March 5, 1940. E. W. BURCHELL 2,192,861

COLLAPSIBLE MOP

Filed Aug. 18, 1937

FIG. 1.

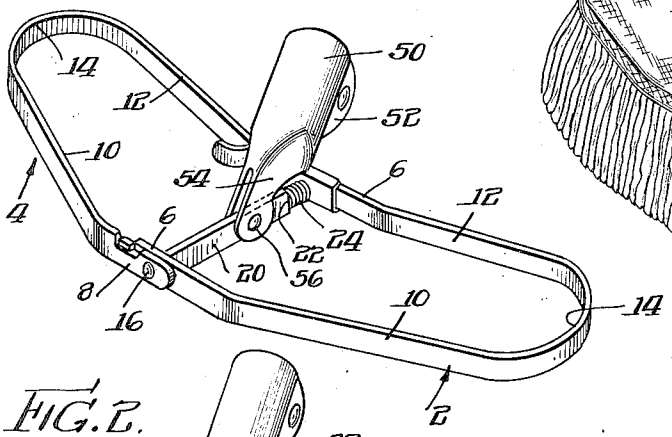


FIG. 3.

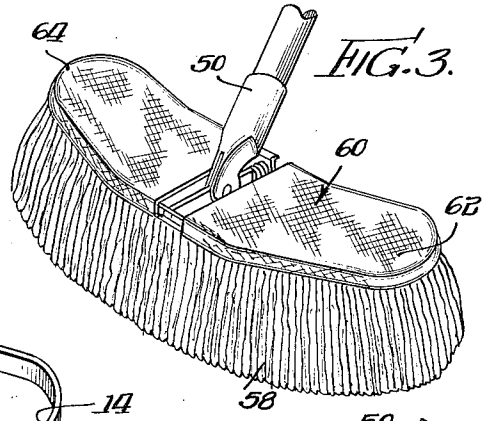


FIG. 2.

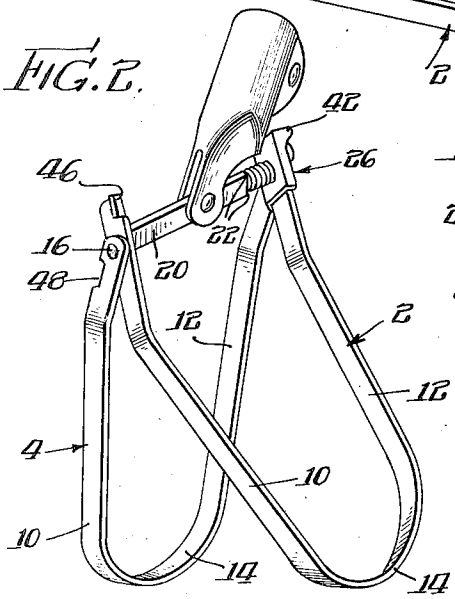


FIG. 7.

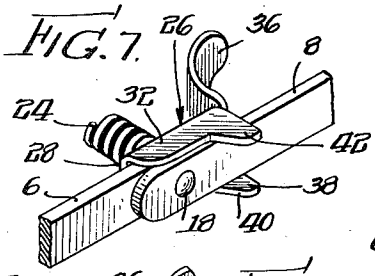


FIG. 4.

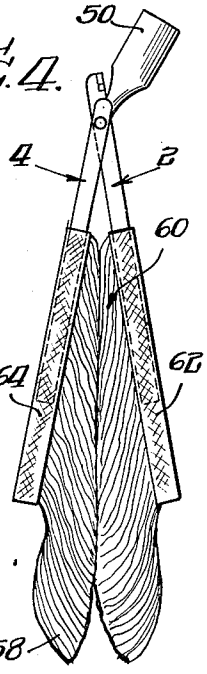


FIG. 8.

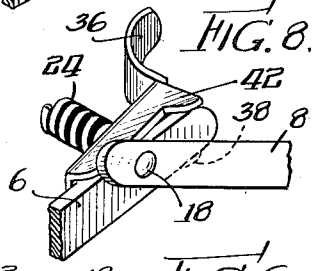


FIG. 5.

