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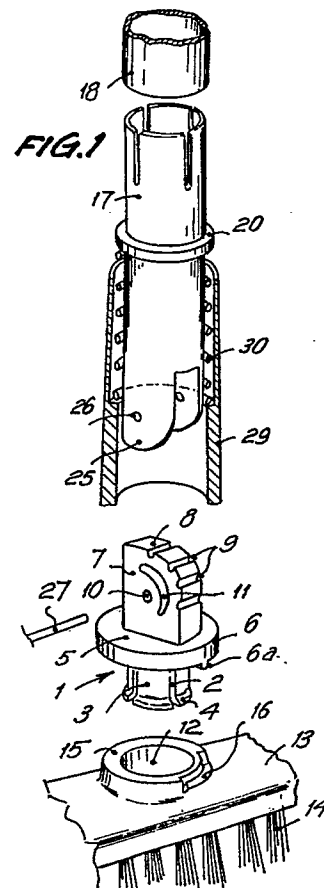
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(54) **Hinge device for broomsticks and similar implements.**

(57) It comprises a bushing (1), rotatable around its longitudinal axis, fitted on the bristle (14) backing (13) and projecting from the upper face thereof, one end (18) of the broomstick or similar implement being hingedly connected in said bushing (1), around an axis which is transverse to the bushing (1) rotation axis.

Said rotatable bushing (1) is provided with a lobe (7), projecting from the upper face of the bristle backing (13), to which a yoke (25) is hingedly connected, said yoke (25) being attached to the end of the broomstick, around which an exterior sleeve (29) is fitted, axially slidable and biased by a spring (30) that tends to place it in a position encircling the yoke (25) and blocking its hinge relatively to the bushing lobe (7).

It enables to gain access to zones otherwise difficult to reach with a broom or similar implement.



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HINGE DEVICE FOR BROOMSTICKS AND SIMILAR IMPLEMENTS

The present invention relates to a hinge device for broomsticks and similar implements, by means of which it is possible to orientate the broomstick relatively to the bristle bundle or brush, in different stable positions, so as to make the cleaning work easier for the broom user.

BACKGROUND OF THE INVENTION

The applicant of the present utility model is also applicant of the utility model U 8701518, which relates to an improved broom, provided with a mast or stick hingedly connected to the bristle backing, to give it different inclinations, so as to make it easier to gain access with the broom to zones that are otherwise difficult to reach with said implement or a similar one, the use of which is sweeping.

In the embodiment which is the object of the utility model U 8701518, the hinge movement of the stick takes place only in a longitudinal plane relatively to the elongated bristle backing. It is obvious that this reduces the possibilities of using the broom with the stick inclined, because the broom can only be slid comfortably in the longitudinal direction of the brush, but not in the transverse direction.

DESCRIPTION OF THE INVENTION

In order to solve the cited drawbacks and increase the benefits of the broom or similar implement, the hinge device which is the object of the invention has been developed.

Said device is of the type that allows placing the broomstick in different stable inclined positions, as well as in a position at right angles with the brush, and is essentially characterized in that it comprises a bushing, rotatable around its longitudinal axis, that is fitted on the bristle backing and projects from the upper face thereof, one end of the stick of the broom or similar implement being hingedly connected in said bushing, around an axis which is transverse to the bushing rotation axis.

The rotatable bushing and the bristle backing are provided with stop means to limit the rotation of the bushing, as well as to fix any position of the bushing, within the limits of its rotating movement relative to the bristle backing.

The rotatable bushing is provided with a lobe, projecting from the upper face of the bristle backing, to which a yoke is hingedly connected, said yoke being attached to the end of the broomstick, around which an exterior sleeve is fitted, axially

slidable and biased by a spring that tends to place it in a position encircling the yoke and blocking its hinge relatively to the bushing lobe.

The lobe projecting from the rotatable bushing has a curved and convex edge, slightly flexible, provided with a plurality of transverse grooves, wherein a rib of the end of the broomstick tends to fit selectively and under pressure, in order to fix various positions of the stick relatively to the bristle backing.

