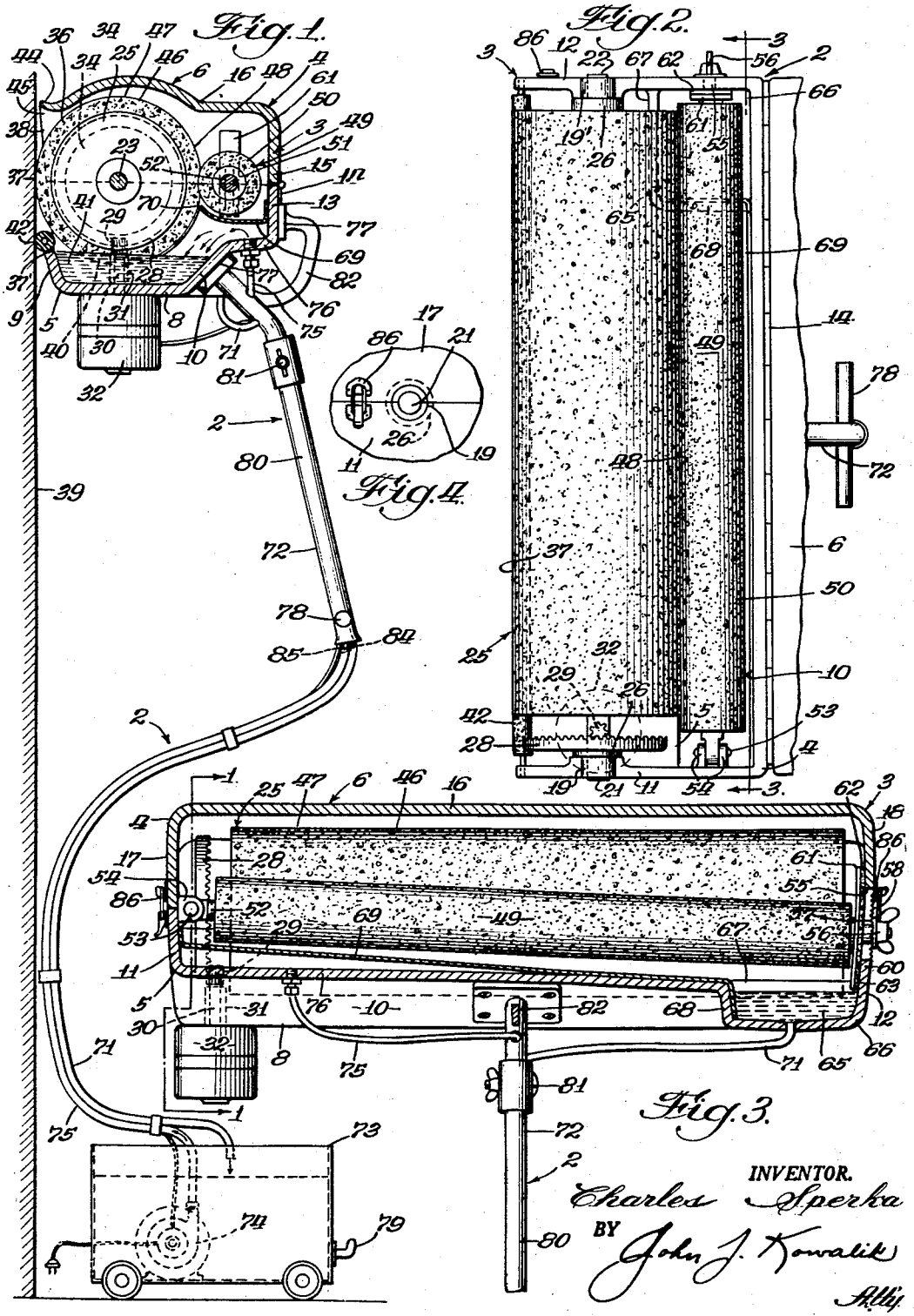
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WALL CLEANING DEVICE

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WALL CLEANING DEVICE

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This invention relates to a mechanical device for washing walls and the like and more particularly to a power driven unit.

A general object of the invention is to devise a novel and efficient cleaning mechanism which may be simply dismantled and assembled, and a further object is to provide a machine easily manipulated and wherein the parts are juxtaposed in a manner to obtain a separation of the dirt laden fluid from the clean fluid.

A more specific object is to provide a wall washing device incorporating a soft sponge-like cleaning roll which has a bottom side arranged to dip into a trough of cleaning liquid and a forward side to rub on the wall to be cleaned the roll having a back side tightly engaged by a wringing roll for squeezing out the dirt laden fluid from the cleaning roll.

