Sept. 5, 1961 A. R. WINCH 2,998,614

HOLDER FOR A DISPOSABLE CLEANING SWAB

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Fig. 1.

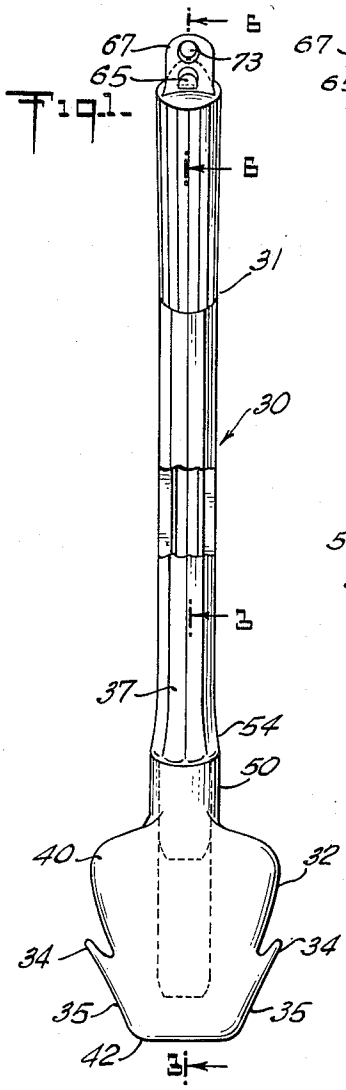


Fig. 2.

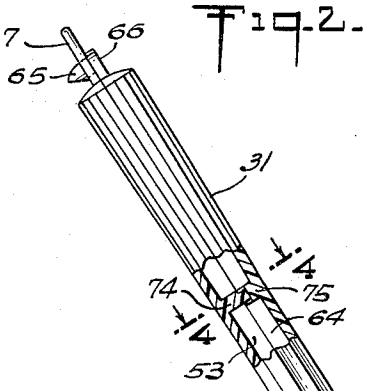


Fig. 4.

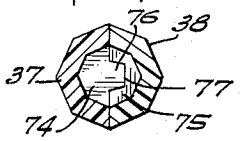
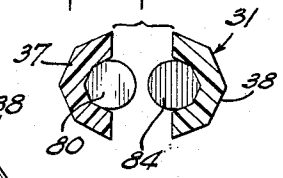


Fig. 5.



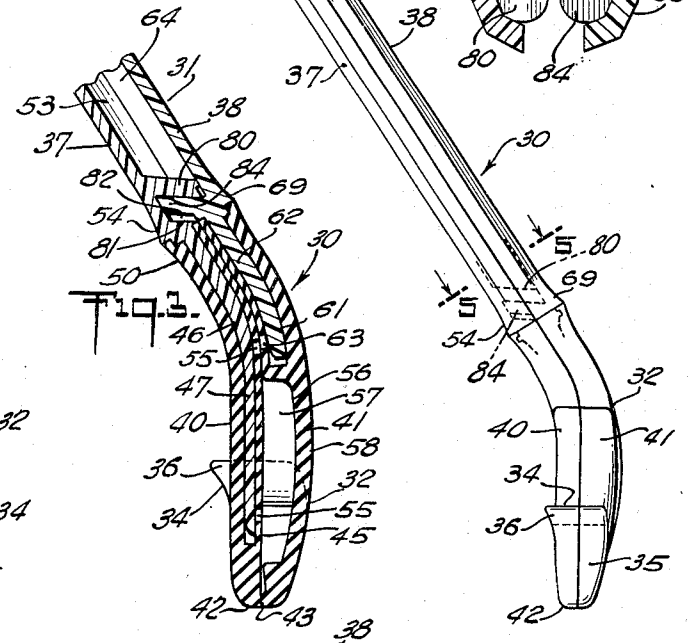
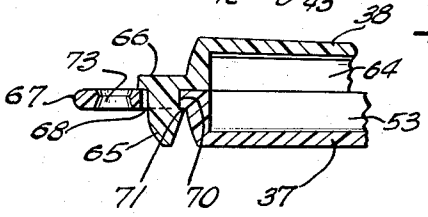


Fig. 3.

Fig. 6.



