H. J. S. LEWIS & J. F. REYNOLDS.

DUST REMOVER.

APPLICATION FILED FEB. 23, 1909.

971,054.

Patented Sept. 27, 1910.

Fig. 1.

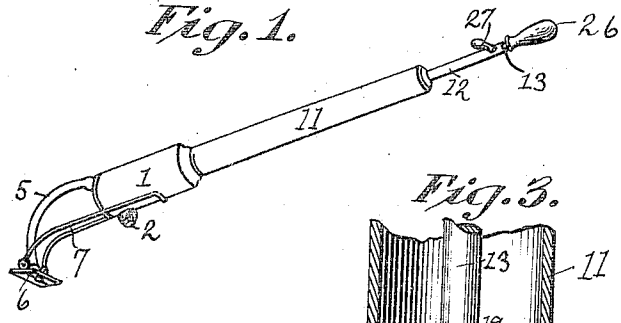



Fig. 2.

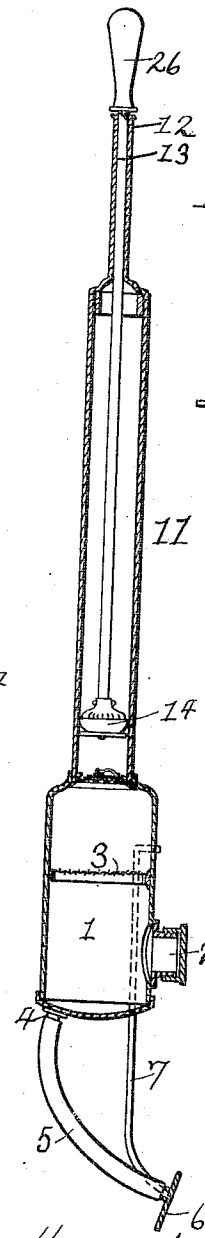



Fig. 3.

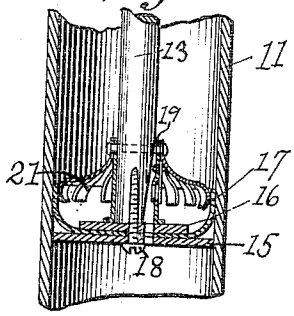



Fig. 8.

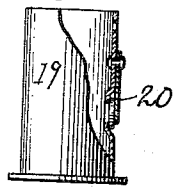



Fig. 5.

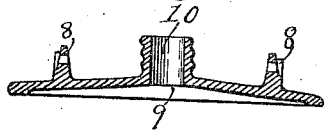



Fig. 6.

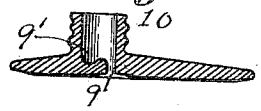



Fig. 4.

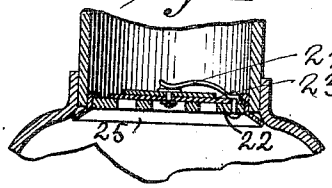



Fig. 7.

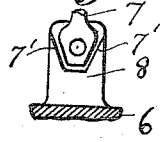



Fig. 9.

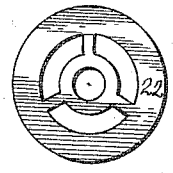



Fig. 11.

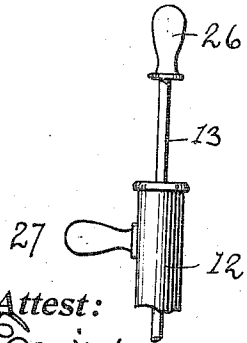
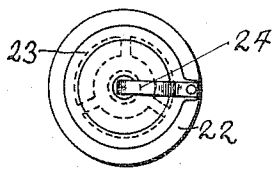



Fig. 10.




Attest:

L. Mitchell

Emory L. Groff.

Herman J. S. Lewis

John F. Reynolds

Inventors.

by Robt. B. Killgore

Atty

# UNITED STATES PATENT OFFICE.

HERMAN J. S. LEWIS AND JOHN F. REYNOLDS, OF NEW YORK, N. Y.

## DUST-REMOVER.

971,054. Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed February 23, 1909. Serial No. 479,302.

*To all whom it may concern:*

Be it known that we, HERMAN J. S. LEWIS and JOHN F. REYNOLDS, both citizens of the United States, and residents of the city, county, and State of New York, have invented certain new and useful Improvements in Dust-Removers of the Hand or Portable Type, of which the following is a specification.

Our invention relates to dust removers operated by suction and adapted to be carried entirely in the hands of the operator wherein a nozzle is passed over the surface to be cleaned and, on the operation of the pump, the dust is sucked or drawn into a dust chamber from which it may be removed.