A further object is to devise a means which in addition to wringing the cleaning roll also functions to wipe the cleaning roll for more adequately sloughing off dirt and the like therefrom such as calcimine, for example. These and other objects of the invention will be more apparent from the specification and the drawings, wherein:

Figure 1 is a transverse vertical sectional view of the invention taken substantially on the line 1—1 of Figure 3;

Figure 2 is a top plan view of the device with the cover opened and fragmentarily shown;

Figure 3 is a longitudinal sectional view taken substantially on the line 3—3 of Figure 2, and;

Figure 4 is a fragmentary side elevational view of the structure.

Describing the invention in detail and having particular reference to the drawings, the cleaning device generally designated 2 comprises a cleaning head 3 which includes a housing or support 4 comprising a bottom trough portion 5 and a cover portion 6.

The trough portion 5 includes a generally horizontal bottom wall 8 and integral upwardly diverging front and rear walls 9 and 10 which are interconnected by side walls 11 and 12. The rear wall has a rear upstanding flange portion 13 to which is attached a hinge 14 which connects to the rear wall 15 of the cover 6 whereby the cover is swingable to covering position as shown in Figure 1 or to open position as best seen in Figure 2.

The cover 6 in addition to its rear wall 15 includes an arcuate top wall 16 and laterally spaced vertical side walls 17 and 18 which align respectively with the side walls 11 and 12 of the bottom portion and clamp in concaves therebetween in the closed position of the cover, a pair of bearings 19, 19′ which mount opposite ends 21 and 22 of the shaft 23 (Figure 1) of the cleaning roll 25.

Each bearing has an inner collar 26 abutting against the inner side of the respective side walls which prevents outward displacement of the bearings. The inner side of the bearing 19 mounted on wall 11 abuts against one

side of a gear 28 which is secured and constrained for rotation with the roller and driven by a gear 29 mounted upon the upper end of a drive shaft 30 which extends through a packing gland 31 and the bottom wall 8 of the housing and driven by a motor 32 which is mounted on the underside of the housing and secured to the bottom wall 8 as by bolts.

The cleaning roll has a center core 34 which is connected to the shaft 23 and the core is covered by a flexible sheath 36 of a porous matrix made of rubber, plastic or cellulose. The roller or cylinder 25 has a forward or front side 37 which extends through the open side 38 of the housing for contact with the wall 39 as the bottom side 40 of the roll 25 dips into the fluid or liquid shown at 41 in the bottom of the trough and carries it to the forward side.

The trough is provided with a roller 42 along the lower edge of the opening 37 and journaled from the side walls of the trough and positioned along the upper edge 37′ of the front wall 9 of the bottom portion of the housing. The top wall of the cover has an upturned forward edge portion 44 which defines an outwardly widening space 45 with the periphery 46 of the roller 25 in order to funnel the dirt-laden water over the top side 47 of the roller onto its back or rear side 48 whereat there is provided a wringing and scraping roll 49 which is pressed against the back side 48 and thus disposed in driven relation to the cleaning roll.

The roll or cylinder 49 comprises an outer shell 50 preferably of hard durometer rubber, that is relative to that of the sheath 36 on the cleaning roll. The shell 50 is located on a metallic core 51 which is rotatably journaled on a shaft 52 which at one extremity is pivotally mounted at 53 on an axis substantially normal to the axis of the shaft 23 on the pin 53 which is carried on a pair of ears or lugs 54 which are connected to the wall 11. The other end of the shaft 52 projects through a vertical slot 55 which is formed in the wall 12 and outwardly of the wall 12 at whichever the shaft 52 is preferably threaded on which is screwed a wing nut 56 which is toothed at 57 and engaging the toothed margins 58 alongside the slot to hold the roller 49 in various positions of inclination to the axis of the roller 25. It will be observed that the wall portion 60 is arcuate about the center of the pin 53. Inwardly of the wall 12 there is provided a closure element 61 which may be lined with a sealing material 62 pressed against the interior sides at 63 of the walls 12 and 18 in covering relation to the slot 55, the element 61 being sleeved over shaft 52 and movable therewith and having a vertical extent to cover the slot in any position of roller 49. It will be observed that under normal conditions of washing a relatively clean wall, the roller 49 would be positioned generally parallel to the roller 25, however if the wall should be particularly dirty or if the unit is used to wash calcimine then the roller 49 would be inclined downwardly a greater extent on its rightward side (Figure 3) whereby the roller 49 in addition to pumping out the dirt from the deformable sheath 36 of the cleaning roller also scrapes or wipes or sloughs off the periphery 46 of roller 25 and channels the unclean water or fluid rightwardly (Figure 3) or toward the lower end of the roller 49 and into the drain enclosure 65 which is formed in the rearward right corner 66 of the trough by the juncture of walls 11 and 13 and upstanding wall portions 67 and 68, the walls 67 and 68 providing a dam for controlling the level of the water or fluid in the trough 5 and providing an overflow so that it does not rise above the upper edge 37′.

