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(54) Mop with drying mechanism

(57) A mop (1) includes a hollow lower stick (11) including a bottom flared part (13), lower longitudinal parallel grooves (112), and intermediate helical grooves (111); an upper stick (12) slidable in the lower stick (11); an inner sleeve (30) including a bottom flared member (31), two steel balls (35) slidably disposed in two opposite lateral tubes (34) proximate the flared member (31), and a top stopper (331); a bundle of loose members (20) having both ends fastened to the flared part (13) and the flared member (31); and an outer sleeve (40) including a flared enlargement (41) adapted to surround and confine the steel balls (35). After moping, a person may push the enlargement (41) downward towards the flared part (13) for pushing the steel balls (35) inward to urge against the helical grooves (111), and it is adapted to helically pull the lower stick (11) upward along the helical grooves (111) for moving the lower end of the bundle of loose members (20) upward towards the upper end thereof for drying.

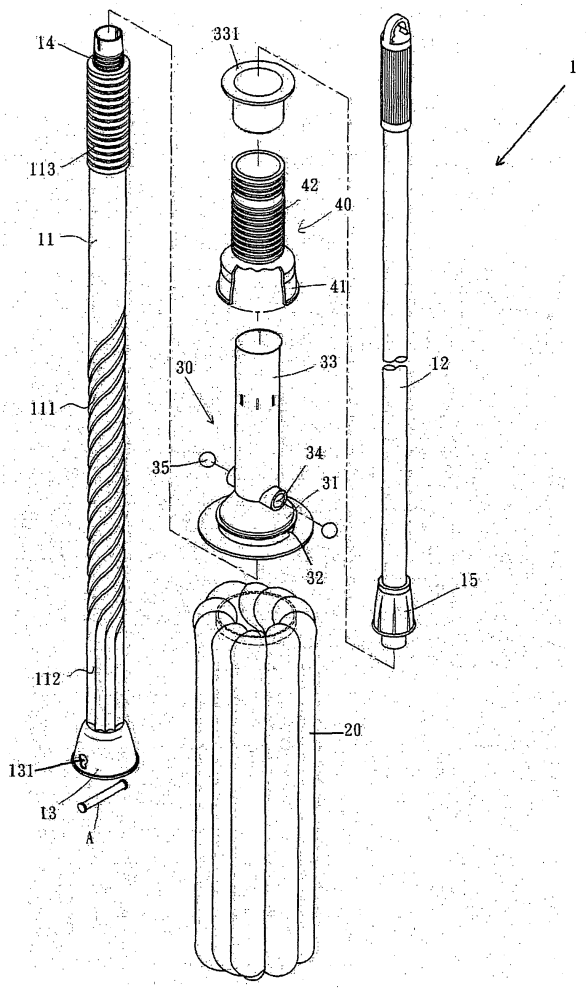

FIG.1

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to mops and more particularly to mops having a labor saving mechanism for wrenching a bundle of loose rags thereof dry after moping floors.

RELATED ART

[0002] Conventionally, a person may use the hands to exert a great force to wrench a bundle of loose rags or yarns of a mop dry after moping floors. Thus, moping floors is typically a labor intensive job as viewed by many people. This is not desirable particularly to, for example, women.

OBJECT OF THE INVENTION

[0003] It is therefore an object of the present invention to provide a labor saving mop.

SUMMARY OF THE INVENTION

[0004] The object of the present invention is achieved with a mop with the features of claim 1. Preferred embodiments of the present invention are presented in the subclaims.

