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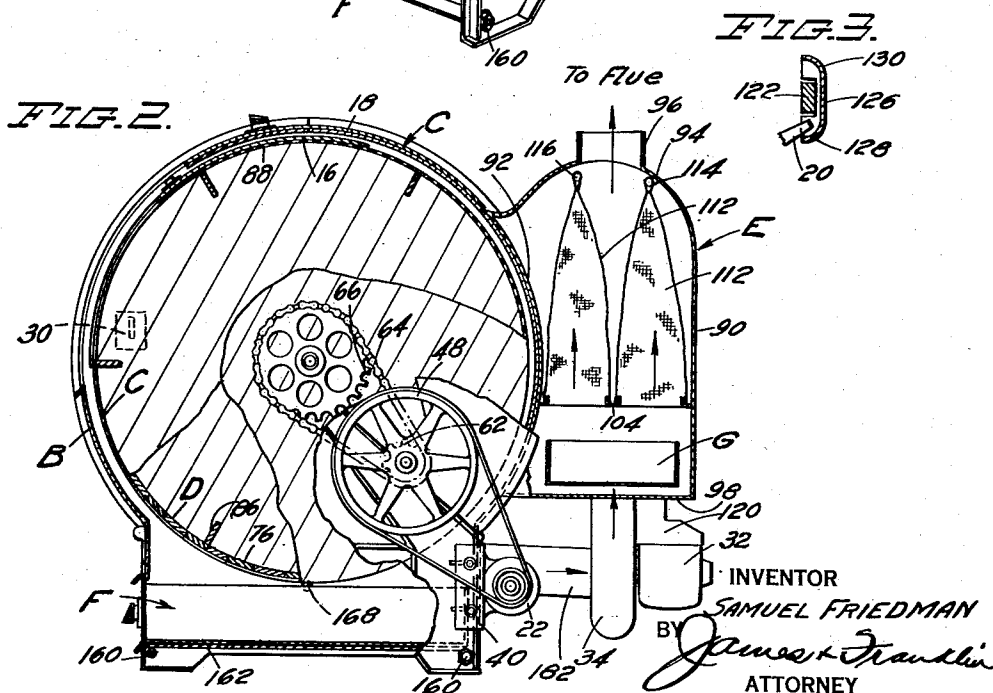
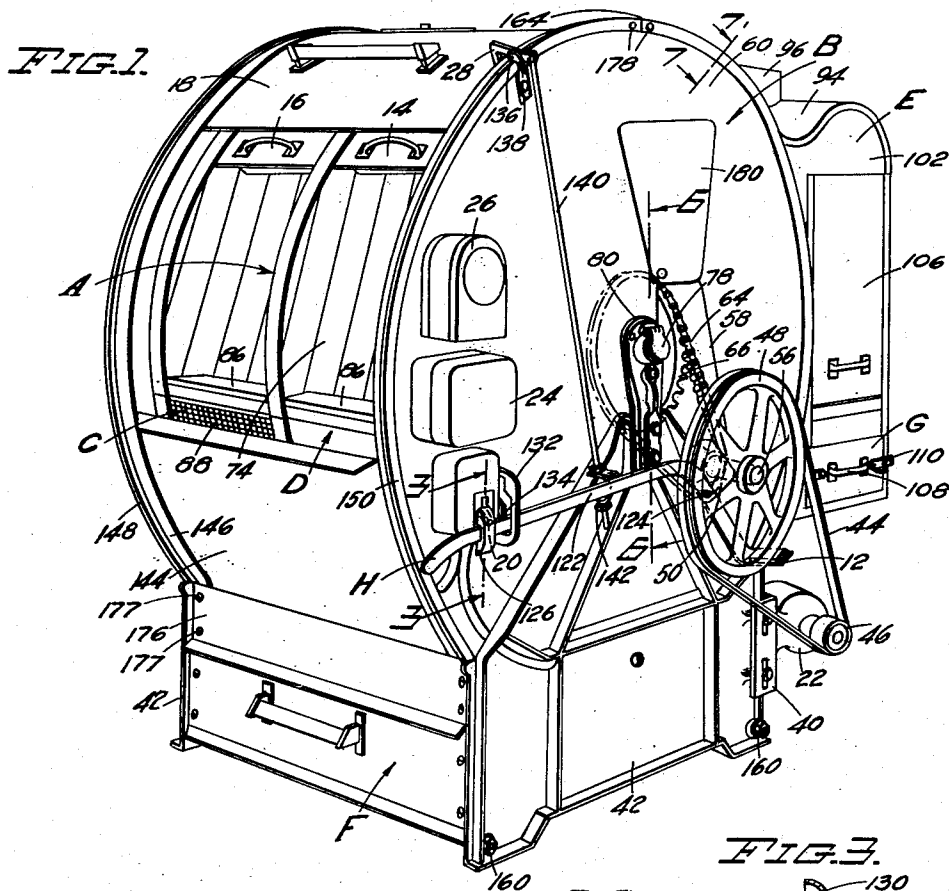
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2,293,432

