

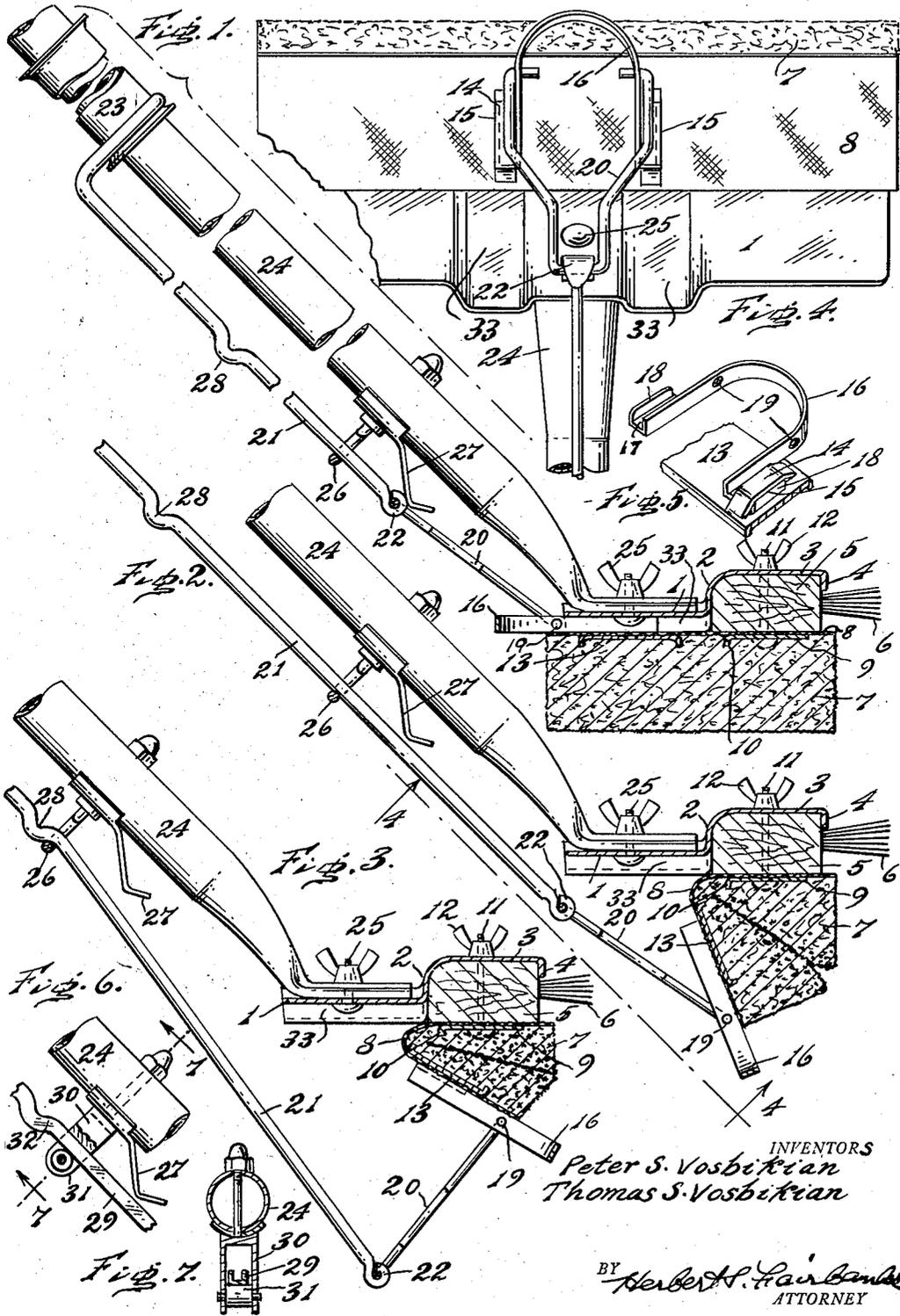
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MOPS WITH FOLDABLE SPONGE MATERIAL AND EXTRACTING MECHANISM

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## MOPS WITH FOLDABLE SPONGE MATERIAL AND EXTRACTING MECHANISM

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In mops as heretofore manufactured with extracting mechanism for the sponge material, the force employed to effect the extraction of the liquid from the sponge material has not been controlled, the result of which is that the component parts of the extracting mechanism were made of extra strong and heavy construction to withstand the force applied to them during the squeezing operation.