[0005] According to the present invention a mop is provided comprising a stick including a hollow lower stick including a flared part at a lower end, a plurality of longitudinal parallel grooves extending upward from the flared part, a plurality of helical grooves extending upward from the parallel grooves, and top threads; and an upper stick including a flared nut at its lower end and adapted to be threadedly secured to the threads for fastening the lower and upper sticks together; a bundle of loose members having a lower end fastened to the flared part; an inner sleeve put on both the parallel grooves and the helical grooves and including a flared member at a lower end, and an annular trough around a lower edge of the flared member with an upper end of the bundle of loose members fastened thereto, a cylinder, two opposite lateral tubes at a joining point of the cylinder and the flared member, two steel balls slidably disposed in the tubes, and a top stopper secured to an upper portion of the cylinder; and an outer sleeve including an enlargement at a lower end put on the joining point of the cylinder and the flared member, the enlargement having an inner surface tapered upward and adapted to surround the steel balls for preventing the steel balls from disengaging with the tubes wherein the outer sleeve is confined to slide between the stopper and the joining point of the cylinder and the flared member; wherein in a ready to use state of the mop the upper and lower ends of the bundle of loose members are fully extended, the enlargement is in contact with the steel balls, the steel balls are not engaged with the helical grooves, and the lower stick is adapted to pass the inner sleeve downward; wherein after moping it is adapted to push the enlargement downward toward the flared part for causing the enlargement to push the steel balls inward to urge against the helical grooves, and it is further adapted to helically pull the lower stick upward along the helical grooves for moving the lower end of the bundle of loose members upward towards the upper end thereof for drying; wherein after the drying it is adapted to place the bundle of loose members upright and push both the outer and inner sleeves downward to move the upper end of the bundle of loose members downward towards the lower end thereof for further drying; and wherein after the further drying it is adapted to push both the lower stick and the inner sleeve downward to disengage the steel balls with the enlargement, and the lower stick is adapted to move downward through the inner sleeve until the bundle of loose members is fully extended.

[0006] In one aspect of the present invention the flared part comprises two opposite lateral holes, and further comprises a pin inserted through the holes and the lower end of the bundle of loose members for fastening the bundle of loose members to the flared part.

[0007] In another aspect of the present invention the loose members of the bundle are either rags or yarns.

[0008] The above and other objects, features and advantages of the present invention will become apparent from the following detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

FIG. 1 is an exploded perspective view of a preferred embodiment of a mop according to the invention;
FIG. 2 is a perspective view of the assembled mop in FIG. 1;
FIG. 3 is a sectional view of FIG. 2 where the mop is ready to use;
FIG. 4 is a view similar to FIG. 3 where a turning of the outer sleeve will wrench the mop dry after use;
FIG. 5 is a view similar to FIG. 4 where a further pushing downward of the outer sleeve will wrench the mop further dry; and
FIGS. 6 and 7 are views similar to FIG. 3 showing steps of returning the dried mop to a ready to use state.

DETAILED DESCRIPTION OF THE INVENTION

[0010] Referring to FIGS. 1, 2, and 3, a mop 1 in accordance with a preferred embodiment of the invention comprises a stick including a hollow lower stick 11 including a flared part 13 at a lower end, the flared part 13 including two opposite lateral holes 131, a plurality of longitudinal parallel grooves 112 extending upward from the flared part 13, a plurality of intermediate helical

grooves 111 extending upward from the parallel grooves 112, an upper knurled part 113 spaced from the helical grooves 111 by a predetermined distance wherein an outer surface of the lower stick 11 corresponding to the predetermined distance is smooth, and top threads 14 proximate an upper end and extending upward from the knurled part 113; and an upper stick 12 including a flared nut 15 at its lower end and adapted to be threadedly secured to the threads 14 for fastening the lower stick 11 and the upper stick 12 together and enabling a person to adjust the stick to a desired length by threading.

[0011] The mop 1 further comprises a bundle of loose rags (or yarns or the like in other embodiments) 20 having a lower end fastened to the flared part 13 by inserting a pin A through the holes 131 and the bundle of loose rags 20. As an end, the lower stick 11 and the bundle of loose rags 20 may operate as a whole.

