July 1, 1958 I. A. YAMEN 2,840,840

COLLAPSIBLE MOP SUPPORT

Filed June 4, 1956 2 Sheets-Sheet 1

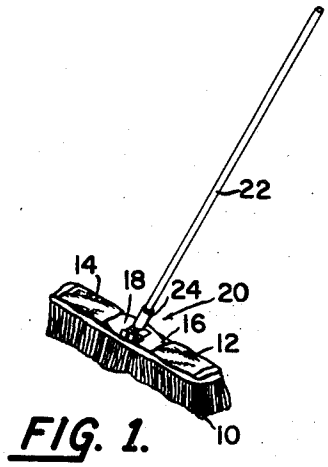


FIG. 1.

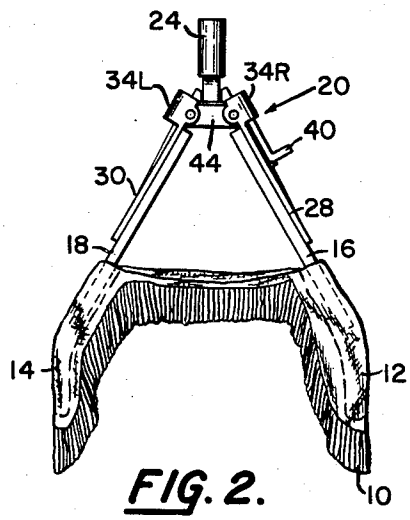


FIG. 2.

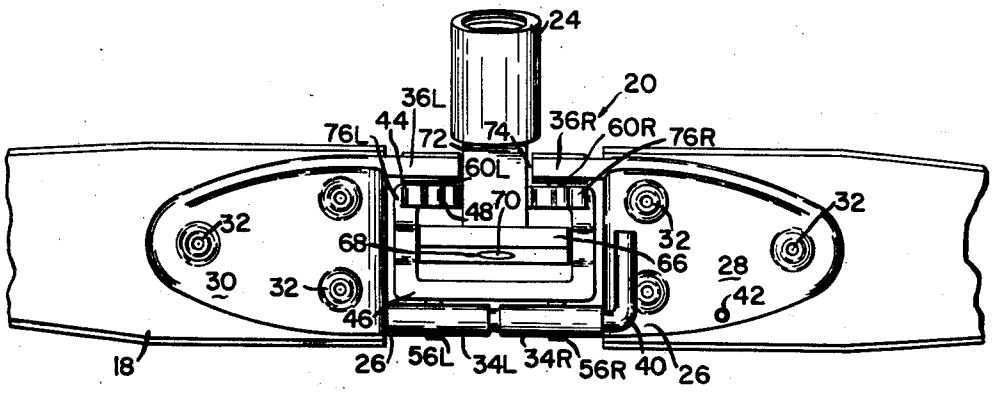


FIG. 3.

INVENTOR.
IRVING A. YAMEN
BY
Philip H. Sheridan
ATTORNEY

July 1, 1958 I. A. YAMEN 2,840,840

COLLAPSIBLE MOP SUPPORT

Filed June 4, 1956 2 Sheets-Sheet 2

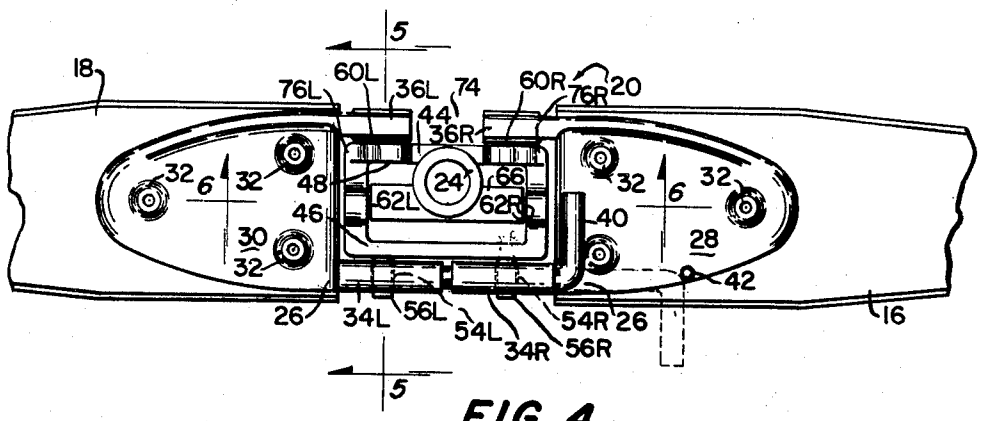


FIG. 4.

