mop via the tabs that separate the crown, facilitating the action of removing the cloth. This fixing system allows clipping the mop head as well as rotating it with respect to the head.

[0018] Therefore, the assembly of the handle, the head and the mop part is coupled as described such that when the cleaning device is pressed against a surface and therefore subjected to a longitudinal movement, the han-

dle contracts and causes the guide tube to rotate, therefore producing an opposite turn in the head and the mop part. The tendency of the mop head to oppose the rotation in the tube causes the mop head to wring out, without the need of excessive strength and several repetitions. Above all it avoids the need to twist the cleaning device.

[0019] This first preferred embodiment of the invention allows appreciating how the coupling between the different elements of the cleaning device facilitate the wringing of water or any other liquid used for cleaning. The wringing is especially facilitated without the need of twisting your spine or any other joints. It also shows the great advantage that the liquid can be wrung out using a single hand, which is especially useful for people with physical disabilities. The direction of the rotation can be selected with a simple action on the selection control, thus adapting the cleaning device to the person using it.

[0020] This design could be reduced to a more simple design for reasons of cost reduction or others, and be limited to a left or right turning handle only. This simplification would imply the disappearance of the selection control, and only the pin that couples in the groove would remain.

[0021] Figs. 23 and 24 show a second preferred embodiment of the invention. Fig. 23 shows the cleaning device with all its components assembled and ready for use. Fig. 24 shows the most relevant components of the cleaning device unassembled.

[0022] The second preferred embodiment (Fig. 23; Fig. 24) has a handle 202 (Fig. 3) with a grip 201 to facilitate using the handle and the cleaning device. The upper handle houses the spring guide element inside it (Fig. 5) and is attached to it via a pin that crosses the handle and the spring guide element. This pin is hidden via the pin fastener (Fig. 4), in order to prevent it from falling off or causing accidents.

[0023] The guide element called spring guide in Fig. 5 serves as a guide to the spring that rests in turn against the spring stop (Fig. 6). The spring (Fig. 7), which is an elastic element, can be any other element that tends towards its maximum length when subjected to a longitudinal force, e.g. an elastic sheet, a compressed air shock absorber or other elastic elements (e.g. rubber bands, amongst others).

[0024] This spring stop is joined to a guide tube (2401; Fig. 26) which has a single spiral shaped groove that can turn clockwise or counterclockwise. A pin (Fig. 25) is introduced through an opening on the lower handle, crossing through the groove on the guide tube 2401.

[0025] The system thus described allows the guide tube 2401 to turn on its axis in the direction of the groove when subjecting the upper handle to a vertical movement. Due to the pressure on the spring, the system will tend to be always stretched towards its maximum length. The guide tube 2401 remains completely inside the lower handle, since accidents may occur due to the presence of a mobile element that slides along the groove. This in turn protects the groove from the insertion of foreign elements that may prevent it from performing the movement described above. The element called dust seal is at the end of the lower handle (Fig. 15) which prevents foreign elements from entering through the lower portion.

[0026] The head and replacement of the cleaning device of this embodiment are the same as those of the first embodiment. Therefore, the assembly of the handle, the head and the mop part is coupled as described above such that when the cleaning device is pressed against a surface and therefore subjected to a longitudinal movement, the handle contracts and rotates at the same time, therefore producing an opposite turn in the head and the mop replacement. The tendency of the mop head to oppose the rotation in the guide tube causes the mop head to wring out, without the need of excessive strength and several repetitions.

[0027] This second preferred embodiment of the invention allows appreciating how the coupling between the different elements of the cleaning device facilitate the wringing of water or any other liquid used for cleaning. The wringing is especially facilitated without the need of twisting your spine, wrists or any other joints. It also shows the great advantage that the liquid can be wrung out using a single hand, which is especially useful for people with physical disabilities. Therefore, it becomes evident that the advantageous feature of not having to twist or turn the cleaning device as in the prior devices of the state of the art is one of the advantageous characteristics that clearly differentiate this invention from other devices of the state of the art. The mechanism through which said advantageous features of the cleaning device object of the invention are obtained is the same in all its variants set forth in the embodiments described.

[0028] All the parts in the embodiments of this invention can be manufactured from lightweight materials, such as plastic or others, which facilitate its handling. These parts can be manufactured from aluminium injection moulds or plastic elements.

[0029] The handle is sufficiently high as to be used without the user having to adopt any uncomfortable positions.

[0030] A person skilled in the art can realise that multiple variations on the embodiments described can be performed using the usual knowledge within the field.

Claims

1. A cleaning device **characterised in** having:

- a handle;
- a head, coupled to one end of the handle; and
- a mop part, removably coupled to the head;

and **in that** the cleaning device incorporates a mechanism that makes the handle rotate about its axis when it is subjected to a longitudinal force, and the head and the mop part are coupled to the handle

such that they turn in the opposite direction to that of the handle.

2. The cleaning device according to claim 1, **characterised in that** the handle is formed by at least one tube incorporating an elastic element that applies a force for the handle to return to its maximum length.

3. The cleaning device according to claim 2, **characterised in that** the elastic element can be a spring or any other element that tends towards its maximum length when the longitudinal force ceases and that can be compressed when subjected to a longitudinal force.

4. The cleaning device according to claim 2, **characterised in that** the handle also incorporates:

- a guide tube of a smaller diameter that has at least one spiral shaped groove; and
- at least one pin that goes across the handle and is introduced into the at least one groove, joining it to the guide tube such that when the device is subjected to a longitudinal movement, the guide tube rotates about its axis in the direction of the groove.

5. The cleaning device according to claim 4, **characterised in that** the spiral shaped groove can rotate clockwise or counterclockwise.

6. The cleaning device according to claim 4, **characterised in that:**

- the guide tube has at least two spiral shaped grooves with opposite directions of rotation; and
- at least two pins are coupled such that they can slide longitudinally along the guide tube and only one can be attached to one or the other of the two grooves, allowing the choice of the turning direction of the handle.