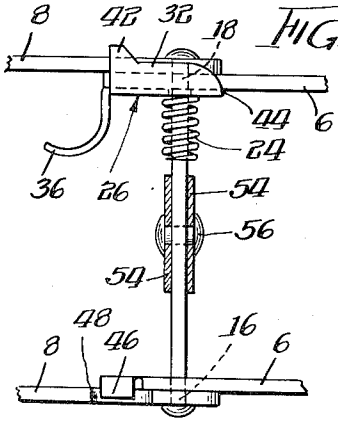


FIG. 6.

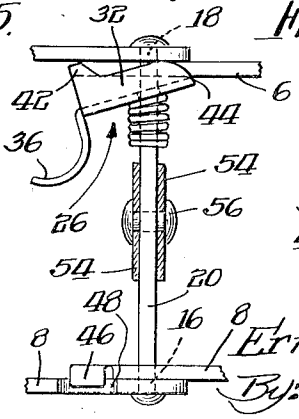
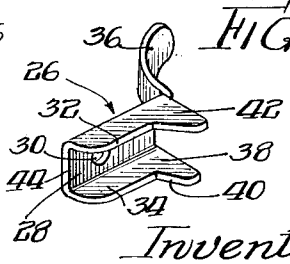


FIG. 9.



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UNITED STATES PATENT OFFICE

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COLLAPSIBLE MOP

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Application August 18, 1937, Serial No. 159,673

11 Claims. (Cl. 15—147)

This invention relates to a frame for dust mops or the like, and particularly to a frame adapted for ready insertion into the head of such a mop.

An object of the present invention is to provide a mop frame readily collapsible to insert and remove the same from the receiving pockets of a mop wherein the frame is provided with readily releasable means for effectively retaining the collapsible sections of the frame in extended position in said mop pockets.

Another object of the invention is to provide a collapsible mop frame having automatically operable means to lock the frame in extended position.

Another object of the invention is to provide a collapsible mop frame having automatically operable means to lock the frame in extended position and means for manually releasing said locking means to permit collapsing of said frame.

Another object of the invention is to provide a mop frame having collapsible sections with means for locking the frame in extended position, resilient means normally urging said locking means into locking position, and cam means for retracting said locking means against the action of said resilient means to permit movement of said frame sections into extended position wherein said sections are locked against relative movement.

Other objects of the invention are to provide a mop frame of sections pivotally joined by a common spreader member, and cam means for automatically locking said sections together upon movement thereof into extended position; to provide such a frame with a new and improved handle receiving member having universal or swivel movement relative to the frame sections; and to provide a frame of the character stated in which the sections include angular inclined portions, preventing inadvertent withdrawal of the frame from the head of the mop, having frame receiving pockets similarly shaped.

Other and further objects and advantages of the invention will be apparent from the following description, when taken with the accompanying drawing wherein:

Fig. 1 is a view in perspective of my improved frame when extended;

Fig. 2 is a view in perspective of the same when collapsed;

Fig. 3 is a view of the frame when the said mop is ready for use;

Fig. 4 is a view of the mop shown in Fig. 3 when collapsed;

Fig. 5 is a fragmentary plan view partly in section, showing the frame sections in locked position;

Fig. 6 is a fragmentary plan view similar to Fig. 5, showing the locking means in released position;

Fig. 7 is a fragmentary view in perspective on a large scale, showing adjacent portions of the frame sections in locked position;

Fig. 8 is a fragmentary view in perspective similar to Fig. 7, showing the frame portions approaching locked position; and

Fig. 9 is a view in perspective of the locking member.

