Oct. 23, 1951 H. C. HARTENBACH, JR 2,572,142

CARPET RINSING APPARATUS

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FIG. 1

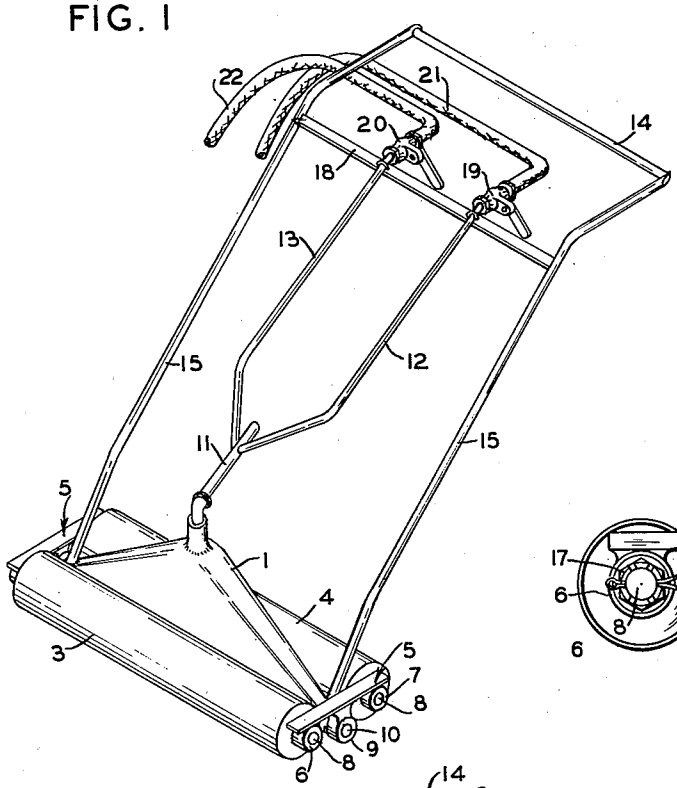
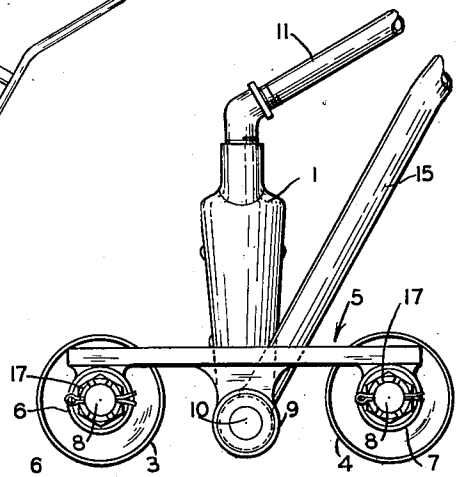


FIG. 3



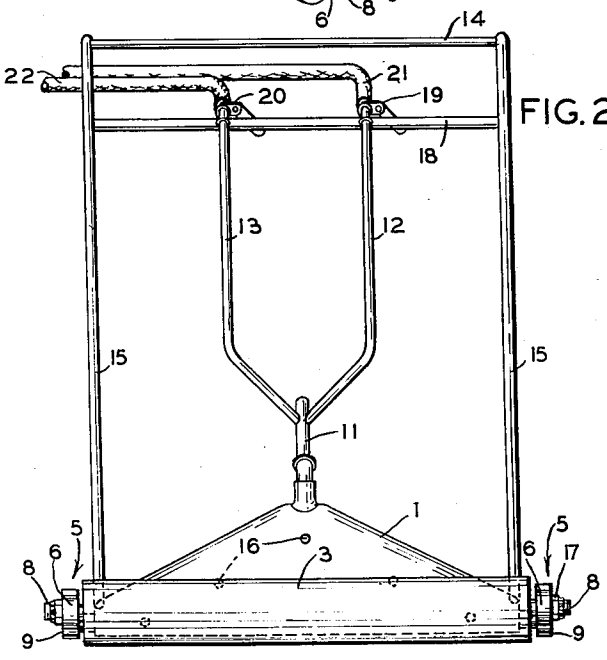


FIG. 2

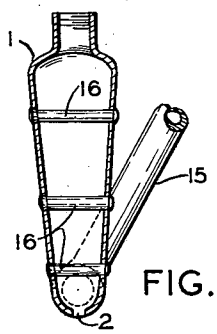


FIG. 4

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CARPET RINSING APPARATUS

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4 Claims. (Cl. 15—3)

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This invention relates to carpet rinsing apparatus.

In commercial rug and carpet cleaning, the material to be cleaned is spread upon a floor and scrubbed with water and a detergent. After this operation it is necessary that the material be rinsed free of the scrubbing detergent and soil. The object of this invention is to provide efficient apparatus for such rinsing that will be economical in construction and durable in service.

Since a summary description on the invention can best be made and understood by references to the accompanying drawings, illustrating a preferred embodiment of the invention, that description is deferred until after the following short description of the figures of the drawings.

