June 4, 1935. C. S. WOODS 2,003,847

WASHING DEVICE AND METHOD

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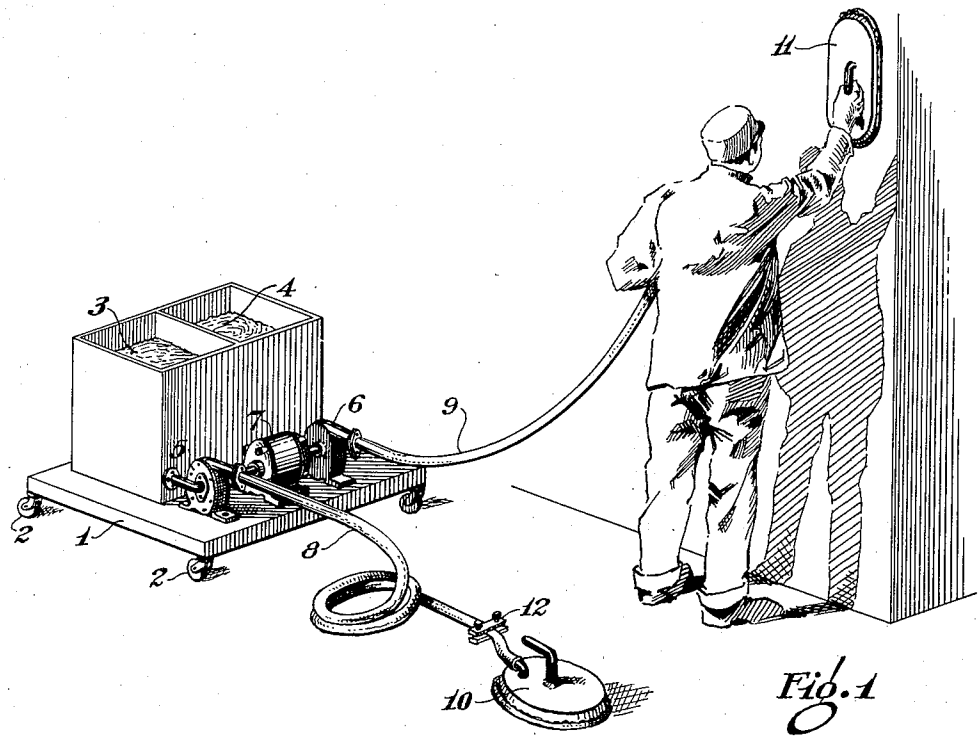


Fig. 1

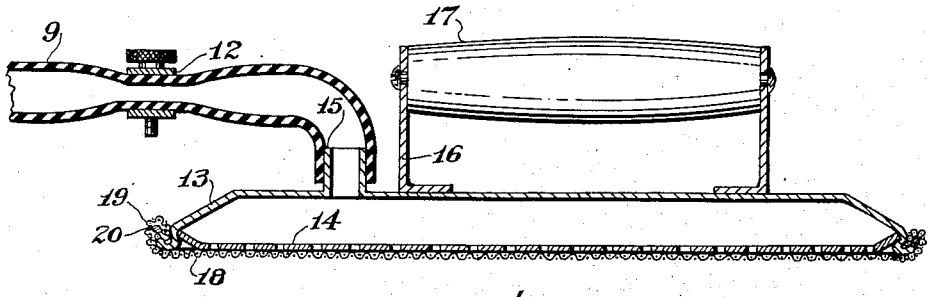


Fig. 2

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WASHING DEVICE AND METHOD

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3 Claims. (Cl. 15—269)

This invention relates to washing and is particularly applicable to washing of walls, ceilings, like vertical and overhanging surfaces.

It is an object of the invention to provide an improved method of washing.

Another object of the invention is to provide an improved method of washing which may be effected with neatness and without surplus fluid being distributed in the vicinity of the washing.

Another object of the invention is to provide an improved apparatus by which the improved method may be performed.

Other objects will hereinafter appear.

The invention will be better understood from the description of one practical embodiment thereof illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the apparatus used in performing the method; and

Figure 2 is a cross-sectional view of one washing element of Figure 1.

Heretofore, in the washing of walls and the like, it has been customary to apply to the surface considerable quantities of water, together with soap and other cleaning materials, to scrub the surfaces with various implements, and thereafter to rinse the same in order to remove the used cleaning solution and dirt. Ordinarily, a large quantity of water is used, which runs down vertical surfaces, drips off overhanging surfaces, and makes it necessary to in some way dispose of this waste water, by drainage means or by mopping up, or the like. The time consumed in removing the waste renders the washing process inefficient, while the waste itself renders the process messy and inconvenient. Particularly is this so where surfaces must be washed without interfering with the use of the rooms being washed, such as, for instance, in hospitals and similar places, in which the walls and ceilings must frequently be washed, but where the washing operation must not interfere with the use of the building.

I have discovered that the great excesses of water ordinarily used are not essential to the cleaning process and that a much quicker, neater and very effective operation can be performed by limiting the amount of fluid, so that no substantial excess over that necessary to convey the cleaning material of the surface and to remove this material will be present, and so that at no time is there applied to a wall or ceiling sufficient moisture to run or drip down or off the same. When the cleaning has been completed, the surfaces will be left only in a damp condition with so little moisture that this will readily evaporate into the air and need not be removed.