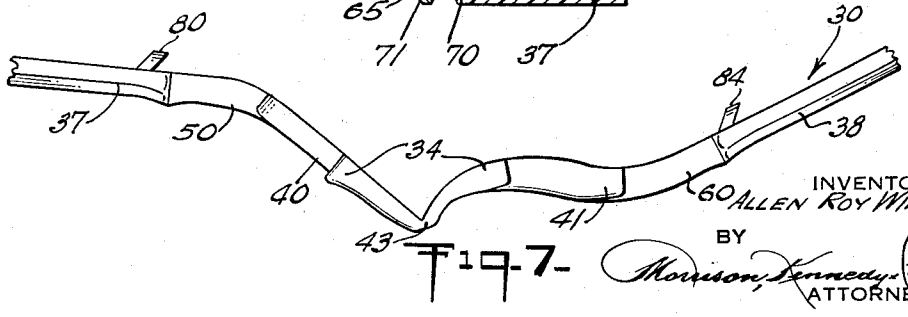


Fig. 7.

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HOLDER FOR A DISPOSABLE CLEANING SWAB

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Fig. 8.

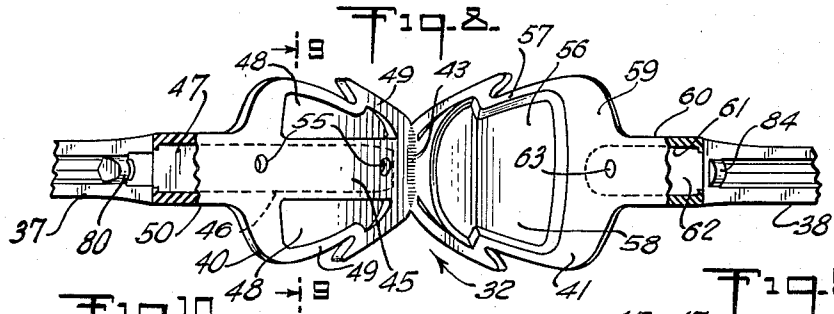


Fig. 9.

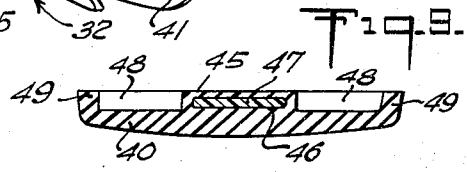


Fig. 10.

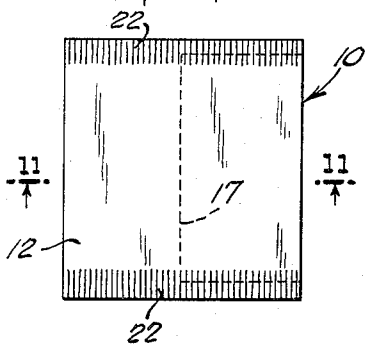


Fig. 11.

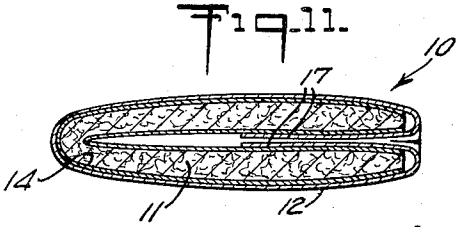


Fig. 12.

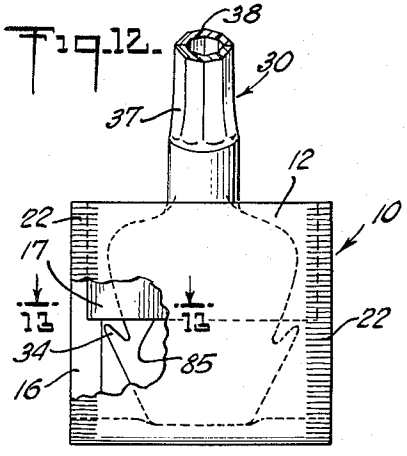


Fig. 13.

