May 12, 1964 A. J. McMASTER ETAL 3,132,369

DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

Filed Dec. 22, 1961 7 Sheets-Sheet 1

Fig. 1.

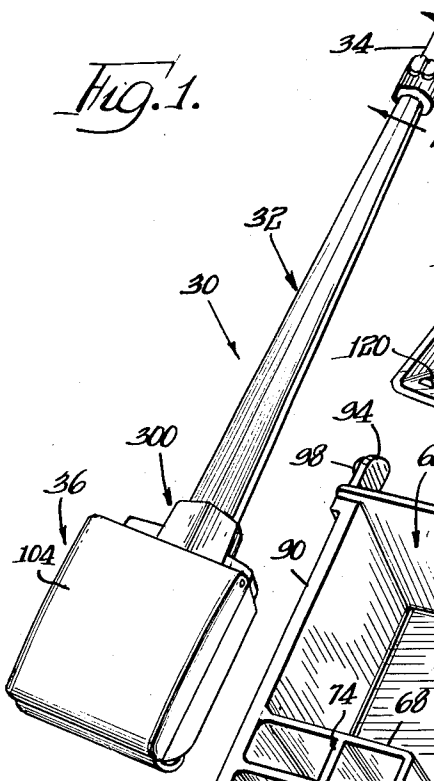


Fig. 3

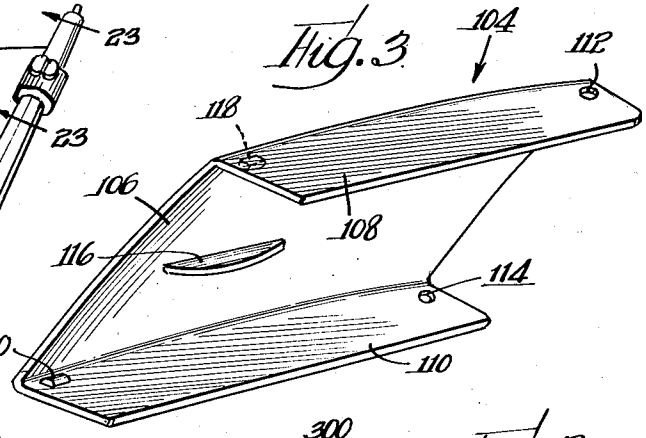
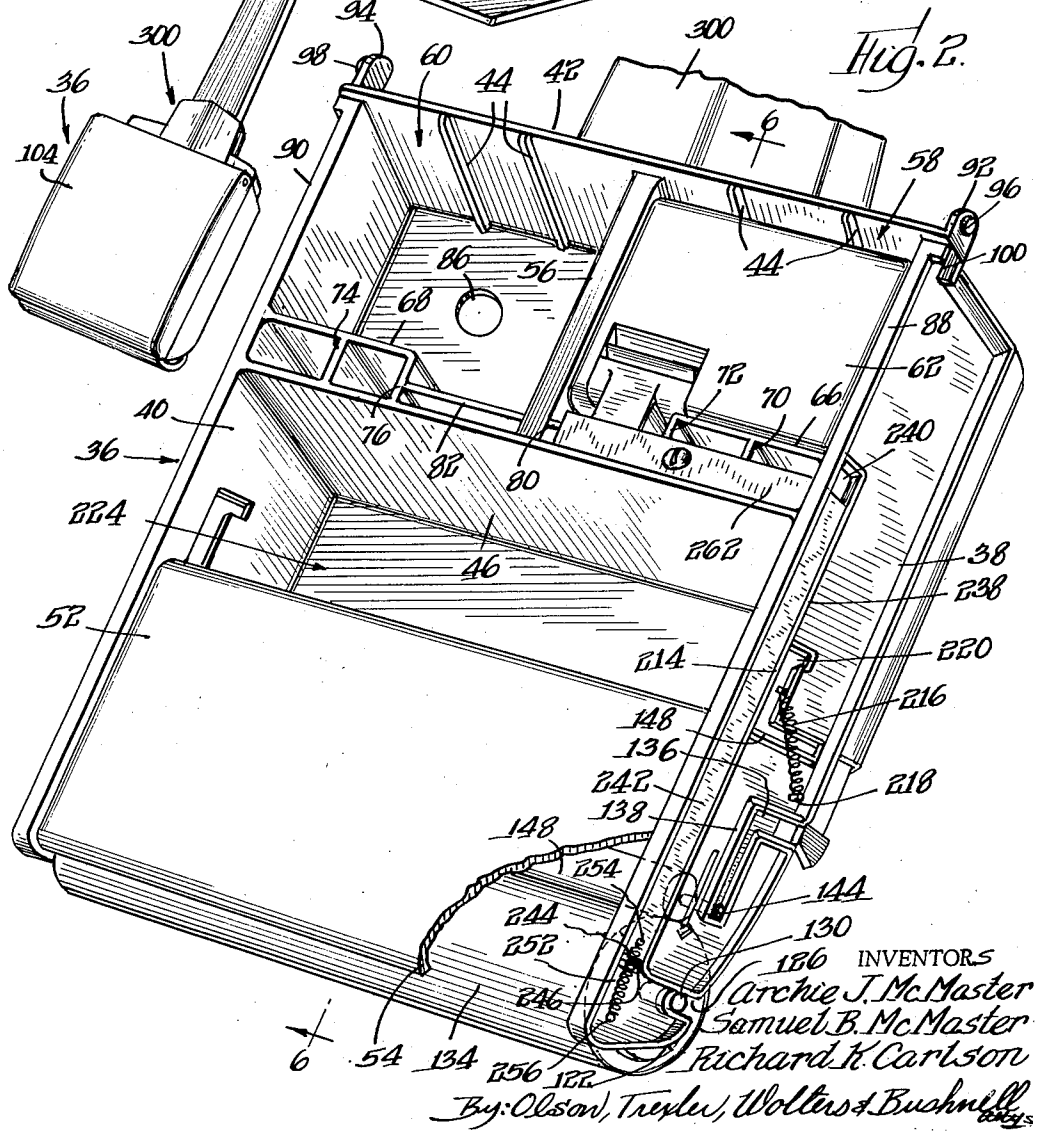


Fig. 2.



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DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

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Fig. 4.

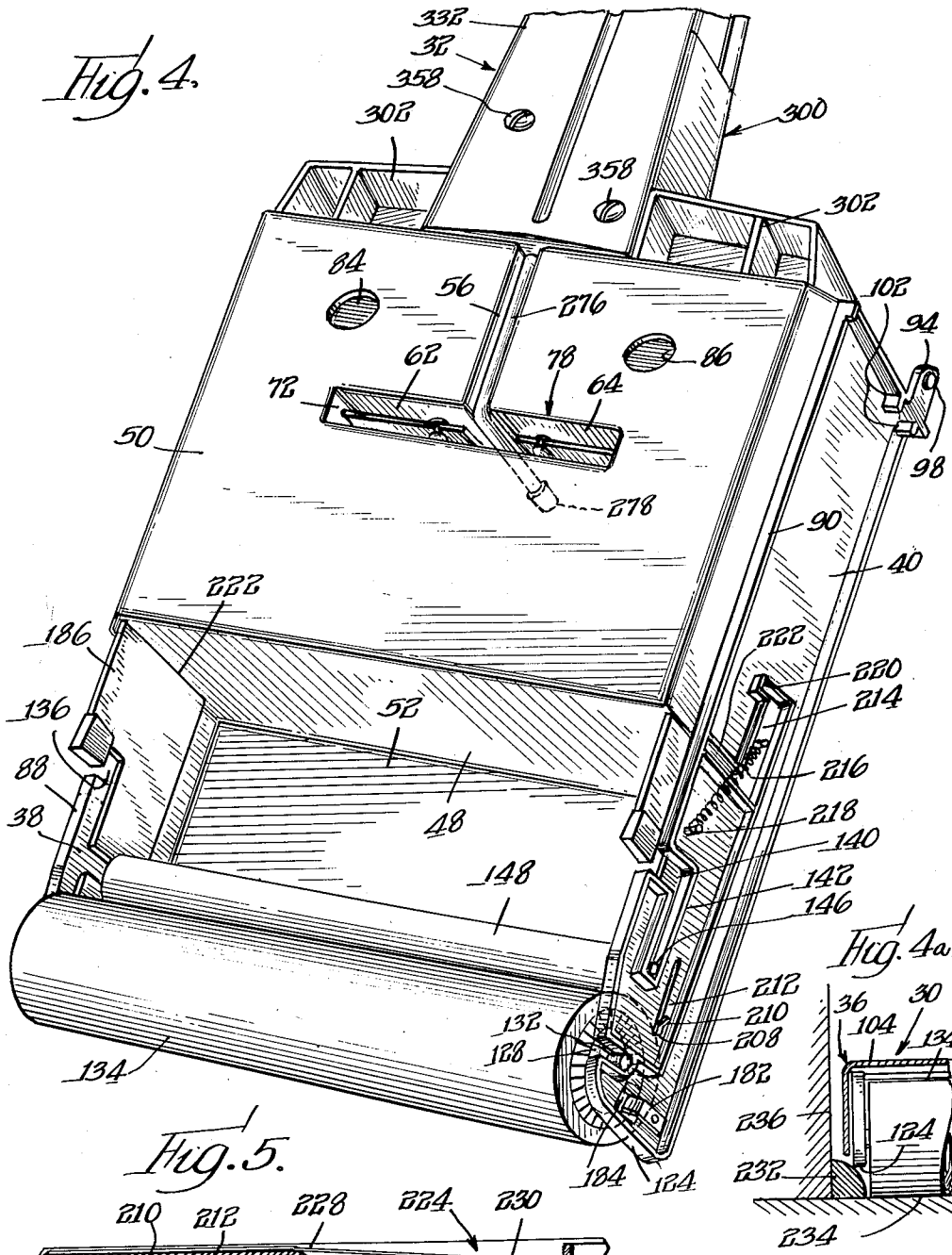
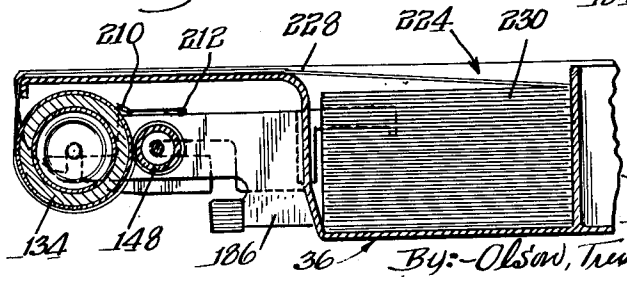


Fig. 4a.

Fig. 5.



