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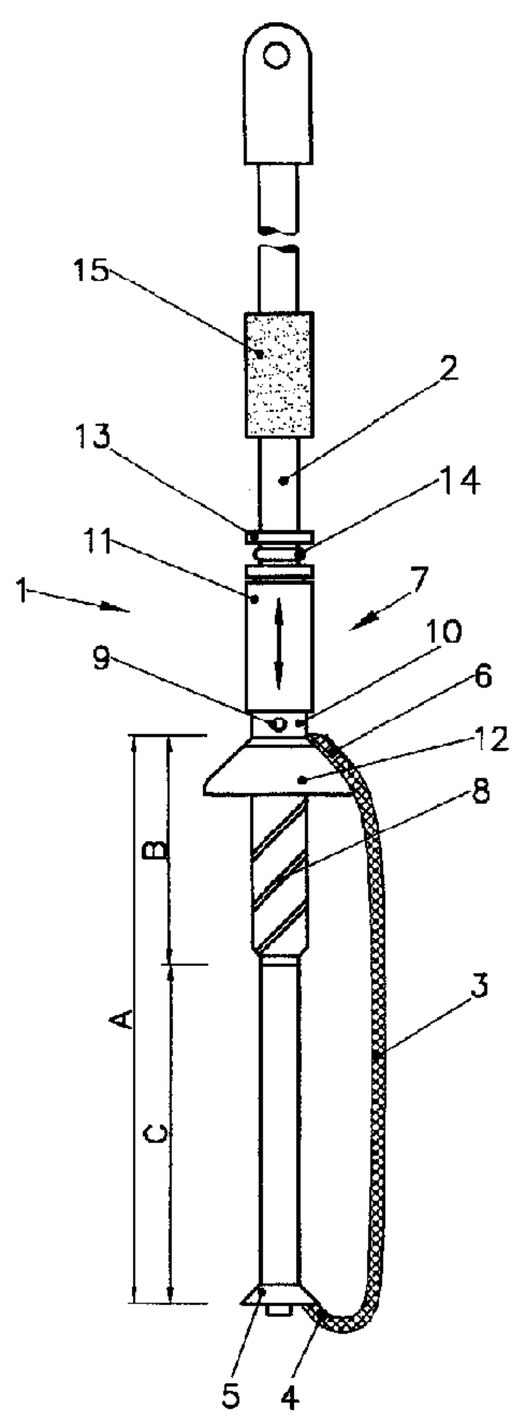


(57) Abrégé/Abstract:
Mop with a handle and a wiper of absorbent frays or the like, which is releasably fastened at its lower end to the handle and at its upper end to a grip movable relative to the handle, whereby the handle in an upper, first portion of the region covered by the wiper in an extended, tensioned condition is provided with a helical groove in which a guide element of the grip is guided, and a lower, second portion which frees the guide element and therefore also the grip.

ABSTRACT

Mop with a handle and a wiper of absorbent frays or the like, which is releasably fastened at its lower end to the handle and at its upper end to a grip movable relative to the handle, whereby the handle in an upper, first portion of the region covered by the wiper in an extended, tensioned condition is provided with a helical groove in which a guide element of the grip is guided, and a lower, second portion which frees the guide element and therefore also the grip.

MOP WITH WRINGING MECHANISM

Field of the Invention

The invention relates to cleaning utensils and in particular to mops with a wiper of absorbent frays or the like and a grip movable on the handle for wringing out of the wiper.

Mops are used more and more for the cleaning of floors, stairs and the like which provides a significant reduction in labour. Mops are more frequently used wherein the wiper can be wrung out by mechanical rotation on the handle.

Background Art

U.S. Patent No 1,710,190 shows a mop which allows a mechanical wringing out of the wiper. For that, the handle of the mop is surrounded by a pipe flange which has a grip to which the upper end of the wiper is connected. The lower end of the wiper is attached to the end of the handle. The upper half of the handle is provided with a helical groove and carries a further handle. Wringing out the wiper is achieved by holding the pipe flange with one hand while the grip on the handle is moved with the other hand towards the pipe flange which causes the handle to rotate. This mop has the disadvantage that the wiper reaches the floor only with the lower frays and that the wringing out process only is achieved by torsion of the wiper. The distance between the wiper ends is always the same so that when the frays expand in length, for example when they are wet, complete wringing is no longer possible; especially since the grip on the handle can only generate a preset number of rotations of the handle before the grip engages the pipe flange.