FUR CLEANING APPARATUS

Filed Sept. 16, 1938

2 Sheets-Sheet 1



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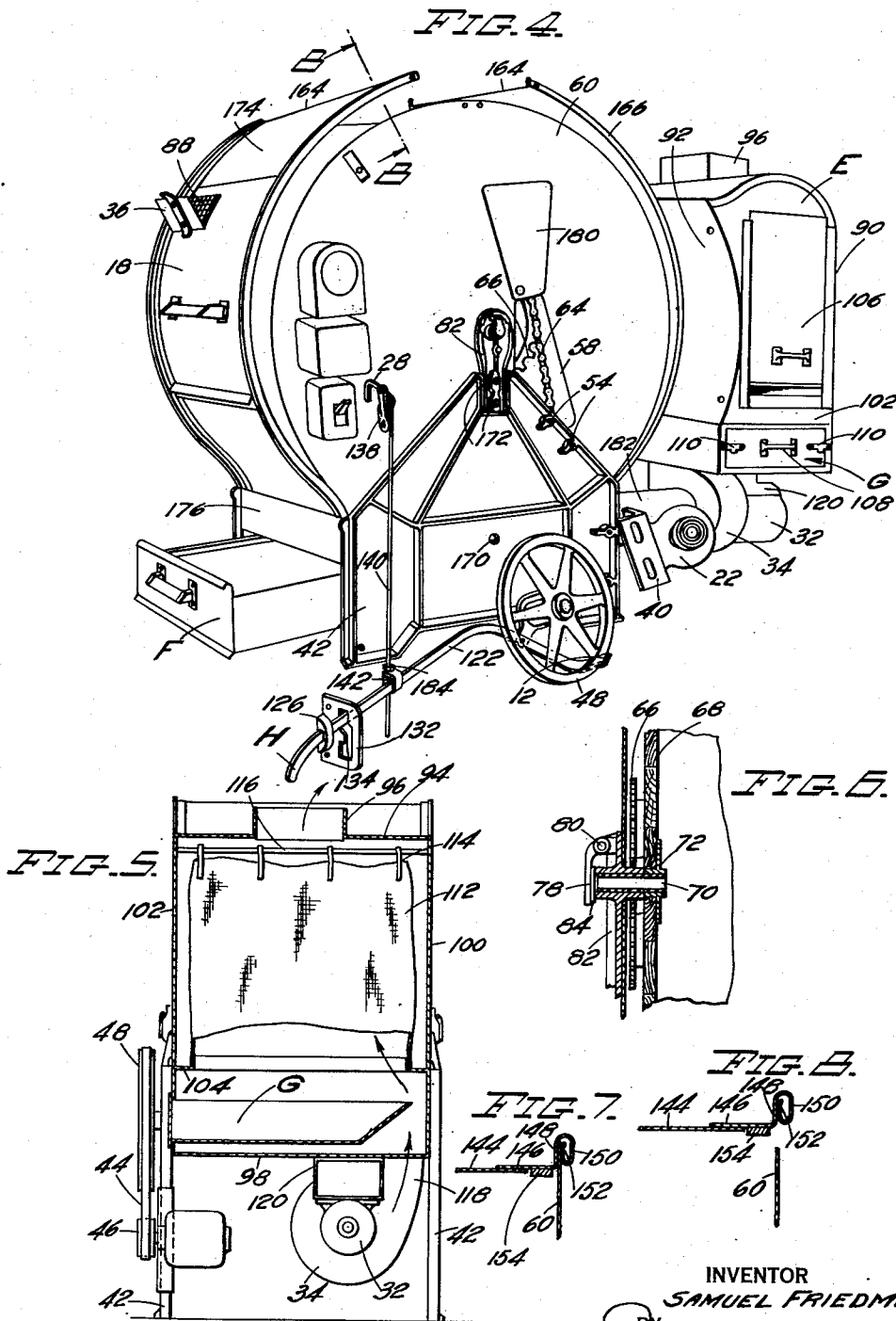
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2,293,432

FUR CLEANING APPARATUS

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Application September 16, 1938, Serial No. 230,219

6 Claims. (Cl. 15-4)

This invention relates to cleaning apparatus and more particularly to apparatus for cleaning furs.

