

April 2, 1946.

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2,397,707

FLOOR CLEANING APPARATUS

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2 Sheets-Sheet 1

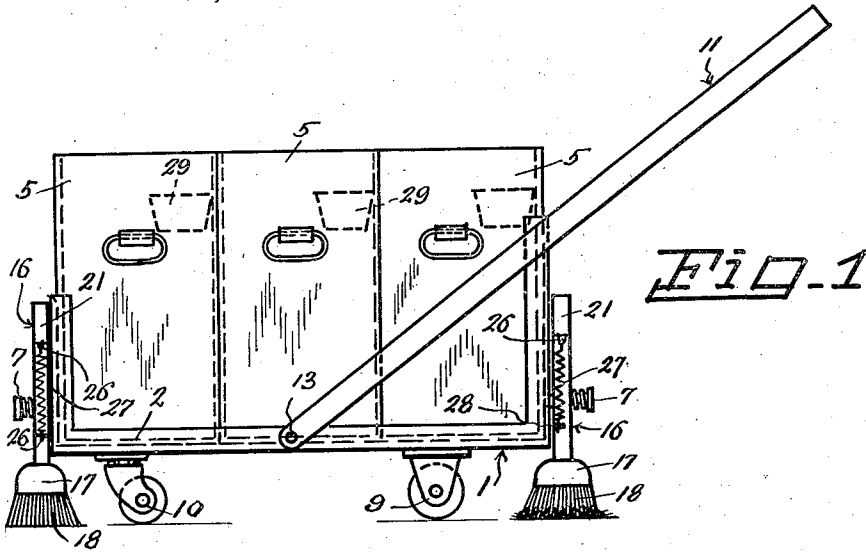


Fig. 1

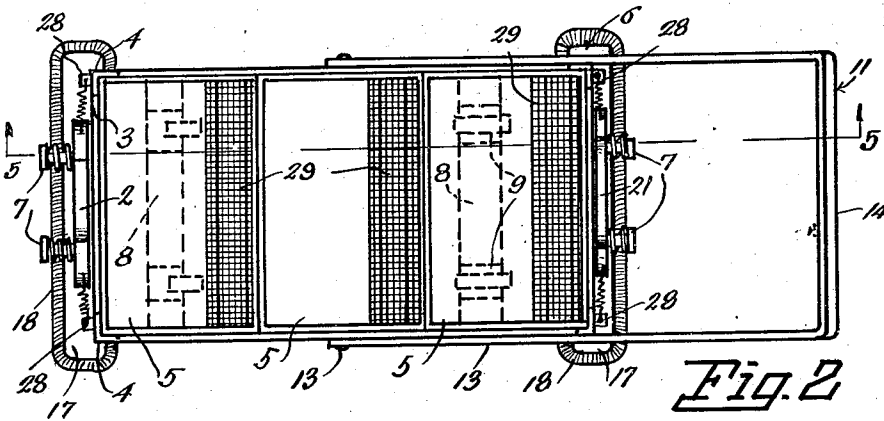


Fig. 2

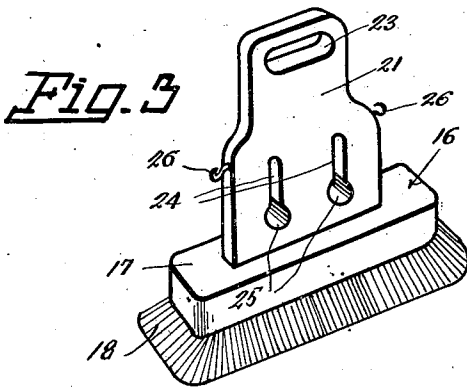


Fig. 3

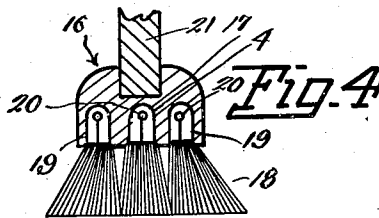


Fig. 4

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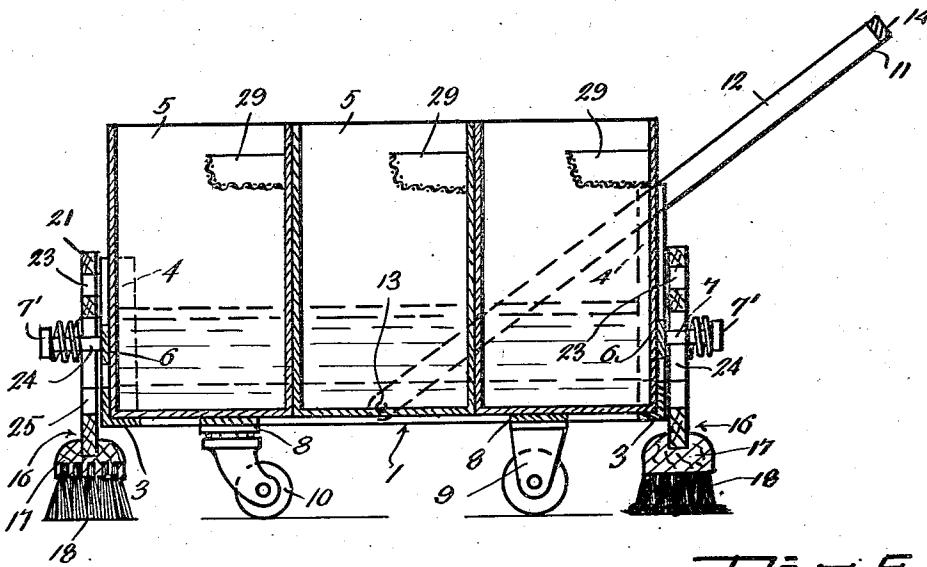
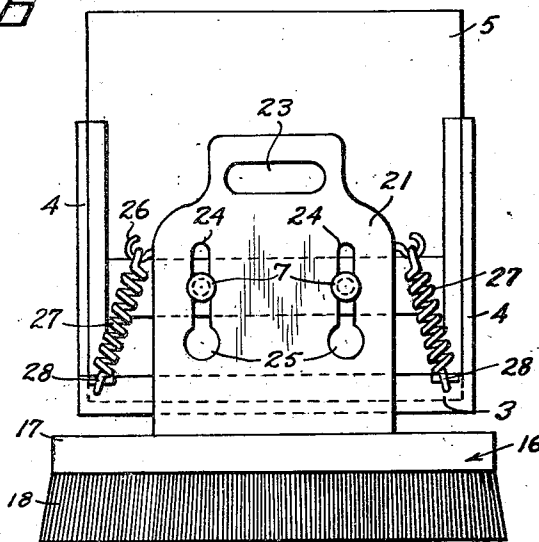


Fig. 5

Fig. 6



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FLOOR CLEANING APPARATUS

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Application December 8, 1943, Serial No. 513,431

2 Claims. (Cl. 15—50)

This invention relates to a floor cleaning apparatus and it is one object of the invention to provide an apparatus adapted to be moved along a floor by a workman and carrying a brush and a mop by means of which the floor may be scrubbed and then rinsed and mopped dry.

Another object of the invention is to provide the apparatus with a carriage or portable frame equipped with wheels and castors so that it may be very easily pushed along the floor and guided during such movement, said frame holding a plurality of tanks which serve as containers for washing water containing soap or a cleaning powder and also for holding rinsing water, the tanks being easily removable from the frame when water is to be emptied therefrom.

Another object of the invention is to provide the tanks with wringers consisting of trough-shaped members formed of foraminous material and open at their tops so that a brush or mop may be thrust downwardly therein and pressure applied to expel water.

Another object of the invention is to provide a handle so mounted that it may be swung longitudinally of the frame or carriage to a position in which it projects from either end of the carriage, the handle being formed of resilient material and having arms extending from a handle bar of slightly less length than the width of the carriage. By so forming the handle its arms must be spread when the handle is applied to the carriage and its arms will grip the frame and frictionally hold the handle in adjusted position.

Another object is to provide a cleaner and a swab detachably mounted at opposite ends of the carriage and each being shiftable vertically and urged downwardly so that the brush or swab will be pressed against the floor.

In the accompanying drawings:

Fig. 1 is a side elevation of the improved floor cleaning apparatus.

Fig. 2 is a top plan view thereof.