U.S. Patent No. 2,230,101 describes a mop with a wiper which allows a double folding of the frays. For the wiping, the fastening parts for the fray ends are located immediately adjacent and the fray loops are doubled. The handle is provided with a grip movable thereon to which the upper end of the wiper is fastened. The grip is provided with a ball which is guided in a groove provided in the handle. This groove has an initial, first portion extending in direction of the handle which is followed by a helical second portion. A rotatable knob is provided at the upper end of the handle so that the handle can rotate when the grip is pulled upwardly and engages the helical groove. The grip with the attached wiper is thus first pulled upward for the wringing out process, while the handle remains in the at rest position. The ball of the grip thereafter enters the helically shaped

part of the handle and the handle begins to rotate. The second hand of the person operating the mop must thereby hold the rotatable knob at the top end of the handle. Thus, in order to perform the wringing out procedure, the grip and the knob which are spaced apart by a large distance must be grabbed by the operator and the grip moved upward. This action is not without difficulty.

Summary of the Invention

It is now an object of the invention to provide a mop with which the wringing out procedure can be easily accomplished while wringing out the water as completely water as possible.

This object is achieved with a mop of the above described generic type in that the handle is provided with a helical groove element in an upper portion of that region of the handle which is covered by the wiper in the extended, tensioned position, which groove element has a groove in which a guide element of the grip is guided. The handle has a second, lower portion which releases the guide element and thus the grip. With such a mop, the handle is stationary and by movement of the grip along the handle the wiper is first tensioned, subsequently twisted and ultimately pressed together. The distance which the grip has to travel is maximally the length of the tensioned wiper. Rotation of the handle is thereby avoided and the hand gripping the handle can hold the handle close to the pulled up grip.

The grip is preferably made of two parts, an inner sleeve provided with the guide element and having a fastening arrangement for the upper end of the wiper, and an outer grip mantle rotatably enclosing the sleeve. The grip thereby performs two functions. One the one hand, the sleeve caries the upper end of the wiper and on the other hand the sleeve must carry out a rotation movement when the grip is moved downward towards the end of the handle, which rotation is caused by the guide element. The sleeve with fastening arrangement is rotatable relative to the grip.

A radially movable ball can be used as the guide element which is permanently held in the wall of the sleeve. In order to avoid a one sided load on the sleeve, the helical groove element can be provided with a double helix groove whereby two movable balls are provided at opposing locations in the sleeve.

In an especially preferred embodiment, the grip mantle is movable relative to the

sleeve to a limited degree, whereby the guide element is locked or released. This ensures that the rotation of the upper fastening arrangement of the wiper can be controlled as desired. The guide element is thereby released upon an upward movement of the grip mantle relative to the sleeve, while a downward movement of the grip mantle results in a locking of the guide element. When the grip is moved upward from its lowermost position, the grip mantle initially moves over a limited distance and thereby releases the guide element. The grip mantle then pulls the sleeve along and the grip slides over the portion with the helical groove element without the guide element being guided in the groove, so that no rotation of the sleeve and, thus, the fastening arrangement for the wiper results. The frays of the wiper are thereby simply straightened out and tensioned in axial direction. A spring supported locking element is preferably provided on the handle which holds the sleeve in its upper end position. This upper end position of the sleeve can be defined, for example, by an end stop. When the grip mantle is moved downward from its uppermost position, the sleeve as held by the locking element initially remains in its upper end position.

Once the grip mantle has reached its lowermost position on the sleeve in which position the guide element is locked, further pressure on the grip unlocks the sleeve and causes a rotation of the sleeve by way of the guide element following the helical groove. The rotation of the sleeve and thus of the one wiper end continues until the guide element exits the groove at the bottom of the groove element. The helix of the groove can have different rise angles (slopes) for achievement of the desired wringing out effect.

The portion of the handle provided with the helical groove element has a larger diameter than the handle. As soon as the guide element is outside the portion with the helical groove element, the sleeve can rotate freely although the guide element is still locked. This permits compression of the wiper without further superimposed rotation. Practical use has shown that an especially good wringing out effect is thereby achieved.

It is advantageous when a free region of smaller diameter is also provided above the helical groove element which permits rotation of the sleeve at any time and especially permits locking in any rotational position. This free region can be in the shape of a circular groove which receives the guide elements during the locking process. The upper end of the helical groove element is provided with funnel shaped ends for the helical

grooves so that the locked guide elements can be safely guided into the helical grooves.

It is advantageous for the function of the wiper when the fastening arrangement for the upper end of the wiper has a larger radius than the connection location for the wiper at the handle end. The frays then preferably lay on top of one another in the use position.

