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W. W. SMITH ET AL
COLLAPSIBLE MOP SUPPORT

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2 Sheets-Sheet 1

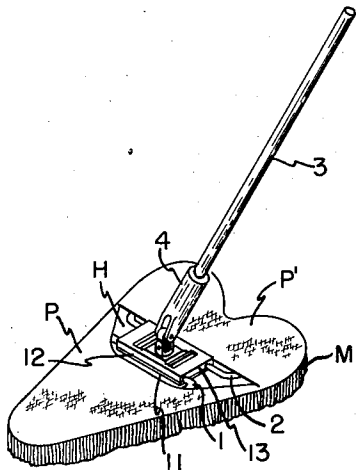


Fig. 1

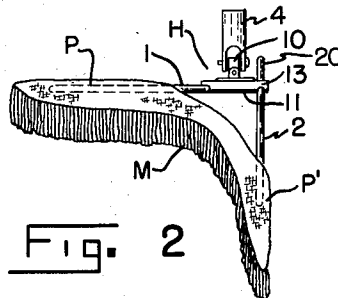


Fig. 2

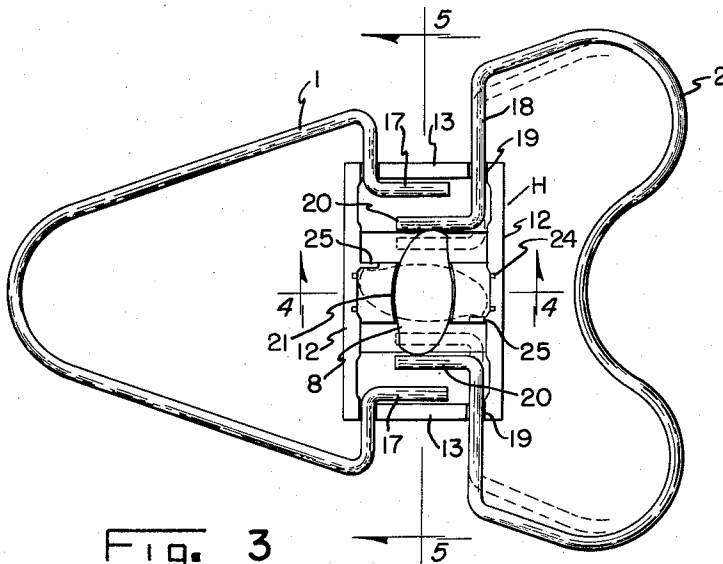


Fig. 3

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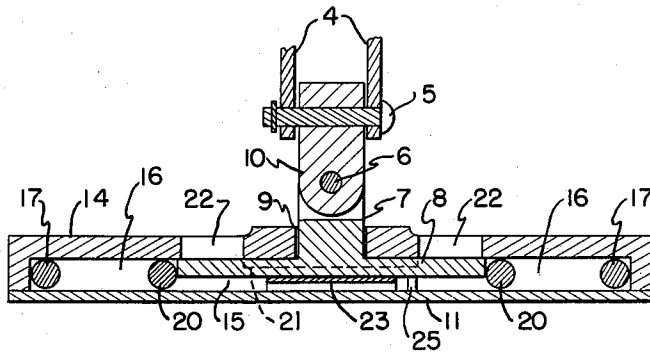


Fig. 5

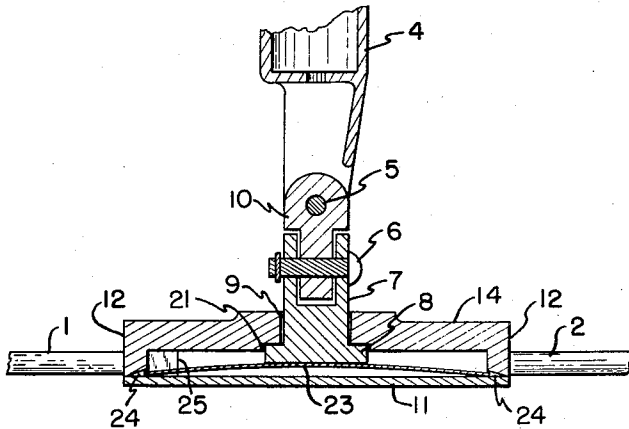


Fig. 4

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COLLAPSIBLE MOP SUPPORT

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10 Claims. (Cl. 15—147)

This invention relates generally to floor mops and more specifically to mop heads or supports of the folding or collapsible type. The structure illustrated is in the form for receiving a heart shaped swab which is particularly designed to permit maneuvering of the mop in restricted and congested areas, this design being shown more in detail by a United States design patent application Serial No. D47,358 entitled, Mop Head, and filed on August 14, 1957, in the name of Irving A. Yamen et al., and assigned to the same assignee as this application. Mop constructions of this general type are provided with opposed pockets in the swab arranged to receive the foldable leaf or wing elements of the mop support and these elements are designed so that they may be maintained in extended coplanar position or collapsed relative to one another to permit the swab to be readily removed and replaced.

