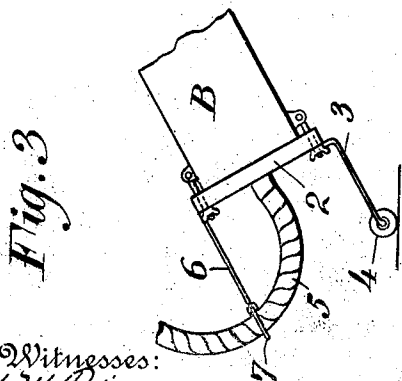
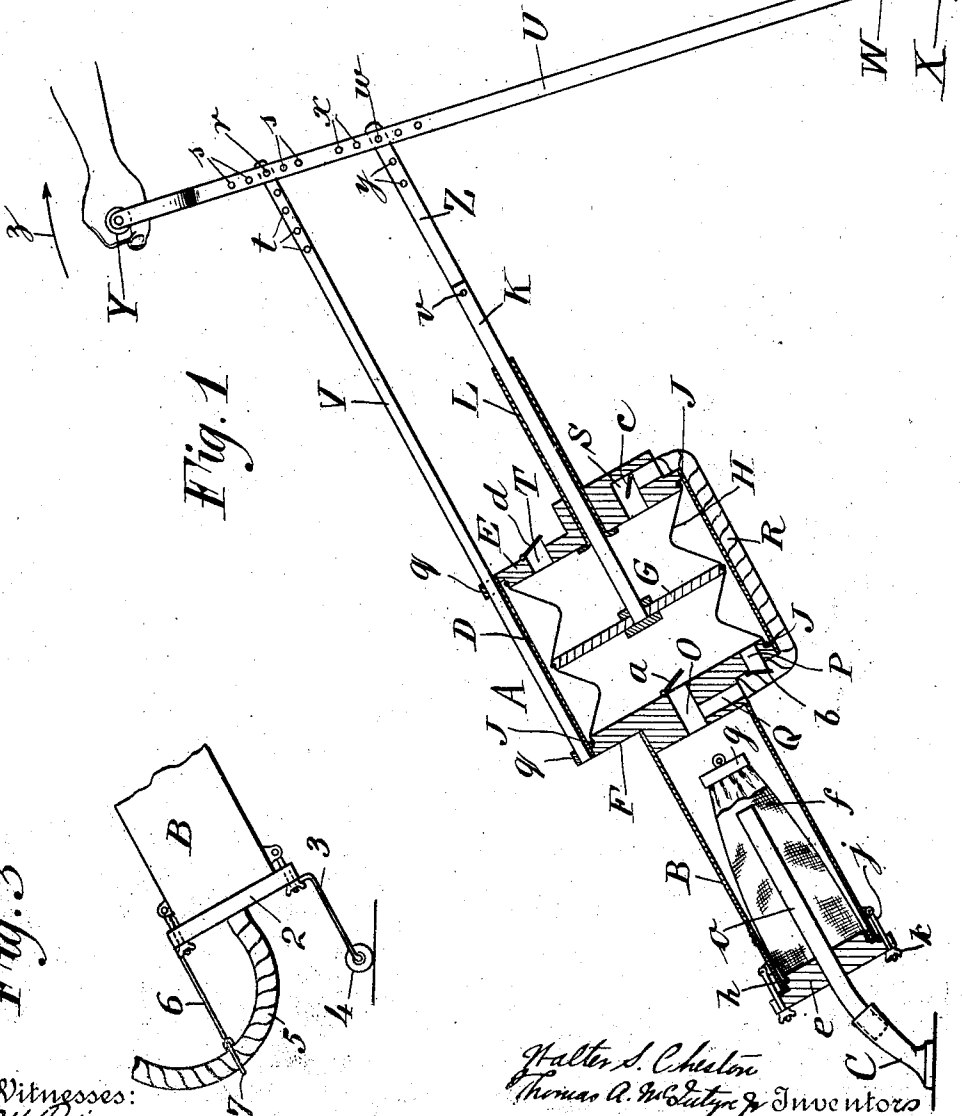
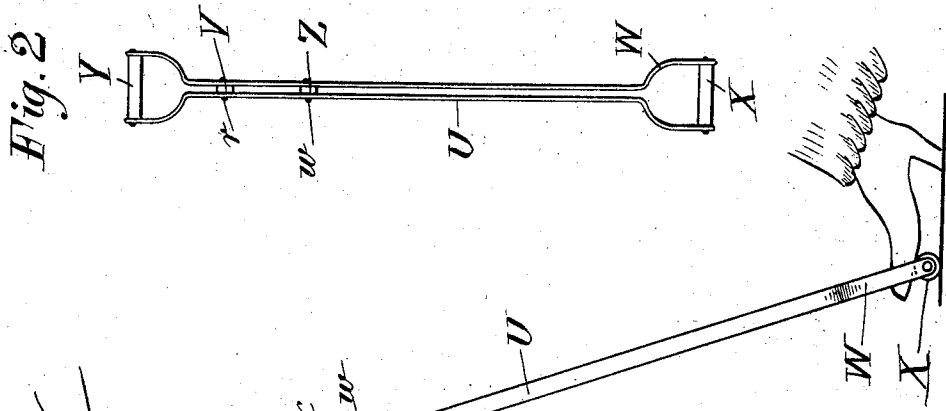


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 SUCTION CLEANING DEVICE.
 APPLICATION FILED MAY 11, 1911.