The wiper in accordance with the invention is easily used and permits a reliable wringing out of the wiper. The following manner of operation results.

The function of the mop is in the following described starting with the in use position of the mop. During use, the grip is in its lowermost position. The fastening locations for the wiper ends are adjacent to one another and the wiper forms freely downwardly hanging loops. When the grip is pulled upward, an initial displacement of the grip mantle takes place relative to the sleeve surrounded by the grip mantle, and the guide elements are unlocked. That means the guide elements can move radially outwardly in the sleeve wall. However, they are prevented from falling out of the sleeve by corresponding construction of their mounting in the sleeve. Upon a further upward movement, the grip takes the sleeve along and thereby also the upper end of the wiper, which is fastened to the sleeve by the fastening arrangement. The guide elements then lie within the sleeve wall. The grip with sleeve and grip mantle subsequently slides axially over the second portion on the handle, thereafter over the first portion which is provided with the helical groove element, and finally reaches its upper end position. The sleeve is at that point axially locked on the handle, but can be freely rotated in both directions of rotation. In that position, the frays of the wiper are tightened and extend parallel to the direction of the handle. When the grip is then moved downward, the grip mantle once again first follows the hand movement, while the sleeve remains locked on the handle. The guide elements become locked in the sleeve in that they are pushed radially inwardly by the inner wall of the grip mantle. Upon a further downward movement of the grip mantle, the sleeve is unlocked and moved along, and the guide elements are guided into the helical grooves of the groove element by way of the funnel shaped groove ends. The sleeve and, thus, also the fastening arrangement and the upper end of the wiper fastened thereto, are thereafter rotated by the guide elements which are sliding along the helical grooves. The rotation movement follows the preset helical groove which is shaped for two to three revolutions. This number of revolutions is generally sufficient to achieve a close winding of the frays

about the mop handle. This rotation is made possible in that the fastening arrangement for the upper end of the wiper moves towards the handle end simultaneously with the rotation movement so that the distance between the two fastening arrangements for the wiper ends continuously changes during the rotation movement. The helical groove element is constructed regarding the number of revolutions of its grooves, its location and the angle of rise of the grooves in such a way that the wringing out procedure is largely completed when the guide elements reach the end of the helical grooves.

The grip however can be moved further downward into the second, lower portion of the mop handle. Although the wiper is then no longer twisted, it undergoes a further compression which enables a further pressing out of water residue. The length of the second portion is selected such that it roughly corresponds to the length of the grip. The diameter of this portion is smaller than the diameter of the portion with the helical groove element. It is selected so that it is equal to or smaller than the diameter at the groove bottom. It is achieved thereby that the sleeve is freely rotatable on the mop handle despite the guide elements being still locked, starting from the moment the guide elements have exited the helical groove element. After the grip is let go, the wiper loops, due to their inherent weight are pulled downwardly and return to their original position so that the mop can once again be used for cleaning.

The whole procedure of tightening of the wiper frays, twisting of the frays for the wringing out process and pressing of the frays is achieved with a single up and down movement of the grip.

Furthermore, an advantageous side effect can be achieved with this embodiment in that after completion of the wiping the wiper frays can be straightened out and tightened by pulling up the grip and locking it in its upper position. When the mop is stored in that configuration, the wiper frays are accessible to air on all sides and can dry well.

Brief Description of the Drawings

The invention will be further described by example only and with reference to the drawings, wherein

Figure 1 shows in side elevational view a preferred embodiment of a mop in accordance with the invention;

Figure 2 illustrates the construction of the grip in a side elevational view; and

Figure 3 is an enlarged view of the grip with the guide elements.

The preferred embodiment of the mop1 shown in Figure 1 has a handle 2 and a wiper 3 which is made of absorbent frays, strips or the like. A lower end 4 of the wiper 3 is releasably fastened to the lower end 5 of the handle 2. The upper end 6 of the wiper 3 is releasably fastened to a movable grip 7. The releasable fastening of the wiper 3 permits replacement of the wiper 3. Thus, when the wiper 3 is worn, it can be exchanged. Fastening arrangements for this purpose are known in the art and therefore not shown in the drawings. The wiper 3 in Figure 1 is furthermore only hinted at to the right side of the handle 2 and the part completely enclosing the handle is left out completely in order not to cover up the illustration of the elements essential to the invention. The region A of the handle which is covered by the wiper 3 in the illustrated extended position of the wiper 3 is divided into the upper, first portion B which is provided with the helical groove element 8 and the lower, second portion C. The handle 2 remains unchanged in region C and has the same diameter as the handle above the pulled up grip 7. Guide elements 9 are provided on the grip 7 which are guided in the helical groove of the groove element 8 when the grip 7 is pushed downward and cause a twisting and, thus, wringing out, of the wiper 3. The rotation movement takes place until the guide elements 9 exit the helical groove 20 and reach the portion C. A further downward movement of the grip 7 causes a further compression of the wiper 3, which has come to closely engage the handle 2 during the previous rotation movements.

