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2,633,824

SURGICAL GLOVE-DUSTING MACHINE

Filed Dec. 15, 1950

2 SHEETS—SHEET 1

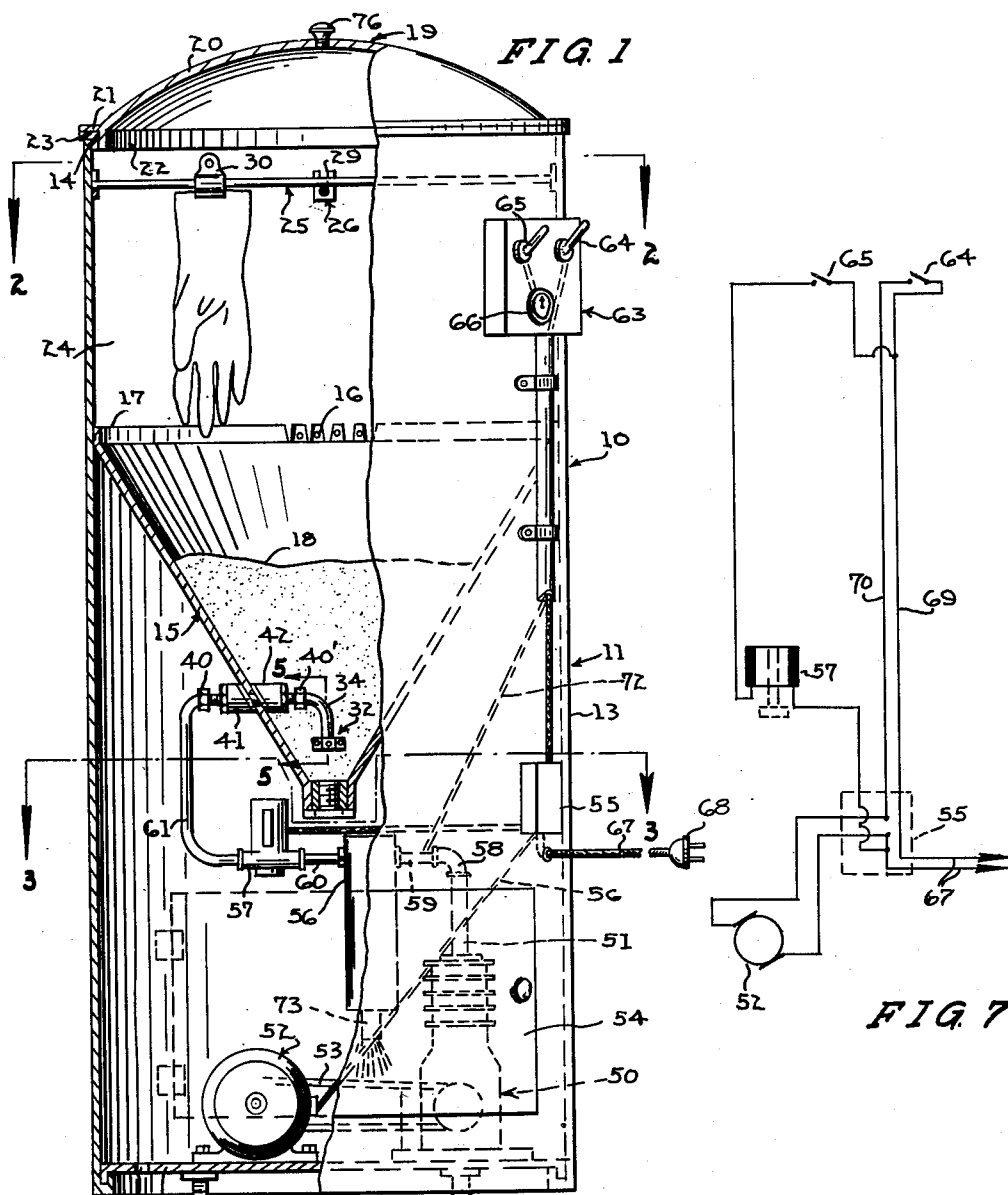
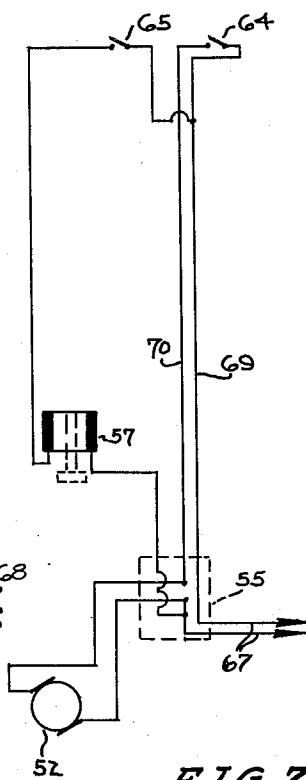
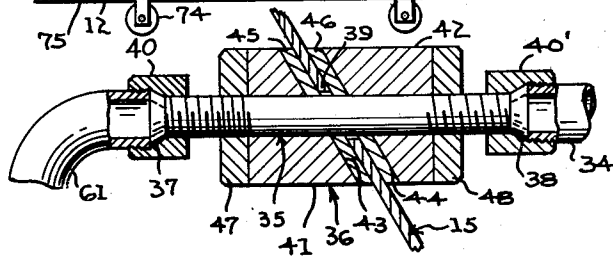


