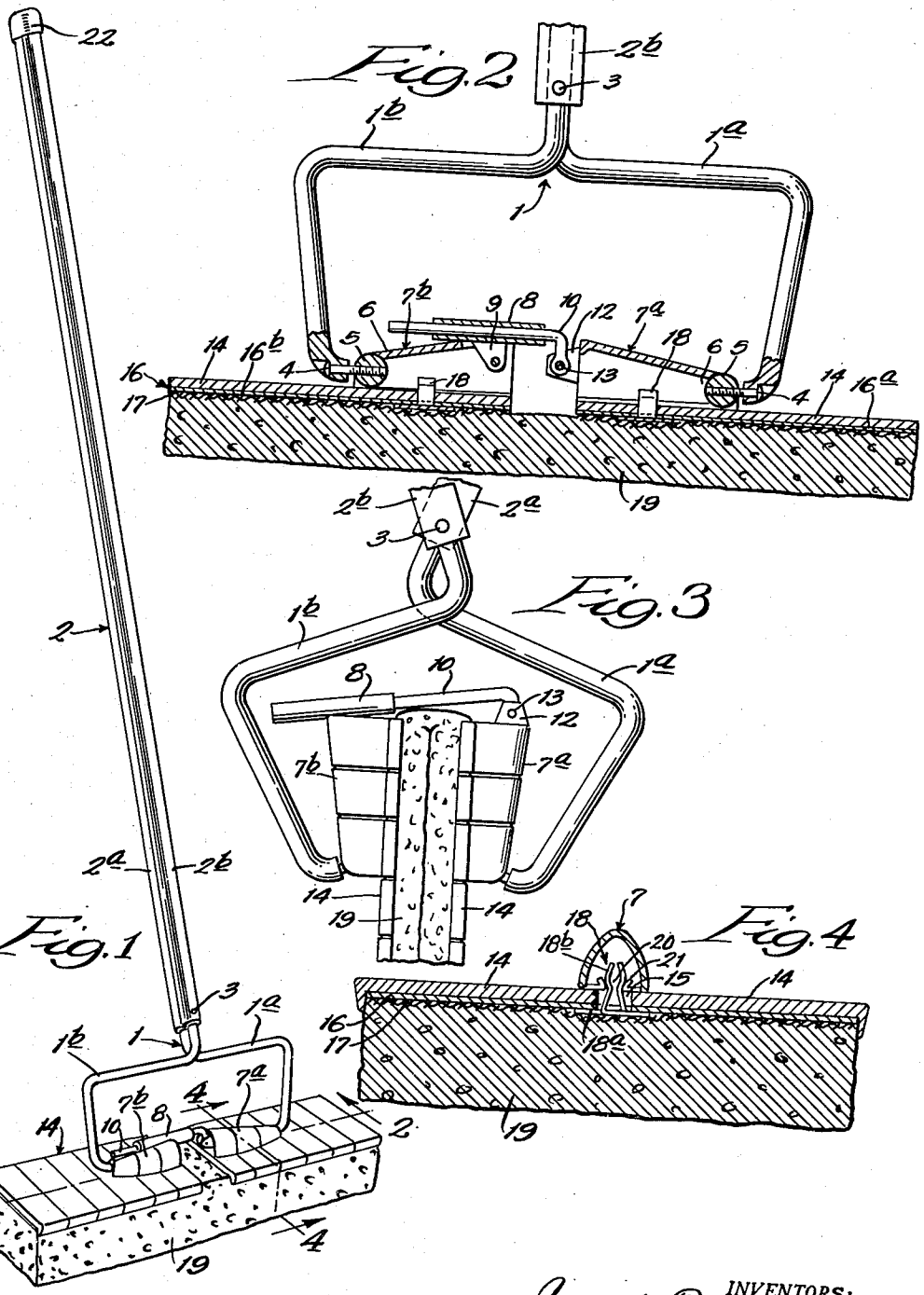
Aug. 3, 1954

J. PALMA, JR., ET AL

2,685,098

SELF-WRINGING MOP

Filed Dec. 1, 1950



INVENTORS:
Joseph Palma Jr.
and James J. Knapp,
BY Dawson & Ormes,
ATTORNEYS.

Patented Aug. 3, 1954 2,685,098

UNITED STATES PATENT OFFICE

2,685,098

SELF-WRINGING MOP

Joseph Palma, Jr., Berwyn, and James G. Knapp, Lombard, Ill., assignors to O-Cedar Corp'n, Chicago, Ill., a corporation of Illinois

Application December 1, 1950, Serial No. 198,702

5 Claims. (Cl. 15—119)

1

Our invention relates to mops, and more particularly to mops of the self-wringing type in which the mop body is composed of an absorbent sponge.