As shown in the drawing, the preferred embodiment of my invention comprises a mop frame having sections 2 and 4, each preferably composed of relatively narrow metallic strips or bars. Section 2 is provided with end portions 6 overlapping end portions 8 of the frame section 4, and each section comprises, in addition to the end portions 6 and 8, intermediate rearwardly inclined portions 10 and 12, connected by a central loop portion 14. The end portions 6 and 8 are provided with aligned openings to receive the reduced end portions 16 and 18 of a bridging member or support 20 whereby the member 20 forms a pivot mounting for the frame sections 2 and 4 to permit relative movement of these sections to and from the extended position shown in Fig. 1 or from and to the collapsed position shown in Figs. 2 and 4.

The support member 20 is preferably formed of a metal strip similar in width and thickness to the strips from which the frame sections 2 and 4 are made, and the reduced end portions 16 and 18 are preferably swaged or peened over to prevent withdrawal of this member from the frame sections. The reduced end portion 18 of the bridging member 20 is preferably of greater length than the end portion 16 to provide shoulders 22 spaced inwardly from the end portion 6 of the frame section 2. Between these shoulders and the end portion 6 is located resilient means such as a coil spring 24 encircling the reduced end portion 18 and bearing at one end against the shoulders. At its other end the spring 24 engages a locking member 26. The locking member or means 26 is provided with a main body portion 28 having an enlarged opening 30 for receiving loosely the end portion 18 of the bridging member 20 in a manner to permit tilting of said locking member relative to said bridging member. The main body portion 28 of the locking member is also provided with laterally and

forwardly extending flanges 32 and 34 and a rearwardly extending handle portion 36.

Cam means are provided for automatically actuating the locking means against the force of the spring 24. This means preferably comprises a lug 38 formed with and extending forwardly beyond the edge of the flange 34, the lug being provided with an inclined cam face or edge 40 adapted to be engaged by the upper edge of one end portion 8 of the frame section 4. The flange 32 of the locking member may be provided with a similar lug 42 which provides means for limiting the movement of the frame sections beyond the extended position shown in Fig. 1.

The handle portion 36 provides means for manually releasing the locking member to permit movement of the frame sections from the extended position to the collapsed position.

With the locking means or member 26 in locked position the flanges 32 and 34 will overlap one pair of the end portions 6 and 8 of the frame sections 2 and 4 and will thereby prevent relative movement between these sections. The spring 24 normally urges the locking means into such locking engagement with the frame sections. Upon operation of the handle portion 36 the locking member 26 may be pivoted or tilted on the bridging member 20 about the end edge 44 of the locking member.

Additional means may be provided for preventing movement of the frame sections beyond their extended position, even though the locking means 26 is held in released position. This means comprises an overhanging laterally extending locking lug 46 formed at the outer end of the remaining end portion 6 of the frame section 2. This lug 46 is adapted to engage the remaining end portion 8 of the frame section 4, thereby to act as a stop, preventing movement of the frame section beyond extended position, and said end 8 of the frame section 4 is provided with a recess or slot 48 to receive the lug 46 so that the frame sections 2 and 4 in extended position lie in a common plane.

The handle socket 50 is preferably formed of a single piece of sheet metal, the outer portion of which is bent to form a substantially elongated cylinder provided with opposed ears 52 receiving the usual thumb screw (not shown), which when tightened will clamp the handle in its socket. The lower portion of the socket is bent together as at 54 to provide substantially parallel sides, and a pivot pin or rivet 56 is passed therethrough and through an opening in the bridging member or support 20 whereby to provide a swivel mounting for the handle. Thus, there is provided a mounting wherein the handle socket 50 can be swung to various positions of adjustment, as required by use.

The mop proper comprises a washable fabric article having depending thrums 58 sewed to a fabric top 60. This fabric top is of elongated, relatively narrow design, and has sewed to its marginal edges two pockets 62 and 64, which at the central portion are spaced apart a sufficient distance to permit the frame in collapsed position, as shown in Fig. 4, to be inserted into these pockets. It will be noted that each of the pockets has intermediate portions extending angularly and inclined rearwardly relative to their end portions and are connected by loop-shaped central portions. These pockets, therefore, are seen to be of the same shape as the frame sections 2 and 4, and the rearward inclination of the intermediate portions of the frame pockets prevents inadvertent withdrawal of the frame from the pockets.

