

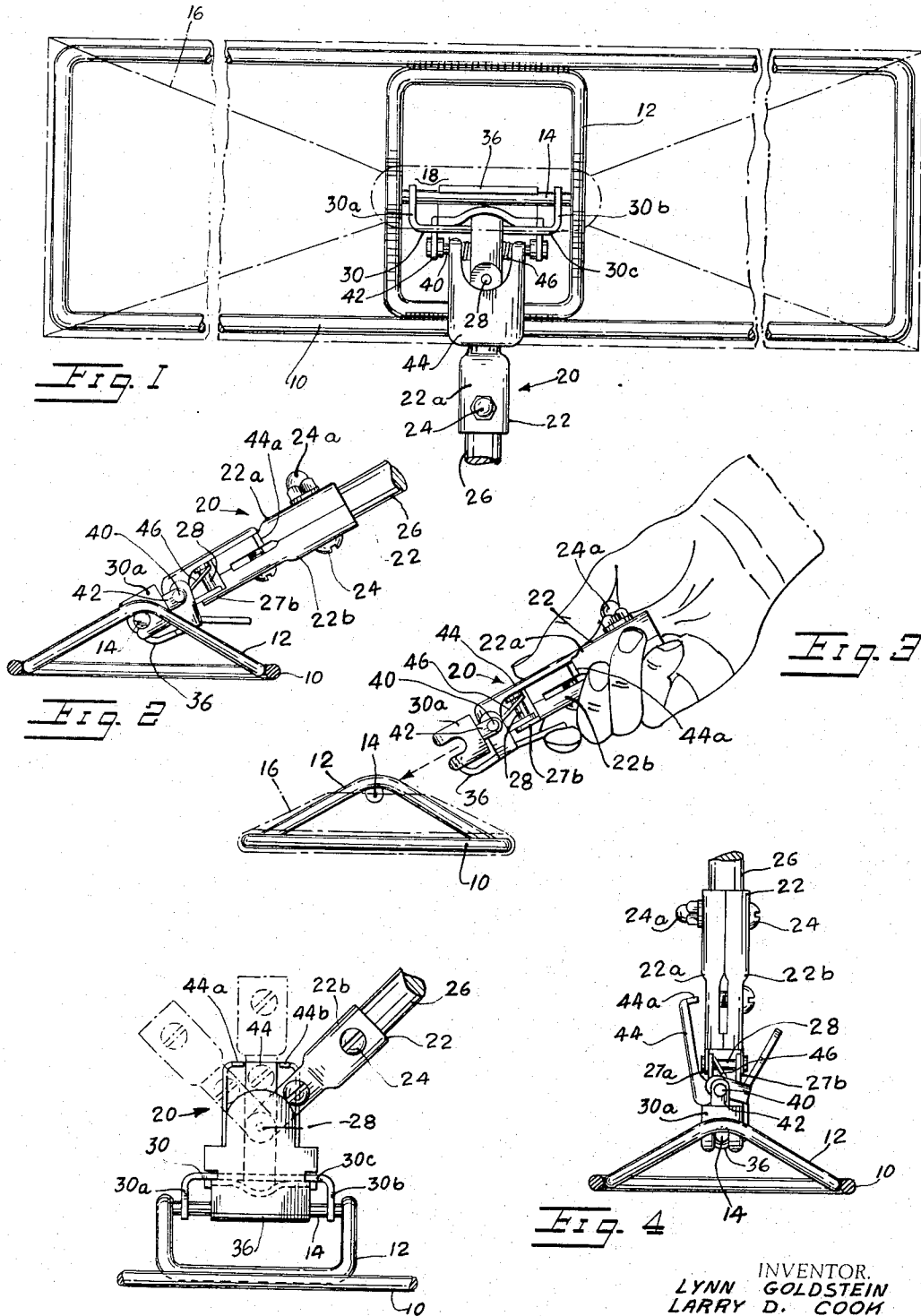
Dec. 12, 1967

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3,357,036

PERMANENT FRAME MOP HEAD WITH ADJUSTABLE HANDLE LOCK

Filed Oct. 23, 1965



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3,357,036

**PERMANENT FRAME MOP HEAD WITH
ADJUSTABLE HANDLE LOCK**

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Filed Oct. 23, 1965, Ser. No. 503,912

1 Claim. (Cl. 15-147)

The present invention comprises a novel frame and handle lock for a dust mop.