1,011,579.

Patented Dec. 12, 1911.



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UNITED STATES PATENT OFFICE.

WALTER S. CHESTON AND THOMAS A. McINTYRE, JR., OF NEW YORK, N. Y.

SUCTION CLEANING DEVICE.

1,011,579.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed May 11, 1911. Serial No. 626,499.

To all whom it may concern:

Be it known that we, WALTER S. CHESTON and THOMAS A. McINTYRE, JR., citizens of the United States, and residents of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Suction Cleaning Devices, of which the following is a specification, accompanied by drawings.

10 This invention relates to vacuum or suction cleaning devices, more especially to portable devices for cleaning purposes, and the objects of the invention are to improve upon such devices, simplify the parts, and
15 make the operation more certain and efficient.

To these ends the invention consists of a device which is shown in its preferred forms in the accompanying drawings, in which—

20 Figure 1 is a side elevation partly in longitudinal section, of a device embodying the invention; Fig. 2 is a detail end elevation of one member of the device, and Fig. 3 is a detail side elevation partly broken away of
25 a modification.

Referring to the drawings and more particularly to Fig. 1, the device comprises a suitable suction pump A, a collecting chamber B communicating with the pump casing,
30 and a collecting nozzle C, the suction end of the device being adapted to rest upon a supporting surface, as for instance, the floor to be cleaned, while the opposite end of the device is supported by suitable mechanism
35 adapted to be rocked, thereby bodily moving the entire cleaning device back and forth, at the same time operating the pump to apply suction to the nozzle. In this instance the pump A comprises the casing D, which may
40 be of cylindrical form, having the heads E and F suitably secured thereto, which within the casing is provided a bellows, which may conveniently be a double-acting bellows having the piston G connected to the diaphragm
45 H. Said diaphragm H is connected in any suitable manner to the heads E and F as by means of the cords or wires J. The piston or plunger G is provided with the piston rod K passing through the tubular sleeve L
50 which is suitably secured to the head E and forms a tight joint with the piston rod without the interposition of a stuffing box. We have found that this construction operates satisfactorily and well without the inconvenience attendant upon the use of a stuffing
55 box. The head F is provided with the inlet

port O and the collecting chamber B is suitably secured to said head F, so that communication is afforded between said chamber and the pump. An inlet valve *a* is provided for the inlet port O. The head F is also provided with an outlet port P provided with the outlet valve *b*. A passageway Q is provided in the head F preferably communicating with the inlet port O and any
60 suitable hose or tubing R connects the passageway Q with the inlet port S in the head E. A suitable inlet valve *c* controls the inlet port S. The head E is also provided with the outlet port T having the outlet
65 valve *d*. In the operation of the pump, movement of the piston G toward the head F, forces air out of the outlet port P and sucks air from the collecting chamber B through the passageway Q, tubing R and
70 inlet port S in the head E. Movement of the piston G toward the head E sucks air through the inlet port O in the head F and forces air out from the outlet port T in the head E. The collecting chamber or casing
75 B as shown is provided with the removable head *e* to which is suitably secured the bag *f*, the inner end of which is clamped by a suitable clamp *g*. The bag *f* may be fastened to the head *e* as by means of the cord or
80 wire *h*, and the head is held upon the casing B as by means of the bolts *j* and thumb screws *k*. The head *e* is preferably provided with the tube *o* extending into the bag
85 *f* and also extending outwardly beyond the head. The collecting nozzle C is preferably removably connected to the tube *o* by any suitable means, in this instance the end of the nozzle tube C being thrust over the end
90 of the tube *o* and held by friction.

The devices for operating the cleaner are constructed to support the operating end of the device in elevated position as shown in the drawing, while the suction end of the device rests upon the surface to be cleaned.
95 The operating devices are also adapted to bodily reciprocate the entire cleaning device and at the same time operate the pump so that suction is continuously supplied to the nozzle C and said nozzle is reciprocated
100 along the surface to be cleaned. The entire cleaning device may also be moved along the surface to be cleaned and in the form of the apparatus shown in Fig. 1, but one operator is required. We have found that toggle acting devices may be devised and suitably
105 connected to the cleaning device in such

manner that the pump may be operated and the collecting nozzle C reciprocated by one operating or rocking support U which forms one member of the toggle. The other member of the toggle is formed by a supporting rod V suitably secured to the pump casing D as by means of the bands *g*. The other end of the rod or toggle member V is pivoted to the toggle member U at the point *r*. Both members may be conveniently provided with apertures *s* and *t* in order to afford provision for adjusting said members at different heights and angles, in order to vary the stroke of the apparatus.