7. The cleaning device according to claim 4, **characterised in that** the at least one pin is part of a selection control entirely housing the guide tube and the at least one pin.

8. The cleaning device according to any of the previous claims, **characterised in that** the head is formed by:

- at least one circular elastic element; and
- at least one support for the circular elastic element;

wherein the circular elastic element and the corresponding support are coupled such that they allow the head to rotate in the opposite direction to that of the handle.

9. The cleaning device according to claim 8, **characterised in that** the circular elastic element and the corresponding support are coupled through a plate such that they allow the head to return to its initial position in the absence of a vertical force on the handle.

10. The cleaning device according to claim 8, **characterised in that** the circular elastic element allows the head to turn 90 degrees in each direction.

11. The cleaning device according to any of claims 8 to 10, **characterised in that** the circular elastic element can be a spring or any other element that tends to decontract when subjected to a radial force.

12. A mop part suitable for use with the cleaning device of any of claims 1 to 11, **characterised in that:**

the mop part incorporates a crown of clips that allows it to be removably coupled to the head such that it allows it to rotate with respect to the head, thus allowing the mop to rotate in the opposite direction to that of the handle.

13. The mop part, according to claim 12, **characterised in that** the coupling between the crown of clips and the head occurs through the head support.

14. The mop part according to claims 12 or 13, **characterised in that** it incorporates a clip system that clamps on the mop head, cloth, or any other cleaning element.

15. Selection control suitable for use with the cleaning device of any of claims 1 to 11, **characterised in that:**

it incorporates at least one pin suitable to slide through at least one groove of a guide tube, producing a rotating movement of the guide tube.

16. The selection control according to claim 15, **characterised in that** it incorporates at least two pins to select the turning direction of the handle of the cleaning device.

17. The selection control according to claim 15 or 16, **characterised in that** it incorporates a hollow selector and completely houses the guide tube, which slides inside it.

18. The selection control according to any of claims 15 to 17, **characterised in that** the selector also incorporates at least one opening for the introduction of the at least one pin.

19. The selection control according to any of claims 15

to 18, **characterised in that** it incorporates at least two casings that seal the assembly and remain fixed on the tube and the selector.

