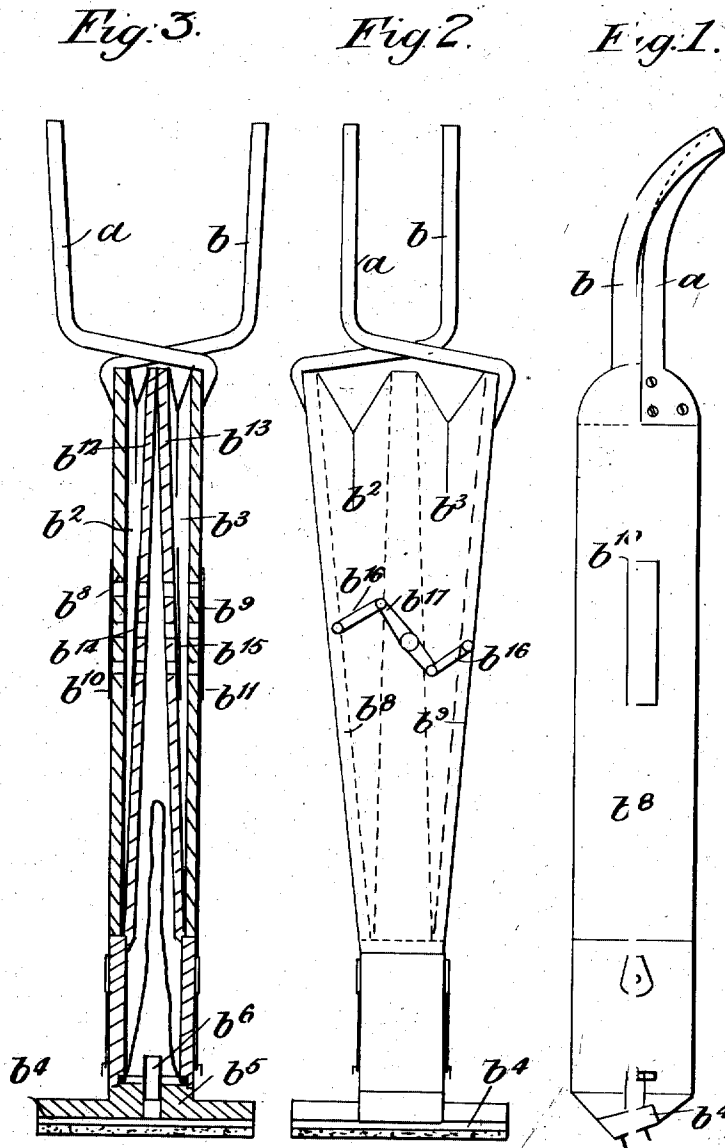


C. J. HARVEY.
 OPERATING MECHANISM FOR BELLOWS PUMPS.
 APPLICATION FILED SEPT. 9, 1909.

1,008,541.

Patented Nov. 14, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES JAMES HARVEY, OF KIDDERMINSTER, ENGLAND.

OPERATING MECHANISM FOR BELLOWS-PUMPS.

1,008,541.

Specification of Letters Patent. Patented Nov. 14, 1911.

Application filed September 9, 1909. Serial No. 516,986.

To all whom it may concern:

Be it known that I, CHARLES JAMES HARVEY, a subject of the King of Great Britain, residing in Kidderminster, England, have
5 invented certain new and useful Improvements in Operating Mechanism for Bellows-Pumps, of which the following is a specification.

This invention relates to improvements in
10 operating mechanism of small self-contained and portable pneumatic dusting and sweeping machines, and it has for its object to provide an improved means of operation for vacuum cleaners of the bellows type in which
15 one of the improvements consists in having the handles or shafts so off-set or bent that the handle for the left hand bellows is on the right hand side of the machine, and the handle for the right hand bellows is on the
20 left hand side of the machine.

A further improvement in my device consists in the arrangement on the sides of the cleaner between the movable boards of the bellows of a pivoted compensating linkage,
25 whereby the two operating handles are caused to have an equal and simultaneous movement.

In order that the invention may be the better understood, drawings are appended
30 in which:

Figure 1 is a front elevation of apparatus embodying the present invention. Fig. 2 is a side elevation with the bellows open. Fig. 3 is a longitudinal section with the bellows
35 closed.

Referring to the accompanying drawings, *a* and *b* indicate the operating shafts of a bellows form of cleaner, and which shafts are bent as shown so that when attached to the movable members of the bellows *b*² and *b*³ the shafts are crossed and the handle portion of the said shafts are disposed in a plane substantially parallel to the plane of the opposite movable member to the one to
40 which they are attached. In the apparatus illustrated *b*⁴ represents the nozzle which as before is attached to a body *b*⁵ through which projects a tube *b*⁶ communicating with the interior of the filter bag *b*⁷ secured
45 by the body *b*⁵ in the lower end of the apparatus. The bellows are formed by the two boards *b*⁸, *b*⁹, hinged in any suitable manner such that they are air tight to the lower end of the apparatus and provided with valves

*b*¹⁰, *b*¹¹ through which the air is expelled as
55 the boards are moved inward. A center chamber is formed by means of the inclined fixed boards *b*¹², *b*¹³ in which the aforesaid bag filter *b*⁷ is disposed and valves *b*¹⁴, *b*¹⁵ are provided upon the boards to permit the
60 air drawn through the filter to escape into the bellows when they are expanded.

By means of a construction employed not only is the device as a whole made much stronger and stiffer, but the center chamber
65 formed by the boards *b*¹², *b*¹³, just described, forms a convenient receptacle for the bag filter *b*⁷.

Instead of employing valves *b*¹⁴, *b*¹⁵, I may dispense with the said valves and provide
70 an inlet valve on tube *b*⁶.

The boards *b*⁸, *b*⁹ take the place of the hand levers *a* and *b* before referred to, and their simultaneous and equal movement is insured by the links *b*¹⁶ pivotally connected
75 at one end to the said boards and at the other connected to a lever *b*¹⁷ pivotally mounted upon the center immovable portion of the bellows.

Having now particularly described and 80 ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. In a vacuum cleaner of the bellows type, operating means comprising shafts secured to the movable members of the bellows, said shafts being bent so that the handle portion of one is upon the opposite side of the machine with regard to the member to which it is attached.
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2. In a vacuum cleaner of the bellows type, operating means comprising shafts secured to the movable members of the bellows, said shafts being bent so that the handle portion of one is upon the opposite side
90 of the machine with regard to the member to which it is attached, and means connecting the two movable members of the bellows to insure the equal and opposite movement of the shafts.
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3. In a vacuum cleaner of the bellows type, operating means comprising shafts secured to the movable members of the bellows, said shafts being bent so that the handle portion of one is upon the opposite side
100 of the machine with regard to the member to which it is attached, and means connecting the two movable members of the bellows to
105

insure the equal and opposite movement of the shafts, said means comprising a lever pivotally mounted upon the fixed member of the bellows and connected by means of links attached to its ends with the movable member of the bellows.

In witness whereof I have hereunto set my

hand in the presence of the two undersigned witnesses.

CHARLES JAMES HARVEY.

Witnesses:

JAMES MORTON,
J. D. O. MORTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."