Heretofore various attempts have been made to devise a mop using an absorbent sponge as the mop body together with a means for wringing the sponge. Previously known wringing means, however, have proven unsatisfactory, since they cause the dirt collected on the sides of the sponge to be forced into the interior of the sponge by the wringing operation. In normal mopping, the mop is moved both forwardly and backwardly as well as sidewise to some extent. This causes dirt to collect on all of the sides of the sponge, and especially on the front and back surfaces. Therefore, when the sponge is wrung by initiating pressure on either the front or rear surfaces the dirt collected thereon is forced into the interior of the mop, and thereby prevents it from being satisfactorily cleaned.

It is therefore an object of our invention to develop a means for wringing a mop sponge which will flush the sponge from the center outwardly, and thereby prevent dirt collected on the outer surfaces from being forced into the interior of the sponge. It is another object of our invention to eliminate the separate presser plate heretofore required in self-wringing mops. It is a further object of our invention to develop a squeezing means which can be operated without stooping or bending, that is, from the top of the handle. It is a still further object of our invention to provide an improved method of attaching the mop sponge wherein the attaching means is concealed from view and made more readily disengageable. It is a still further object of our invention to provide a mounting for the mop handle which allows the handle to be adjusted to various angular positions for mopping, and to be made upright for storage. Further specific objects and advantages will appear as the specification proceeds.

We have discovered that these objects can be substantially accomplished by providing two mop head plates secured to the upper surface of the mop sponge and having a central space therebetween. We have further discovered that housings can be mounted on top of the mop head plates adapted to pivotally receive the ends of a pair of tongs which form extensions of two pivotally connected handles. We have still further discovered that it is desirable in order to maintain proper alignment to connect the housings by a rod and sleeve means across the open space

2

between the mop head plates. We have also discovered that clip fasteners attached to the upper surface of the sponge can be conveniently received through the backing plates and inside the housings.

Our invention is illustrated in a specific embodiment in the accompanying drawing, in which—

Figure 1 is a vertical perspective view showing our entire self-wringing mop; Fig. 2, a front sectional view taken in elevation on line 2—2 of Fig. 1 showing the details of the housing and rod and sleeve construction; Fig. 3, a fragmentary front view showing our mop in wringing position with the mop head plates folded downwardly about the mop sponge; and Fig. 4, an enlarged side sectional view taken in elevation on line 4—4 of Fig. 1 showing the details of the clip fastener.

In the illustration given, 1 designates a pair of tongs having right lever 1*a* and left lever 1*b*. Although we prefer to have tongs 1 that are generaly right-angled in shape as shown in our specific embodiment, it will be obvious to those skilled in the art that this shape may be changed so long as their lever action is preserved.

Right lever 1*a* and left lever 1*b* comprising tongs 1 are rigidly connected to arms 2*a* and 2*b*, which form upward extensions of the levers and form handle 2. As seen in Fig. 1, the adjacent surfaces of arm extensions 2*a* and 2*b* are aligned with each other to provide for the sliding of the arms relative to each other. It is also desirable to have the arm extensions of the same size in order that arms 2*a* and 2*b* may be brought into alignment to form a handle 2 having smooth surfaces on the sides. Handle arms 2*a* and 2*b* are pivotally connected near their bottom ends by pin 3, which allows the arms to be angularly displaced from each other and thereby bring right lever 1*a* and left lever 1*b* closer together.

Right lever 1*a* and left lever 1*b* have screws 4 secured at their lower ends and projecting inwardly therefrom. Screws 4 threadedly engage balls 5 in order that tongs 1 can be readily attached and detached from balls 5. Balls 5 are pivotally secured within sockets 6 of housings 7.

In the illustration given, sleeve 8 is pivotally mounted on the top of left housing 7*b* by means of fastener 9, and extends inwardly therefrom. Rod 10 slides within sleeve 8 and has its inner end turned downwardly and pivotally connected to support flanges 12 on the inner end of right housing 7*a* by means of pin 13. This means of connecting right housing 7*a* and left housing 7*b*

assists in keeping the housings and tongs in proper alignment when the handle arms are displaced to close the tongs.