One of the primary objects of this invention resides in the improved construction of the mop support whereby the wing elements thereof may be collapsed relative to each other in an efficient and simple manner.

A further object is to provide an improved mop support of the type described including a connector housing for the wings of the support and cam operated means within the housing for permitting the relative collapsing of the wings from an extended coplanar position, said cam means being operated by means including the mop handle receiving member.

It is also an object to provide a mop support of the type described in the preceding paragraph wherein there is provided improved means including the cam operated means for readily locking the wings in their extended position.

Yet another object of the invention is to provide an improved mop head which is simple, inexpensive and relatively light weight.

The construction designed to carry out the invention will be hereinafter described, together with other features thereof and will be more readily understood by a reading of the following specification and by reference to the accompanying drawings forming a part thereof wherein an example of the invention is illustrated and wherein:

Figure 1 is a perspective view of a mop utilizing the novel head construction of the present invention;

Figure 2 is a side elevational view showing the mop head in a collapsed position so that the swab may be removed therefrom;

Figure 3 is an enlarged bottom view of the mop support shown in Figure 1 with the backing plate of the connector housing removed;

Figure 4 is a sectional view taken along the lines 4—4 of Figure 3; and

Figure 5 is a sectional view taken along the lines 5—5 of Figure 3.

The novelty of the present invention resides particularly in that part of the mop support which permits the wings of the head to be collapsed relative to one another or maintained in a coplanar relationship. Thus, at the

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outset the non-inventive elements shown in the drawing will be described for background.

H represents the connector housing and extending from one side thereof, the left as viewed as viewed in Figure 3, is a wing or leaf 1 while from the right there extends the leaf or wing 2. M depicts a special heart-shaped swab disclosed and claimed in said design application and on its upper surface the swab is provided with pockets P and P' which respectively receive the wings 1 and 2. When the wings are in an extended position whereby they are substantially coplanar as shown in Figure 1, the swab M is maintained in proper position thereon for operation over the desired surface and when the wings are positioned as shown in Figure 2, the swab M may be removed and replaced and the structure within housing H permits these operations to take place readily. If the entire mop structure is elevated from the floor to the extent shown in Figure 2, the swab M may be manually removed from the wings and likewise a swab M may be manually positioned over the wings when they are in the position of Figure 2 and prior to their being positioned in coplanar relationship as in Figure 1. For clarity only, there is shown a mop handle 3 which may be secured to the socket member 4 threadedly or by any other suitable means and in turn the socket 4 is arranged for substantial universal movement, more clearly shown in Figures 4 and 5, by means of mutually perpendicular pivot pins 5 and 6 and this should be entirely clear, element 10 forming the connection between the pins. Depending from pin 6 is a member 7, fully shown in Figures 3 and 5, which has its circular body portion positioned in a circular opening 9 in the top wall of housing H and is provided at its bottom with a flat cam 8 which will be more fully described hereinafter.

As to the housing H, such includes a bottom plate 11, side walls 12 extending upwardly therefrom and end walls 13 also extending upwardly therefrom. There is also provided a top plate 14 which is spaced from the bottom plate 11 to provide a rectangular space 15 of a size to receive a part of the wings 1 and 2, the opening 9 actually extending through top 14 and communicating with space 15.

Considering wing 1 and referring particularly to Figures 3 and 5, such is shown as a solid rod member of substantial triangular shape and the base thereof passes through the walls 13 and terminates in the legs 17 which are of a size to provide a close fit within space 15, as shown in Figure 5, between surfaces 11 and 14. With such an arrangement the wing 1 is in effect made stationary and integrally secured with housing H and assumes a plane that is substantially coplanar with that of housing H. As a matter of fact, that part of the wing 1 outside of the housing H could take the form of a solid member.

Now referring to wing 2, such is made of a metallic rod which naturally assumes, due to its resiliency, the position shown by the dotted lines in Figure 3, but which may be biased to the solid line position of Figure 3. That portion of the wing 2 exterior of housing H completes the heart-shape of the mop support and assumes the configuration of a cradle with the base 18 thereof being journaled within slots 19 of the end walls 13. Likewise the base 18 terminates in legs 20 and when the legs 20 are positioned as shown in Figure 5 and by the solid lines of Figure 3, they also are maintained between walls 11 and 14 within those portions of space 15 further identified by numeral 16 with wing 2 being coplanar with wing 1, this being the condition of the mop support illustrated in Figure 1.