One object of our present invention is to devise a novel extracting mechanism in which the force applied during the squeezing operation is automatically limited, thereby preventing the breaking down of the sponge material and distortion and breakage of the component parts of the extracting mechanism.

A further object is to lock the extracting mechanism in position to maintain the sponge material in a flat, unfolded position when the mop is to be moved along a surface to be cleaned.

A further object of the invention is to devise a novel linkage of an operated bar carried by and movable along the mop handle with a foldable portion of the sponge material, and novel means to guide and limit the forward operative stroke of the bar to effect the extracting operation with a predetermined applied force on said foldable portion.

Other novel objects and features of the invention will hereinafter appear in the detailed description and the appended claims.

For the purpose of illustrating the invention we have shown in the accompanying drawings preferred embodiments of it which we have found in practice to give satisfactory and reliable results. It is, however, to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited, except by the scope of the appended claims, to the exact arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a side view partly in section and partly broken away of a mop with foldable sponge material and extracting mechanism, embodying our invention, the parts being shown in the position for surface cleaning.

Figure 2 is a side view similar to that shown in Figure 1 with the sleeve on the mop handle omitted, and showing the component parts in position to begin the squeezing operation.

Figure 3 is a side view similar to that shown in Figure 2 but showing the component parts in the position they assume on the completion of the squeezing action.

Figure 4 is a bottom plan view, partly broken away taken on the line of the arrows 4-4 of Figure 2.

Figure 5 is a perspective view of a reinforcing strip and cooperating link.

Figure 6 is a side view of another embodiment of the invention showing a different form of bar and bar guide.

Figure 7 is a section on line 7-7 of Figure 6.

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Similar numerals of reference indicate corresponding parts.

Referring to the drawings:

The mop head which carries the sponge material has a body portion 1 in the form of a backing plate, which if a brush is to be employed has a flat rear portion merging into an upwardly extending portion at its forward end as at 2 and continuing as a lateral stretch 3 terminating in a depending flange 4 thus defining a channel to receive the back 5 of a brush having forwardly extending bristles 6.

The sponge material 7 consists of a block, preferably rectangular in contour and of greater length than width, of suitable sponge material, such as for example cellulose sponge, the bottom face of which is applied to the surface to be cleaned. A strip of canvas 8 is cemented to the top face of the block of sponge material. The front portion of the block of sponge material is detachably connected with the body portion 1 by means of a rectangular reinforcing strip 9 having at one side a depending flange 10 received in a groove in the top face of the sponge material, said strip having two upwardly extending studs 11 extending through the canvas strip 8, the brush back 5 and the body portion 1, and threaded at their upper ends to receive a thumb nut for each stud as shown at 12, and bearing against the lateral stretch 3 of the body portion.

The rear portion of the sponge material is not directly connected with the body portion and has a reinforcing strip 13 in the form of a channel secured between the sponge material and the canvas backing with the sides of the channel received in grooves in the top face of the sponge material. This strip 13 has two upwardly deflected socket forming portions 14 extending through and above the canvas 8 and provided with socket openings 15 for connection with the extracting mechanism.

The extractor has a U-shaped or bowed spring 16 having its free end portions bent outwardly as at 17 and terminating in upwardly extending flanges 18 of a height to have a slip fit in the socket openings 15. The side arms of the spring 16 near their bowed ends have pivot openings 19 to receive the intumed ends of a link 20 in the form of a forked member having the rear ends of the side arm portions connected together by an integral cross member.

The movement of the link 20 is controlled by an operating bar 21 having any desired contour in cross section and pivoted to the link 20 and as shown by forming the forward end of the bar around the cross member of the link 20 as at 22. The rear end of the bar 21 is connected in any desired manner with a sleeve or ferrule 23 slidable on the mop handle 24. The mop handle has a front flattened end fixed to the body portion 1 by a fastening device 25 consisting of a bolt and a thumb nut. The bar 21 is guided in its movement by a guide 26 in the form of an eyelet fixed to the mop handle 24 and a spring 27 is fixed to the mop handle by the eyelet, which spring cooperates with the bar 21 to retain the sponge material in its unfolded condition as shown in Figure 1.