The present invention provides a permanent frame and adjustable handle lock for use with replaceable and/or disposable wiping elements and is designed primarily, although not exclusively, for industrial and commercial use.

An object of the present invention is to provide a strong, relatively lightweight frame element for holding and maintaining the shape of a wiping element and for supporting the mop handle.

Another object of the present invention is to provide a mop handle bracket which is reversible and normally pivotable but which may be easily and automatically locked against pivoting.

A further object of the present invention is to provide clamping means whereby the mop handle bracket may be readily attached to and removed from the mop frame.

The present invention comprises, essentially, a first rectangular wire frame which supports and shapes a wiping element, a second wire frame is centered within and welded to the first frame. A bracket for supporting a mop handle is removably clamped to the second frame by means of a spring loaded, forked hook arrangement which permits the handle to pivot about a first axis which is parallel to a longer side of the first wire frame. The bracket further permits the handle to pivot about a second axis perpendicular to the first pivot axis; a locking feature which engages and disengages automatically dependent upon handle position provides a means for eliminating such second pivot.

In the drawing:

FIGURE 1 is a top view of the mop frame and handle bracket with the wiping element in position.

FIGURE 2 is a side view of the central portion of the mop frame with the handle bracket attached thereto and the locking plate engaged.

FIGURE 3 is a side view of the central portion of the mop frame with the handle bracket in position to be attached.

FIGURE 4 is a side view of the central portion of the mop frame with the handle bracket attached thereto and the locking plate disengaged.

FIGURE 5 is a front view of the central portion of the mop frame with the handle bracket attached thereto and the locking plate disengaged, being also a right view of FIG. 4 and showing, additionally, in phantom the pivoting movement of the handle bracket.

Referring to the drawing, a heavy wire frame 10 is permanently in the shape of a rectangle; disposed within and welded to said frame 10 is a secondary wire frame 12 which is in the shape of a rectangle in plan view (FIG. 1) and in the shape of an inverted V in side view, the vertex of the V being above the plane of frame 10. A horizontal bar 14 is welded to secondary frame 12 inside the vertex of the V and is parallel to a longer side of rectangular frame 10. A wiping cloth or mop element 16 fits around frame 10 and covers frame 10 completely, said frame 10 supporting and maintaining the shape of said wiping element 16. Wiping element 16 has a rectangular opening 18 in its side wall through and out of which the vertex of frame 12 and bar 14 protrudes.

A handle bracket 20 has a tubular portion 22 which is comprised of two side-plates 22a and 22b, each of which

has a semi-circular cross-section at its upper end. Side plates 22a and 22b are secured together by means of two bolts to form tubular portion 22 having a substantially circular upper cross-section, the uppermost of the two bolts 24 having a nut 24a which is relatively easy to remove. A standard cylindrical mop or broom handle 26 is inserted into the upper portion of tube 22 in handle bracket 20 wherein it is secured from unintentional withdrawal by means of a clamping force exerted by side plates 22a and 22b and by means of bolt 24 which passes through a hole in handle 26 provided for the purpose.

Tube 22, which is comprised of side plates 22a and 22b and which has a substantially circular cross-section at its upper end, tapers to a substantially rectangular cross-section at its lower end; that is, side plates 22a and 22b each taper from a semi-circular cross-section to a channel-shaped cross-section. One pair of opposite sides of the rectangular cross-section portion of tube 22 is extended downward beyond the other pair of opposite sides to form a pair of parallel opposed ears or tabs 27a and 27b. A hinge pin 28 extends from tab 27a to tab 27b and is secured by said tabs. Tube 22 and handle 26 pivot about hinge pin 28.

The lower portion of handle bracket 20 is comprised of a forked clamp member 30 having two parallel opposed slotted guide plates 30a and 30b connected by a center cross plate 30c and a spring urged pivoted hook 36 which in side view, in its spring urged rest position, "closes off" the slots in guide plates 30a and 30b such that a rigid element which extends from guide plate 30a to guide plate 30b and is in the slots in said guide plates is secured therein and cannot be removed therefrom. When hook 36 is pivoted away from its rest position such element is freely removable from and reinsertable into said guide plate slots. The "element" referred to is horizontal bar 14, as will hereinbelow be shown. Hook 36 pivots about a hinge pin 40 which is parallel to cross plate 30c, being located in such position by a generally U-shaped bracket 42 which is securely attached to cross plate 30c.

