

[54] **SCRUBBING OR BUFFING DEVICE
IMPREGNATED WITH ABRASIVE AND
METHOD OF MAKING SAME**

2,700,170 1/1955 Olsen 15/229 R
2,825,914 3/1958 Moss 15/229 R

[76] Inventor: **Theron V. Moss**, 3175 Falmouth
Rd., Shaker Heights, Ohio 44122

[22] Filed: **May 1, 1972**

[21] Appl. No.: **249,265**

Primary Examiner—Othell M. Simpson
Attorney, Agent, or Firm—Donnelly, Maky, Renner &
Otto

[52] U.S. Cl. **51/400**, 15/229 A

[51] Int. Cl. **B24d 11/00**

[58] **Field of Search** 51/394, 400, 358, 391,
51/392, 343, 405; 15/129 A, 229 R, 104, 93,
94

[56] **References Cited**

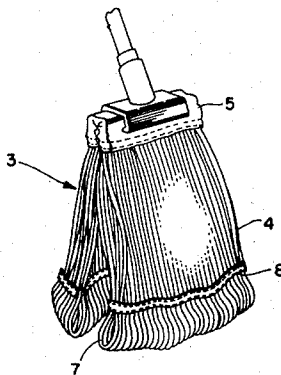
UNITED STATES PATENTS

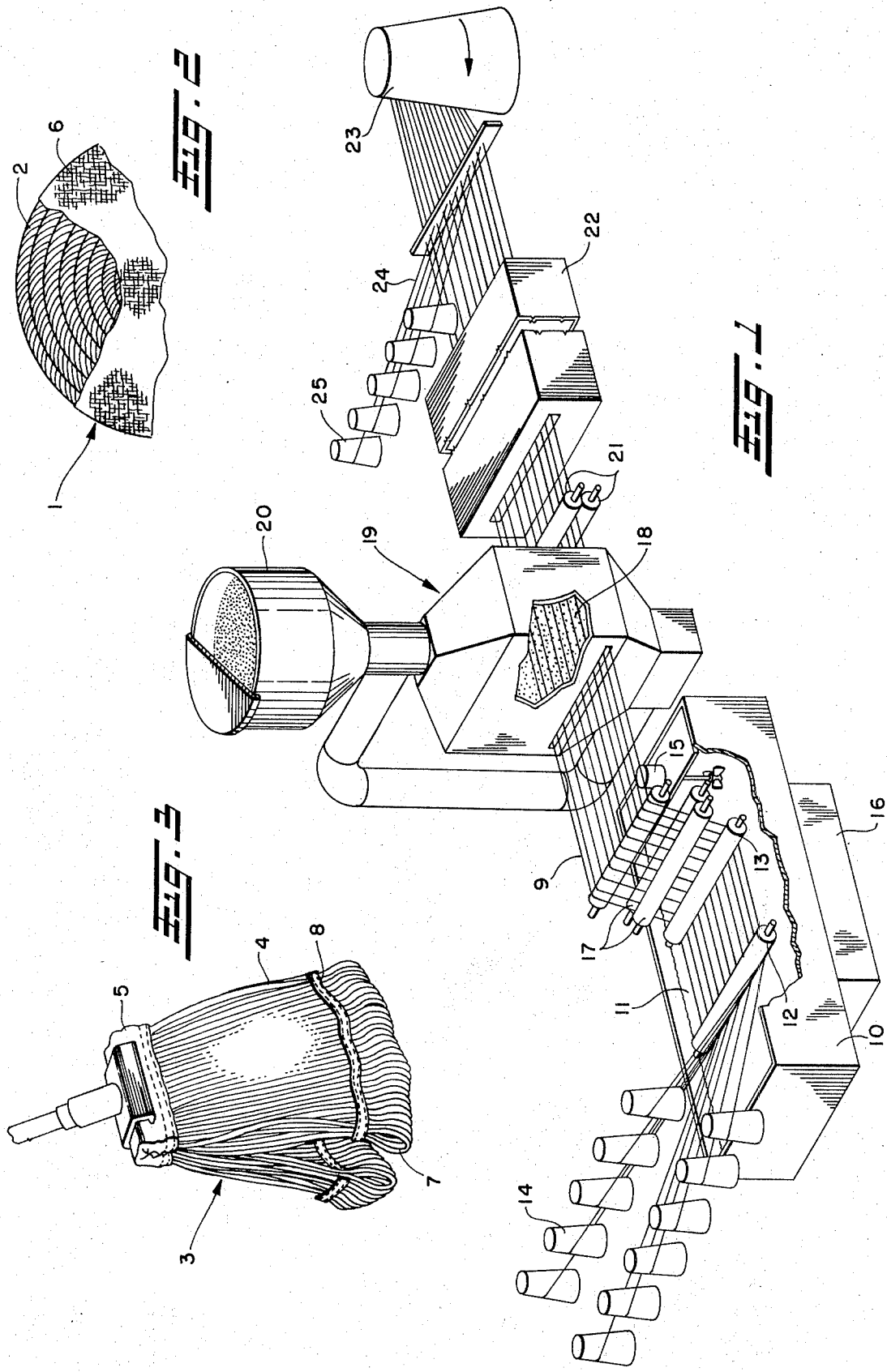
1,787,965 1/1931 Weiss 15/229 A

[57] **ABSTRACT**

A scrubbing or buffing device in the form of a pad or mop having at least some cords covered or coated with a mild abrasive which is adhered to the cords by a suitable adhesive. The amount of abrasive may be controlled by selectively coating the cords.