The apparatus which I have devised for carrying out this method is shown in the accompanying drawing and consists of a platform or cart 1 mounted to be rolled from place to place as upon swivelled castors 2 and carrying on its upper surface two tanks 3 and 4 which may be, for compactness, a single tank with a central partition.

Connected to these tanks are two pumps 5 and 6 driven by an electric motor 7, and from each pump extends a hose 8 or 9. The ends of the hoses are connected to scrubbers 10 and 11 and the hoses adjacent these ends are provided with valves or clamps 12 by which the hoses may be flattened to any desired extent to restrict the passage of water to the scrubber.

The purpose of the two tanks is that one may contain a mixture of water and cleaning material, such as soap or detergent, and the other may have available a supply of clear water for rinsing purposes.

The scrubbers are made as best shown in Figure 2 and each consists of a dished back 13, and a flat foraminous face plate 14 secured thereto to form a hollow chamber.

The back has a projecting tubular extension 15 with which the end of the hose may be frictionally engaged and has secured to it by means of one or more brackets 16 or the like, a handle 17 for its manipulation.

Fastened over the face plate is a layer of absorbent material 18 which I find could most conveniently be made of a fabric such as Turkish toweling, formed with a peripheral seam 19 through which is passed a draw-string 20 by which the fabric covering may be drawn together about the edges of the scrubber.

The scrubbers may be of any desired shape, such as round, elliptical, or oblong, but I find that a scrubber of about 2 feet in length and six inches in width covers a large area and is about as large as the average operator can conveniently manipulate.

The operation of the device is as follows:

The operator first fills the tank 3 with a mixture of water and cleaning material such as soap suds, and fills the other tank 4 with clear water; he brings the cart to a position where he can reach the wall or ceiling with the scrubbers, connects his motor to the lighting circuit of the building, and starts the same. He then loosens the clamp or valve of the scrubber 10, so that

the mixture from the tank will be delivered slowly to the interior of this scrubber. He now holds the scrubber flat upon the wall, sweeps it back and forth or up and down. Moving along as he does so, he can apply sufficient pressure to the wall to effectively remove dirt in passing over any given wall space, but due to the fairly large bearing area of the scrubber cannot obtain sufficient pressure to wear materially the paint or the like upon the wall.

The absorbent covering of this scrubber, of course, picks up practically all loose particles of dirt and becomes dirty in appearance in a short time. However, it may be effectively used for a period of hours before requiring replacement. When it becomes so filled with dirt as no longer to be effective, the operator has merely to untie and loosen the draw string, remove the fabric covering and replace it with another. Particles which adhere more closely to the surface may not be picked up with the first scrubber, but will be either dissolved or dislodged by the film of liquid, so that they will be held in solution or suspension in this film and will be readily picked up by the second scrubber.

The first scrubber in passing over the wall applies a thin film of cleaning solution which remains upon the wall, in which, as above mentioned, such dirt as was not picked up by the first scrubber is held in solution or suspension until rinsing. The film is probably only of capillary thickness so that it does not flow but adheres to the part of the wall to which it is applied. "Capillary" as used herein in describing the thickness of the film will be understood to mean that the film is sufficiently thin that fluid will not run down the surface but will stay where it is deposited, doubtless being held in place by its own surface tension or capillarity. After the operator has covered a given section of the wall with the first scrubber, he tightens the clamp or valve to shut off the supply of cleaning material, takes the other scrubber, and loosens its clamp or valve to slowly supply clear water to it. He then goes over the same section of wall, moving the scrubber over the area to remove all the remaining dirt, and leaving a thin film of clear water upon the wall surface. This film is so thin that it adheres in place upon the wall and does not run down the same, and in a very short period is completely evaporated.

The film of cleaning solution which was originally applied has by this time to a considerable extent evaporated, but the wall still remains slightly moist, the moisture containing whatever dirt remained. This dirt is picked up by the fabric covering of the second scrubber, mainly by its advancing edge, and the surface is left coated with a thin film of clear water only; which, as above mentioned, is allowed to remain until it is evaporated.

While I have described the illustrated embodiment of my invention in some particularity, obviously many others will readily occur to those skilled in this art, and I do not, therefore, limit myself to the precise details shown and described but claim as my invention all embodiments, variations and modifications thereof coming within the scope of the appended claims.

I claim:

1. The method of removing dirt from a surface which comprises first applying cleaning liquid to the surface at a uniform rate that permits only a film of liquid to form on said surface, simultaneously scrubbing the dirt and film, then permitting the cleaning liquid to partially evaporate, and thereafter applying a rinsing liquid to the surface at such a rate that it co-mingles with the remaining cleaning liquid and permits no more than a film of liquid to form upon the surface, and simultaneously with the application of said rinsing liquid wiping from the surface some of the co-mingled cleaning liquid and the dirt.

2. The method of removing dirt from a surface which comprises applying cleaning liquid thereto at a uniform rate which is sufficient to form only a film of capillary thickness upon said surface, simultaneously scrubbing the surface to cause the dirt thereon to enter into suspension in said film, and thereafter simultaneously applying rinsing liquid and wiping said dirt and co-mingled liquid from said surface.

3. The method of removing dirt from a surface which comprises applying cleaning liquid thereto at a uniform rate which is sufficient to form only a film of capillary thickness upon said surface, simultaneously scrubbing the surface to cause the dirt thereon to enter into suspension in said film, and thereafter supplying rinsing liquid progressively across the surface, whereby the cleaning liquid is replaced by rinsing liquid, and simultaneously wiping from said surface the suspended dirt together with substantially all the cleaning liquid.

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