The broomstick end is provided with a projecting bushing, with the external end closed and provided with the rib that fits selectively and under pressure in the transverse grooves of the projecting lobe of the rotatable bushing.

The projecting lobe of the rotatable bushing is provided with an elongated opening, close to the curved and convex edge wherein the grooves lay, said opening resulting in a certain flexibility of said edge, in order to warrant the fitting under pressure of the projecting rib of the bushing attached to the stick, in the grooves of the edge of the lobe.

The rotatable bushing is provided with an annular ridge that acts as a stop to the penetration of the bushing in a housing of the bristle backing; said annular ridge is provided with a tooth, which can be displaced within a curved groove, provided on a short neck projecting from the bristle backing, around the external opening of the bushing housing, said groove establishing limits to the movement of the rotatable bushing, while said bushing is provided with longitudinal notches dividing it into lugs, which tend to fit against the internal surface of the housing; said lugs end in a ledge on the external edge, acting as a stop that prevents the withdrawal of the bushing, once it is introduced into the bushing housing (12).

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the description of the present invention, drawings are enclosed wherein a practical embodiment of the hinge device is shown, only by way of example.

In said drawings, figure 1 is a partially cut perspective view of the hinge device, disassembled; figure 2 is a longitudinal sectional view of the device, with the broomstick in upright position; figure 3 is a longitudinal sectional view along a plane at right angles with the sectional plane of figure 2; figure 4 is a similar view to figure 3, but with the broomstick inclined; figure 5 is a perspective view of a brush or broom for sweeping, provided with the hinge device, with the broomstick in upright

position; figure 6 is a perspective view of the broom with the broomstick folded in transverse position to the bristle backing; and figure 7 is a side view of the broom with the broomstick inclined in transverse position to the bristle backing.

DESCRIPTION OF A PREFERRED EMBODIMENT

The hinge device for broomsticks and the like, object of the invention, consists in the drawings of a rotatable bushing of general reference -1-, provided with longitudinal notches -2- that define flexible lugs -3- with an arrowhead shaped ledge -4-. This bushing is provided with a base -5-, in opposite position to the ledge -4-, provided with an annular ridge -6-. This annular ridge has a tooth -6a- on its lower surface. A lobe -7-, having a curved upper edge provided with transverse grooves, projects from base -5-. Said lobe is provided with an orifice -10-. Furthermore, lobe -7- has a curved opening -11-, close and parallel to the curved edge -8-, providing it with a certain flexibility.

Bushing -1- is located in a housing -12- existing in the upper face of a backing -13- bearing the bristles -14-, configuring a sweeping brush or a similar implement. Ledge -4- of flexible lugs -3- passes under pressure through the lower opening of housing -12-, while annular ridge -6- rests on a short neck -15- projecting from the external opening of the housing, so that the bushing cant withdraw accidentally from the housing -12-, but it can rotate frictionally within the housing. Said neck -15- is provided with a curved housing -16-, and tooth -6a- of annular ridge -6- moves therein, so that the rotation of bushing -1- is limited by the extent of said housing. Lobe -7- results located in a projecting position to the backing -13- of the bristles -14-.

Furthermore, the hinge device comprises a second bushing -17-, partially inserted within a tubular end -18- of a broomstick -19- with an annular rib -20- that rests against the opening of the end of the broomstick. The run of the bushing -17- lodged within the end -18- is provided with longitudinal notches -21- which divide it into lugs -22- with a certain flexibility, with an external flange -23- which fits into an opening -24- of the end -18- of the broomstick, so as to prevent the accidental withdrawal of the bushing, once inserted within said tubular end -18-.

The outer end of bushing -17- is a yoke -25-, provided with orifices -26-, said yoke -25- intended to fit around lobe -7-, forming a hinge around an axis -27-, which passes through orifices -26- and -10-. At the bottom of yoke -25- there is a rib -28- which fits selectively and under pressure within the grooves -9- of the curved edge of lobe -7-, thanks

to the flexibility of said edge, due to opening -11- and to the axial pressure mounting of bushing -17-, from which yoke -25- projects, relatively to lobe -7-.