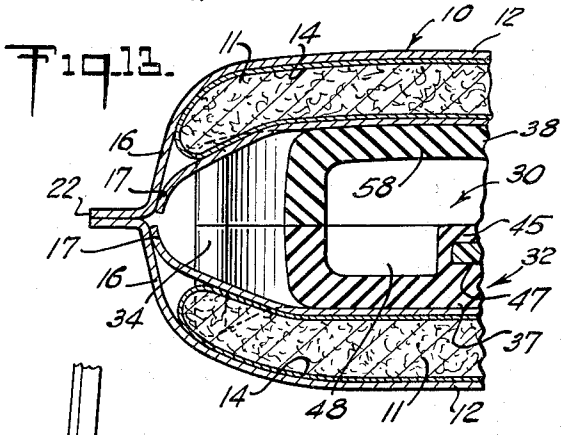
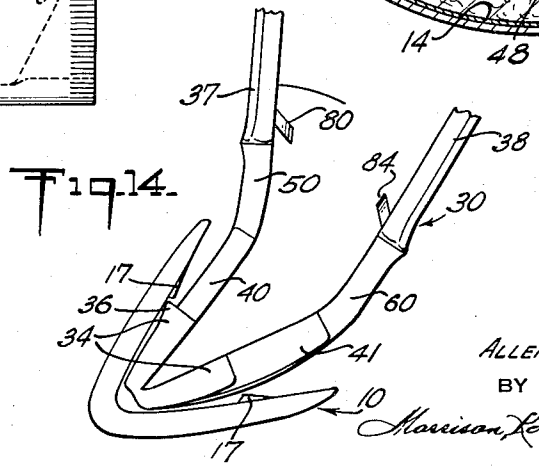


Fig. 14.



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United States Patent Office 2,998,614 Patented Sept. 5, 1961

2,998,614

HOLDER FOR A DISPOSABLE CLEANING SWAB

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Filed Feb. 10, 1958, Ser. No. 714,132
12 Claims. (Cl. 15—210)

The present invention relates to a holder for a disposable cleaning swab suitable for cleaning toilet bowls and the like.

In U.S. Patent No. 2,816,311 is disclosed a cleaning device comprising a holder having a handle and a head, and a disposable swab, which is in the form of a thin-walled cover for the head and which presents the outside or scrubbing surface of the cleaning element. This cover swab, because of its small mass and composition, is readily flushable in a toilet bowl and is internally provided with means which interlock with a locking conformation on the head of the holder. The holder is in the general form of a spoon or spatula and the head is of solid rigid construction and is integral with the handle. The holder is split along its length into two sections pivoted together at the toe or forward end of the head for lateral separation from their closed normal swab receiving position to expand and rupture the cover swab after use.

The general object of the present invention is to provide a new and improved cleaning device holder of the general type disclosed in the aforesaid patent.

A more specific object is to provide a new and improved cleaning device holder of the general type disclosed in the aforesaid patent, which affords sufficient flexibility and resiliency in the head to effect its close soft conformance with the irregular and intricate contours of the fixtures to be cleaned, such as those presented by toilet bowls and the like, but which at the same time has sufficient rigidity to transmit substantial cleaning force without excessively distorting or turning the head about its axis.

Various other objects of the invention are apparent from the following description and from the accompanying drawings, in which—

FIG. 1 is a face view of a cleaning swab holder constituting an embodiment of the present invention, this holder being shown made of two pivotally jointed sections relatively movable into open position to rupture the swab when it is desired to dispose of it, said sections being shown in closed position;

FIG. 2 is a side view of the holder shown in closed position;

FIG. 3 is a longitudinal detail section of the holder taken on the lines 3—3 of FIG. 1 but shown on a larger scale;

FIG. 4 is a transverse section of the holder taken on lines 4—4 of FIG. 2 but shown on a larger scale;

FIG. 5 is a transverse section of the holder taken on lines 5—5 of FIG. 2 but shown on a larger scale and with the two handle sections separated in open position of the holder;

FIG. 6 is a detail section of the holder taken on lines 6—6 of FIG. 1 but shown on a larger scale;

FIG. 7 is a side view of part of the holder but shown in open position;

FIG. 8 is a face view of the head of the holder shown with its two pivotally jointed sections shown in open position;

FIG. 9 is a section of the head of the holder taken on lines 9—9 of FIG. 8 but shown on a larger scale;

FIG. 10 is a face view of the bag swab with which the holder of the present invention may be used;

FIG. 11 is a transverse section of the swab taken on lines 11—11 of FIG. 10 but shown on a larger scale;

FIG. 12 is a face view of the head of the holder shown in closed position with the cleaner swab attached thereto;

FIG. 13 is a section of the combined holder head and cleaner swab taken along the lines 13—13 of FIG. 12 but shown on a larger scale; and

FIG. 14 is a side view of the combined holder head and cleaner swab shown at the instant the jointed sections are opened to rupture the swab for detachment from the holder head and for subsequent disposal.

