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(54) **CLEANING IMPLEMENT**

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Publication Classification

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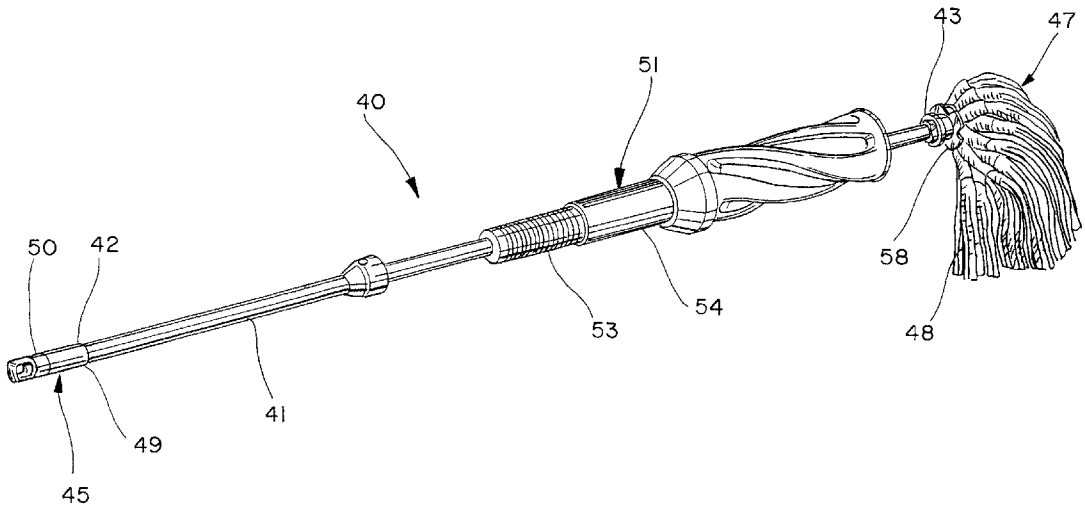
(52) **U.S. Cl.** **15/120.1**; 15/120.2

(57) **ABSTRACT**

Disclosed is a cleaning implement in the form of a sleeve-type self-wringing mop. In accordance with a preferred embodiment of the invention, the cleaning implement includes a shaft, a mop of a liquid absorbent material disposed at one end, and a wringer. The wringer includes a wringing sleeve that comprises a handle that is rotatably relative to the sleeve over at least a portion of the axial range of travel of the sleeve, and at least one volute. The volute has a generally helicoid surface that cooperates with a drive that is fixed with respect to the shaft, the volute and drive cooperating in the manner of a cam and cam follower. A user may advance the wringer upon grasping the handle and axially translating the handle relative to the shaft. The camming interaction between the volute and drive causes rotation of the wringing sleeve relative to the shaft to cause liquid to be expelled from the mop.