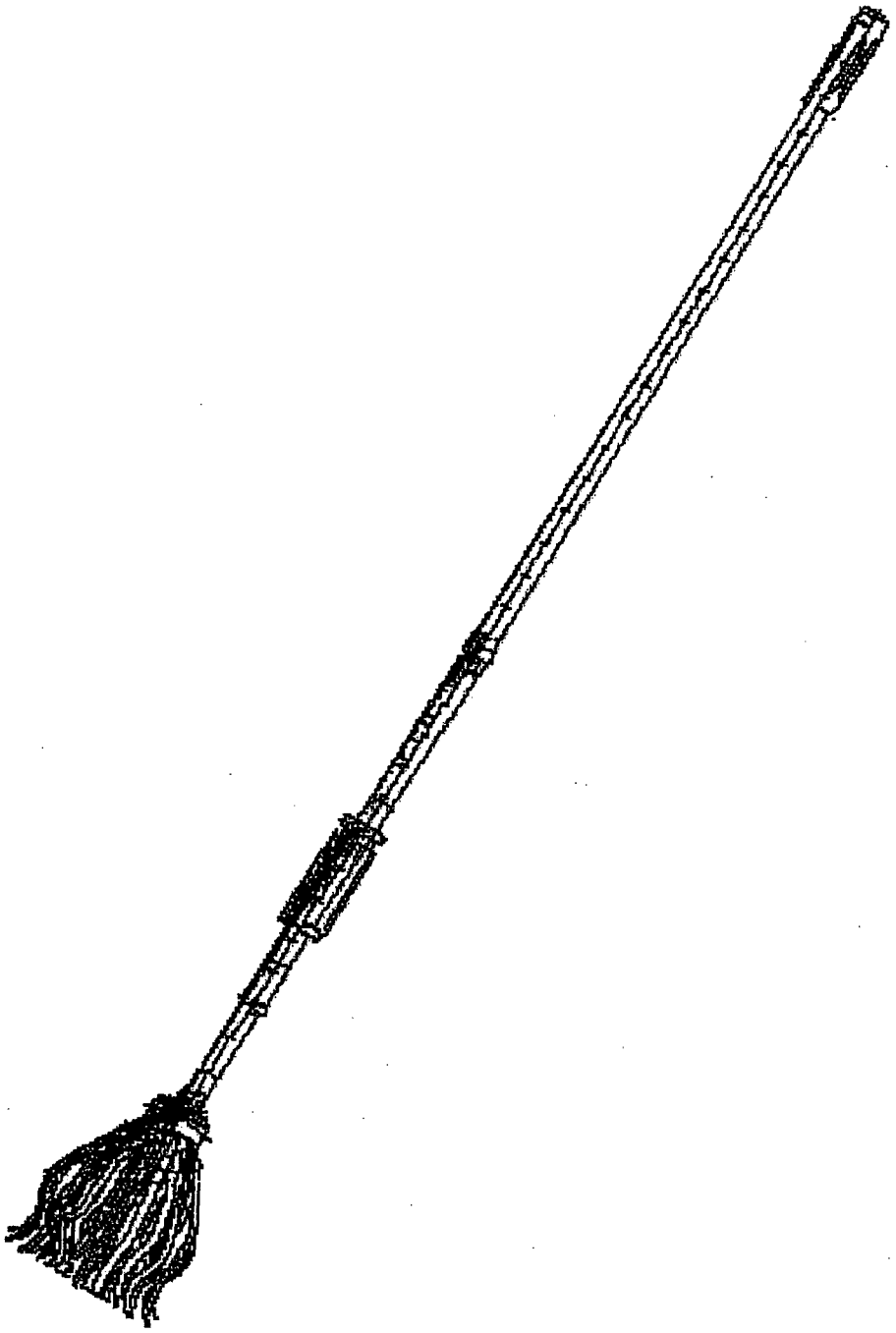

FIG. 1

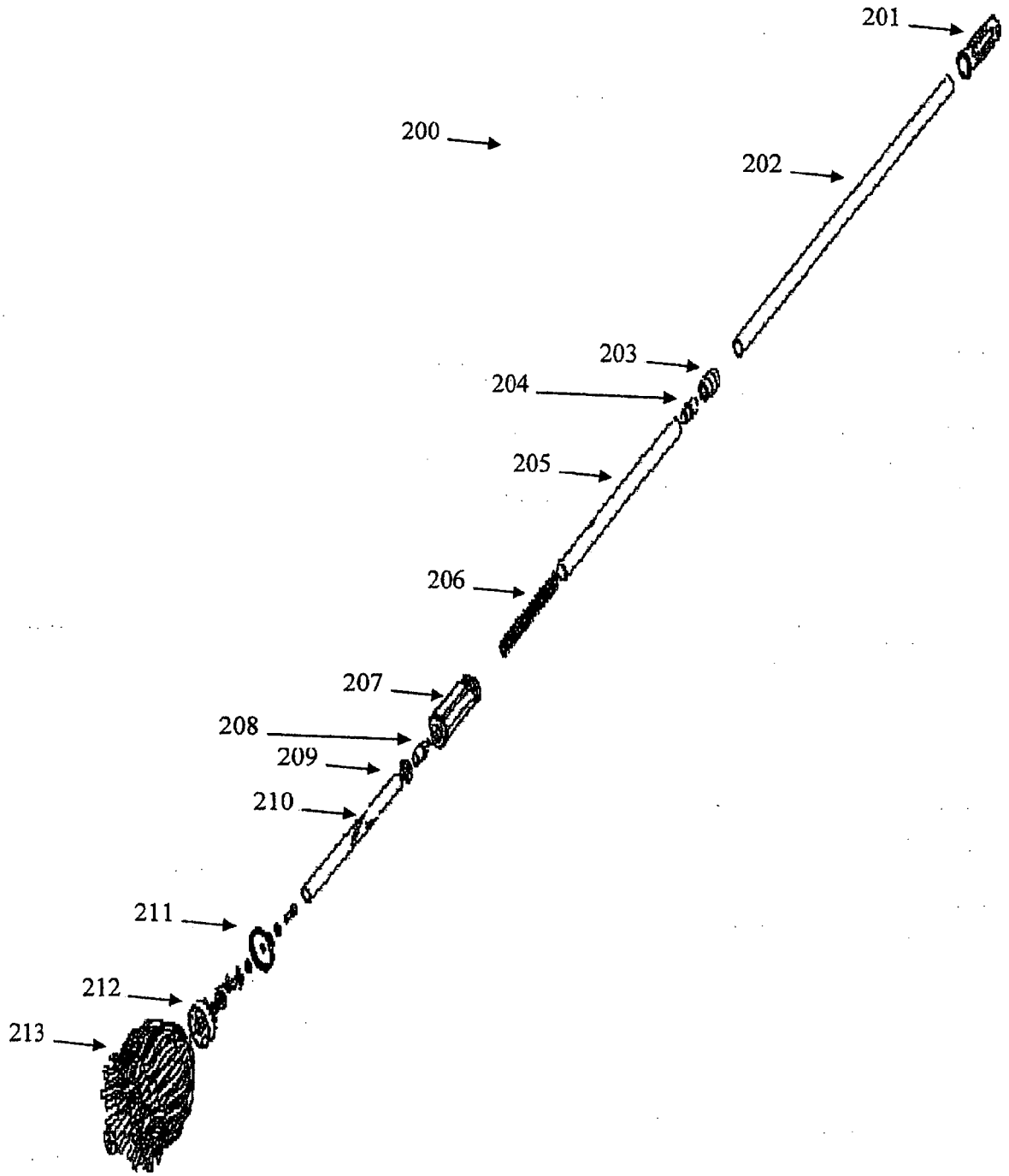

FIG. 2

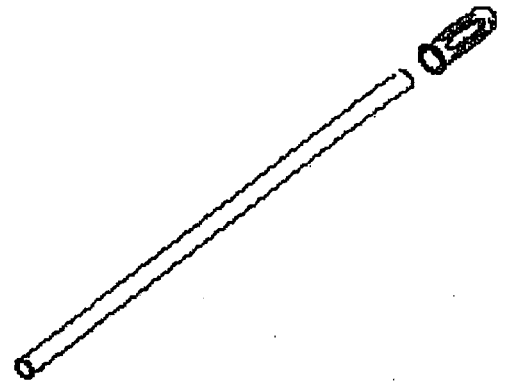

FIG. 3

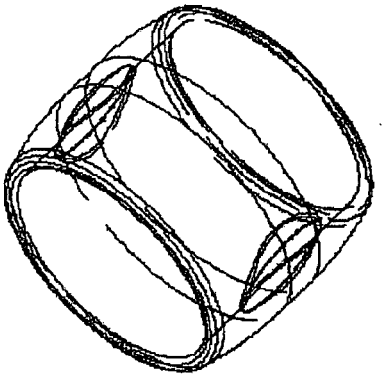

FIG. 4

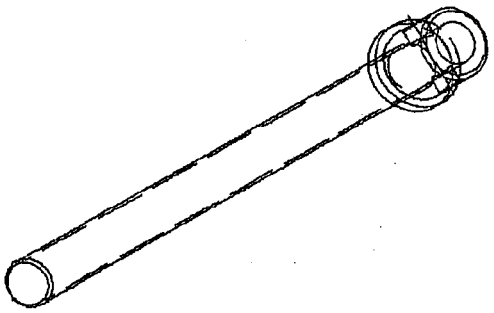

FIG. 5