The primary object of the invention is to generally improve apparatus of the above specified character. A more particular object is to increase the utility of the apparatus, and its flexibility and convenience in use, by combining three main elements in a single machine, namely, a solid wall drum, a screen-walled cage, and an exhaust unit for drawing fumes from the casing around the drum and cage, and also for drawing dust laden air from the cage. This combination makes it possible to first drum the furs with saw-dust, either the fur or saw-dust or both being saturated with cleaning fluid; to then cage the furs in the cage, at which time substantially all of the saw-dust is recovered in a suitable collector or drawer at the bottom of the casing; and to finally clean and deodorize the furs by turning on the suction or exhaust unit, thus extracting the fumes of the cleaning fluid and any loose hair, saw-dust and other dirt from the furs as they tumble in the cage. Moreover, an incidental but important additional benefit obtained by combining the exhaust unit with the other units arises from the fact that rotation of the drum may be stopped, and the fumes of the cleaning fluid may be exhausted from the casing before attempting the manual transfer of the furs from the cage to the drum. This is a great improvement for the operator, who otherwise may be nearly overcome by the fumes of the cleaning fluid when attempting the transfer from the drum to the cage.

The discharge of the exhaust blower is preferably filtered by passing the dirt-laden air stream through one or more suitable fabric bags. These trap the dirt, much as in an ordinary suction carpet cleaner, except that the bags are very much larger and more difficult to handle. A further object of the present invention is to facilitate emptying of the collected dirt from the bags, and to so arrange the apparatus that it may be used over a substantial period of time, during which the dirt is repeatedly removed without, however, necessitating actual removal of the bags from the machine. With this object in view, the bags are disposed in inverted upright condition, and a readily removable dirt collecting drawer is positioned beneath the open mouths of the bags. The fan discharge is blown past the drawer into the bags, and dirt readily falls downwardly from the bags into the drawer. Much of the dirt falls of itself, particularly after

the blower is stopped, but in addition, a door is preferably provided affording access to the bags so that they may be shaken slightly before emptying the drawer. In this way, substantially all of the dirt is dislodged and falls downwardly into the drawer by which it is readily removed.

Further objects of the invention center about the control mechanism for the machine, and more particularly, means interlocking the various controls for safety. The drum and cage are built together and turn in unison, and may, for convenience, be jointly referred to as a cylinder. The cylinder is driven by an electric motor the operation of which is controlled by a master switch. The cylinder may be locked in position by means of a brake, this being convenient in order to hold the doors of the cylinder in registry with the door of the casing, as when loading, transferring, or unloading the furs. A latch is preferably provided on the casing door to prevent opening of the same during power drive of the cylinder. In accordance with the invention, a single manually operable lever is provided for interlocking the switch, the brake, and the latch, the arrangement being such that when the switch is closed, the brake is necessarily off and the casing door is locked against opening. In another position of the lever, the switch is opened, the brake is applied, and the door latch is opened. A third and preferably intermediate position is also provided, in which the switch is open, the door latch is open, and the brake is not yet applied, this being useful in order to permit the cylinder to be turned a bit by hand to bring the cylinder doors and the casing door into registration before locking the cylinder in position by means of the brake.

Further objects of the invention center about the assembly of the structural parts of the apparatus. The fur cleaning apparatus is large in dimension, and it is convenient to be able to readily disassemble the same for transportation through ordinary doors, and in passenger elevators. In accordance with the present invention, the cylindrical casing is made of approximately semi-cylindrical front and back sections and approximately circular side plates, said front and back sections having outwardly reversely folded or beaded edges which are so arranged as to resiliently receive the edges of the side plates with a snug fit when the casing is assembled. The casing and drum are supported on side frame plates which are held together and against the bottom plate by means of appropriate tie rods. The exhaust unit is detachably mounted on the

back section of the casing and is bodily removable as a unit. Bearing plates carrying stationary trunnions for the cylinder are removably secured to the frame plates, and removable stops may be placed in the frame plates to temporarily support the cylinder during removal of the trunnions.

The drum is solidly enclosed, and a sometimes dangerous situation is created by the large amount of volatile and inflammable cleaning fluid contained therein during the drumming operation. A further object of the invention is to provide a safety vent for the drum. This is conveniently done by making the trunnion at the drum a hollow trunnion, the inner end of which is open and communicates with the drum, and the outer end of which communicates with the open atmosphere. A pivoted flap normally rests against and closes the outer end of the hollow trunnion, and soft sealing material may be provided on the inside of the flap. In the event of any sudden expansion of the gases in the drum, the pressure is instantly relieved by automatic opening of the vent flap.