FIG. 6

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2 SHEETS—SHEET 2

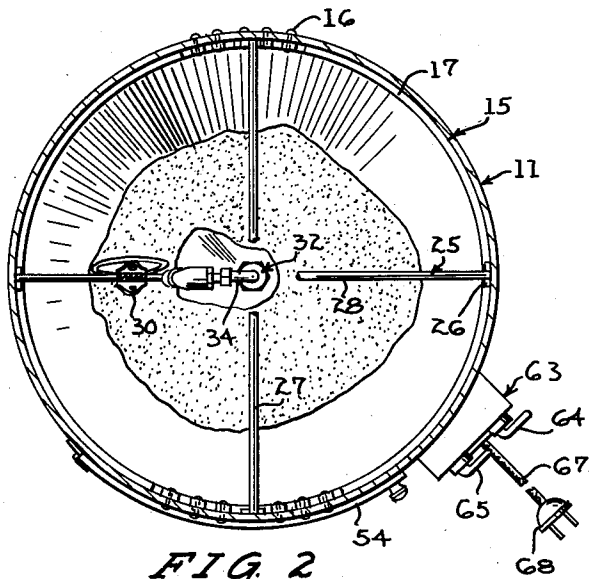
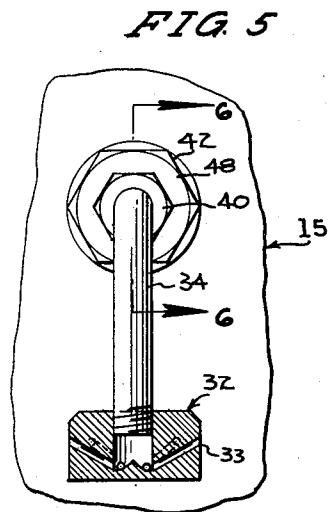


FIG. 3

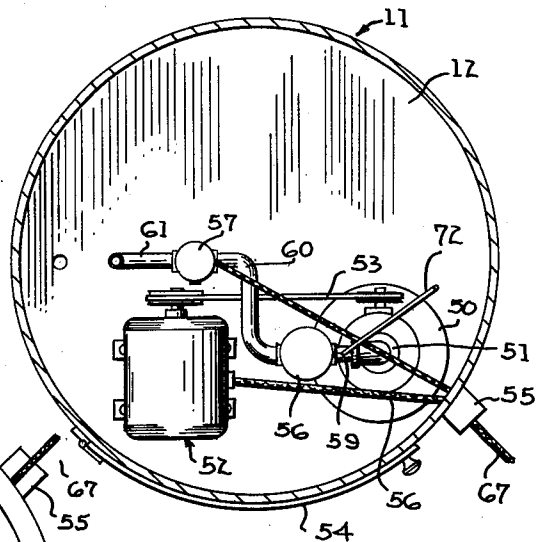
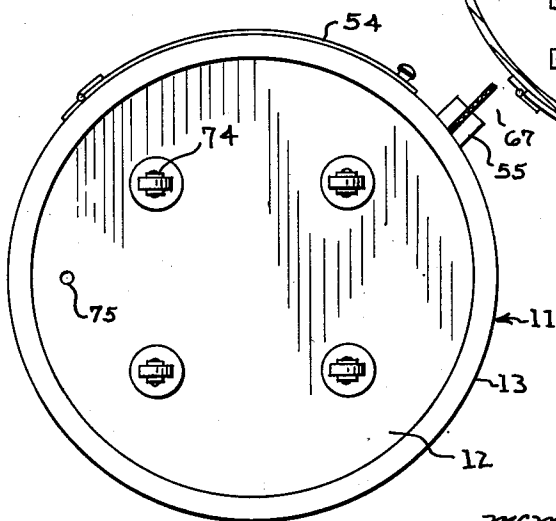


FIG. 4



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SURGICAL GLOVE-DUSTING MACHINE

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3 Claims. (Cl. 118—309)

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This invention relates to hospital equipment, and more particularly to a machine for dusting surgical gloves.