In the accompanying drawing Figure 1 is a perspective view of the complete apparatus; Fig. 2 a longitudinal sectional view; Fig. 3 a detail view of the pump piston; Fig. 4 a detail view of the check valve; Fig. 5 a longitudinal section of the nozzle; Fig. 6 a cross section of the nozzle; Fig. 7 a detail of the motion limiting stops on the nozzle; Fig. 8 a detail of the piston thimble and valve; Fig. 9 a view of the check valve plate; Fig. 10 a view of the check valve and Fig. 11 a detail of the handles of the pump.

Our apparatus comprises a dust chamber 1 provided with a trap 2 for emptying collected dust. A screen or air filter 3 is made of cloth or an equivalent material and is secured between two hoops which latter are secured tightly to the walls of the dust chamber near its upper end. An inlet nipple 4 affords means for attaching one end of a flexible pipe 5, the other end of which is secured to a nozzle 6. Brackets 7 7 engage lugs 8 8 on the nozzle and permit it to swing slightly the limit of motion being determined by stops 7′ on the lugs 8 8 as shown in Fig. 7 thereby preventing contracting of the pipe 5. This nozzle has a chamfered slot or mouth 9 in its flat, lower face which slot is set to one side of the nipple 10 which engages the pipe thereby forming a dust pocket 9′ as shown in Fig. 6.

The pump is built into the top of the dust chamber 1 and comprises a barrel 11, guide tube 12, piston rod 13 and piston 14. The end of the rod 13 is beveled as shown in Fig. 3. Apertured, rigid washers 15 and 16 clamp a flexible cup washer therebetween, a screw 18 fastening them to the end of the piston rod 13. A thimble 19, flanged at its bottom rests on the washer 16 and is provided with a valve 20 in the side thereof. This valve comes opposite the beveled end of the rod 13 and in connection with the apertures in the washers forms an air passage from the lower to the upper side of the piston. A crown with spring points 21 is also secured to the thimble and presses the cup washer against the walls of he pump barrel.

A check valve at the juncture of the pump and dust chamber comprises a slotted plate 22 and a leather washer 23 pressed against it by a spring 24, the whole being mounted in a flanged ring 25 which is secured to the end of the pump barrel. As shown most clearly in Fig. 11 one handle 26 is secured to the end of the piston rod and the other 27 to the guide tube.

In use one hand grasps handle 26 and the other handle 27, on reciprocating the piston and pressing the nozzle against the surface to be cleaned the dust is removed and collected in the dust chamber. On the up stroke the dust is drawn through the nozzle up the pipe and into the dust chamber where it strikes the air filter and cannot pass it. On the down stroke the check valve in the piston opens, the check valve in the base of the pump closes and there is no resistance to the downward travel of the piston and no expulsion of dust from the chamber. The pipe 5 makes an air tight, flexible connection between the nozzle and the chamber and the nozzle will always lie flat on the surface being cleaned.

We claim:—

1. A portable dust remover comprising a dust chamber; a pump mounted on said dust chamber and in communication therewith; a bracket rigidly secured to the dust chamber; a nozzle swingingly secured to the bracket and adapted to be moved over the surface to be cleaned; and a flexible pipe connecting the dust chamber and nozzle.

2. A portable dust remover comprising a dust chamber; an air filter therein; a pump mounted on said dust chamber and in communication therewith; a bracket rigidly secured to the dust chamber; a nozzle swingingly secured to the bracket and adapted to be moved over the surface to be cleaned; and a flexible pipe connecting the dust chamber and nozzle.

3. A portable dust remover comprising a dust chamber; a pump mounted on said dust chamber and in communication therewith; a bracket rigidly secured to the dust chamber;

a nozzle swingingly secured to the bracket; stops on said nozzle to limit its swing; and a flexible pipe connecting said nozzle and chamber.

4. A portable dust remover comprising a dust chamber, a pump mounted thereon, and in communication therewith, a nozzle, a nipple on said nozzle, a flexible pipe from the nozzle to the dust chamber, a dust pocket in the side of the nipple the nozzle slot forming the front boundary thereof.

5. A portable dust remover comprising a dust chamber, a pump barrel on said chamber and in communication therewith, a piston adapted to reciprocate in the barrel, a check valve interposed between said pump barrel and the dust chamber, a bracket rigidly secured to the dust chamber, a nozzle swingingly secured to the bracket and adapted to be moved over the surface to be cleaned, and a flexible pipe connecting the dust chamber and nozzle.

In testimony whereof we have hereunto subscribed our names in the presence of two attesting witnesses.

HERMAN J. S. LEWIS.
JOHN F. REYNOLDS.

Witnesses.
ROBT. B. KILLGORE,
EMORY L. GROFF.