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DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

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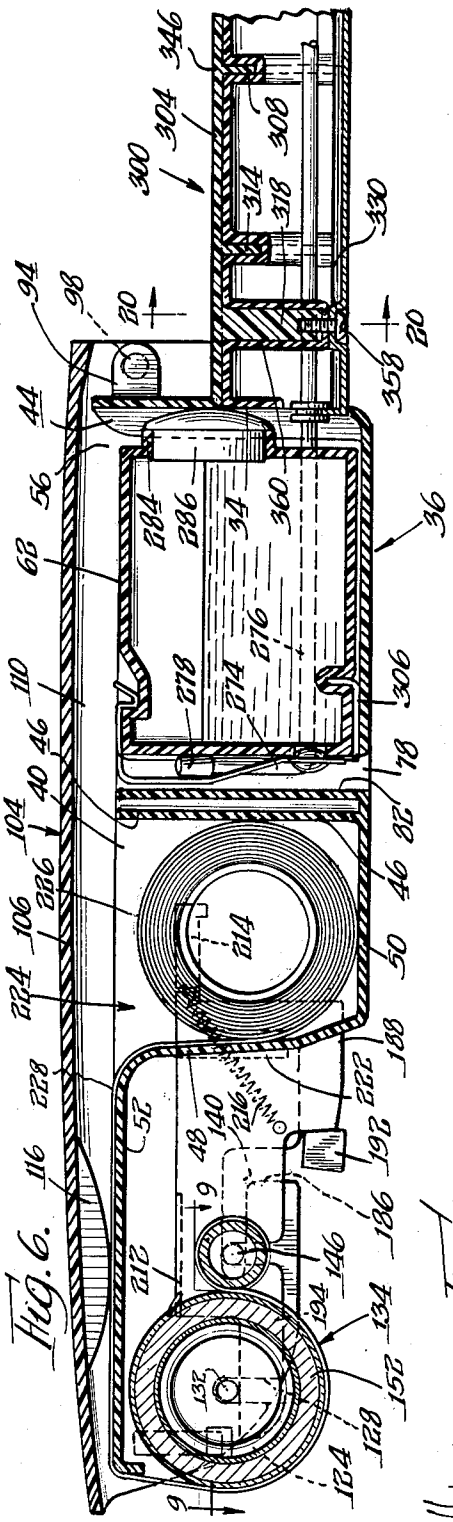


Fig. 6.

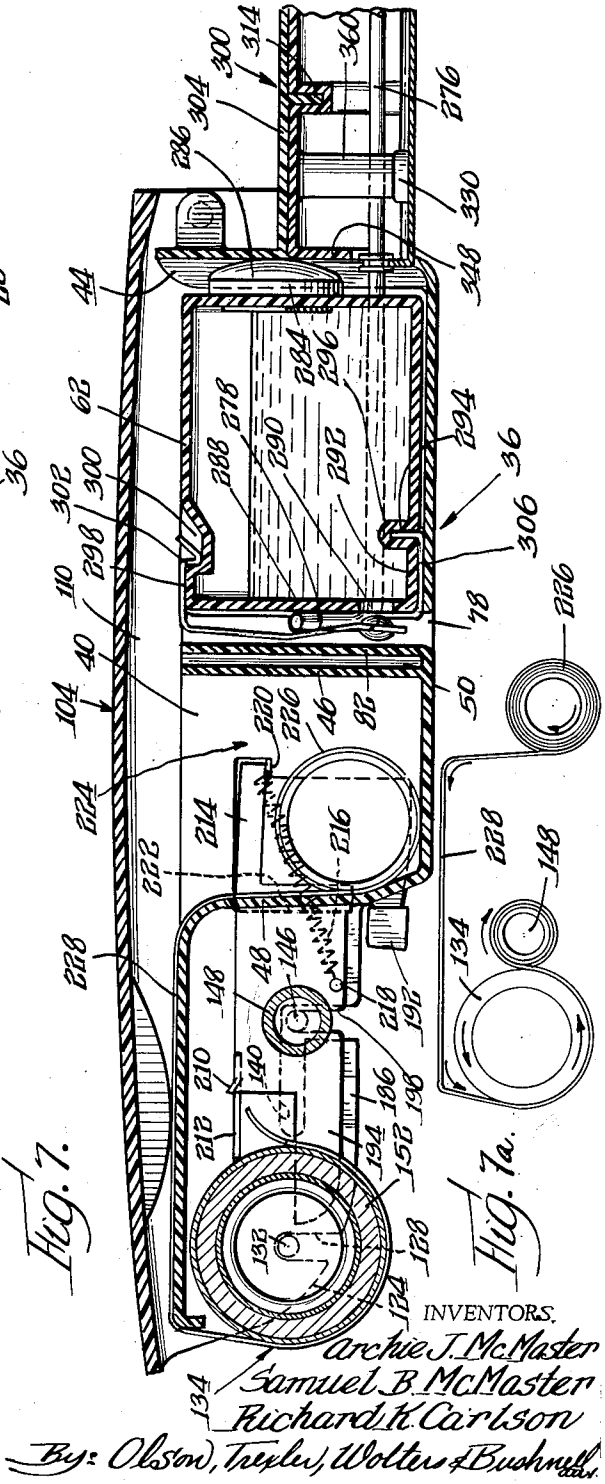


Fig. 7.

Fig. 7a.

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DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

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Fig. 8.

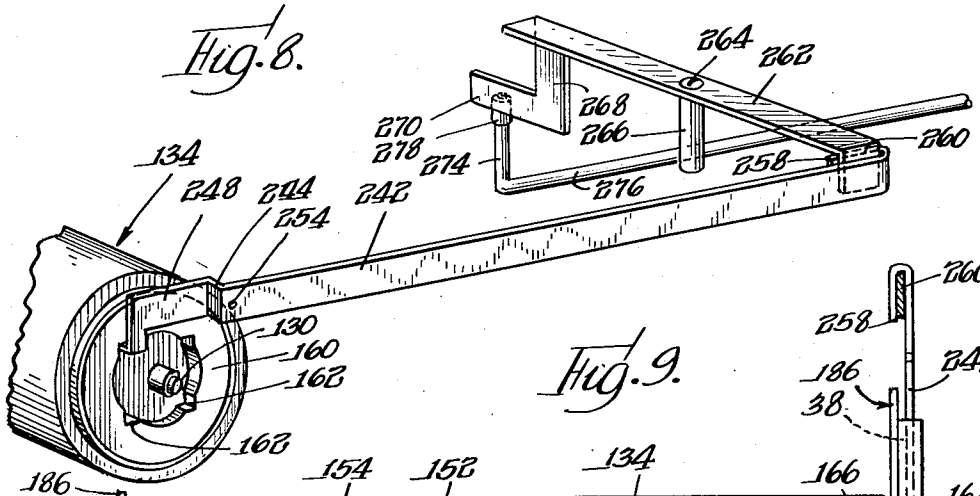
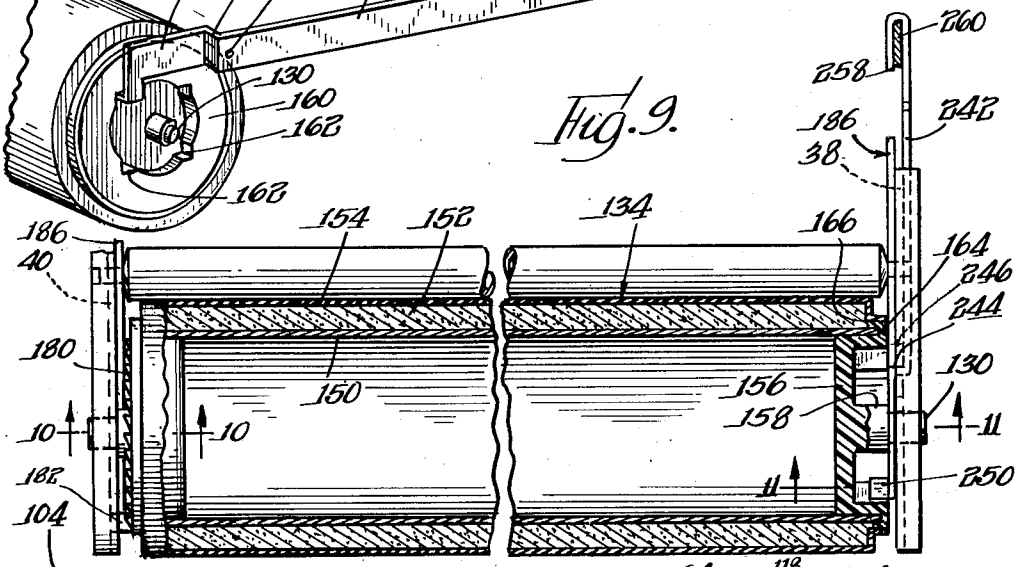


Fig. 9.



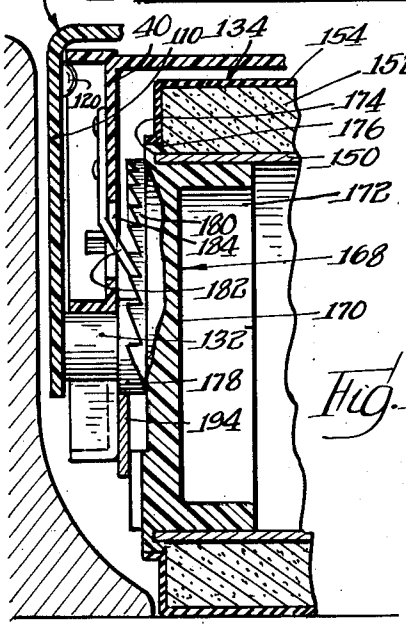


Fig. 10.

