

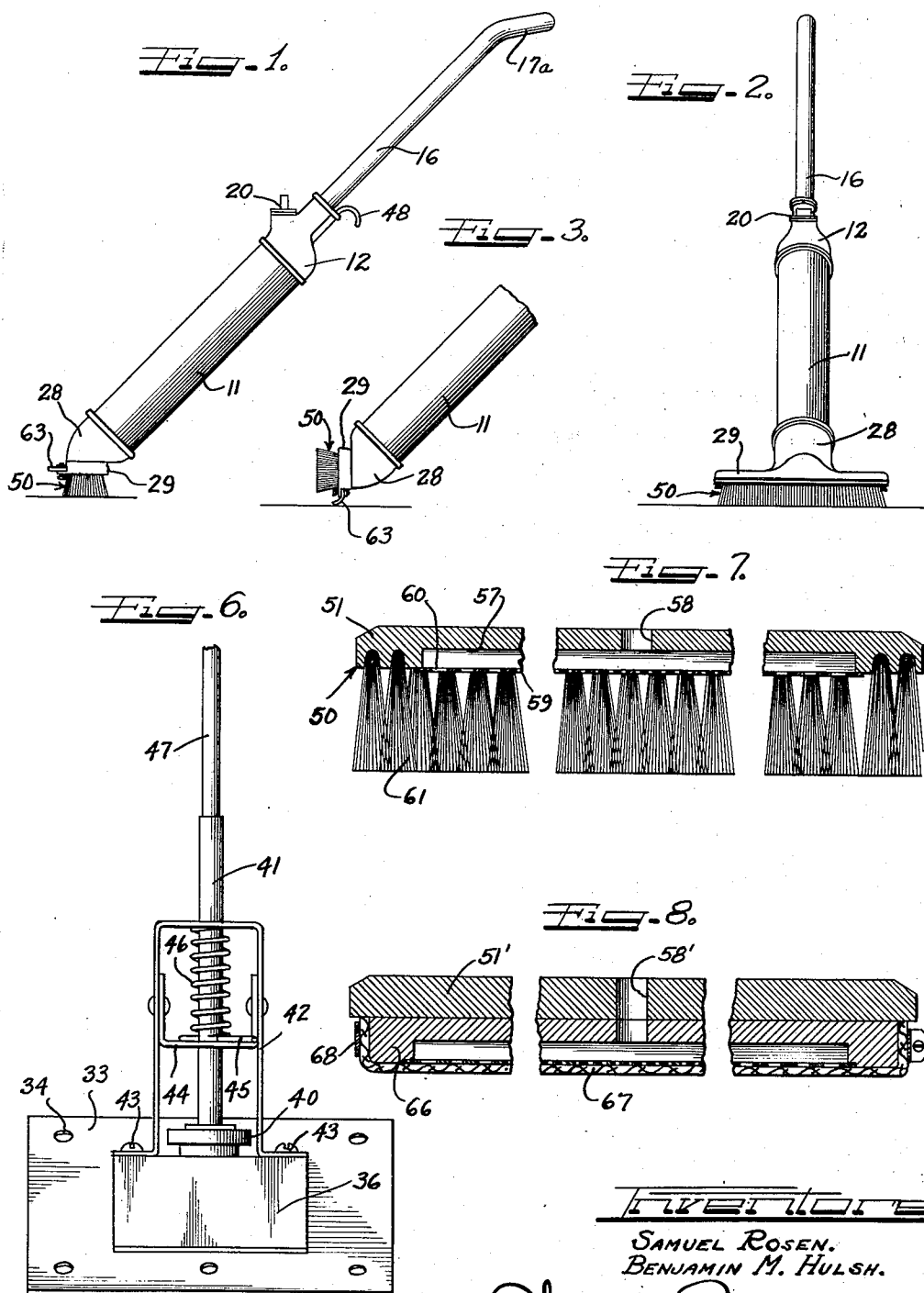
May 27, 1941.