Fig. 3 is a perspective view of the brush or mop at one end of the carriage.

Fig. 4 is a sectional view taken transversely through the brush.

Fig. 5 is a vertical sectional view taken longitudinally through the floor cleaning apparatus, on the line 5—5 of Fig. 2.

Fig. 6 is a view looking at one end of the floor cleaning apparatus.

This improved floor cleaning apparatus has a portable carriage or frame 1 formed of angle metal and having side bars 2 and end bars 3.

Corner posts 4 extend upwardly from the frame and since they are made of angle metal they may have snug fitting engagement with corners of a row of receptacles or tanks 5 carried by the carriage. Since the side bars and end bars 2 and 3 overlap lower portions of the tanks they can not slide longitudinally or transversely off the carriage and since the corner posts have close fitting engagement with sides and ends of the tanks, they will be prevented from tipping and falling from the carriage. Cross bars 6 extend between the posts across opposite ends of the carriage and these bars carry studs 7 which project outwardly from the cross bars and have heads 7' at their outer ends. There have also been provided cross bars 8 which extend across the frame between the side bars thereof and are spaced from each other longitudinally of the frame as shown in Fig. 5. Referring to this figure and Figure 2, it will be seen that the cross bars serve to brace the frame or carriage against transverse spreading and also carry wheels 9 and castors 10 by means of which the carriage is supported above a floor and permit the carriage to be easily pushed along the floor. Since wheels having fixed mountings are used at one end of the carriage and castors at its other end, the carriage may be easily guided as it is pushed along a floor. A handle 11 serves as means for pushing or pulling the carriage along a floor. This handle is formed of thick metal having resiliency and since the handle is U-shaped, as shown in Fig. 2, it may straddle the carriage and have its arms 12 pivoted at their lower ends to the side bars 2 of the frame by fasteners 13. Since the pins or fasteners 13 are located midway the length of the frame or carriage, the handle may be swung longitudinally of the carriage and project from either end thereof an equal distance. The hand bar 14 of the handle is of less length than the width of the carriage or frame. Therefore, the arms 12 must be spread somewhat when the handle is applied and their tendency to return to their normal position will cause them to have gripping engagement with the corner posts and the handle will be frictionally held at a desired angle.

