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G. R. BRADSHAW

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COMBINATION MOP AND WRINGER ASSEMBLY

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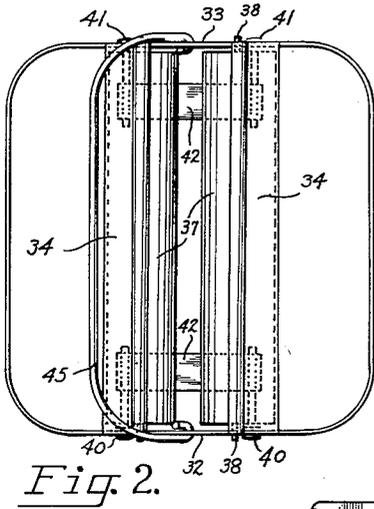


Fig. 2.

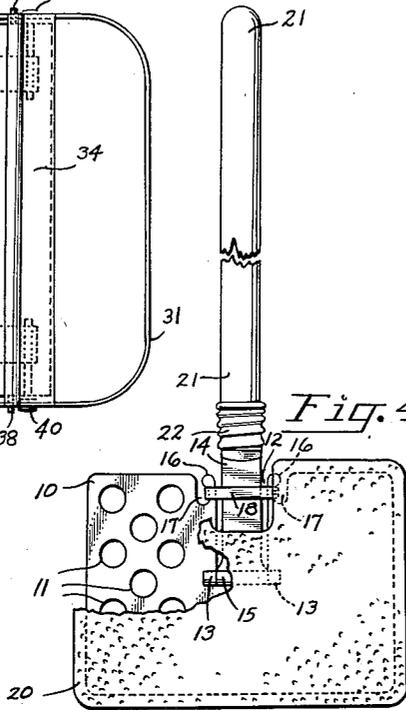


Fig. 4.

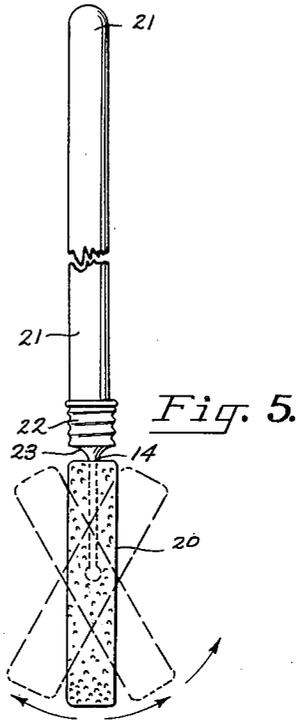


Fig. 5.

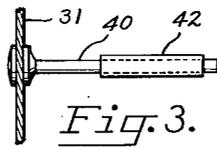


Fig. 3.

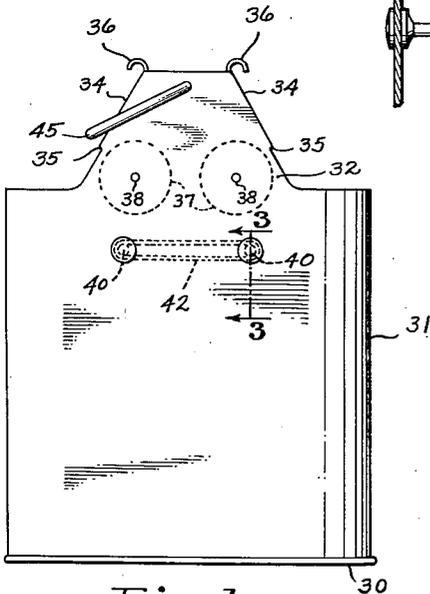


Fig. 1.

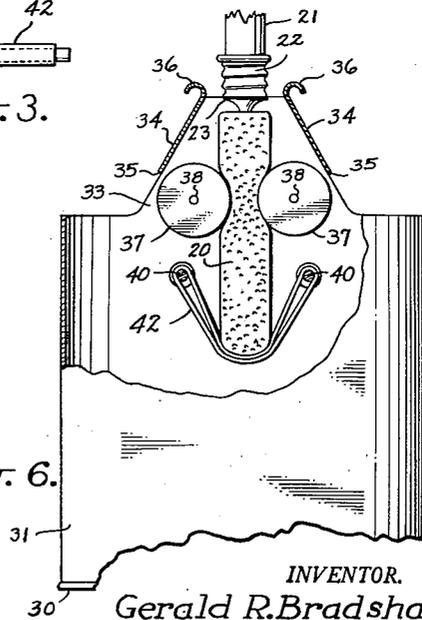


Fig. 6.