S. ROSEN ET AL
RUG CLEANING DEVICE

2,243,607

Filed Oct. 26, 1938

2 Sheets-Sheet 1



SAMUEL ROSEN.
BENJAMIN M. HULSH.

Charles E. Allen *Att.*

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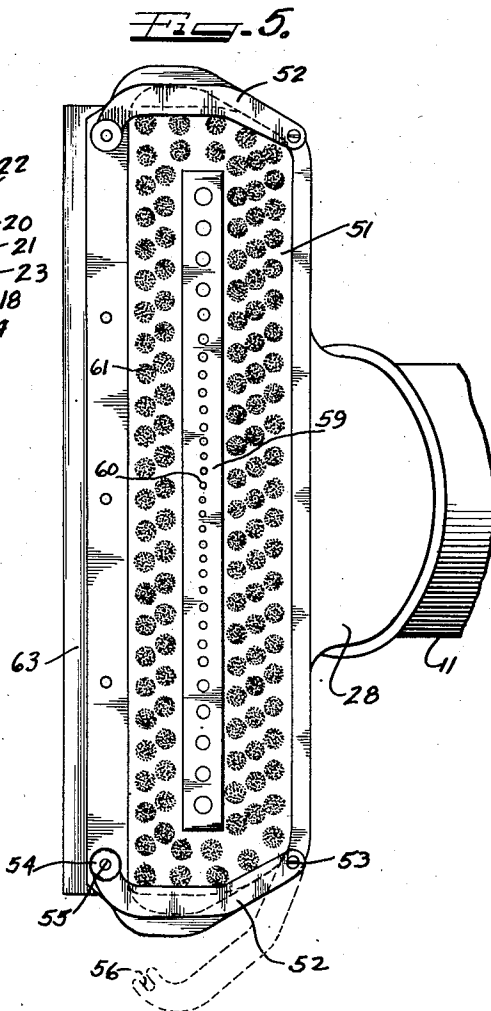
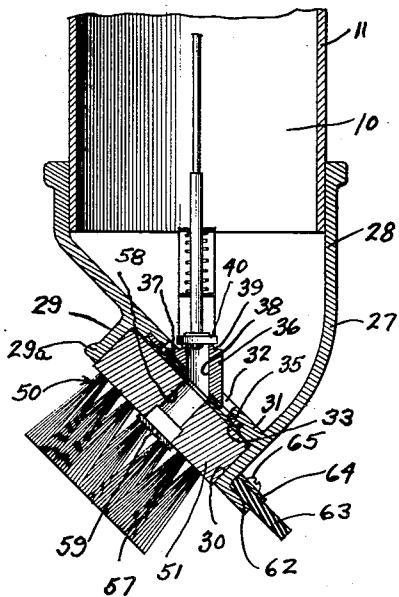
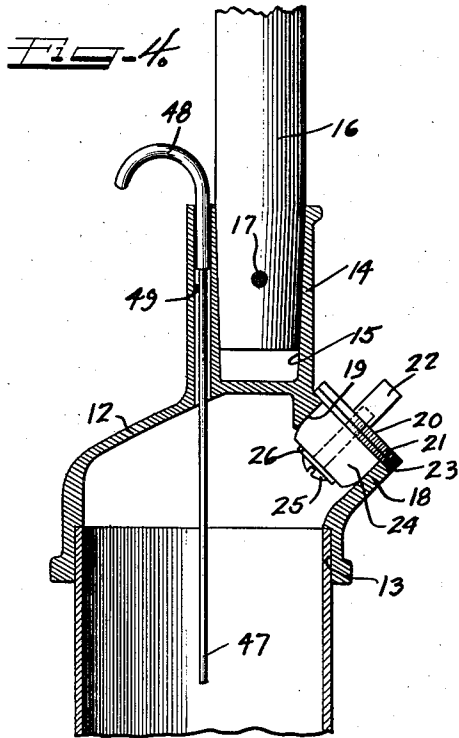
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SAMUEL ROSEN.
BENJAMIN M. HULSH.

Charles Allen Attys.

UNITED STATES PATENT OFFICE

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RUG CLEANING DEVICE

Samuel Rosen and Benjamin M. Hulsh,
Chicago, Ill.