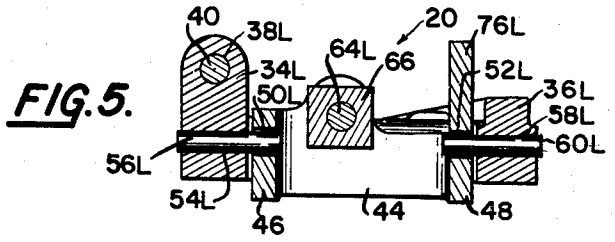


FIG. 5.

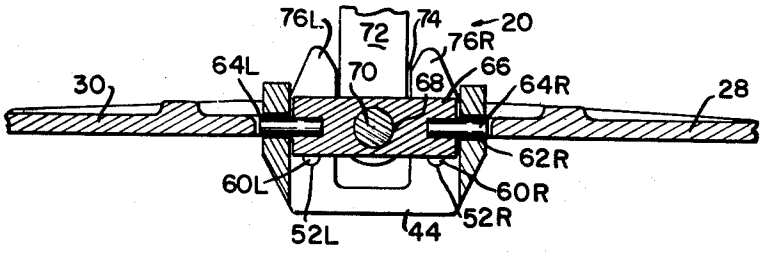


FIG. 6.

INVENTOR.
IRVING A. YAMEN
BY Philip H. Sheridan
ATTORNEY

United States Patent Office 2,840,840 Patented July 1, 1958

2,840,840

COLLAPSIBLE MOP SUPPORT

Irving Albert Yamen, Denver, Colo., assignor to Dust-Tex Corp., Denver, Colo., a corporation of Colorado

Application June 4, 1956, Serial No. 589,151

5 Claims. (Cl. 15—147)

This invention relates generally to floor mops and more particularly to mop heads or supports of the folding and collapsible type.

Among the more widely used mop constructions will be found the type which provides opposed pockets in the swab adapted to receive the foldable wing elements of the mop head or support. Mops of the aforementioned type are preferred in the performance of janitorial work where frequent removal of the swabs from the head is necessary in order that they may be cleaned. Quite often, the facilities of building maintenance and janitor supply organizations are employed to service and maintain mops along with other cleaning equipment. These organizations prefer a mop having the foldable head construction because of the ease and rapidity with which the swabs may be removed and replaced, thereby resulting in a considerable saving in the time and labor required to perform such services. Also, the foldable head construction enables the mops to be stored in a smaller space. Furthermore, when cleaned, the swabs to a certain degree tend to shrink and the collapsible wings of the support or head function as a means to stretching the swab and restoring same to its original shape.

Ordinarily, building maintenance personnel prefer mops having very wide swabs because of the larger area that can be covered at one time. There is a disadvantage, however, connected with the use of mops having extra wide swabs as they are difficult to maneuver in restricted areas. In an attempt to overcome this objection mops have been developed which provide a universal connection between the mop handle and head or support so that the swab can be shifted in relation to the handle for cleaning under furniture and in other restricted places. It has now been found, however, in accordance with the present invention that a universal connection between the handle and the mop head brings about a further difficulty in that the swab cannot be controlled in its relation to the handle during the normal cleaning operations in which the swab is aligned at substantially right angles to the direction of movement.

It is, therefore, one of the principal objects of the present invention to provide a mop head which retains the advantages of a universal connection between the head and handle, and yet which provides means for locking or positioning the handle in relation to the swab and head for normal cleaning operations whereby there may be pivotal movement of the handle about one axis only.

A second object of the invention is to provide a mop head which utilizes a novel hinge construction between the foldable and collapsible wings that is extremely rugged and capable of withstanding a great deal of abuse without repair.

Another object of the invention is to provide a simplified latch for use in locking the foldable wings in the extended or operative position.

Further objects of the invention are to provide a mop head which is simple, inexpensive and relatively lightweight.

Other objects will be in part apparent and in part pointed out specifically hereinafter in connection with the description of the drawing which follows and in which:

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

Figure 2 is an enlarged front elevation showing the mop head in partially folded or collapsed position so that the swab may be removed therefrom;

Figure 3 is an enlarged top plan view showing the foldable wings and hinge of the mop head locked in extended position;

Figure 4 is a top plan view similar to Figure 3 showing the mop handle socket raised into the position for universal movement;

Figure 5 is a section taken along line 5—5 of Figure 4; and

Figure 6 is a section taken along line 6—6 of Figure 4.

