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(71) Applicant(s)  
Peter McKay  
20 Blay Close, Liverpool, Merseyside, L25 9RJ,  
United Kingdom

(72) Inventor(s)  
Peter McKay

(74) Agent and/or Address for Service  
Peter McKay  
20 Blay Close, Liverpool, Merseyside, L25 9RJ,  
United Kingdom

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(54) Twist action mop

(57) A self-wringing mop comprises a tube 19, inner sleeve 22 and a shaft 16 mounted within and movable with respect to each other, and a mop means comprising strands of absorbent material 15 attached to the tube 19 and shaft 16. The guide pins 21 on the outer surface of the inner sleeve 22 locate in spiral track 20 formed on the internal surface of the tube 19. A handgrip 23 is fixed to the end portion of the inner sleeve 22 and a handle 26 is fixed to a short outer sleeve 25, which is slidable longitudinally on the inner sleeve 22 but is not free to rotate thereon. The tube 19 is linked to the outer sleeve 25 by a bearing means 24 whereby movement of the outer sleeve 25 over the inner sleeve 22 causes rotational movement of the tube 19 engaging the guide pins 21 thereby to wring the mop means 15 in a twisting compressing action.

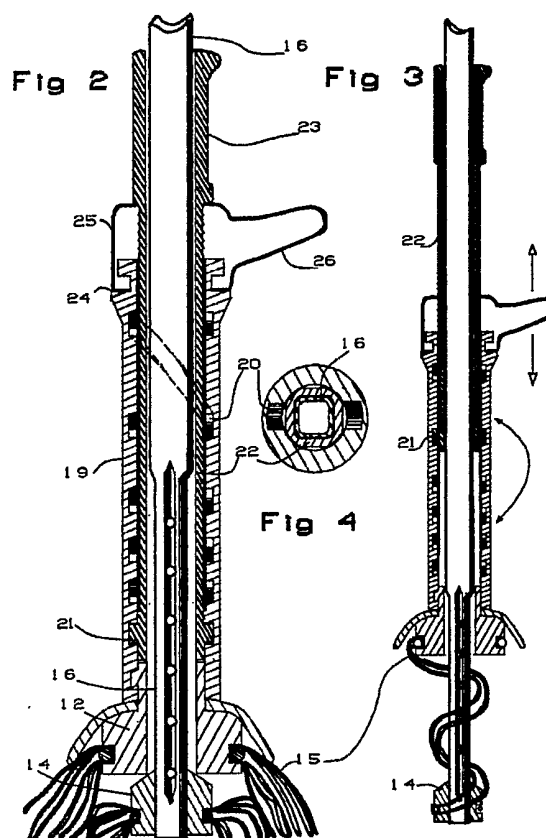


Fig 1

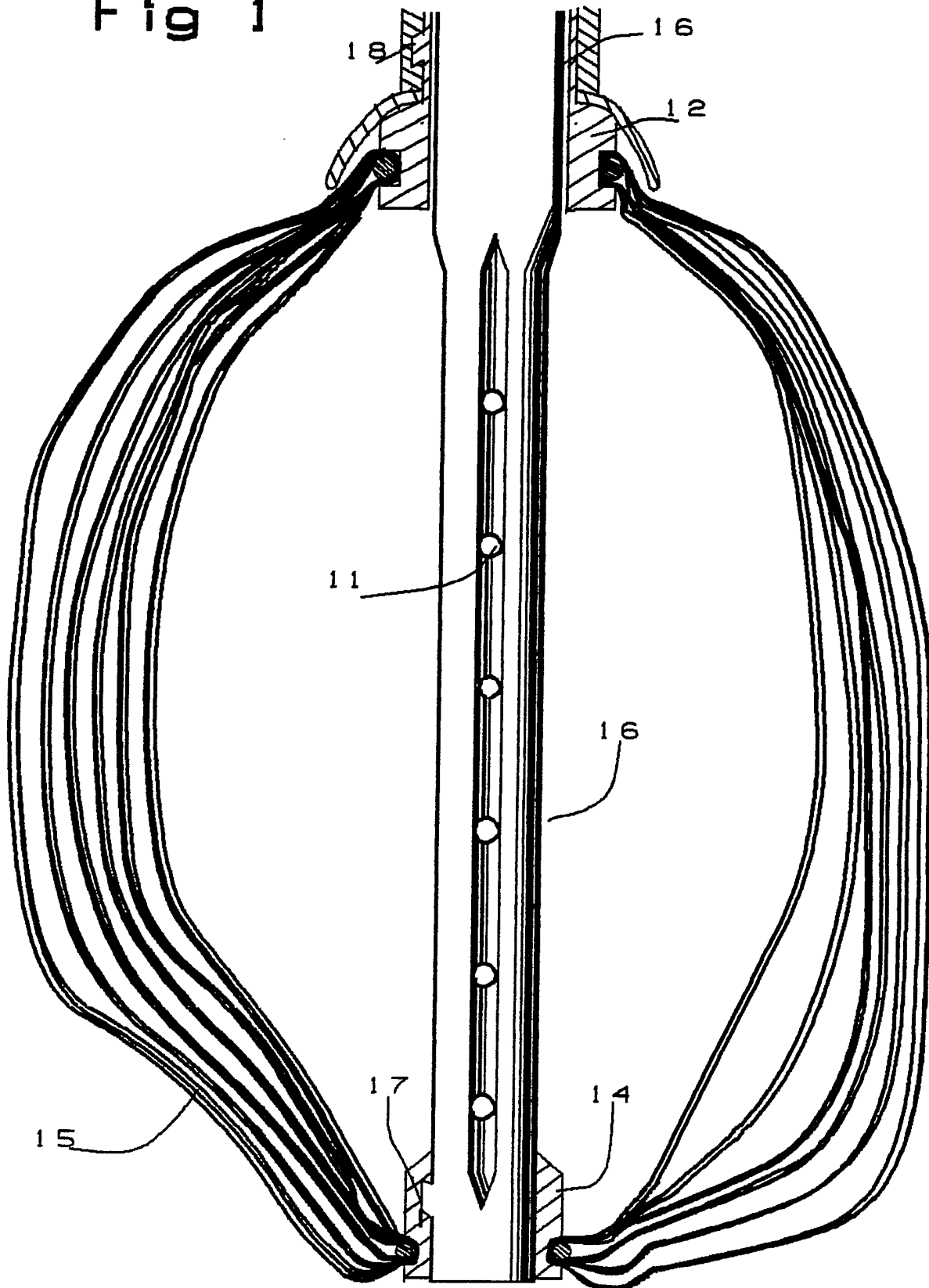


Fig 2

Fig 3

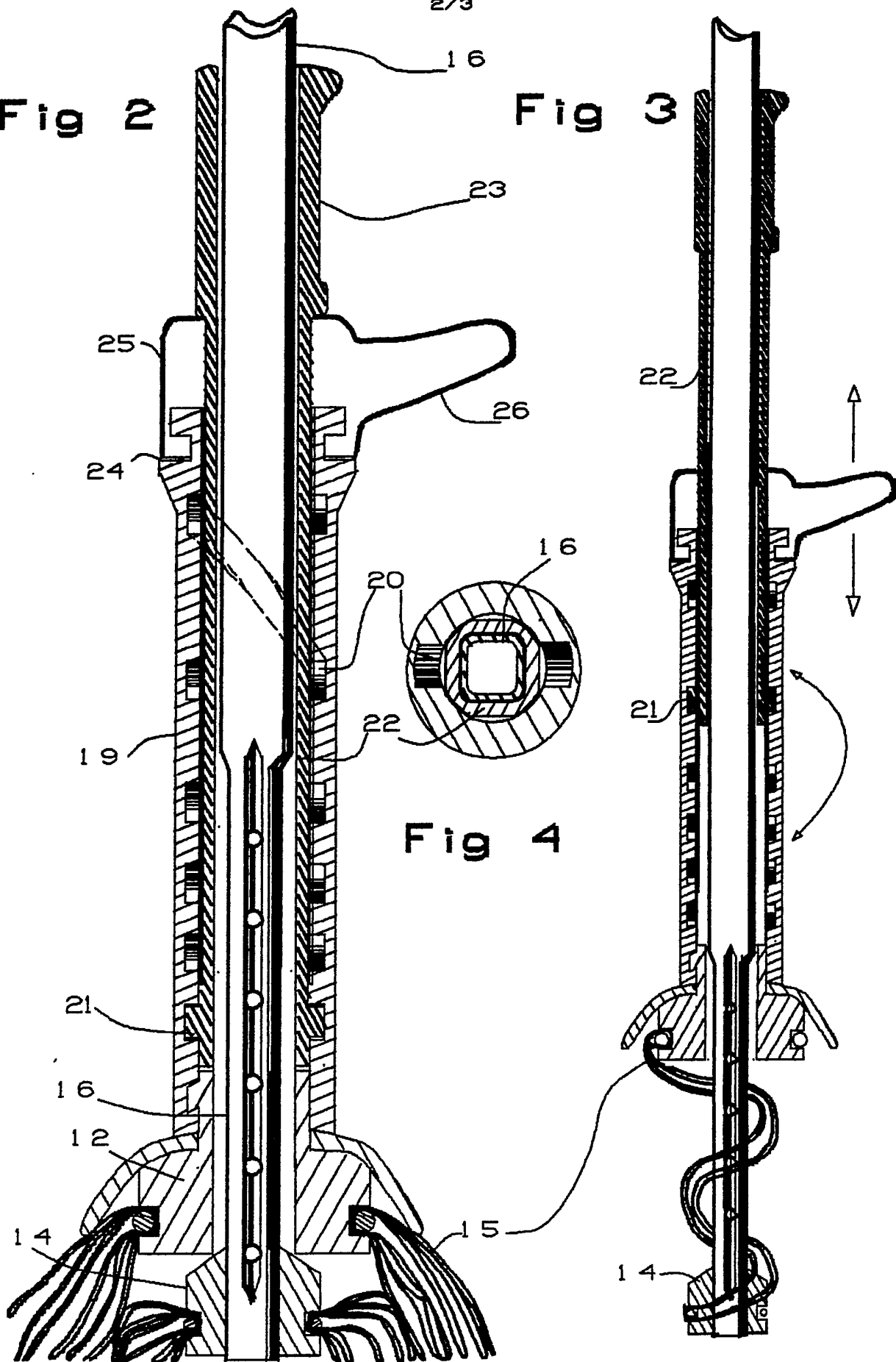
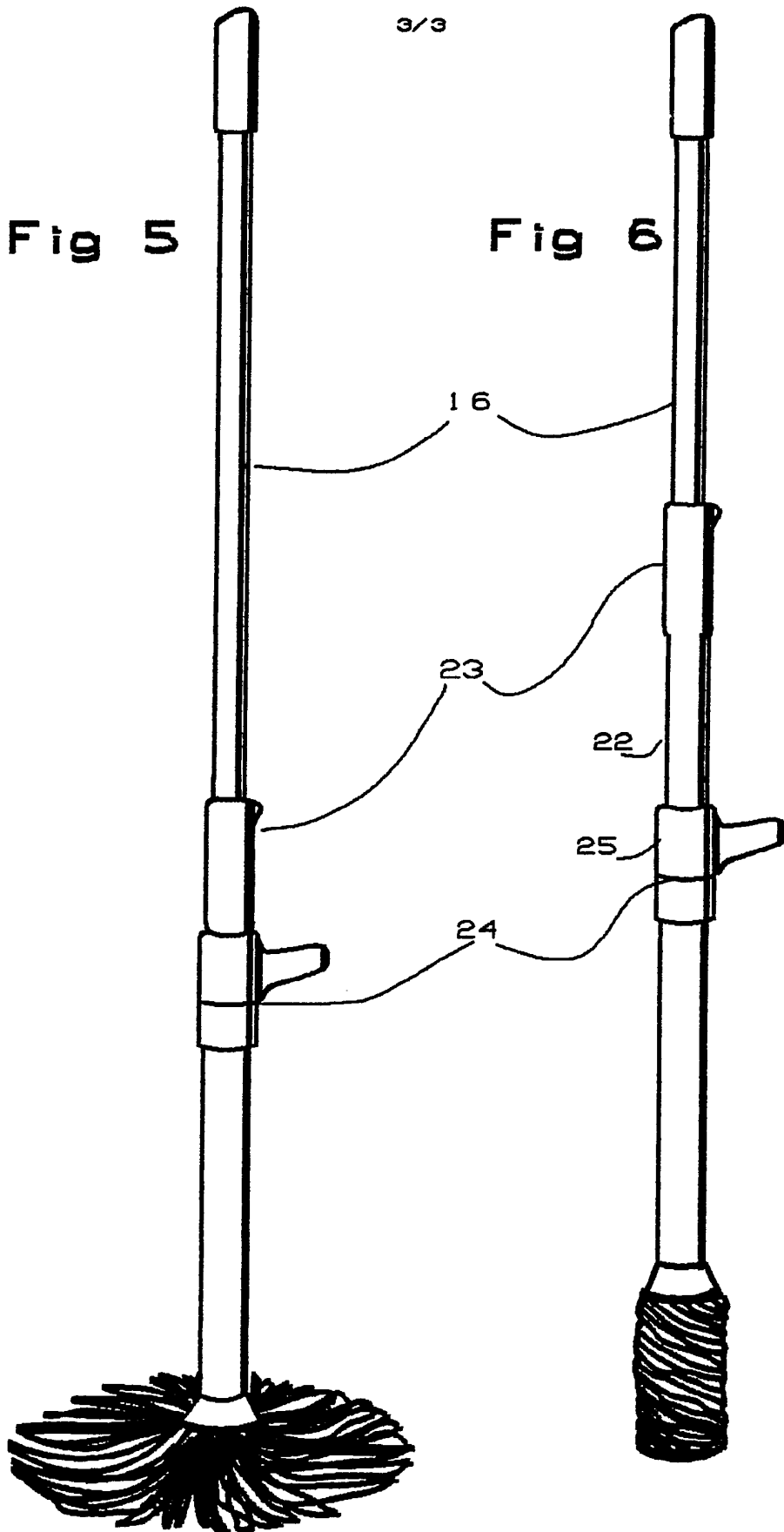