Referring to FIGS. 10 to 14 of the drawings, there is shown a cleaner swab **10**, which, per se, forms no part of the present invention, and which may be used in connection with the holder of the present invention. This swab **10**, which is shown in detail in U.S. Patent No. 2,816,311, is folded from a flat composite laminated pad made up of a filler **11** in the form of a flat flexible mat and a flexible wrap sheet **12** therefor. The filler mat **11** serves as the padding for the swab and is desirably made of soft fluff material which is readily flushable in a toilet bowl, so that it will not clog the plumbing. Desirably, it should be made of an absorbent material readily disintegrable when wet, as for example, macerated cellulose, such as wood pulp, molded or pressed in flat rectangular form.

To retain the particles of the filler mat **11** against rapid disintegration or separation during manufacture, storage, transportation or use, a sheet or napkin **14** of very thin paper, such as facial tissue, self-integrable when wet is wrapped around the filler mat.

The wrap sheet **12** is of thin flexible paper easily flushable in a toilet bowl but nevertheless rugged and strong enough to withstand cleaning or scrubbing pressure during use. The filler mat **11** before the laminated pad **11**, **12**, **14** is folded is in flat rectangular form and the wrap sheet **12** is rectangular except for rectangular corner cutouts, as disclosed in the aforesaid patent. The wrap sheet **12** in this pad is wider than the filler mat **11** to define longitudinal edge margins **16** on said sheet projecting beyond said mat and is longer than said filler mat to define end sections **17** projecting beyond the filler mat. These edge margins **16** have on their inner surfaces adhesive, such as a thermosetting resin, urea-formaldehyde or polyvinyl acetate being suitable for that purpose.

The end sections **17** of the wrap sheet **12** are folded inwardly over the ends of the filler mat **11** to retain said mat in proper position on said wrap sheet and to define flaps, intended to be latched to projections on the holder head, when the swab **10** is slipped over said head, as will be more fully described hereinafter.

The pad after assembly into a flat condition as described, is folded along its transverse center line to bring the flaps **17** together in face to face contact. By application of heat and pressure, the facing juxtaposed overlapping margins **16** are secured together by the thermoplastic adhesive on these margins to form plain lap seams **22** along the sides of the pad, thus forming the swab **10** in the form of a bag or pouch, with the wrap sheet **12** on the outside defining a scrub sheet and with the filler mat **11** on the inside forming a lining or backing for the scrub sheet. The adhesive along the side seams of the bag swab **10** is strong enough to hold the seams **22** together, while the swab is undergoing the usual period of use but is weak enough to permit rupture of the swab easily along the seams when the swab is wet and ready for disposal and when the head of the holder is expanded in the manner to be described.

Details of the swab **10** not disclosed herein are set forth in the aforesaid patent.

FIGS. 1 to 9 show a holder **30** in the form of a spoon or spatula, constituting an embodiment of the present invention, and comprising a handle **31** and a head **32** at-

tached thereto. The handle **31** is of rigid material which can be easily cleaned and kept sanitary, such as molded polystyrene, and is offset from the head at an angle of about 110° to permit ready accessibility to the underside of the lip of the toilet bowl, and to permit the outer side of the head to be more conveniently and effectively pressed against the surfaces of the toilet bowl or other fixtures to be cleaned.

The radii of curvature of the surfaces of toilet bowls may vary considerably not only with different bowls but within each bowl, and some of these surfaces are irregular and intricate. As a feature of the present invention, although the handle **31** is rigid, the head **32** is of elastic or rubber-like material, such as rubber or an elastic synthetic polymer, such as some form of polyvinyl, (1) to permit it to yield conformably and closely to the contour of the most intricate parts of the toilet bowl or other fixture to be cleaned, whereby full surface cleaning contact therewith is assured upon application of cleaning pressure thereto, and (2) to be restored automatically to its unstressed form when cleaning pressure is removed from said holder. This head **32** which is preferably molded is separate from the handle **31** but is attached thereto in the manner to be described, and is in the general form of a lyre or anchor having a pair of hooks, spurs or flukes **34** adapted to catch on to the internal flaps **17** of the bag swab **10** when the latter is slipped over the head. The sides **35** of the head **32** at its forward end extend up to and along the flukes **34** are are inclined with respect to the longitudinal axis of the holder to taper said end for easy entry of the head **31** into the pocket of the swab **10**.

