March 21, 1961 L. W. McPHERSON 2,975,451

COLLAPSIBLE MOP SUPPORT

Filed March 31, 1958 2 Sheets-Sheet 1

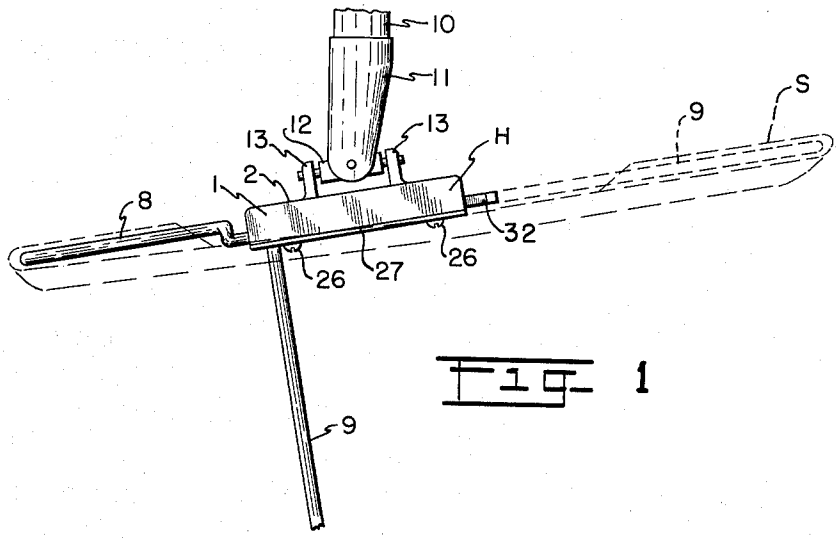


Fig. 1

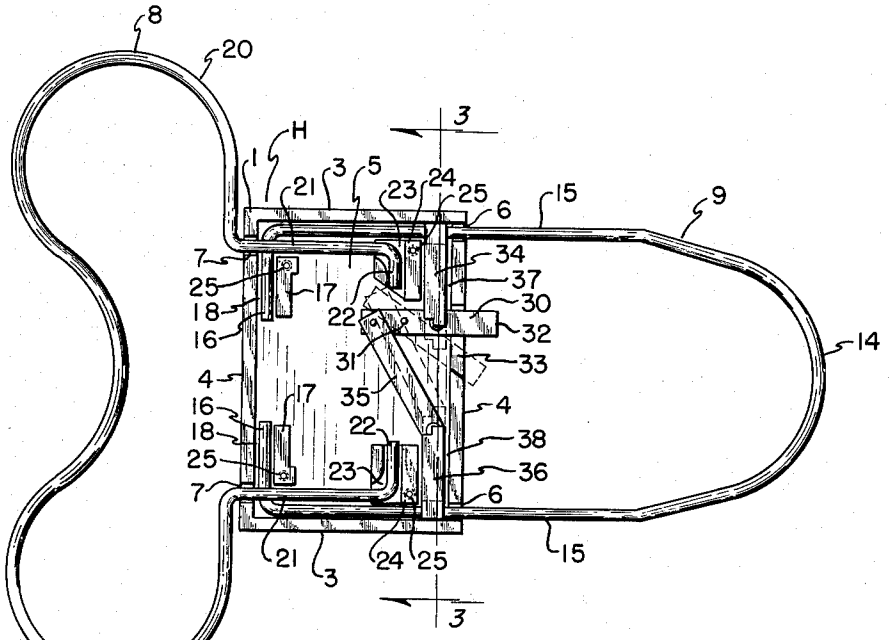


Fig. 2

INVENTOR.
LEWIS W. McPHERSON
BY
Philip H. Sheridan
ATTORNEY

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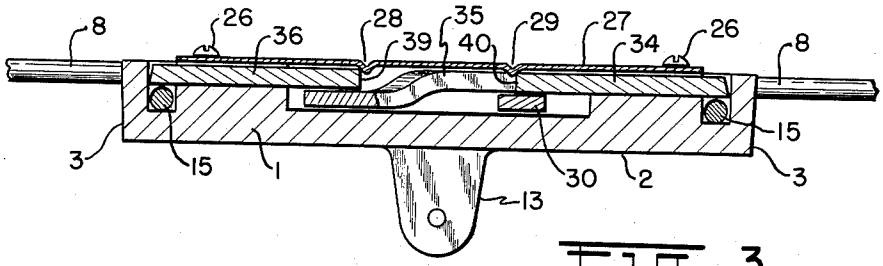