The grip 7 is made of the grip mantle 11 and an inner sleeve 10 to which is mounted a fastening arrangement 12 for the upper end 6 of the wiper 3, and the guide elements 9. The inner diameter of the sleeve 10 is adapted to the outer diameter of the helical groove element 8 such that the sleeve 10 can slide over the helical groove element 8. The grip mantle 11 is positioned over the sleeve 10 and is rotatable thereon and longitudinally slidable therealong.

A pair of opposingly positioned balls are recessed into the wall of the sleeve 10 and provide the guide elements 9. The balls 9 are permanently held in the wall of the sleeve 10, but are radially movable therein to a limited degree. The helical groove 8 is constructed as a double helix so that each ball 9 has its own grooved track.

The sleeve 10 allows a limited axial displacement of the grip mantle 11, whereby

the guide element 9 is freed, as shown in the Figure. The guide element 9 is locked when the grip mantle 11 forces the guide element 9 inward with its inner surface.

The upward movement of the grip 7 is limited by the end stop 13. The end stop 13 is provided with a stop element 14 by which the sleeve 10 and, thus, the grip 7, is held in its upper end position.

A coating 15 affording a firm hold for a second hand of the mop user is provided on the handle 2.

The grip 7 is illustrated in Figure 2. The handle is continuous and of constant diameter. The helical groove element 8 has a double helix grove 20 and is placed on the handle 2. At this point it must be mentioned that other embodiments are possible, for example an embodiment wherein the helical groove element 8 and the handle are made as one piece. The grip 7 consists of the sleeve 10 and a grip mantle 11 which is rotatably and axially movably mounted on the sleeve 10. The sleeve has at its lower end the fastening arrangement 12 for the upper end of the wiper 3. The sleeve 10 further carries the balls 9 which represent the guide elements and which roll along the helical grooves 20, when the grip 7 is moved downwardly. Each ball slides in its own helical groove. The grip mantle 11 when downwardly displaced as shown in Figure 2 presses the balls 9 radially inward with its inner surface. The first portion B ends at the upper end of the helical groove element 8. A free region D is immediately above the helical groove element 8 which allows a radially inward displacement of the balls 9 in the sleeve 10 for the locking of the grip. This free region D is formed by the handle 2 in the illustrated embodiment.

At the upper end, sleeve 10 is provided with a flange 16 which on its inside is provided with an annular groove into which the locking element 14 snaps to hold the sleeve 10 in its upper, end position. Furthermore, the end stop 13 is mounted to the handle 2. An upward displacement of the grip mantle 11 leads to a freeing of the balls 9 and to an engagement of the grip mantle 11 with the flange 16 which is finally pushed over the locking element 14 and against the end stop 13.

The region of the sleeve 10 provided with the balls 9 is shown enlarged in Figure 3. The ball 9 on the left side of the Figure is thereby shown in the locked condition and the one on the right side in the unlocked or free condition. The grip mantle 11 is shown on the left side pushed over the ball 9 while on the right side the grip mantle is pulled back to free

the ball 9. In this embodiment, the handle 2, as already discussed with reference to Figures 1 and 2, is surrounded by the helical groove element 8 in the portion B. However, the helical groove element 8 is continued upward along the handle 2 and with a diameter which is equal to or smaller than the diameter at the base of the helical groove. A circular groove 17 can here be formed, for example, which allows inward displacement of the balls 9 in every rotational position of the sleeve 10. Funnel shaped groove ends 19 are provided at the upper end 18 of the helical groove element 8 which allow an easy insertion of the locked balls 9 into the groove 20.

CLAIMS:

1. A mop for the cleaning of surfaces, comprising a handle, a grip movable along the handle, and a wiper of absorbent material releasably attached to the handle, a lower end of the wiper being fastened to the handle and an upper end to the grip, the handle having a region covered by the wiper when in an extended condition, which region is divided into an upper first portion and a lower second portion, the first portion having a helical groove and the grip having a guide element for engaging the helical groove, to cause a rotation of the grip and twisting of the wiper upon movement of the grip over the first portion and the guide element being released when over the second portion to allow the grip to rotate freely relative to the handle when over the second portion.