Fig. 1 is an isometric view of apparatus which is a preferred embodiment of the invention;

Fig. 2 is a front elevational view;

Fig. 3 is an end elevational view; and

Fig. 4 is a central sectional view of a manifold included in the apparatus.

While the invention is defined in the appended claims, a summary description of it, without any intent of limiting the claims beyond their clear meaning, may serve to give a ready understanding of the invention as defined in the claims, and assist in understanding the detailed description of the preferred embodiment.

The apparatus includes a vehicle or carriage on which is pivotally mounted a manifold 1, with an elongated nozzle in its bottom, here shown as slot 2, directed downwardly to expel water under pressure to a carpet or rug, or other material on which the apparatus is placed. The vehicle or carriage includes a pair of supporting parallel cylindrical rollers 3 and 4 in front and rearwardly of the manifold 1, respectively, and therefore, on each side of and parallel with the nozzle or slot 2.

Each of side frame members 5 has journals 6 and 7, receiving axles 8 of the rollers 3 and 4 respectively.

Each frame member 5 has a depending boss 9 in which is pivotally mounted stub shafts 10 rigidly secured to the ends of the manifold.

The manifold 1 is provided with an inlet connection or T 11 to receive water under pressure from a supply pipe 12, and also preferably compressed air from a pipe 13.

A handlebar 14 is connected rigidly by side members 15 to the manifold 1, as by welding the lower ends of the members 15 to the manifold.

It may now be understood that when the apparatus is placed on a carpet which has been scrubbed, it may be pushed or pulled and guided

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over the surface to be rinsed by means of the handlebar 14, and that the manifold may be tilted as desired to obtain a desired directional effect from the nozzle 2.

Having summarily described the invention a more particular description, especially of the preferred embodiment illustrated in the drawings, will assist in understanding and practicing the invention.

The manifold 1 is widely flaring, having an inlet at its top to receive a connection including the T 11. The nozzle in its bottom may be formed by a slot 2, or it may have a series of holes spaced throughout the breadth of the manifold at its bottom. The manifold may be preferably hollow cast. Baffles may be inserted. For this purpose a small number of pins 16, spaced as shown in Figs. 2 and 4, satisfactorily serve the purpose. Other forms of baffles, of course, may be used.

The cylindrical rollers 3 and 4, positioned frontward and rearward of the manifold 1 and of the nozzle 2 are the full length of the nozzle. They have at their ends stub axles 8 which are journalled in the bearings 6 and 7 of the side frame members 5. They may be secured in assembly relationship by any convenient means such as nuts 17 threaded on the ends of the axles 8.

The rollers 3 and 4 perform a triple function. They support the apparatus; then tend to direct the stream of water from the nozzles 2, and they roll out or squeeze out a part of the scrubbing water and a part of the rinsing water.

The forward roller squeezes out a large part of the detergent with its entrained dirt, thereby allowing the pressure rinse from the nozzle a better opportunity to loosen the balance and the more deeply embedded soil. The squeezing action of the following roller assists in that action. The conditions are identical whether the device is moved forward or backward.

The construction of the side members 5 will be obvious from the foregoing description, taken in connection with the accompanying drawings. Each member includes a bar from which depends the journals 6 and 7 for the axles 8 of the rollers 3 and 4 and a boss 9 in which a stub shaft 10 on the manifold is pivoted.

It has been found desirable to provide a loose fit for the axles 8 and for the stub shaft 10. Thus, in moving the device by means of the handlebar 14, the device can be pivoted and more easily turned than it could be if the parts were rigidly connected or assembled.

The handlebar 14 is rigidly secured at the end of the side members 15, which are rigidly se-

cured at their bottom to the manifold 1. A cross bar 18 is secured between the side members 15 near their top. For convenience the upper ends of the pipes 12 and 13 are secured to this bar. Manually operable and adjustable valves 19 and 20 are connected to the pipes 12 and 13 respectively; and flexible hose 21 and 22 are connected to the valves 19 and 20 respectively. The hose 21 leads to a source of water supply under pressure, and the hose 22 leads to a compressed air supply.

It will be obvious, of course, that if the source of water pressure is sufficiently high and constant the compressed air connection is not essential. For example, if a water pressure of 50 to 75 pounds per square inch is maintained in the supply system, the use of compressed air is unnecessary. Otherwise, this compressed air connection is desirable.

The structure of the apparatus in vehicular form is such as to isolate the area between the pair of rollers, and the immediate rinsing action takes place in such area, the area being provided by downward pressure applied by the operator on the skeleton frame at 14 after the apparatus has been advanced to the area. Slowness of advance can render the procedure continuous, or the advance can be from area to area with each area given its individual treatment, all under the control of the operator, thus permitting varying the time length of rinse application in different areas to meet varied and spotty conditions in the article.

Whether the advance be continuous or intermittent, the downward pressure during the advance, although being applied directly to the manifold portion of the apparatus, is active to apply downward pressure on both rollers. As a result, the advance roller becomes active to squeeze out previously applied cleansing solution, while the trailing roller is active to squeeze out the rinsing fluid which has been applied from the manifold nozzle. This condition is made possible through the particular frame construction at each end of the rollers, the pressure being applied at the mid-point between the rollers and being distributed to both rollers.