To assure more positive catch engagement between the flukes **34** and the flaps **17**, the upper surfaces of the flukes are raised to form triangular bevelled flanges **36** thereon.

The holder **30** is designed to rupture the swab after use and towards that end, the handle **31** is split longitudinally along its full length to form two opposed sections **37** and **38** and the head **32** is also split into two sections **40** and **41** attached to the handle sections **37** and **38** respectively and joined together at the toe or forward end **42** of the head for hinge action. This hinge action between the two parts of the holder **31** may be obtained by molding a thin strip **43**, as of rubber or other elastic material integrally to the two head sections **40** and **41**, as shown, or may be obtained in a manner similar to that of existing hinge designs, using holes and metal inserts for the pintles.

The head sections **40** and **41** are designed to be attached easily to the handle sections **37** and **38** respectively, and these head and handle sections are constructed to provide one of said head sections with an inflexible spinal frame rigid with the corresponding handle section **37** or **38**, while the other head section is hollow, so that aside from the elastic compressibility of the material of the latter head section, it will yield easily into conformance with irregular surfaces of the fixtures to be cleaned. For that purpose, the top section **40** of the head **32** is formed with a central rib **45** extending the full length of said head section and provided with an aperture or socket **46** therealong extending almost the full length of said head section to a solid region near the toe or forward end thereof, to receive the rigid tang **47** of the upper handle section **37**. The upper head section **40** in effect is of solid construction except for two internal recesses **48** on opposite sides of said head section defining therebetween the rib **45** and defining on the outer sides thereof raised rim edges **49** around the outside of said head section. The rib **45** is extended curvedly angularly and rearwardly of the body of the upper head section **40** to form an offset entry neck **50** on said head sections to receive the correspondingly curvedly angled tang **47** of the upper handle section **37**.

The tang **47** of the upper handle section **37** is of reduced cross-sectional area in relation to the cross-section of the body of said handle section to cause the outer surface of the neck **50** of the upper head section **40** to be substantially flush with the outer surface of the part of the upper handle section rearwardly beyond said shank, whereby substantial continuity in contour is established between the upper head section **40** and the main body of the upper handle section.

The main body of the upper handle section **37** has a channel **53** of semi-circular cross-section on its inside along its length to make said handle section hollow and on its outside is generally of semi-circular cross-section and is specifically of polygonal shape to afford an outer surface which can be more firmly gripped. The tang **47**, however, is smooth and solid and of non-circular cross-section. At its forward end **54**, the main body of the upper handle section **37** flares slightly forwardly in cross-section, so that the tang **47** can be made of maximum cross-sectional dimensions for maximum strength, while attaining the continuity in contour between the handle section **37** and the head section **40**, as described.

The socket **46** is of substantially semi-circular cross-section near its rear end and changes gradually forwardly into a rectangular oblong cross-section while maintaining a substantially constant width and the tang **47** is of corresponding shape to be received conformably in said socket with a snug friction retaining fit, and extends in said socket to the forward end section of the upper head section **40** to serve as a rigid spine for said upper head section along almost its full length. The rib **45** is provided with one or more holes **55** serving as vents for the air as the tang is inserted into the socket **46**.

The lower head section **41** is dished or is of hollow construction and for that purpose has a recess **56** defining a raised rim edge **57** corresponding to the rim edge **49** of the upper head section **40** to form a continuous contour therewith in closed operating position of the head **32**, and a comparatively thin resilient wall **58** bulging slightly outwardly and adapted to be pressed inwardly against the rib **45** of the upper head section and in close conformity with the surface of the fixture being cleaned. This lower head section **41** has a solid rear section **59** terminating in a neck **60** provided with a socket **61** of substantially semi-circular cross-section at least along its rear section to receive the rigid tang **62** of the lower handle section **38** similarly shaped in cross-section, so that it will be retained in said socket with a snug conforming fit. A hole **63** near the forward end of the socket **61** serves as an air vent therefor when the tang **62** is being fitted into said socket.