An object of this invention is to provide a dusting machine for applying a thin, uniform coating of a suitable compound, such as talc, to surgical rubber gloves.

Another object of this invention is to provide a surgical glove dusting machine which is constructed in a manner to prevent the escape of dusting talc into the work room, thus protecting the health of the operator and at the same time effecting a saving in the dusting compound.

A further object of this invention is to provide a surgical glove dusting machine for simultaneously applying a uniform film of a dusting compound of a desired density to the interior and exterior of rubber surgical gloves.

A still further object of this invention is to provide a machine for dusting rubber surgical gloves which can be easily and quickly manually actuated to dust the gloves, and is further readily portable from place to place.

A still further object of this invention is to provide a machine for dusting surgical gloves which is relatively simple in structure and cheap to manufacture.

The above and still further objects and advantages of the present invention will become apparent upon consideration of the following detailed description of the invention, when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a side elevational view, with parts broken away and shown in section, of the surgical glove dusting machine of the present invention;

Figure 2 is a sectional view taken along the line 2—2 of Figure 1;

Figure 3 is a sectional view taken along the line 3—3 of Figure 1;

Figure 4 is a bottom plan view of the surgical glove dusting machine of the present invention;

Figure 5 is an enlarged fragmentary sectional view taken along the line 5—5 of Figure 1;

Figure 6 is an enlarged fragmentary sectional view taken along the line 6—6 of Figure 5; and

Figure 7 is a schematic wiring diagram of the electrical circuit for the surgical glove dusting machine of the present invention.

Referring now more particularly to the drawings, there is shown the surgical glove dusting machine of the present invention, generally designated by the reference numeral 10, which includes an upstanding receptacle 11 having a bot-

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tom 12, a cylindrical bounding wall 13 and an open top 14.

Disposed within the receptacle 11 intermediate the ends thereof is a funnel-shaped container 15 which is secured within the receptacle 11 by means of the spaced screws 16. The funnel-shaped container 15 has an upwardly opening mouth 17 and is adapted to receive a loosened mass of a suitable dusting compound, such as a rubber glove talc 18.

Bridging the open top 14 of the receptacle 11 is a closure 19 which includes a dome-shaped body 20 having an outwardly projecting annular flange 21 and a downwardly depending skirt 22. Secured to the under surface of the annular flange 21 and the exterior surface of the skirt 22 is a rubber gasket 23 which is L-shaped in cross-section. The gasket 23 cooperates with the adjacent portions of the receptacle 11 and the flange 21 and the depending skirt 22 of the closure 19 to form an air-tight seal between the closure 19 and the receptacle 11. The receptacle 11, the container 15, and the closure 19 cooperate to form a dusting chamber 24 of the talc container 15.

Disposed within the dusting chamber 24 is rack 25 which is detachably mounted on suitable brackets 26 for dependingly securing gloves to be dusted within the dusting chamber 24. As clearly shown in Figure 2, the rack 25 includes the arms 27 and 28 arranged at right angles with respect to each other and having their free ends received within the slots 29 provided in the brackets 26. Engageable about the arms 27 and 28 of the rack 25 are spring clips 30 for detachably and dependingly securing gloves within the dusting chamber 24.

Secured within the container 15 contiguous to the bottom thereof is an air-injection nozzle 32 for introducing upwardly directed air jets into the container 15 to thereby force an air suspension of the dusting talc 18 upwardly through the open mouth 17 of the container 15 and into the dusting chamber 24. As clearly shown in Figure 5, the air-injection nozzle 32 includes a plurality of upwardly and outwardly extending passages 33, the nozzle 32 being mounted on the arcuate wall of the funnel-shaped container 15 by means of the arcuate nozzle-supporting conduit 34, a connecting conduit 35 and a connector 36. As clearly shown in Figure 6, the connecting conduit 35 includes outwardly flared ends 37 and 38, the conduit 35 extending through an aperture 39 provided in the conical wall of the container 15. Circumposed