[0012] The mop 1 further comprises an inner sleeve 30 slidably put on both the parallel grooves 112 and the helical grooves 111 and including a flared member 31 at a lower end, and an annular trough 32 around a lower edge of the flared member 31. The upper end of the bundle of loose rags 20 is fastened to the annular trough 32 such that the bundle of loose rags 20 and the inner sleeve 30 may operate as a whole. The inner sleeve 30 further comprises a cylinder 33, two opposite lateral tubes 34 at a joining point of the cylinder 33 and the flared member 31, two steel balls 35 slidably disposed in the tubes 34, and a top ring 331 having an annular flange secured to an upper portion of the cylinder 33.

[0013] The mop 1 further comprises an outer sleeve 40 put on the inner sleeve 30. The outer sleeve 40 comprises an enlargement 41 at a lower end put on the joining point of the cylinder 33 and the flared member 31. The enlargement 41 is adapted to surround the steel balls 35 for preventing the steel balls 35 from disengaging with the tubes 34, and a knurled member 42 extending upward from the enlargement 41. The outer sleeve 40 is confined to slide between the ring 331 and the joining point of the cylinder 33 and the flared member 31.

[0014] Referring to FIG. 3 specifically, the mop 1 is shown in a ready to use state in which upper and lower ends of the bundle of loose rags 20 are fully extended, the enlargement 41 is in contact with the steel balls 35 in the tubes 34, the steel balls 35 are not engaged with the helical grooves 111, and the lower stick 11 is thus adapted to pass the inner sleeve 30 downward.

[0015] Referring to FIG. 4, after moping the floors a person may hold the knurled member 42 by one hand to push both the knurled member 42 and the enlargement 41 downward toward the flared part 13. The steel balls 35 are thus pushed inward to urge against the helical grooves 111 by a slightly tapered upward inner surface of the enlargement 41. At the same time, the person may hold the upper end of the lower stick 11 with the other hand to pull the lower stick 11 upward. As such, the lower stick 11 may helically move upward along the helical grooves 111. Also, the lower end of the bundle of loose rags 20 moves upward towards its upper end (i.e., the upper end of the bundle of loose rags 20 is fixed at this time). As a result, the mop 1 (i.e., the bundle of loose rags 20) is wrenched to dry.

[0016] Referring to FIG. 5, considering weak women the invention is thus configured to have the longitudinal parallel grooves 112. After pulling the lower stick 11 upward to the position shown in FIG. 4, the person may place the bundle of loose rags 20 on the floor in an upright position. Next, push both the outer sleeve 40 and the inner sleeve 30 downward. As a result, the upper end of the bundle of loose rags 20 moves downward towards its lower end (i.e., the lower end of the bundle of loose rags 20 is fixed at this time). As a result, the mop 1 (i.e., the bundle of loose rags 20) is further wrenched to dry.

[0017] Referring to FIGS. 6 and 7, after drying the mop 1 the person may push the lower stick 11 and thus the inner sleeve 30 downward. The steel balls 35 thus disengage with the enlargement 41 (i.e., the steel balls 35 are free). Next, the lower stick 11 moves downward quickly through the inner sleeve 30 from the position shown in FIG. 6 until the bundle of loose rags 20 is fully extended as shown in FIG. 7. At this position, the mop 1 is again in a ready to use state. In view of the above, the mop drying process involves no wrench by the hands. Thus, it is a labor saving design. Also, the bundle of loose rags 20 can be dried quickly, completely.

[0018] While the invention herein disclosed has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.

Claims

1. A mop (1) with drying mechanism comprising:

a stick including a hollow lower stick (11) including a flared part (13) at a lower end, a plurality of longitudinal parallel grooves (112) extending upward from the flared part (13), a plurality of helical grooves (111) extending upward from the parallel grooves (112), and top threads (14); and an upper stick (12) including a flared nut (15) at its lower end and adapted to be threadedly secured to the threads (14) for fastening the lower and upper sticks (11, 12) together;

a bundle of loose members (20) having a lower end fastened to the flared part (13);

an inner sleeve (30) put on both the parallel grooves (112) and the helical grooves (111) and including a flared member (31) at a lower end, and an annular trough (32) around a lower edge of the flared member (31) with an upper end of the bundle of loose members (20) fastened thereto, a cylinder (33), two opposite lateral tubes (34) at a joining point of the cylinder (33)