Mop head plates 14 are secured to the bottom of housing 7 so as to leave a space between right housing 7a and left housing 7b beneath sleeve 8 and rod 10. Plates 14 can be rigidly secured to housing 7 by any suitable means, such as spot welding, or if desired plates 14 may be detachably secured. Plates 14 preferably are rectangular and have their sides in parallel alignment, as shown best in Fig. 1. Preferably, the housings and mop head plates are provided with a plurality of spaced-apart transverse lines extending along the surfaces thereof for ornamentation.

In one form of our invention, we prefer to form clip holes 15 in plates 14 beneath housings 7. The purpose of these holes will be discussed in detail later.

The mop body is composed of rectangular sponge 19. Sponge 19 can be composed of any suitably flexible and absorbent material, however, we prefer to use a celluose sponge. We have found, however, that sponge rubber is also desirable.

Sponge 19 can be directly secured to the bottom of plates 14 by means of a heat resistant adhesive. However, we prefer to glue a canvas back 16 on the upper side of sponge 19 by means of a heat resistant adhesive 17 such as cellulose acetate. If desired, as we prefer, canvas 16 may be composed of a right portion 16a and a left portion 16b in order that the canvas 16 will not extend inwardly beyond plates 14.

In the specific embodiment shown, we have mounted clips 18 on the upper surface of sponge 19 by securing the clip bases 18a between canvas 16 and sponge 19. Canvas 16 is adhesively secured to sponge 19. Clips 18 have notched sides 18b projecting upwardly, and adapted to engage clip recesses 20, formed in the bottom of housings 7. We prefer to have the edges 21 of clip recesses 20 turned inwardly to assist them in engaging notched sides 18b of clips 18. Sponge 19 can thus be detachably secured to plates 14 by means of clips 18, which are passed upwardly through clip holes 15 to engage recesses 20. This design is especially desirable since it further utilizes housing 7 and conceals the sponge fastening means.

We prefer to provide a fastener adapted to hold handle arms 2a and 2b in alignment, and thereby maintain plates 14 in a horizontal position while mopping. One form of fastening means is metal cap 22 as shown in Fig. 1 which fits over the upper ends of lever arm extension 2a and lever arm extension 2b, thus preventing the separation of the arms while cap 22 is in place.

Operation

In normal mopping operations, metal cap 22 is placed on the upper ends of arms 2a and 2b to prevent their separation, and thereby providing handle 2 for pushing the mop on the surface which is desired to be cleaned. Preventing the angular displacement of arms 2a and 2b, also serves to hold mop head plates 14 in horizontal alignment and permits sponge 19 to be pressed downwardly by exerting pressure on handle 2.

Balls 5 pivoting in sockets 6 allow handle 2 to be pivoted at various angles with respect to the surface being mopped, or to bring handle 2 to a vertical position for storage.

When it is desired to wring sponge 19, cap 22 is removed from handle 2, thus permitting handle arms 2a and 2b to be angularly displaced with respect to each other. It is apparent from the structure shown that arms 2a and 2b may be displaced so as to either increase or decrease the distance between the ends of right lever 1a and left lever 1b of tongs 1. The correct direction of displacement is that which causes tongs 1 to close and thereby exert a downward folding force on plates 14. In the illustration given in Fig. 1 the upper arm 2b is rotated to the left and the lower arm 2b is rotated to the right. This direction of rotation for each arm can easily be determined by observation, or if desired can be marked on the handles. Also, the structure shown makes it considerably more difficult to separate the handle arms in the wrong direction.

Upon rotating handle arm 2b to the left and handle arm 2a to the right a folding force is exerted on plates 14 through balls 5. Plates 14 are thus caused to pivot about balls 5. The inner portions of plates 14 are lifted upwardly, while the outer portions are lowered. The left and right portions of the bottom surface of sponge 19 are thus brought into parallel alignment by sponge 19 being folded transversely at about the center thereof. This folding action causes a portion of the sponge, as shown best in Fig. 3, to be forced upwardly into the opening provided between plates 14. Thus, the provision of this space between plates 14 allows sponge 19 to be folded without bunching at the fold, as would be the case if backing member extended solidly above sponge 19.

During the folding operation, rod 10 is partially disengaged from sleeve 8. Since sleeve 8 is pivotally mounted, this disengagement tends to take place in one plane, and therefore plates 14 and 14 are prevented from moving upwardly or downwardly relative to each other. Balls 5 are permitted to rotate in sockets 6 during the folding operation.