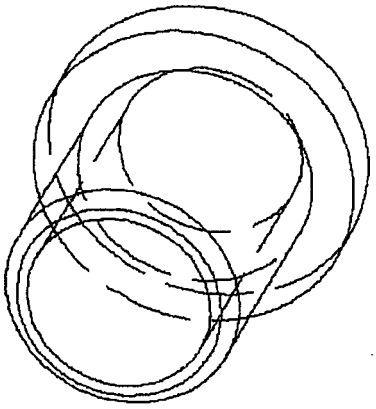

FIG. 6

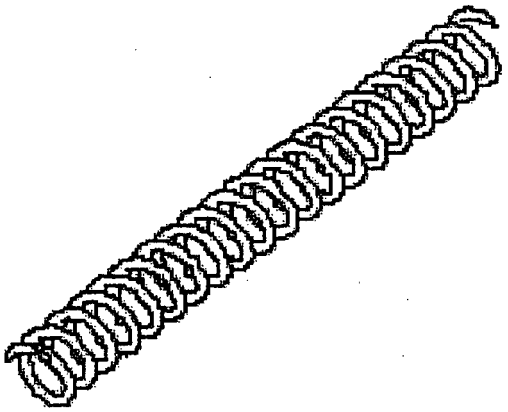

FIG. 7

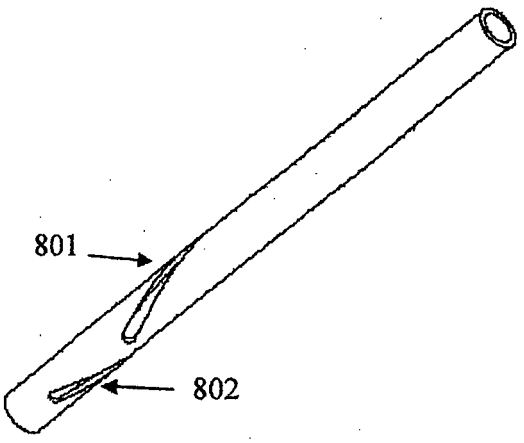

FIG. 8

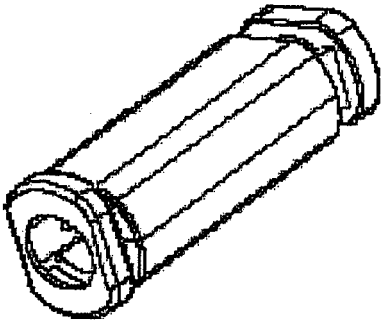

FIG. 9

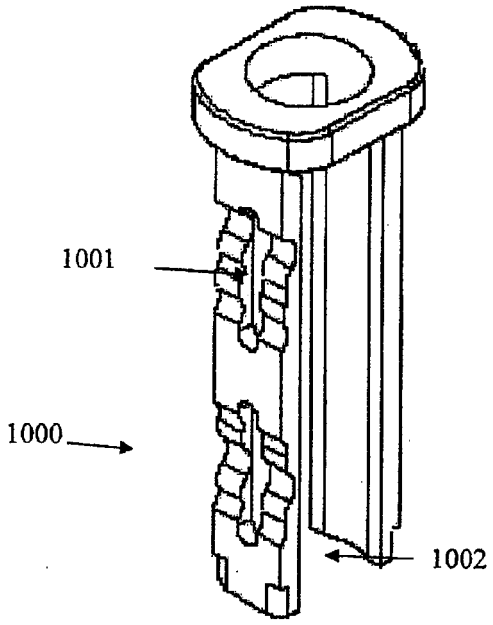

FIG. 10