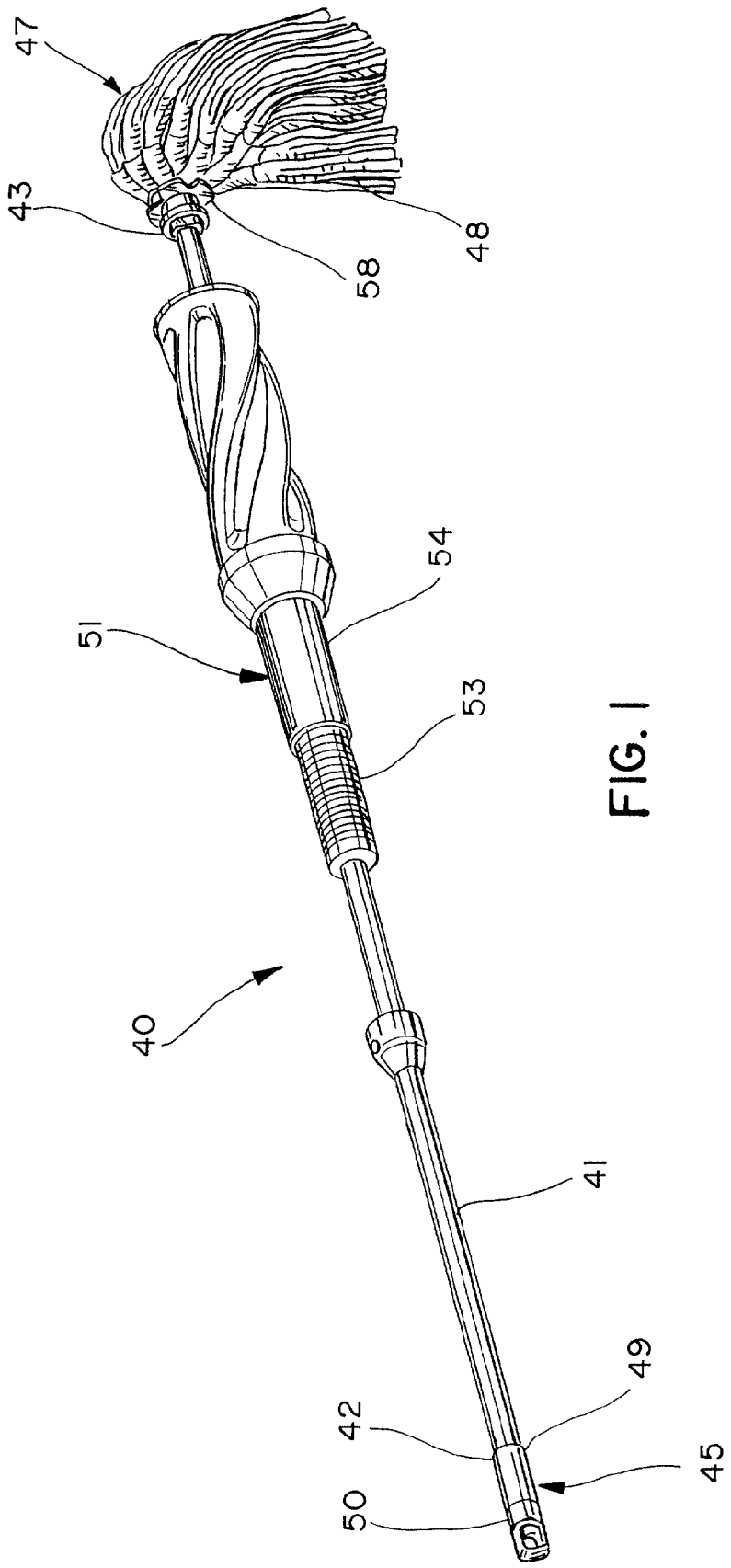


FIG. 1

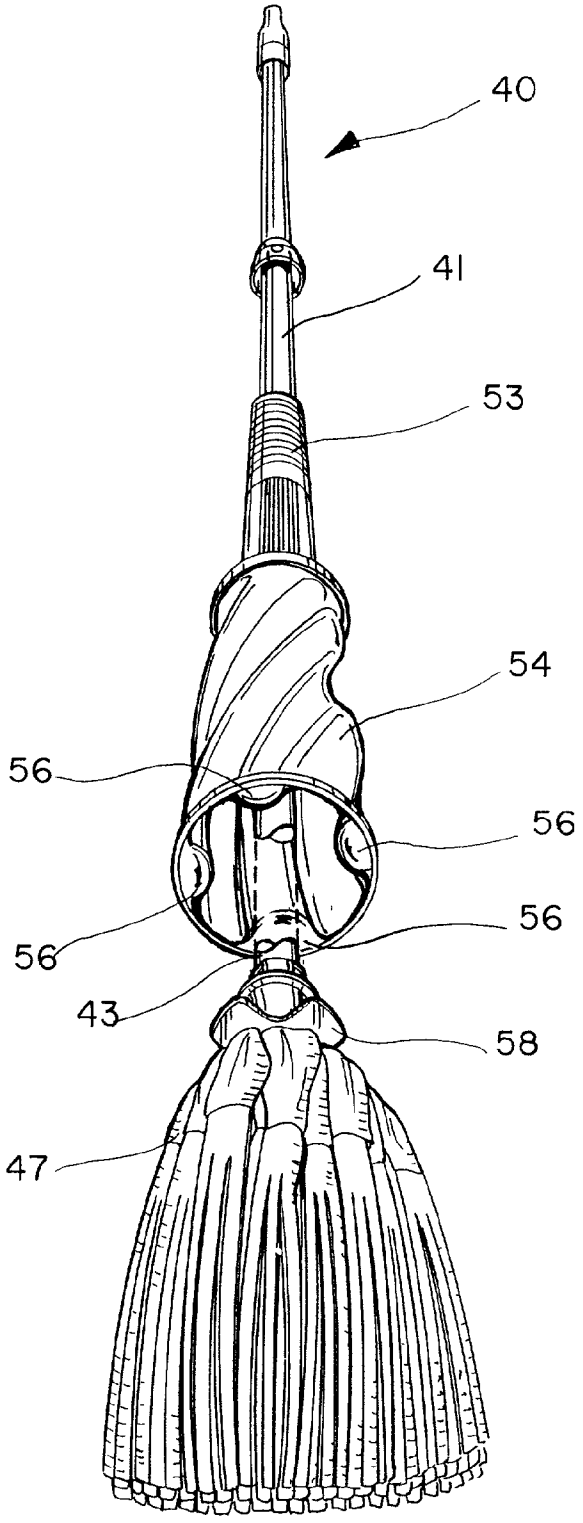


FIG. 2

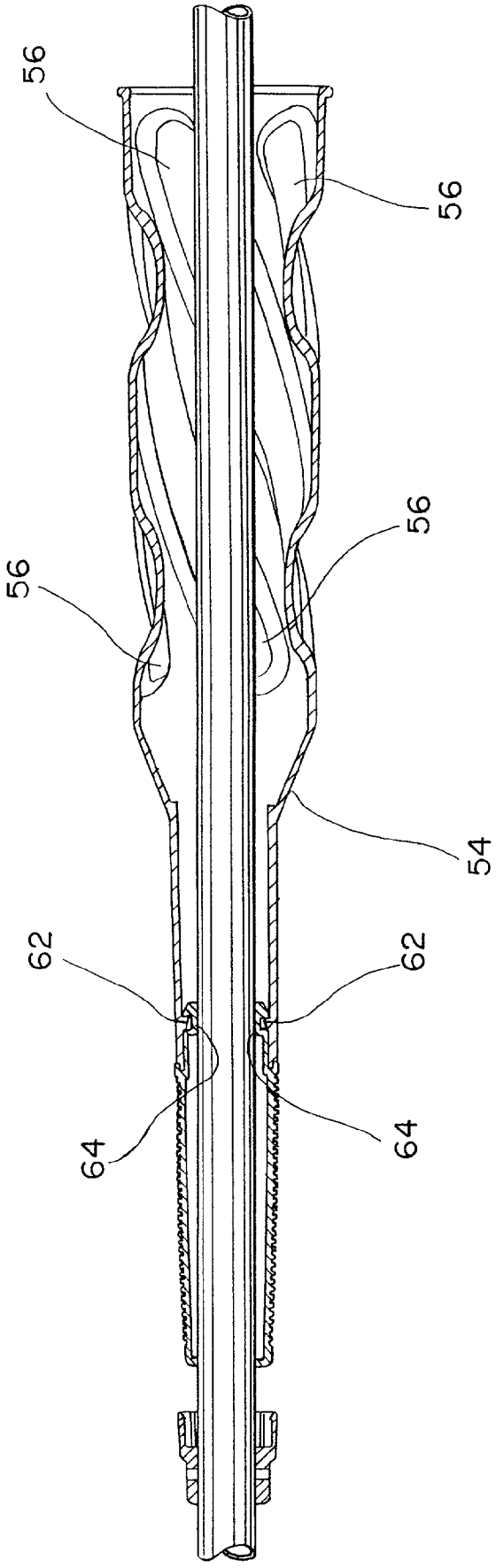


FIG. 3

FIG. 4

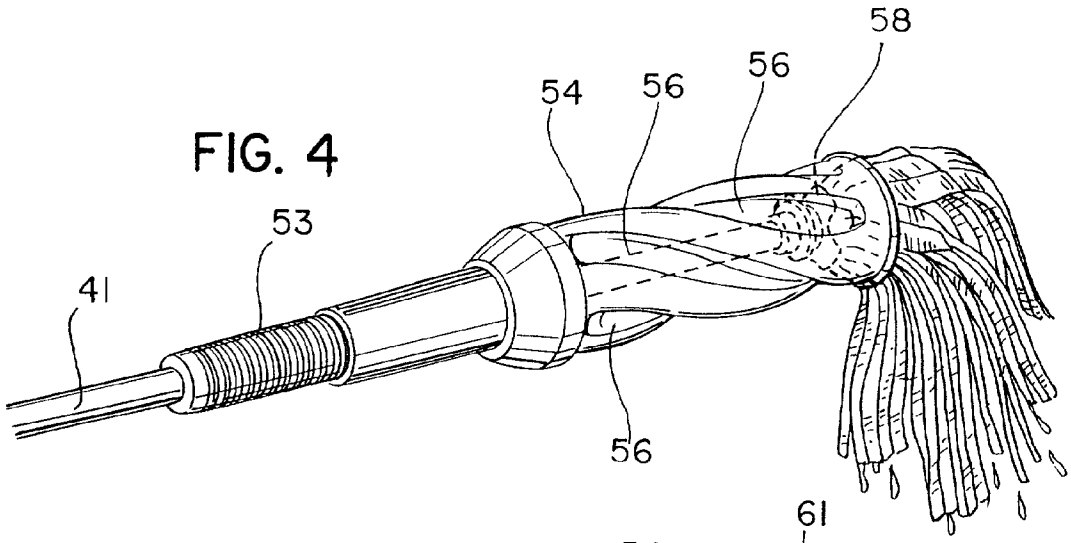
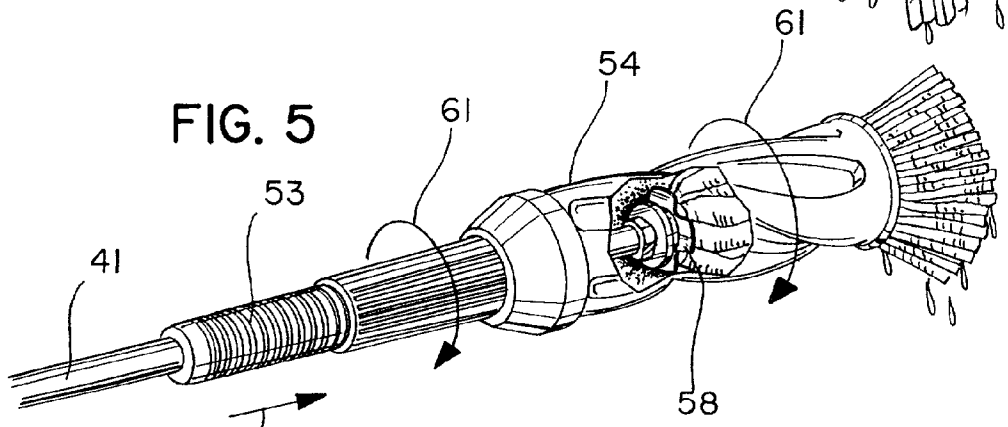


FIG. 5



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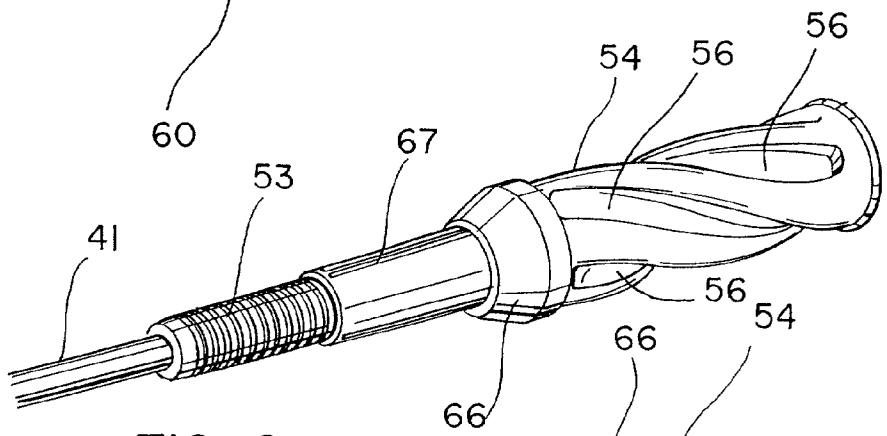
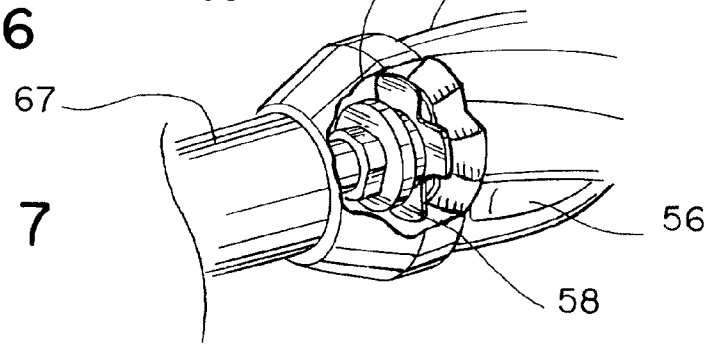


