Oct. 8, 1940. J. D. CONWAY 2,217,617

APPARATUS FOR SCRUBBING RUGS, FLOORS, AND THE LIKE

Filed Nov. 28, 1936

Fig. 1

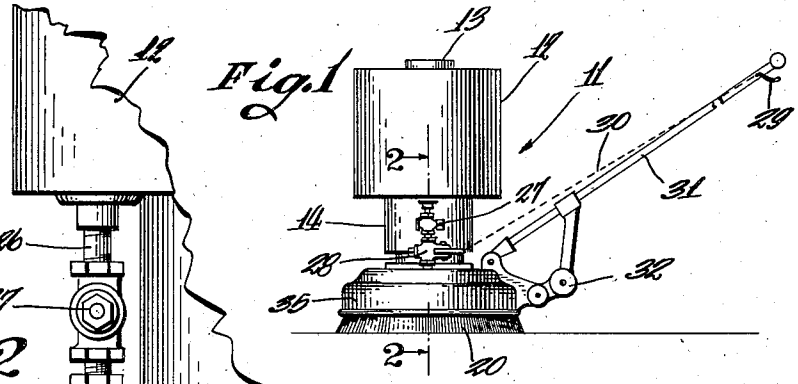


Fig. 2

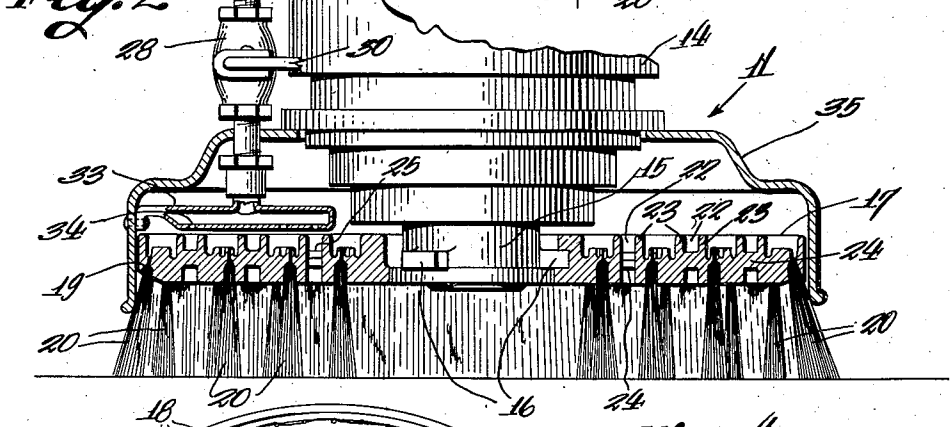


Fig. 3

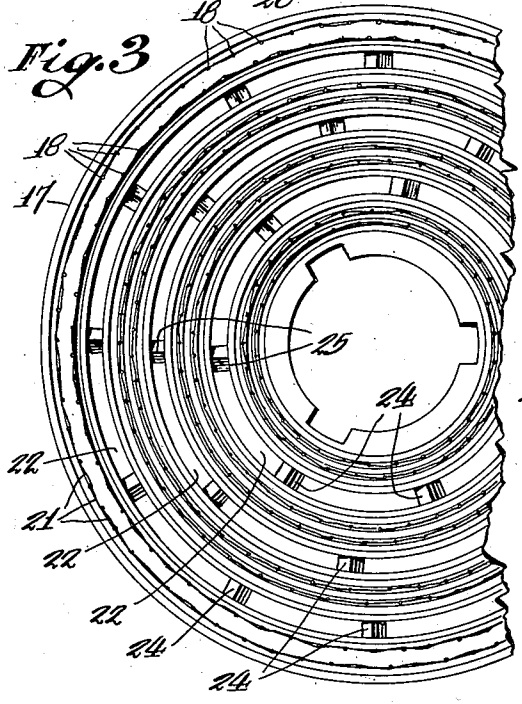
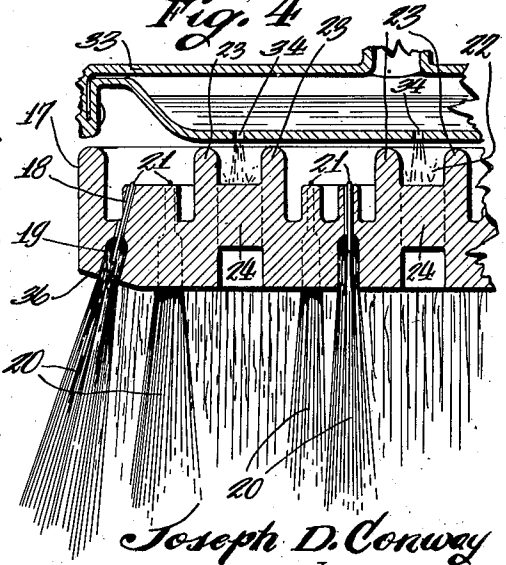


Fig. 4



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APPARATUS FOR SCRUBBING RUGS, FLOORS, AND THE LIKE

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Application November 28, 1936, Serial No. 113,142

3 Claims. (Cl. 15—50)

This invention relates to improvements in apparatus for scrubbing rugs, floors and the like, particularly of the portable type which is power actuated.