about the connecting conduit 35 contiguous to the flared ends 37 and 38 thereof are the nuts 40 and 40' which are supported in threaded engagement with the connecting conduit 35. As clearly shown, the nut 40' is adapted to threadedly engage with the adjacent end of the arcuate nozzle-supporting conduit 34 to form an airtight seal between the conduit 34 and the adjacent flared end 38 of the connecting conduit 35. The connector 36, which is circumposed about the connecting conduit 35 includes a pair of abutments 41 and 42 having their confronting faces 43 and 44 beveled and shaped complementary with respect to the adjacent portions of the conical wall of the container 15. Interposed between the confronting faces 43 and 44 of the abutments 41 and 42 are washers 45 and 46, fabricated of leather or the like, which are urged into bearing and abutting relation with respect to the conical wall of the container 15 by means of the clamp nuts 47 and 48 which are threadedly supported on the connecting conduit 35 and bear against the non-confronting faces of the abutments 41 and 42.

Disposed within the receptacle 11 below the container 15 is a compressor 50 which is mounted on the bottom 12 of the receptacle 11. The compressor 50 includes an air outlet 51 and is driven by an electric motor 52 which is likewise disposed interiorly of the receptacle 11 and mounted on the bottom 12 thereof, the motor 52 being coupled to the compressor 50 by a belt 53. As clearly shown in Figure 1, the cylindrical wall 13 of the receptacle 11 is provided with a hinged door 54 permitting access to the interior of the receptacle and to the compressor 50 and the motor 52. Spaced above the hinged door 54 is a junction box 55 which receives the electric cord 56' from the motor 52.

The outlet 51 of the compressor 50 is connected through a combined oil separator and safety valve 56 and a normally closed magnetic valve 57 to the air-injection nozzle 32. As clearly illustrated in Figure 1, the outlet 51 of the compressor 50 is connected through an elbow joint 58 and a coupling 59 to one side of the separator 56, the other side of the separator being connected by a coupling 60 to the adjacent side of the electromagnetic control valve 57. The other side of the control valve 57 is connected by means of a conduit 61 to the flared end 37 of the connecting conduit 35. Accordingly, a closed flow system is provided from the air compressor 50 to the air-injection valve 32 through the outlet 51, the elbow 58, the connecting coupling 59, the air filter 56, the connecting coupling 60, the normally closed magnetic valve 57, the conduit 61, the connecting conduit 35, and the nozzle-supporting conduit 34.

Disposed exteriorly of the receptacle 11 and supported on the cylindrical wall 13 thereof contiguous to the closure 19 is a control panel 63. The control panel 63 includes a motor-control switch 64, valve-control switch 65 and pressure gauge 66. As clearly shown in Figures 1 and 7, the electrical system for the dusting machine includes the main cable or extension cord 67 which is adapted to be connected to a suitable source of electrical energy by means of the male plug 68. One side 69 of the main cable 67 is connected to the movable contacts of the switches 64 and 65, the fixed contact of the switch 64 being connected through the motor 52 to the other side 70 of the line. Similarly, the fixed contact of the switch 65 is connected through the magnetic con-

trol valve 57 to the other side of the line. Accordingly, the motor can be actuated by moving the switch 64 to a position wherein the movable contact engages the fixed contact and completes the electrical circuit for the motor. The magnetic control valve 57 can be actuated out of the closed position to connect the compressor 50 in communication with the air-injection nozzle 32 by moving the switch 65 to a position wherein the movable contact engages the fixed contact.

The pressure gauge 66 is connected to the coupling conduit 59 by means of a flexible conduit 72 to thereby visually indicate the outlet air pressure of the compressor 50.

The combined oil separator and safety valve 56, connected to the outlet of the compressor 50, releases air from the compressor when the control valve 57 precludes the flow of air from the compressor to the air injection nozzle 32 and the air compressor is operating if the air pressure exceeds a predetermined value. The safety valve is set to open when subjected to air pressure slightly above forty pounds per square inch.

Dependingly carried by the bottom 12 of the receptacle 11 are the casters 74 for movably supporting the receptacle for convenient transportation from place to place. It is to be noted that the bottom 12 of the receptacle 11 is provided with a cleanout port 75 for effecting the removal of accumulations within the receptacle.