Fig. 3

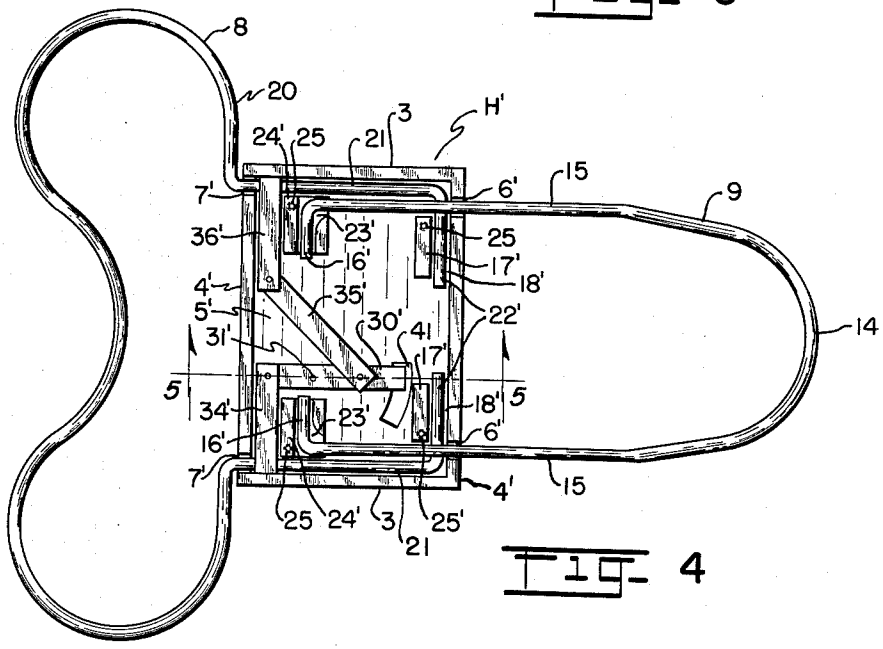


Fig. 4

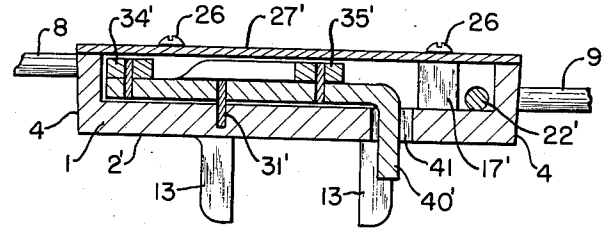


Fig. 5

INVENTOR.
LEWIS W. McPHERSON
BY
Philip H. Sheridan
ATTORNEY

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COLLAPSIBLE MOP SUPPORT

Lewis W. McPherson, Denver, Colo., assignor to Dust-Tex Corporation, Denver, Colo., a corporation of Colorado

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9 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 mop head 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, but other shaped swabs could easily be adapted to this structure and are meant to come within the scope of this invention.

Reference is hereby made to William W. Smith et al. patent application Serial No. 678,145, filed August 14, 1957 and entitled "Collapsible Mop Support," now Patent No. 2,901,759 granted September 1, 1959, and to my patent application of the same title Serial No. 725,107, filed March 31, 1958, these two applications as well as the present invention having been assigned to a common assignee. Mop constructions of this general type are provided with opposed pockets in the swab arranged to receive foldable leaves or wing elements of the mop support or head and these elements are designed so that they may be maintained in extended coplanar position whereby the swab is held in use position or relative collapsed position whereby the wings may be collapsed relative to one another to permit the swab to be readily removed and replaced. The present invention is quite similar in many respects to the heart-shaped mop structures illustrated in said applications and thus by referring to these applications it will be clearly understood how the detailed structure described hereinafter cooperates with the swab to maintain same in place or permit removal thereof.