INVENTOR.  
 Gerald R. Bradshaw  
 BY *Olive D. Olson*  
 Agent

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**COMBINATION MOP AND WRINGER ASSEMBLY**

Gerald Remington Bradshaw, Venice, Calif.

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11 Claims. (Cl. 15--1)

This invention pertains to cleansing mops, and relates particularly to the novel construction of a mop and wringer assembly which provides for greater versatility in use and efficiency of operation than heretofore available.

It is a principal object of the present invention to provide a mop which is automatically adjustable to the angle of the surface to be cleaned, thereby accommodating the use of the mop in the most convenient position of the handle for the user.

Another important object of this invention is the provision of a mop having an adjustable mop head which automatically returns to a predetermined position for rinsing and wringing.

A further important object of the present invention is to provide a mop in which the mop head is provided with working surfaces on both sides and along the edges for efficient utility in confined spaces.

Still another object of the present invention is the provision of a mop which is of simplified and therefore economical construction, which is easily cleaned and which requires no manual adjustment during operation.

A still further important object of the present invention is to provide a mop and wringer assembly in which the wringer is provided with means to stabilize the mop head as the latter is pressed through the wringer during the wringing operation, the guide functioning additionally to divert the liquid expressed from the mop during wringing into the bucket which supports the wringer.

Still another object of the present invention is to provide a mop and wringer assembly in which the wringer is provided with resilient means for assisting in the retraction of the mop from the wringer.

The foregoing and other objects and advantages of the present invention will appear from the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a view in side elevation of a wringer bucket embodying the features of the present invention;

Figure 2 is a plan view of the wringer bucket shown in Figure 1;

Figure 3 is a fragmentary sectional view taken along the line 3--3 in Figure 1;

Figure 4 is a foreshortened plan view of a mop embodying the features of the present invention, parts thereof being broken away to disclose details of construction;

Figure 5 is a plan view of the mop shown in Figure 4 viewed at right angles thereto, the adjustability of the mop head being indicated in dashed lines; and

Figure 6 is a fragmentary side elevation showing the combined mop and wringer assembly of the present invention in wringing position.

Referring particularly to Figures 4 and 5 of the drawing, the mop is shown to comprise a base plate member 10, preferably provided with a plurality of transverse holes 11. The plate is provided with a transverse slot 12 extending inwardly from one edge of the plate and preferably centered between the side edges of the plate.

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Adjacent the inner end of the slot, the plate is constructed or otherwise provided with spaced hinge sections 13.

An arm 14 is adapted to extend into the slot 12 and is provided at its inner end with a hinge section 15 adapted to register with the spaced hinge sections 13, the sections being secured in alignment by means of a pivot pin, in manner well-known in the art. The hinge is arranged in or at least substantially parallel to the plane of plate 10 in such manner that the arm 14 is rotatable through the slot 12, for purposes explained in detail hereinafter.

Means is provided to return the plate 10 and arm 14 automatically to parallel arrangement from the angular positions occurring during use of the mop, as illustrated in Figure 5. In the embodiment illustrated, the plate 10 is cut away adjacent the slot 12 and an opposite sides thereof to form spaced projections 16 extending between the slot 12 and the cut away slots 17. A resilient band 18, such as a rubber band or other elastic material, is stretched between the projections 16, extending across the slot 12 on opposite sides of the arm 14. The enlarged head of the projections 16 serve to prevent disengagement of the resilient band from the projections. Thus, when the head plate 10 is pivoted obliquely with respect to the arm 14 during use the resilient band permits such movement with but little resistance and when the plate 10 is released from the work the tension of the band automatically returns the plate to a position parallel with the arm 14.

