Oct. 10, 1950 W. E. KAUTENBERG 2,525,605

SPONGE MOP

Filed May 21, 1945

FIG. 1.

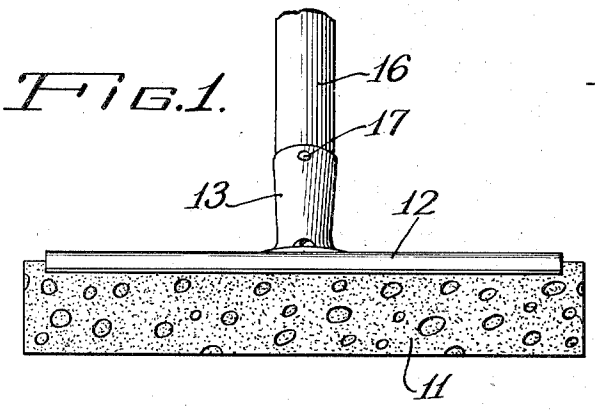


FIG. 2.

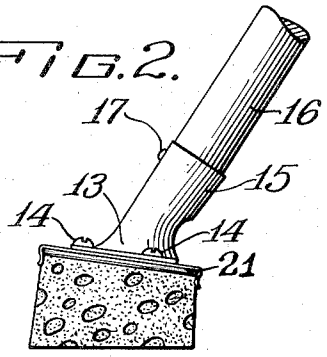


FIG. 3.

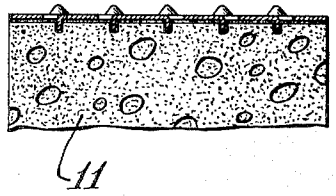


FIG. 5.

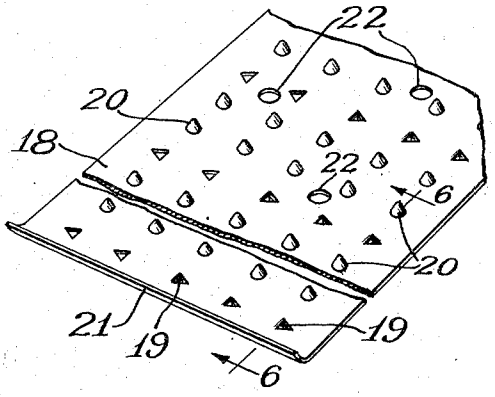


FIG. 4.

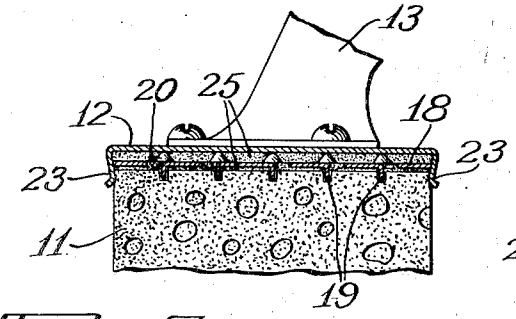


FIG. 6.

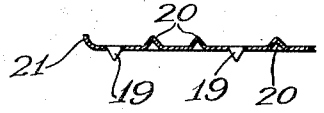
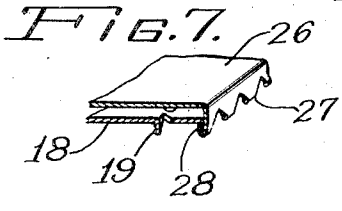


FIG. 7.



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SPONGE MOP

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6 Claims. (Cl. 15—244)

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This invention relates generally to a cleaning device and is more particularly described as a cellulose mop of the squeegee type with a supporting head or holder.

An important object of the invention is to provide a new and improved mounting for a cellulose sponge-type of cleaning element by cementing it to a toothed and perforated supporting plate.

A further object of the invention is to provide improved simple means for spacing the supporting plate in a holder and for maintaining an adhesive in position between a supporting plate and holder while the cellulose sponge is adhesively secured thereto.