The flow of the dirty fluid is further controlled by a drain pan 69 which is underposed with respect to the

roller 49 and inclined in a direction toward the drain and has its free edge 70 disposed close to the back side 48 of roller 25. The dirty fluid may be channelled through a drain tube or pipe 71 which leads through a handle 72 into a tank 73 which may be wheel supported and mount an electrically driven pump 74 which is adapted to pump clear fluid through the inlet pipe or conduit 75 into the trough through the upwardly offset portion 76 of the rear wall at a level above the level of the fluid in the trough.

The handle 72 is preferably attached as at 77 to the back side of the wall as at 77 and may have a cross member 78 adjacent to its lower end serving as a handhold for an operator and which may serve to hold the unit in upright position when not in use by fitting into a cradle 79 provided on a side of the tank 73.

The lower portion 80 of the handle is removable at bolt 81. A further handle 82 is provided to permit washing the lower portions of walls adjacent to the floor upon disconnecting portion 80.

It will be noted that the discharge line 71 may be withdrawn from tank 73 and drained into a sink or any other container when the discharge water is exceptionally dirty or contaminated.

The lines 71, 75 may have quick couplings at 84, 85.

It will also be noted that there is herein shown the roller 49 against the back side of the roller 25 and deforming the same. The resiliency between the rolls is employed to maintain contact, however the roll 49 may be otherwise spring loaded and urged against roll 25 as will be readily understood by those skilled in the art.

I claim:

1. A washing head for a wall cleaning machine comprising a support, a washing roll rotatably carried therefrom and having a wall contacting side, means for applying cleaning fluid to said roll, and means for squeezing dirt laden fluid from said roll comprising a wringing roll disposed in pressing contact with said washing roll, and means adjustably mounting said wringing roll for selectively positioning the same parallel or at different angles to the axis of rotation of said washing roll in a plane generally tangential to the periphery of the washing roll in scuffing relation therewith.

2. A washing head comprising a support structure, a washing roller rotatably supported on a generally horizontal axis from said structure, a wringing roller disposed in pressing contact to said washing roller, means pivotally mounting one end of said wringing roller from said support on an axis angularly related to said axis of rotation of said washing roller, and means adjustably securing the other end of the wringing roller from said support in a plurality of positions about the axis of pivot of said wringing roller, said rollers disposed in generally horizontal alignment and said axis of pivot of the wringing roller extending generally horizontally.

3. A washing head for wall cleaning device comprising a housing, a power driven washing roller having at least a covering of soft, porous material and disposed in said housing and having one side projecting from the housing for wall engagement, means for supplying cleaning fluid to said roller, and means for wringing the roller comprising a second roller pressed against the washing roller, and means movably mounting said second roller for varying the disposition thereof with respect to the washing roller in rolling and scuffing relation thereto in a plane generally tangential to the surface of the latter.

4. In a device of the class described, a housing, a cleaning roll mounted in the housing for rotation on a given axis, a wringing roller assembly comprising a shaft pivoted at one end to one side of the housing therewithin on an axis transverse to the given axis, a roller rotatable on the shaft, said shaft having another end projecting through a vertically elongated slot in the opposite side of the housing, a closure element carried by the other end of the shaft within the housing in closing relation to the slot, and a nut threaded on the said other end of the shaft without the housing and engaging the outer side of said other side thereof, and said other side of the housing curved on said transverse axis as center.

References Cited in the file of this patent

UNITED STATES PATENTS

2,028,090	Frantz	Jan. 14, 1936
2,142,605	Dawson et al.	Jan. 3, 1939
2,187,585	Grigas	Jan. 16, 1940
2,239,183	Willard	Apr. 22, 1941
2,257,391	McDonnell	Sept. 20, 1941
2,335,491	Demikis	Nov. 30, 1943
2,350,342	Fay	June 6, 1944
2,587,627	Kauffman	Mar. 4, 1952
2,642,601	Saffioti	June 23, 1953
2,665,439	More	Jan. 12, 1954
2,744,403	Etten	May 8, 1956

FOREIGN PATENTS

851,472	Germany	Oct. 6, 1952