FIG. 7



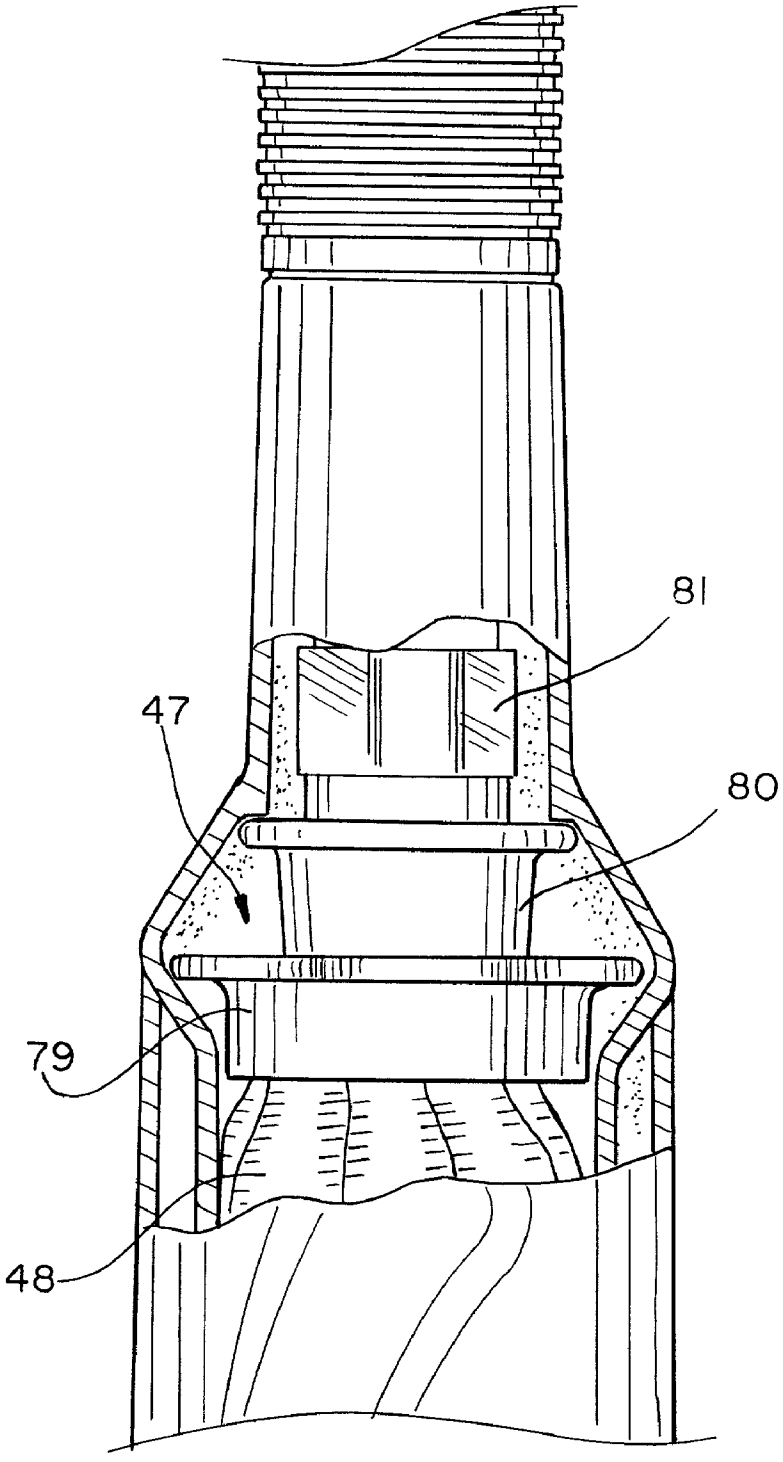


FIG. 8

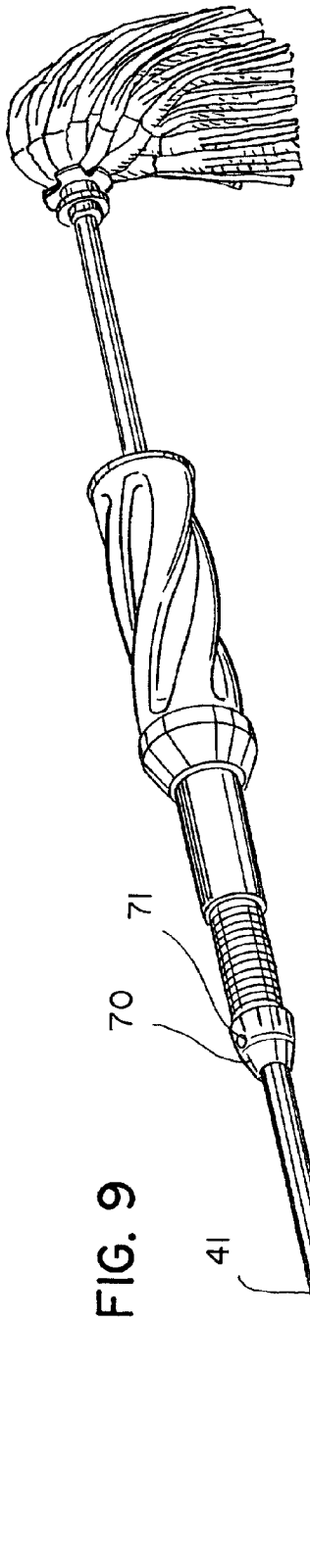


FIG. 9

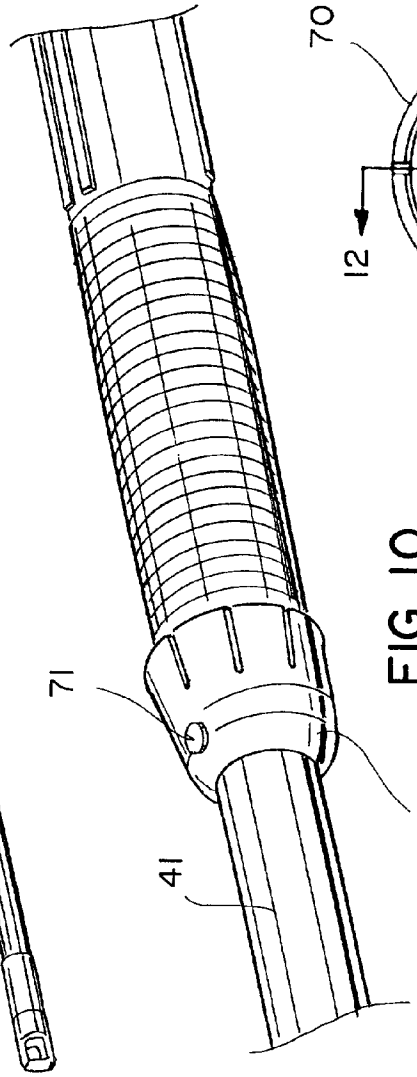


FIG. 10

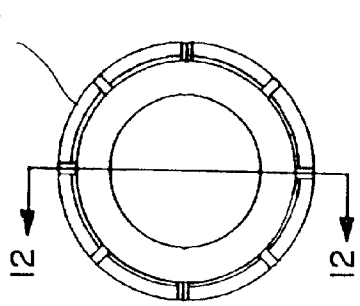


FIG. 11

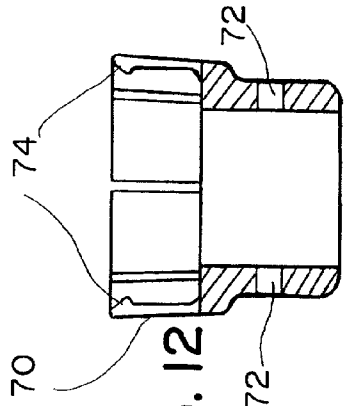


FIG. 12

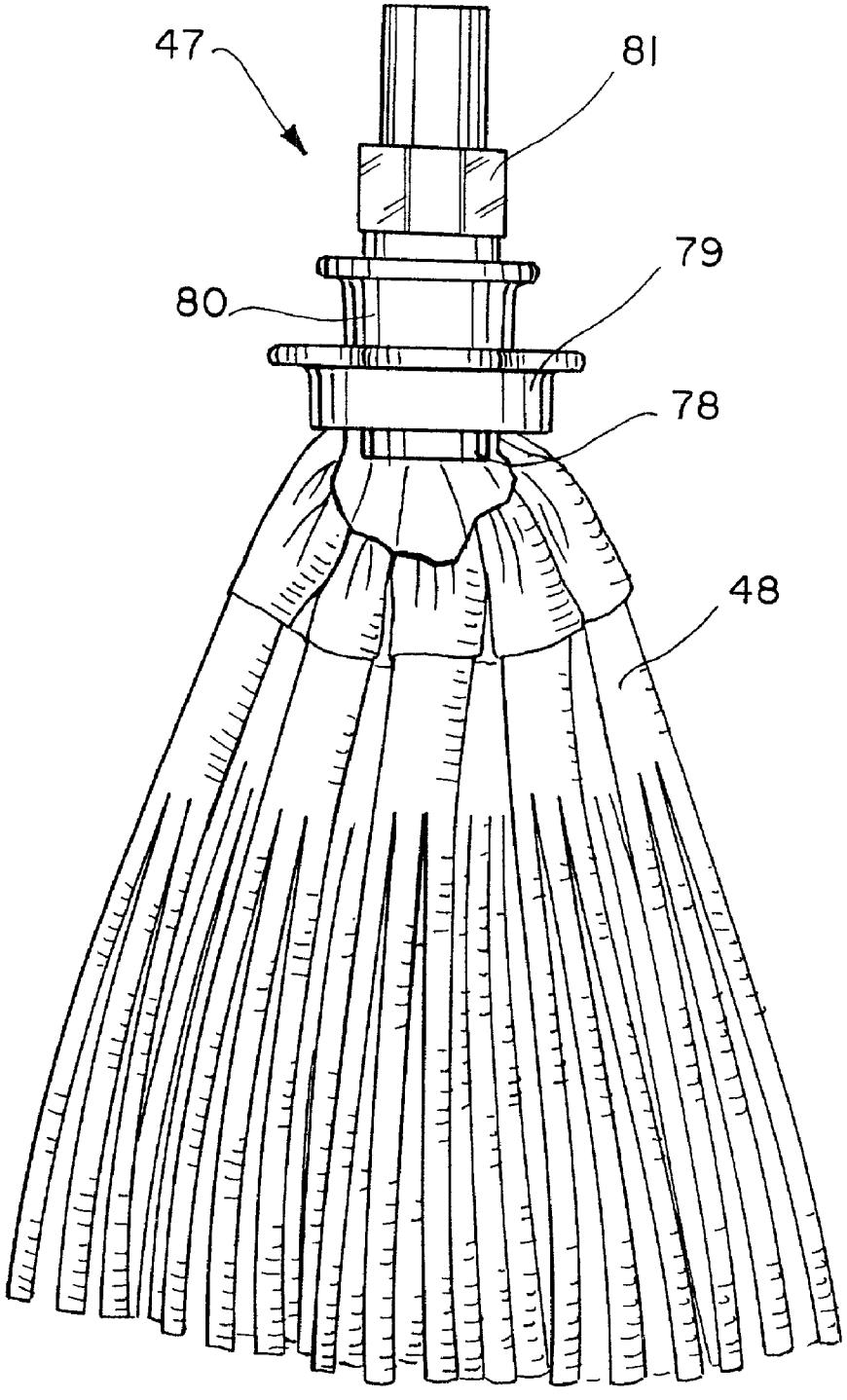


FIG. 13

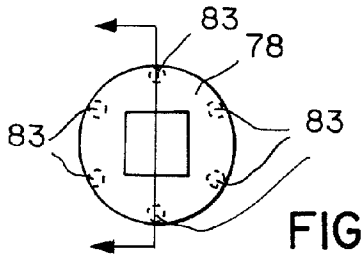


FIG. 14

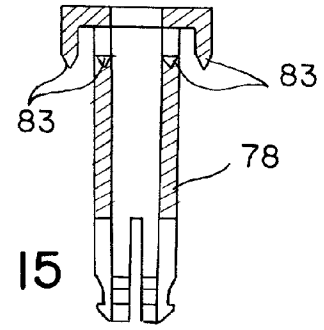


FIG. 15