To the accomplishment of the foregoing, and such other objects as will hereinafter appear, my invention consists in the elements of the fur cleaning apparatus and their relation one to the other, as hereinafter are more particularly described in the specification and sought to be defined in the claims. The specification is accompanied by drawings, in which:

Fig. 1 is a perspective view of a preferred form of apparatus embodying features of my invention;

Fig. 2 is a section taken in elevation through the same;

Fig. 3 is a section taken in the plane of the line 3—3 of Fig. 1 and is explanatory of a detail of the invention;

Fig. 4 is a perspective view generally like Fig. 1, but showing the manner in which the parts of the apparatus may be disassembled;

Fig. 5 is a partially sectioned rear elevation of the machine, the section being taken through the exhaust unit;

Fig. 6 is a section through the hollow trunnion or bearing and is taken in the plane of the line 6—6 of Fig. 1;

Fig. 7 is a section through a corner of the casing showing the manner in which the curved and side plates of the casing are joined together; and

Fig. 8 is a section taken in the plane of the line 8—8 of Fig. 4 showing these parts in separated condition.

Referring to the drawings, the apparatus comprises a cylinder generally designated A rotatably mounted in a casing B. The cylinder comprises two portions, there being a cage C and a drum D. The machine further comprises an exhaust unit E. A large receptacle or drawer F is provided at the bottom of the casing, and a smaller drawer G is provided at the bottom of the exhaust unit E. The operation of the machine is controlled by means of a handle H.

In operation, the cylinder A is stopped in the position shown in Fig. 1, that is, with its door openings in registry with the casing door opening, and the cylinder may be locked in that position by means of a brake 12. Drum D is openable by means of a sliding door 14, and cage C is openable by means of a similarly slidable door 16. The casing has a large sliding door 18. These doors are all shown slid to their up-

ward or open positions in Figs. 1 and 2 of the drawings. Furs are loaded into the drum D, along with a quantity of saw-dust. Either the saw-dust or the furs are saturated with a suitable cleaning fluid. The doors are then closed, and the handle H is pulled upwardly, thereby releasing the brake 12 and at the same time moving the master toggle switch 20 from open to closed position. This begins operation of driving motor 22. The switch 20 does not directly control the motor, but instead controls the same through a suitable relay contained in box 24. Moreover, box 24 is preferably provided with additional reversing relays for the motor, these being operated by a timing unit or electric clock unit 26. The arrangement is such that the direction of rotation of the motor, and consequently of the drum, is reversed at frequent intervals, thus more effectively cleaning the furs. When the handle H is pulled upwardly, it closes a latch 28 which prevents opening of the casing door 18 during power drive of the cylinder.

After suitable treatment in the drum, say, for a half hour, the furs are transferred to the cage. Inasmuch as the fumes of the cleaning fluid may be very powerful, the exhaust unit may be run ahead of the transfer operation. Specifically, the handle H is moved downwardly to stop motor 22 and release latch 28. Casing door 18 is opened long enough to move cylinder A to the position shown in Fig. 1, whereupon the door 14 is opened and casing door 18 quickly closed. A switch 30 (Fig. 2) on the far side of the casing, controlling the motor 32 of blower 34, is then closed to operate the blower for a short time. This exhausts fumes from the drum and casing. The fan 34 is then stopped; the casing door 18 is opened (also door 16 if not previously opened); and the furs are transferred from the drum D to the cage C. The doors are then all closed, and handle H is drawn upwardly to again set the machine in motion. The furs may be caged for a period of, say, ten minutes. During this operation, the bulk of the saw-dust is shaken free from the furs and falls through the mesh or screen walls of the cage downwardly into the large drawer or collector F. Thereafter, the blower is again started, and at this time an air intake shutter 36 (Fig. 4) is opened. The resulting stream of air through the furs as they are being agitated and shaken in the cage results in airing out and deodorizing the furs, and in removing any loose hair, residuary saw-dust, and dust or dirt from the furs. The machine is then again stopped, and the doors opened to permit unloading of the furs. Both the drum and the cylinder may be used at the same time if batches of furs are being continuously cleaned.

Considering the arrangement in greater detail, the driving motor 22 is mounted on a bracket 40 by means of bolts passing through slots in bracket 40 and received in the cast iron base or frame member 42. There are two such frame members, one at each side of the machine. The slots in bracket 40 permit adjustment of the tension of a drive belt 44.