2. The mop according to claim 1, wherein the grip includes an inner sleeve including the guide element and having a fastening arrangement for the upper end of the wiper, and an outer grip mantle which rotatably surrounds the sleeve.

3. The mop according to claim 1or 2, wherein the guide element is at least one radially movable ball permanently supported in a wall of the sleeve.

4. The mop according to one of claims 1 to 3, wherein the helical groove is a double helix.

5. The mop according to claim 4, wherein the mop includes a helical groove element in the first portion which includes the helical groove.

6. The mop according to claim 5, wherein the helical groove element is of unitary construction with the handle.

7. The mop according to one of claims 1 to 4, wherein the grip mantle is axially reciprocatable on the sleeve to a limited degree for locking and releasing the guide element.

8. The mop according to one of claims 1 to 5, wherein the handle has a spring loaded locking element for the sleeve in its upper end position.

9. The mop according to one of claims 1 to 6, wherein the upper end position of the sleeve is defined by an end stop.

10. The mop according to one of claims 1 to 7, wherein the first portion provided with the helical groove element has a larger diameter than the handle.

11. The mop according to one of claims 1 to 8, further comprising above the first portion with the helical groove a free region in the form of an annular groove receiving the guide element during the locking procedure.

12. The mop according to one of claims 1 to 9, wherein the upper end of the helical groove in the helical groove element is funnel shaped for facilitating entry of the guide elements into the helical groove.

13. The mop according to one of claims 1 to 10, wherein the fastening arrangement on the grip mantle for attachment of the upper end of the wiper has a larger radius than a point of connection of the wiper with the handle end.

14. A wet mop comprising:

handle having an upper first portion with a helical groove and a lower second portion located below the first portion;

a grip with a guide element, the grip being attached to the handle so that the guide element can cooperate with the helical grooves to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and to the grip,

wherein in the lower second portion, the grip is released so that it is able to rotate free of influence by the helical groove.

15. The wet mop according to claim 14, wherein the grip comprises:

an inner sleeve that is equipped with the guide element and an attachment device for a top end of the wiper; and

an outer grip mantle that surrounds the sleeve, the outer grip mantle rotatable relative to the sleeve.

16. The wet mop according to claim 14, wherein the grip includes a sleeve, and the guide element is at least one ball permanently supported in a wall of the sleeve so that the guide element can be radially shifted.

17. The wet mop according to claim 14, wherein the grip includes a sleeve, and the handle has a spring-assisted locking element for the sleeve in its top end position.

18. The wet mop according to claim 14, wherein the grip includes a sleeve, and a top end position of the sleeve is limited by an end stop.

19. The wet mop according to claim 14, further comprising a fastening arrangement located on the grip, a top end of the wiper being fastenable to the fastening arrangement, the top end of the wiper being releasable from the fastening arrangement, the fastening arrangement having a greater radius than a connection location for the wiper on an end of the handle.

20. The wet mop according to claim 14, wherein in the lower second portion, the wiper is compressible when the grip is axially shifted in a direction away from the top first portion.

21. A wet mop comprising:

a handle having a top first portion with A helical groove and a lower second portion located below the first portion;

a grip with a guide element, the grip being attached to the handle so that the

guide element can cooperate with the helical groove to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and to the grip,

wherein in the lower second portion, the grip is released so that it is able to rotate,

wherein the grip includes comprises: an inner sleeve that is equipped with the guide element and a fastening arrangement for a top end of the wiper; and an outer grip mantle that surrounds the sleeve so as to rotate around it,

wherein the grip mantle can be axially shifted relative to the sleeve only within certain limits, and axially shifting the holder mantle locks or releases the guide element.

22. A wet mop comprising:

a handle having a top first portion with helical grooves and a lower second portion located below the first portion;

a grip with a guide element, the grip being attached to the handle so that the guide element can cooperate with the helical groove to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and to the grip,

wherein in the lower second portion, the grip is released so that it is able to rotate,

wherein the helical grooves are in the shape of include a double helix.

23. A wet mop comprising:

a handle having a top first portion with a helical groove and a lower second portion located below the first portion, the first portion having a larger diameter than the second portion;

a grip with a guide element, the grip being attached to the handle so that the guide element can cooperate with the helical groove to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and

to the grip,

wherein in the lower second portion, the grip is released so that it is able to rotate.

