

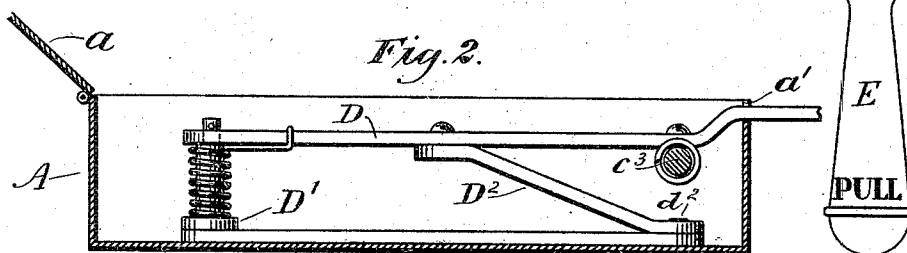
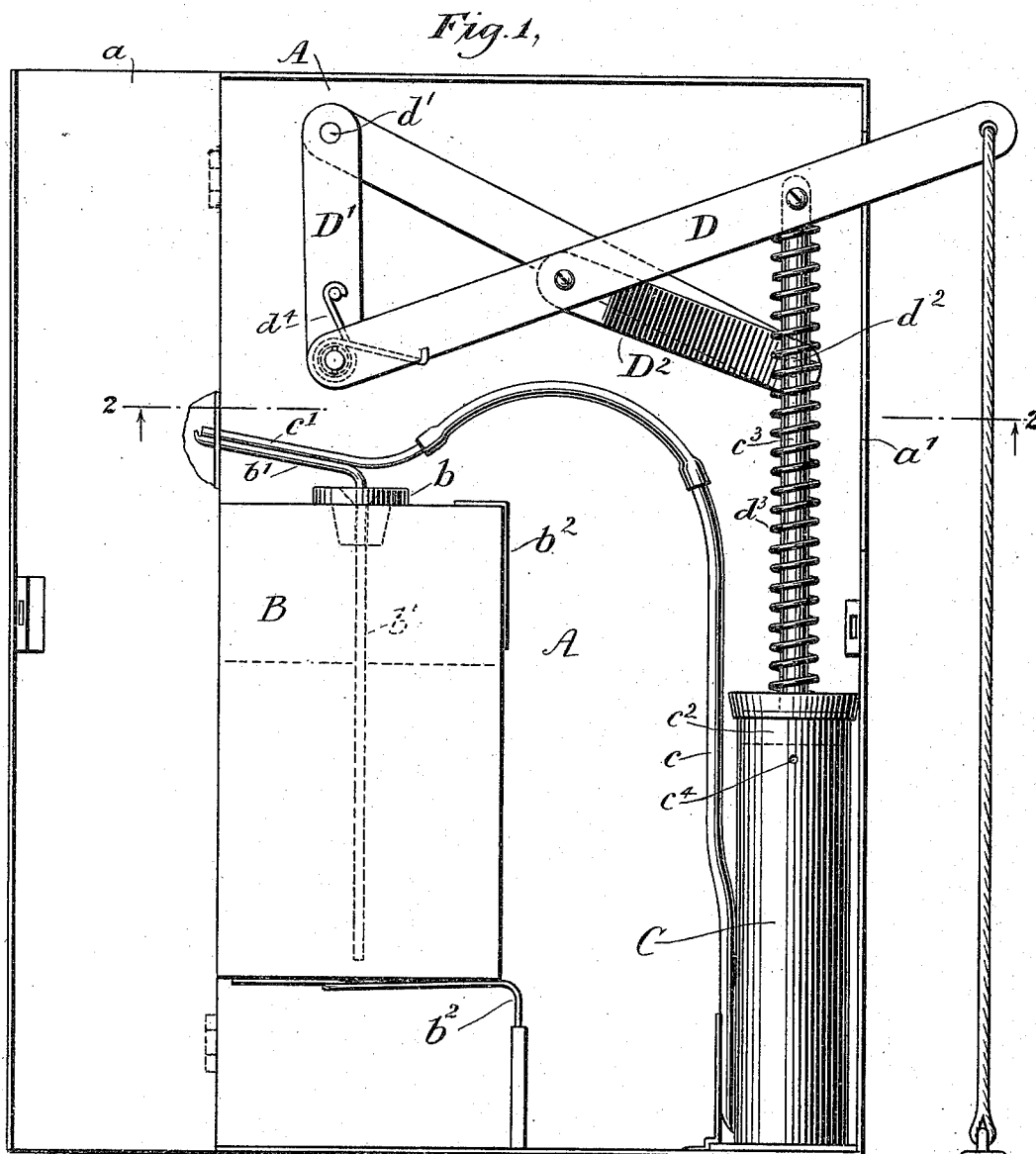
(No Model.)

F. J. MITCHELL.

OPERATING MECHANISM FOR AIR FORCING APPARATUS.

No. 573,026.

Patented Dec. 15, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

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OPERATING MECHANISM FOR AIR-FORCING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 573,026, dated December 15, 1896.