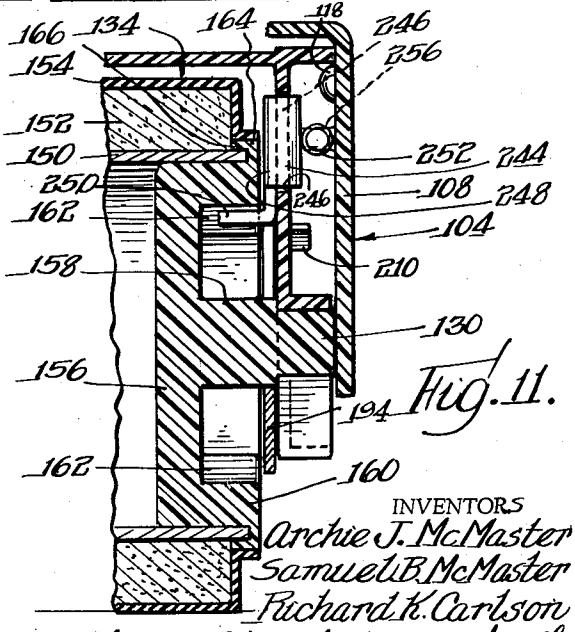


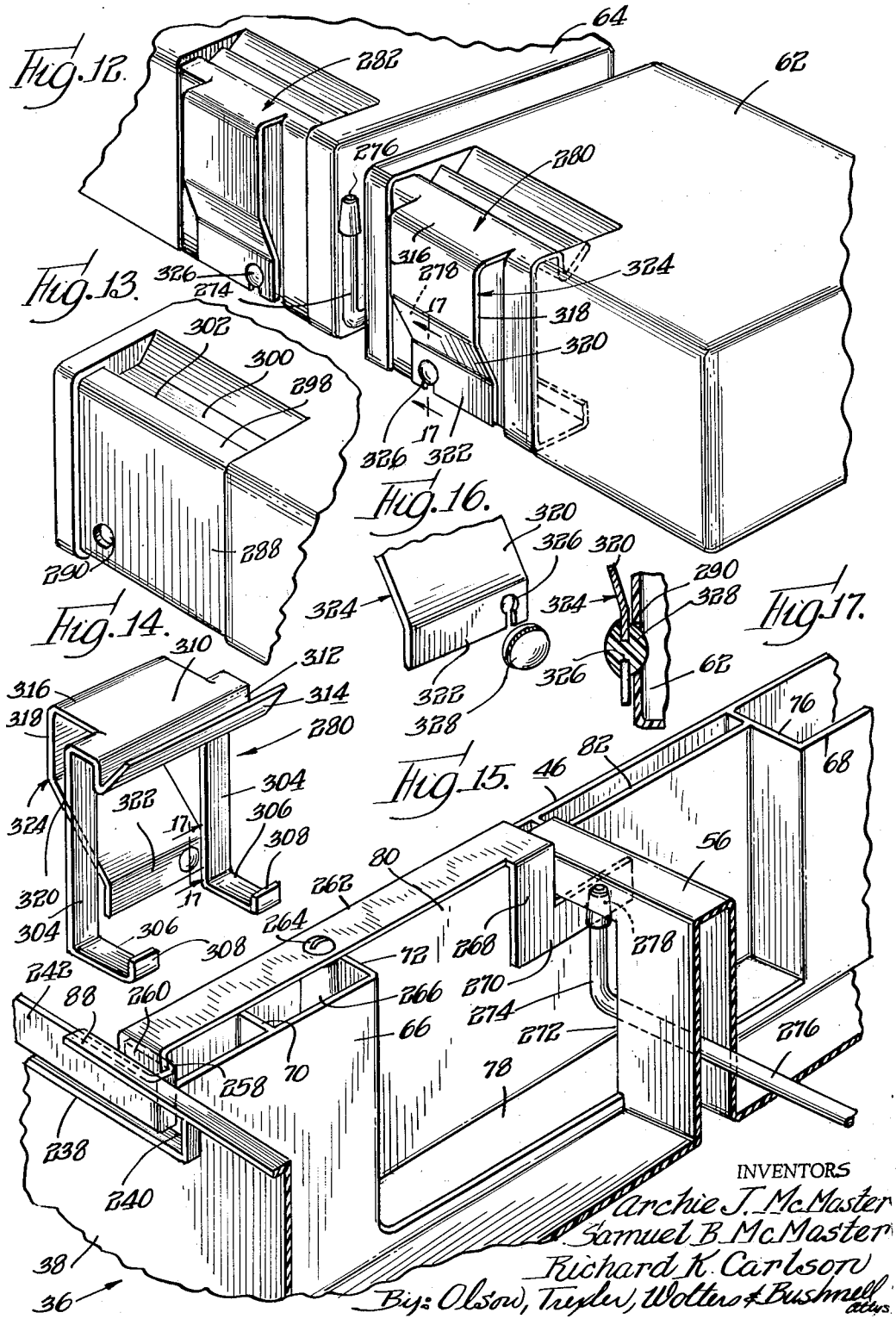
Fig. 11.

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DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

Filed Dec. 22, 1961 7 Sheets-Sheet 5



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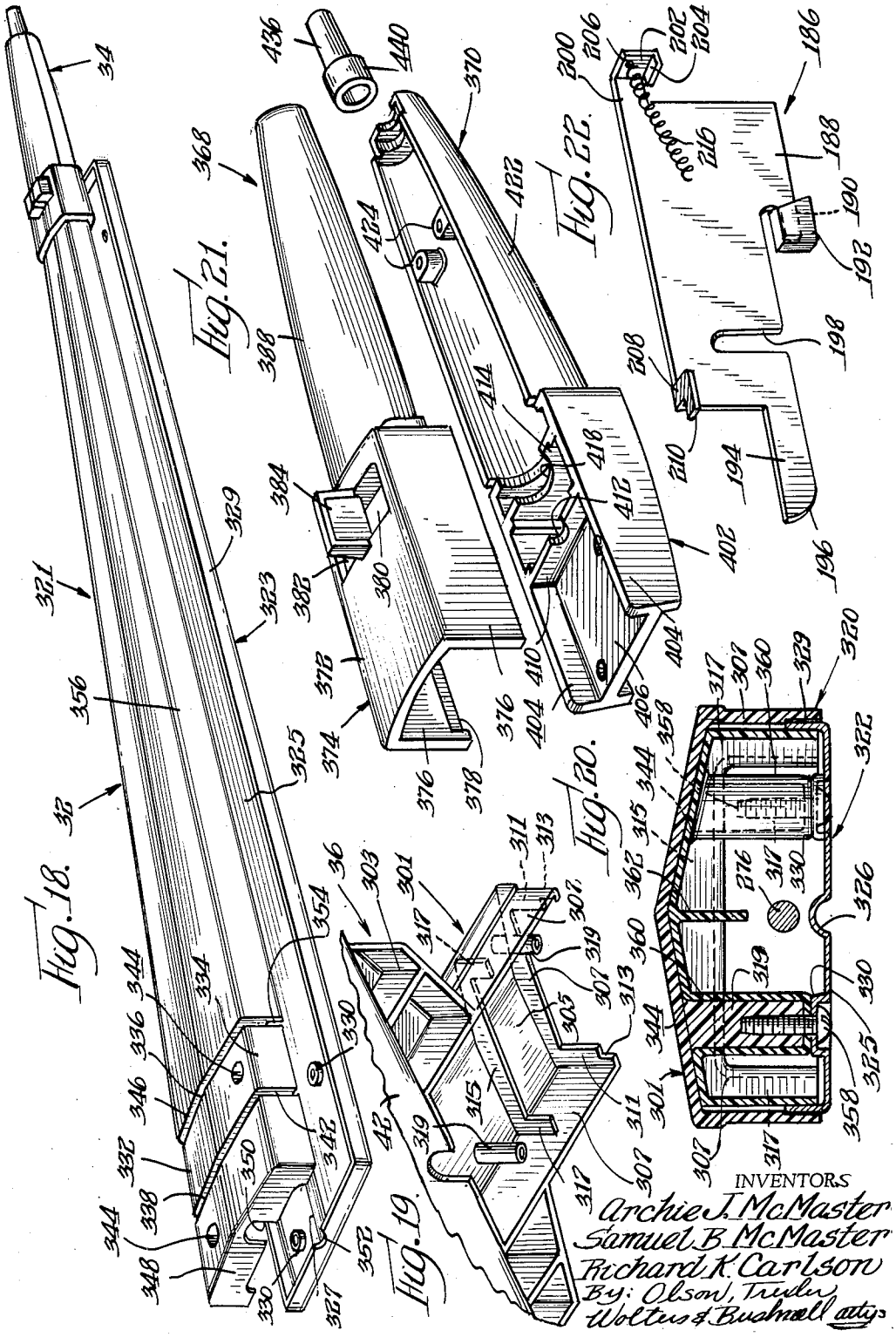
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DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

Filed Dec. 22, 1961 7 Sheets-Sheet 6



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DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

Filed Dec. 22, 1961 7 Sheets-Sheet 7

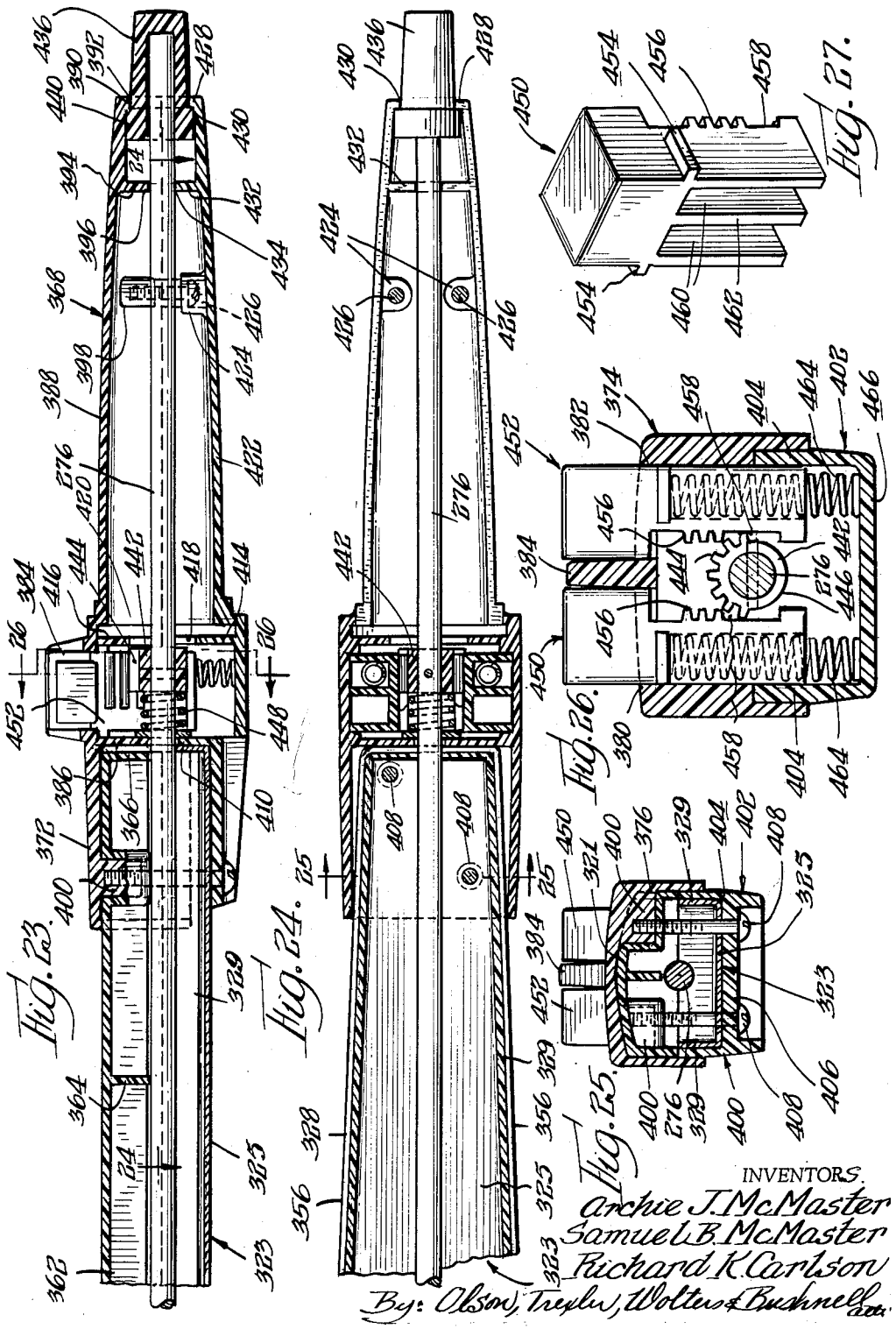


Fig. 23.

Fig. 24.

Fig. 25.

Fig. 26.

Fig. 27.

