Jan. 24, 1956 W. F. MILLER 2,731,658

FLOOR MOP HAVING A DETACHABLE CLEANING ELEMENT

Filed Aug. 31, 1950

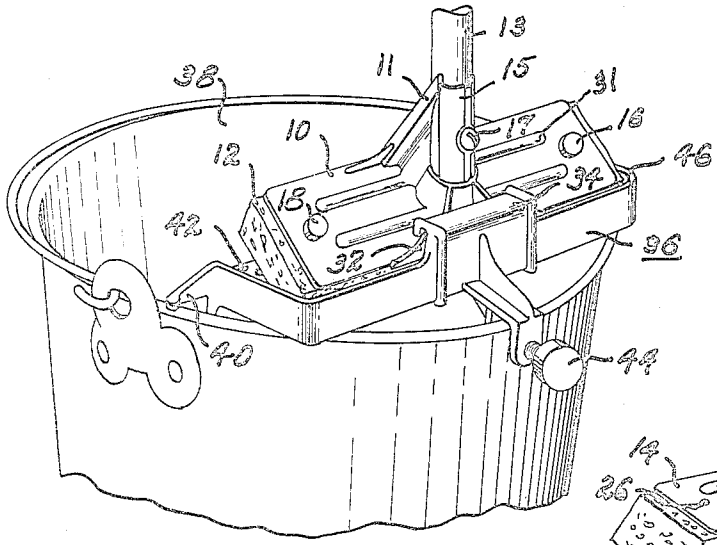


FIG. 1

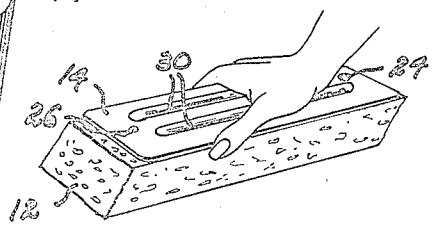


FIG. 3

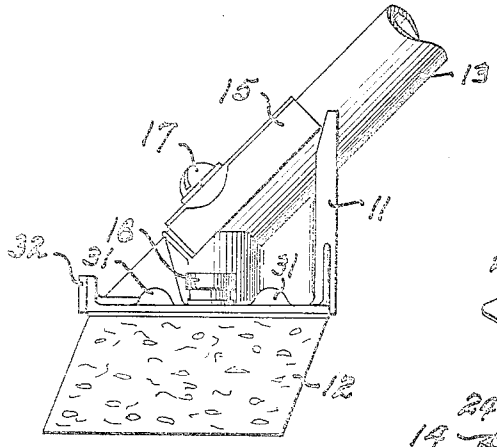


FIG. 2

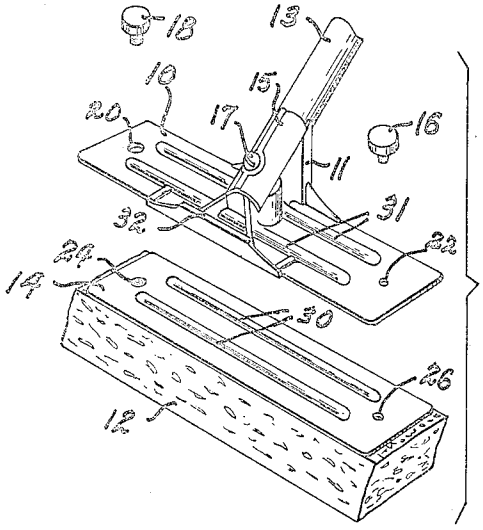


FIG. 4

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United States Patent Office 2,731,658 Patented Jan. 24, 1956

2,731,658

FLOOR MOP HAVING A DETACHABLE CLEANING ELEMENT

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Application August 31, 1950, Serial No. 182,436

2 Claims. (Cl. 15—244)

This invention relates to a floor mop and more particularly to a sponge type of mop.

This invention relates to an art which is highly developed and wherein it is necessary to compete with various types of mops and other cleaning devices. This being the case, minor differences in construction and minor differences in prices determine which mops have commercial possibilities. It is an object of this invention to provide a low cost mop having maximum utility and durability.

Thus, it is an object of this invention to provide a mop which is so constructed and arranged that the sponge element may also be used for hand cleaning purposes.

Another object of this invention is to provide a mop wherein the means for attaching the sponge element to the mop head is such that it is impossible to assemble the parts with the wrong side of the sponge element facing forwards.

Another object is to provide a mop in which the sponge element is replaceable when worn out and in which the cost of the replacement portion is at a minimum.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

In the drawing:

Figure 1 is a fragmentary pictorial view showing a preferred embodiment of my invention;

Figure 2 is a side elevational view showing the mop per se;

Figure 3 is a pictorial view showing the mop element per se used as a hand cleaning device; and

Figure 4 is an exploded pictorial view showing the manner in which the parts are assembled.