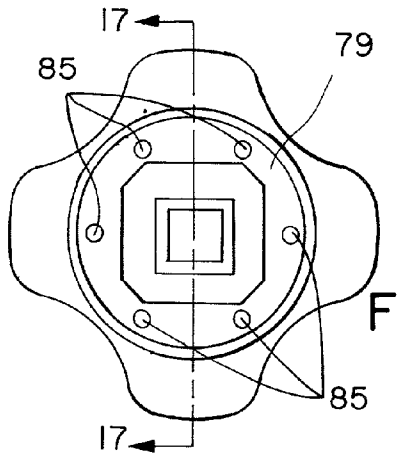


FIG. 16

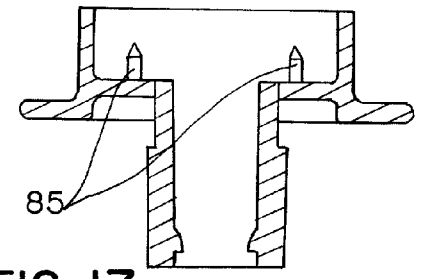


FIG. 17

FIG. 18

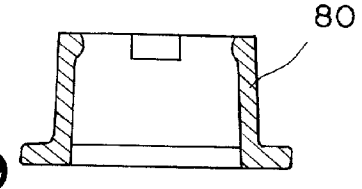
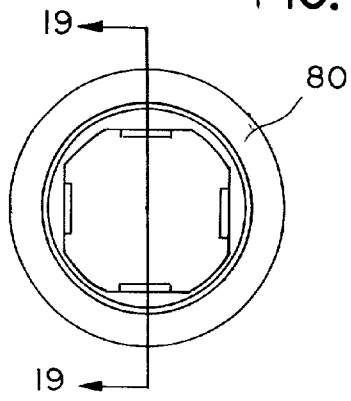


FIG. 19



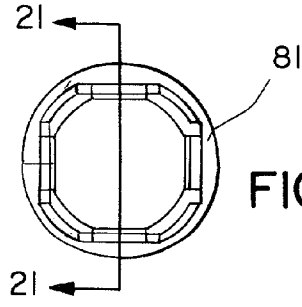


FIG. 20

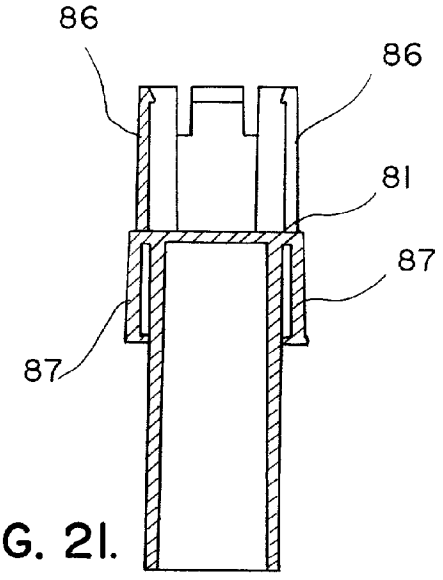
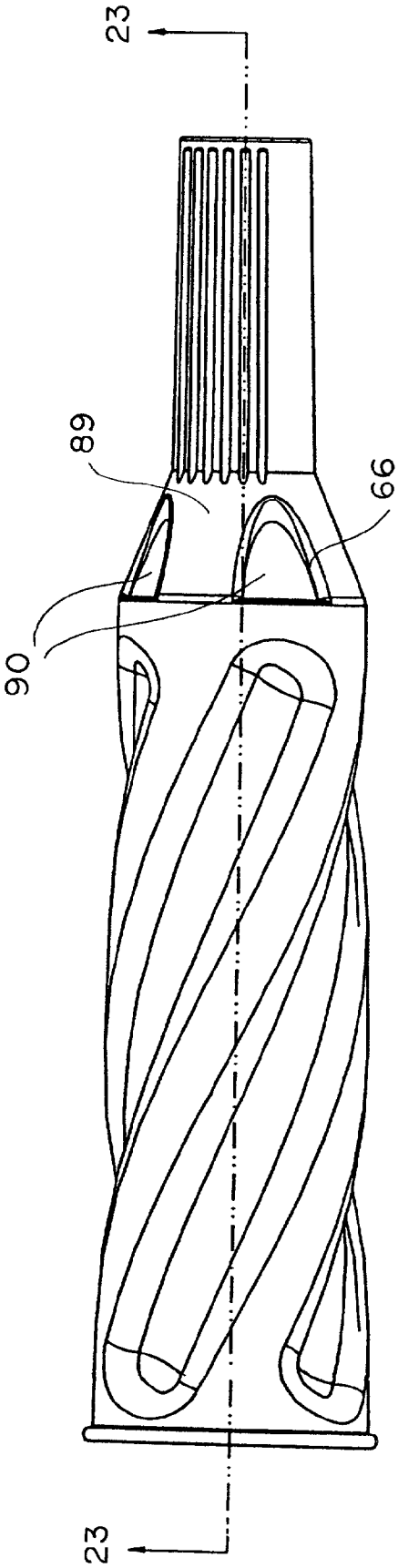


FIG. 21.



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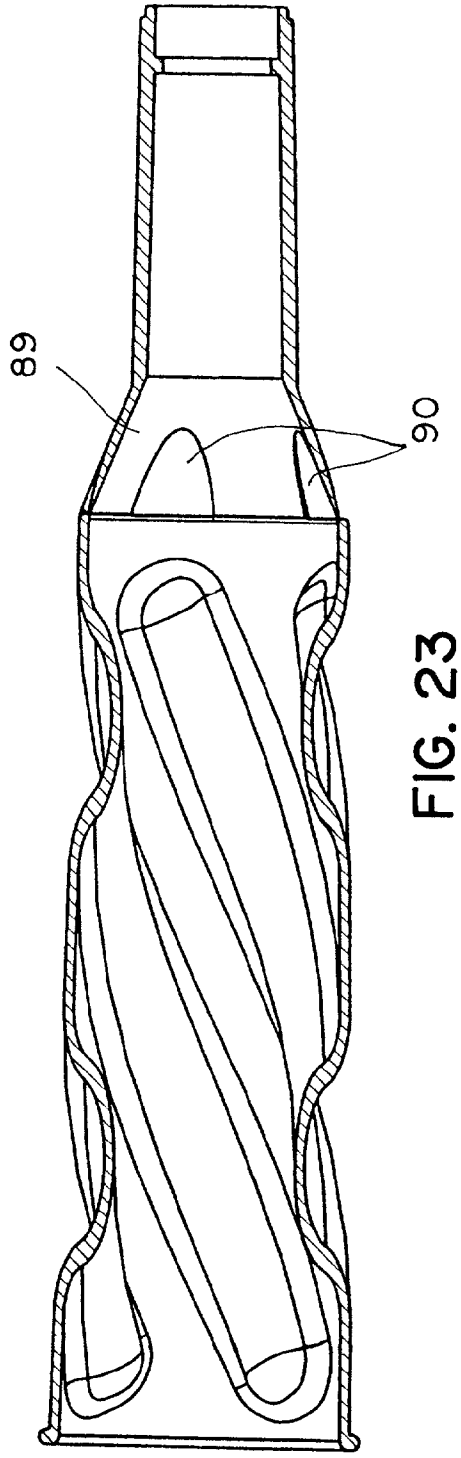