The top plate 14 has two rectangular slots 22 cut out therefrom and the cam 8 within housing H is arranged

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for movement between the solid and dotted line positions of Figure 3. Assuming that cam 8 is in the solid line position of Figure 3, then the legs 20 are locked within spaces 16 and both wings are maintained coplanar. A substantially rectangular recess 21 communicating with slot 9 is provided in the bottom of wall 14 and this recess is of a size to receive cam 8 when the latter assumes the solid line positions of Figures 3, 4 and 5. There is positioned beneath cam 8 suitable spring means 23 which continually urges the cam 8 upwardly against the top wall 14 and into recess 21 at which time the wings are locked in extended coplanar position. Spring 23 may take various forms, but as shown comprises a bulging leaf with extended tips thereof positioned in cut-outs 24 of walls 13.

Assuming it is desired to collapse wing 2 whereby swab M may be removed or replaced, then handle 3 and in turn member 7 is manually depressed against the upwardly directed bias of spring 23 in order to remove the cam from the slot 21 within which it is maintained. Thereafter the handle and in turn the cam may be turned 90 degrees until the cam rests against the stops 25 and when this is done the legs 20 are free of cam 8 and automatically bias toward one another underneath the openings 22 of the top plate 14, whereupon wing 2 may be readily collapsed as shown in Figure 2 by merely elevating the entire mop from the floor.

From the foregoing disclosure and description of the invention which is illustrative and explanatory thereof, it is clear that the apparatus achieves the objects enumerated therein. Various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made within the scope of the appended claims without departing from the spirit of this invention.

What is claimed is:

1. A mop head including a connector comprising a housing having a space therein supporting means for a mop handle carried by the connector, wings for effecting connection with a swab mounted in opposed relation on opposite sides of the connector, one of said wings being mounted for hinged movement relative to said connector and other wing from a first position in which the wings are substantially coplanar to a second position in which the wings are collapsed relative to each other, and cam means connected with said supporting means for maintaining the wings in said first position, said cam means being mounted for manual rotative movement within the space of said connector into and out of engagement with said one wing, said last named wing having portions positioned within the space of said connector movable by said cam means from an unbiased position wherein the wings may be collapsed relative to one another to a biased position wherein the wings are coplanar.

2. A mop head as defined in claim 1 wherein the housing includes a top and bottom wall separated to provide said space therebetween, said top wall having a pair of slots therein communicating with said space, said por-

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tions being movable through said slots when in their unbiased position.

3. A mop head as defined in claim 2 wherein the top wall is provided with a recess, and bias means within said housing for urging said cam means into said recess when the wings are coplanar whereby the cam is locked against movement.

4. A mop head as defined in claim 3 wherein the supporting means is mounted for rotative movement and downward movement toward said bottom wall and wherein the cam means is movable against the action of said bias means out of said recess and out of engagement with said portions by downward and rotative movements of said handle supporting means.

5. A mop head as defined in claim 4 wherein there is provided within the connector stop means for limiting the movement of said cam means.

6. A mop head as defined in claim 5 wherein the top wall further includes a circular opening communicating with said space, said cam means having a part projecting through said opening connected with said handle supporting means.

7. A mop head as defined in claim 6 wherein the one wing is a metallic rod.

8. A mop head comprising a connector housing having a top and bottom wall separated to provide a space therebetween, mop handle supporting means carried by the housing, wings for effecting connection with a swab mounted in opposed relation on opposite sides of the connector housing, one of said wings being mounted for hinged movement relative to said connector and other wing from a first position in which the wings are substantially coplanar to a second position in which the wings are collapsed relative to each other, said one wing being journaled to said housing and having portions positioned within said housing movable from an unbiased position wherein the wings may be collapsed relative to one another to a biased position wherein the wings are coplanar, and means including a cam connected with said supporting means mounted for manual rotative movement within the space of said housing into engagement with said portions to effect unbiased position thereof.

9. A mop head as defined in claim 8 wherein the top wall is provided with a pair of slots, said portions being movable through said slots when in an unbiased position and locked within said space when in a biased position.

10. A mop head as defined in claim 9 wherein the top wall is provided with a recess, and bias means within said housing for urging said cam into said recess when the wings are coplanar.

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