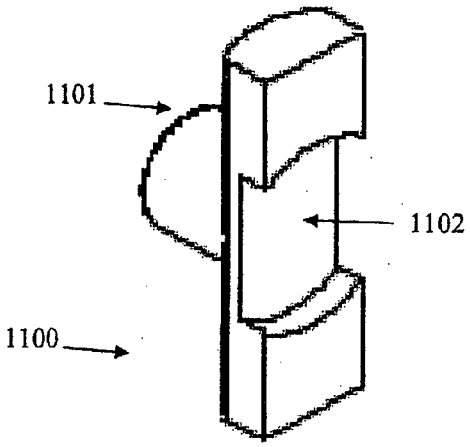

FIG. 11

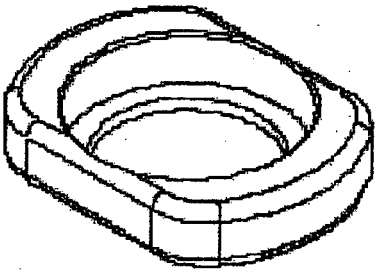

FIG. 12

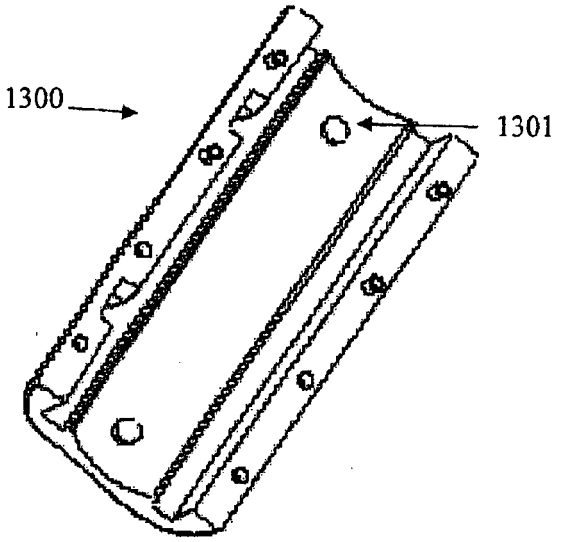

FIG. 13

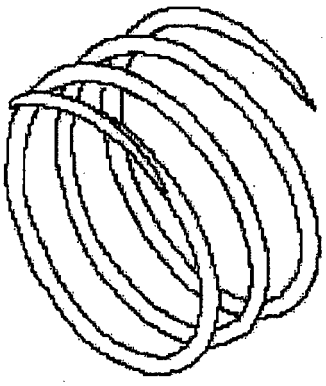

FIG. 14

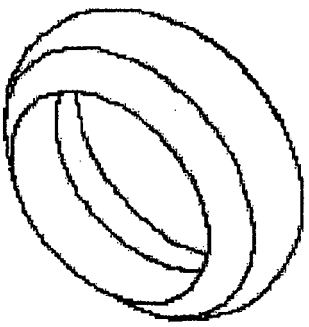

FIG. 15