FIG. 23

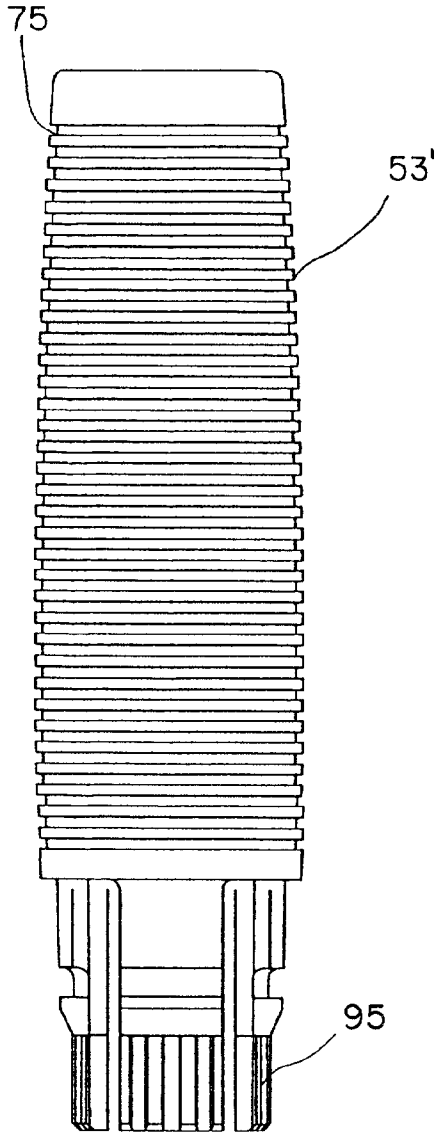

FIG. 24

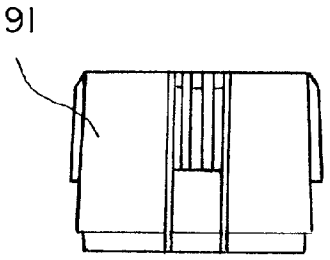

FIG. 25

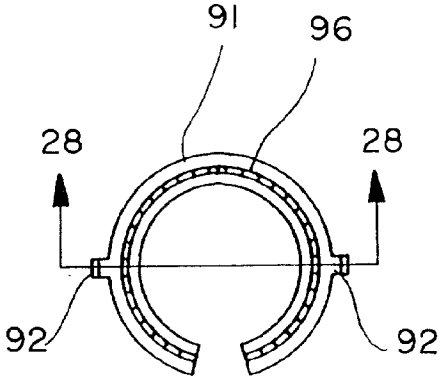

FIG. 26

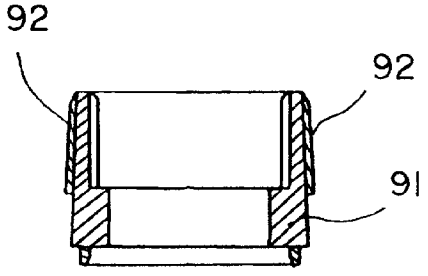

FIG. 28

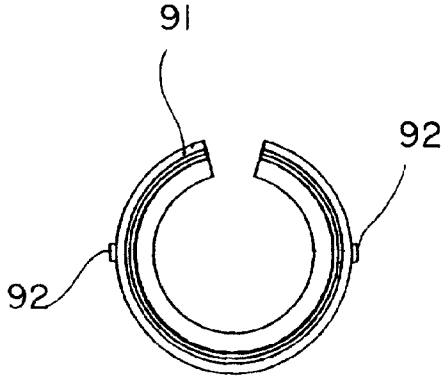

FIG. 27

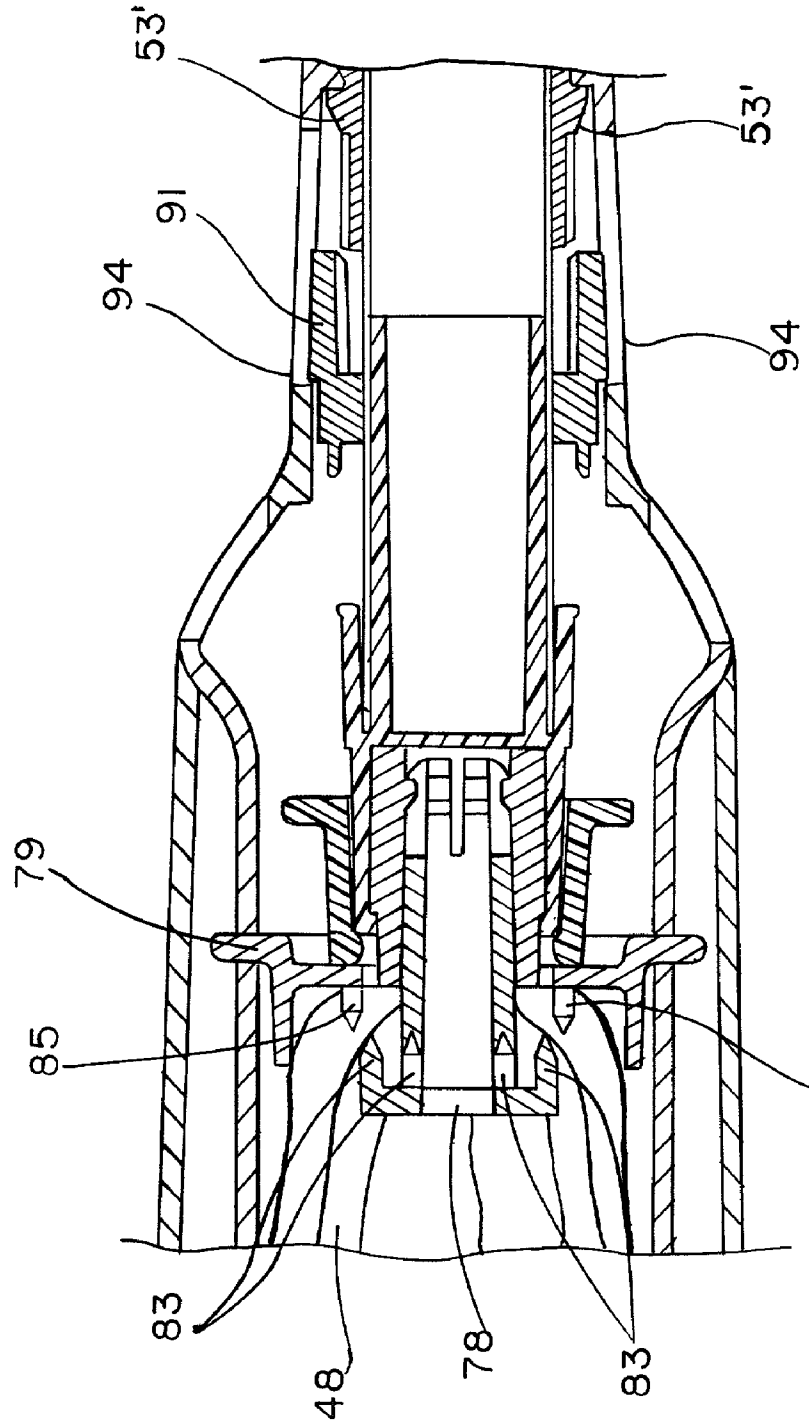

FIG. 29

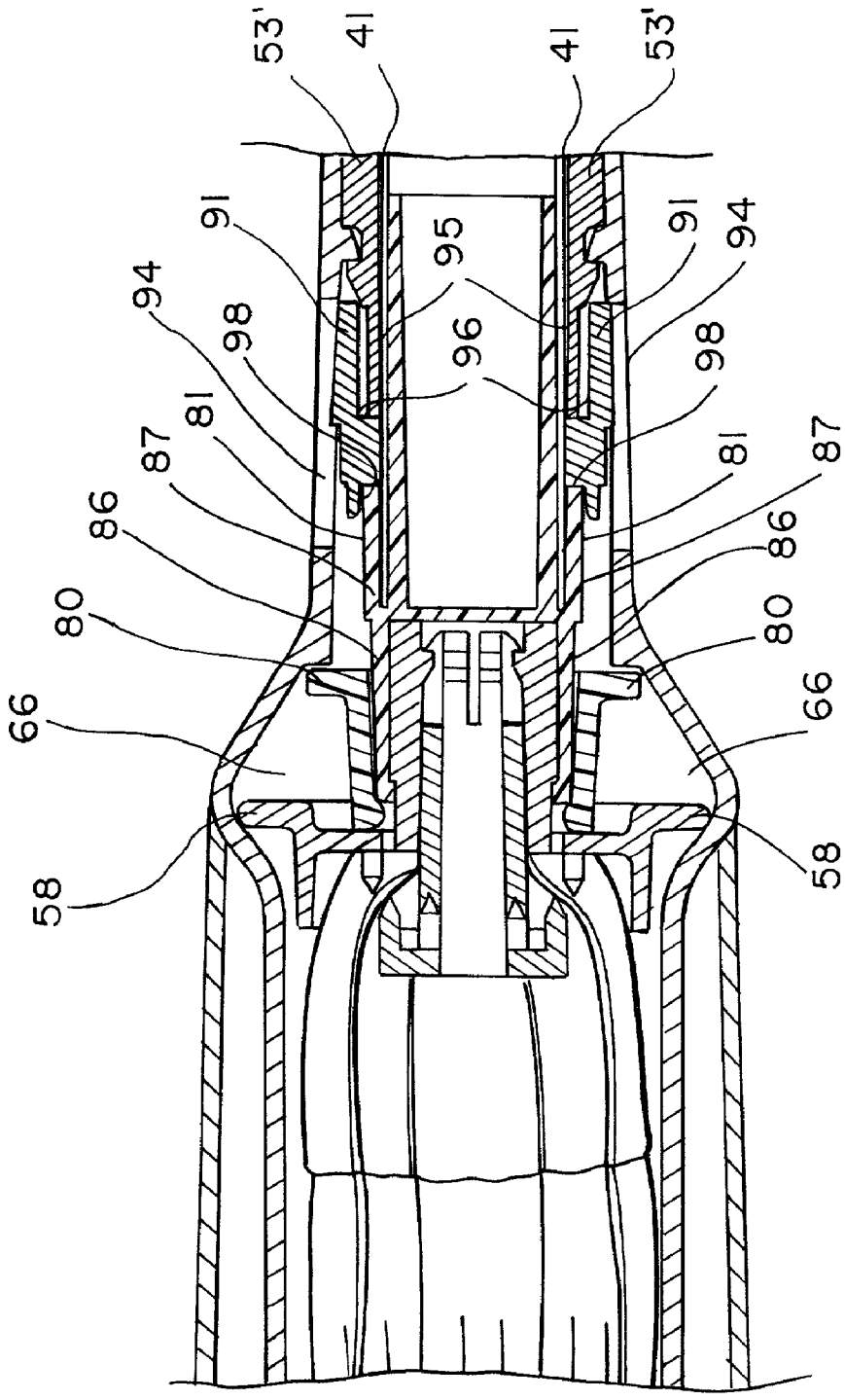

FIG. 30

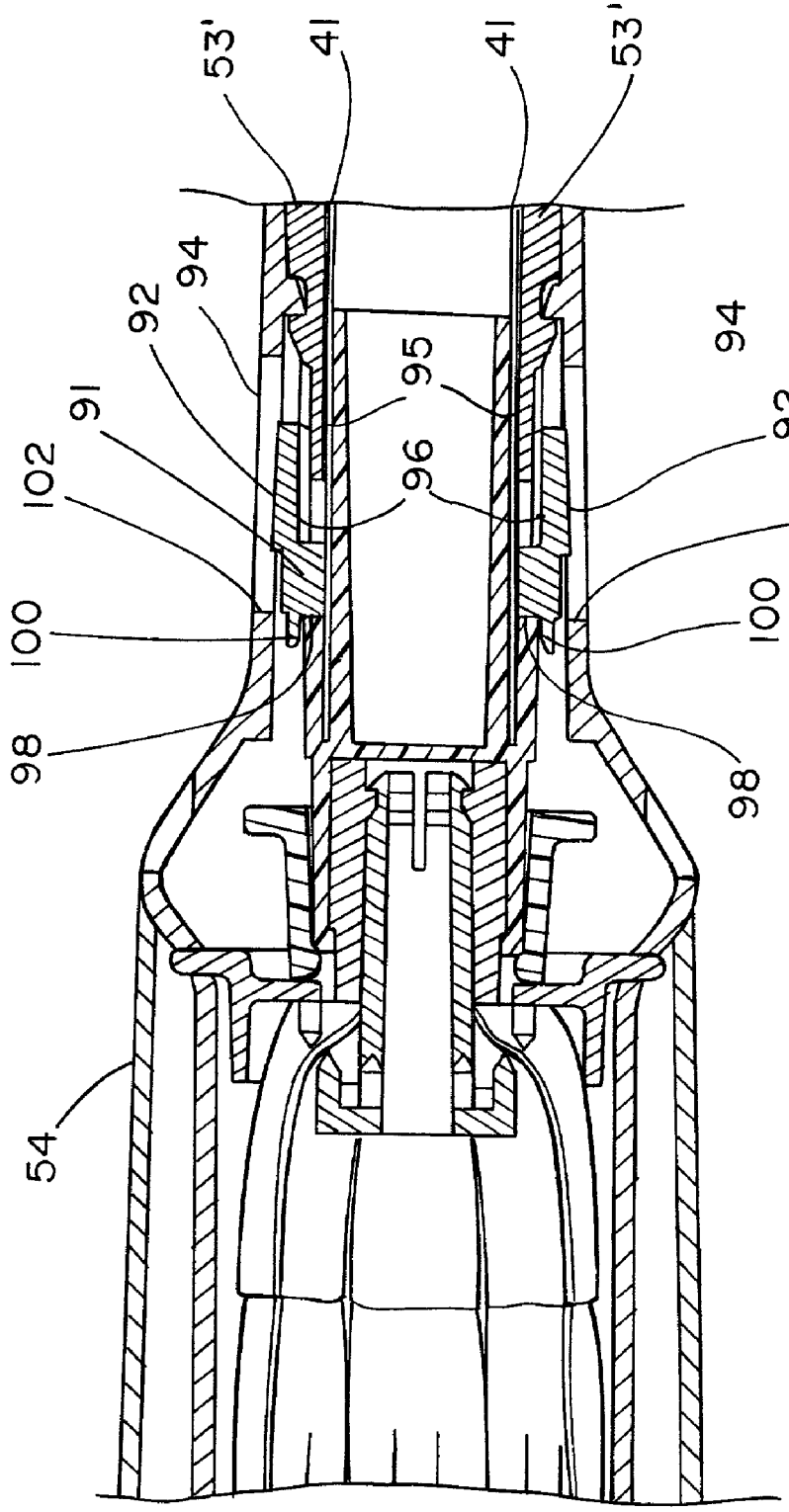

FIG. 31

CLEANING IMPLEMENT

TECHNICAL FIELD OF THE INVENTION

[0001] The invention is in the field of cleaning implements, and more particularly is in the field of self-wringing cleaning implements, commonly referred to as "self-wringing mops."

BACKGROUND OF THE INVENTION

[0002] A wide variety of cleaning implements are known in the art, and the prior art has provided numerous sweepers, brooms, mops, and the like. In recent years, one trend in the cleaning implement industry has been towards "self-wringing" cleaning implements or mops, the term "self-wringing" signifying that water or cleaning fluids may be wrung from the cleaning implement without the aid of a separate wringer bucket or other wringing device. In this respect, the prior art has provided numerous sponge mops, roller mops, twist mops (the term "twist mop" is a generic term for a certain type of self-wringing mop), and the like.

[0003] The art also provided numerous sleeve-type mops, in which the cleaning implement is provided with a wringing sleeve that travels axially with respect to the shaft of the cleaning implement. A mop composed of liquid-absorbent strings or strips or the like is disposed at one end of the shaft, and a user may move the sleeve to a position in which the mop is compressed within the sleeve to expel liquid therefrom. Although the prior art has provided numerous such cleaning implements, not all such implements are entirely satisfactory in performance. A principal drawback with many known sleeve-type mops is that it is difficult to completely expel liquid from the mop during the wringing operation. Another drawback is that such mops can be difficult to operate. The present invention is addressed towards overcoming these drawbacks.

THE INVENTION

[0004] In its broadest sense, the invention contemplates a cleaning implement that includes a shaft, a mop that comprises a plurality of liquid absorbent members, such as strings, disposed at one end of the shaft, and a wringing sleeve. The wringing sleeve is moveable axially with respect to the shaft and is rotatable relative thereto.

[0005] In accordance with a first preferred embodiment of the invention, the wringing sleeve forms a part of a wringer that generally comprises the wringing sleeve and an operator gripping handle that is connected to the sleeve. The wringing sleeve is movable over a range of travel between a mopping position and a range of wringing positions, in which wringing positions the wringing sleeve covers and compresses at least a portion of the mop to thereby expel liquid from the mop. The operator gripping handle is rotatable relative to the wringing sleeve through at least a portion of the axial range of travel.