The drive is from motor 22 through driving pulley 46, belt 44, and driven pulley 48. The driven pulley 48 is journaled in a bearing 50 (Fig. 1) secured to the side of frame member 42, as by means of bolts passing into threaded holes 54 (Fig. 4). Pulley 48 drives a countershaft 56 which passes through the lower end of a large opening 58 in the side plate 60 of the casing. At its inner end, the countershaft 56 carries a

sprocket pinion 62 (Fig. 2) which drives a suitable chain 64, which in turn passes about a sprocket gear 66. Sprocket gear 66 is located within the side plate 60 of the casing and is secured to one end of the cylinder A. Referring to Fig. 6, the sprocket 66 is secured directly against the end wall 68 of the cylinder, this being a circular wall made up of wood boards. The cylinder rests on and turns about a stationary trunnion-like bearing or axle 70, and the wood wall is protected by means of a suitable flanged bearing 72 which is secured to the wall and which is received over and rotates about the stationary axle 70. It will be understood that the opposite end of the cylinder A is similarly supported, there being a flanged bearing, like the bearing 72, secured to the wood end wall, and the said bearing rotating on a stationary axle, but the axle is preferably solid, instead of hollow as shown in Fig. 6. There is, of course, no sprocket gear 66 at the opposite side of the machine, and the drive imparted by gear 66 serves to turn the entire cylinder.

The trunnion 70 shown in Fig. 6 is made hollow for emergency vent purposes. The drum D is solid walled. It comprises the end wall 68 shown in Fig. 6, and the center wall 74 shown in Fig. 1. The periphery is made up of closely fitted planks, as is shown at 76 in Fig. 2. The door is a sliding door with as close a fit as is readily obtainable. Thus, the drum forms a substantially air-tight enclosure. This helps prevent unduly rapid evaporation of the highly volatile cleaning fluids which are used to treat the furs and linings, as by moistening saw-dust or the furs or both with the cleaning fluid when loading the same into the drum. It is desirable to provide an emergency vent for the otherwise enclosed drum in order to prevent the gases therein from building up in pressure or from possible frictional ignition and explosion. It is for this purpose that the trunnion 70 is made in the form of a hollow tube, as is clearly shown in Fig. 6. The inner end of the tube is open and communicates with the interior of the drum. The outer end of the tube is openable and when open communicates with the outer atmosphere. The outer end is normally closed by a flap 78 which is pivoted at 80 on bearing bracket 82. The flap 78 falls gravitationally to closed position, but there is nothing to prevent it from opening to permit the escape of the confined gases in the drum in the event of excess pressure being built up. If desired, the flap 78 may be lined with some soft sealing material 84, such as sponge rubber, thus forming a better seal between the flap and the vent.

The drum is completed by a series of paddles 86 (Fig. 2) which are disposed radially about the cylindrical wall. These paddles extend all the way across the drum and function to agitate and keep the furs and saw-dust in motion. The desired tumbling action of the furs is preferably increased by giving the cylinder a back and forth movement, rather than continuous rotation in one direction, and it is for this reason that the clock or timer 26 and reversing relay box 24 are provided, as was previously described. The motor 22 is a reversing motor and it is reversed at frequent intervals, as determined by the timer 26.

The cage C is generally similar in construction to the drum D, but differs in one important respect, namely, that its outside or cylindrical wall is made up of a wire mesh or screen, as is indicated at 88 in the drawings. Paddles or blades

86 are provided, just as in the case of the drum, and these help hold the ends of the cage in proper spaced relation.

The exhaust unit E comprises a casing having a rear wall 90 (Figs. 2 and 4) which is straight, and a front wall 92 which is preferably curved to fit snugly against the cylindrical wall of the casing. The top wall 94 of the exhaust unit may be rounded and leads to and includes a chimney or flue 96. This may open directly into the room, but is preferably connected by a flue to a nearby window or chimney so that any fumes exhausted from the machine will be discharged outside the building. The casing of the exhaust unit further includes a bottom wall 98, a side wall 100 on the remote side of the machine (Fig. 5), and a side wall 102 on the near side of the machine, as viewed in Figs. 1 and 4. The hollow exhaust unit so far described is divided into upper and lower chambers by means of a generally horizontal partition 104 (Figs. 2 and 5). Access to the upper chamber is obtained by means of a vertically sliding door 106 which is shown slightly opened in Fig. 4. Access to the lower chamber is obtained by means of the relatively large dirt collecting drawer G previously referred to. This is openable by means of handle 108, and may be latched in closed position by means of suitable latches 110.