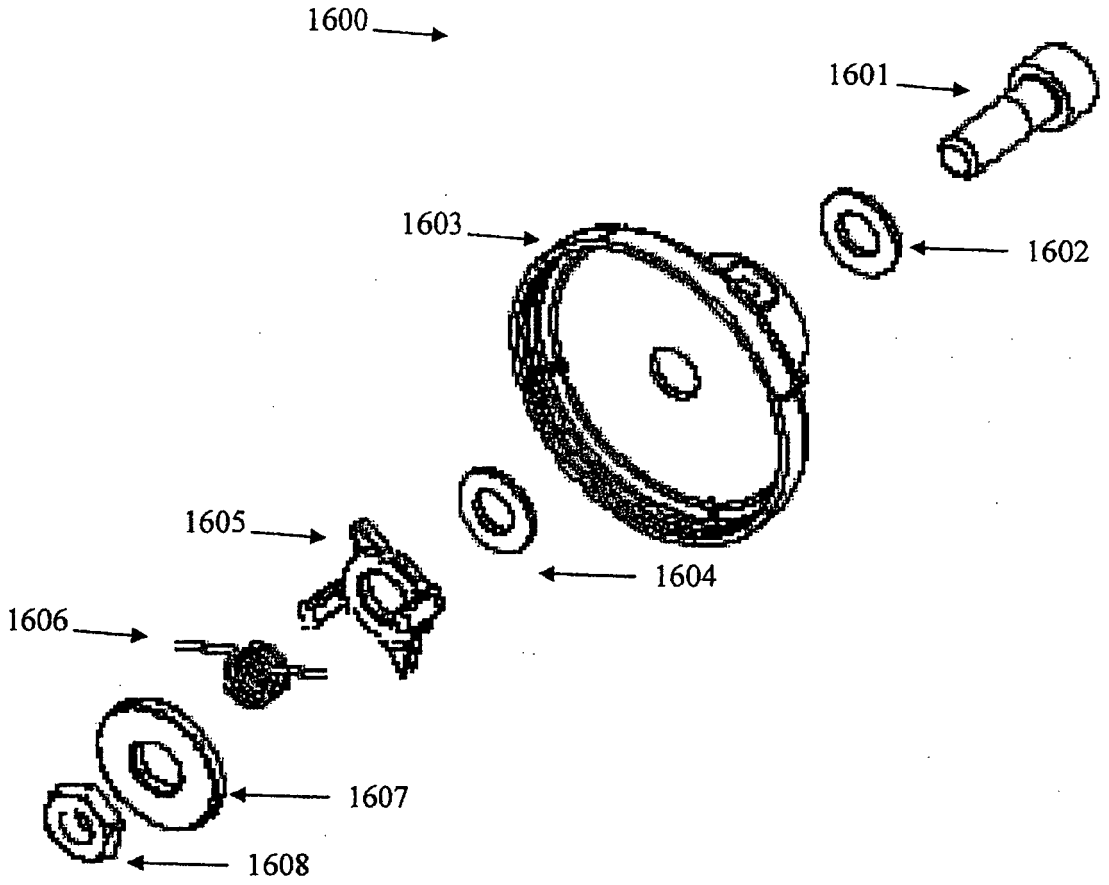

FIG. 16

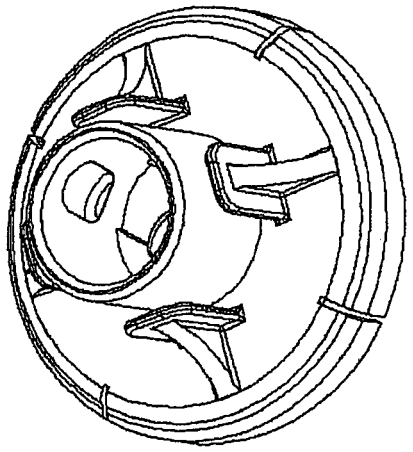

FIG. 17

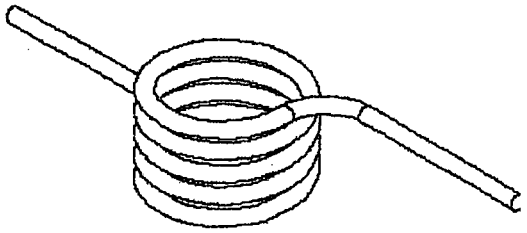

FIG. 18

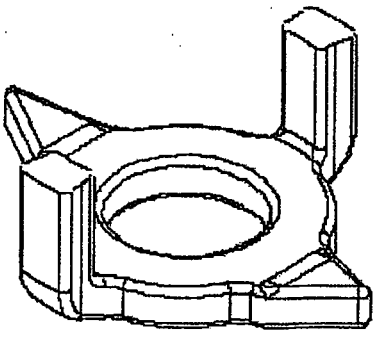

FIG. 19

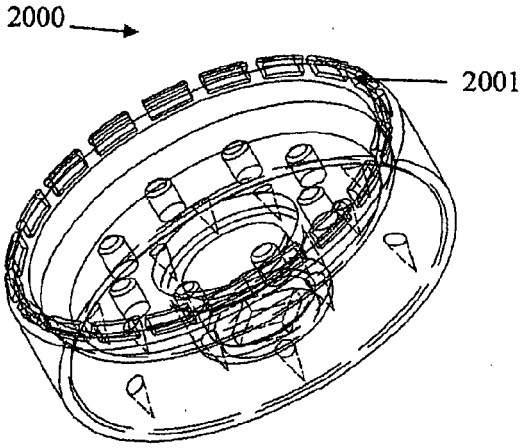

FIG. 20