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United States Patent Office 3,132,369
Patented May 12, 1964

3,132,369

DEVICE FOR CONDITIONING SURFACES SUCH AS FLOORS AND THE LIKE

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Filed Dec. 22, 1961, Ser. No. 161,656
34 Claims. (Cl. 15—523)

This invention is concerned generally with the art of cleaning floors, and more particularly with a new and improved device or tool for cleaning and waxing floors.

For a great many years, it has been the practice to clean hard surfaced floors by washing them with water, or with a solution of water and some cleansing material such as soap or detergent. Mops and the like for this purpose have for many years been made of rags or other cloth, although in recent years there has been some use of sponge mops.

Such prior art devices have two outstanding disadvantages. Most of these devices do an incomplete job, picking up only part of the dirt while rearranging the rest of it. As will be apparent, a wet or damp mop cannot possibly dry a floor, and hence must necessarily leave a certain amount of water thereon. This precludes the possibility of picking up all of the dirt, and the situation is intensified when the mop is simply rinsed out in a bucket of dirty water, as is the usual practice. The foregoing is inherent in conventional mops, whether they be of cloth or of synthetic or other type sponge, since they cannot possibly be wrung out completely dry, and since all of the dirt cannot be separated from them in the usual wrinking process.

A second major deficiency of prior art floor mops and the like floor cleaning devices is that the floor cleaning portions thereof have not been disposable. Cloth, or sponge material, or the like has been used. It is time consuming, and often extremely difficult to clean such material properly. Whereas this might not be a major consideration in industrial uses, it is of prime importance for domestic use.

Accordingly, it is an object of this invention to provide a floor cleaning device or tool of improved design capable of removing substantially all of the dirt from the floor, and using disposable material for this purpose.

It is further an object of this invention to provide a device or tool of the aforementioned nature which further is capable of applying a protective finish such as self-polishing floor wax to a floor.

In accordance with the principles of this invention, a floor cleaning tool is provided utilizing a web of absorbent, disposable material for picking up the dirt-laden water, or other liquid on a floor. The web may be, for example, similar in nature to paper toweling. As will be appreciated, such material has a very low wet strength. Having such low wet strength, such material is readily subject to tearing if any tension is applied thereto. Furthermore, such material, when wet, tends to adhere to any backing material. This, coupled with the low wet strength makes removal of such material from a backing member very difficult.

Accordingly, it is an object of this invention to provide a floor cleaning and waxing tool utilizing as a cleaning element a web of absorbent, disposable sheet material in combination with supporting and transporting means positively avoiding application of tension to the sheet material.

It is further an object to provide such a device having novel means for removing the sheet material from a back-up roller.

Yet another object of this invention is to provide a floor cleaning and waxing tool having a roller as a back-up means behind a web of absorbent sheet material, in combination with means for selectively locking the roller independent of the sheet material, alternatively to lock said roller, or to permit controlled rotation thereof.

It is another object of this invention to provide a floor cleaning and waxing tool utilizing a web of sheet material for engaging the floor, wherein the used portion of the web is maintained out of contact with the fresh portion thereof, thereby avoiding contamination of the fresh portion by the used portion.

Another object of this invention is to provide a floor cleaning and waxing tool having dispensing means for water or other cleaning liquid and dispensing means for a floor wax or the like, and further having an advanceable web of sheet material for acting on the floor, wherein there is provided a substantially common, one-hand control for controlling movement of the sheet material, and for controlling the dispensing means independently.

Yet another object of this invention is to provide, in a floor cleaning and waxing tool having a web of sheet material, an improved resilient non-absorbent back-up means for the sheet material in the floor working area thereof.

Another object of this invention is to provide a floor cleaning and waxing tool having a web of sheet material passed over a back-up roller, wherein the axes of the back-up roller and of the handle are correlated to avoid chatter of the tool as it passes over the floor or the like.

It is another object of this invention to provide a floor cleaning and waxing tool having a web of sheet material passing over a back-up roller and onto a take-up roller, wherein unitary means is provided for quick release of both the back-up roller and the take-up roller.

A still further object of the present invention is to provide improved valve means for dispensing floor cleaning and waxing liquids in a floor cleaning and waxing tool.

It is yet another object of this invention to provide a floor cleaning and waxing tool having a web of sheet material passing over a back-up roller, wherein means is provided for preventing backing up of the paper while the back-up roller is unlocked for advancement thereof.

Various additional objects and advantages of the present invention will be apparent from the following description when taken in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view of a floor cleaning and waxing tool constructed in accordance with the principles of this invention;

FIG. 2 is an enlarged perspective view showing the body of the tool with the cover thereof removed;

FIG. 3 is a perspective view of the cover of the body, taken from the underside thereof, and from a somewhat smaller scale than FIG. 2;

FIG. 4 is a perspective view of the body with the tool inverted;

FIG. 4*a* is a cross sectional view on a smaller scale showing the manner in which the tool clears a quarter-round at the junction of a wall and a floor;

FIG. 5 is a longitudinal sectional view through a portion of the body illustrating one embodiment of the invention;

FIG. 6 is a longitudinally sectional view through the housing as taken substantially along the lines 6—6 in FIG. 2;

FIG. 7 is a sectional view similar to FIG. 6, but with the supply roll nearly depleted and the take-up roller in position for removal or reinsertion;

FIG. 7*a* is a schematic view illustrating the path of the paper or the like web through the tool;

FIG. 8 is a perspective view illustrating parts of the mechanism for locking the back-up roller against rotation;

FIG. 9 is a cross sectional view through the back-up roller and above the take-up roller, taken substantially along the line 9—9 in FIG. 6;

FIG. 10 is an enlarged cross sectional view through the back-up roller as taken substantially along the line 10—10 in FIG. 9;

FIG. 11 is an enlarged cross sectional view through the back-up roller as taken substantially along the line 11—11 in FIG. 9;

FIG. 12 is an enlarged fragmentary perspective view showing the fluid dispensing bottles and the valve mechanisms therefor;

FIG. 13 is a fragmentary perspective view of a portion of one of the bottles or containers showing a detail thereof;

FIG. 14 is a perspective view of one of the valve closure mechanisms for the bottles;

FIG. 15 is a perspective view from the upper part of the tool showing the structure immediately adjacent the lower ends of the bottles for releasing the back-up roller locking mechanism;

FIG. 16 is a perspective view showing a detail of the valve closure mechanism;

FIG. 17 is a cross sectional view through a portion of the valve closure mechanism as taken substantially along the line 17—17 in FIG. 12;

FIG. 18 is a partially exploded perspective view of the handle of the tool;

FIG. 19 is a fragmentary perspective view of the underside of a portion of the tool body cooperable with the handle;

FIG. 20 is a cross sectional view through the juncture of the handle and body, as taken substantially along the line 20—20 in FIG. 6;

FIG. 21 is an exploded perspective view of the hand grip at the upper end of the handle;

FIG. 22 is a perspective view of the latch member for latching the back-up and take-up rollers releasably in the body;

FIG. 23 is a vertical longitudinal sectional view through the hand grip as taken substantially along the line 23—23 of FIG. 1, and on a greatly enlarged scale relative to FIG. 1.

FIG. 24 is a horizontal sectional view through the hand grip as taken substantially along the line 24—24 in FIG. 23;

FIG. 25 is a cross sectional view taken substantially along the line 25—25 in FIG. 24.

FIG. 26 is a cross sectional view taken along the line 26—26 in FIG. 23, and on a further enlarged scale, and

FIG. 27 is a perspective view of one of the thumb operable buttons associated with the hand grip.

Referring now in greater particularity to the drawings, and first to FIGS. 1–4, there will be seen a floor cleaning and waxing tool identified generally by the numeral 30, shown in FIG. 1 in its normal, inclined position of use. The tool includes a handle 32 having a hand grip 34 at the upper end thereof. A body or chassis 36 is secured to the lower end of the handle 32.

The body 36 is molded of a suitable plastic material, for example the material known as "Cycolac" plastic, sold by the Marbon Chemical Division of Borg-Warner Corporation.

The body 36 comprises a pair of side walls 38 and 40, respectively a left side wall and a right side wall, as viewed by the user in the normal position of a operation. The body also includes an upper transverse wall 42 having inner stiffening ribs 44 thereon, an intermediate transverse wall 46, and a lower transverse wall 48. A bottom wall 50 extends between the side walls 38 and 40, and from the upper transverse wall 42 to the intermediate transverse wall 46. A top wall 52 extends between the side walls 38 and 40, and from the lower transverse wall 48 substantially to the lowermost extremities of the side walls 38 and 40, being at this position turned down as a flange 54.

A longitudinal divider 56, in the form of a deep, narrow channel, extends from the upper transverse wall 42 to the intermediate transverse wall 46. This divider coacts with the walls 38, 40, 42 and 36 substantially to define a pair of compartments 58 and 60 for respectively holding bottles 62 and 64 (FIG. 12) designed to supply a floor cleaning fluid, such as water, and liquid floor wax or other floor finish.

Locator or spacer walls 66 ad 68 extend in from the side walls 38 and 40 toward the center of the body, and are spaced from the intermediate transverse wall in parallelism therewith by walls 70, 72, 74, and 76. A transverse channel 78 is provided communicating with the channel 56, by means of walls 80 and 82, respectively extending between the wall 72 and the longitudinal divider 56, and the wall 76 and the longitudinal divider 56. As is best seen in FIG. 4, the transverse channel 78 communicates with the channel 56 forming the longitudinal divider.

Before turning from the part of the tool now under consideration, it will be observed that holes 84 and 86, in the bottom wall 50 respectively open into the compartments 58 and 60. These holes provide finger clearance space for pushing the bottles 62 and 64 from the compartments.

The side wall 38 has a laterally extending flange 88 extending substantially completely about the periphery thereof, and a similar flange 90 is provided on the side wall 40. Near the upper ends of the side walls 38 and 40, and at the outer limits of the flanges 88 and 90, there are provided two ears 92 and 94, respectively having integral pivots or pins 96 and 98 extending outwardly away from one another. Stub flanges 100 and 102 extend from the vicinity of the ears 92 and 94 out over the side walls 38 and 40 to provide reinforcement for the ears. The pins 96 and 98 provide pivots for a cover 104 as seen in FIG. 3.

The cover 104 is molded of plastic, conveniently the same "Cycolac" plastic used for the remainder of the body 36. The cover has a top wall 106, and side walls 108 and 110, provided near the upper corners with apertures 112 and 114, respectively receiving the pins 96 and 98. The side walls are sufficiently flexible to allow the cover to be snapped onto the pins. The cover is provided near the lower edge with a longitudinal depending rib 116 engageable with the paper web disclosed hereinafter to place a drag on the web. Finally, the cover is provided near the lower end thereof with protuberances 118 and 120 respectively adapted to cam over the flanges 88 and 90 for releaseably holding the cover in closed position on the body. The relation of the cover to the remainder of the body may be seen in FIGS. 6 and 7.