Still a further object of the invention is to provide improved simple means for attaching a supporting plate in a holder, pressing the flanged edges of the holder inwardly.

A still further object of the invention is to provide a plurality of holes near the center of the sponge supporting plate by means of which this part may be picked up, dipped in cement or adhesive and then pressed in the metal back without soiling the hands or removing the coating.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which

Fig. 1 is a front elevation of a cellulose mop head in accordance with this invention;

Fig. 2 is a side elevation of the mop shown in Fig. 1;

Fig. 3 is a sectional detail showing the teeth of a supporting plate coated with adhesive and engaging the sponge;

Fig. 4 is a detailed sectional view showing the supporting plate and sponge as applied to a holder;

Fig. 5 is a perspective of a portion of the supporting plate;

Fig. 6 is a section view taken on the line 6—6 of Fig. 5; and

Fig. 7 is a fragmentary detail showing modification of the method for securing the holder at the edges of the supporting plate.

In supporting a cellulose type of sponge it has heretofore been the practice to apply a flexible backing to the sponge to insert a supporting channel part way through the sponge from the upper side thereof or to rely upon a crimped edge extending around or at the sides of a metal holder and engaging the sponge. All of these constructions are insufficient to maintain a suitable connection for a long duration since there are not enough different points of contact within the sponge and between the sponge and the holder, usually a metal plate, so that the sponge after a short operating period becomes loose at one of

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the edges and then is easily torn from the plate or holder.

The present invention overcomes these objections by providing a plurality of gripping teeth which are inserted at the back of the sponge and the teeth are supplemented by an adhesive which coats the teeth and extends through openings adjacent the teeth to the opposite side of the plate where they form holding means substantially like rivets of the adhesive, which still further bind the sponge to the metal back.

Referring now more particularly to the drawings, a sponge rubber or cellulose sponge type of cleaning element 11 preferably somewhat angular in form, with the top inclined rearwardly toward the bottom, is mounted generally in a holder 12 having a sleeve bracket 13 secured thereto by fastening screws 14, and having an upwardly inclined hollow stem 15 in which the lower end of the mop stick 16 is fastened by a rivet 17 or other suitable securing means.

The cleaning element is secured directly to a plate 18, preferably of sheet metal, having teeth 19 punched out of the material of the plate in one direction and projections 20 punched in the plate and extending in the opposite direction from the teeth. Each end 21 of the plate is bent outwardly therefrom in the same direction as the projections 20 and substantially the same amount. Near the center of the plate are a number of holes 22 by which this part may be picked up with a suitable implement or device inserted in the holes so that the plate may be dipped in cement or adhesive and then placed in the metal back without soiling the hands or removing the coating from the plate.

In securing the sponge-like cleaning element 11 to the plate, the back of the sponge is coated with an adhesive 25, preferably rubber-cement or the like, the supporting plate 18 is dipped in this adhesive and placed with the bent ends 21 inwardly within the ends of the holder 12 and the sponge is applied to the outer side of the plate, the teeth 19 piercing the back of the sponge. This causes the adhesive on the teeth and on the back of the sponge to be forced inwardly with the teeth thereby increasing the amount of contact between the plate and the sponge resulting in the maximum adherence. Adhesive also collects around and within the projections 20, extending to the back of the cleaning element forming adhering projections which further secure the plate and cleaning element together.

The bent ends 21 and the projections 20 of the plate engage the under side of the holder and form a space between the plate and the holder 12 which will fill up with cement or adhesive and extend through openings 22 and those created by punching out the teeth, the adhesive on the outer side of the plate uniting through these openings

with the adhesive on the opposite side and in contact with the sponge, producing the effect of adhesive rivets which still further bind the sponge to the metal plate.