Around bushing -17- an axially slidable tubular sleeve -29- is mounted, biased by a spring -30- that tends to keep it resting on the annular ridge -6-, covering the hinge between yoke -25- and lobe -7-, blocking said hinge, even though said sleeve -29- is able to retreat against the action of spring -30-, to free said hinge, allowing swinging of the broomstick -19- (figures 4, 6 and 7).

When sleeve -29- covers said hinge, the broomstick remains in a position at right angles with the backing -13- of bristles -14-. When the hinge is free, the broomstick can take several stable inclinations, thanks to the selective fitting of rib -28- within grooves -9-.

It is obvious that in order to sweep the floor underneath a piece of furniture it is much more handy to have the broomstick in an inclined position rather than upright.

On the other hand, the possibility of rotating the backing -13- an angle of 90°, thanks to the rotatable arrangement of bushing -1- within housing -12- of the backing -13-, allows positioning of the brush -13-, -14-, longitudinally, relatively to the swinging plane of broomstick -19-, thus making it easier for the brush or other implement to reach narrow places and to be moved in both longitudinal and transverse movements.

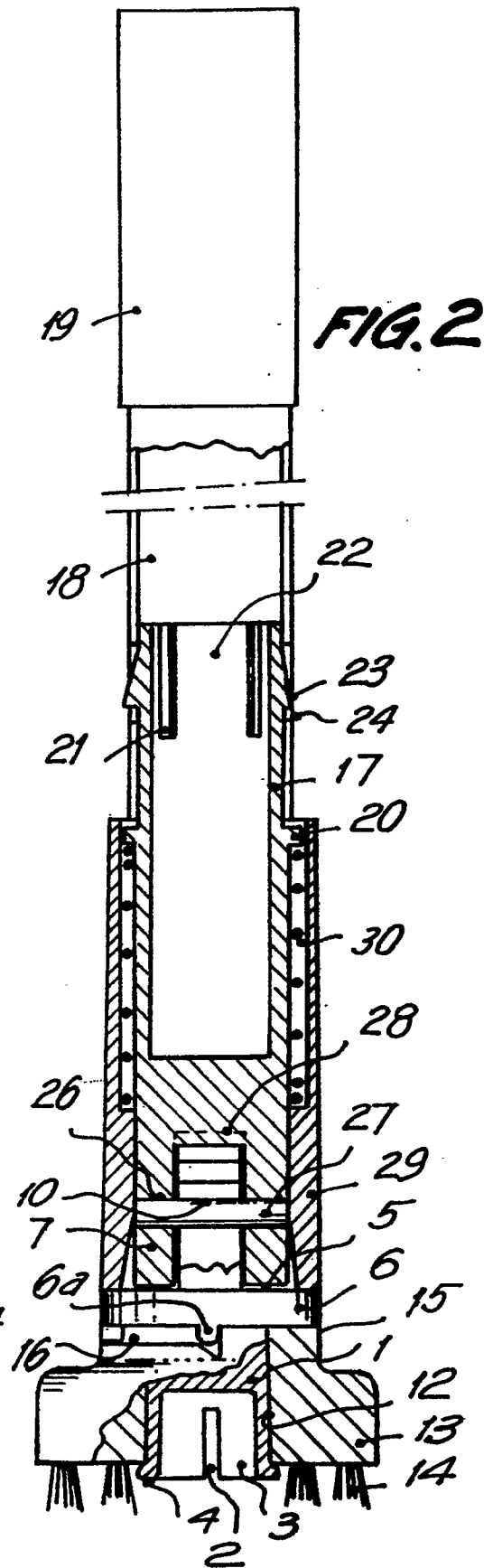
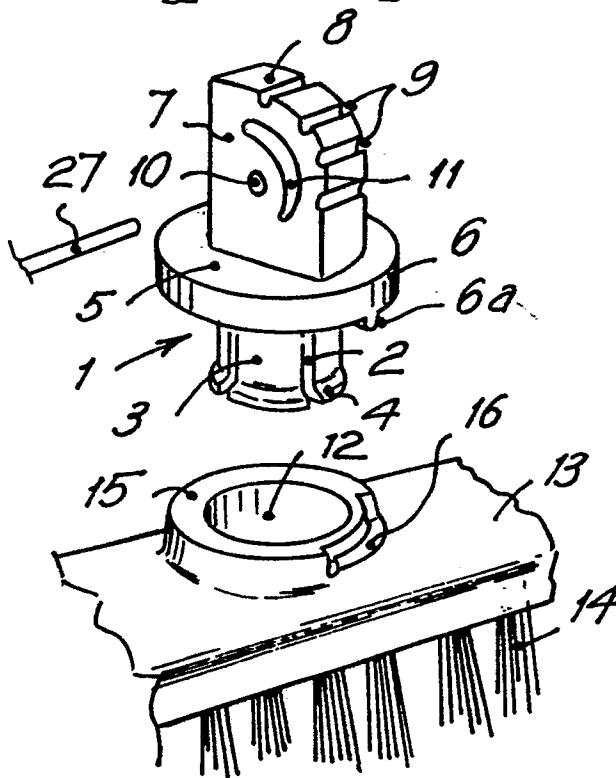
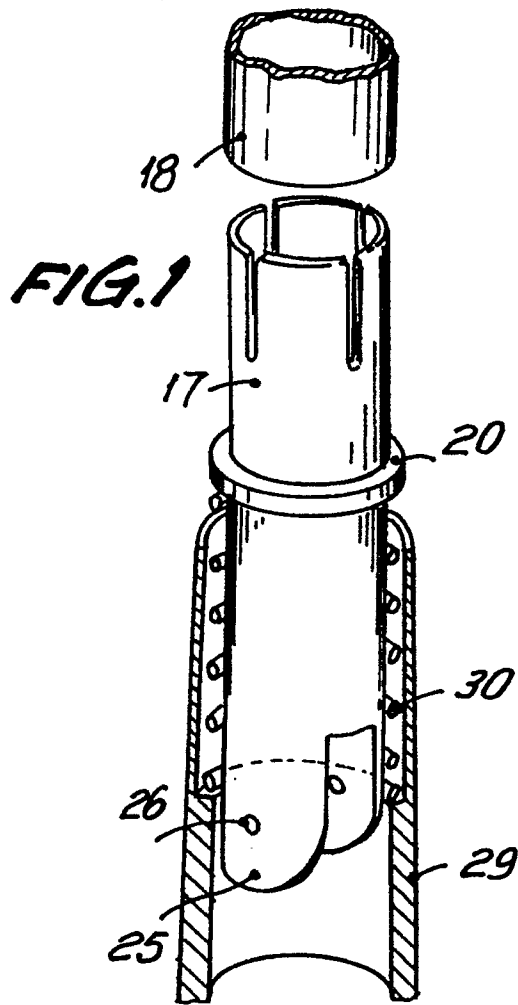
Independent of the object of the invention are the materials used in manufacturing the components of the hinge device, its shapes and dimensions, specific features of the valve, and all accessory details which may be presented, as long as they do not affect the essential nature of the invention.

Claims

1. Hinge device for broomsticks and the like, of the type that allows placing the broomstick in different stable inclined positions, as well as in a position at right angles with the brush, characterized in that it comprises a bushing (1), rotatable around its longitudinal axis, that is fitted on the bristle (14) backing (13) and projects from the upper face thereof, one end (18) of the stick (19) of the broom or similar implement being hingedly connected in said bushing, around an axis which is transverse to the bushing (1) rotation axis.

2. Hinge device for broomsticks and the like, according to claim 1, characterized in that the rotatable bushing (1) and the bristle backing (13) are provided with stop means to limit the rotation of the bushing (1), as well as to determine the friction rotation of the bushing.