Near the bottom corner, the side wall 38 is cut back or relieved as at 122. Similarly, the side wall 40 is cut back or relieved at 124. Adjacent this area, a slot or notch 126 extends into the side wall 38, and a similar slot or notch 128 extends into the side wall 40. Portions of the peripheral flanges 88 and 90 respectively extend around these slots. The slots respectively receive the pins or axles 130 and 132 of a back-up roller 134. The construction of the roller, and the structure for holding the roller axles in the slots will be discussed more completely hereinafter.

The side wall 38 is provided with an L-shaped slot 136 leading in from the lower edge thereof, and is surrounded by a transverse reinforcing flange 138. A similar L-shaped slot 140 is provided in the side wall 40, and is rimmed by a transverse flange 142. The slots 136 and 140 respectively receive the pins or axles 144 and 146 of a take-up roller 148. The construction of this roller, and the structure for holding it in place will be set forth in greater detail hereinafter.

Referring now to FIG. 9, the back-up roller 134 will be seen to comprise a central tube or cylinder 150, preferably made of a non-corroding metal, such as aluminum. A

layer of sponge or foam rubber 152 overlies the cylinder 150. Over the foam rubber layer 152 there is stretched a skin or "raincoat" of waterproof sheet rubber 154.

As is seen best in FIGS. 8, 9 and 11, the roller 134 also includes a left end bell 156 molded of suitable plastic, such as nylon. This end bell is provided with a central boss 158 on which is the pin or axle 130 of somewhat reduced diameter. The end bell 156 is also provided with an axially extending, peripheral rim or flange 160. This rim or flange is provided with radially inwardly opening notches 162 at equally spaced intervals. Such notches are conveniently four in number, and are provided for latching or locking the roller in nonrotatable position, as will be discussed shortly hereinafter.

The left end bell 156 is provided at its axially outer extremity with a radially extending peripheral flange 164, having an axially reverse flange 166 thereon, leaving a slot for receipt of the cylinder 150, which forms a press fit with the left end bell.

The roller also includes a right end bell identified generally by the numeral 168, including a disc portion 170, and an axially inwardly directed flange 172 with which the cylinder 150 forms a press fit. A radially outward flange 174, and a reverse axial flange 176 are provided, as on the left end bell, to form a better press fit with the cylinder 150. The rubber skin or raincoat 154 is stretched over the flange 176, as well as over the flange 166, whereby to seal the outer cover of the roller against the end bells, and thereby completely to prevent penetration of moisture into the roller.

The outer face of the right end bell is provided with a central, axially extending boss 178, reduced in diameter to form the right end pin or axle 132. In addition, the right end bell is provided with a circular ratchet 180 extending axially therefrom, and integral therewith. The ratchet is cooperable with a spring metal pawl 182, secured to the side wall 40 by suitable means such as rivets, and extending diagonally in through a slot or opening 184 (see also FIG. 4) into engagement with the teeth of the circular or annular ratchet 180. This pawl and ratchet allow rotation of the roller in only one direction, namely forward, or counterclockwise as viewed in FIGS. 2, 6, 7, and 8. This is to insure against backing-up of the roller when the latch mechanism associated with the left end bell is released.

The take-up roller 148 preferably is molded of plastic material, such as the "Cycolac" plastic previously mentioned. Conveniently, the roller is molded in two identical halves, split longitudinally, and is cemented together.

The structure for holding the back-up and take-up rollers in place is shown best in FIGS. 6, 7 and 22, and comprises a sheet metal latch member 186. Like all of the other parts of the floor cleaning and waxing tool disclosed herein, this latch member is made of non-corroding material, for example, stainless steel. There are two such latch members 186, one on each side of the tool, and the one shown in FIG. 22 is for the left side of the tool, while the latch member shown in FIGS. 6 and 7 is for the right side of the tool. The latch members are mirror images, and the slight distinctions between them will be pointed out. The latch member 186 is of generally rectangular configuration, and has a depending portion 188 with a forwardly extending finger 190 thereon, on which is cemented or otherwise suitably secured a plastic finger piece 192. The latch member 186 is provided near its lower front corner with a longitudinally extending finger 194 curved at the lower corner at 196 to correspond to the relieved edge 124 of the side wall 40, and the relieved edge 122 of the side wall 38. Also near the lower left corner, the latch member 186 is provided with an elongated slot 198 extending up into the body of the latch member from the lower edge thereof.

At the upper right corner of the latch member 186 there is provided a rearwardly extending finger 200, having thereon a flange 202 extending transversely out therefrom. The flange 202 depends below the finger 200, and is provided along its lower edge with a forwardly extending, relatively narrow flange 204. Near the upper outer corner of the flange 202, there is provided a hole 206, forming a spring anchor.

At the upper left corner of the latch member 186, there is provided an outwardly directed flange 208, having a substantially L-shaped projection. In the case of the left latch member 186, as shown in FIG. 22, the projections, including the flange 202 and the flange 208 extend to the left. On the right latch member, the parts project to the right. Since the latch members are formed of sheet material, these projections are readily bent to the desired configuration.

The side walls 38, 40 are provided near the lower ends with longitudinal slots 212 through which the flanges 208 and fingers 210 extend, the fingers 210 being tipped up after association with the side walls, whereby to prevent retraction thereof.

The side walls are also provided with wider longitudinal slots 214, in which the flanges 202 are received. The lower portions of the flanges 202 with the forwardly extending flanges 204 ride on the lower edges of the slots 214. As will be seen in FIG. 6, the forwardly extending finger 194 of each latch member underlies the respective back-up roller axle 130, 132, whereby to hold the back-up roller in place. When the latch members are retracted to the position shown in FIG. 7, the back-up roller readily can be removed from the slots 126, 128. As also will be seen in FIG. 7, with the latch members retracted, the slots 198 therein correspond with the vertical portions of the L-shaped slots 136, 140 in the side walls, to allow the take-up roller 148 to be removed. When the latch members are in their forward position, as shown in FIG. 6, the axles of the take-up roller are in the forward positions of the L-shaped slots 140, whereby the take-up roller is held in place.

The latch members are resiliently urged in the forward or latching position by springs 216 stretched between the openings 206 in the fingers 202 and pins or lugs 218, conveniently molded integral with the side walls.

The longitudinal slots 214 are provided at their upper ends with downward extensions 220, for receiving the flanges 202 and fingers 204, to hold the latches in retracted position. At the lower or forward ends, the slots 214 communicate with transverse slots 222 in the side walls, to permit terminating the lower transverse wall 48 short of the side walls 38 and 40, whereby to provide clearance for the latch members 186, and also to allow the latch members to be installed, by inserting the flanges 202 and fingers 204 through the slots 222.

Before going onto the other parts of the tool, it is thought best to present a partial explanation of operation of the parts heretofore described. Thus, a compartment 224 is defined between transverse walls 46 and 48, and between the side walls 38 and 40. As may be seen in FIGS. 6, 7 and 7a, a roll 226 of absorbent paper, which, for example, may be similar to paper toweling, but without the usual transverse perforations therein, is placed in the compartment 224. It will be evident that paper toweling or the like with transverse perforations could be used. The web 228 of sheet material extends up along the lower transverse wall 48, and down along the top wall 52, over the flange 54 thereof, and about a portion of the periphery of the back-up roller 134. The pressure of the springs 216 on the latch members 186 holds the take-up roller 148 forwardly in substantially surface engagement with the roller 134, and the web 228 passes up between these two rollers, and winds up on the take-up roller 148. Normally, the back-up roller is locked by means of the notches 162 on the left end bell, and cooperating structure hereinafter to be described. Thus, the web of material is held stationary. When the tool is pressed down in working position against a floor or the

like, the foam rubber layer or cushion 152 on the back-up roller 134 compresses sufficiently to allow contact with the floor over a band approximately an inch wide, and the complete length of the roller. When it is desired to advance the web of sheet material, to bring fresh material into position, the latch is released momentarily, and the tool is pushed in a forward direction, i.e., away from the user. Engagement of the web against the floor, and of the back-up roller against the web causes the back-up roller to rotate in a counterclockwise direction, as indicated by the arrows in FIG. 7*a*. This acts through friction engagement to drive the roller 148. This surface driving engagement is of extreme importance from two standpoints.

Wet absorbent paper has very low tear strength. Thus, it is extremely undesirable to apply any tension to the paper after it has become wet in the working area at the lower end of the tool. Such tension is positively precluded by the surface driving engagement. The back-up roller, itself, overcomes any tendency to develop tension in the working area. Furthermore, once the paper is wet, it tends to adhere to the back-up roller 134. It is very difficult to remove without tearing the paper. However, the direct drive of the take-up roller 148, and the simultaneous contact of the paper web with the two rollers results in the paper web being peeled very neatly from the back-up roller 134 onto the take-up roller 148 without any tearing of the paper.

The paper web is dry in the vicinity from the roll 226 thereof until after it comes into contact with the back-up roller 134. Hence, the paper does not tend to adhere to adjacent surfaces, but slides readily over such surfaces. Furthermore, while the paper is still dry, it has a reasonably high tear strength. It will be observed that the path of the paper is such that the fresh paper which has not as yet come on to the back-up roller is never contacted by the used paper. Furthermore, since the paper does not wind up on the back-up roller, the used, wet paper does not engage the back-side of the fresh paper, thereby soiling the fresh paper before it can be used.

A modification of the invention is shown in FIG. 5, wherein the paper web 228 is supplied from an accordian pleated stack 230 of such absorbent paper or other sheet material. The structure of the tool remains the same as heretofore discussed, except that the compartment 224 may be somewhat longer in the longitudinal direction of the tool.

The importance of the relieved lower front corner of the body or chassis 36 of the tool 30 is illustrated in FIG. 4*a*. This allows the body or chassis to clear the usual quarterround 232 at the junction between a floor 234 and a wall 236, so that the roller 134 and the sheet material web thereon may be brought substantially into engagement with the lower edge of the quarterround.

Reference has been made heretofore to the mechanism cooperable with the notches 162 of the left end bell for locking the back-up roller 134. In FIG. 2, there will be seen a rib or flange 238 spaced below the top flange 88 on the side wall 38, and defining therewith a channel. An opening 240 is provided at the upper end of this channel. In this channel there is slidably received a latching strap 242, seen clearly also in FIG. 8 and in FIG. 15. The strap is provided near its front end with offset portion 244 passing through an opening 246 (FIG. 9) in the side wall 38. A forwardly extending portion 248 of the strap lies along the inside of the left side wall 38 in the vicinity of the left end of the back-up roller 134, and is provided along its lower front corner with an inwardly directed finger 250 engageable with a notch 162. A spring 252 is stretched between a hole 254 in the latch strap 242 immediately adjacent the offset 244, and a pin or stud 256 preferably molded integral with the side wall 38.

Referring now particularly to FIGS. 2, 8 and 15, it will be seen that the upper end of the strap 242 is provided with a reversely formed or reentrant hooklike portion 258 extending through the side wall opening 240. The depending end 260 of a transfer lever 262 is received in the reentrant portion, for pulling the latch strap 242 back against its spring. The transfer lever 262 is mounted on a stud or screw 264 threaded into a post 266 molded integral with the remainder of the body or chassis 36. The opposite end of the transfer lever has a bent down arm 268 with an extension 270 thereof which projects through a cutout 272 in the channel 56.