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3 Claims. (Cl. 15—124)

The present invention primarily relates to a cleaning device and is particularly concerned with an improved portable device which may be utilized for cleaning rugs, floors and the like, as well as for the finishing of floors as by oiling, waxing, etc.

It is an object of the present invention to provide an improved cleaning device of the herein described type having a fountain wherein a cleaning fluid in the fountain may be supplied to a fitting by means of a valve controllable at the will of the operator, and in which the valve arrangement is so constructed as to enable its being turned upon its seat to eliminate its becoming unseated or leaky due to any debris or material which might be deposited on the valve parts from the cleaning fluid.

Another object of the invention is to provide improved means in such a device for obtaining an even distribution of the liquid lengthwise of the brush or other fitting used with the device.

A further object is to provide a device of the herein described type having a brush in which the liquid is distributed adjacent the forward tufts of the brush in order to permit using these tufts for spreading the liquid as it is applied, and to permit utilizing all the tufts of the brush for scrubbing action during the cleaning operation.

A still further object is to provide an improved device of the herein described type having a plurality of removably attachable fittings which may be selectively used with the device depending upon the type of liquid being utilized or the character of the work to be done.

Still another object is to provide in a fountain device of the herein described type, improved stopper means for closing the filling inlet of the fountain, which stopper is adjustable to vary its effective diameter so that it will always tightly close the filling inlet.

Other objects and features of the invention will more readily appear from the following detailed description taken in connection with the accompanying drawings which illustrate a single embodiment thereof, and in which:

Figure 1 is a side view of a device embodying the features of the present invention, the device being disposed in its position of use for applying liquid to the surface to be cleaned and for exercising a scrubbing action on the surface;

Figure 2 is a front view of the device in such position of use;

Figure 3 is a fragmentary side view showing the position of the lower end of the device when

utilizing the squeegee for removing liquid which has been applied to the surface to be cleaned;

Figure 4 is an enlarged fragmentary view of the device including a longitudinal section through the same to show the cooperative relationship of the various parts thereof;

Figure 5 is an enlarged plan view looking towards the fitting receiving head of the device, and showing the details of means for removably securing a fitting to the head;

Figure 6 is a detailed view in elevation of the valve mechanism for the control of liquid from the reservoir to the fitting;

Figure 7 is a longitudinal section through a brush fitting for use in the device; and

Figure 8 is a similar view of a fitting which may be utilized for applying oil, polish and the like to the surface being worked upon.

As shown on the drawings:

As illustrative of the present invention, the device is disclosed as embodying a main reservoir 10 which is adapted to receive a suitable cleaning solution or liquid to be utilized with the device.

This reservoir is formed by an elongate tubular member 11 which is preferably constructed of some light metallic material such as aluminum. While it is preferred to construct this tube of light metal, it will of course be appreciated that other materials, particularly materials which are inactive to certain liquids which it might be desired to use in the device, may be used.

This tube is closed at its upper end by a cap structure 12 provided with an opening 13 adapted to make a slip joint connection with one end of the tube 11. Of course, this joint may be sealed in any suitable manner, as by soldering, brazing or otherwise, if desired.

The cap structure 12 has integrally formed at its upper end a projecting portion 14 which defines a socket 15 adapted to receive one end of a handle extension 16 therein.

The handle may be secured against removal from the cap structure by means of a suitable pin or rivet 17. This handle is in general in substantially elongate alignment with the tube 11, and at its outer end is deflected as shown at 17a to form a convenient hand grip for the operator of the device.

Adjacently disposed to the portion 14 of the cap structure is an angularly disposed neck 18 which defines a tubular filling opening 19 through which liquid may be supplied to the reservoir.

The filling opening is closed by a novel stopper

or plug 20. The ordinary stopper or screw plug, while it would close the filling opening, has been found to be unsatisfactory in a device of this type for the reason that the fluid utilized for cleaning purposes has a tendency to form a deposit which would soon make a screw plug difficult to remove. Moreover this liquid has a tendency to react on ordinary plugs to cause them to shrink and become loose.