[0006] In accordance with a second preferred embodiment of the invention, the cleaning implement includes a shaft, a mop disposed at one end of the shaft, and a wringing sleeve that includes a volute which includes a generally helicoid surface. The volute assists the sleeve in twisting the mop strings or strips about the shaft to thereby assist in expelling liquid. Most preferably, the shaft includes a drive that is mounted in a fixed position with respect to the shaft, wherein the helicoid surface of the volute defines a cam profile for the drive. Upon camming interaction of the drive with the helicoid surface, the wringing sleeve is biased to rotate relative to the shaft to thereby cause liquid to be expelled from the mop. The first and second preferred embodiments are not mutually exclusive and, to the contrary, the cleaning implement preferably embodies both of the foregoing preferred embodiments.

[0007] In accordance with a highly preferred embodiment of the invention, the cleaning implement includes a wringer with an operator gripping handle and a wringing sleeve with a volute and associated shaft drive as described above, and further includes a coupler that is interposed between the handle and the wringing sleeve. The coupler is rotatably coupled to either the handle or the wringing sleeve, and the coupler further releasably rotatably couples with the other one of the handle and the wringing sleeve. At the commencement of the wringing operation, the operator may grasp the operator gripping handle and move the operator gripping handle relative to the shaft. The camming interaction between the drive and the volutes of the wringing sleeve biases the wringing sleeve to rotate relative to the shaft to thereby wring liquid from that portion of the mop that is covered by and compressed within the sleeve. During this portion of the wringing operation, the handle is not coupled to the wringing sleeve, and thus the user need only manually translate the handle axially with respect to the sleeve to cause the sleeve to rotate. The handle will not rotate with respect to the shaft, so that the operator thus will not need to manually rotate the operator gripping handle. Subsequently in the wringing operation, after the drive has cleared the volute, the operator gripping handle couples with the wringing sleeve such that the handle and sleeve will rotate as a unit. The user may exert a final wringing force on the mop and thereby expel even further liquid from the mop, without needing to release the handle.