The upstanding transverse arm 274 of an operating rod 276 is provided with a nylon roller 278 engageable with the extension 270. The control rod 276 is operated by means of the hand grip 34 for longitudinally advancing the rod, whereby to push the roller 278 against the extension 270, and thereby to pivot the lever 262 in a counterclockwise direction as viewed in FIGS. 2, 8 and 15, thereby to retract the latch strap 242 against its biasing spring. This releases the roller so that it may be advanced in a forward direction. The operating rod 276 is housed in the channel 56, and the specific operation thereof will be set forth hereinafter in considerable detail.

Referring now to FIGS. 2, 6, 7 and 12–14, the bottles 62 and 64 are of blown plastic construction, conveniently polyethylene. The two bottles are similar, but of reverse or mirror image construction, and are provided with valve mechanisms 280 and 282, which also are of similar, mirror image construction.

The bottle 62 and valve mechanism 280 will be described, and it will be understood that the other bottle 64 and valve mechanism 282 are similar thereto. Each bottle is of generally rectangular, boxlike configuration, and is provided at the upper end with an open neck 284 for filling. The neck is closed by a plug 286 of plastic material, preferably polyethylene. This material is renowned for the fact that practically nothing will stick to it. Hence, the caps are readily removable for filling of the bottles. This is particularly important in connection with the bottle used for floor wax or the like, as deposits might otherwise tend to collect about the cap that would tend to make removal difficult.

The lower end of the bottle 62 is provided near the inner edge thereof with a recessed section 288 having a discharge opening 290 therein. A lower recessed surface portion 292 on the under side of the bottle communicates with the recess 288, and is terminated by an inwardly directed slot 294 in an internal projection 296 within the bottle. The top surface of the bottle is recessed at 298, in communication with the recess 288, and has formed behind it a trough 300 with a substantially right angle locking shoulder 302.

The valve mechanism 280 comprises a sheet metal stamping of non-corroding metal, such as spring tempered stainless steel. The valve comprises a pair of coplanar, spaced apart straps 304 adapted to lie in the recess 288. The straps are formed at their lower ends at right angles as extensions 306, adapted to lie in the recess 298, and finally are turned up as retaining flanges 308 adapted to be received in the slot 294.

The straps 304 at their upper ends are integrally joined by a transverse sheet metal section 310 at right angles to the straps 304. This flange or section is adapted to lie along the recess portion 298. A reentrant flange 312 is adapted to lie behind the shoulder 302, and this portion of the structure is terminated by a diagonally upward flange 314. The diagonal flange 314 allows the structure to be cammed over the lower end of the bottle 62, with the fingers 308 previously inserted in the slot 294, and with the flange 312 subsequently locking behind the shoulder 302. Removal is a reverse operation, the flange 314 being lifted by one's fingers to remove the top portion of the valve structure from the bottle.

The valve member 280 further includes a wall 316 coplanar with the flange 310 and extending outwardly be-

yond the arms or legs 304, curving down to form a wall 318 parallel to the arms or legs 304, and spaced therefrom. An integral diagonally inwardly disposed flange 320 extends from the wall 318, and is terminated by a depending edge flange 322, substantially coplanar with the arms 304, and tending to project past the arms toward the bottle 62. The walls 316 and 318, and the flanges 320 and 322 form a resilient or spring tongue 324. A keyhole shaped notch 326 extends up into the flange 322 in alignment with the discharge aperture 290 in the bottle, and a rubber button 328, serving as a valve closure member, is snapped into the keyhole shaped slot 326. As may be seen in FIG. 17, the button 328 constitutes a valve closure member extending into the bottle hole 290.

The operating rod 276 is capable of being rotated, as will be set forth hereinafter. As may be seen in FIGS. 6 and 12, rotation of the rod to the left, or in a counterclockwise direction as viewed from the upper end of the handle 32, causes the roller 278 to engage the inner face of the inclined flange 320, whereby to overcome the spring force of the tongue 324, and to remove the rubber button 328 from the bottle hole 290. On the other hand, rotation of the operating rod 276 to the right, in a clockwise direction, causes the roller 278 to engage behind the inclined flange of the valve member 282, whereby to open the hole in the right bottle 64.

As will be seen in FIGS. 6 and 7, the openings of the bottles are directly above the opening 78. This also may be seen in FIG. 4. Hence, when the valve of either bottle is open, the liquid in the corresponding bottle will run out of the bottle, and drop through the opening 78 onto the floor, for cleaning the floor, or for waxing the floor, as the case may be.

As will be seen in FIGS. 1, 4, 6, 7, 19 and 20, the body or chassis 36 is formed with an integral handle receiving section or socket 301, of inverted channel shape. This handle receiving section or socket extends upwardly along the handle from the upper transverse wall 42, and is braced at the sides by downwardly opening box sections 303 extending between the upper transverse wall 42 and the handle receiving section or socket 301.

The handle receiving socket 301 is provided with a peaked top wall 305, resembling a gable roof. It is provided along its longitudinal edges with depending flanges or side walls 307. A transverse depending flange 309 is provided at the outer extremity of the handle receiving socket, and relatively narrow side flanges 311 depend therefrom and are integrally joined to the side walls 307. The flanges 311 terminate short of the bottom edge of the side flanges 307, and corner filler sections 313 are provided.

Spaced inwardly of the flange 309 is a similar flange 315, parallel to the flange 309, and having depending side flanges 317 joined thereto. In addition, the handle receiving socket is formed with screw receiving posts 319 depending from the top wall 305, and apertured at the lower ends.

The handle 32, as seen particularly in FIGS. 18 and 20 comprises an elongated, inverted channel shaped member 321, molded of the same material as the body or chassis 36, preferably the "Cycolac" material previously referred to. The handle 32 also includes a floor pan 323 which is made of a non-corroding metal, such as aluminum, the same as the operating rod 276. The floor pan 323 comprises a generally flat bottom wall or floor 325, tapering in width from the end adjacent the body 36 to the end adjacent the hand grip 34. The pan includes a generally flat bottom wall or floor, having a stiffening ridge 327 extending along the longitudinal centerline thereof. The floor pan further is provided with a peripheral upturned flange 329. The pan also is provided with screw head receiving indentations 330, having screw receiving apertures therein.

The plastic molded handle portion 321 is substantially complementary in shape at its lower end to the socket 301, having a peaked or gable top wall 332, and a depending side wall of flange 334, with transverse slots 336 and 338 respectively cooperating with side wall slots 340 and 342 for receipt of the transverse flanges 309 and 315, and the corresponding side flanges 311 and 317. The top wall 332 is provided with apertures 344 for receipt of the screw receiving posts 319.

On the upper edge of the transverse slot 336, the external dimensions of the plastic handle molding 321 are slightly enlarged, providing a stop or shoulder 346 adapted to fit snugly against the upper end of the socket 301. The lower end of the plastic handle molding 321, is provided with a transverse flange or wall 348 adapted to abut against the upper transverse wall 42 of the body or chassis. The flange 348 is provided with an opening 350 for passage of the operating rod 276, and a similar opening 352 is provided in alignment therewith in the upstanding flange 329 at the lower end of the floor pan 323.

Upwards of the shoulder 346, the plastic handle portion 321 remains of the same general configuration, but tapers in width and in height. Along the side walls in the vicinity of the shoulder 346 there is provided on each side an upstanding slot 354. The floor pan side flanges 329 lie along the outside of the wall 334 at the lower end of the handle portion 321, but lie within the corresponding side wall 356 toward the upper end of the handle, the handle being notched along the inside of the side wall 356 for receipt of the flange 329.

In assembly, the floor pan preferably is cemented to the plastic handle portion 321. In addition, screws 358 pass through the depressions 330 and are threaded into the posts 319. As will be observed in FIG. 20, the holes 344 in the top wall 332 of the molded plastic handle section comprise the upper ends of depending tubular sections 360 which embrace the posts 319. Hence, the top molded handle section 321, the floor pan 325, and the socket or handle receiving section 301 are all firmly secured together.

In addition to the parts heretofore recited, the molded handle portion 321 is provided with a longitudinal center reinforcing rib 362, seen in FIGS. 20 and 23, and with a plurality of longitudinally spaced, transverse reinforcing ribs or webs 364. The upper end of the handle molded portion 321 is terminated by a tranverse depending flange or wall 366, suitably apertured to pass the operating rod 276.

The hand grip 34 comprises an upper molded shell 368, and a lower molded shell 370 complementary thereto. These shells preferably are molded of plastic, such as the "Cycolac" plastic material previously referred to.

The upper shell 368 is provided at the forward or lower end with an inverted channel section, having a peaked top wall 372, complementary to, and designed to overlie the molded handle portion 321. The inverted channel section, hereinafter identified by the numeral 374, also includes depending side walls 376, provided on the inner lower edges thereof with recesses 378. Adjacent the upper end thereof, the top wall 372 is provided with an opening divided into two halves 380 and 382, by an upstanding, longitudinal divider 384. Immediately forward of the opening halves 380 and 382 there is provided a transverse flange 386, seen best in FIG. 23.

Upwardly of the inverted channel shaped section 374, the upper hand grip shell 368 is provided with a tapering section 388 of semi-cylindrical cross section. A transverse wall 390 is provided at the upper end of the shell 368, and has a semi-circular downwardly opening recess 392 therein. A similar wall 394 is spaced slightly down the hand grip portion therefrom, and has a smaller downwardly opening recess 396. The shell 368 also is provided generally toward the upper end thereof with a pair of web or post portions 398 apertured to receive a pair of screws.

Similarly, near the bottom end of the upper shell **368**, there is provided a pair of longitudinally spaced depending web or post screw receiving members **400**. The top wall **320** and side walls **356** of the molded handle portion are suitably apertured to receive the screw receiving structures **400**.

The bottom shell **370** is of generally reverse construction relative to the top shell **368**. It comprises a boxlike lower portion **402** having side walls **404** received within the side walls **376** of the top shell and lying on opposite sides of the floor pan **323**. The section **402** further includes an intermediate wall or floor **406** lying beneath the pan **323**, and through which screws **408** are passed, these screws being threaded into the screw receiving structures or webs **400** to hold the hand grip shell halves **368** and **370** together near the lower ends, and also to hold them to the handle **32**.

The boxlike section **402** of the lower shell **321** is provided with an intermediate transverse wall **410** having a notch **412** therein, and complementary to the wall or web **386** of the top shell.

The bottom box section **402** is also provided with an upstanding transverse wall **414** complementary to a depending transverse wall **416** in the channel portion **374** of the top shell. The flange or web **414** is provided with an upwardly opening semi-circular recess **418** complementary to a downwardly opening recess **420** in the top web **416**.

Opposite to the screw receiving webs or portions **398**, the bottom shell, which is complementary in shape at **422** to the top portion **388**, is provided with screw receiving embossments **424**. Screws **426** pass through these embossments and secured the hand grip shells **368** and **370** together near the upper end.

At the extreme upper end, the tapered section **422** is provided with an end wall **428** complementary to the end wall **390**, and having a recess **430** therein. A transverse web or wall **432** opposes the depending transverse web or wall **394**, and is provided with a recess **434**.