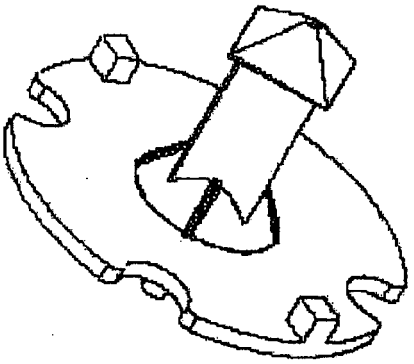

FIG. 21

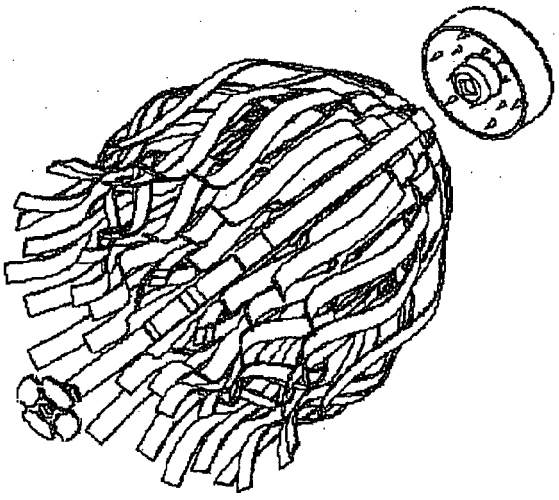

FIG. 22

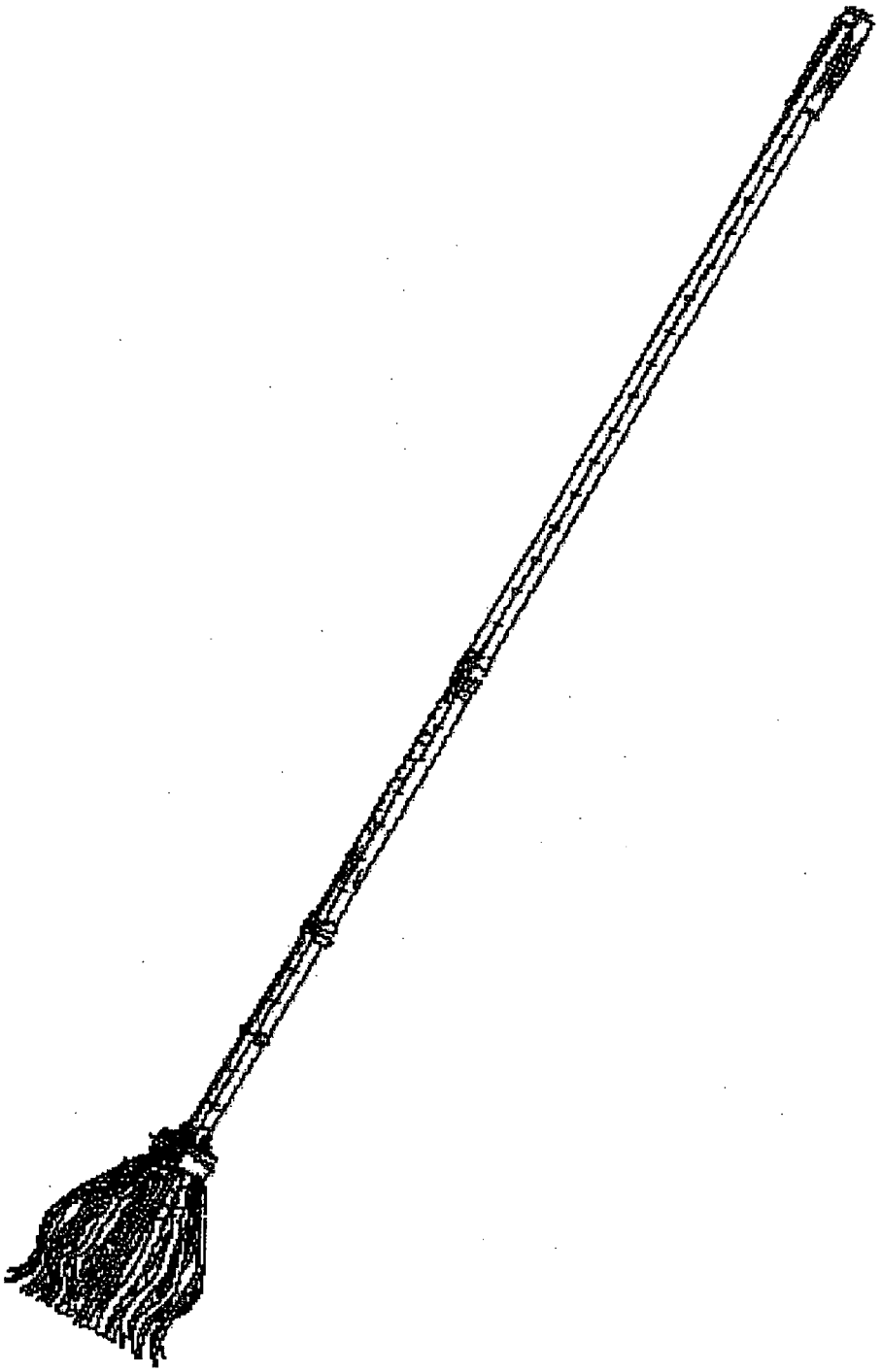

FIG. 23

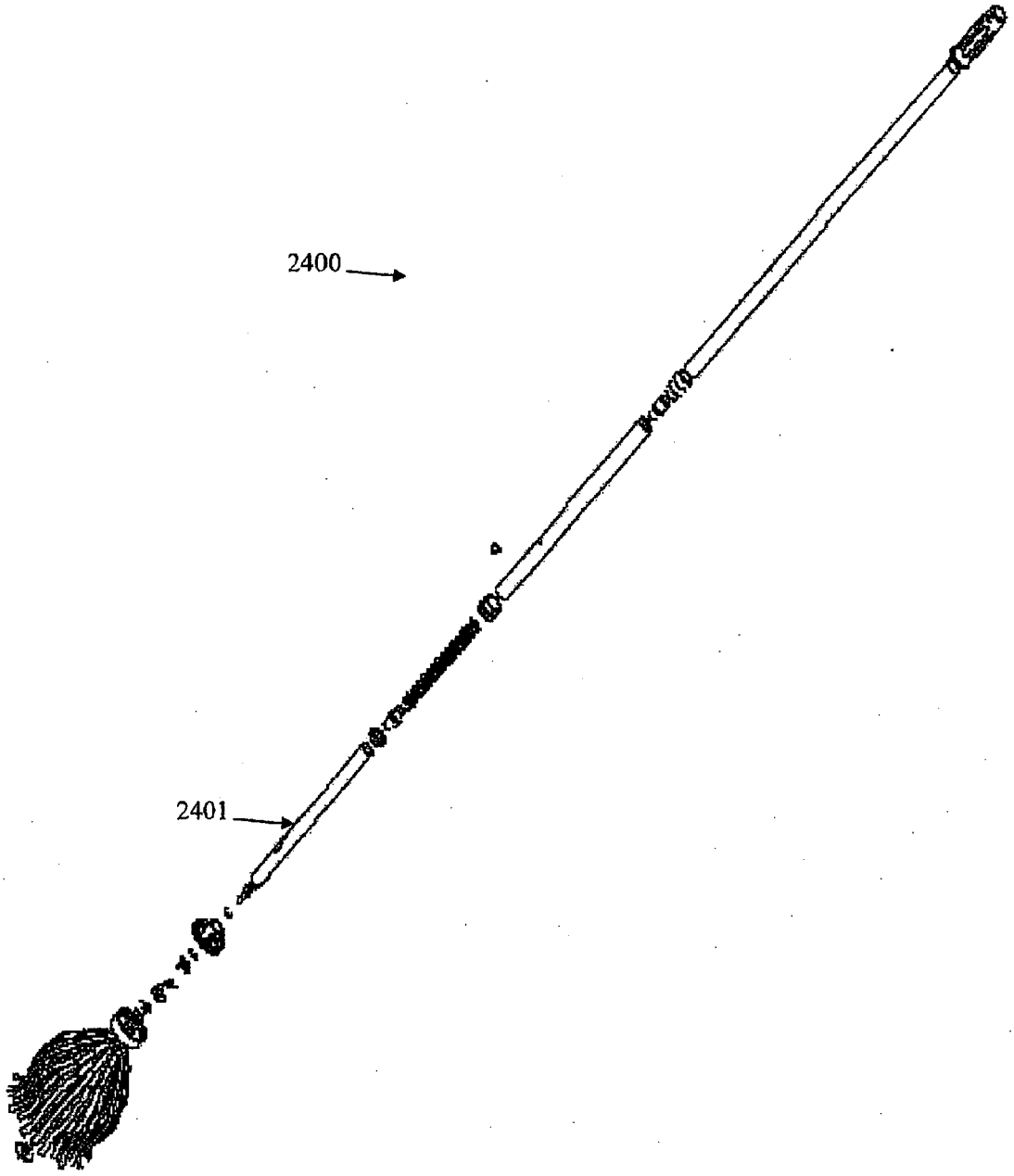

FIG. 24

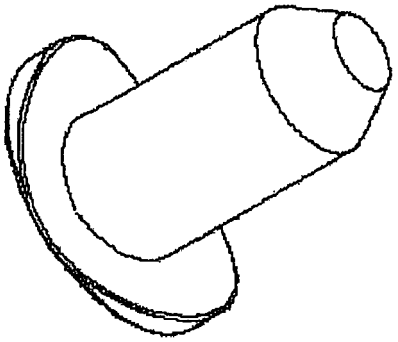

FIG. 25