[0008] Further features of the preferred embodiments of the invention are described here and below and in the accompanying drawings. In the following description, reference is sometimes made to the "top,""bottom," or other regions of the cleaning implement. It should be understood that these terms are used solely for convenient reference, inasmuch as the cleaning implement may be used omnidirectionally.

DESCRIPTION OF THE DRAWINGS

[0009] **FIG. 1** is a perspective view of one embodiment of the cleaning implement of the invention.

[0010] **FIG. 2** is a front perspective view of the cleaning implement illustrated in **FIG. 1**.

[0011] **FIG. 3** is a side elevation, partially cut-away, of the cleaning implement illustrated in **FIG. 1**.

[0012] **FIG. 4** is a perspective view of a portion of the cleaning implement shown in **FIG. 1** at the commencement of the wringing operation, showing in hidden lines the shaft and the drive.

[0013] **FIG. 5** is a perspective view, partially cut-away, of the cleaning implement shown in **FIG. 4** at a point further along in the wringing operation.

[0014] **FIG. 6** is a perspective view of the mop shown in **FIGS. 4 and 5** near the conclusion of the wringing operation.

[0015] **FIG. 7** is an enlarged partially cut-away view of a portion of the cleaning implement shown in **FIG. 6**.

[0016] **FIG. 8** is an enlarged front elevation, partially cut-away, of the cleaning implement shown in **FIGS. 6 and 7**.

[0017] **FIG. 9** is a perspective view of the cleaning implement shown in **FIG. 1**, the cleaning implement depicted when the wringer is in a fully retracted mopping position.

[0018] **FIG. 10** is an enlarged perspective view of the cleaning implement shown in **FIG. 9**.

[0019] **FIG. 11** is a bottom view of the retainer shown in **FIGS. 9 and 10**.

[0020] **FIG. 12** is a cross-sectional view taken along line **12-12** in **FIG. 11**.

[0021] **FIG. 13** is a front elevation, partially cut-away, of the mop assembly of the mop shown in **FIG. 1**, the FIG. depicting, inter alia, a mop assembly plug, a drive portion, a retaining collar, and a shaft socket.

[0022] **FIG. 14** is a bottom view of the mop assembly plug shown in **FIG. 13**.

[0023] **FIG. 15** is a cross-sectional view taken along line **15-15** in **FIG. 14**.

[0024] **FIG. 16** is a bottom view of the drive portion of the mop assembly shown in **FIG. 13**.

[0025] **FIG. 17** is a cross-sectional view taken along line **17-17** in **FIG. 16**.

[0026] **FIG. 18** is a bottom view of the retaining collar of the mop assembly shown in **FIG. 13**.

[0027] **FIG. 19** is cross-sectional view taken along **19-19** in **FIG. 18**.

[0028] **FIG. 20** is a bottom view of the shaft socket illustrated in **FIG. 13**.

[0029] **FIG. 21** is a cross-sectional view taken along line **21-21** in **FIG. 20**.

[0030] **FIG. 22** is a side elevation of an alternative embodiment of the cleaning implement of the invention, specifically illustrating an alternative embodiment of the wringing sleeve.

[0031] **FIG. 23** is a cross-sectional view taken along line **23-23** in **FIG. 22**.

[0032] **FIG. 24** is a front elevation of an alternative embodiment of the operator gripping handle.

[0033] **FIG. 25** is a front elevation of a coupler useful in conjunction with the handle shown in **FIG. 25**.

[0034] **FIG. 26** is a top view of the coupler shown in **FIG. 26**.

[0035] **FIG. 27** is a bottom view of the coupler shown in **FIG. 26**.

[0036] **FIG. 28** is a cross-sectional view taken along line **28-28** in **FIG. 26**.

[0037] **FIG. 29** is a cross-sectional view of a highly preferred embodiment of the cleaning implement of the invention, shown upon advancement of the wringer for wringing, the drive being interengaged with the volutes of the wringing sleeve.

[0038] **FIG. 30** is a cross-sectional view of the cleaning implement shown in **FIG. 29**, shown further along in the wringing operation with the handle and wringing sleeve in a coupled relationship.

[0039] **FIG. 31** is a cross-sectional view of the cleaning implement shown in **FIGS. 29 and 30**, showing the operation of retraction of the wringing sleeve after wringing.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0040] The cleaning implement **40** of the preferred embodiment of the invention is shown generally in **FIG. 1** as comprising a shaft **41** having an operator end **42** and a mopping end **43**. A hanger cap **45** is disposed at the operator end **42** of the shaft **41**, and a mop assembly **47** that includes a mop **48** is disposed at the mopping end **43**. The mop **48** may be made of any suitable liquid absorbent material such as fabric strips, strings, or the like, and in the preferred embodiment is composed of composite fabric strips. The hanger cap **45** in the illustrated embodiment is a two-part cap in which one part **49** is fixed with respect to the shaft and the other part **50** is rotatable with respect to the shaft.

[0041] The mop further includes a wringing assembly or wringer **51**, the wringer including an operator gripping handle **53** and a wringing sleeve **54**, the handle **53** being disposed relatively proximal the operator end **42** of the shaft **41**. The wringer is axially moveable with respect to the shaft over a range of travel between a fully retracted mopping position and a range of wringing positions (in **FIG. 1**, an intermediate position is depicted).

[0042] The construction of the wringing sleeve is shown in more detail in **FIGS. 2 and 3**. As shown, the wringing sleeve is provided with at least one volute, and preferably four volutes **56**, as illustrated in **FIG. 2**. The volutes **56** are formed by portions of the interior surface of the wringing sleeve **54** that protrude generally radially inwardly. Each volute includes a surface that is generally helicoid, that is, a point axially traversing the surface tends generally to rotate about the axis of the wringing sleeve **54**. In accordance with this aspect of the invention, the cleaning implement **40** is provided with a drive **58** (shown in **FIGS. 1 and 2**) disposed proximal the mopping end **43** of the shaft **41**. In the illustrated embodiment, the drive **58** is a four-membered drive that is formed by a portion of the mop assembly **47** as discussed in more detail below, but other configurations are possible. The drive **58** is fixed with respect to the shaft **41**.

[0043] As shown in FIGS. **4-7**, the generally helicoid surfaces of the wringing sleeve volutes define a cam profile for the drive, that is, upon axial translation of the wringing sleeve relative to the shaft to cause camming engagement of the volute surfaces with the drive members of the drive **58**, the wringing sleeve is biased to rotate relative to the shaft. For example, **FIG. 4** illustrates the commencement of the wringing operation. As illustrated, the drive **58** has just

begun to engage the volutes **56**. As the wringing sleeve is advanced, i.e., translated in the direction of arrow **60** relative to the shaft as shown in **FIG. 5**, the wringing sleeve and drive co-act in the manner of a cam and cam follower to cause the wringing sleeve to rotate in the direction of arrows **61** with respect to the shaft **41**.

[**0044**] Preferably, the wringing sleeve **54** includes a retaining ring **62** (shown in **FIG. 3**), and the operator gripping handle includes a notch **64** (also shown in **FIG. 3**) that cooperates with the retaining ring **62** to allow relative rotation of the handle and sleeve. Thus, with further reference to **FIG. 5 a** user may grasp the operator gripping handle **53** and may manually translate the operator gripping handle axially with respect to the shaft **41**. The camming interaction of the wringing sleeve and drive biases the wringing sleeve **54** to rotate with respect to the shaft **41** such that the wringing sleeve compresses the portion of the mop that is covered by the sleeve. The handle does not rotate with respect to the shaft, and thus the user may continue to advance the wringer and to increase the degree of rotation of the wringing sleeve relative to the shaft without needing to rotate the operator gripping handle itself.

[**0045**] The axially terminal position of the wringing sleeve is shown in **FIG. 6** and **FIG. 7**. Preferably, the wringing sleeve is of sufficient length such that the mop is entirely drawn into the sleeve for compression therewithin by the time the wringing sleeve has been advanced to this position. The wringing sleeve preferably includes a free drive volume **66** proximal the volutes **56**. As shown in FIG, **7**, the free drive volume **66** is sized to accommodate non-interfering relative rotation of the drive **58** and wringing sleeve **54**. Thus, if the user determines that insufficient liquid has been expelled from the mop, the user may grasp the wringing sleeve in the area of region **67** (shown in **FIGS. 6 and 7**) to continue to rotate the wringing sleeve relative to the shaft to thereby expel further liquid from the mop.

[**0046**] **FIGS. 9 and 10** depict the wringer in its fully retracted mopping position. The mop includes a retainer **70** which is secured to the shaft via a pin **71**. The retainer is further shown in **FIGS. 11 and 12**. As shown in **FIG. 12**, the wringer includes a bore **72** for the pin **71**, the bore registering with an accompanying shaft bore (not shown). The retainer further includes a retaining ring **74** that cooperates with a notch on the handle (comparable to notch **75** on handle **53'** in **FIG. 24**) to releasably axially retain the wringer in the fully retracted mopping position.

[**0047**] The mop assembly **47** is shown in more detail in **FIGS. 8 and 13**. As illustrated, the mop assembly comprises the mop **48**, a mop assembly plug **78** (not shown in **FIG. 8**), a drive portion **79**, a retaining collar **80**, and a shaft socket **81**. As shown in more detail in FIGS. **14-17**, the plug **78** is provided with a plurality of teeth **83** which, in conjunction with corresponding teeth **85** on the drive member **79**, serve to secure the mop therebetween (as best shown in **FIG. 29**). The drive portion **79** is retained in a front socket portion **86** of the shaft socket **81** with the aid of the retaining collar **80**, as shown in more detail in **FIG. 30**. The shaft socket **81** includes a rear socket portion **87** which receives the shaft **41** to retain the mop assembly in a fixed position with respect thereto. The shaft may have a crimp (not shown) to assist in frictionally retaining the shaft socket.