At the extreme upper end of the operating rod **276**, which extends slightly beyond the hand grip **34**, there is provided an operating button **436**, having an enlarged base portion **440** received within the hand grip between the walls **390**, **428**, and **394**, **432**. The button **436** is molded of suitable plastic material, preferably high impact styrene. Upward or retracted motion of the rod **276** and button **436** is limited by abutment of the enlargement or collar **440** against the wall **390**, **428**. Inward movement is limited by abutment of the collar against the wall **432**, **394**.

Between the webs or walls **414**, **416**, and **386**, **410**, a pinion member **442** is fixed on the operating rod **276**. As may be seen in FIG. 26, the pinion member is provided with teeth **444** along the upper portion thereof, over slightly less than half the circumference of the pinion member. The lower portion of the pinion member has a diameter at **446** equal to the root diameter of the pinion teeth **444**. This pinion member conveniently is made of high impact styrene, and is pinned or otherwise suitably secured to the rod **276**. A compression spring **448** encircles the operating rod **276**, and is compressed between the pinion member **442** and the wall **386**, **410**. This spring urges the operating rod to its normal retracted position.

A left push button **450** is received in the opening **380** to the left of the longitudinal divider **384**, and a right push button **452** is received in the opening **382** to the right of the longitudinal divider **384**. This structure is shown in FIGS. 23–27, and both push buttons are provided with lateral flanges **454**, running fore and aft of the push buttons, and limiting the upward movement thereof. The push buttons are provided with confronting rack teeth **456**, which are terminated slightly above the pinion teeth **444**, leaving blank spaces **458**, whereby to clear the pinion teeth upon rotation of the pinion when the push button is left stationary. Opposite to the rack teeth **456** and blank spaces **458**, each push button is provided with a pair of cored out spaces or channels **460** divided by a wall **462**. A compression spring **464** is received in one of the channels **460** of each push button, whereby to urge the push buttons up.

When one of the push buttons is depressed, it rotates the operating rod **276** in one direction. When the other push button is depressed, it rotates the operating rod in the opposite direction. The rack teeth **456** are long enough to permit longitudinal movement of the operating rod without difficulty. As is seen in FIG. 26, a floor **466** connects the lower edges of the side walls **404**, and serves as a base against which the springs **464** react. The push buttons **450** and **452** preferably are molded of plastic material, high impact styrene, for example.

Operation of the floor cleaning and waxing tool will be fairly obvious from the foregoing. A roll of absorbent sheet material, preferably paper of the type used in paper toweling, is dropped in the compartment **224**. Alternatively, the paper may be in accordion pleated form as indicated in FIG. 5. In either event, the sheet or web of absorbent material is disposed over the wall **52** and flange **54**, and around the back-up roller **134**. The end of the web then is inserted between the back-up roller **134** and the take-up roller **148**, and the back-up roller is turned by hand, the latch first having been released, to start the web around the take-up roller, the end of the web being grasped by the fingers, and reinserted between the back-up and take-up rollers to insure rolling up of the web about the take-up roller.

The tool is then held in the inclined, upright position shown in FIG. 1. The appropriate one of the thumb buttons **450** and **452** is depressed to release liquid onto the floor. Such liquid, as will be understood, might simply be water, or might be a cleaning solution, as of water and detergent.

As the web of absorbent material is pressed against the floor in moving the tool across the floor, the back-up roller flattens out to a considerable extent, due to the form layer thereon, thereby pressing a band of absorbent material approximately an inch in width, and extending completely across the roller, into engagement with the floor. The cleaning fluid thus is completely distributed about the floor. Although the paper which preferably is used as the absorbent material has a very low wet strength, it adheres so well to the sheet rubber covering of the back-up roller that no tension is developed in the wet paper in the working area of the tool, such working area generally being a wet area.

When the wet area of the absorbent paper has become sufficiently wet as to require replacement, the button **436** is depressed to release the latching means operating on the roller. The tool then is pushed forwards and the back-up roller rotates to bring a fresh area of paper into use. Conveniently, such advance may be effected simply by banging the heel of the hand against the button. This will effect release of the latch, and at the same time send the tool forward, advancing the paper. As the tool moves forward on rebound from the heel of the hand, the operating button is returned by the biasing spring on the operating rod to its normal latching position, and the latching mechanism catches in the next notch or detent of the roller, whereby the back-up roller is advanced only one-quarter revolution, i.e., the distance from one notch to the next. This continues until the floor is completely clean and dry.

Then the appropriate thumb button is depressed to deposit liquid floor wax on the floor, and the same process is followed for uniformly distributing the floor wax on the floor. Once the floor wax has been allowed to dry, the tool may be moved about the floor, lightly to buff if necessary the floor wax or other finish with the absorbent paper.

The floor cleaning and waxing tool also is admirably

adapted to cleaning up spilled milk and the like. Rather than simply spreading the spilled milk about the floor, as conventional mops do, the tool will blot up the milk completely. This is best effected by moving the tool in a forward direction with the operating button 436 held depressed. The back-up roller thus is free to rotate, and the absorbent paper advances continuously to blot up the spilled milk. Subsequently, the usual cleaning process may be followed to remove all traces of the spilled milk from the floor.

Driving of the take-up roller directly by the back-up roller from the surface engagement therewith positively insures rotation in proper timed relation, whereby to avoid impressing any tension on the wet paper. Further, this contact insures proper removal of the wet paper from the back-up roller, simply peeling it therefrom. Tension on the sheet material further is avoided by the action of the latching mechanism directly on the back-up roller, whereby the back-up roller is positively locked directly, rather than through the absorbent web of material. At no time is there any sliding of the paper over the back-up roller.

The resilient nature of the back-up roller, and the importance thereof in establishing a desired surface contact with a floor or the like has been noted heretofore. Many resilient materials are absorbent, and the resilient material used on the back-up roller herein may be absorbent. It is undesirable for the back-up roller to absorb moisture, but that is completely avoided by the rubber skin or raincoat stretched thereover. This avoids contamination of the fresh absorbent paper that might otherwise be effected by a saturated back-up roller. Contamination of the fresh paper further is avoided by maintaining the used web out of contact with the fresh material, in contra-distinction to devices in which a web is rolled up on a back-up means.

We have found that in some instances energy tends to build up in a compressible back-up roller or means as it is moved across a floor or the like, thereby causing the tool to chatter. However, this is completely avoided by maintaining the axis of the handle below the axis of the back-up roller.

The unitary control system is important, whereby a single operating rod is rotated for controlling the two valves for release of liquid, and wherein the operating rod is moved axially for controlling paper advance. The ratchet means in connection with the latch prevents back-up of the paper while the back-up roller is unlatched or unlocked.

Means is provided for quickly releasing both the back-up roller and the take-up roller for removal of used aborbent sheet material, and installation of new material, along with concurrent cleaning of the rollers, if desired or necessary. The bottle valves are of a novel construction, and are of particular importance in connection with the rotary motion of the operating rod.

The embodiments of the invention disclosed are for exemplary purposes only Various changes will no doubt occur to those skilled in the art, and will be understood as forming a part of this invention insofar as they fall within the spirit and sccope of the appended claims.

The invention is claimed as follows:

1. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, movable back-up means for said sheet material carried by said frame means at said surface-working area, disposal means for said sheet material carried by said frame means, and a web of said sheet material extending from said supply supporting means past said back-up means to said disposal means, engagement of said sheet material with a surface to be conditioned tending to subject said sheet material to tension adjacent said surface-working area due to tendency of the back-up means to move in reaction to the movement of the device, said backup means having locking means overcoming any such tendency to move and preventing application of such tension to said sheet material outside side surface-working area, said back-up means being movable relative to said frame means to permit movement of said sheet material through said surface-working area free of sliding movement relative to said back-up means as fresh sheet material is advanced into said surface-working area and used sheet material is advanced to said disposal means.

2. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, movable back-up means for said sheet material carried by said frame at said surface-working area, take-up means for used sheet material carried by said frame means, and a web of said sheet material extending from said supply supporting means past said back-up means to said take-up means, only a portion of said back-up means being covered by said sheet material and by only a single thickness thereof in position for working engagement with a surface to be conditioned, engagement of said sheet material in said position with a surface to be conditioned tending to subject the sheet material to tension adjacent said surface-working area due to the tendency of the back-up means to move in reaction to the movement of the device, said back-up means having selective locking means positionable to overcome such tendency to move and preventing application of such tension to said sheet material outside said working area, at least said portion of said back-up means being movable relative to said frame means to permit movement of said sheet material past said portion free of sliding movement relative thereto as fresh sheet material is advanced into said surface-working area and used sheet material is advanced to said take-up means.

3. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, movable back-up means for said sheet material carried by said frame means at said surface-working area, take-up means for said sheet material carried by said frame means, and a web of said sheet material extending from said supply supporting means past said back-up means to said take-up means, said web of sheet material being clamped between said back-up means and said take-up means to advance used sheet material from said surface working area to said take-up means as said back-up means is moved.

4. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, back-up means movably supported by said frame means, take-up means carried by said frame means, a web of said sheet material passing in only a single thickness over only a portion of said back-up means from said supply supporting means to said take-up means, and means independent of said sheet material for selectively locking said back-up means against movement.

5. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, a back-up roller rotatably supported by said frame means, take-up means carried by said frame means, a web of said sheet material passing in only a single thickness over only a portion of said back-up roller from said supply supporting means to said take-up means, and means independent of said sheet material for selectively controlling rotation of said roller.

6. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, a back-up

roller rotatably carried by said frame means at said surface-working area, a take-up roller rotatably carried by said frame means, and a web of said sheet material passing from said supply means over a portion of said back-up roller in said surface working area and between said back-up roller and said take-up roller onto said take-up roller, said take-up and back-up rollers being so spaced as to be separated only by the thickness of the web so as to allow the latter to drive the former through frictional contact of each with the web, said spacing also allowing said take-up roller to peel sheet material from the surface of said back-up roller.

7. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, rotatable back-up means for said sheet material carried by said frame means at said surface-working area, disposal means for said sheet material carried by said frame means, a web of said sheet material extending from said supply supporting means past said rotatable back-up means to said disposal means, engagement of said sheet material with a surface to be conditioned tending to subject said sheet material to tension adjacent said surface-working area due to tendency of said back-up means to rotate in reaction to the movement of the device, said rotatable back-up means having locking means overcoming any such tendency to rotate and preventing application of such tension to said sheet material outside said surface-working area, said back-up means being rotatable relative to said frame means to permit movement of said sheet material through said surface-working area free of sliding movement relative to said back-up means as fresh sheet material is advanced into said surface-working area and used sheet material is advanced to said disposal means.

8. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, rotatable back-up means for said sheet material carried by said frame at said surface-working area, take-up means for used sheet material carried by said frame means, a web of said sheet material extending from said supply supporting means past said rotatable back-up means to said take-up means, only a portion of said back-up means being covered by said sheet material and by only a single thickness thereof in position for working engagement with a surface to be conditioned, engagement of said sheet material in said position with a surface to be conditioned tending to subject the sheet material to tension adjacent said surface-working area due to the tendency of said back-up means to rotate in reaction to movement of the device, said back-up means having selective locking means positionable to overcome any such tendency to rotate and preventing application of such tension to said sheet material outside said working area, at least said portion of said back-up means being rotatable relative to said frame means to permit movement of said sheet material past said portion free of sliding movement relative thereto as fresh sheet material is adavnced into said surface-working area and used sheet material is advanced to said take-up means.

9. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, rotatable back-up means for said sheet material rotatably carried by said frame means at said surface-working area, rotatable take-up means for said sheet material rotatably carried by said frame means, a web of said sheet material extending from said supply supporting means past said back-up means to said take-up means, said rotatable take-up and back-up means being so spaced as to be separated only by the thickness of the web so as to allow the latter to drive the former through frictional contact of each with the web, said spacing also allowing said take-up means to peel sheet material from the surface of said back-up means, said take-up means and said web of sheet material being driven in proper timed relation by said back-up means, with substantially no tension in said sheet material between said surface working area and said take-up means.

10. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, a back-up roller rotatably supported by said frame means take-up means carried by said frame means, a web of said sheet material passing in only a single thickness over only a portion of said back-up roller from said supply supporting means to said take-up means, and means independent of said sheet material for selectively locking said back-up roller against rotation.

11. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, movable back-up means movable along a predetermined path in the direction of motion of the contacting sheet material and comprising a resilient absorbent material of controlled resiliency and a liquid-proof sheet material cover thereover carried by said frame means at said surface-working area, take-up means carried by said frame means, and a web of said sheet material passing from said supply means over at least a portion of said back-up means in said surface-working area and to said take-up means.

12. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, a back-up roller carried by said frame means at said surface-working area, said back-up roller having a layer of resilient absorbent material and a liquid-proof flexible cover thereover, take-up means carried by said frame means, and a web of said sheet material passing from said supply means over at least a portion of said back-up roller in said surface-working area and to said take-up means.

13. A device as set forth in claim 12 wherein the roller is provided with non-absorbent end pieces with the resilient absorbent material disposed between said end pieces, wherein the liquid-proof cover extends over said absorbent material and on to said end pieces, whereby to seal said absorbent material and said end pieces together as a unit.

14. A device for conditioning surfaces such as floors and the like comprising a body, an elongated handle extending from said body in position to be grasped by the hand of a user in substantially inclined position, means on said body for supporting a supply of sheet material, said device having a surface-working area adjacent said body, back-up means carried by said body at said surface-working area, said back-up means having an axis transverse of said handle, the axis of said handle with said handle in normal inclined operating position lying below the axis of said back-up means, take-up means carried by said body, and a web of said sheet material passing from said supply means over at least a portion of said back-up means in said surface-working area and to said take-up means.

15. A device as set forth in claim 14 wherein the back-up means includes a resilient material tending to store up energy as the device is moved across a floor or the like.

16. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means engageable with such a surface for conditioning said surface, said surface engaging means being movable relative to said frame means, means for locking said surface engaging means relative to said frame means, liquid dispensing means carried by said frame means and having normally closed valve means thereon,

and control means carried by said frame means for rectilinear and rotary movement relative to said frame means, said control means upon rectilinear movement thereof acting on said locking means to unlock said surface engaging means for movement relative to said frame means, said control means upon rotary movement thereof acting on said liquid dispensing means valve means to dispense liquid from said dispensing means.

17. A device as set forth in claim 16 wherein the valve means comprises a spring member having an inclined flange, said control means having a portion thereon engageable with said inclined flange upon rotary movement of said control means to cam said valve means to open position.

18. A device as set forth in claim 16 wherein the liquid dispensing means comprises a container having an orifice closed by said valve means and retaining means on said container adjacent said orifice, said valve means comprising a spring clip resiliently snapped on to said retaining means.

19. A device as set forth in claim 16 wherein the liquid dispensing means comprises a pair of containers each having a valve means thereon, said control means being rotatable in one direction to open one of said valve means and in the other direction to open the other of said valve means.

20. A liquid dispensing valve means comprising a pair of spaced apart sheet material legs substantially flat and designed to lie against a liquid container, retaining means at opposite ends of said legs for retaining said valve means on such a container, a spring tongue formed integral with said legs at one end, said end being disposed out of the plane of said legs and said tongue extending obliquely toward the plane of said legs and having a free end, said tongue at the free end thereof having a valve closure member adapted to close an orifice in a liquid container.

21. A device for conditioning surfaces such as floors and the like comprising a body and a handle extending therefrom, said body having a surface-working area and surface conditioning means adjacent said area, said device having liquid dispensing means thereon, said surface conditioning means being movable relative to said body and normally locked against such movement, and a control member extending from said body along said handle and adapted for movement longitudinally of said handle and rotationally thereof, said control member having means thereon projecting from the end of said handle and manually engageable for movement of said control member longitudinally of said handle to release the floor conditioning means for movement relative to the body, said handle having a thumb button thereon interconnected with said control member by a rack-and-pinion arrangement for rotating said control member upon depression of said thumb button to dispense liquid from said liquid dispensing means.

22. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface working area, a back-up roller rotatably carried by said frame means at said surface-working area, a take-up roller rotatably carried by said frame means adjacent said back-up roller, single quick release means retaining said back-up roller and said take-up roller on said frame means, said single means selectively retaining or releasing both said back-up means and said take-up means simultaneously and a web of said sheet material passing from said supply means over a portion of said back-up roller in said surface-working area and on to said take-up roller.

23. A device as set forth in claim 22 wherein the frame has elongated guideways each extending to an edge of said frame, said guideways rotatably supporting said back-up roller and said take-up roller, said rollers being removable from said frame means by respective radial movement along said guideways, wherein the common quick release means comprises latch means reciprocable on said frame means to close off said guideways.

24. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, a back-up roller rotatably carried by said frame means at said surface-working area, locking means selectively locking said roller against rotation in any direction, ratchet means acting between said frame means and said roller and effective to permit rotation of said roller in only one direction with said locking means released, take-up means carried by said frame means, and a web of said sheet material passing from said supply means over at least a portion of said back-up roller in said surface-working area and to said take-up means, release of said roller locking means permitting said roller to be rotated in only one direction by movement over a surface to feed fresh material from said supply of sheet material to said back-up roller with means operatively connecting said back-up roller and said take-up means so as to provide movement of used sheet material from said roller to said take-up means simultaneous with said feeding of fresh material.

25. A device of the class described for treating surfaces, comprising:

(*a*) a frame,

(*b*) a cartridge supply of surface treating sheet material supported by said frame, said material being in continuous strip form and being porous and water absorbent,

(*c*) disposal means spaced from said cartridge supply for receiving used sheet material,

(*d*) a rotatable roller mounted in the frame to support the same upon the surface to be treated,

(*e*) a single web of sheet material extending continuously from said cartridge supply and beneath said roller to said disposal means,

(*f*) said roller having a substantially rigid core with a yieldable, resilient, non-absorbent covering, and which yields and distorts under pressure of the device upon the surface being treated to enlarge the area of contact between said web and said surface,

(*g*) means independent of said web for locking said roller against rotation to prevent movement between said web and the enlarged portion of the face of said roller during translation of said device over a surface to be treated and provide a wiping action between the web and the surface being treated,

(*h*) and means for selectively releasing said locking means so that said roller will rotate upon said translation and said web will move from said cartridge supply toward said disposal means as said roller covering progressively deforms and translates said enlarged area of roller contact relative to said web.

26. The construction of claim 25 in which said disposal means comprises:

(*a*) a take-up roller mounted in said frame and closely adjacent said first-named roller for receiving successive increments of said web to be wound thereon,

(*b*) and means to resiliently press said rollers toward each other with said web therebetween so that the take-up roller is rotated by said first-named roller and peels the used portion of the web from said first-named roller as the latter turns.

27. The construction of claim 25 which includes:

(*a*) an elongated handle carried by said frame for manipulation of the device upon a floor by a standing operator,

(*b*) and means on said handle for actuating said locking means.

28. The construction of claim 25 in which said cartridge supply comprises:

(*a*) a roll of the sheet material mounted for free rotation in said frame means,

(*b*) and wherein said device further comprises drag means to resist movement of said web from said roll to said roller.

29. The construction of claim 25 which includes:

(*a*) liquid supply means carried by said frame means,

(*b*) and manually actuated means to control the release of liquid from said liquid supply means to the surface being treated.

30. A device of the class described for treating surfaces, comprising:

(*a*) a frame,

(*b*) a cartridge supply of surface treating sheet material supported by said frame, said material being in continuous strip form and being porous and water absorbent,

(*c*) a rotatable back-up member mounted in the frame to support the same upon the surface to be treated,

(*d*) a take-up roller mounted in said frame and closely adjacent said back-up member for receiving successive increments of said web to be wound thereon,

(*e*) a single web of sheet material extending continuously from said cartridge supply and beneath said member to take-up roller,

(*f*) and means for relatively pressing said take-up roller against said back-up member with said web therebetween so that rotation of said back-up member causes fresh web of said sheet material to move from said cartridge supply and causes said take-up roller to rotate against the back-up member and peel the used portion of the web from said back-up member as the latter turns.

31. The construction of claim 30 and further comprising:

(*a*) means to prevent rotation of said rotatable back-up member so that,

(*b*) said rotatable back-up member constitutes a non-rotatable backing for said web as the device is translated over the surface to be treated.

32. The construction of claim 30 in which the means for relatively pressing said take-up roller against said back-up member comprises resilient means.

33. A device for conditioning surfaces such as floors and the like comprising frame means, means on said frame means for supporting a supply of sheet material, said device having a surface-working area, back-up means rotatably carried by said frame means at said surface-working area, said back-up means having a layer of resilient absorbent material and a liquid-proof flexible cover thereover, take-up means carried by said frame means, and a web of said sheet material passing from said supply means over at least a portion of said back-up means in said surface-working area and to said take-up means.

34. A device for conditioning surfaces such as floors and the like, comprising:

(*a*) a frame,

(*b*) a supply of sheet material supported on said frame,

(*c*) said device providing a surface working area,

(*d*) a rotatable back-up roller carried by said frame at said surface working area,

(*e*) a rotatable take-up roller carried by said frame adjacent said back-up roller,

(*f*) a web of said sheet material passing from said supply over a portion of said back-up roller in said surface working area and onto said take-up roller,

(*g*) said frame being formed to permit free release of both said rollers therefrom,

(*h*) and a member connected to said frame and normally disposed in a first position to retain both said rollers in normal operating position on said frame,

(*i*) said member being movable to a second position so that both said rollers may be freely released from the frame.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,132,369 May 12, 1964

Archie J. McMaster et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 33, for "wrinking" read -- wringing --; column 2, line 62, for "longitudinally" read -- longitudinal --; column 3, line 67, for "of a operation" read -- of operation --; column 10, line 4, for "of" read -- or --; column 12, line 40, for "form" read -- foam --; column 13, line 61, for "sccope" read -- scope --; column 14, line 4, for "side" read -- said --.

Signed and sealed this 29th day of September 1964.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
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