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To all whom it may concern:

Be it known that I, FREDERICK JAMES MITCHELL, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Operating Mechanism for Air-Forcing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to mechanism for operating air-forcing apparatus by which perfumes or disinfectants may be distributed by means of an atomizer of ordinary construction, and the object thereof is to provide such an apparatus which may be placed in closets or in the sick-room, for instance, and which can be operated to discharge an efficient quantity of the desired deodorant or disinfectant by simply pulling a handle.

In the accompanying drawings, Figure 1 is a front elevation showing my improved apparatus supported in a suitable inclosing case; and Fig. 2 is a cross-section thereof on the line 2 2, Fig. 1.

Like reference-characters are employed to designate corresponding parts in both views.

The inclosing case A is secured to any suitable support, and, as shown, is provided with a door *a*, which can be locked to prevent tampering with the apparatus.

As shown in the drawings, the case A contains a suitable device adapted to be operated by a current of air. This, as shown, is an atomizer of ordinary construction, arranged to contain liquid, and is provided with a suitable discharge-tube *b'*.

As shown, the chamber B is held in place by suitable clamps *b*², secured to the inclosing case. Rigidly fixed within the case in an upright position is the cylinder C. The discharge-tube *c* is connected therewith, and its nozzle *c'* is secured to the tube *b'*, as described. Within the cylinder C is the piston *c*², provided with a piston-rod *c*³. The cylinder is also preferably provided with a small vent-hole *c*⁴, slightly below the normal position of the piston, so that when the piston reaches the top of the cylinder the vent will be uncovered and permit the cylinder to fill quickly with air. The piston-rod *c*³ is pivoted to a swinging lever D within the case, and said

lever, which projects through a slot *a'* in the side of the case, is provided at its outer end with a rope, cord, or chain which terminates in a handle E. The lever D is pivoted at its inner end to the link D', which at its opposite end is pivotally fixed to the back of the casing by a fixed pivot *d'*. The bent swinging link D² is also pivotally fixed to the back of the casing by a fixed pivot *d*², and the opposite end of the link D² is pivoted to the lever D, thus forming a toggle-joint having one of its members prolonged beyond the junction of the members to form the handle connection and receive the connection to the piston-rod. Between the lever D and the cylinder-head and carried by the piston-rod is the helical spring *d*³, under compression, and a coil-spring *d*⁴ is also shown carried by the link D' and projecting under the lever D. The object of these springs is to carry the piston to the top of the cylinder when the handle E is released, and either of said springs will be sufficient for the purpose.

The operation of my invention is as follows: With the apparatus in its normal position, as shown in the drawings, the cylinder C will be filled with air, and if the lever D be pulled down by means of the handle E the toggle formed by the lever D and the link D² will be straightened and swing past the center and the piston *c*² will be carried toward the bottom of the cylinder, forcing the contained air out through the discharge-pipe *c* and nozzle *c'* across the contracted opening in pipe *b'*, whereby the liquid contained in the chamber B will be blown into the closet or apartment in the form of a fine spray. The bottom of the slot *a'* in the side of the case through which the end of the lever D projects forms a stop which limits the downward movement of the lever D, and as soon as the lever reaches this point the handle E is released, and under the action of the springs *d*³ *d*⁴ the piston will return to the top of the cylinder, drawing in a fresh supply of air through the pipes *c* *c* and vent *c*⁴. The apparatus is then ready for a repetition of the operation just described.

It is essential to the utility of a device of this character that it should be capable of delivering a comparatively large amount of the disinfectant or deodorant at each discharge and also that the discharge shall be powerful

enough to carry the substance to a considerable distance from the apparatus. To effect this, it is necessary that the piston shall have a long stroke and highly desirable that a lever be employed to lessen the power required to operate the apparatus. It would, however, be difficult to attain both these advantages, the long stroke and the decrease in power, by means of a simple lever, because the arc described by the free end of any lever of practicable length would have so short a radius that the piston-rod c^3 would be thrown out of line and bind against the sides of the cylinder-head; but with my invention the piston-rod moves in a true vertical position, as any tendency of the lever to swing it sidewise is counteracted by the links D' and D^2 . The consequence is that any range of movement and any desired leverage within reasonable limits may be attained.

My improved apparatus is simple, inexpensive to construct, reliable in operation, and not liable to get out of order, besides being easily and quickly operated, and the only attention which it requires is that the chamber B, which is to be made of sufficient size

to carry enough of the material to be sprayed to last several weeks, shall be refilled periodically.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with the inclosing case, of an air-forcing device provided with a piston-rod, a swinging link D' , a toggle-joint consisting of the members D and D^2 of equal length, the member D^2 being pivoted to a fixed support within the case and the member D being pivoted to the link D' and being prolonged beyond its juncture with the member D^2 , such prolonged portion of the member D being connected with the piston-rod of the air-forcing device within the case, a handle connected with the prolongation of the member D outside the case for operating the piston-rod and a spring arranged to return the parts to their normal position when the handle is released, substantially as shown and described.

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Witnesses:

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