9 Claims, 3 Drawing Figures





SCRUBBING OR BUFFING DEVICE IMPREGNATED WITH ABRASIVE AND METHOD OF MAKING SAME

This invention relates generally as indicated to a scrubbing or buffing device and method of making the same wherein the cords are covered or coated with a suitable abrasive material to facilitate removal of marks and streaks from the floor during scrubbing, polishing or buffing.

In the manufacture of floor scrubbing or buffing devices such as pads and mops, various types of cord material are utilized to obtain certain desired characteristics. For example, a mixture of cotton, nylon and rayon cords has been found to be especially satisfactory in providing a mop or pad having high absorptive qualities and strength affording a relatively long life. The cotton and rayon cords give the desired water absorptive qualities and the nylon cords provide added strength and abrasion resistance. In addition, the cotton cords provide some polishing effect, whereas the nylon cords provide some abrasive action, and each of these characteristics may readily be varied by varying the amount of each type of cord material used in making the device.

While nylon cords will provide some desirable abrasive action as aforesaid, there are many jobs in which more abrasive action is desired to facilitate removal of marks and streaks from floor surfaces without sacrificing the water absorptive characteristics of the device, which is a principal object of this invention.

Another object is to provide such a scrubbing or buffing device and method of making the same by which the amount of abrasiveness of the device may readily be controlled.

These and other objects of the present invention may be achieved by coating selected cords of the device with a mild abrasive which may be adhered in place using a suitable adhesive. The amount of abrasive in the device may readily be controlled by coating any desired number of yarns for the device. Preferably, the yarns or cords are first dipped in or passed through a suitable adhesive and then coated with the abrasive before making the device, but it will be apparent that the cords may also be dipped into the adhesive and coated with abrasive after the device has been made. If coated afterwards, it is usually more convenient to coat all of the cords rather than just selected cords thereof which places a maximum amount of abrasive in the device.

Additional abrasive action may also be obtained by adding strands of fiber glass or twine to the cords, the quantity of which may also be controlled to obtain the amount of abrasive action desired.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principles of the invention may be employed.

BRIEF DESCRIPTION OF THE DRAWINGS

In the annexed drawings:

FIG. 1 is a schematic diagram showing a preferred method of coating selected cords with an abrasive material prior to making the scrubbing or buffing device;

FIG. 2 is an isometric view of a scrubbing or buffing pad having some or all of its cords coated with an abrasive material; and

FIG. 3 is an isometric view of a mop also having some or all of its cords coated with an abrasive material.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A scrubbing or buffing device constructed in accordance with this invention may be in the form of a pad 1 such as shown in FIG. 2 including one or more longitudinally extending coils of cords 2 suitably attached to one or both sides of a supporting fabric 6 as by sewing. For a more detailed disclosure of various forms of such scrubbing or buffing pads 2 and methods of making the same, reference may be had to U.S. Pat. Nos. 3,531,815 and 3,636,603, which are incorporated herein by way of reference.

Alternatively, the device may be in the form of a mop 3 such as shown in FIG. 3 including an assemblage of a plurality of mop cords 4 secured together intermediate their ends by a headband 5. The ends of the cords 4 may be provided with loops 7 as shown or such loops may be cut, and such ends may also be maintained in a desired relation by securing a tailband 8 to each end of the mop adjacent the ends of the cords as disclosed, for example, in U.S. Pat. Nos. 2,825,914, 3,011,198, 3,115,658, and 3,324,497, or the ends of the cords may be left free as desired.

Regardless of which form the scrubbing or buffing device may take, a mixture of various types of cord material may be used to obtain certain desired characteristics for the device including the desired water absorptive properties and strength. Water absorption is obtained by using such cord materials as cotton and rayon whereas strength is obtained by using such cord materials as nylon. Nylon cords also provide some abrasive action which may be enhanced by adding strands of fiber glass or twine to various cord materials in varying amounts depending on the amount of abrasive action desired.

