F. B. LA MAY.

POWDER BLOWER.

APPLICATION FILED JUNE 19, 1907.

907,376. Patented Dec. 22, 1908.

2 SHEETS—SHEET 1.

FIG. 1.

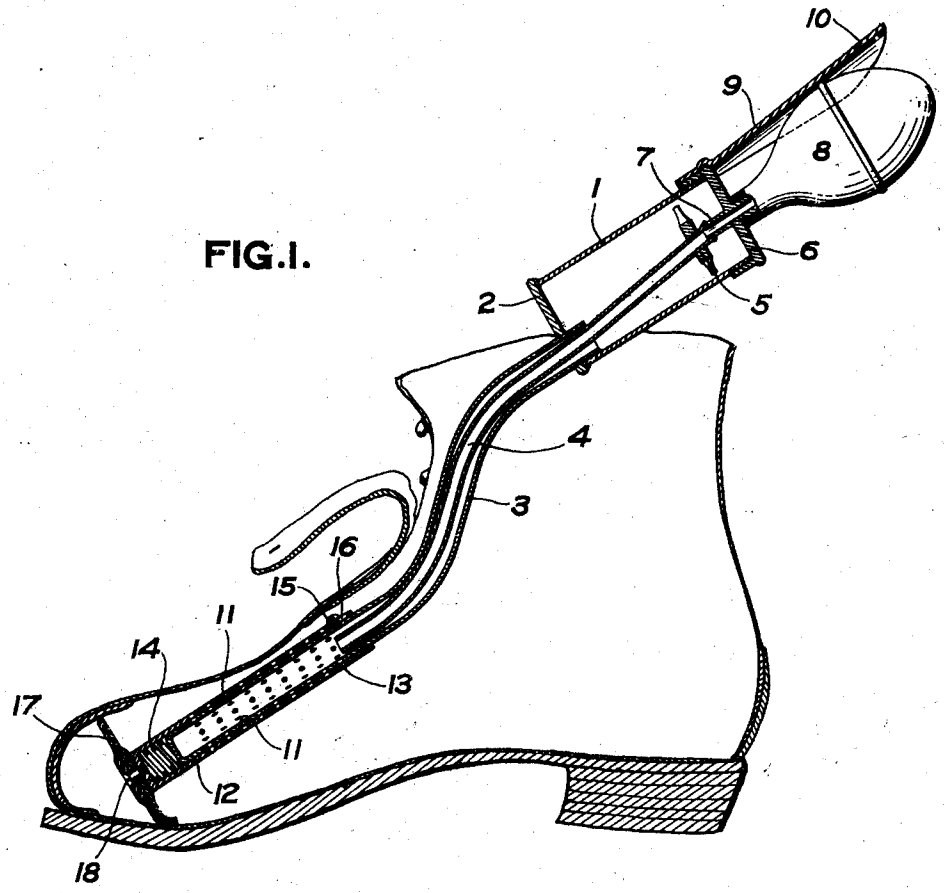
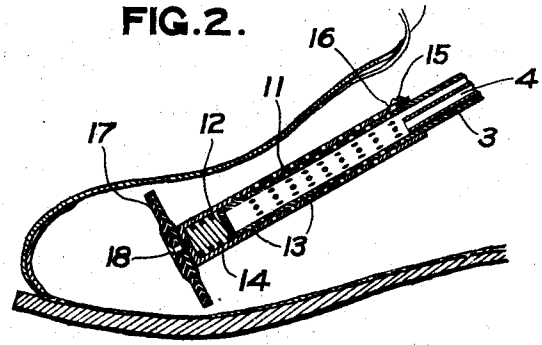


FIG. 2.



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2 SHEETS—SHEET 2.

FIG. 4.

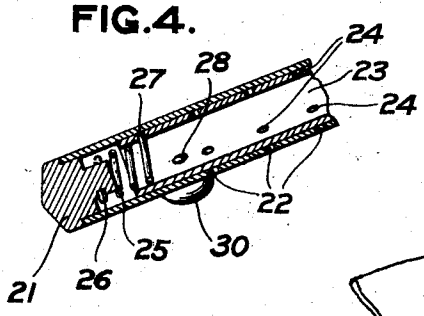


FIG. 3.

FIG. 5.

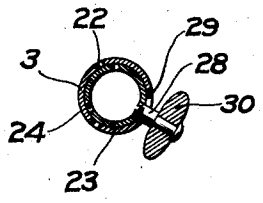
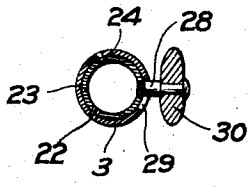


FIG. 6.



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UNITED STATES PATENT OFFICE.