One of the primary objects of this invention resides in the improved construction of the mop head or support whereby the wing elements thereof may be readily collapsed relative to each other.

A further object of the invention is to provide an improved mop support of the type described including a connector housing with which a pair of wings are connected and means including a manually movable lever readily available to the operator for maintaining one of said wings in its relative coplanar position and permitting collapsing thereof to a relative non-coplanar position.

A further object is to provide a mop structure of the type described in the preceding paragraph having at least one link connecting the manually operated lever with the collapsible wing.

Yet another object of the invention is to provide an improved mop head which is simple, inexpensive and relatively light in weight and wherein all of the manually operating parts for causing at least one of the wings to collapse relative to or be maintained coplanar with respect to the other wing are located within the housing except for one end of the manually operated lever which protrudes therefrom and may be operated with ease by the foot of the operator.

The construction designed to carry out the invention will be hereinafter described, together with other features thereof and will be more easily understood by a reading of the following description and by reference to the accompanying drawings forming a part thereof, wherein examples of the invention are illustrated and wherein:

Figure 1 is a side elevation view of the mop support of this invention illustrating one of the wings as collapsed and a portion of the mop handle;

Figure 2 is a bottom view of the mop support of Figure 1 with the wings in coplanar position and with the bottom of the support or connector housing removed;

Figure 3 is an enlarged sectional view taken along the lines 3—3 of Figure 2 and with the bottom of the connector housing positioned in place;

Figure 4 is a view similar to that of Figure 2, but of a slightly modified embodiment; and

Figure 5 is an enlarged sectional view taken along the lines 5—5 of Figure 4 and with the bottom of the housing in place.

The novelty of the present invention resides particularly in that part of the mop support or head which permits the wings of the head to be collapsed relative to one another or maintained in a coplanar relationship. Thus, at the outset the non-inventive elements shown in the drawing will be described for background.

Referring to Figures 1, 2 and 3, H represents the connector housing defining a frame comprising primarily a main plate or rectangular casting **1** provided with a top surface **2** and end and side walls or sections **3** and **4** respectively for the housing H, the walls or sections being formed as a result of the bottom surface **5** opposite surface **2** being recessed. In each wall **4** of casting **1** there are two transverse cutouts represented at **6** and **7**, the cutouts in each section **4** being misaligned transversely and from which extend, as viewed in Figure 2, wings or leaves **8** and **9**. These latter wings are shaped to support a heart-shaped swab S of the type shown more in detail in said applications upon the wings **8** and **9** being received in the pockets of swab S. When the wings are in the position of Figure 2, they are substantially coplanar and the swab S will be maintained in proper position thereon for operation upon the desired surface. Periodically it is desirable to change the swab and it is important that this operation be carried out with a minimum of ease and the mop head or support of the present invention permits this to take place readily. For clarity only, there is shown a portion of a mop handle **10** which may be secured to the socket member **11** threadedly or by any other suitable means and in turn the socket member is pivotally connected through the bifurcations thereof, only one of which is shown, to a block **12**. In turn the block **12** is journaled between lugs **13** which extend upwardly from surface **2** and thus due to the two mutually perpendicular pivot points there is substantial universal movement permitted of the socket member **11** and in turn the mop handle **10** relative to housing H.

It will be apparent hereinafter that the present invention may be modified whereby both wings **8** and **9** may be collapsed relative to the housing H but, as illustrated, wing **8** is maintained fixed and wing **9** is designed to be collapsed relative therewith. Wing **9** includes a terminal end **14** which is received in the top of the heart of the swab S and straight portions **15** which terminate in inturned legs **16**, the entire wing **9** as well as wing **8** being, as shown, constructed of round or tubular metal wire material. However, in the embodiment shown it is only necessary that that portion of wing **9** within housing H be made of wire-like or strip material as the remaining portions, such as those outside of housing H, could be solid pieces made of various rigid materials.