Manipulation of the frame in inserting it into and withdrawing it from the receiving pockets 62 and 64 of the mop proper is as follows: With the frame in collapsed position, as shown in Fig. 2, the frame sections 2 and 4 are inserted in the receiving pockets 62 and 64 in the manner clearly shown in Fig. 4. Having been inserted, the frame sections are pivoted outwardly on the bridging member or support 20 until the frame assumes the extended position shown in Fig. 1. Movement beyond this extended position is prevented by the lug or stop 46 and by the lug 42 of the locking means or member 26. In approaching extended position the upper edge of the end portion 8 of the frame section 4, with which the locking means is associated, engages the inclined cam edge 40 of the lug 38, exerting thereby a component force axially of the support member 20, and thus causing the locking means or member 26 to tilt or pivot rearwardly about its edge 44. The rearward movement of the locking means permits the end portions 6 and 8, with which the locking means is associated, to assume a parallel relation, the end portion 8 of the frame section 4 being located between the lugs 38 and 42.

The spring 24 then automatically causes the locking member to snap forwardly with its flanges 32 and 34 overlying the end portions 6 and 8 and thereby maintaining the frame sections in securely locked position. When it is desired to effect a collapsing of the mop to remove the frame or for the purposes of storage, it is merely necessary to manually operate the handle portion 36 to cause the locking means or member 26 to tilt or pivot rearwardly about its edge 44, and this rearward movement of the locking means removes the flanges 32 and 34 and the lug 38 from their overlapping relation to an end portion 8 of the frame section 4. The frame sections are then free to be moved into collapsed position.

It will be seen from the foregoing description that applicant has provided a particularly simple compact, economical and efficient means for automatically locking frame sections of a collapsible mop in extended position, such means being provided with readily manipulatable means to release said locking means to permit collapsing of the mop frame; such frame is provided with means for universally mounting a handle receiving member thereon, and that such frame is provided with angularly inclined portions, effectively preventing inadvertent withdrawal of the frame from the head of a mop having frame receiving pockets similarly shaped.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A mop frame comprising a pair of sections, means pivotally connecting said sections to permit the sections to be moved from a collapsed position to an extended position about said pivot means, means on the frame extending generally parallel to said pivot means and adapted to engage the side portions of both of said sections for locking the same together when the sections are in predetermined, extended position, resilient

means on the frame normally urging said locking means into said engaging position, and means movable automatically upon movement of said sections toward extended position for moving said locking means into retracted position to permit movement of said sections to said extended position.

2. A mop frame comprising a pair of loop sections having overlapping portions, means for pivotally connecting said portions to permit said sections to be moved from a collapsed position to an extended position, means carried by said pivot means for locking said sections together, resilient means also carried by said pivot means for normally urging said locking means into locking position, means automatically operable by movement of said sections toward extended position for operating said locking means into retracted position to permit said sections to be extended to a common plane and means for releasing said locking means to permit collapsing of said section.

3. A mop frame comprising a pair of loop sections having overlapping portions, means for pivotally connecting said portions to permit said sections to be moved from a collapsed position to an extended position, a locking member tiltably mounted on said pivot means and adapted to overlie said overlapping portions to lock said sections together upon movement into extended position and means for releasing said locking means to permit collapsing of said section.

4. A mop frame comprising a pair of strip metal loop sections having overlapping portions, means for pivotally connecting said portions to permit said sections to be moved from a collapsed position to an extended position, a locking member tiltably mounted on said pivot means and adapted to overlap said overlapping portions to lock said sections together, resilient means normally urging said locking member into locking position, means automatically operable by movement of said section toward extended position for operating said locking member into retracted position to permit said sections to be extended into a common plane and means for releasing said locking member to permit collapsing of said sections.