The axis of the trunnions of manifold 1 is below a plane connecting the axes of the trunnions of rollers 3 and 4, but the lower end of the manifold does not extend to the plane of the floor on which the rollers advance, although such manifold lower end is symmetrically disposed relative to the manifold trunnions. Since the manifold nozzle opening 2 is within the wall of such manifold lower end and is at the bottom of the rounded lower end of the manifold, the length of the radius connecting such manifold trunnions and the nozzle is so short that swinging movement of skeleton frame 15 pivotally on the trunnion axis shifts the nozzle position in the fore and aft direction. This makes it possible to not only deliver the water through the nozzle on to the carpet or rug positioned therebelow, but also enables the operator to distribute the content fore and aft within the isolated area by swinging the skeleton frame pivotally on the manifold trunnion axis to thereby provide the arcuate shift of the nozzle within a limited range. Since the rinsing fluid is being delivered under pressure and within a close distance to the floor, the isolated area will be covered by the gradual advance of the apparatus without swinging of the frame 15 during continual advance operation, and by the swinging movement of the frame when the apparatus operates on the intermittent advance basis. In both cases, there will also be distribution effects through splattering of the discharging fluid when contacting the floor. Since the inner frame members 12 and 13 are welded to cross-member 18, the entire manifold unit partakes of the swinging action of skeleton frame 15, a condition which permits the apparatus to advance with either roller 3 or 4 serving as the advance roller.

Various changes may be made in the details of construction, within the scope of the appended claims, without departing from the spirit of this invention. Parts of the invention may be used without the whole, and improvements may be added while retaining the combination and advantages of the invention.

I claim:

1. A portable carpet or rug rinsing apparatus comprising a pair of supporting cylindrical rollers having trunnions at each end thereof, a frame for mounting said rollers with parallel axes in spaced advance and trailing relation, an elongated manifold trunnioned on the frame intermediate the rollers with its trunnion axis symmetrically parallel with the roller axes and with the respective axes spaced a material distance apart to thereby provide a zone of material extent intermediate vertical planes extending through the roller axes and within which zone the manifold is trunnioned, said manifold having a nozzle below the trunnion axis with the nozzle movable about such trunnion axis of the manifold through a limited arcuate path sufficiently above the floor plane as to permit free discharge of rinsing content from the manifold in all positions of the nozzle within such path, said manifold having an inlet at its top for the rinsing fluid content, a skeleton frame leading upwardly from the manifold for operator service in manipulating the apparatus, and controllable air and water carriers supported by the skeleton frame and operatively connected to said manifold inlet for supplying said manifold with rinsing fluid under pressure, said apparatus presenting an isolated rinsing zone between the rollers through downward pressure on the skeleton frame by the operator, said rollers during advance of the apparatus being active in applying pressure to the top of the carpet or rug to remove liquid therefrom with the advance roller active in removing previously applied cleansing fluid and with the trailing roller active in removing the rinsing liquid.

2. Apparatus as in claim 1 characterized in that the supporting frame for the rollers includes a plate at each end of the rollers, said plate carrying spaced depending bearings for a trunnion of each roller and with said bearings spaced a material distance apart and of similar dimensions, said plate additionally carrying a depending bearing for a trunnion of the manifold intermediate and spaced from such roller bearings, said intermediate bearing having its axis below a plane connecting the axes of the roller bearings to thereby locate the manifold nozzle in proximity to but spaced from the floor plane to permit arcuate swinging of the nozzle to render the apparatus serviceable with either roller serving as the advance roller.

3. Apparatus as in claim 1 characterized in that the manifold is elongated vertically and with its lower nozzle portion having its length extending transversely of the direction of advance of the apparatus with such length approaching the length of the rollers, said manifold above the

nozzle portion being tapered toward such inlet in such length dimensions, the manifold in its vertical dimension being of increasing width in the fore and aft direction toward its top, said skeleton frame being connected to the manifold within the nozzle portion and symmetrical to the trunnion axis of such nozzle portion, whereby the arcuate position of the nozzle is variable by swinging of the skeleton frame on the trunnion axis with the manifold and its supply formation bodily swingable with the skeleton frame, downward pressure applied to such skeleton frame applying downward pressure on the rollers through the mutual supporting relation of rollers and manifold with the supporting frame.

4. Apparatus as in claim 3 characterized in that the inlet to the manifold includes a tubular member from which a pair of tubular supply members extend upwardly, said tubular supply members being in open communication with the tubular member, said skeleton frame carrying a transverse supporting element to which the tubular supply members are secured, said tubular supply members having connection with sources of air and water supply respectively, and each having a controllable valve between said transverse supporting element and the upper end of the frame to thereby permit ready operator control of the characteristics of the rinsing fluid and its delivery pressure.

HENRY C. HARTENBACH, JR.

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