In order that the filling opening may be easily closed and opened at all times and properly fit the opening without becoming leaky, it is proposed to provide a disc 21 having a finger engageable projection 22 formed upon its upper surface. This projection serves as a handle by means of which the closure may be removed or inserted.

The disc 21 is of sufficient size to overlap the outer end of the tubular portion 18 and may be provided with a gasket 23 on its under surface for engaging with the end of the tubular member and seating thereon.

The closure also has secured to its under surface a plug portion 24 adapted to be inserted into the tubular portion 18 and engage the wall thereof. This plug portion is preferably constructed of a compressible material, which may be rubber or other suitable material, and is secured to the disc 21 by means of a central screw 25. The head of this screw is separated from contact with the associated end of the plug portion by means of a washer 26.

It will be apparent that with a construction just described, tightening or loosening of the screw 25 will tend to increase or decrease the diameter of the plug due to a variation in the compression of the material. In other words, the outer surface of the plug portion may be more or less buckled in order to make it fit more tightly or loosely in the filling opening. Thus, if the plug should for any reason become loose, it is simply necessary to tighten the screw 25 until the plug has a tight fit.

The lowermost end of the tube 11 is likewise fitted with a closure structure 27 having a neck portion 28 adapted to receive the other end of the tube 11 in slip joint connection therewith. As in the case of the cap structure, the closure for the lower end may likewise be sealed at its connection with the tube to prevent leakage.

The closure 27 embodies an integrally formed head portion 29 which projects to either side of the tube 11 and is angularly disposed relative to its longitudinal axis.

This head is provided with a flange 29a which defines a substantially rectangular socket 30 adapted to receive therein a suitable fitting for use with the device, as will hereafter be explained more fully.

It will be noted that the connection of the tube 11 is substantially at the center of the head 29. The socket 30 is substantially closed at its bottom by a rear wall structure 31 having an opening 32 therein. At this opening, there is provided a closure plate 33 which is adapted to be secured on the outer surface of wall 31 by suitable screws which may extend through openings 34 in the plate and threadedly engage the back wall 31. This plate is preferably sealed against a gasket 35 disposed between the plate and the wall 31.

On its inner surface, the plate 33 is provided with an angularly disposed block 36 which may be integrally formed with the plate 33 or may be formed as a separate piece and secured to the plate. When formed as a separate piece, it is de-

sirable to seal the adjacent surfaces of the block and plate 33, which may be done by means of a gasket 37.

Communication between the reservoir 10 and the socket 30 is effected by means of a passageway 38 extending through the block and the plate 33.

The innermost end of the passageway 38 terminates in an annular flange 39 which forms a seat for a valve 40. It will be noted that the flange presents a relatively narrow seating surface. This has been found to be particularly advantageous in a valve construction for controlling the supply of fluid from the reservoir. Due to the tendency of the liquid to form a deposit, there is less likelihood of the valve sticking against its seat or of the valve becoming unseated by an accumulation of the deposit on the valve seat.

As more clearly shown in Figure 6, the valve is provided with a stem 41 which is slidably supported in an inverted U-shaped bracket 42, the legs of the bracket being secured as by screws 43 to the block 36.

Adjacent the uppermost end of the bracket, there is provided a U-shaped stirrup 44 which forms an additional sliding support for the stem 41 and also forms an abutment for a pin 45 extending through the valve stem above the stirrup. The valve is resiliently actuated to closed position by means of an expansion spring 46 which surrounds the stem and has its lower end engaging the pin 45 and its uppermost end engaging the upper end of bracket 42.

The stem 41 is connected by means of an extension 47 to a handle 48. This handle extends to the exterior of the reservoir and is disposed adjacent the lower end of the handle 16 where it may be easily reached by the operator.

One end of the handle 48 is reciprocally disposed in a tubular passage 49 formed in the extension 47. The passage 49 also surrounds the adjacent end of the extension 47 which is connected to the handle 48.