An object of my invention is to provide a brush structure and cooperating washing fluid feed means which, upon revolving of the brush, will churn the fluid into a foamy suds, and will evenly distribute the solution in that condition throughout the brush and onto the applied surface without throwing the solution in liquid form, or otherwise, outwardly from the brush as it revolves.

Another object is to provide for the distribution of fluid by gravity, and thus avoid the tendency for uneven feeding of fluid, caused by centrifugal force.

Another object is to provide means for preventing the fluid from flowing down onto the applied surface after the brush has ceased to rotate, and thus prevent mildewing of the rug, and permitting the rug to dry quickly, by minimizing wet spots.

Another object is to provide new and novel means for quickly and efficiently churning the washing fluid into a foamy suds.

Another object is to provide an outer circumferential fringe of bristles on the brush, which extend somewhat laterally from the brush, to permit the brush to scrub closely against baseboards and the like, said circumferential bristles being disposed and arranged in such manner that they will clean as effectively as the inner bristles.

Still other objects are to provide economically operated apparatus for scrubbing rugs, floors and the like, which will permit only the foamy suds to come into contact with the rug and thus will prevent the rug from being saturated, and to provide a brush which, on account of my new and novel fluid feed means, is adapted to accommodate many more bristles than any brush heretofore used, and thus cause rugs to be quickly and efficiently cleaned.

These and other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing, forming a part of this specification,

Fig. 1 is an elevational view of an embodiment of my invention,

Fig. 2 is a sectional view, taken on the line 2—2 of Fig. 1 and drawn to a somewhat larger scale.

Fig. 3 is a top plan view of my brush with parts broken away, while

Fig. 4 is a fragmentary sectional view showing part of feed means and brush.

As shown in Fig. 1, the embodiment of my invention comprises an apparatus for scrubbing rugs, floors and the like, indicated generally by the numeral 11. Liquid cleaner or soap solution is contained in a reservoir 12, provided centrally on its top with a removable cap 13, which may be removed to permit a cleaning fluid to be introduced into the reservoir 12. An electric motor, not shown herein, for actuating the apparatus, is suitably mounted in a housing 14, which supports the reservoir 12, while an operating spindle 15, driven by an electric motor is provided with a bayonet locking surface corresponding with a cooperating bayonet locking surface 16 centrally located on a revoluble brush 17, thus permitting the brush 17, to be quickly and easily attached to, and released from, the driving spindle 15.

The top or back of the revoluble brush 17, is best shown in Fig. 3, and comprises a single circular flat casting, although it may be made in sections if desired, which is provided on its top with series of concentrically disposed small apertures 18 opening into cooperating apertures 19, somewhat larger than the apertures 18, receiving bristles 20, disposed therein in a well-known manner and held in position by suitable means such as wire 21, which forms a loop in each aperture 19 over which the bristles 20 are suspended centrally.

Three concentrically disposed annular grooves 22, having upwardly extending flanges 23 are spaced apart by means of knives 24, having ridge formations 25 at their tops and bottoms extending in a radial direction from the center of the brush 17, serving to facilitate the formation of foam or suds, as hereinafter explained. Liquid cleaning fluid is fed from the reservoir 12 through a feed conduit 26, provided with a shut-off valve 27 and a control valve 28, operated by means of an operating lever 29, connected thereto by means of a link 30, supported on an operating handle 31, by which the apparatus 11 is reciprocated along a surface, swinging rollers 32 permitting the apparatus to be selectively carried either on bristles 20 or on the rollers 32 in a well-known manner.

The lower end of the feed conduit 26 opens into a small reservoir 33, provided with apertures 34, each aperture being aligned with one of the annular grooves 22, and positioned slightly above the tops of the flanges 23, thus permitting cleaning fluid to flow from the bottom of the reservoir 33 through apertures 34 into the aligned grooves 22 as shown in Fig. 4, without flowing onto the

top of the brush 17. Cover means such as housing 35, suitably secured to the center of the apparatus 11, and extending a short distance over the top of the bristles 20, are provided. The lower outer periphery of the brush 17 is beveled as indicated at 36, while the outside row of apertures 18, and aligned cooperating apertures 19, are directed somewhat laterally as best shown in Fig. 4. By thus arranging and positioning the outer row of bristles, it is possible to use bristles of substantially the same length as those located centrally thereof, which are adapted to clean rug areas, adjacent baseboards and the like, as effectively as the areas away therefrom. This efficient cleaning of the margins of rugs can not be accomplished by conventional types of brushes, which provide an outer fringe of bristles of substantially longer length than those of the interior, wherein the tendency of such longer bristles to bend, materially decreases the scrubbing efficiency of the outer fringe of bristles.