The tang **62** is similar to the tang **47** of the upper handle section **40** in cross-sectional dimensions and angularity as far as their coextensive portions are concerned but is shorter than the tang **47**, so that it will reach only to a region near the read end of the recess **56**, the neck **60** of the lower head section **41** is similar to the neck section **50** of the upper head section **40** in cross-sectional dimensions, length and angularity and the lower handle section **38** of polygonal outer cross-section is provided with a channel **64** similar to the channel **53** in the upper handle section **37** and similarly flares in cross-section at its forward end **69** as does the forward end **54** of the upper handle section **37**. As the result of the matching or complemental relationship between the upper handle section **37** and the upper head section **40** on the one hand, and the lower handle section **38** and lower head section **41** on the other hand, the holder **30** when closed in positions shown in FIGS. 1, 2 and 3, will have the continuously contoured appearance of a unit and will operate as a unit.

To hold the two handle sections **37** and **38** releasable together, the lower handle section **38** has a latch pin **65** extending from a bracket flange **66** at its outer end and the upper handle section **37** has a latch flange **67** with a catch opening **68** therein for the latch pin. This catch opening **68** has a straight inner pin camming edge **70** and the latch pin **65** has its inner edge bevelled and terminating in a shallow notch **71** near its base. The

latch pin 65 is so located with respect to the catch opening 68 that the pin does not pass freely through said opening but must be forced therethrough, and is cammed by the inner edge 70 of said catch opening sufficiently to allow said pin to pass through said opening. By pressing the two handle sections 37 and 38 together near the grip portion, the pin 65 will enter the catch opening 68 until the edge 70 of the catch opening snaps into the notch 71 in the pin. In this position shown in FIGS. 1, 2 and 6, the two handle sections 37 and 38 will be latched together in closed position against separation laterally and against relative sliding movement across each other. To release the latch connection, the pin 65 is forced out of the opening 68, as for example, by thumb pressure.

The latch flange 67 extends beyond the latch opening 68 therein and the extension has a hole 73 for hanging the holder 30 when not in use.

To hold the two handle sections 37 and 38 from relative sideways sliding displacement across each other, the two handle sections have integral or otherwise rigid therewith in the channels 53 and 64 thereof at about a palm distance from the outer end of the holder 30 discs 74 and 75, one of said discs having a tongue 76 and the other disc having a recess 77 for receiving said tongue.

To hold the two handle sections 37 and 38 from relative longitudinal sliding movements along each other, the upper handle section 37 near its forward end where its tang 47 extends forwardly therefrom, has a catch 80 extending outwardly from its channel 53 and integral or otherwise rigid with said upper handle section. This catch 80 slopes forwardly and outwardly from the upper handle section 37 and is spaced from a shoulder 81 formed at the forward end of the body of the upper handle section 37 and sloping in a direction parallel to the catch 80 to form a correspondingly sloping recess 82 between said shoulder and said catch having a height slightly greater than the thickness of said catch.

The lower handle section 38 at its forward end where its tang 62 extends forwardly therefrom, has a catch 84 extending outwardly from its channel 64 and integral or otherwise rigid with said upper handle section. This catch 84 slopes rearwardly and outwardly from the lower handle section at an angle corresponding to the angle of inclination of the catch 80 and is located and dimensioned to extend snugly into the recess 82 and to interlock with the shoulder 81 and the catch 80 in closed registering positions of the two handle sections 37 and 38. The resulting interlock between the two handle sections 37 and 38 holds the two handle sections against relative longitudinal slide movements therealong without interfering with the lateral pivotal opening or closing of the two sections of the holder 30.

In preparing the cleaning device for use, a bag swab similar to the bag swab 10 described is slipped over the head 32 of the holder 30, while the two sections of said holder are latched together in closed position, as shown in FIG. 12. When the swab is in place, the ends 85 of its internal flaps 17 extend beyond the ends of the flukes 34 of the holder head. Since these flap ends 85 converge towards the side seams 22 of the bag swab 10 as shown in FIG. 13, these flap ends near said seams cross the flukes 34 and catch on to said flukes. The swab 10 is thereby latched and locked to the holder head 32 and cannot be removed therefrom, without rupturing the swab. The widening of the flukes 34 by the provision of the bevelled flanges 36 thereon, assures a more positive lock between these flukes and the swab flaps 17.