and the flared member (31), two steel balls (35) slidably disposed in the tubes (34), and a top stopper (331) secured to an upper portion of the cylinder (33); and

an outer sleeve (40) including an enlargement (41) at a lower end put on the joining point of the cylinder (33) and the flared member (31), the enlargement (41) having an inner surface tapered upward and adapted to surround the steel balls (35) for preventing the steel balls (35) from disengaging with the tubes (34) wherein the outer sleeve (40) is confined to slide between the stopper (331) and the joining point of the cylinder (33) and the flared member (31);

wherein in a ready to use state of the mop (1) the upper and lower ends of the bundle of loose members (20) are fully extended, the enlargement (41) is in contact with the steel balls (35), the steel balls (35) are not engaged with the helical grooves (111), and the lower stick (11) is adapted to pass the inner sleeve (30) downward; wherein after moping it is adapted to push the enlargement (41) downward towards the flared part (13) for causing the enlargement (41) to push the steel balls (35) inward to urge against the helical grooves (111), and it is further adapted to helically pull the lower stick (11) upward along the helical grooves (111) for moving the lower end of the bundle of loose members (20) upward towards the upper end thereof for drying; wherein after the drying it is adapted to place the bundle of loose members (20) upright and push both the outer and inner sleeves (40, 30) downward to move the upper end of the bundle of loose members (20) downward towards the lower end thereof for further drying; and

wherein after the further drying it is adapted to push both the lower stick (11) and the inner sleeve (30) downward to disengage the steel balls (35) with the enlargement (41), and the lower stick (11) is adapted to move downward through the inner sleeve (30) until the bundle of loose members (20) is fully extended.

2. The mop (1) as defined by claim 1, wherein the flared part (13) comprises two opposite lateral holes (131), and further comprising a pin (A) inserted through the holes (131) and the lower end of the bundle of loose members (20) for fastening the bundle of loose members (20) to the flared part (13).