As part of casting **1** there are provided lug portions **17** which form trackways **18** with wall **4** adjacent that portion of wing **8** which is exposed relative to housing H and these trackways **18** receive the majority of the inturned legs **16**, as clearly shown in Figure 2. Wing **8**, as

illustrated in Figures 1 and 2, includes a section 20 which forms the base of the heart-shape and includes straight portions 21 which extend through the cutout areas 7 of wall 4 into housing H and terminate in inturned terminals 22. These latter terminals are received in trackways 23 provided in lugs 24, the latter forming a part of casting 2. It will be noted that each of the lugs 17 and 24 are provided with threaded recesses 25 for receiving screws 26 and in turn securing, as shown in Figure 3, a thin metal cover plate 27. Assuming the cover plate 27 was coextensive with casting 1, then with the wings 8 and 9 positioned as shown in Figure 2 it would be impossible to have any collapsing movement of the wings. Instead of this the cover plate, as shown in Figure 3, is of a size to encompass straight portions 21 but not slots 6 and straight portions 15 which extend through slots 6 into housing H and thus it is clear that with the cover 27 in place, wing 8 will be maintained fixed as shown in Figure 1 and the housing has recessed areas beneath portions 15. Bottom plate 27 is formed of a thin metallic material having resilient characteristics and this is for the purpose that will become apparent hereinafter.

To control the relative collapsing and coplanar relationship of wing 8 there is provided a manually movable lever 30 which is pivoted to casting 2 at 31 and is located therein, except for a portion 32 which extends through a slot 33 in wall or section 4 adjacent tip 14. Thus lever 32 may be moved or pivoted through an arc controlled by the size of slot 33. Keyed for movement with lever 30 is a link 34 and in the solid line position shown in Figure 2 link 34 overlaps one of the straight portions 15 of wing 9. Pivotally connected with lever 32 adjacent the end thereof within housing H is a linkage 35 which at its other end is pivotally connected with a second link 36 comparable to link 34 and here again in the solid line position shown, link 36 overlaps the other straight portion 15 of wing 9. The links 34 and 36 are movable in guideways 37 and 38 respectively, formed between lugs 24 and adjacent wall 4 and it is apparent from the dotted line illustrations of Figure 2 that after lever 32 is moved to the opposite end of slot 33, as that shown by the solid lines of Figure 2, the links 34 and 36 will be removed from their overlapping position relative to straight portions 15.

Referring to Figure 3, the inward ends of the links 34 and 36 are represented by numerals 39 and 40 respectively, and the resilient cover 27 is provided with indentations 28 and 29 which are adapted to abut against ends 39 and 40 respectively, and maintain the links 34 and 36 in the solid line position shown in Figure 2 whereby the wings 8 and 9 are locked in coplanar relationship. In effect, indentations 28 and 29 provide spring latches which must be overcome before the links 34 and 36 are released from their overlapping relationships with straight portions 15. However, this may be easily done upon moving the lever 32 to the dotted line position of Figure 2 since the cover 27 is flexible as explained.

A second embodiment of the invention is disclosed in Figures 4 and 5 and essentially this embodiment differs from the one previously described in two respects; (1) the opposite wing or leaf 8 is arranged to be collapsed; and (2) the lever which is to be manually operated by the user extends upwardly through the top surface of the housing. Elements in Figures 4 and 5 that are similar to those of Figures 1 to 3 have been given like numerals and those which are similar but changed in their relative position have been given like numerals with primes. With the cover 27' in position it can be appreciated that all is covered within housing H' with the exception of slots 7' adjacent portion 20 and recessed areas beneath portions 21 and it will also be noted that lugs 17' and 24' have been repositioned whereby lugs 24' form the trackways 23' for terminals 16' and lugs 17' cooperate with wall 4' adjacent terminal 14 to provide the trackways 18' for terminals 22'. Lever 30' is pivoted at 31' and has its terminal portion 40' extending through arcuate slot 41 of casting 2'. Link 34' is pivoted to lever 30' and link 36' is pivoted to linkage 35' which is also pivoted to the lever 30'.