5. A mop frame comprising a pair of loop sections having overlapping portions, a bridging member pivotally connecting the overlapping portions of said sections to permit said sections to be moved from a collapsed position to an extended position, a locking member mounted on said bridging member for movement toward and from one pair of said overlapping portions, means normally urging said locking member into locking position, means automatically operable upon movement of said sections toward extended position for operating said locking member to retracted position to permit said sections to be extended into a common plane, and manually operable means for moving said locking member into retracted position to permit collapsing of said sections.

6. A mop frame comprising a pair of longitudinally extending loop sections having overlapping portions, a bridging member extending transversely of said sections and pivotally connecting the overlapping portions thereof, a locking member having an enlarged opening receiving one end of said bridging member, said locking member having a laterally extending flange adapted to overlie an adjacent pair of said overlapping portions of said sections to lock said sections together in extended position, and a laterally extending handle portion operable to release said locking member to permit collapsing of said section.

7. A mop frame comprising a pair of longitudinally extending loop sections having overlapping portions, a bridging member extending transversely of said sections and pivotally connecting the overlapping portions thereof, a locking member having an enlarged opening receiving one end of said bridging member, said locking member having a laterally extending flange adapted to overlie an adjacent pair of said overlapping portions of said sections to lock said sections together in extended position, and a second laterally extending flange adapted to overlie said adjacent portions for limiting the movement of said section.

8. A mop frame comprising a pair of longitudinally extending loop sections having overlapping portions, a bridging member extending transversely of said sections and pivotally connecting the overlapping portions, a locking member having an enlarged opening for receiving one end of said bridging member, said locking member having laterally extending flanges adapted to overlie an adjacent pair of said overlapping portions of said sections to lock said sections together, resilient means carried by said bridging member and acting against said locking member for normally urging the latter into locking position, said locking member having a cam portion in the path of pivotal movement of an overlapping portion of one of said sections upon movement of said sections toward extended position, for operating said locking member into retracted position to permit said sections to be extended into a common plane and means for releasing said locking member to permit collapsing of said sections.

9. A mop frame comprising a pair of longitudinally extending loop sections having overlapping portions, a bridging member extending transversely of said sections and pivotally connecting the overlapping portions, a locking member having an enlarged opening for receiving one end of said bridging member, said locking member having laterally extending flanges adapted to overlie an adjacent pair of said overlapping portions of said sections to lock said sections together, resilient means carried by said bridging member and acting against said locking member for normally urging the latter into locking position, said locking member having a cam portion in the path of pivotal movement of an overlapping portion of one of said sections upon movement of said sections toward extended position, for operating said locking member into retracted position to permit said sections to be extended into a common plane, and said locking member having a handle portion extending oppositely from said cam portion for moving said locking member into retracted position to permit collapsing of said sections.

10. A mop frame comprising a pair of loop sections, means pivotally connecting said sections to permit the sections to be moved from a collapsed position to an extended position, locking means on the frame for holding the sections in extended position and comprising a locking member having projections extended axially of said pivot and transversely of the path of pivotal movement of said sections for at least partially embracing both of said sections in extended position whereby to lock the sections to-

gether, means supporting the locking member on the frame for movement relative to said sections to permit retraction of the lateral projections from locking engagement with at least one of said loop sections, and resilient means normally urging said locking member into position to engage said sections.

11. A mop frame comprising a pair of loop sections, means pivotally connecting said sections to permit the sections to be moved from a collapsed position to an extended position, locking means on the frame for holding the sections in extended position and comprising a generally channel-shaped member having lateral projections extended axially of said pivot and transversely of the path of movement of said sections about said pivot for at least partially embracing both of said sections in extended position whereby to lock the sections together, means supporting the locking member on the frame for movement in a generally axial direction to permit retraction of the lateral projections from locking engagement with at least one of said loop sections, resilient means normally urging said locking member into position to engage said sections, and cam abutment means on the locking member and in the path of movement of said sections, said cam being engageable by one of said sections to force the locking member substantially axially and to disengaging position, said spring means being operative to urge the locking member into locking position when the sections are extended.

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