To secure the supporting plates firmly in the holder, the opposite edges of the holder have outwardly rounded flanges 23 which are spaced originally to permit the free insertion of the supporting plate 18 for securing the cleaning element thereto. After the cleaning element is applied and the adhesive becomes hardened or set the flanges are bent inwardly a sufficient amount to engage the corresponding edges of the supporting plate and clamp it tightly to the holder with the projections 20 and bent ends 21 in contact with the inner surface of the holder. The extremities of the flanges 23 are still rounded outwardly so that when the mop is given sweeping movement, the upper edges of the cleaning element will engage the rounded extremities of the flanges to prvent a sharp and tearing contact therewith.

Instead of the side flanges 23, a holder 26, as shown in Fig. 7 may have a toothed-side flange 27 at each side, the extremities 28 of the teeth being bent inwardly to engage the outer face of the edge of the supporting plate 18 without turning the flanges for the full length of the holder, the extremities of the teeth only being turned inwardly.

In any of these constructions the plate and holder and that portion of the sponge that fits in the plate may be rectangular as shown or curved transversely of the holder and cleaning element.

In the above described embodiments of the invention the cleaning element is similarly attached and may be applied to mops and cleaning devices of different forms and shapes, and to cleaning elements made of various materials without departing from the spirit and scope of the invention.

I claim:

1. A mop head comprising a resilient, porous sponge cleaning element, a supporting plate for engaging the back thereof, the plate having pointed teeth extending into the back of the element and having hollow projections at the opposite side extending away from the element, and an adhesive applied to the outside of and between the plate and the cleaning element and also adhering to the teeth and to the insides of the projections and to the back of the cleaning element forming adhesive rivets securing the cleaning element to the plate.

2. A mop head comprising a cleaning element, a supporting element, a supporting plate therefor having a plurality of teeth projecting from one side of the plate and the plate and teeth adhesively secured to the back of the cleaning element, the plate having a plurality of projections at the side opposite the teeth extending throughout the plate, and the ends of the plate being bent in the same direction and approximately at the height of the said projections, and a supporting holder secured at its edges to the edges of the plate, the projections and the bent ends of the plate spacing it from the inside of the holder to receive the adhesive.

3. A mop head comprising a supporting plate with teeth formed from the plate by making holes therein and extending to one side thereof, the plate having a plurality of projections formed from the plate and extending at the other side thereof and the ends of the plate being bent in the same direction as the said projections and approximately of the same height as the projections, a holder having side flanges to engage the side edges of the plate, the projections and the bent ends of the plate forming a space between the plate and the holder, a cleaning element applied to the plate with the teeth entering the back of the element, and adhesive in the space between the holder and plate and extending through the holes made in forming the teeth from the plate and between the outer face of the plate and the back of the cleaning element for tightly securing the parts together.

4. A mop head comprising a holder with side flanges having outwardly curved extremities, a supporting plate having projections at one side to space the plate from the inside of the holder and having teeth projected at the other side forming openings through the plate, a resilient sponge cleaning element applied to the plate with th teeth entering the back thereof and adhesive between the plate and the cleaning element, and in the space between the plate and the holder and forming rivet projections of adhesive extending through the openings of the plate and at the front and back thereof for additionally securing the cleaning element to the plate, the extremities of the flanges of the holder projecting beyond the edges of the plate.

5. A mop head comprising a supporting plate having teeth extending at one side and projections extending at the other side of the plate, a resilient, porous sponge cleaning element adhesively secured to the plate and also to the teeth thereof, a holder extending over the plate and spaced therefrom by said projections of the plate, the edges of the holder having flanges extending over the edges of the plate and the edges of the flanges having teeth therein, the extremities of which are bent inwardly to engage the outer face of the plate at the edges thereof.

6. A mop head comprising a resilient, porous sponge cleaning element, a supporting metal plate having teeth punched out of the plate on one side and forming openings therethrough, projections pressed from the opposite side of the plate having recesses extending to the back of the cleaning element, and an adhesive applied to both sides of the plate, and between the plate, its teeth and the recesses of the projections, and the adjacent portions of the cleaning element, the teeth, recesses and openings of the plate increasing the amount of contact between the plate and the cleaning element, and the openings through the plate providing adhesive rivets for additionally binding the cleaning element to the supporting plate.

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