Referring now in particular to Figures 1 and 2 of the drawing, there is shown a conventional swab 10 of the type having opposed pockets 12 and 14 in its upper surface adapted to receive the foldable wings 16 and 18 of the mop head of the present invention, indicated in a general way by numeral 20. Mop handle 22 is threadedly attached to the mop head by insertion thereof into socket member 24.

Considering Figures 3 and 4, it will be seen that the mop head 20 comprises a right wing 16, a left wing 18 (as viewed in Figure 3), and a hinge 26, the leaves of which are attached to the wings and provide the hinged connection therebetween. In particular, hinge 26 is formed to provide a right leaf 28 and a left leaf 30 attached, respectively, to wings 16 and 18 by means of screws or the like 32. The wings are arranged in opposed spaced relation, as shown. The right and left hinge leaves are provided, respectively, with integral front lugs 34R and 34L; and integral rear lugs 36R and 36L, projecting inwardly therefrom in spaced substantially parallel relation.

Lugs 34 project above the upper surface of the hinge leaves and are provided with longitudinally extending openings, one being shown in Figure 5 at 38L, which are axially aligned to receive locking pin 40 for slidable movement when the hinge leaves and wings are in the extended position in which they are substantially coplanar. Thus, the locking pin 40 and the front lugs 34 combine to form a latch which locks the hinge leaves and wings in the extended or operative position shown in Figures 1, 3, 4 and 6. The locking pin is permanently mounted within opening 38R for slidable movement into opening 38L when properly aligned. Right leaf 28 of the hinge is provided with a stop 42 which limits the movement of the locking pin to that shown in dotted lines in Figure 4. The dotted line position of the locking pin shown in Figure 4, of course, represents the unlocked position of the hinge leaves and wings which permits them to be folded into the position shown in Figure 2 in order that the swab may be removed and replaced. It is to be understood the position of the wings in Figure 2 is only a typical one controlled by the operator as they tend to fully collapse to substantial abutting position upon removing or replacing the swab.

The hinge leaves are each attached for pivotal or hinged movement to opposite ends of connector element 44 which has an open rectangular shape in the particular embodiment illustrated in the drawing. This particular form of connector is ideally suited for use within the rectangular opening that exists between the lugs 34 and 36 of the hinge leaves.

In connection with Figures 4, 5 and 6 of the drawing, it will be seen that the front wall 46 of the connector

element is provided with longitudinally spaced hinge pin openings, one of which is shown at 50L located on opposite sides of the transverse center line. The rear wall 48 of the connector element is provided with hinge pin openings 52R and 52L. Hinge pin opening 52R in the rear wall is axially aligned with the corresponding hinge pin opening in the front wall. The same is true of openings 50L and 52L. The common axes of openings of 50R and 52R and 50L and 52L extend transversely of the connector 44 in spaced substantially parallel relation. Front lug 34R is provided with a hinge pin opening 54R registering with the corresponding hinge pin opening in the connector. In like manner, hinge pin opening 54L of front lug 34L registers with opening 50L of the connector. Hinge pins 56L and 56R are mounted within the respective registering openings, aforementioned, of the front lugs and front wall of the connector.

Rear lug 36L is provided with a hinge pin opening 58L which registers with hinge pin opening 52L in the rear wall of the connector. Hinge pin 60L is mounted within these openings and combines with hinge pin 56L to provide a pivotal connection between left hinge leaf 30 and the connector element. In the same manner, rear lug 36R is provided with a hinge pin opening (not shown) which received hinge pin 60R, shown only in Figure 6.

Referring specifically to Figure 6, it will be seen that connector element 44 is also provided with longitudinally spaced and axially aligned openings 62R and 62L positioned to receive pivot pins 64R and 64L, respectively. These pins are carried in opposite ends of longitudinally extending bar 66 which is mounted for rotational movement about the common longitudinal axis of the pivot pins 64R and 64L.

Bar 66 contains a central opening 68 which receives pivot pin 70 carried by tongue 72 formed on the lower end of socket 24. Pivot pin 70 provides a transverse axis about which socket 24 pivots in relation to bar 66. Thus, pivot pin 70 and pins 64R and 64L provide means for effecting substantially universal movement of the socket 24 and mop handle 22 with respect to the mop head and swab. This feature of universal movement between the mop handle and mop head enables the swab to be turned into positions other than that which lies at right angles to the direction of movement of the mop.