3. The mop (1) as defined by claim 1, wherein the loose members (20) of the bundle are rags.

4. The mop (1) as defined by claim 1, wherein the loose members (20) of the bundle are yarns.

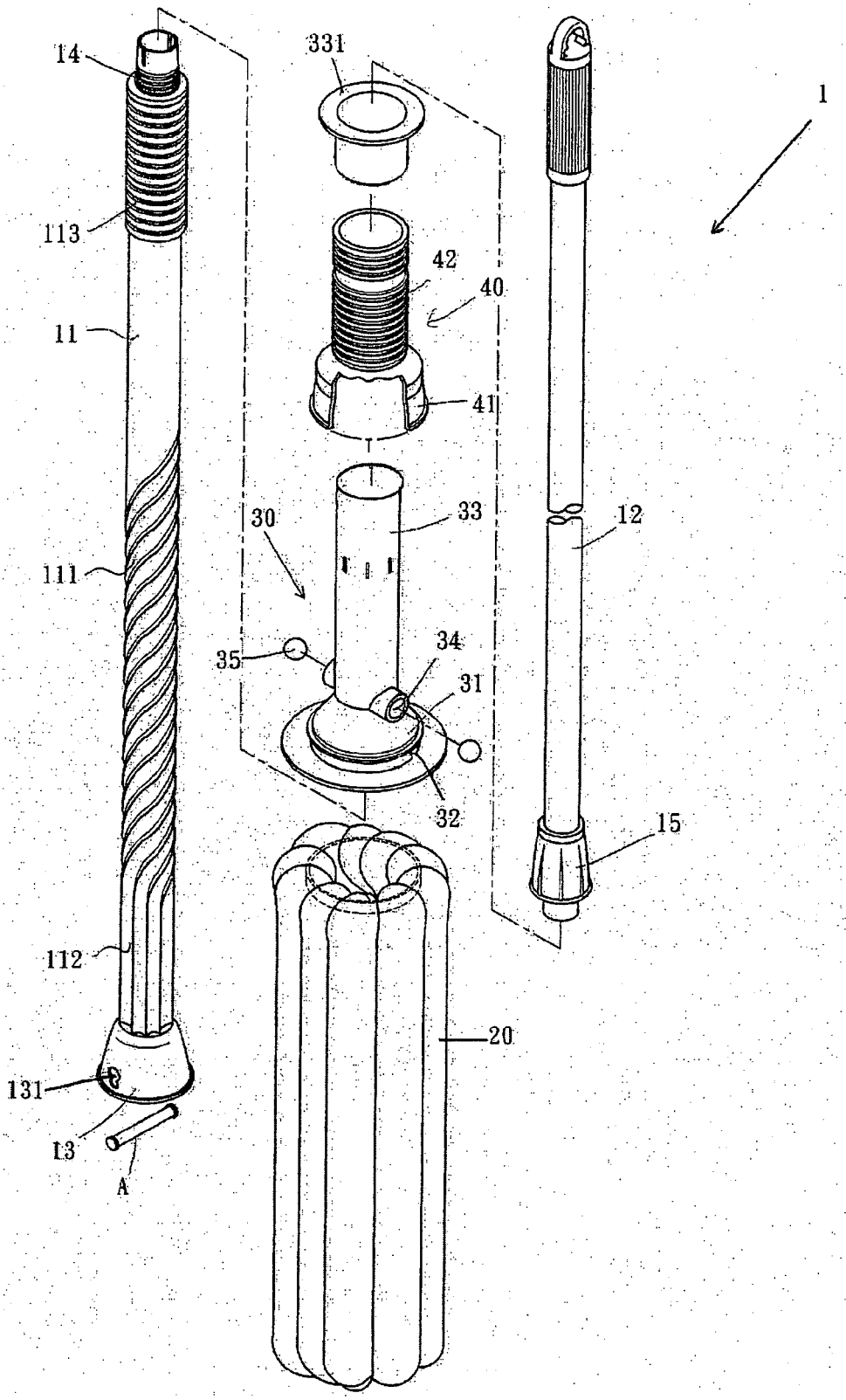

FIG. 1

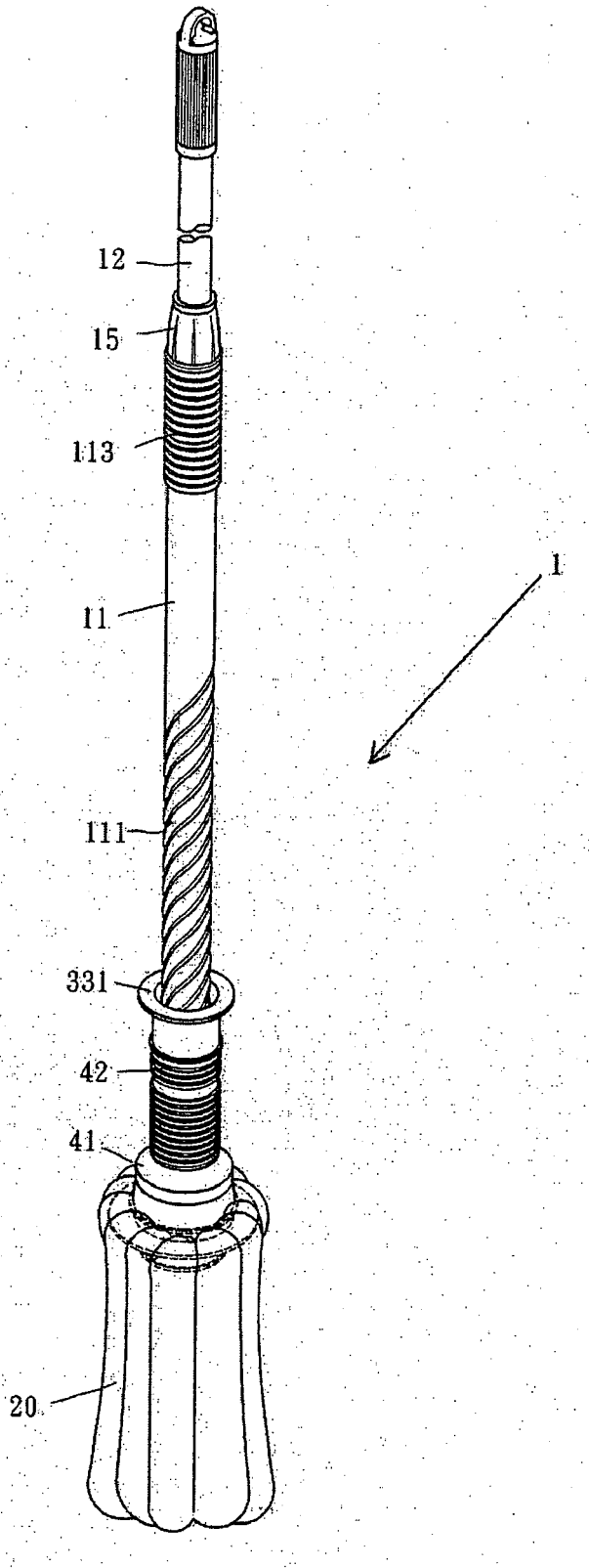

FIG.2

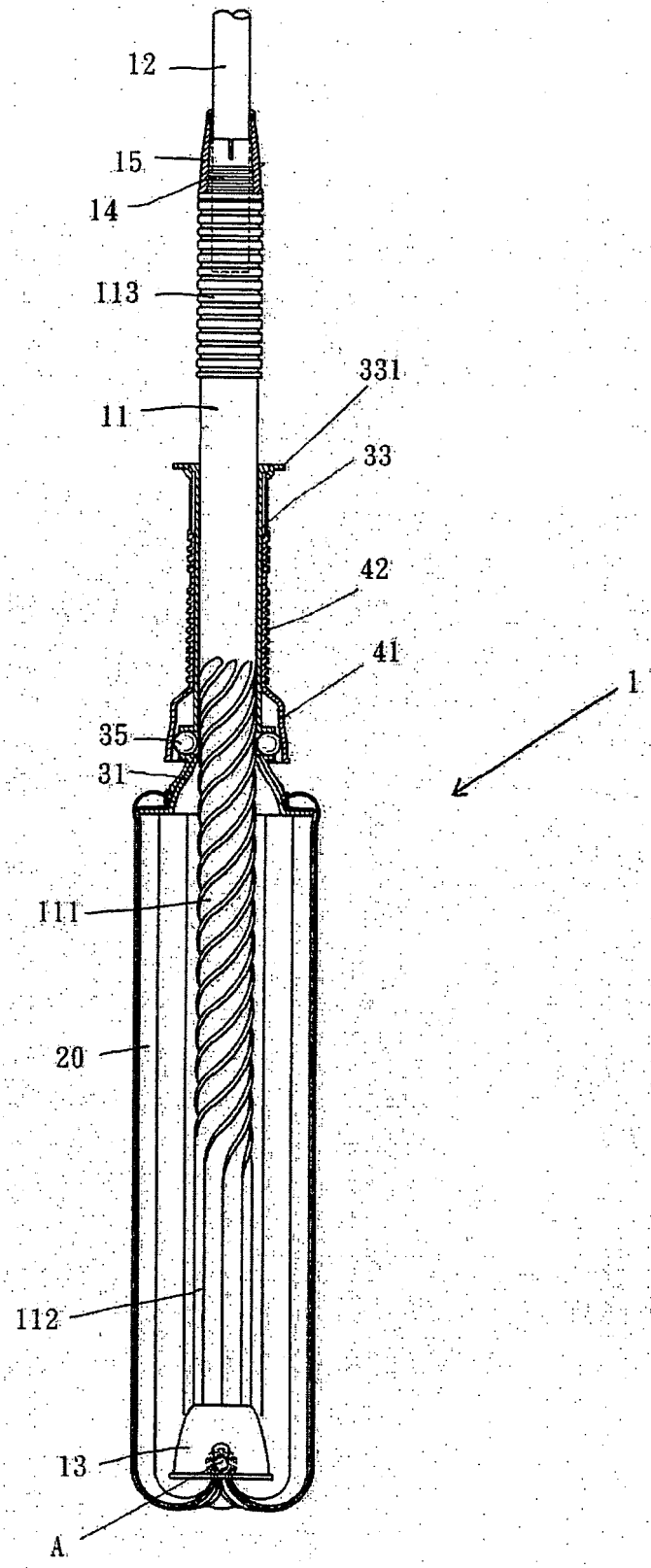

FIG 3

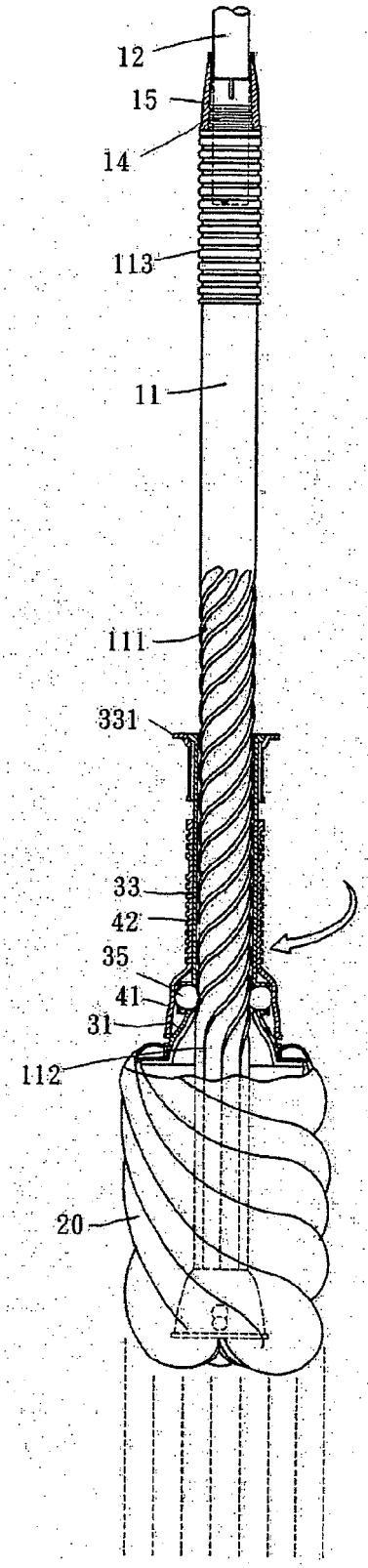