FRANK B. LA MAY, OF ROCHESTER, NEW YORK, ASSIGNOR TO AMERICAN CHEMICAL MANUFACTURING & MINING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

POWDER-BLOWER.

No. 907,376. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed June 19, 1907. Serial No. 379,777.

To all whom it may concern:

Be it known that I, FRANK B. LA MAY, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Powder-Blowers, of which the following is a specification.

This invention relates to powder blowers, and more particularly to devices for distributing powder upon the inside of shoes or other cavities.

In the drawings:—Figure 1 is a longitudinal section of the device, inserted in a shoe, and ready to distribute the powder; Fig. 2 is a partial section, illustrating the position of the parts when being inserted or withdrawn; Fig. 3 is a sectional view of a modified form of the device within a shoe; Fig. 4 is a portion of the same enlarged; Fig. 5 is a cross-section on the line 5—5 of Fig. 3, the parts being in one position; and Fig. 6 is the same view, with the parts in a different position.

The blower has a powder receptacle 1, with a closed lower end 2, from which extends a powder tube 3. Within said tube 3 is a smaller air tube 4, fixed at its upper end to a bridge or support 5 in the receptacle 1. The receptacle 1 is closed at its upper end by means of a removable cap 6, having a nozzle 7 to which a bulb 8 is attached. When the cap 6 is in place (Fig. 1) the end of the air tube 4 fits the inner end of the said nozzle, so that air that is expelled from the bulb 8 must go through said tube and cannot escape into the receptacle 1. A guard 9, curved to fit the hand, is fastened to the cap 6, and serves to prevent the bulb 8 from being accidentally twisted off the nozzle 7, and further constitutes a support by which the device may be manipulated while maintaining the fingers in position to compress and release the bulb 8. Said guard also affords a convenient means of hanging the device from a nail or hook. A perforation 10 is provided for this purpose.

The lower end of the tube 3 is closed, and in its sides are a series of perforations 11. A valve 12 is slidably mounted upon the tube 3, and in it are perforations 13 adapted to register at times with the perforations 11. Normally, the perforations 11 and 13 are held out of register (Fig. 2) by the action of a coiled spring 14, which lies inside of the valve 12 and presses against the end thereof and the end of the tube 3. The movement of the valve 12 upon the tube 3 is limited by a pin 15, which is fixed in said tube and extends through a slot 16 in said valve. Upon the end of the valve 12 is a disk 17 of a flexible and clinging substance, such as rubber, and held in place by a suitable fastening, such as a screw 18. In the drawings, the said disk is shown as thin at the edge and thick in the center.

The device is used as follows:—The receptacle 1 being filled with powder, and the cap 6 and bulb 8 replaced, the end of the tube 3 is inserted in a shoe as shown in Fig. 2. In this position, powder will trickle from the receptacle down the inside of the powder tube 3, into the perforated portion thereof, but cannot escape into the shoe because the perforations 11 and 13 are out of register. As soon as the edge of the flexible disk 17 strikes any part of the shoe, such as the insole (Fig. 1), it tends to cling thereto, and to hold the valve 12 stationary. Continued longitudinal pressure on the remaining parts causes the spring 14 to be compressed, thereby allowing relative movement between the valve 12 and the tube 3, and bringing the perforations 11 and 13 into register. If the bulb 8 is then squeezed, air is forced through the tube 4, and escaping into the powder which lies in the end of the tube 3, distributes it in the shoe through the perforations 11 and 13. When a movement is made to withdraw the blower, the action of the spring 14 immediately moves the valve 12 to the position shown in Fig. 2, and no more powder can escape therefrom. The perforations 11 and 13 cannot become clogged with powder, because, as soon as pressure is removed from the bulb 8, air rushes into it through said perforations and the tube 4. Because of the reversal of the air-current, the powder cannot become packed or caked in the tubes, and the device is therefore unlikely to get out of order.

In the modified form of the device illustrated in Figs. 3 to 6, an inner tube is not used to convey the air to the lower end of the powder tube. The powder tube 3 is extended into the receptacle 1 at 19, and the nozzle 7 is brought down nearly to its upper end (Fig. 3). This construction leaves a gap 20 through which powder can pass into the tube 3. The lower end of the powder tube 3 is closed by a plug 21, and in its sides are a number of perforations 22. A valve 23, in

which are perforations 24, lies within the lower end of the tube 3. A coiled spring 25, attached at one end 26 to the plug 21, and at the other end 27 to the valve 23, by its continual tendency to unwind, turns the said valve so that the perforations 22 and 24 do not register with each other. In a suitable part of the valve 23 is fixed a pin 28 (Fig. 5) which extends through a transverse slot 29, and carries upon its outer end a roller 30.

