COLLAPSIBLE MOP HOLDER

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This invention relates to a mop holder for a glove type mop which is characterized by being foldable or collapsible to facilitate the installation and removal of the mop glove.

A mop of this type is comprised of a frame, a suitable middle portion and handle attaching and manipulating means. Of paramount importance in a mop of this type is the manner and means by which the frame is folded, or collapsed, so that the pockets of the glove can be installed on the mop holder to receive the ends of the folded holder or, in reverse, the manner and means by which the ends of the folded holder are removed from the pockets of a used glove in need of replacement.

Prior art mop holders of this type often involve intricate wire formed portions, difficulty or inconveniently manipulable pins, latches, hinges and auxiliary hardware. Such poorly designed prior art mop holders, in addition to being difficult and inconvenient to operate, involve bulky complex manufacturing and forming operations. Furthermore, such prior art mop holders often are flimsy, have short service lives, include insecure locking means for the foldable portions of the frame, and frequently require repairs or adjustments.

Accordingly, it is an important object of this invention to provide a collapsible mop holder frame which can be collapsed by a simple manual operation and can be automatically realigned after a simple manual initiating operation.

Another object of this invention is to provide a rugged, durable, long service life, collapsible mop holder of efficient construction and design which can be mass produced without the involvement of complex forming or manufacturing operations.

A further object of this invention is to provide a collapsible mop holder comprising only a few plain parts and devoid of intricate wire formed portions, pins, latches, hinges and other intricate auxiliary hardware.

Additional objects of this invention will become apparent from the following description, which is given primarily for purposes of illustration, and not limitation.

Briefly stated in general terms, the objects of this invention are attained by providing a collapsible mop holder which includes a foldable frame provided with aligned pivot means on juxtaposed portions thereof, a sleeve or slide member slidably mounted on the foldable frame for movement over the pivot means in the unfolded or aligned position for locking the frame in the aligned service position and resilient member for automatically retaining the sleeve member over the pivot points in the aligned service position. The sleeve member and the resilient member are designed so that the application of only a slight manual force is needed to slide the sleeve member away from its locking position over the pivot means against the resilient member so that the foldable frame automatically collapses, or folds, for convenient and speedy removal of the ends of the frame from the pockets of a glove mounted thereon, and to be removed and for speed and efficient installation of the ends of the folded or collapsed frame into pockets of a glove to be installed on the mop holder. After such installation of the ends of the frame into the pockets of the glove and realignment of the frame with the application of slight manual force, the resilient member automatically slides the sleeve member back into its locking position over the pivot points of the foldable frame.

A more detailed description of a specific embodiment of the invention is given below with reference to the accompanying drawings, wherein:

FIG. 1 is an isometric view showing an assembled collapsible mop holder;

FIG. 2 is a front elevational view showing the frame of the mop holder in the collapsed, or folded, position;

FIG. 3 is a partial plan view showing the frame of the mop holder in the aligned, or unfolded, condition and the handle attaching member mounted on the center portion of the holder;

FIG. 4 is a partial front elevational view of the assembly shown in FIG. 3 showing details of the pivot means of the frame and of the lock slide positioned thereon;

FIG. 5 is a cross-sectional view taken along line 5—5 of FIG. 3 also showing details of the pivot means of the frame and of the lock slide positioned thereon;

FIG. 6 is a partial, longitudinal sectional view taken along line 6—6 of FIG. 3 drawn to an enlarged scale and also showing details of the pivot means of the frame and of the lock slide positioned thereon; and

FIG. 7 is a similar view taken along line 7—7 of FIG. 3 showing details of the pivot means of the frame, the lock slide and the slide retaining spring.

The collapsible mop holder of the invention shown in the drawings includes a frame 10, a middle frame portion 11 and a handle attaching assembly 12, mounted upon a base plate 18, as best shown in FIG. 1. A handle, partially shown at 13 is installed in attaching assembly 12. A mop glide 14 is mounted on frame 10, shown in its aligned and locked position in FIG. 1.

Details of frame 10 and its auxiliary collapsing, or folding, and alignment, or unfolded locking hardware are shown in FIGS. 3 to 7. Frame 10 includes a main frame section 16 and an end frame section 17. Main frame 16 includes middle frame portion 11 and end portions 16A and 16B formed integrally with the main frame section. Main frame section 16, middle portion 11 and end frame section 17 are made of suitable metal wire, such as hot rolled mild steel wire electrolytically galvanized and about 3/4 inch in diameter.

Main frame 16 and end frame 17, which are of generally U-shape, are pivotally joined at pivot joints on juxtaposed portions of the two frames by forming eyes 19 and 20 on the end portions 16A and 16B, respectively of the main frame and pivotally disposing therein hooks 21 and 22, respectively, formed on the ends of the end frame. It will be noted that eyes 19 and 20 are off-set inwardly from the end portions 16A and 16B, respectively of main frame 16, and hooks 21 and 22 project inwardly some distance beyond the planes of the eyes.

A lock slide 24 is formed of suitable metal plate such as #16 USS gauge hot rolled steel electrolytically galvanized. Slide channel portions 25 and 26, having a clover leaf configuration, are formed on the outer ends of lock slide 24 to fit slidably over eyes 19 and 20, respectively, and over end portions 16A and 16B, respectively, of main frame 16, as best shown in FIG. 5. Tie plate portion 27 of lock slide 24 is provided with a rolled edge 28 and side channel portions 29 and 30 are slotted at 31 and 32, respectively, so that lock slide 24 is slideable to the right, as shown in the drawings, relative to hooks 21 and 22 only a limited distance until rolled edge 28 engages the hooks.