The partition wall 104 is cut away to form openings receiving the lower ends of one or more filter bags or dirt collecting bags 112 (Figs. 2 and 5). These bags are preferably made very large, and the openings leading therein to therefore preferably occupy substantially all of the area of horizontal partition 104, which in effect becomes a skeletonized sealing plate. The edges of the sheet metal partition around the openings are turned upwardly to form flanges which are elliptical in outline and which receive the mouths or lower ends of the inverted bags 112. The bags are secured about the flanges in any desired manner, which is not shown in detail. One usual method is to hem the lower end of each bag about a thin metal band which is bent to the desired elliptical form, the ends of the band being turned outwardly and receiving a bolt for tightening the band (and with it the mouth of the bag) about the flanged opening.

The bags 112 are made of a closely woven yet slightly porous fabric in order to filter out dust and dirt, yet permit the flow of air therethrough. The upper edges of the bags are provided with a series of tapes 114, and these are passed about suitable rods or dowels 116 extending across the top of the exhaust casing from side to side.

The exhaust fan 34 is mounted at the bottom of the exhaust casing, and its discharge outlet 118 leads into the lower chamber of the exhaust casing. More specifically, in the present construction, it is convenient to connect the same directly into the bottom wall 98 near the side wall 100. The stream from blower 34 readily flows through the lower chamber into the bags 112, for there is room on all sides of the drawer G for passage of air. The air leaving the bags 112 flows into the upper chamber and thence through outlet 96 to any suitable flue or chimney. Exhaust fan 34 and its driving motor 32 are mounted on the bottom of the exhaust unit with the aid of a suitable bracket 120.

The open top area of drawer G is substantially coextensive with the open mouths of bags 112, and much of the dirt or solid matter collected in the bags falls of itself downwardly into drawer G. The drawer is removed at intervals and

emptied. To assist more thorough emptying of the bags 112, the vertically slidable door 106 is preferably raised, thus exposing the bags so that they may be shaken somewhat from side to side, thereby causing a discharge of substantially all the dirt from the bags to the drawer. The drawer may then be removed and the dirt discarded.

Referring now to Fig. 1, the control handle H is formed at one end of a relatively long lever 122, said lever being pivoted at 124 on bearing 50 previously referred to. The opposite end of the lever is bent to carry the brake shoe 12 which cooperates with an open part of the large pulley 48. It will be seen that when handle H is pushed downwardly, the brake shoe is urged upwardly against the pulley. When the handle is raised, the brake is moved away from the pulley.

Near its forward end, the lever 122 is provided with a guard 126 which cooperates with the lever for operation of the projecting end 20 of a suitable control switch of the toggle type. When the handle is raised upwardly to its topmost position, the lower edge 128 of guard 126 engages the projecting toggle switch lever 20 and raises the same past dead center to its upward position, as is shown in Fig. 3 of the drawings. It will be evident, from inspection of Fig. 3, that when the lever 122 is moved downwardly, it bears against toggle switch 20 and trips the same past dead center to its lower position. If the lever is moved still further downwardly, the switch remains in down position, and is inaccessible to be moved upwardly by hand because it is concealed by the upper part 130 of guard 126. This is the condition of the parts shown in Fig. 1. During upward movement of the handle, the switch is not prematurely tripped upwardly because it is necessary to move the handle outwardly so far that it escapes toggle switch 20. This outward movement is necessitated by a guide plate 132, best shown in Figs. 1 and 4 of the drawings. In Fig. 1, the lever is shown in lowermost position, and it is anchored in this position by the ledge or detent 134 of plate 132. In Fig. 4, the lever is shown in uppermost position, and this corresponds to the position shown in Fig. 3, at which time the toggle switch is raised. There is also an intermediate position, in which the toggle switch is lowered, but the control lever has not yet been brought beneath the detent 134. At this time, the brake 12 is not yet applied.

The toggle switch 20 is so wired in circuit that the driving motor 22 is deenergized when arm 20 is lowered (as in Fig. 1), and is energized when raised (as in Fig. 3). Thus, when handle H is raised, the motor is started and the brake 12 is necessarily released. When handle H is lowered all the way down, the brake is applied and the driving motor is stopped. In the intermediate position, the driving motor is stopped, but the brake has not yet been applied. This is convenient merely to permit the cylinder A to be moved by hand until its doors register with the casing door, whereupon the handle may be depressed and locked in its downward position so that the brake will hold the cylinder in proper position during the loading or unloading operation.

Further means is provided to prevent accidental or undesired opening of the casing door during power operation of the cylinder. This minimizes the danger of injury to the hands of

the operator. For this purpose, the door 18 of the casing is provided with a lock or latch 28 previously referred to. The latch is pivoted at 136 on a bracket 138 secured to the side of the casing. Latch 28 is connected by means of a rod 140 to lever 122. The latch 28 is preferably located above the top edge of the door when the door is closed. When handle H is pulled upwardly, the latch 28 is moved inwardly and thereafter prevents opening of casing door 18. If the casing door is already open, then the handle cannot be pulled upwardly, and it is necessary to first close the casing door. A spring connection 142 (Fig. 4) may be provided between rod 140 and lever 122 in order to permit continued downward movement of the lever after the latch is opened.