The displacement of handle arms 2a and 2b as just described rapidly folds sponge 19. Sponge 19 can thus be quickly brought to the position shown in Fig. 3 wherein the left and right portions of the sponge bottom are pressing uniformly against each other. When this point is reached, further separation of the handle arms applies pressure to sponge 19 and causes it to be thoroughly wrung. Moreover it should be noted that this method of wringing sponge 19 causes it to be flushed from the center outwardly, which cleans the outer sponge surfaces without introducing dirt into the center of the sponge. It is also important that the flushing of sponge 19 can be carried out as described without the necessity of bending or stooping by the person wringing the mop. Also it is advantageous that the force applied to displace the handle arms is magnified by the lever action about pivot pin 13. Thus, a relatively small force will be required to be applied to the upper part of the handle arms to produce a powerful squeezing action between folded plates 14.

When it is desired to replace sponge 19, this can easily be done by disengaging clips 18 from clip recesses 20. A new sponge having clips attached thereto and aligned for insertion in clip recesses 20 can then be readily fastened beneath plates 14. This fastening means allows sponge 19 to be detachably fastened without the necessity for visible fasteners such as bolts and wing nuts and the sponge is more readily detachable.

While in the foregoing specification we have

shown our improved self-wringing mop in great detail and in specific arrangement for illustration, it will be understood that such arrangement and details of the structure can be varied widely by those skilled in the art without departing from the spirit of our invention.

We claim:

1. A center wringing mop, comprising an integral absorbent sponge secured beneath two plates separated transversely by a spaced distance at about the center of said sponge to provide a transverse opening between said plates, said sponge having an unbacked portion extending between said plates and across said opening, and a handle composed of two lever arms having their lower end portions pivotally connected and having end extensions providing generally right-angled tongs extending longitudinally of said plates and being pivotally secured to the top of said plates and adapted to apply downward pressure thereto, whereby said plates can be folded about said sponge by angularly displacing the said handle arms.

2. A center wringing mop, comprising an integral absorbent sponge secured to two plates separated transversely by a spaced distance at about the center of said sponge to provide an opening between said plates, said sponge having an unbacked portion extending between said plates and across said opening, a pair of tongs pivotally fastened to said plates, said tongs having arm extensions forming the mop handle and also serving to actuate said tongs, and a rod pivotally attached to one of said plates and sliding in a sleeve pivotally attached to the other of said plates, whereby said sponge can be squeezed by bringing said plates into parallel relation without undue disalignment of said plates.

3. A center wringing mop, comprising an absorbent sponge secured to two plates having a transverse rectangular opening therebetween at about the center of said sponge, housings mounted on said plates having inner ends adjacent said opening and outer ends remote from said opening, balls pivoting in sockets at the outer ends of said housings, tong levers secured to said balls and having arm extensions forming the mop handle, means for locking said arm extensions together, and a rod pivotally secured to the inner end of one of said housings and sliding in a sleeve pivotally secured to the other inner end of said housings to assist in maintaining the alignment of said plates when squeezing said sponge.

4. A center wringing mop, comprising two plates having a transverse rectangular opening therebetween, housings mounted on said plates having inner ends adjacent said opening and outer ends remote from said opening, balls pivoting in sockets at the outer ends of said housings, tong lever arms secured to said balls and having upwardly extending arms forming the mop handle, a rod pivotally secured to the inner end of one of said housings and sliding in a sleeve pivotally secured to the other inner end of said housings, and a sponge secured beneath said plates by clips detachably received within said housings so that said clips are concealed from view.

5. A center wringing mop, comprising an integral absorbent sponge secured beneath two plates separated transversely by a spaced distance at substantially the center of said sponge to provide a transverse opening between said plates, said sponge having an unbacked portion extending between said plates and across said opening, a handle comprising two lever arms having their lower end portions pivotally connected and having end extensions pivotally secured to the top of said plates and being adapted to apply downward pressure thereto, whereby said plates can be folded about said sponge by angularly displacing said lever arms, and guide means comprising a rod carried by one of said plates and a sleeve carried by the other of said plates, said rod being slidably received within said sleeve.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
102,865	Rees	May 10, 1870
1,912,543	Sendler	June 6, 1933
2,044,075	Jelenfy	June 6, 1936
2,251,384	Thomas	Aug. 5, 1941
2,486,102	Berndsen	Oct. 25, 1949
2,614,281	Clark	Oct. 21, 1952
2,643,407	Vosbikian et al.	June 30, 1953

FOREIGN PATENTS

Number	Country	Date
20,332	Great Britain	Oct. 29, 1895
76,184	Norway	Jan. 30, 1950
216,565	Germany	Nov. 24, 1909
596,139	Germany	Apr. 27, 1934
617,197	Germany	Aug. 14, 1935
807,925	France	Oct. 26, 1936