A loaded extension slide retaining spring 32 is attached to lock slide 24 at the middle of rolled edge 28 and to a crossbar 33 at the middle portion thereof. Extension spring 32 retains lock slide 24 in the aligned, locked position shown in FIGS. 1, 3 and 4 with rolled edge 28 en-
gages hooks 21 and 22 of frame 17. Extension spring 32 is not made unduly strong and can be made of 0.012 inch wire. The spring may be about 2 1/4 inches long and 3/8 inch outside diameter and should be zinc or cadmium plated.

In operation, by placing one's fingers over tie plate portion 27 of lock slide 24 and arising the lock slide to the left against the tension of spring 32, the hook-and-eye pivots of main frame 16 and end frame 17 become exposed and end frame 17 swings freely downwardly, as indicated by arrow 34, and handle 13, assembly 12 and main frame 16 can be lifted and turned through an arc 36 to position the collapsible mop holder in the collapsed, or folded, position shown in Fig. 2. In this collapsed condition, the end of main frame 16 is slipped into a pocket 37 of mop glove 14 and the end of end frame 17 is slipped into pocket 38 while lock slide 24 is held to the slight with one's fingers. Lock slide 24 is then released from the fingers and spring 32 automatically slides channels portion 25 and 26 of slide 24 over the hook-and-eye pivots until edge 28 stops against hooks 21 and 22. This action of lock slide 24 closes the pivotal action of eyes 19 and 20 and hooks 21 and 22, respectively, and main frame 16 and end frame 17 are locked rigidly, positively and automatically in permanent alignment in the unfolded or uncollapsed condition.

When it is desired to remove the mop glove 14 from the collapsible frame, lock slide 24 is again simply urged to the left against the tension of spring 32, end frame 17 is removed from pocket 38 of mop glove 14 and main frame 16 is slipped from pocket 37. A replacement mop glove 14 is installed as described hereinabove.

The collapsible mop holder is manufactured by forming main frame 16 with middle frame portion 11, and portions 16A and 16B and eyes 19 and 20 on the ends of end portions 16A and 16B, respectively. Reinforcing crossbars 16C, 16D and 16E are fixed across main frame 16 in spaced relationship, as shown. A base plate 18 is attached to the middle portion of main frame 16 by any suitable means, such as welding, brazing, clinching, forming, etc. Handle attaching assembly 12, including a pivot, friction and handle receiving sleeve, is suitably mounted upon base plate 18. End frame 17 is similarly formed with hooks 21 and 22 at its ends and crossbar 33 and reinforcing crossbar 17A fixed thereacross in spaced relationship. Lock slide 24 is slipped over end portions 16A and 16B of main frame 16 and hooks 21 and 22 of end frame 17 are hooked into eyes 19 and 20, respectively, of main frame 16. One end of spring 32 is hooked through a hole in rolled edge 28 of lock slide 24 and, by extending the spring and placing it under suitable tension, the other end thereof is hooked around the middle of crossbar 33.

It will be seen that the collapsible mop holder of this invention is lacking in intricate wire forming, die cast parts, pins, latches, hinges and other expensive features or expensive auxiliary hardware. Instead, the device of this invention is characterized by being designed for efficient, mass production through simple manufacturing operations. The manufacturer of the collapsible mop holder of this invention, in addition to facility of forming and assembly, is not faced with problems in producing mop holder sizes ranging from 14-inch through 48-inch mop sizes with suitable increments, such as 14-inch, 18-inch, 24-inch, 36-inch and 48-inch sizes, for example.

Although, in the specific embodiment of the invention shown in the drawings, the eyes 19 and 20 were formed in the main frame 16 and the hooks 21 and 22 were formed on the end frame 17, it will be understood that the eyes can be formed on end frame 17 and the hooks on main frame 16. Obviously, many other modifications and variations of the collapsible mop holder of the present invention are possible in the light of the teachings and descriptions given hereinabove. It is, therefore, to be understood that, within the scope of the appended claims, the invention can be practiced otherwise than as specifically described and illustrated in connection with the appended drawings.

What is claimed is:

1. A collapsible mop holder which comprises a foldable frame including two generally U-shaped frame members joined together at the end of their legs by juxtaposed pivot joints; a lock slide member mounted transversely of said frame having a sleeve at each end extending transverse thereto and slidably mounted over an outer edge of said frame and adapted to slide longitudinally along said frame over its corresponding joint to lock said joint with the frame in unfolded position; and biasing means biasing said lock slide member longitudinally with respect to said frame in joint locking position.

2. A collapsible mop holder comprising a foldable frame including two generally U-shaped wire frame members, hook-and-eye pivot means formed at juxtaposed positions of the frame for folding one of said frame members relative to the other, a transverse slide bar with a locking means at both ends mounted on the frame for longitudinal movement with respect to the frame to bring the locking means over the pivot means for locking the frame in an unfolded operating position, and spring means biasing said slide bar for longitudinal movement with respect to said frame for retaining said locking means in a frame locking position over the pivot means.

3. A collapsible mop holder which comprises a foldable frame including two generally U-shaped wire frame members pivotedly joined together at their ends by interengaging hook-and-eye pivot means for folding one of said frame members relative to the other, dual slide means mounted on the frame for movement over the pivot means for locking the frame in an unfolded operating position, the slide means including a tie member disposed transversely of the frame member and connected to the dual slide means, the frame member including a crossbar means fixed adjacent the slide means, and an extension spring means connected under tension to the tie member and the crossbar means for retaining the slide means in a frame locking position over the pivot means.

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