When the device is inserted in a shoe (Fig. 3), and pressed downward so that the roller strikes some position thereof, the said roller is moved from the position shown in Fig. 5 to that shown in Fig. 6, turning the valve 23 against the action of the spring 25. The perforations 22 and 24 are thereby brought into register, and powder may be distributed into the shoe, if the bulb 8 is pressed. When the downward pressure upon the device is removed, as in lifting it out of the shoe, the spring 25 tends to unwind, and the valve 23 is rotated until the pin 28 strikes the lower end of the slot 29. The perforations 22 and 24 are thus thrown out of register, shutting off the powder, some of which is retained in the tube 3 until the next operation of the device.

In the form of the device, when the bulb is compressed, powder in the tube is blown out of the device, provided the automatic spring controlled valve is in the proper position. The valve is moved to this proper position by compressing a part of the valve against the article to be supplied with powder. The form of the device is particularly adapted to supply powder to a somewhat inaccessible place, such as the interior of a shoe or glove.

What I claim is:—

1. In a powder blower, the combination of a powder receptacle, a tube extending from one end of the receptacle and having at the outer end a series of perforations, means at the other end of the receptacle for causing a blast of air directly into the inner end of the tube, and a spring-closed valve for closing said perforations and having a portion projecting therefrom whereby the valve may open by pressure on said projecting portion.

2. In a powder blower, the combination of a powder receptacle, a tube extending from one end of the receptacle and having at the outer end a series of perforations, a spring-closed valve for closing said perforations and having a portion projecting therefrom whereby the valve may open by pressure on said projecting portion, and means for causing and directing a blast of air directly into the other end of the tube.

3. In a powder blower, the combination of a powder receptacle, a tube extending thereinto and from one end thereof and having at the outer end a series of perforations, a spring-closed valve for closing said perforations and having a portion projecting therefrom whereby the valve may open by pressure on the projecting portion, means for causing a blast of air into the other end of the tube comprising a nozzle open at the end and directed into the end of said tube, and manual means for causing a blast of air from said nozzle.

4. In a powder blower, the combination of a powder receptacle, a tube extending from one end thereof and having at the outer end a series of perforations, a blowing device outside of said tube and at the other end thereof and having a nozzle smaller than the bore of said tube and extending into said receptacle to the inner end of said tube, and a spring-closed valve for closing said perforations and having a portion projecting from said tube whereby the valve may open by pressure on the projecting portion.

5. In a powder blower, the combination of a powder receptacle, a powder tube extending from one end of said receptacle and having at its outer end a series of perforations, a spring-closed valve consisting of a tube having perforations therein adapted to register with the perforations of the powder tube and having a portion projecting from said powder tube whereby the valve may open by pressure on the projecting portion, and manual means for directing a blast of air directly into the inner end of said powder tube.

6. In a powder blower, the combination of a powder receptacle, a tube extending therefrom having perforations in the end thereof, means for causing a blast of air in the tube, a spring controlled valve having perforations adapted to register with the perforations in the end portion of the tube, and a pin extending therefrom and adapted to move the valve by pressure on the valve through said pin.

7. In a powder blower, the combination of a powder receptacle, a tube extending therefrom having perforations in the end thereof, means for causing a blast of air in the tube, a spring controlled valve having perforations adapted to register with the perforations in the end portion of the tube, a pin extending from said valve, and a roller on said pin whereby the valve is opened by pressure on said valve through the pin and roller.

8. In a powder blower, the combination of a powder receptacle, a tube extending therefrom having perforations in the end thereof, means for causing a blast of air in the tube, a perforated sleeve having perforations adapted to register with the perforations in the end portion of the tube, a spring for moving the sleeve to one position, and means on the sleeve adapted to be compressed and thereby to move the valve into a position in which the perforations in the sleeve and the tube register.

9. In a powder blower, the combination of a powder receptacle, a tube extending therefrom having perforations in the end thereof,

means for causing a blast of air in the tube, a perforated sleeve having perforations adapted to register with the perforations in the end portion of the tube, a spring attached to the tube and to the sleeve and adapted normally to turn the sleeve into a position in which the perforations in the tube and in the sleeve are out of registry, and a pin projecting from said sleeve and adapted by pressure on the valve through said pin to turn the valve into the position in which the perforations in the tube and sleeve register.

10. In a powder blower, the combination of a powder receptacle, a tube extending therefrom having perforations in the end portion, a spring controlled valve for normally closing said perforations and adapted to open by pressure on said valve, an elastic bulb having a connection into the interior of said powder receptacle, and a bearing plate attached to said powder receptacle and adjacent to said bulb.

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