Fig 5

Fig 6



## IMPROVED TWIST ACTION MOP

This invention relates to a domestic or industrial floor cleaning mop.

The domestic floor cleaning mop is one of the most familiar household objects, two types currently dominate the market.

The oldest and most popular being the basic string mop-head on a wooden shaft. In recent years there have been variations on this design e.g. ribbons of absorbent material on an aluminium shaft. The aforementioned mops need a mop-bucket with a device to wring it out, e.g. a cone shape receptacle with holes in it, into which the mop-head is squeezed. The other popular design is the sponge mop, this has a mechanism on it, that at the pull of a lever the sponge mop-head is squeezed out. Prior art has also shown soft headed mops with self-wringing devices, several of these mops use helical shaped tracks and guide pins to achieve a pull and twist movement of the mop head about the shaft, these movements are limited in rotation and can cause stretching of the mop head material.

According to the present invention the mop is constructed with a mop head of absorbent material e.g. string ribbon. The design of the mop head allows it to be connected to a mechanism on the shaft, the mechanism produces a twist and squeeze movement on the mop head, this action causes less strain on the mop head material, and achieves a more substantial wringing out of the mop head.

The mop is easy to use, simple in construction and economical to manufacture.

The invention is described further by way of example, with reference to the attached drawing wherein:-

Figure 1 shows the configuration of the mop head and the wringing out section of the shaft.

Figure 2 shows the mechanism in the mopping position.

Figure 3 illustrates the mechanism in the wringing out mode.

Figure 4 shows a cross-section of the mechanism.

Figure 5 shows the whole mop in the mopping mode.

Figure 6 illustrates the whole mop in the wringing out mode.

Referring to the drawing Fig 1 shows the mop head is constructed with two centre cores, a top 12 and bottom core 14 the two cores are connected by the absorbent material 15 e.g. string rope or ribbon. The material connecting the two cores should have a resistances to stretching, as this will have an affect on the travel of the mechanism. The bottom core is held in a fixed position at the end of the shaft 16 by means of plastic bayonet and groove fixing members 17. The top core 12 has an aperture in the centre that allows the shaft 16 to pass through it, the top core can move freely, up and down the lower part of the shaft.