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FIG.4

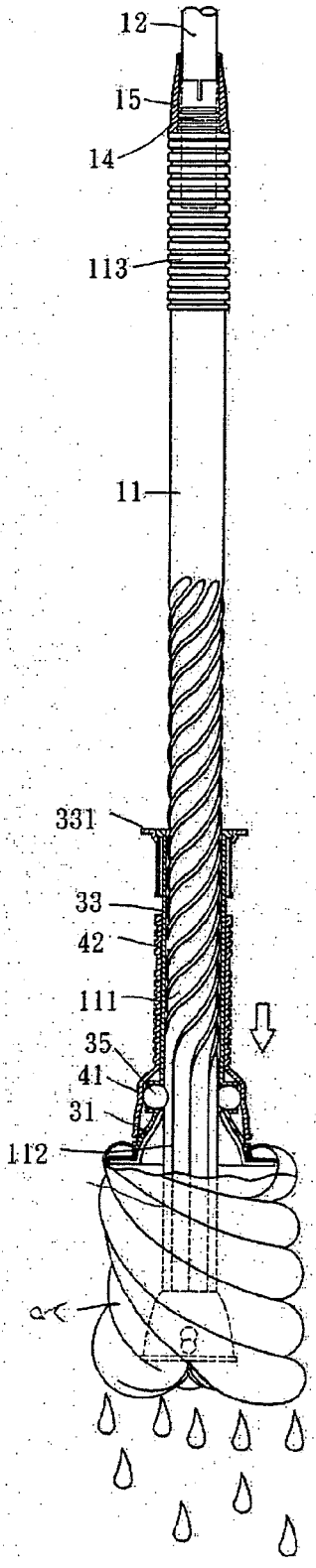
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FIG.5