With this construction, it will be apparent that the valve 40 may be raised or lowered relative to its seat by means of the handle 48, thus controlling the passage of liquid from the reservoir through the passage 38. Moreover, in the event that the valve should not entirely seat due to an accumulation of material deposited from the liquid, or other debris which might be in the reservoir, the handle 48 may be swung through an arc to cause partial rotations of the valve 40 and thus clean the valve seat and enable proper seating of the valve.

The head is adapted to have various fittings secured thereon, depending upon the liquid and type of work to be done with the device.

For example, in utilizing the device for the cleaning of rugs or the like, the head may be fitted with a brush 50 which may comprise a back member 51 which may be constructed of wood or other suitable material. This back member is substantially rectangular in shape and adapted to fit within the socket 30. The back member may be retained against removal from the socket by means of arms 52 which are disposed at the ends of the head portion and may respectively be pivoted on screws 53 to the lower edge of flange 29a which extends along one side of the socket 30. These arms are adapted to swing over the outer end surfaces of the back member 51 and be removably engaged by a thumb nut 54 which is threaded onto a suitable

screw 55, the screw 55 being receivable into an end slot 56 in the arm.

The back member 51 in this instance is provided with a longitudinally extending groove 57, which opens along one side in the under surface of the back member, as clearly shown in Figure 7. This groove is closed at its ends and provided substantially at its center with an inlet opening 58 which is adapted to communicate with the passage 38, when the fitting is secured within the head 29 of the device.

The side of the groove opening into the face of the back member 51 is covered with an elongate strip 59, this strip being constructed of suitable metal or other material. The strip 59 is provided with a series of spaced openings substantially throughout its length, these openings being of smaller diameter adjacent the inlet 58, and gradually increasing in size towards the ends of the groove 57. These openings form outlets for the liquid which is received within the groove 57 and are graduated so that the amount of liquid dispensed along the groove will be substantially the same at any point. In other words, at the central portion of the groove, where the liquid pressure is the greatest, the openings are made smaller so that substantially the same amount of liquid will flow therethrough as through the larger openings near the ends of the groove where the pressure is less.

As shown in Figure 5, the liquid flowing through the openings 60 may pass downwardly between tufts 61 of bristles arranged in rows on either side of the strip 59. It will be noted that there are only two rows of tufts on the forward side of the strip 59, whereas there are three rows of tufts on the rear side of the strip. This unbalancing of the number of tufts or bristles on the front and rear sides of the strip is for a particular purpose which will later be explained in connection with the operation of the device.

The head portion 29 is provided with a forwardly extending lip or flange 62 which is integrally formed with the flange 29a. This lip forms a bracket for supporting a strip of rubber 63 or other suitable material to form a squeegee. The strip is secured along one edge by means of a clamping strip 64 which may be secured at spaced intervals along its length by means of screws 65 to the lip 62 so as to cooperate with the lip in clampingly securing the innermost edge of the strip 63, leaving the outer edge free.

The fitting just described is primarily used for exercising a scrubbing and cleaning action on rugs, floors and the like. The device may also be used for other purposes such as oiling and waxing of floors, and when so used is provided with a suitable fitting. Such a fitting is disclosed in Figure 8 and comprises a back portion 51' of similar construction to the back 51 of the fitting previously described. A block 66 is secured to the under surface of the back 51', this block being similarly fitted with a groove in its under surface and a perforated plate as in the case of the previously described fitting. Instead, however, of being provided with tufts or bristles, this fitting is arranged to have a cloth 67, which may be of carpet material, felt or other suitable materials, spread over its under surface and folded around the edges of the block 66.

For securing the cloth around its periphery to the block, there is provided a clamping ring 68. With this arrangement it is not necessary to provide an entire new fitting, when the cloth has become worn. By removing the worn cloth, a

new cloth may be easily clamped in position on the block 66.

The fitting just described may be used for waxing, oiling and the like of floors or surfaces, the proper liquid, of course, being placed in the reservoir of the device for the particular results desired.