One end of the rocking member U is preferably provided with the foot-rest or stirrup W adapted to rest upon the floor or supporting surface or the surface to be cleaned. The stirrup W may also be provided with a roller X or other suitable device upon which the foot of the operator rests, as indicated in the drawing. The end W of the rocking member or support U is thus temporarily held stationary, while the upper end of the member U having the handle Y is grasped by the operator and moved back and forth or reciprocated with the stirrup W as a pivot, thus transmitting motion through the toggle member V, to the cleaning device.

The piston rod K is also pivoted to the member U as by means of the short link Z pivoted at *v* to the piston rod K and pivoted at *w* to the member U. The member U and the link Z are both provided with apertures *x* and *y* to afford provision for adjustment between the parts. By the reciprocation of the member U, with the lower end W held stationary, motion is transmitted through the link Z and piston rod K to the piston G which in turn operates the bellows to continually apply suction to the nozzle C. As the operator's hand, indicated in the drawing, is moved backward in the direction of the arrow *z*, the angle between the members U and V is decreased and the distance between the head E and the member U is decreased, thus forcing the piston G forward toward the head F. The forward movement of the upper end Y of the member U produces the opposite movement of the piston G. The operation of the toggle acting devices thus produces relative movement between the piston G and the pump casing.

In the modification shown in Fig. 3, the device is constructed as illustrated in Fig. 1, except that the collecting chamber B is provided with a head 2 having a bracket 3 carrying a roller 4 adapted to travel along a supporting surface, which may be the surface to be cleaned, as for instance, the floor of a room. The head 2 is provided with a flexible hose or connection 5 preferably supported by the bracket 6 having the ring 7. A suitable collecting nozzle C is adapted to be connected to the hose 5, so

that the cleaning device may be operated upon the floor or other surface while the nozzle connected to the hose 5 may be passed over chairs, sofas or hangings or other objects to be cleaned. The operation of the device shown in Fig. 3 is similar to that shown in Fig. 1, and in both cases the suction end of the device is adapted to be reciprocated upon a supporting surface, while the other end of the cleaning device is elevated and connected to a toggle acting mechanism.

Obviously the cleaning device may be pushed along the floor or other supporting surface to any desired position and the device may be operated for cleaning purposes in any position in which it may conveniently be placed. A double-acting pump or bellows has been shown to illustrate the preferred form of the invention, but we are not to be understood as limiting the device to a double-acting suction pump, and the pump itself may be of any suitable construction. The device is light, simple and cheap to manufacture.

We claim and desire to obtain by Letters Patent the following:

1. A portable suction cleaning device comprising a suction pump, a collecting chamber, and a suction nozzle, the said nozzle being adapted to be reciprocated along the surface to be cleaned, a rocking support pivotally connected to said pump, one end of the rocking support being adapted to be held stationary upon the surface to be cleaned, an operating handle located at the other end of said rocking support, and operative connections between the rocking support and pump for operating the pump.
2. A portable suction cleaning device, comprising a suction pump, a collecting chamber and a suction nozzle, a rocking support connected to operate the pump, one end of said support being adapted to rest upon the surface to be cleaned, and an operating handle located at the other end of said rocking support, said nozzle being adapted to rest upon the surface to be cleaned, and operative connections between the pump and rocking support, whereby reciprocation of the rocking support about its lower end as a pivot, bodily moves the device and reciprocates the nozzle along the surface to be cleaned and operates the pump.
3. In a portable suction cleaning device, the combination of a pump casing, a collecting chamber connected to said casing and communicating with the pump, a nozzle connected to the collecting chamber and adapted to be supported by and travel upon the surface to be cleaned, a supporting rod connected to the pump casing, a rocking support pivoted to said rod, one end of the rocking support being adapted to rest upon the surface to be cleaned, an operating

5 handle arranged at the other end of said
rocking support, and a piston rod connected
to the pump piston and pivoted to the rock-
ing support intermediate the end of the sup-
10 port which rests upon the surface to be
cleaned and the pivotal connection of the
support to the said supporting rod, whereby
oscillation of the operating handle operates
the pump piston, and also bodily moves the
15 device and reciprocates the nozzle upon the
surface to be cleaned.

4. A suction cleaning device, comprising
a suction pump, a collecting chamber and a
nozzle; a rearwardly extending supporting
15 rod connected to the pump, a rearwardly
extending piston rod, a rocking lever piv-

oted to the supporting rod and having a
foot-rest at one end, said piston rod being
pivotally connected to the rocking lever
intermediate the foot-rest and supporting 20
rod, and an operating handle arranged ad-
jacent the pivotal connection between the
rocking lever and supporting rod.

In testimony whereof we have signed this
specification in the presence of two subscrib- 25
ing witnesses.

WALTER S. CHESTON.
THOMAS A. MCINTYRE, JR.

Witnesses:

HOWARD G. BYRD,
JOHN H. FOLKMAN.