One of the most important features of the mop head of the present invention will now be described in connection with Figures 3 through 6, inclusive, wherein it will be seen that the rear wall 48 of the connector element is provided with a notch 74 formed between two upwardly projecting portions 76R and 76L thereof. Notch 74 provides means for maintaining the socket and mop handle in a relation with respect to the swab whereby it is restricted against movement from side-to-side relative thereto when in rearwardly inclined position. Thus, with tongue 72 of the socket positioned in notch 74 of the connector element, the mop handle is restrained against movement from side-to-side about a substantially transverse axis on pivot pin 70, although the upward and downward movement of the handle about the longitudinal axis determined by pins 62L and 62R is substantially unlimited. It is to be noted in this connection that the handle and socket are limited to upward and downward movement only in the rearwardly inclined position which places the tongue in the notch of the connector element. Other positions of the handle and socket with respect to the mop head permit substantially universal movement relative thereto. It is this rearwardly inclined position of the handle with respect to the swab, and the swab positioned substantially at right angles to the direction of movement of the mop, that is most often used during normal cleaning operations. The swab and mop head cannot swing around relative to the handle when thus restrained.

The specific latch mechanism by which the hinge leaves are maintained in the extended coplanar position is also of importance in that one simple rapid movement of the locking pin is all that is required to release the latch so that the wings can be folded to remove and replace the swab. This feature, of course, enables the mops to be serviced rapidly and easily.

The overall construction of the mop head of the present invention is extremely rugged, simple and trouble-free, which makes it ideally suited for use in performing janitorial work where it is subjected to considerable use and abuse.

The foregoing disclosure and description of the invention is illustrative and explanatory thereof and 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 the invention.

What is claimed is:

1. A mop head comprising a member having a socket adapted to receive a mop handle, a bar mounted on the lower end of the socket member for tiltable movement relative thereto about a first axis, a connector element having spaced front and rear walls interconnected by spaced side walls which form an opening sized to receive the bar, said bar being mounted within the connector between the side walls thereof for tiltable movement about a second axis perpendicular to said first axis, said connector and bar thus providing a substantial universal connection for the socket member, the rear wall of the connector having a notch formed therein sized to receive the socket member and prevent movement thereof about the first axis when in rearwardly inclined position relative to said connector, a pair of hinge leaves carried in opposed relation on opposite sides of the connector for hinged movement about spaced hinge axes, said hinge leaves and connector acting in combination to form a hinge by means of which said hinge leaves may be moved from a folded position to an extended position in which the leaves are substantially coplanar, opposed aligned portions of the hinge leaves when in extended position having axially aligned openings therein, a locking pin carried within one of said openings for slidable movement into the other of said openings when axially aligned to provide a latch to maintain the hinge leaves in extended position, and wings attached to the hinge leaves in opposed relation for insertion into the opposed pockets of a swab.

2. A mop head comprising a member having a socket adapted to receive a mop handle, a connector element having opposed spaced front and rear walls interconnected by opposed spaced side walls with the walls forming an opening, a bar received in the opening between a pair of opposed walls and mounted thereon for tiltable movement about a first axis, said socket member being mounted on said bar for pivotal movement about a second axis perpendicular to said first axis, said connector and bar thus providing a universal connection for the socket member, one of the walls having a notch formed therein sized to receive the socket member and prevent movement thereof about one of said axes, a pair of hinge leaves carried in opposed relation on opposite sides of the connector for hinged movement about spaced hinge axes, said hinge leaves and connector acting in combination to form a hinge by means of which said hinge leaves may be moved from a folded position to an extended position in which the leaves are substantially coplanar, wings attached to the hinge leaves in opposed relation for insertion into the opposed pockets of a swab, and releasable latch means for maintaining the hinge leaves in extended position.

3. A mop head as defined in claim 2 wherein said latch means comprises a portion having an opening therein carried by each leaf, the portions and openings thereof being in axial alignment when the leaves are in extended position, and a locking pin carried within one of the open-

ings for slidable movement into the other of said openings when axially aligned.

4. A mop head as defined in claim 3 wherein the bar is mounted between said side walls and the notch is provided in said rear wall with the socket member being receivable in said notch when in a rearwardly inclined position relative to said connector.

5. A mop head as defined in claim 4 wherein one of said leaves is provided with stop means for limiting the sliding movement of said pin.

References Cited in the file of this patent

UNITED STATES PATENTS

590,835	Harteg et al.	Sept. 28, 1897
2,192,861	Burchell	Mar. 5, 1940
2,722,704	Warden	Nov. 8, 1955

FOREIGN PATENTS

53,919	Switzerland	Aug. 15, 1911
102,928	Australia	Jan. 7, 1938