3. Hinge device for broomsticks and the like, according to claim 1, characterized in that the rotatable bushing (1) is provided with a lobe (7), projecting from the upper face of the bristle backing (13), to which a yoke (25) is hingedly connected, said yoke being attached to the end of the broomstick, around which an outer sleeve (29) is fitted, axially slidable and biased by a spring (30) that tends to place it in a position encircling the yoke (25) and blocking its hinge relatively to the bushing lobe (7). 5 10
4. Hinge device for broomsticks and the like, according to claims 1 and 3, characterized in that the lobe (7) projecting from the rotatable bushing has a curved and convex edge (8), slightly flexible, provided with a plurality of transverse grooves (9), wherein a rib (28) of the end of the broomstick tends to fit selectively and under pressure, in order to fix various positions of the stick relatively to the bristle backing (13). 15
5. Hinge device for broomsticks and the like, according to claims 1, 3 and 4, characterized in that the broomstick end (18) is provided with a projecting bushing (17), with the external end closed and provided with the rib (28) that fits selectively and under pressure in the transverse grooves (9) of the projecting lobe (7) of the rotatable bushing (1). 20 25
6. Hinge device for broomsticks and the like, according to claims 1, 3, 4 and 5, characterized in that the projecting lobe (7) of the rotatable bushing (1) is provided with an elongated opening (11), close to the curved and convex edge (8) wherein the grooves (9) lay, said opening (11) resulting in a certain flexibility of said edge (8), in order to warrant the fitting under pressure of the projecting rib (28) of the bushing (17) attached to the stick, in the grooves (9) of the edge (8) of the lobe (7) rigidly connected to the rotatable bushing (1), fitted on the bristle backing (13). 30 35
7. Hinge device for broomsticks and the like, according to claim 1, characterized in that the rotatable bushing (1) is provided with an annular ridge (6) that acts as a stop to the penetration of the bushing in a housing (12) on the bristle backing (13), said annular ridge (6) being provided with a tooth (6a), which can be displaced within a curved groove (16), provided on a short neck (15) projecting from the bristle backing (13), around the external opening of the bushing housing (12), said groove (16) establishing limits to the movement of the rotatable bushing (1), while said bushing is provided with longitudinal notches (2) dividing it into lugs (3), which tend to fit against the internal surface of the housing (12), said lugs (3) ending in a ledge (4) on the external edge, acting as a stop that prevents the withdrawal of the bushing (1), once it is introduced into the bushing housing (12). 40 45 50 55