In using the device for the cleaning of carpets, rugs and the like, the reservoir is first filled with suitable cleaning liquid. The device is then disposed as shown in Figure 1, and the operator opens the valve by pulling up on the handle 48. This discharges a quantity of liquid evenly throughout the length of the fitting 50 onto the nap of the rug or carpet.

The device is then pulled by the operator in the direction of the lay of the nap. This operation causes the two rows of tufts of bristles on the forward side of the fitting to gently comb the nap and distribute the cleaning liquid along the nap fibers without brushing the liquid into the base of the carpet or rug. The valve is conveniently controlled by the operator so as to discharge just the right amount of liquid to wet the nap. As soon as the liquid has been deposited as just described, the valve is permitted to close and the rug or carpet cleaned with a scrubbing action by moving the device back and forth. It will be noted that during this scrubbing action all of the bristles are being used.

At the completion of the scrubbing operation, the surplus liquid is removed by turning the device over so as to bring the squeegee or rubber strip 63 into contact with the surface being cleaned. By then drawing the device in the direction of the lay of the nap, the surplus liquid can be easily and effectively removed. By successive scrubbing and squeegeeing operations the entire surface to be cleaned is gone over.

When the device is to be used for polishing or oiling, the fitting as shown in Figure 8 is substituted for the brush type fitting and suitable liquid such as oil or wax placed in the reservoir. As before, the correct amount of liquid can be fed to the fitting by actuating the valve by means of the handle 48.

From the foregoing description, it will be apparent that the present invention provides an improved cleaning device of the fountain type in which the liquid is valve controlled, this valve being constructed to enable its being turned upon its seat to eliminate its becoming unseated and leaky due to any debris and material which might be deposited on the valve parts from the cleaning fluid; which has a novel arrangement for evenly distributing the fluid over the surface being cleaned; which is provided with a novel brush having tufts arranged for combing and spreading the liquid prior to the brushing operation, when all the tufts of the brush are utilized for the scrubbing action; which is arranged to have a plurality of different heads selectively secured thereto, when utilizing different types of liquid and when the device is utilized for different purposes; and in which improved means for closing the filling inlet of the fountain or reservoir are provided.

While, it is, of course, to be understood that although we have described in detail a single embodiment of our invention, the invention is not to be thus limited, but only in so far as defined by the scope and spirit of the appended claims.

We claim as our invention:

1. In a device of the character described, a

handle having a head portion, a reservoir carried by said handle, a fitting having an elongate interior chamber, a flow passageway connecting said chamber substantially centrally with said reservoir, a valve for controlling said passageway, said fitting having a row of aligned graduated outlet openings spaced longitudinally along substantially the length of the bottom of said chamber on opposite sides of said passageway, and tufts of bristles laterally disposed in parallel rows on either side of said outlet openings, there being a greater number of tufts on one side of said openings than the other.

2. In a device of the character described, a handle having a transversely disposed head portion, a reservoir carried by said handle, a fitting having an elongate interior chamber, a flow-passageway connecting said reservoir with said chamber at a position substantially intermediate the ends of the chamber, a valve for controlling said passageway, and a row of spaced outlets in the bottom of said chamber aligned in a longitudinal direction thereof, said outlets being smaller adjacent the chamber end of the flow passageway and increasing in size towards the opposite ends of said chamber.

3. In a device for scrubbing, dyeing and waxing surfaces, a handle having an enlarged hollow portion defining a reservoir for containing a suitable liquid for the character of the work to be done with the device, closure means at the lower end of the reservoir including a neck portion connected with the reservoir and a head portion adapted to removably and interchangeably receive a plurality of liquid applying fittings, a partition separating said neck and head portion, a tubular extension projecting into the neck portion above the partition to form a valve seat and define a passageway connecting the reservoir with the head portion, a spring seated valve associated with said extension, a valve actuating member extending to the exterior of the reservoir, bracket means supported from said partition for guiding the valve movements and the associated end of the actuating member, and a hollow liquid applying fitting removably associated with the head portion adapted to receive liquid from the reservoir through said passageway.

SAMUEL ROSEN.
BENJAMIN M. HULSH.