A locking plate 44, located by and pivotable about hinge pin 40, has a pair of extensions 44a and 44b which are so spaced and adapted as to receive between them tube 22 at a point where tube 22 has a substantially rectangular cross section; more particularly, side plate 22a fits between locking plate extensions 44a and 44b such that tube 22 is restrained or locked from pivoting about hinge pin 28. Locking plate 44, in rotating about hinge pin 40, will either engage tube 22 between extensions 44a and 44b, thereby locking tube 22 from pivoting about hinge pin 28, or disengage tube 22, thereby permitting tube 22 to pivot about said hinge pin 28. Locking plate 44 extends slightly below hinge pin 40 such that it can come in contact with cross plate 30c when said locking plate 44 is pivoted away from tube 22; cross plate 30c thereby become a stop which limits the extent of rotation of locking plate 44 away from tube 22.

A coil spring 46 is located around hinge pin 40. One end of spring 46 bears against tab 27a, the opposite end thereof bears against hook 36 and urges hook 36 into its rest position, as above described.

The present invention is used in the following manner. The wiping element 16, which may be a mop, dust cloth, wiping sleeve or any suitable cleaning component, is slipped over the heavy wire frame 10 such that horizontal bar 14 protrudes through opening 18 of wiping element 16. Handle bracket 20 is then attached to frame 10 by squeezing hook 36 open, placing bar 14 into the slots of guide plates 30a and 30b and releasing hook 36 so as to permit hook 36 to close and lock bar 14 in place in said slots. The mop head is now a single unit which

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may be used in a conventional manner. Handle 26 is pivotable about bar 14 which provides an axis of rotation parallel to a longer side of frame 10. Handle 26 may also pivot about hinge pin 28 which provides an axis of rotation located in a plane which is perpendicular to bar 14.

In the event it is desired to restrain handle 26 from pivoting about hinge pin 28, locking plate 44 is caused to engage tubular portion 22 of handle bracket 20. Engagement occurs when handle bracket 20 is rotated about horizontal bar 14 such that locking plate 44, by virtue of its own weight, rotates about hinge pin 40 and meets tubular portion 22. Handle bracket 20 and handle 26 are now permitted to rotate about bar 14 only, and not about hinge pin 28. Disengagement of locking plate 44 from tubular portion 22 occurs when handle bracket 20 is rotated such that said locking plate 44, by virtue of its own weight, rotates about hinge pin 40 away from said tubular portion 22, thereby permitting handle bracket 20 and handle 26 to freely rotate about both hinge pin 28 and bar 14.

The foregoing is illustrative of a preferred form of this invention and it will be understood that this form may be modified and other forms may be provided within the broad spirit of the invention and the broad scope of the claim.

What is claimed is:

A mop head construction, comprising a frame and a handle bracket, said frame having a substantially rectangular shape and a center member, said center member having a substantially rectangular shape in plan view, a substantially inverted V-shape in side view wherein the vertex of the V-shape is above the plane of said frame and a cross bar which is positioned at said vertex and which is parallel to a longer side of said frame, said

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handle bracket being removably attached to said cross bar and being pivotable about said cross bar, said handle bracket being comprised of a lower portion, an upper portion and a hinge pin, said lower portion having a forked clamp member having two slotted guide plates adapted to receive said cross bar and a spring urged pivoted hook which in its rest position extends around said cross bar so as to prevent removal of said cross bar from said slotted guide plates and which may be pivoted away from said rest position so as to permit removal of said cross bar from said slotted guide plates, said upper portion having a tubular handle receptacle and a pair of opposed extensions, said hinge pin being located by and between said opposed extensions and, when said handle bracket is attached to said cross bar, being located in a plane which is perpendicular to said cross bar, said lower portion of the handle bracket being pivotally secured to said hinge pin, said lower portion additionally having a pivoted locking plate which is adapted to selectively engage and disengage said tubular handle receptacle and which, when so engaged, prevents relative angular movement between said upper portion and said lower portion.

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