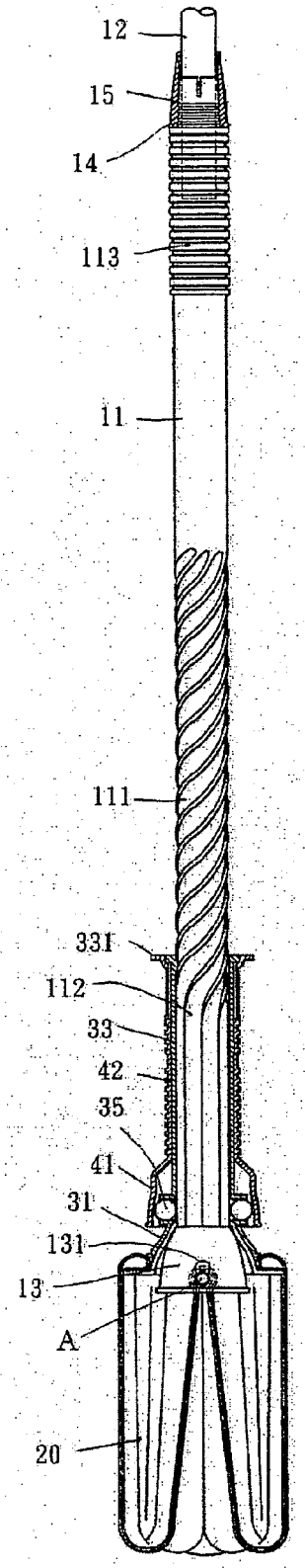
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FIG.6

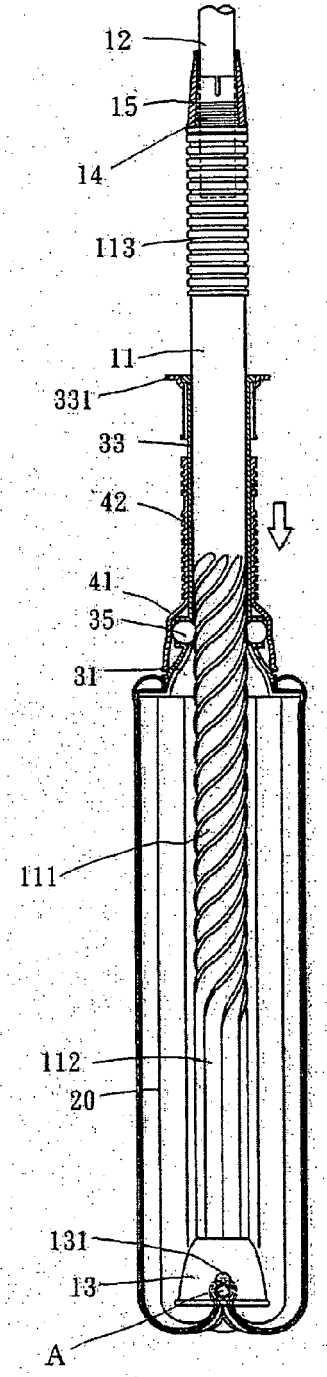
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FIG.7

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EUROPEAN SEARCH REPORT

Application Number
EP 06 00 3219

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 July 2006	CONTRERAS APARICIO

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The present search report has been drawn up for all claims

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The Hague	21 July 2006	CONTRERAS APARICIO

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