The bar 21 has a stop 28 formed as shown by deflecting the bar and this stop contacts the guide 26 to limit the extent of the forward stroke of the bar and thereby the pressure applied to the sponge material.

In Figures 6 and 7, we have shown a modified form of guide and bar. In this embodiment, the bar 29 corresponding to the bar 21 is channel shaped in cross section and a guide 30 fixed to the mop handle 24 has a chambered head carrying a roll 31 against which the bar bears.

The bar 29 has a shoulder stop 32 corresponding to the stop 28, and it will be understood that the rear end

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of the bar 29 is connected to the sleeve 23 and the forward end is pivoted in any desired manner to the link 20.

The reinforcing strips 9 and 13 are cemented to the sponge material and to the canvas 8.

The operation of extracting the liquid from the sponge material will now be apparent and is as follows:

Assuming that the parts are in the position seen in Figure 1, the operator applies the sponge material to the surface to be cleaned. When he desires to extract the dirty liquid, he moves the sleeve 23 forwardly from the position seen in Figure 1 to that seen in Figure 2. This causes the rear portion of the sponge material to be folded against the front portion of such material. The operator continues the forward movement of the bar 21 until the stop 28 contacts the eyelet 26 to complete the squeezing operation of the sponge material. As the bar 21 moves forwardly it is guided in the eyelet and the link 20 applies its pressure at a ninety degree angle to the foldable portion of the sponge material. As shown, the portion of the bar 21 between the guide 26 and the link 20 moves outwardly as the squeezing pressure is being applied, but if a shorter link 20 is employed a straight line or substantially straight line movement of the bar 21 can be provided.

When the bar 21 is moved rearwardly to its fullest extent of movement, the spring 27 rides over the bar and retains the sponge in its flat and unfolded condition.

The body portion may be deformed as shown at 33 to provide a space to receive the spring 16 so that the top face of the sponge material will be substantially flat.

When it is desired to replace the sponge material, the arms of the spring 16 are pressed towards each other, thus moving the flanges 18 inwardly to release them from their socket openings carried by the sponge material. The thumb nut 12 is removed and a new sponge unit assembled with the spring 16 and the body portion 1. The spring lies flat against the canvas and the flanges 18 contact the bottom face of the bar of the socket projected upwardly from the strip 13.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A mop comprising a body portion, a handle connected therewith, an elongated block of absorbent material having a forward and rear portion, a canvas cover for the block, a brush having its back between the forward portion of the block and the body portion, a fastening device securing the forward portion of the block and the brush to the body portion, the rear portion of the block being foldable, a member secured to the top face of said foldable portion and having spaced sockets extending upwardly above the cover, a U-shaped spring

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having side arms extending transversely over said foldable block portion and having a slip-fit in said sockets and effective to fold said rear block portion against said front block portion, a forked link pivotally connected with said spring, a bar pivotally connected at its forward end to said link, a sleeve slidable on the handle and connected with the other end of the bar, and a bar guide fixed to the handle and through which said bar passes.

2. A mop, comprising a body portion, a handle connected therewith, an elongated block of absorbent material having a rear portion adapted to be folded over a front portion, a flexible cover secured to the top face of the block with the front portion only of the cover secured to the body portion, a rigid strip secured to and between the cover and the rear portion of the block and having sockets extending upwardly through the cover with side openings, a U-shaped link operative to fold the rear block portion against the front block portion and having side arms the free ends of which have a slip-fit in said side openings, a second link having arms pivotally connected with said U-shaped link, a manually actuated bar connected with said second link, and a guide on the handle through which said bar passes.

3. The construction defined in claim 2, wherein said bar in rear of the guide has a deflected portion contacting said guide on the forward movement of the bar to limit the forward movement of the bar.

4. The construction defined in claim 2, wherein said body portion has upwardly deflected portions forming a space to receive the arms of said U-shaped link when the rear portion of the block is in its unfolded position.

5. The construction defined in claim 2, wherein a spring mounted on the handle bears against said bar when the latter is in its retracted position to retain the bar in retracted position and the foldable portion of the block in its unfolded position.

6. The construction defined in claim 2, wherein the free ends of the U-shaped link are deflected laterally and terminate in upwardly directed flanges to be received in the side openings of said sockets.

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