The complete interlock arrangement is such that when the handle is raised, the switch is closed, the brake is off, and the casing door is locked. When the handle is in intermediate position, the switch is opened, and the casing door is unlocked, but the brake is not yet applied. The door may then be opened and the cylinder turned to desired position. When the handle is moved to lowermost position, the switch remains off, the door latch remains open, and the brake is applied, thus holding the cylinder in desired position.

One of the important features of the present machine is the method of assembly of its parts, for this leads to certain economies in manufacture, and even more important, permits ready assembly or disassembly of the machine for transportation, particularly through ordinary doorways, elevators and the like. One detail which contributes to this feature of the invention is the method of joining the cylindrical side wall of the casing with the substantially circular ends of the same. The casing is made of heavy gauge sheet metal, say, 16 gauge or about $\frac{1}{8}$ " in thickness. Referring now to Figs. 7 and 8, the cylindrical wall 144 is welded to strips 146 which are bent outwardly at 148, then inwardly at 150, and reversely at 152. The side plates 60 are received in the resulting bead with a spring fit, as is best shown by the change from Fig. 8 to Fig. 7. The plate 60 is received snugly between the parts 148 and 152, and these expand against one another when the plate is removed, as is shown in Fig. 8. The resulting rounded bead incidentally helps beautify the machine and give it a finished appearance. A relatively heavy strap of metal 154 may be welded to the strip 146, this strap 154 being, say, $\frac{1}{8}$ " thick, and of the order of $\frac{5}{8}$ " in width, and functioning to prevent buckling or waving of the flat part of strip 146 when the same is being bent to desired cylindrical configuration. Specifically, the bead 148, 150 is best formed while working on the edge of sheet metal in flat condition. The straight piece of sheet metal with beaded edge is then curved to cylindrical form. The bending of the bead causes waving or rippling of the flat part 146 of the stock, but this is prevented by preliminarily securing the reinforcing strip 154 to the strip 156 adjacent the bead before attempting to bend the strip.

It will be understood that the beads may be formed directly at the edges of the cylindrical wall of the casing, but it is convenient to form the same on narrower strips 146 to which the wide strips 144 are welded, because in this way the axial dimension of the machine may be made any desired amount, while using standard beaded strips 146 at the sides of the machine.

The method of assembly and disassembly of the machine may next be described with particular reference to Fig. 4, showing the same in partially disassembled condition. The cast iron side frame members 42 are held in parallel relation at the proper distance apart, which, in one specific case, is thirty-six inches. Tie rods 160 (Figs. 1 and 2) are then put in place loosely, and a bottom plate or floor plate 162 (Fig. 2) is inserted between the side frame members 42. The tie rods 160 may then be tightened against the floor plate.

The side plates 60 of the casing have been preliminarily secured to the side frame members 42, and during shipment, these elements are handled together, they forming the complete sides of the machine. The cylindrical part of the casing is divided into two halves, the dividing line being at the top, as is indicated at 164 in Fig. 4. The rear semi-cylindrical section 166 is then applied, the bottom being placed first. Support stops, such as the stop 168 in Fig. 2, are inserted through holes 170 (Fig. 4) in the frame members, if not already in place. The cylinder of the machine is then rolled between frame members 42 from the front of the machine, and is finally rolled up onto the stops 168 at each side of the machine. These stops are so located that the center of the cylinder is then brought into substantially correct operating position. The bearing brackets 82 which carry the stationary trunnions or axles for the drum are then fastened in place on frame members 42 as by means of the bolts 172. The sprocket chain may be placed over the sprocket gear before the bearings are put in place. The front semicylindrical section 174 of the casing is then applied, its lower end 176 being secured in place, as by screws 177, and the beads 150 thereafter being worked around and driven over the edges of the side plates. The upper ends of the front and back sections are secured in place by suitable screws 178 (Fig. 1) received in appropriate holes shown in Fig. 4. The beads terminate in abutting relation, and the edges of the wall between the beads may either abut or overlap, as desired.