In actual use, the closure 19 is manually removed, the closure being provided with a knob 76 facilitating the removal thereof. The removably supported rack 25 is removed from the supported position within the dusting chamber 24 and the clips 30 are utilized to dependingly clip the gloves to be dusted beneath the arms 27 and 28 of the rack 25. As clearly illustrated in Figure 1, the gloves are supported in the cuff area thereof by means of the clips. The rack 25 is replaced to its supported position in the dusting chamber 24 and the closure 19 once again arranged in bridging relation with respect to the receptacle. The motor 52 of the air compressor is actuated by moving the switch 64 to the closed position. When the pressure gauge 66 indicates the pressure of approximately 40 pounds, the switch 64 is opened and the switch 65 closed, moving the magnetically actuated closed valve 56 to the open position. The switch 65 is held in the closed position for a period of approximately three or four seconds, during which time the compressed air accumulated in the oil separator and safety valve and in the conduits 51, 58, 59 and 60, will be blown through the nozzle 32 and into the container 15. This quantity of compressed air is insufficient to displace the cover 19 or subject the receptacle 11 to excessive internal pressure. The switch 65 is then opened and after a period of approximately three to four minutes, during which time the dusting compound is permitted to settle, the closure 19 is removed. After lightly shaking the rack 25, the dusted gloves may be removed from the clip and other gloves engaged therewith, and the dusting machine is ready to be reloaded.

Although only one embodiment of the dusting machine of the present invention has been described, it is readily apparent that numerous modifications can be made without departing from the spirit of the invention as set forth in the appended claims.

What we claim is:

1. Apparatus for dusting surgical gloves comprising means providing a dusting chamber having an inverted conical bottom for holding dusting

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powder and an open upper end, means supporting said chamber in upright position, a removable closure closing the open upper end of said chamber, a glove-supporting rack removably mounted in said chamber adjacent said closure, an air compressor supported adjacent said chamber, an electric motor supported adjacent said air compressor and drivingly connected thereto, a nozzle disposed within the inverted conical bottom of said chamber near the apical lower portion of said bottom, conduit means extending through said chamber providing means connecting the outlet of said air compressor to said nozzle, an electromagnetic valve interposed in said conduit means and normally closing the latter, and an energizing circuit for said motor and said electromagnetic valve including manually operated switches connected one to said motor for controlling the operation of said air compressor and one to said electromagnetic valve for controlling the passage of air compressed by said air compressor to said nozzle.

2. Apparatus for dusting surgical gloves comprising means providing a dusting chamber having an inverted conical bottom for holding dusting powder and an open upper end, means supporting said chamber in upright position, a removable closure closing the open upper end of said chamber, a glove-supporting rack removably mounted in said chamber adjacent said closure, an air compressor supported adjacent said chamber, an electric motor supported adjacent said air compressor and drivingly connected thereto, a nozzle disposed within the inverted conical bottom of said chamber near the apical lower portion of said bottom, conduit means extending through said chamber providing means connecting the outlet of said air compressor to said nozzle, an electromagnetic valve interposed in said conduit means and normally closing the latter, and an energizing circuit for said motor and said electromagnetic valve including manually operated switches connected one to said motor for controlling the operation of said air compressor and one to said electromagnetic valve for controlling the passage of air compressed by said air compressor to said nozzle, said nozzle comprising a body having a cavity therein in communication with said conduit means and restricted passages radiating upwardly and outwardly from said cavity.

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3. Apparatus for dusting surgical gloves comprising a conical container for holding dusting material, means supporting said container in inverted position, an annular wall extending upwardly from the upper end of said container providing a dusting chamber at the upper end of the container, a removable closure supported on the upper edge of said annular wall, a glove-supporting rack removably mounted in said dusting chamber adjacent the under side of said closure, a nozzle disposed in said container adjacent the lower end thereof, said nozzle having an internal cavity and upwardly and outwardly inclined air passages extending radially from said cavity, an air compressor supported adjacent said container, an electric motor supported adjacent said compressor and drivingly connected thereto, conduit means connecting the outlet of said compressor to said nozzle in communication with the cavity in the latter, a combined oil separator and safety valve connected into said conduit means, an electromagnetic valve connected into said conduit means between said combined oil separator and safety valve and said nozzle and normally closing said conduit means, a pressure indicating gauge connected to said conduit means between said compressor and said electromagnetic valve, and an energizing circuit for said motor and said electromagnetic valve including independent manually operated switches one of which is connected to said motor to control the operation of said air compressor and the other of which is connected to said electromagnetic valve to control the passage of air compressed by said compressor to said nozzle.

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