The plate 10 is covered with a water absorbent material, such as the sponge rubber 20 illustrated. In the preferred embodiment, a thickness of sponge rubber is provided to cover the opposite faces of the plate 10 and also the edges thereof, as indicated. This construction may be provided by adhesively securing two sheets of sponge rubber to the opposite faces of plate 10, the sponge rubber extending beyond the edges of the plate and being adhesively secured together to form a unitary structure. Alternatively, a thick sheet of sponge rubber may be slotted internally parallel to the working faces of plate 10, the slot extending from one edge of the sponge rubber in such manner as to permit insertion of the plate 10 within the slot. The exposed edge of the slot may be shorter than the width of the plate 10 since the sponge rubber may be stretched sufficiently to permit the plate to be inserted therethrough. In this manner the sponge rubber covering may readily be removed for cleansing or replacing.

The free end of arm 14 is provided with means for attachment to a handle 21. In the embodiment illustrated the arm is provided with an internally threaded socket 22 adapted to receive the correspondingly threaded end of handle 21 for removable attachment thereto. It will be understood, of course, that the arm and handle may be secured together in a permanent manner if so desired.

In the embodiment illustrated in Figures 4 and 5, the junction of arm 14 and socket 22 provides an enlarged shoulder 23 which serves as an abutment to limit the movement of the mop through the wringer, in manner explained in detail hereinafter.

Referring now to Figures 1, 2 and 6 of the drawing, the wringer portion of the assembly includes a bucket having a bottom 30 and a confining wall 31. The bucket is preferably constructed in the rectangular shape best illustrated in Figure 2, although other shapes may be utilized if desired. Two of the opposed sides of the bucket wall are provided with upward extensions 32, 33. Supported by these extensions and extending therebetween are a pair of guard plates 34. These guard plates terminate at their lower edge 35 inwardly and above the upper edge of the bucket wall 31 to provide access for the mop to the interior of the bucket. The guard plates converge up

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wardly, as shown, and their upper edges 36 are turned outwardly to present a smooth edged opening between them for passage of the mop into the bucket.

A pair of wringer rolls 37 are supported for rotation on end shafts 38 extending through or otherwise supported by the extensions 32, 33. These wringer rolls are positioned a distance below the spaced edges 36 of the guard members and are spaced apart a distance sufficient to permit passage therebetween of the mop head plate 10 upon compression of the sponge rubber covering 20, as indicated in Figure 6. In this manner the water absorbent sponge rubber covering is caused to be wrung dry and the dirt collected thereon is carried away in the expressed liquid. The openings 11 in plate 10 facilitate the removal of liquid from the sponge during wringing.

The provision of guard members 34 and their spaced upper edges 36 is an important feature of the present invention in contributing to the efficient use of the mop. Referring particularly to Figures 5 and 6 of the drawing, it will be observed that the mop head, being pivotally mounted upon the arm 14, is free to rotate to oblique angles with respect to said arm, as indicated by the arrows in Figure 5, to accommodate use of the mop upon surfaces which are disposed at various angles to the most comfortable position of the user. Thus, in wringing the mop the upper edges 36 of the guard members function to stabilize the mop head in its position parallel with the arm 14 and handle 21 and thereby prevent angular displacement of the mop head as the latter is pressed through the wringer rolls 37.

The guard members 34 and side extensions 32, 33 provide the additional function of diverting downwardly into the bucket the water and soap suds expressed upwardly through the sponge rubber cover as the latter is pressed downwardly through the wringer rolls.

Retraction of the mop head from between the wringer rolls is readily accomplished by pulling upwardly upon the mop handle. In the event that but little water is contained within the bucket 31 it may be necessary to hold the bucket down, for example by standing upon the rim extending outwardly from the bottom 30.

Alternatively, there may be provided such means as is illustrated in Figures 1 and 6 to assist the retraction of the mop. This means comprises two pairs of rods 40 and 41, each pair of which is secured, for example in the manner illustrated in Figure 3, to the bucket walls 31 below the wringer rolls 37. The rods extend parallel to the wringer rolls. The rods of each pair are spaced apart a distance greater than the spacing between the wringer rolls 37, as indicated, and a resilient strap 42, such as a rubber band or other elastic sheet material, is mounted upon and extends between the two rods of each pair. In this manner the resilient material intercepts the vertical plane which extends through the space between the wringer rolls.

Each pair of rods 40, 41 are supported by the bucket walls 31 adjacent the side extensions 32, 33. The resilient bands 42 are thus positioned in spaced relation a distance sufficient to intercept the sponge covered mop head 10 across its width as the latter is forced downwardly through the wringer rolls.