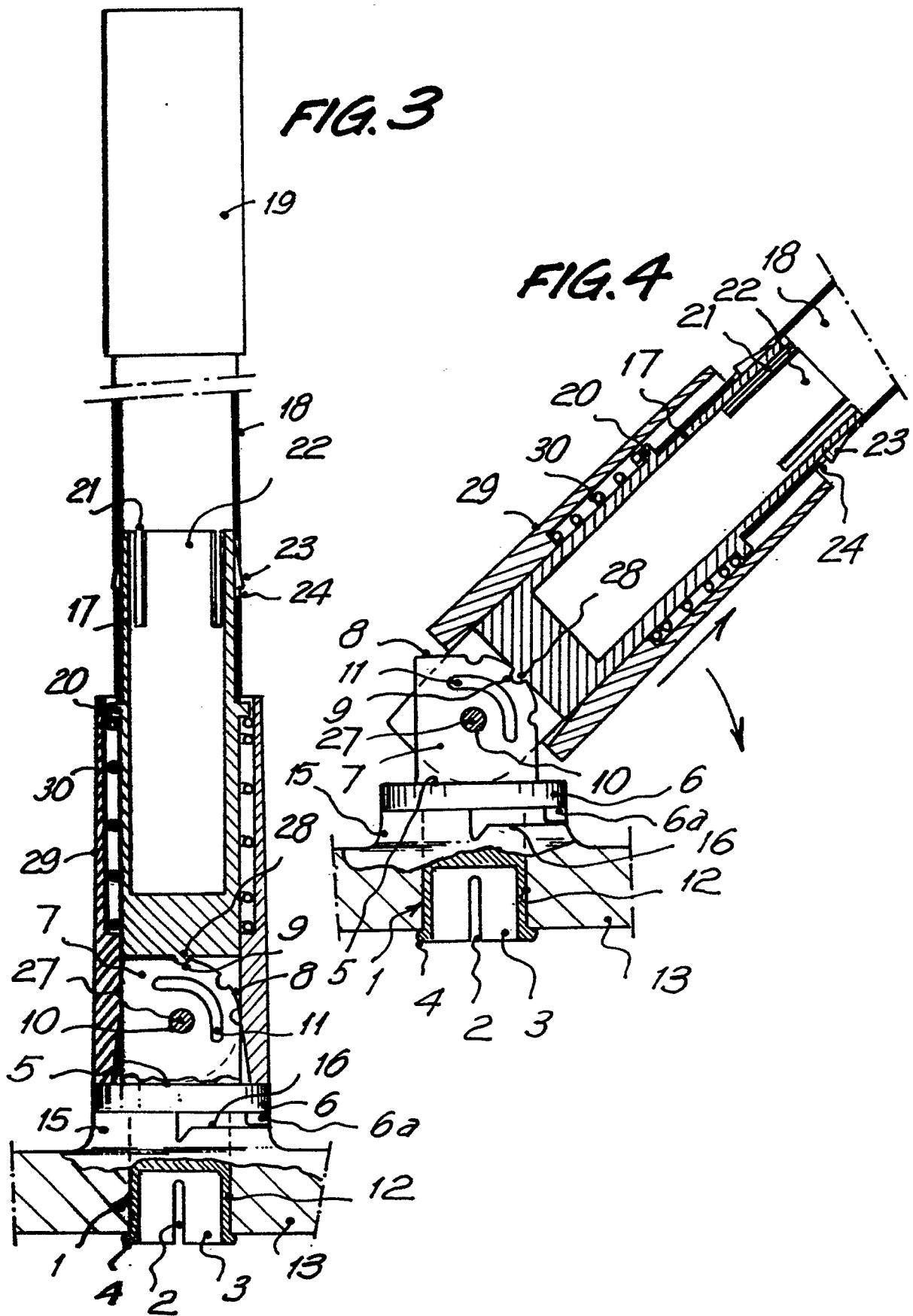


FIG. 5

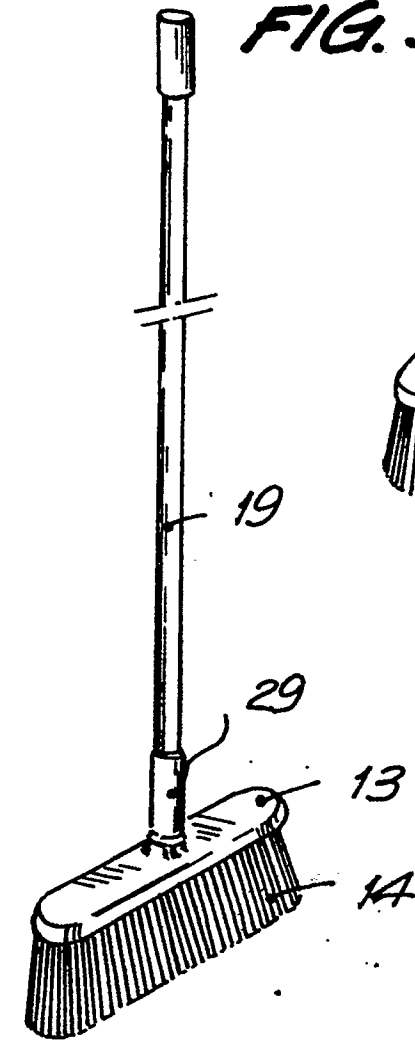


FIG. 6

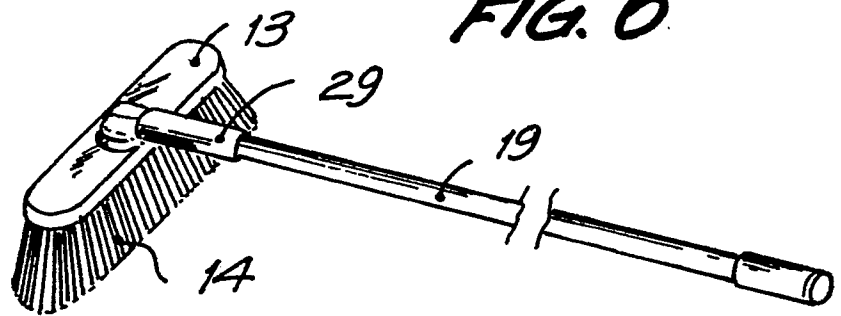
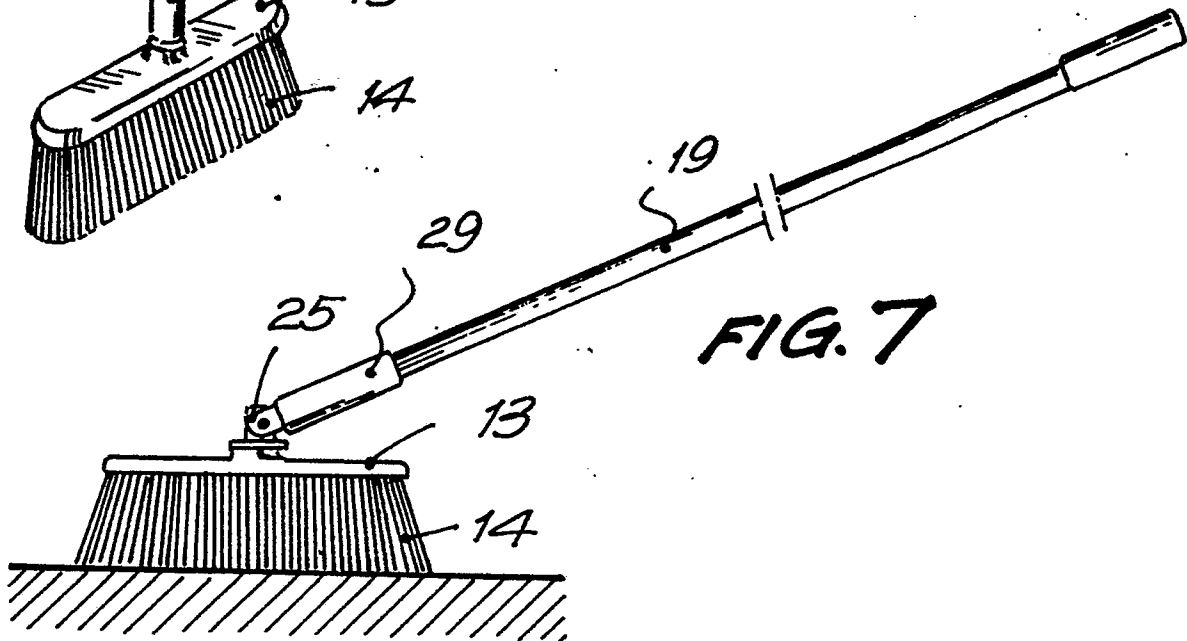


FIG. 7





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EUROPEAN SEARCH REPORT

Application Number

EP 90 50 0105

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-1687953 (STARKS) * the whole document *	1, 2	B25G3/38
A	---	3, 7	
X	DE-C-894837 (WIMMER) * figures 5-7 *	1	
A	US-A-2893035 (WEAVER ET AL) * figures 1-4 *	1	
A	US-A-4219899 (ZURAWIN ET AL) * the whole document *	1	
A	EP-A-95733 (LEIFHEIT INTERNATIONAL GUNTER LEIFHEIT) * figures 4, 5 *	3, 4	
A	FR-A-2409134 (BERTRAND) * figure 1 *	3	
A	DE-C-899033 (KOST) * figure 1 *	5	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B25G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 FEBRUARY 1991	Examiner CARMICHAEL D.G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			