The transmission assembly is then applied, this being done by securing the single bearing member 50 (Fig. 1) to the frame member 42, said bearing member carrying the countershaft and the control lever. The opening 58 in side plate 60, which gives free access to the sprocket drive chain, may be closed by a pivoted door 180. The driving motor 22 is then applied, and finally, the exhaust unit E is secured to the rear section of the main casing. During the application of the exhaust unit, the intake pipe 182 (Figs. 2 and 4) of the fan 34 is interposed between a mating outlet at the lower part of the casing and the inlet of the fan. This fan connection is above the saw-dust collecting drawer F, and no saw-dust is removed from the drawer by the fan. The bracket 138 of the door latch 28 is secured in position, and the adjusting nut 134 on rod 140 is properly adjusted to suitably interlock the control elements of the machine, all as was previously described. Plate 132 is attached.

To disassemble the machine, the above sequence is simply reversed, the exhaust unit being removed first, as shown in Fig. 4, after which driving motor 22 is removed, then the entire transmission assembly, and then the front half of the casing. Thereafter, the stops 168 are put in place, if not already in place, and the bearing brackets 82 are removed from frame mem-

bers 42. The stops help support the cylinder which is then rolled out of the machine. The rear section of the casing is then removed, following which the tie rods 160 are opened so that the sides of the machine may be separated from the bottom plate. The machine is thus readily taken down in a very short time, and the largest single remaining part of the machine, namely, the cylinder, is itself small enough to pass through doorways of ordinary dimension.

Although a hollow or vent stub axle is used at the drum, no such vent is needed at the cage because of the open nature of the cage. The casing has a vent, namely, the door 36, which can readily fly open under internal pressure.

The operation of the fur cleaning machine need not be repeated here, for it has already been described in some detail immediately following the brief description of the figures. This was done in order to clarify the nature of the machine before going into structural details of the same.

It is believed that the construction, the mode of assembly, and the operation of the present machine, as well as the many advantages thereof, will be apparent from the foregoing detailed description. It will also be apparent that while I have described my invention in a preferred form, many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention as sought to be defined in the following claims.

I claim:

1. A fur cleaning apparatus which is large in dimension but arranged for ready assembly and disassembly for transportation through doors and in elevators of ordinary dimension, said apparatus comprising a rotatable fur cleaning cylinder, a casing therearound including approximately semi-cylindrical front and back sections and approximately circular side plates, said front and back sections having outwardly reversely folded edges so arranged as to resiliently receive the edges of the side plates when the casing is assembled.

2. A fur cleaning apparatus which is large in dimension but arranged for ready assembly and disassembly for transportation through doors and in elevators of ordinary dimension, said apparatus comprising a rotatable cylinder, a casing therearound including approximately semi-cylindrical front and back sections and approximately circular side plates, side frame members secured to the side plates, a bottom plate extending therebetween, and an exhaust unit removably mounted on the back section.

3. A fur cleaning apparatus which is large in dimension but arranged for ready assembly and disassembly for transportation through doors and in elevators of ordinary dimension, said apparatus comprising a rotatable cylinder, a casing therearound including approximately semi-cylindrical front and back sections and approximately circular side plates, side frame members secured to the side plates, bearing brackets removably secured to the side frame members, and trunnion bearings on said bearing brackets for rotatably supporting said cylinder.

4. A fur cleaning apparatus which is large in dimension but arranged for ready assembly and disassembly for transportation through doors and in elevators of ordinary dimension, said apparatus comprising a rotatable cylinder, a casing therearound including front and back sections and sides, stationary trunnion bearings remov-

ably fixed on said sides, said sides having openings at the level of the bottom of the cylinder, and removable stops receivable in said openings in the sides to support said cylinder when said trunnion bearings are removed, in order to facilitate assembly and disassembly of the apparatus.

5. A fur cleaning apparatus which is large in dimension but arranged for ready assembly and disassembly for transportation through doors and in elevators of ordinary dimension, said apparatus comprising a rotatable cylinder, a casing therearound including approximately semi-cylindrical sections and approximately circular side plates, side frame members secured to said side plates, means to hold said frame members in proper spaced relation, said semi-cylindrical sections having reversely folded edges so arranged as to resiliently receive the edges of the side plates when the casing is assembled, and ap- 20

propriate cylinder bearings and motor drive means secured to said side frame members.

6. A fur cleaning apparatus which is large in dimension but arranged for ready assembly and disassembly for transportation through doors and in elevators of ordinary dimension, said apparatus comprising a rotatable cylinder, a casing therearound including approximately semi-cylindrical front and back sections and approximately circular side plates, side frame members, a bottom plate extending therebetween, and tie rods extending between said frame members, said front and back sections having outwardly reversely folded edges so arranged as to resiliently receive the edges of the side plates when the casing is assembled, bearing brackets removably secured to the side frame members, and stationary trunnion bearings fixed on said bearing brackets for rotatably supporting said cylinder.

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