Thus, as shown in Figure 6, as the mop head is forced downwardly through the wringer rolls it engages the resilient bands 42 and stretches the latter downwardly, thereby placing the latter in tension. The resilient straps tend to resist the downward movement of the mop and thereby assist in the removal of the mop from between the wringer rolls as the latter is pulled upwardly during retraction.

A wire bail 45 is secured adjacent the upper ends of the lateral bucket extensions 32, 33 to provide convenient means for carrying the bucket. The bail is retractable to a position which does not obstruct the passage between the wringer rolls 37, as best shown in Figure 2.

The operation of the mop and wringer assembly de-

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scribed hereinbefore is as follows: The mop head is inserted into the bucket between the lower edges 35 of the guard members 34 and the bucket walls 31 for absorption of fluid contained within the bucket. If desired to be used in a damp condition rather than saturated, the mop head is inserted through the wringer rolls and the excess water thereby removed. The mop may now be used to clean a floor, walls, ceilings, windows, automobiles, etc., and in any condition of use the mop head is automatically adjusted to the position of the surface being cleaned without the necessity of tilting the handle to a position which may be inconvenient or awkward to the user. Moreover, the mop may be employed in rather inaccessible places because of its small profile and covered edges which may be utilized as cleaning surfaces.

A greater surface area may be cleaned with the mop because of the provision of a large area of mop surface, i. e. both sides of plate 10 and the three edges thereof. Thus, the necessity for periodic cleansing of the mop is reduced to a minimum, thereby effectively shortening the time required to clean a given surface. When it is desired to clean the mop, the mop head is inserted between the guide edges 36 of the guard plates 34, the mop being arranged in a plane parallel with handle 21 by means of the resilient band 18, as described hereinbefore. The operator then merely pushes downwardly upon the handle, the tendency for the mop head to pivot obliquely with respect to the handle being resisted by the spaced guide edges 36. Thus, the mop head is stabilized for movement between the wringer rolls 37. The dirt laden liquid expressed from the sponge rubber covering 20 is diverted over the rolls and downwardly into the bucket, as explained hereinbefore. The wringing procedure may be repeated after rinsing the mop a desired number of times in the solution contained within the bucket.

It will be understood that in the event it is desired to utilize the mop for dry mopping, a soft cloth may be secured over the sponge rubber layer.

It will be apparent to those skilled in the art that various changes may be made in the structural details described hereinbefore without departing from the scope and spirit of the present invention. For example, a coil spring may be incorporated with the hinge sections 13, 15 in place of the resilient band 18 to permit angular displacement between the mop head and arm 14 and to return the mop head to its normal position parallel with said arm. Other modifications may be made, and therefore it is to be understood that the foregoing description is primarily illustrative of the invention and is not to be construed in a limiting sense.

From the foregoing description it will be apparent that the present invention provides a mop and wringer assembly capable of being used with greater facility and efficiency than is provided by the devices of the prior art. The mop head is pivotable to extreme angles with respect to the operating handle for maximum convenience in use upon floors, walls, ceilings, etc., while maintaining the handle in the most convenient position for manipulation by the operator. When released from the working surface, the mop head automatically returns to a normal position parallel with the handle for most convenient manipulation through the wringer. The mop head is provided with a greater working surface area to reduce the number of periodic rinsings and wringings for a given area of surface to be cleaned. Further, the mop head is of minimum profile whereby to accommodate use in confined spaces. Additionally, the mop head is completely covered with a soft cleansing surface to accommodate safe use on articles such as automobile bodies and other surfaces which are easily marred. The wringer is of simplified construction and affords most efficient wringing of the mop by means of the provision of the guide edges 36 which cooperate with the wringer rolls to stabilize the mop as the latter is pressed through the wringer.

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Having now described my invention and the manner in which the same may be used, what I claim as new and desire to secure by Letters Patent is:

1. A mop comprising a plate having a transverse slot therein extending inwardly from one edge of the plate, an arm extending into the slot, pivot means securing the arm to the plate for movement through the slot to either side of the plate, resilient means secured to the plate and extending across the slot on opposite sides of the arm for normally maintaining the arm substantially in alignment with the plate, and a thickness of mopping material covering the plate.