The top core is also connected by means of plastic bayonet, and groove fixing members 18 to the outer tube 19, in the wringing out mode the outer tube 19 is forced to move down and to rotate about the shaft this, is achieved by a pair of spiral tracks 20, on the inner surface of the outer tube 19, and by means of two guide pins 21 protruding from the outer surface of the inner sleeve 22. The inner sleeve 22 moves only in a longitudinal direction along the shaft 16 and cannot rotate on the shaft 16 this is achieved because the shaft 16 is not cylindrical shape e.g. a chamfered square section and the inner surface of the sleeve 22 moulded to fit that shape, see Fig. 4.

The top section of the inner sleeve 22 is formed into a handgrip 23. The bearing 24 is located at the top of the outer tube, the static half of the bearing is fixed to the handle sleeve 25, the aforementioned handle sleeve 25 has no rotational movement, but will only move longitudinally up and down the inner sleeve 22, this is achieved by the same method used for the inner sleeve 22 and shaft 16. The handle 26 is permanently and rigidly fixed to the handle sleeve 25, so that at the pull of the handle 26 the whole mechanism will travel straight up the shaft until the absorbent material 15 is under tension, and in line with the shaft, this is to prevent the mop head getting tangled up before it spirals around the shaft 16.

The operator, then holds the handgrip 23, in one hand and the handle 26 in the other, and by pushing the handle 26 away from the handgrip 23 causes the handle sleeve 25 and bearing 24 to move down the inner sleeve 22, pushing the outer tube 19 over the guide pins 21 causing the outer tube 19 and the top core 12 to rotate, and travel down the shaft 16 towards the bottom core 14 in a twisting and squeezing action, thus wringing out the mop head. The section of the shaft that the mop head wrings out on is cylindrical in shape with longitudinal grooves and drain holes 11, this allows water to drain through the hollow section and out of the base of the shaft, as shown in Fig 1.

The spiral tracks 20 start with a shallow pitch and continues into a steeper pitch as shown in Fig 2, it is noted that a continuous pitch helical tracks would also work, but the aforementioned complex spiral tracks perform better on this mechanism.



CLAIMS

1. A self-wringing mop of the type comprising a tube, inner sleeve and shaft mounted within and movable with respect thereto, mop means comprising strands of absorbent material being attached by their respective ends to respective end portions of the tube and shaft, and a mechanism including guide means fixed relative to the outer surface of the inner sleeve which locate in spiral track means formed on the internal surface of the tube or vice-versa thereby to cause the tube and the inner sleeve to rotate relative to one another upon relative axial movement thereof thereby to wring the mop means, characterised in that the inner sleeve is slidable longitudinally on the shaft but fixed with respect to rotational movement on said shaft.

2. A self-wringing mop as claimed in claim 1 wherein a handgrip is fixed to the end portion of the inner sleeve remote from the guide means and a handle is fixed to a short outer sleeve, that is slidable longitudinally on the inner sleeve but fixed with respect to rotational movement on said inner sleeve, the tube is attached to the outer sleeve by a bearing means whereby movement of the outer sleeve over the inner sleeve causes rotational movement of the tube engaging the guide means thereby to wring the mop means in a twisting compressing action.

3. A self-wringing mop substantially as described herein with reference to Figures 1-6 of the accompanying drawing.

**Relevant Technical Fields**

- (i) UK Cl (Ed.N)      A4F (FQMW)
- (ii) Int Cl (Ed.6)    A47L 13/14, 13/142, 13/20, 13/24

**Databases** (see below)

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.
- (ii) ONLINE: WPI

Search Examiner  
 A C HOWARD

Date of completion of Search  
 30 JANUARY 1995

Documents considered relevant following a search in respect of Claims :-  
 1,2,

**Categories of documents**

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| <p><b>X:</b> Document indicating lack of novelty or of inventive step.</p> <p><b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p><b>A:</b> Document indicating technological background and/or state of the art.</p> | <p><b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.</p> <p><b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p><b>&amp;:</b> Member of the same patent family; corresponding document.</p> |
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Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2249947 A      (McKAY) Whole document relevant	1,2

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