Assuming that a heart-shaped swab S is supported on wings 8 and 9 of both embodiments disclosed and that it is desired to change this swab, then the operator of the mop merely holds same upright with the swab engaging the surface being mopped. At this time the lever 30 or 30' and linkage 34, 36 or 34', 36' are as illustrated in Figures 2 and 4, which means that the wings 8 and 9 are maintained or locked in coplanar relationship. Manually, such as by tripping the lever 30 or 30' by the operator's foot engaging portions 32 or 40', the lever is moved to the opposite end of slot 33 or 41 and during such movement links 34, 36 or 34', 36' are caused to move towards one another and out of overlapping engagement with portions 15 or 21 of the wing 9 or 8 being collapsed. The operator may now manually raise the mop, whereupon the wing 9 of Figure 2 or wing 8 of Figure 4 will collapse relative to the other wing, such as in a manner illustrated in Figure 1.

From the foregoing disclosure and description of the invention, which is illustratory and explanatory thereof, it is clear that the apparatus achieves the objects enumerated therein. Various changes in size and shape of materials as well as 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 comprising a housing defining a connector frame, a pair of wings for effecting connection with a swab mounted in opposed relation on opposite sides of the frame, said housing being recessed with one of said wings having an inner portion being mounted for pivotal movement through said housing relative to said frame and the 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, a manually movable lever extending from said housing and at least one link connected within said housing for movement in response to actuation of the lever, the lever and link being movable from a first location wherein the link is in overlapping relation with the one wing to maintain the latter in its first position to a second location wherein the link is moved away from the one wing whereby the latter is free to pivot.

2. A mop head as defined in claim 1 wherein the connector frame is provided with bias means engaging said link and which must be overcome prior to shifting the link to its second location.

3. A mop head as defined in claim 1 wherein there is provided mop handle means carried by the connector frame.

4. A mop head as defined in claim 1 wherein said one wing includes spaced portions extending within said housing and said housing is recessed in such a way as to permit said spaced portions and one wing to pivot with respect to said housing when the link is in its second location.

5. A mop head comprising a housing defining a connector frame, a pair of wings for effecting connection with a swab mounted in opposed relation on opposite sides of the frame, said housing being recessed with one of said wings having spaced inner portions extending within said housing being mounted for pivotal movement through said housing relative to the frame and the 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 connector frame including a manually movable lever and a link for each spaced inner portion being connected for movement in response to actuation of the lever, the lever and links being connected for conjoint movement from a first location wherein the links are in engagement with said spaced inner por-

tions to maintain the one wing in its first position to a second location wherein the links are disengaged from said spaced inner portions whereby the one wing is free to pivot.

6. A mop head comprising a housing defining a connector frame, a pair of wings for effecting connection with a swab mounted in opposed relation on opposite sides of the frame, said housing being recessed with one of said wings having spaced inner portions being mounted for pivotal movement through said housing relative to said frame and the 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 connector frame including a manually movable lever extending through a slot in said housing and at least one link connected within said housing for linear movement in response to actuation of the lever, the lever and link being movable from a first location wherein the link is in overlapping relation with the one wing to maintain the latter in its first position to a second location wherein the link is removed from the one wing whereby the latter is free to pivot.

7. A mop head according to claim 1 in which said lever is characterized by being pivoted to said frame and said link is secured to said lever in spaced relation to the pivot point of said lever.

8. A mop head according to claim 5 in which said lever is pivoted to said frame and said links are connected to said lever on opposite sides of the pivot point of the lever to move in opposite directions in response to actuation of the lever.

9. A mop head according to claim 5 in which guideways are provided for each link to guide the movement of each link in response to actuation of the lever.

References Cited in the file of this patent

UNITED STATES PATENTS

1,256,989	Duncan	Feb. 19, 1918
1,344,936	Beaudet	June 29, 1920
1,437,789	Whyte	Dec. 5, 1922
2,804,638	Vosbikian et al.	Sept. 3, 1957
2,840,840	Yamen	July 1, 1958
2,901,759	Smith et al.	Sept. 1, 1959