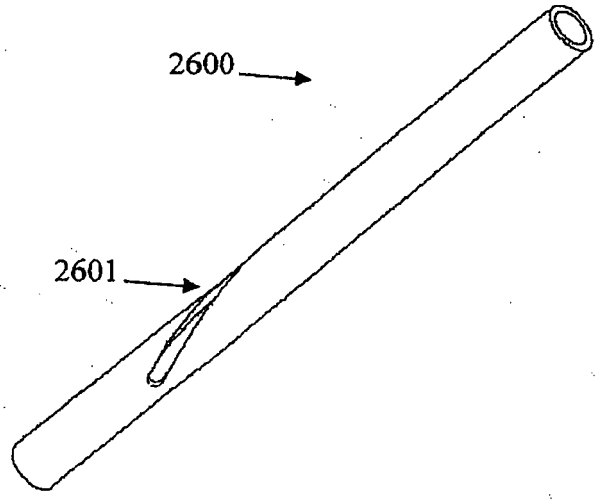

FIG. 26

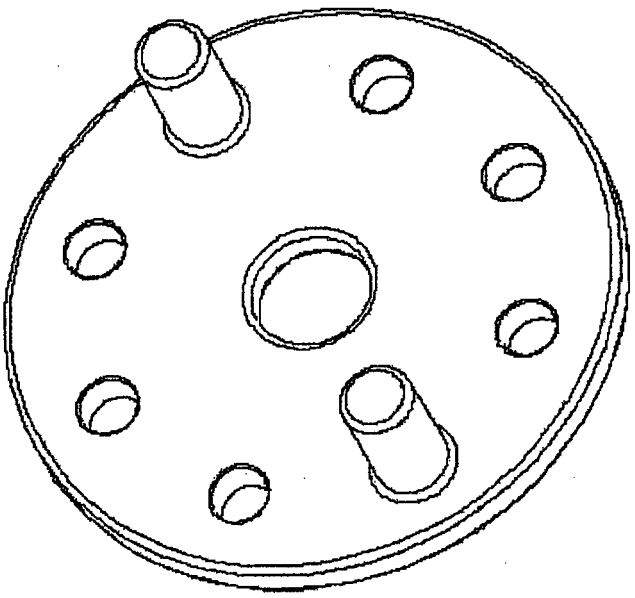

FIG. 27

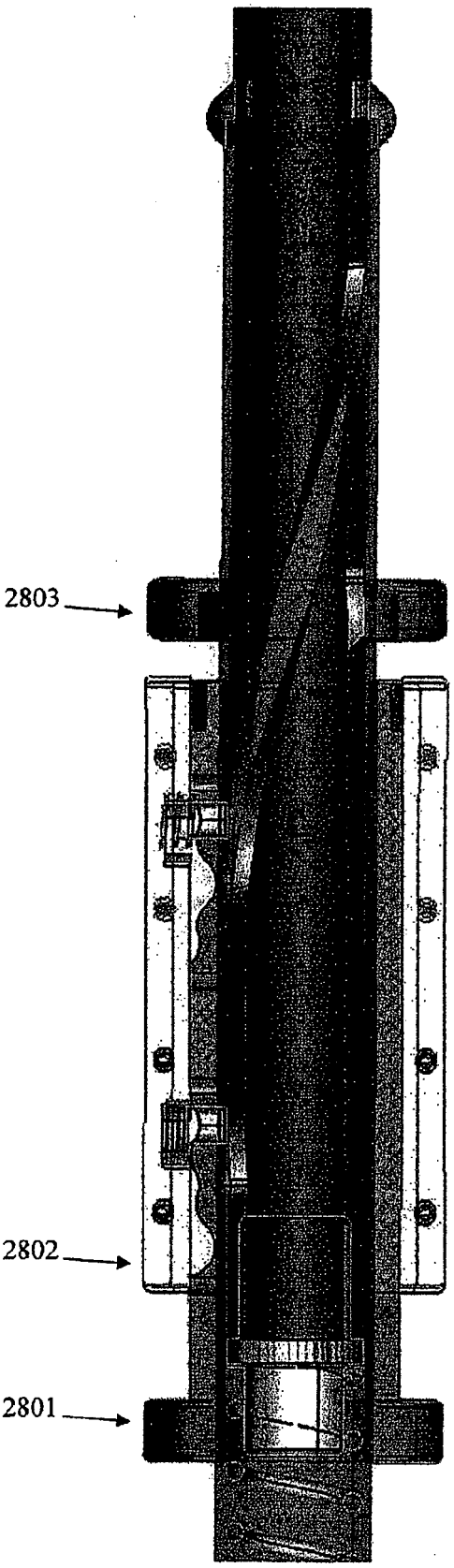

FIG. 28

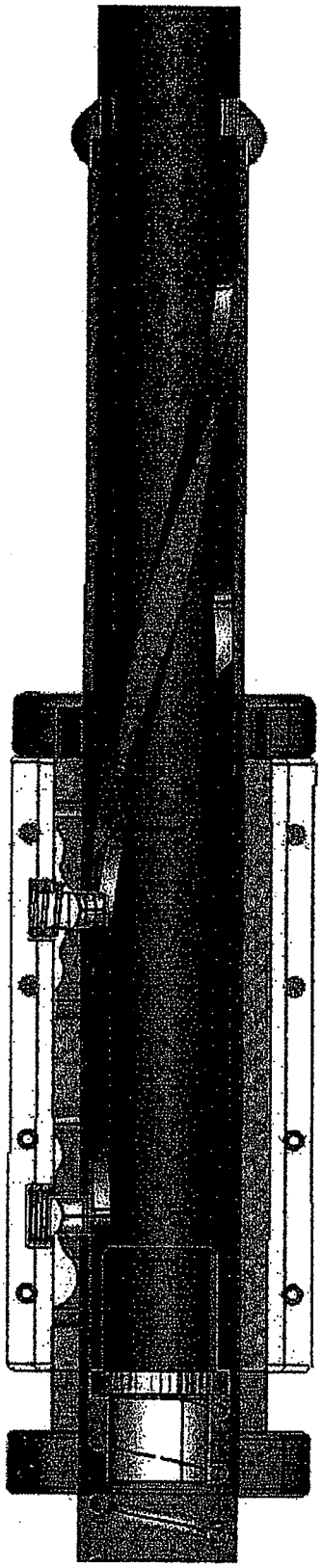

FIG. 29

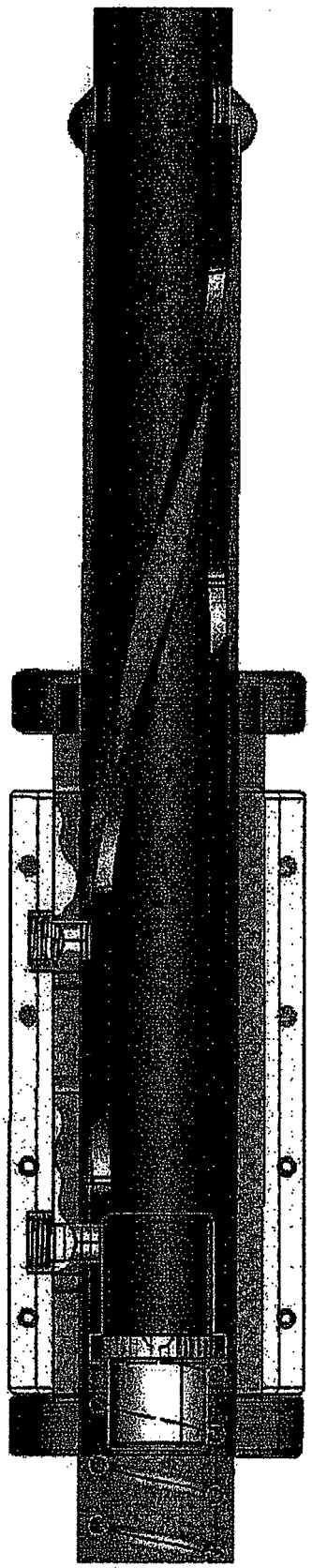

FIG. 30