[**0048**] An alternative embodiment of the wringing sleeve is shown in **FIGS. 22 and 23**. The free drive volume **66** is defined by a surface **89** of the wringing sleeve. As shown, the surface defining the free drive volume may include an aperture, and preferably includes a plurality of apertures **90**. The apertures are provided for ease of molding of the cleaning implement, and also to allow a liquid egress from the wringing sleeve.

[**0049**] In accordance with a highly preferred embodiment of the invention, the cleaning implement is provided with a coupler **91**, as shown in FIGS. **25-28**. The coupler is interposed between the handle and the wringing sleeve, and is rotatably coupled to one of the handle and the wringing sleeve. In operation, the coupler releasably rotatably couples with the other of the handle and the wringing sleeve. The coupler has an open section to allow for ready assembly of the mop. Most preferably, the coupler is rotatably coupled to the wringing sleeve by virtue of a keyed mechanism wherein the coupler includes one of a key and an axially oriented keyway, and the wringing sleeve is provided with the other of the key and the axially oriented keyway. Most preferably, the coupler includes two keys **92**, as best shown in FIGS. **26-28**, and the wringing sleeve includes two axially oriented keyways **94**, as shown in FIGS. **29** to **31**. The keyways register with the key and permit limited relative axial movement of the coupler and the wringing sleeve.

[**0050**] The purpose of the coupler is to allow releasable rotatable coupling of the handle and wringing sleeve. In carrying out this aspect of the invention, the handle **53'** is provided with a splined plug **95**, as shown in **FIG. 25**. The coupler is provided with a mating splined socket **96**, as best shown in **FIG. 26**. When the coupler is translated axially with respect to the handle, the plug is introduced into the socket, and the coupler, wringing sleeve, and handle will rotate as a unit. In an alternative embodiment (not shown), the coupler may be provided with the splined plug, and the handle with the splined socket.

[**0051**] **FIG. 29** illustrates the cleaning implement partially through a wringing operation. As shown, the coupler **91** is disengaged from the handle **53'** up to this point in the wringing operation. When the wringer is advanced to its terminal position to place the drive **58** within the free drive volume **66** (as shown in **FIG. 30**), an abutting portion **98** on the shaft socket **81** biases the coupler **91** to cause axial translation of the coupler relative to the handle such that the splined plug **95** is introduced into the splined socket **96**. Thus, should the user desire to expel further liquid from the mop, the user may cause rotation of the wringing sleeve by rotating the operator gripping handle, thereby exerting additional wringing force on the mop. Wringing of the mop and subsequent application of additional wringing pressure thus may be accomplished in one fluid motion by the user, without the user ever needing to release the operator gripping handle **53'**.

[**0052**] **FIG. 31** illustrates the operation of retraction of the wringer after wringing of the mop. As illustrated, the coupler **91** includes a keeper socket **100** that receives the abutting portion **98** to thereby temporarily axially couple the shaft to the coupler. As the wringer is retracted, the coupler **91** will remain stationary with respect to the shaft **41** but will translate axially away from the handle **53'** to thereby rotatably decouple the coupler **91** and handle **53'** via withdrawal of the splined plug **95** from the splined socket **96**. The axial translation of the coupler **91** is accommodated by the

wringing sleeve **54** via the axial orientation of the keyways **94**. The range of axial travel of the coupler is limited by the stop ends **102** of the keyways **94**, which limit the axial range of travel of the keys **92**, thereby causing the shaft and coupler to axially decouple. Thus, when the wringing sleeve has been retracted a short distance, the handle and the wringer will rotatably decouple such that the operator may continue to retract the wringer to its fully retracted mopping position without ever letting go of the handle **53'**.

[**0053**] The components of the cleaning implement may be manufactured and assembled via conventional techniques. The shaft is preferably fashioned of a hollow steel tube, and the other components (besides the mop) preferably are composed of metal or plastic, such as ABS and/or a high impact polymer.

[**0054**] It is thus seen that drawbacks of the known sleeve-type mops discussed above have been addressed. The cleaning implement of the invention allows a user to wring substantial amounts of liquid from the mop. The invention further allows the user to accomplish both wringing of the mop and retraction of the wringer to its fully retracted mopping position without the user ever needing to release the handle.

[**0055**] While particular embodiments of the invention have been shown, it will be understood that the invention is not limited thereto since modifications may be made by those skilled in the art, particularly in light of the foregoing teachings. For example, the wringing sleeve may contain a different number of volutes, or the volutes may have a non-helicoid surface in addition to the helicoid surfaces. It is, therefore, contemplated by the appended claims to cover any such modifications as incorporate those features which constitute the essential features of these improvements within the true spirit and scope of the invention.

What is claimed is:

1. A cleaning implement comprising:

a shaft having an operator end and a cleaning end;

a mop disposed at said cleaning end, said mop comprising a plurality of liquid absorbent members;

a wringer, said wringer comprising a wringing sleeve, said wringing sleeve being rotatable relative to said shaft, said wringer further comprising an operator gripping handle, said operator gripping handle being disposed relatively proximal said operator end of said shaft with respect to said wringing sleeve, said wringer being axially movable relative to said shaft over a range of travel between a mopping position and a range of wringing positions, said handle being rotatable relative to said wringing sleeve through at least a portion of said range of travel, said wringing sleeve in said wringing positions covering and compressing at least a portion of said mop whereby liquid is expellable from said mop.

2. A cleaning implement according to claim 1, wherein said wringer is axially movable relative to said shaft to a fully retracted mopping position, said cleaning implement including a retainer disposed on said shaft and being axially fixed with respect thereto, said retainer releasably axially retaining said wringer in said fully retracted mopping position.

3. A cleaning implement according to claim 1, said shaft including a drive mounted in a fixed position with respect to said shaft, said wringing sleeve including at least one volute, said volute including a generally helicoid surface that defines a cam profile for said drive, whereby upon camming interaction between said surface and said drive, said wringing sleeve is biased to rotate relative to said shaft.

4. A cleaning implement according to claim 3, said wringing sleeve including four volutes, said drive being a four-membered drive.

5. A cleaning implement according to claim 3, said wringing sleeve including a free drive volume proximal said volute.

6. A cleaning implement according to claim 5, said free drive volume being defined by a surface of said wringing sleeve, said surface including at least one aperture.

7. A cleaning implement according to claim 1, said cleaning implement including a coupler interposed between said handle and said wringing sleeve, said coupler being rotatably coupled to one of said handle and said wringing sleeve and releasably rotatably coupling with the other of said handle and said wringing sleeve.

8. A cleaning implement according to claim 7, wherein said coupler is rotatably coupled to said wringing sleeve, said coupler including one of a key and an axially oriented keyway, said wringing sleeve including the other of said key and said axially oriented keyway, said keyway registering with said key and permitting at least limited relative axial movement of said coupler and said wringing sleeve.

9. A cleaning implement according to claim 8, said coupler including one of a splined plug and a splined socket, said handle including the other of said splined plug and said splined socket, said handle releasably rotatably coupling with said coupler via engagement of said splined plug and said splined socket, said shaft including an abutting portion proximal said cleaning end, whereby, upon biasing of said abutting portion against said coupler to cause axial translation of said coupler towards said handle, said splined plug is axially introduced into said splined socket to thereby rotatably couple said coupler and said handle.

10. A cleaning implement according to claim 9, said coupler including a keeper socket receiving said abutting portion and axially coupling said shaft to said coupler, whereby retraction of said wringer causes axial translation of said coupler away from said handle, whereby said splined plug is axially withdrawn from said splined socket to thereby rotatably decouple said coupler and said handle.

11. A cleaning implement comprising:

a shaft having an operator end and a cleaning end;

a mop disposed at said cleaning end, said mop comprising a plurality of liquid absorbent members;

a wringing sleeve, said wringing sleeve being rotatable relative to said shaft, said wringing sleeve being axially movable over a range of travel between a mopping position and a range of wringing positions, said wringing sleeve in said wringing positions covering and compressing at least a portion of said mop whereby liquid is expellable from said mop, said wringing sleeve including at least one volute, said volute including a generally helicoid surface.

12. A cleaning implement according to claim 11, said shaft including a drive mounted in a fixed position with respect to said shaft, said helicoid surface of said volute defining a cam profile for said drive, whereby upon cam-

ming interaction between said surface and said drive said wringing sleeve is biased to rotate relative to said shaft.

13. A cleaning implement according to claim 11, said wringing sleeve including a free drive volume proximal said volute.

14. A cleaning implement according to claim 13, said wringing sleeve having a surface that defines said free drive volume, said surface including at least one aperture.

15. A cleaning implement according to claim 11, wherein said wringing sleeve is axially movable relative to said shaft to a fully retracted mopping position, said cleaning implement including a retainer disposed on said shaft and being axially fixed with respect thereto, said retainer releasably axially retaining said wringing sleeve in said fully retracted mopping position.

16. A cleaning implement according to claim 11, said wringing sleeve including four volutes, said drive being a four-membered drive.

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