In operation, an electric motor causes the brush 17 to be rotated on a vertical axis with the bristles 20 preferably in contact with the rug or surface being cleaned. Suitable cleaning fluid such as a soap solution or other cleaning fluid is fed by gravity through the feed conduit 26 at any desired rate by regulating control valve 28, by means of the operating lever 29 and cooperating link 30, and passes into the reservoir 33 and then through the apertures 34 directly into the aligned annular grooves 22 having upwardly extending flanges 23, which prevent cleaning fluid from being thrown onto and spread around on the top of the brush 17. The knives 24, positioned in the grooves 22, divide the cleaning fluid into fine particles and thus materially assist in forming a foam or suds which is the desired condition for obtaining best cleaning results.

It will be seen from the foregoing that by feeding the cleaning fluid through the stationary apertures 34, into the aligned annular grooves 22, having top flanges 23, the fluid is first churned into a foam or suds and then passes directly down along the sides of the bristles to the surface being cleaned without first being spread over the top of the brush. When the rotation of the brush 17 is stopped, there will be very little, if any, fluid retained by the sides of the grooves 22 which will run down onto the rug and wet it. This feature presents a distinct improvement over the type of brushes having a multiplicity of small apertures through which the cleaning fluid is fed into the bristles, because when such a brush ceases to rotate, the surface tension of the cleaning fluid will hold the fluid in the apertures for a while and thereafter the fluid will trickle down onto the rug or floor and produce wet spots. The elimination of a multiplicity of small feed apertures on the brush is a further advantage in that it permits a relatively larger number of bristles to be secured to the brush than would otherwise be possible, thus increasing the cleaning efficiency of the brush.

By beveling the outer lower periphery of the brush 17, and disposing the outer fringe of bristles somewhat laterally thereon, it is possible to clean rug margins, adjacent baseboards and the like, without materially increasing the length of such bristles, and thus the effective cleaning length of the bristles on the outer fringe is substantially the same as in the interior.

It will be apparent to those skilled in the art that my invention may be variously changed, used or modified without departing from the spirit of the invention or sacrificing the advantages thereof, and that the embodiment of my invention disclosed herein is illustrative only and that my invention is not limited thereto.

I claim:

1. Apparatus for scrubbing rugs and the like, comprising a frame structure, a rotatable brush operatively associated with said frame structure and comprising a back formed of a series of concentrically disposed annular members separated by channels, said members being provided on their bottom faces with cleaning bristles, and a stationary fluid dispensing head mounted on said frame structure lying across said brush back and provided with a series of aligned fluid dispensing apertures disposed above and immediately adjacent said channels, each aperture being positioned and arranged in such manner that it feeds fluid directly into a cooperating channel, whereby upon rotation of said brush fluid fed through said apertures is evenly distributed between the rows of bristles independently of the centrifugal throw created by brush rotation, for the purposes described.

2. Apparatus for scrubbing rugs and the like, comprising a frame structure, a rotatable brush operatively associated with said frame structure and comprising a back formed of a series of concentrically disposed annular members separated by channels and connected by a series of foam providing elements, said members being provided on their bottom faces with cleaning bristles, and a stationary fluid dispensing head mounted on said frame structure lying across said brush back and provided with a series of aligned fluid dispensing apertures disposed above and immediately adjacent said channels, each aperture being positioned and arranged in such manner that it feeds fluid directly into a cooperating channel and onto said foam producing elements, whereby upon rotation of said brush fluid fed through said apertures is evenly distributed between the rows of bristles independently of the centrifugal throw created by brush rotation, and said foam providing elements chrun said liquid into a foamy solution.

3. Apparatus for scrubbing rugs and the like, comprising a frame structure, a rotatable brush operatively associated with said frame structure and comprising a back formed of a series of concentrically disposed annular members separated by channels, said members being provided on their bottom faces with cleaning bristles, a series of knives connecting said annular back members and provided with portions disposed in the direction of rotation of the brush, said portions being disposed and shaped in such manner as to churn liquid into fine particles, and a stationary fluid dispensing head mounted on said frame structure lying across said brush back and provided with a series of aligned fluid dispensing apertures disposed above and immediately adjacent said channels, each aperture being positioned and arranged in such manner that it feeds fluid directly into a cooperating channel and onto said knives, whereby upon rotation of said brush fluid fed through said apertures is evenly distributed between the rows of bristles independently of the centrifugal throw created by brush rotation, and the knives are caused to churn liquid thus fed into a foamy solution.

JOSEPH D. CONWAY.