2. A mop comprising a perforated plate having a transverse slot therein extending inwardly from one edge of the plate, an arm extending into the slot, pivot means securing the arm to the plate for movement through the slot to either side of the plate, resilient means secured to the plate and extending across the slot on opposite sides of the arm for normally maintaining the arm substantially in alignment with the plate, and a thickness of water absorbent material covering the plate.

3. For use with a mop having a longitudinally stable mop head pivotally secured to an arm, a wringer including a bucket, spaced parallel wringer rolls fixed rigidly to and extending across the bucket near the top thereof, and guide means secured rigidly to the bucket and having at least one longitudinal edge arranged in fixed position above and parallel to the wringer rolls for guiding the mop head into the rolls, the rolls being spaced to squeeze a mop head therebetween.

4. For use with a mop having a longitudinally stable mop head pivotally secured to an arm, a wringer including a bucket, spaced parallel wringer rolls extending across the bucket near the top thereof, guide means secured to the bucket and having at least one longitudinal edge positioned above and parallel to the wringer rolls for guiding the mop head into the rolls, and resilient means supported by the bucket below the wringer rolls and traversing the space between said rolls for engagement by the mop head as the latter is pressed through the rolls, the resilient means functioning to resist said downward movement of the mop, whereby to assist in the upward movement of the mop for removal from the rolls.

5. For use with a mop having a longitudinally stable mop head pivotally secured to an arm, a wringer including a bucket, spaced parallel wringer rolls fixed rigidly to and extending across the bucket near the top thereof, and guide members secured rigidly to the bucket outwardly from the rolls and converging upwardly to spaced edges arranged in fixed position above and parallel to the wringer rolls for guiding the mop head into the rolls, the rolls being spaced to squeeze a mop head therebetween.

6. For use with a mop having a longitudinally stable mop head pivotally secured to an arm, a wringer including a bucket, spaced parallel wringer rolls extending across the bucket near the top thereof, guide members secured to the bucket outwardly from the rolls and converging upwardly to spaced edges positioned above the wringer rolls for guiding the mop head into the rolls, and resilient means supported by the bucket below the wringer rolls and traversing the space between said rolls for engagement by the mop head as the latter is pressed through the rolls, the resilient means functioning to resist said downward movement of the mop, whereby to assist in the upward movement of the mop for removal from the rolls.

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7. A combination mop and wringer assembly comprising a mop including a longitudinally stable plate having a transverse slot therein extending inwardly from one edge of the plate, an arm extending into the slot, pivot means securing the arm to the plate adjacent the inner end of the slot for movement of said arm through the slot to either side of the plate, resilient means interconnecting the plate and arm and normally maintaining the arm substantially in alignment with the plate, a thickness of water absorbent material covering the plate, a wringer including a bucket, spaced parallel wringer rolls fixed rigidly to and extending across the bucket near the top thereof, and guide means secured rigidly to the bucket and having at least one longitudinal edge arranged in fixed position above and parallel to the wringer rolls for guiding the mop into the rolls, the rolls being spaced to squeeze the mop head therebetween.

8. The combination of claim 7 including resilient means supported by the bucket below the wringer rolls and traversing the space between said rolls for engagement by the mop as the latter is pressed through the rolls, the resilient means functioning to resist said downward movement of the mop, whereby to assist in the upward movement of the mop for removal from the rolls.

9. A mop comprising a plate having a transverse slot, two projections formed on the plate one on each of the opposite sides of the slot, an arm extending into the slot, pivot means securing the arm to the plate for movement through the slot to either side of the plate, resilient band means mounted on the projections and extending across the slot on opposite sides of the arm for normally maintaining the arm substantially in alignment with the plate, and a thickness of mopping material covering the plate.

10. The device of claim 5 wherein the guide members include baffle means which converge upwardly to said spaced edges from a position outward from the rolls, whereby to divert into the bucket the liquid expressed from the mop by the rolls.

11. A mop comprising a plate having a transverse slot therein extending inwardly from one edge of the plate, an arm extending into the slot, means securing the arm to the plate adjacent the inner end of the slot for movement of said arm through the slot to either side of the plate, resilient means interconnecting the plate and arm and normally maintaining the arm within the slot and substantially in alignment with the plate, and a thickness of mopping material covering the plate.

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