24. A wet mop comprising:

a handle having a top first portion with a helical groove and a lower second portion located below the first portion;

a grip with a guide element, the grip being attached to the handle so that the guide element can cooperate with the helical groove to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and to the grip,

wherein in the lower second portion, the grip is released so that it is able to rotate,

wherein a free region is present above the first portion with the helical groove, in the form of an annular groove that holds the guide element during a locking process.

25. A wet mop comprising:

a handle having a top first portion with a helical groove and a lower second portion located below the first portion;

a grip with a guide-element, the grip being attached to the handle so that the guide element can cooperate with the helical groove to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and to the grip,

wherein in the lower second portion, the grip is released so that it is able to rotate,

wherein a top end of the helical groove has a funnel-shaped opening.

26. A wet mop comprising:

a handle having a top first portion with a helical groove and a lower second

portion located below the first portion;

a grip with a guide element, the grip being attached to the handle, the guide element being cooperatable with the helical groove to cause rotation of the grip; and

a wiper formed of absorbent strands releasably attached to the handle and to the grip,

wherein in the lower second portion, the grip is configured to be released so that it is rotatable free of influence by the helical groove.

Fig.1

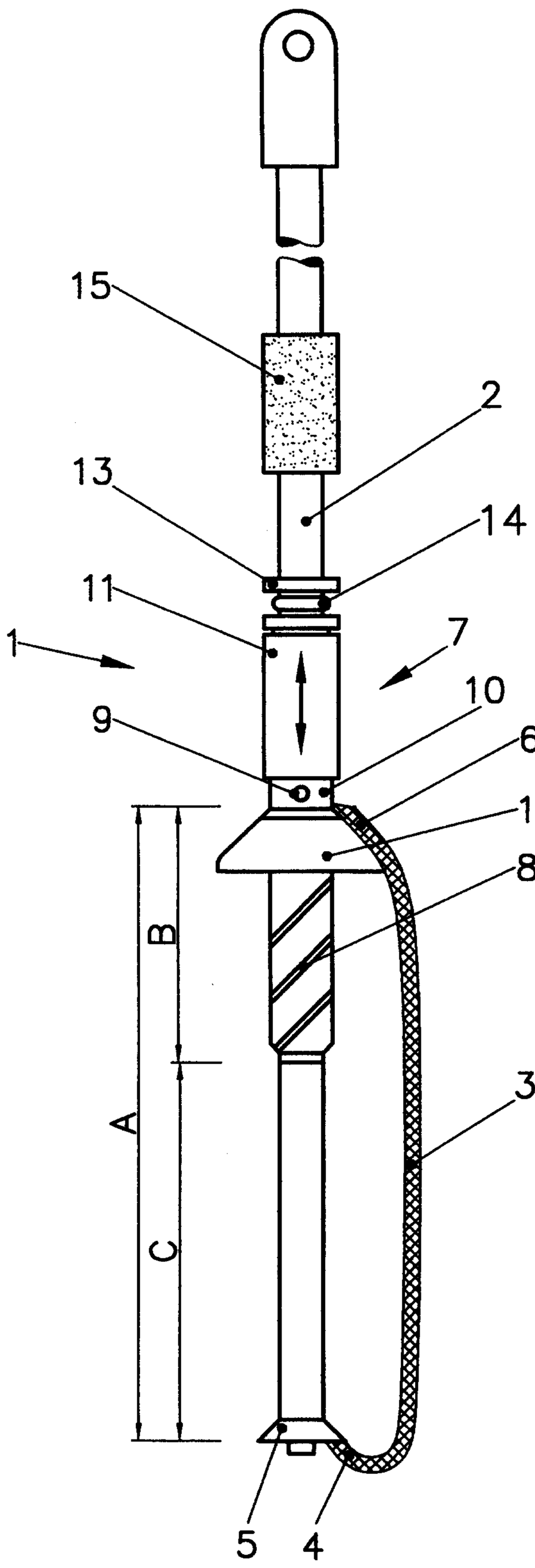


Fig.2

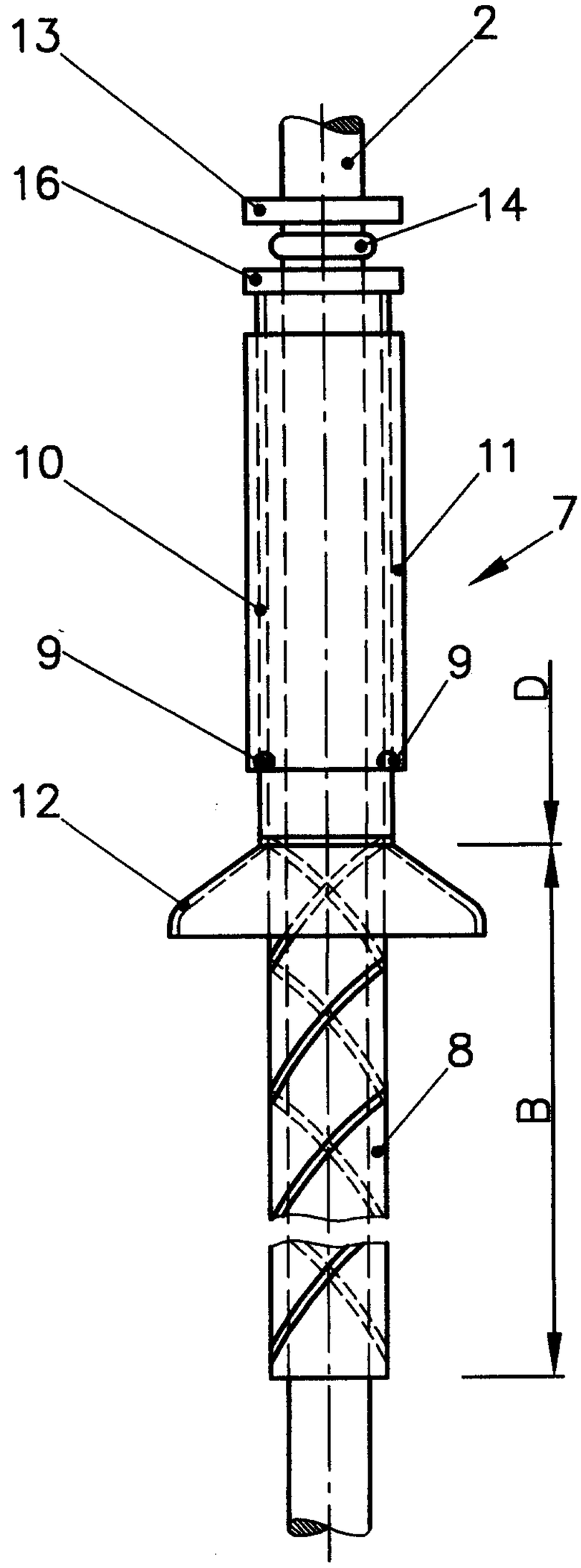
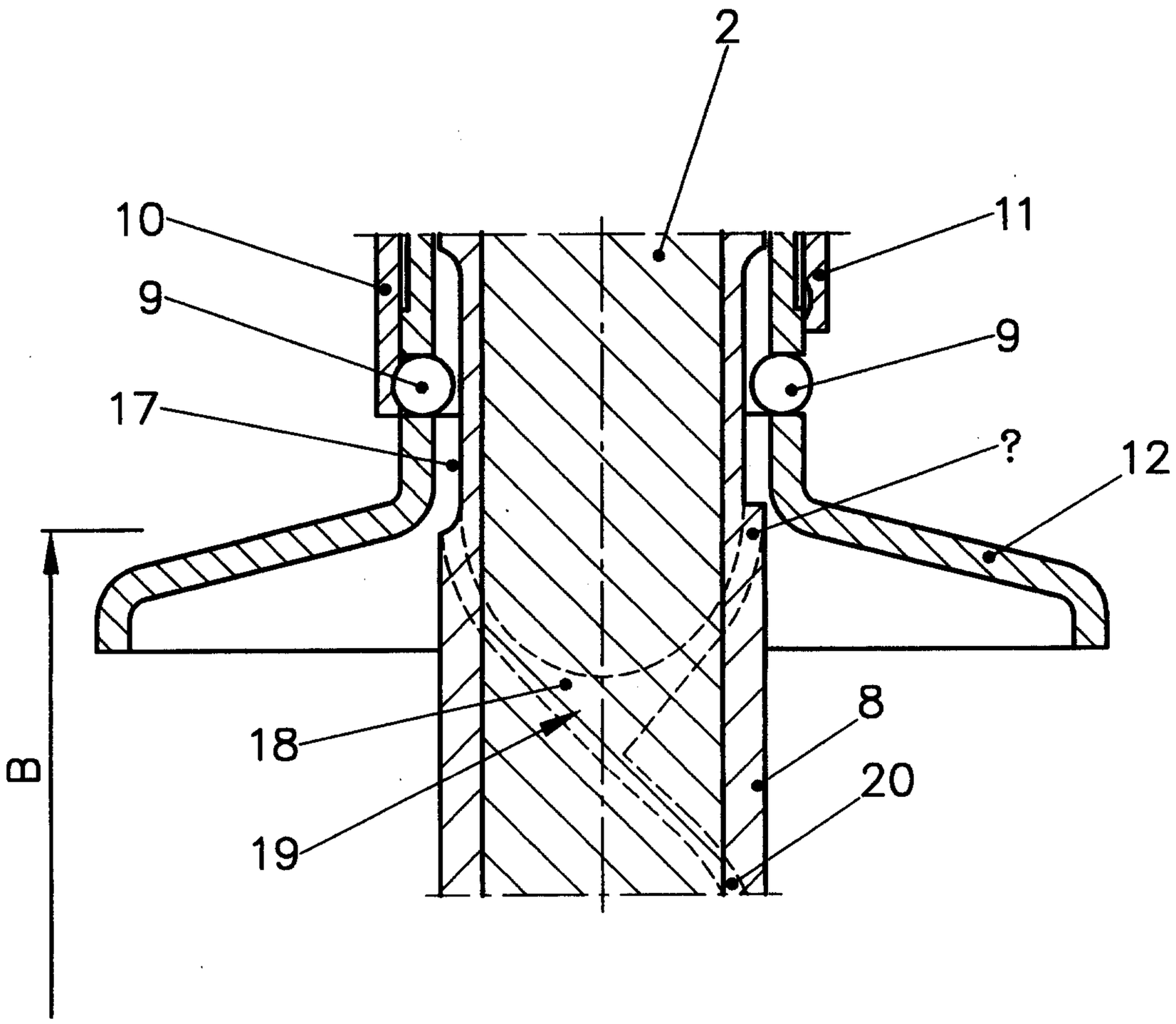
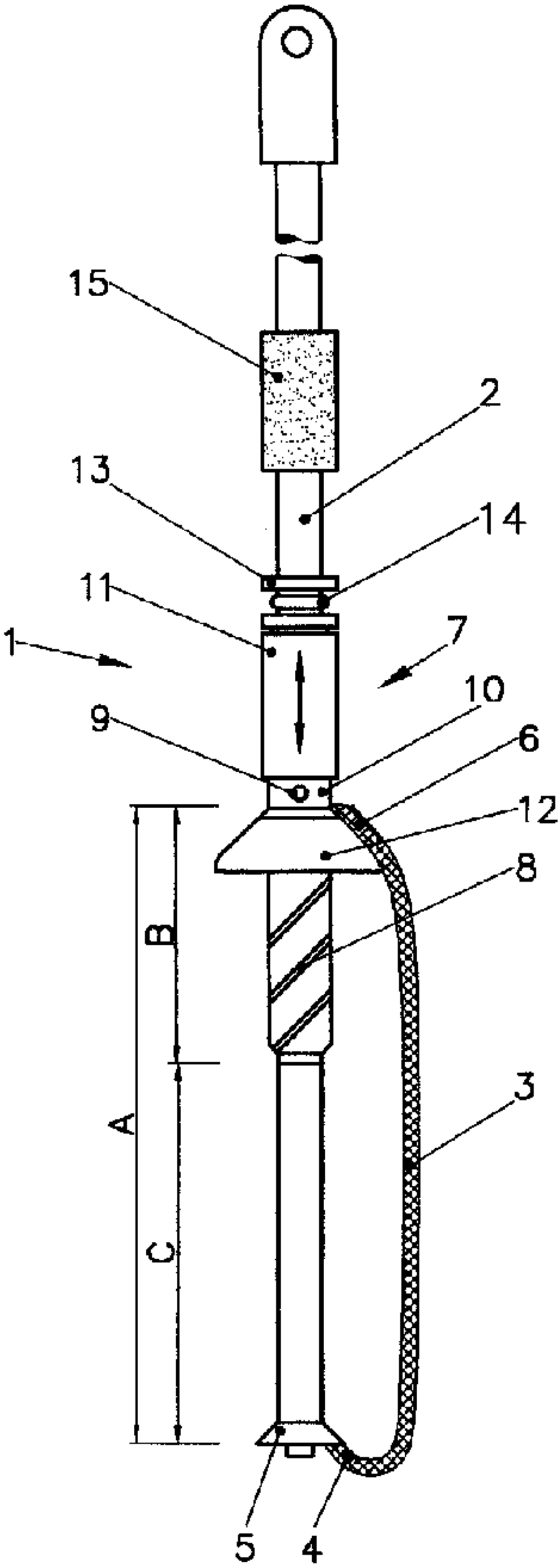


Fig.3

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