The holder 30 and the swab 10 attached thereto form a cleaning device which can be conveniently handled.

The holder 30 of the present invention has many advantages. The handle 31 extending down to the flexible head 32 being rigid, it affords a means by which cleaning pressure can be transmitted with full force to said head. Also, by maintaining rigidity with respect to the angle

at which the head 32 joins the handle 31, cleaning under the lip of the toilet bowl is facilitated.

The rigid tang 47 on the upper handle section 37 extending along substantially the full length of the upper head section 40, imparts spinal rigidity to this upper head section and the interlock between the tang and its receiving socket 46 of said upper head section provided by their interengaging non-circular conformations in conjunction with a similar interlock between the tang 62 of the lower head section 41 and its receiving socket 61, prevents the head 32 from turning or twisting about the handle 31 as it is being used. At the same time, the internally recessed or skeletonized structure of the head sections 40 and 41 and the comparatively narrow spines afforded by the tangs 47 and 62 in relation to the width of the head sections 40 and 41 allow both side sections of the head sections laterally beyond these tangs to have soft flexibility and high resiliency permitting the cleaning device to be used in smaller areas, as for example, in and around the trap of the toilet bowl.

The lower head section 41 with its resilient wall 58 unsupported as a result of the recess 56 in said head section, acts in effect as a soft ball yielding towards the tang reinforced rib 45 of the upper head section 41 and into conformance with any irregular or varying surface of the fixture being cleaned, as the cleaning head is pressed against such surface, thereby attaining more effective cleaning.

After the cleaning operation has been completed, the latch pin 65 is released at the grip end of the two handle sections 37 and 38 by thumb manipulation, as previously described, and the two sections are then pulled to cause them to open about the hinge connection at the forward end of the head 32 along the resilient strip 43. This causes the side seams 22 of the swab 10 to be broken and the swab to be ruptured, as shown in FIG. 14. In this ruptured condition, the swab 10 will easily fall off the head by itself, or can be easily stripped off by pulling along the edge of the bowl, without direct contact with the swab. The ruptured swab 10 will drop into the bowl, and since it is opened up, the filler mat 11 will be exposed immediately to the disintegrating action of the water in the bowl, enabling the components of the swab to be easily washed away by flushing and without danger of clogging the drain.

While the invention has been described with particular reference to a specific embodiment, it is to be understood that it is not to be limited thereto, but is to be construed broadly and restricted solely by the scope of the appended claims.

What is claimed is:

1. A cleaning device holder in the general shape of a spoon comprising a rigid handle and a separate head anchored to said handle and formed in two sections interconnected for closing movement to permit a cleaning swab in the form of a cover to be applied thereover and for expanding movement to rupture the swab for easy removal therefrom, both of said head sections being made of soft, flexible, resiliently deformable rubber-like material to permit the applied swab to be pressed into close conformance to the surfaces to be cleaned upon application of cleaning pressure applied to said head sections through the rigid handle, said rigid handle being provided with a rigid tang extending into and substantially throughout the length of one of said head sections to form a spinal reinforcement for that section, said tang being narrower than the width of said head section to leave the portions of said head section on opposite sides of the rigid tang free from reinforcement and thus easily deformable for insertion into restricted areas.

2. A cleaning device holder comprising a rigid handle, a head made of flexible resilient material, said head presenting top and bottom sections disposed on opposite sides of a line extending longitudinally of the handle, said

handle having a rigid tang extending substantially throughout the length of said top section of said head to hold said head and to form a spinal reinforcement for said head, said bottom section of said head being hollow to define an outer wall free from reinforcement and spaced from said top section, said bottom section outer wall being yieldable into close conformance with a surface to be cleaned and against said reinforced top head section upon application of cleaning pressure to said head through said handle.

3. A cleaning device holder as described in claim 2, wherein said rigid handle tang is narrower than said top head section and is spaced from the sides thereof, to leave the side portions of said head section beyond said tang unreinforced and easily deformable for insertion into restricted areas.