The cleaning members 16 at opposite ends of the frame are of duplicate construction except that one is preferably a brush and the other a mop. Each has a head 17 carrying tufts 18 which are held in grooves 19 formed in the under face of a head by wires 20, it being understood that the tufts of the brush will be formed of stiff strands and the tufts of the mop of soft material.

such as cord or the like. A board 21 extends upwardly from each head 17 and has its lower end mounted in a groove or recess 22 formed in the head. The upper portion of the board is of reduced width and across its upper end the board is formed with an opening 23 which provides the board with a handhold so that it may be easily grasped and the cleaner held in a person's hand. Slots 24 having enlarged lower portions 25 are formed vertically in the board in transverse spaced relation to each other, and attention is called to the fact that the dimensions of the slots and their lower portions are such that while heads of the studs may pass through the lower portions 25 of the slots, they may not pass through the slots themselves. Therefore, the boards may be applied to the studs by passing the studs through the enlarged portions of the slots and when the boards are shifted downwardly they will be held against movement off the studs. While the weight of the boards will urge the cleaners downwardly, it is desired to have them pressed against the floor so that a good cleaning or mopping action will be had. Therefore each board carries hooks 26 which project from its opposite sides for engagement by springs 27. These springs have their lower ends engaged with lugs or brackets 23 carried by the end bars 3 and since the springs are stretched in order to be engaged with the hooks 26, they will exert downward pull and press the cleaners firmly against the floor.

When the floor cleaning apparatus is in use, the tanks or receptacles are filled with water, the water in one tank, preferably an end tank, having soap or a cleaning powder mixed therewith, and the other tanks being filled with plain water which is to be used for rinsing purposes. A brush is applied to one end of the carriage and a mop at its other end, or brushes may be applied to both ends of the carriage while scrubbing the floor, and mops substituted when swabbing the floor to remove dirty water after the floor has been thoroughly scrubbed and cleaned. In order to wet the brush or brushes with soapy water, a brush is grasped at its upper end and the springs 27 detached. The board is then detached from the studs 7 and the brush dipped into the tank containing soap water replaced. The carriage is then pushed or pulled along the floor and the brush or brushes will scrub the floor clean. Reciprocating movement may be imparted to the carriage and also transverse movement. After the floor or a portion thereof has been scrubbed, the brushes are removed and the mops substituted. The mops are successively dipped in the clear water and surplus water removed therefrom before and after a mopping operation.

In order that water may be removed from a

mop, each tank is provided with a wringer 29 consisting of a tray formed of foraminous material such as perforated sheet metal or thick wire screening. The trays extend transversely in the tanks and when a mop or brush is set into a tray and pressure applied, water will be squeezed therefrom and drain into the tank. It will thus be seen that with this apparatus, a floor may be scrubbed in a very thorough manner and then mopped dry.

Having thus described the invention, what is claimed is:

1. In a floor cleaning apparatus, a portable frame having corner posts and cross bars extending transversely of the frame at ends thereof between the corner posts, studs extending outwardly from said cross bars and spaced from each other longitudinally of the cross bars and having heads at their outer ends, cleaning implements at opposite ends of said frame, each cleaning implement consisting of a cleaner-head extending transversely of the frame with its ends projecting from opposite sides of the frame, strands depending from the cleaner-head, a board extending upwardly from the cleaner-head and projecting upwardly above the cross bars, the board being formed with vertical slots in its lower portion through which the studs removably pass to mount the implement for vertical movement, springs coiled about said studs with their outer ends abutting heads of the studs and their inner ends bearing against the boards, hooks carried by the board at opposite sides thereof, and springs carried by said frame at opposite sides of its ends and engaged with said hooks to effect downward pull upon the cleaning elements.

2. In a floor cleaning apparatus, a portable frame, pins extending outwardly from an end of said frame and spaced from each other transversely of the frame and having heads at their outer ends, an implement at the said end of said frame having a head extending transversely of the frame for the full width thereof and carrying depending tufts, an upwardly extending board carried by the head and formed with a handhold at its top, said board being formed with transversely spaced vertical slots in its lower portion having enlarged lower ends whereby heads of the pins may be passed through the enlarged ends of the slots and the pins engaged through the slots and removably mount the implement for vertical sliding movement, hooks projecting from opposite sides of said board, eyes carried by said frame near opposite sides of the said end of the frame, and coil springs carried by said eyes and extending upwardly with their upper ends removably engaged with said hooks to exert downward pull on the implement.

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