However, more effective abrasive action may be obtained by covering or coating the cords with a suitable mild abrasive and utilizing a water-adhesive solution to adhere the abrasive to the cords. The cords are more quickly and easily coated with the abrasive material prior to making the device, which also permits better control over the selection and number of cords to be coated with abrasive. In FIG. 1 there is schematically shown a preferred method of coating the cord material before it is used to make a scrubbing or buffing device such as the pad 1 or mop 3 of FIGS. 2 and 3. To obtain the desired abrasive coating of selected cords 9, such cords are desirably first dipped in or caused to pass through a tank or container 10 which is partially filled with a water-adhesive solution 11. Preferably, the adhesive is a lightweight flexible glue such as latex which is applied to the cords prior to being coated by the abrasive to bond the abrasive to the cord fibers after drying and is not adversely affected by heat, water or detergents.

Contained within the tank 10 below the normal liquid level may be a pair of spaced apart guide rolls 12 and 13 for guiding the cords 9 into and out of the container. The cords 9 are desirably withdrawn from a bank of cones 14, the number of which will vary depending on how many and what type of cords are desired to be sub-

sequently coated with the abrasive material for controlling the amount of abrasive material in the end product. If desired, the water-adhesive solution 11 may be continuously stirred by a suitable stirring device 15 as the cord material passes through the solution, and a suitable heater 16 may also be provided for heating the solution.

After passing through the adhesive solution, the cords 9 are desirably elevated to allow drip off of the excess adhesive solution, and the adhesive-coated cords may also be directed through a pair of squeeze rolls 17 as the cords leave the dip tank 10 to aid in removing the excess adhesive solution from the cords.

Next the adhesive-coated cords 9 are sprinkled or sprayed with a suitable abrasive 18 as by passing the cords through a particle coating device 19 which may be of conventional type including a blower which receives the abrasive material from a hopper 20 and blows the abrasive particles into the device. Suitable means may also be provided for recirculating the excess abrasive material which accumulates in the bottom of the device. The abrasive may be powdered alumina or other suitable material which may be in varying grain sizes such as 200 mesh or larger.

The abrasive 18 could also be dispersed in the water-adhesive solution 11 for impregnating the cords 9 with the adhesive and abrasive at the same time, but this has the disadvantage that the sharp edges of the abrasive are coated with the adhesive, making them less abrasive than when the abrasive is applied to the cords after coating them with the adhesive as previously described.

Next the abrasive-coated cords 9 are desirably run through a pair of squeeze rolls 21 and either left to dry or directed through a heater 22 to accelerate the drying process. Finally the cords 9 are wound on a spool 23 for storage and later use or fed directly to a processing line for immediate use in making the desired pad or mop. Additional cord material 24 which has not been coated with any abrasive may be taken off other cones 25 and mixed with the abrasive-coated cords 9 to control the amount of abrasive material as well as the mixture of cord material to be used in the subsequent manufacture of a scrubbing or buffing device.

Selected ones of the cords may also be coated with abrasive after making the pad 1 or mop 3, but it is more difficult to do and not as effective in controlling the amount of abrasive material in the device. However, the cords of the pad 1 or mop 3 may readily be dipped into a suitable latex or adhesive and while still in moist condition sprinkled with the powdered alumina or other abrasive. The pad 1 or mop 3 may then be hung up to air dry or placed in a drying tunnel or other suitable

able dryer for quick drying.

From the foregoing, it will now be apparent that the present invention provides for very simply and effectively controlling the amount of abrasive material in a scrubbing or buffing device to obtain the desired abrasive action.

I claim:

1. A scrubbing or buffing device comprising a plurality of cords having high water absorptive properties and at least some of which are coated with an adhesive, an abrasive material bonded to the adhesive coated cords by said adhesive, said abrasive material being contacted by said adhesive substantially only in the region where said abrasive material contacts the adhesive cords, thus leaving substantial portions of the exterior of said abrasive material exposed to maximize the abrasiveness of said abrasive material, strands mixed with said cords which are much less absorptive than said cords and have substantially greater strength for increased life, and means for securing said cords and strands together.

2. The device of claim 1 wherein said cords are of different materials to provide the desired water absorptive properties and strengths for said cords.

3. The device of claim 1 which is a pad including a supporting fabric to which said cords and strands are secured.

4. The device of claim 1 which is a mop having a headband for securing said cords and strands together in bunched relation intermediate the ends thereof.

5. The device of claim 1 wherein said abrasive material is powdered alumina having sharp exterior edges which are exposed to maximize the abrasiveness of said abrasive material.

6. The device of claim 1 wherein at least some of said strands are of fiber glass mixed with said cords to increase the abrasiveness of the device.

7. The device of claim 1 further comprising strands of twine mixed with said cords to increase the abrasiveness of the device.

8. The device of claim 1 wherein at least some of said strands are of nylon and said adhesive is a latex adhesive.

9. A scrubbing or buffing device comprising a plurality of cords having high water absorptive properties at least some of which are coated with an adhesive, an abrasive material bonded to the adhesive coated cords by said adhesive, strands of fiber glass mixed with said cords to increase the abrasiveness of the device, and means for securing said cords and strands together.

* * * * *