4. A cleaning device holder comprising a rigid handle, a head made of resilient material and comprising two sections interconnected for closing movement to permit a cleaning swab in the form of a cover to be applied thereover and for expanding movement to rupture the swab for easy removal therefrom, said handle having a rigid tang extending into one of said head sections along its medial region to hold the latter head section and to form a spinal reinforcement therefor, the other head section having a substantial portion thereof free from rigid reinforcement and yieldable into close conformance with a surface to be cleaned and against the spinal reinforced portion of said one head section upon application of cleaning pressure to said head through said handle.

5. A cleaning device holder comprising a rigid handle split along its length into two complemental sections and a separate head split longitudinally along its length into two complemental sections attached to the lower ends of the respective handle sections, said head sections being hinged together at their lower ends for closing movement to permit a cleaning swab in the form of a cover to be applied thereover and for expanding movement to rupture the swab for easy removal therefrom, said head sections being made of soft, flexible, resiliently deformable rubber-like material and recessed on their inner contacting faces to permit the attached swab to be pressed into close conformance to the surfaces to be cleaned upon application of cleaning pressure applied to said head sections through the rigid handle, one of said head sections having a socket extending substantially throughout the length thereof and spaced from the sides thereof, and the corresponding handle sections being provided with a rigid tang fitted snugly in said socket and serving as a spinal reinforcement for said head section.

6. A cleaning device holder comprising a rigid handle split along its length into two complemental sections, and a head of flexible resilient material split substantially along its length into two complemental sections attached to said handle sections respectively, said head sections being hinged together and being adapted to be inserted into a swab having a cavity to receive the head, one of said head sections having a socket extending substantially along the full length thereof and the other head section having a shorter socket extending only partly along the latter head section from its rear end, and said handle sections having respective rigid tangs at their forward ends of different lengths, the longer tang extending into the longer socket to hold said one head section and to reinforce it along substantially its full length, the shorter tang extending into the shorter socket to hold said other head section, the latter head section being of hollow construction to permit it to be deformed easily into close conformance with a surface to be cleaned.

7. A cleaning device holder according to claim 6, wherein each head section socket and the corresponding handle section tang are of non-circular cross-section to prevent relative rotation between each head section and its corresponding handle section.

8. A cleaning device holder comprising a rigid handle split along its length into two complemental sections, and a head of resilient material split substantially along its length into two complemental sections and attached to said handle sections respectively, said head sections being hinged together and being adapted to be inserted into a swab having a cavity to receive the head, one of said head sections having a socket extending therealong and the handle section to which the latter head section is attached having a tang at one end extending into said socket and serving to hold the latter head section and as reinforcement for the latter head section, the other head section being dished to define an unsupported wall thereon which is normally spaced from the said one head section and which will yield into conforming contact with a surface to be cleaned when pressed thereagainst through said handle.

9. A cleaning device holder comprising a rigid handle split along its length into two complemental sections one over the other, each of said handle sections having a rigid tang at at its forward end turned at an obtuse angle in relation to the main body of the handle section, the upper tang being longer than the lower tang, and a head of resilient material split substantially along its full length into upper and lower complemental sections hinged together at their forward ends, the upper head section having a socket extending substantially along the medial region thereof to receive the upper longer tang for attachment to the upper handle section and for spinal reinforcement of the upper head section, the lower head section having a socket along its rear portion to receive the lower tang for attachment to the lower handle section, said lower head section being hollow, to define an unsupported outer wall on said lower head section, which is normally spaced from the upper head section and which will yield into conforming contact with a surface to be cleaned when pressed thereagainst through said handle.

10. A cleaning device as described in claim 9, wherein the holder is substantially in the form of a spoon or spatula, and the lower head section is dished to define said unsupported outer wall.

11. A cleaning device holder as described in claim 9, wherein the upper tang is narrower than the width of the upper head section, and said upper head section has recesses on opposite sides of its socket, whereby the side sections of the head laterally beyond said tangs are resilient and easily deformable to fit into restricted spaces.

12. A cleaning device comprising in combination, a holder as described in claim 8, a disposable cleaning swab in the form of a thin walled cover for the head of said holder, and interlocking means formed partly on the head and partly on the cover swab for holding the latter in place upon the head, said interlocking means requiring rupture of the swab to permit its removal from the head and facilitate its flushability, said swab being ruptured by the opening movement of the handle sections about the hinge connection between the head sections.

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