Referring now to the drawing wherein I have shown a preferred embodiment of my invention, reference numeral **10** designates a mop head consisting of a metal casting which is preferably made of aluminum, an aluminum alloy, or some similar light weight material having sufficient strength to withstand the strains to which the mop head is subjected in use. The head **10** has integrally formed thereon a handle engaging lug or cradle-like element **11** which engages the lower side of the bottom end of the handle **13** as shown. A floating ferrule **15** and the cap screw **17** hold the handle in place. The bottom end of the cap screw **17** engages within a tapped recess in the cast head **10** so that the handle is firmly held in place within the cradle **11**. Reference numeral **12** designates a cellular sponge type of material, such as cellulose acetate, which is capable of soaking up a large amount of water. Sponge elements of this type are now commonly used in the manufacture of mops and are so well-known that they need no further description. It is expressly understood that the term "sponge" is used herein in a broad sense rather than in its more limited sense.

The sponge **12** is glued onto a metal plate **14** which is equal to or slightly smaller in area than the bottom surface of the mop head **10**. The sponge element and the metal plate **14** are adapted to be secured to the mop head

10 by means of a pair of cap or knurled head screws **16** and **18**.

As best illustrated in Figure 2 of the drawing, the back and front edges of the sponge element are cut at an angle whereby the lower front edge of the sponge element extends forwardly of the mop head **10**. It is important, therefore, that the sponge element be assembled on the mop head with the proper edge disposed towards the front. In order to insure proper assembly of the sponge element relative to the mop head, the cap screw **16** is made with a smaller threaded portion than the cap screw **18**. Likewise, the hole **20** in the mop head is made larger than the hole **22**, so that it is impossible to assemble the mop with the screws in the wrong place. The threaded portions of the screws **16** and **18** are adapted to engage tapped openings **24** and **26** respectively in the sheet metal plate **14**.

By virtue of the above described arrangement, it is obvious that it is impossible to assemble the sponge element with the wrong edge forward and it is also obvious that the tapped openings in the sheet metal plate **14**, such as aluminum, eliminate the need for separate nuts for the screws **16** and **18**.

Since the wear on the mop head is negligible in comparison to the wear on the sponge element, it is obvious that the sponge elements will wear out before the mop head and consequently it is desirable to supply replacement sponge elements. The cost of the replacement elements must be maintained at a minimum for practical purposes and it is also important to conserve on the amount of space required to store the replacement elements. It is apparent that the construction shown herein makes it possible to replace the sponge elements at a minimum cost and that the replacement parts are free of any projecting bolts or the like which would interfere with storage and handling of the replacement parts. Still another important advantage of the above described arrangement is that the sponge element and the plate **14** are readily removable from the mop head so as to be used as a hand cleaning device whenever desired.

As best illustrated in Figures 3 and 4 of the drawing, the sheet metal plate **14** to which the sponge element **12** is glued is provided with a pair of corrugations **30** which serve to add strength to the plate **14** so that the plate will not bend or warp in use. Furthermore, the corrugations **30** help one to hold onto the device when the sponge element is used for hand cleaning purposes. The mop head **10** is provided with complementary corrugations **31** which engage the corrugations **30** so as to relieve the strain on the screws **16** and **18** during mopping.

The forward edge of the mop head **10** is provided with a fulcrum element **32** which is adapted to engage the hook-like element **34** provided on the squeeze plate **36** which is adapted to be secured to the top of a conventional mop pail **38**. The squeeze plate **36** is made in the form of a one-piece casting having projecting end lugs **40** which are adapted to overlie the rim of the mop pail **38**, as shown in Figure 1. A plurality of apertures **42** are provided in the squeeze plate for providing drainage for the water squeezed out of the sponge element **12**. The squeeze plate is held in place on the top surface of the mop pail by means of a knurled cap screw or thumb screw **44** which is arranged as shown. The squeeze plate is provided with an upwardly extending flange **46** on its three sides so as to prevent any of the water squeezed out of the sponge element from running onto the floor.

As best shown in Figure 4, the sponge element is slightly longer than the mop head, with the result that the front edge or either end of the sponge may be allowed to rub against the mop board without danger of any of the metal parts scratching the mop board.

Although the preferred embodiment of the device has been described, it will be understood that within the pur-

view of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. In a hand cleaning device of the type having a duo-functional sponge element secured to a sheet metal plate, the combination including said sheet metal plate having longitudinally extending corrugations formed therein serving to improve one's grip on the cleaning device, and means for converting said hand cleaning device into a floor mop comprising a mop head having longitudinally extending recesses formed in the lower surface thereof for engaging said corrugations, said sheet metal plate having a pair of tapped openings of unlike diameters, said mop head having openings of unlike diameters aligned with said tapped openings, the diameters of the openings in the mop head being substantially the same as the diameters of the openings in said sheet metal plate, and cap screws of unlike diameters passing through said openings and having threaded portions engaging the tapped openings in said sheet metal plate, the diameter of the larger cap screw being greater than the diameter of the smaller opening in the mop head to limit the connection of the metal plate to one relative position with respect to the mop head.

2. In a combination floor mop and hand cleaning device of the type having a sponge element secured to a

sheet metal plate that may be used manually, the combination including said sheet metal plate having a pair of tapped openings of unlike diameters, a mop head, said mop head having openings of unlike diameters aligned with said tapped openings, the diameters of the openings in the mop head being unequal and at least as large as the corresponding openings in the plate, and cap screws passing through said openings and having threaded portions engaging the tapped openings in said sheet metal plate, the smaller opening in the mop head having a diameter less than the larger cap screw so as to limit the connection of the sheet metal plate to one relative position with respect to the mop head.

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