

J. A. FORNEY.
VACUUM CLEANER.
APPLICATION FILED JUNE 9, 1910.

Patented Nov. 8, 1910.

975,028.

FIG. 3.

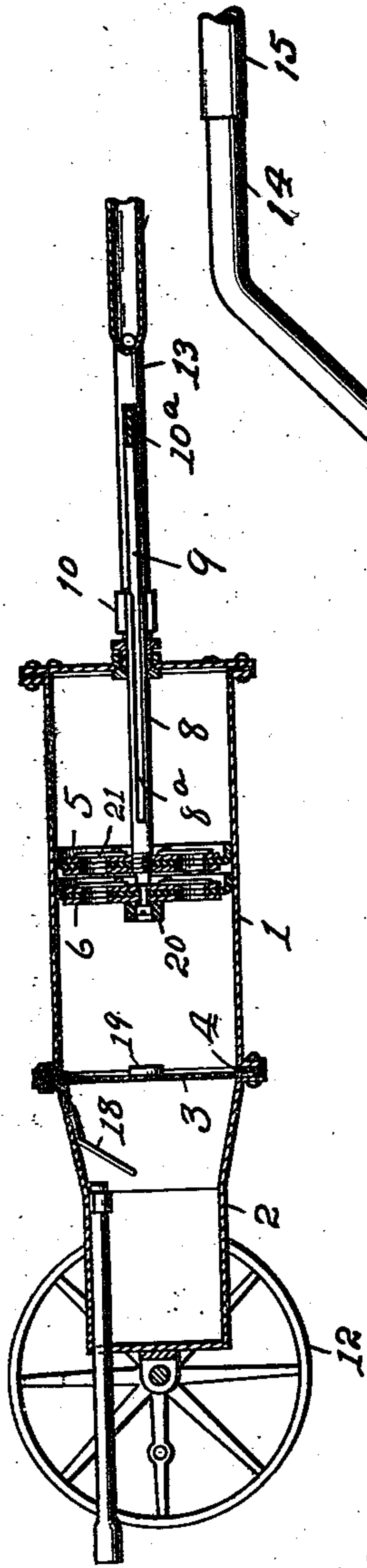


FIG. 2.

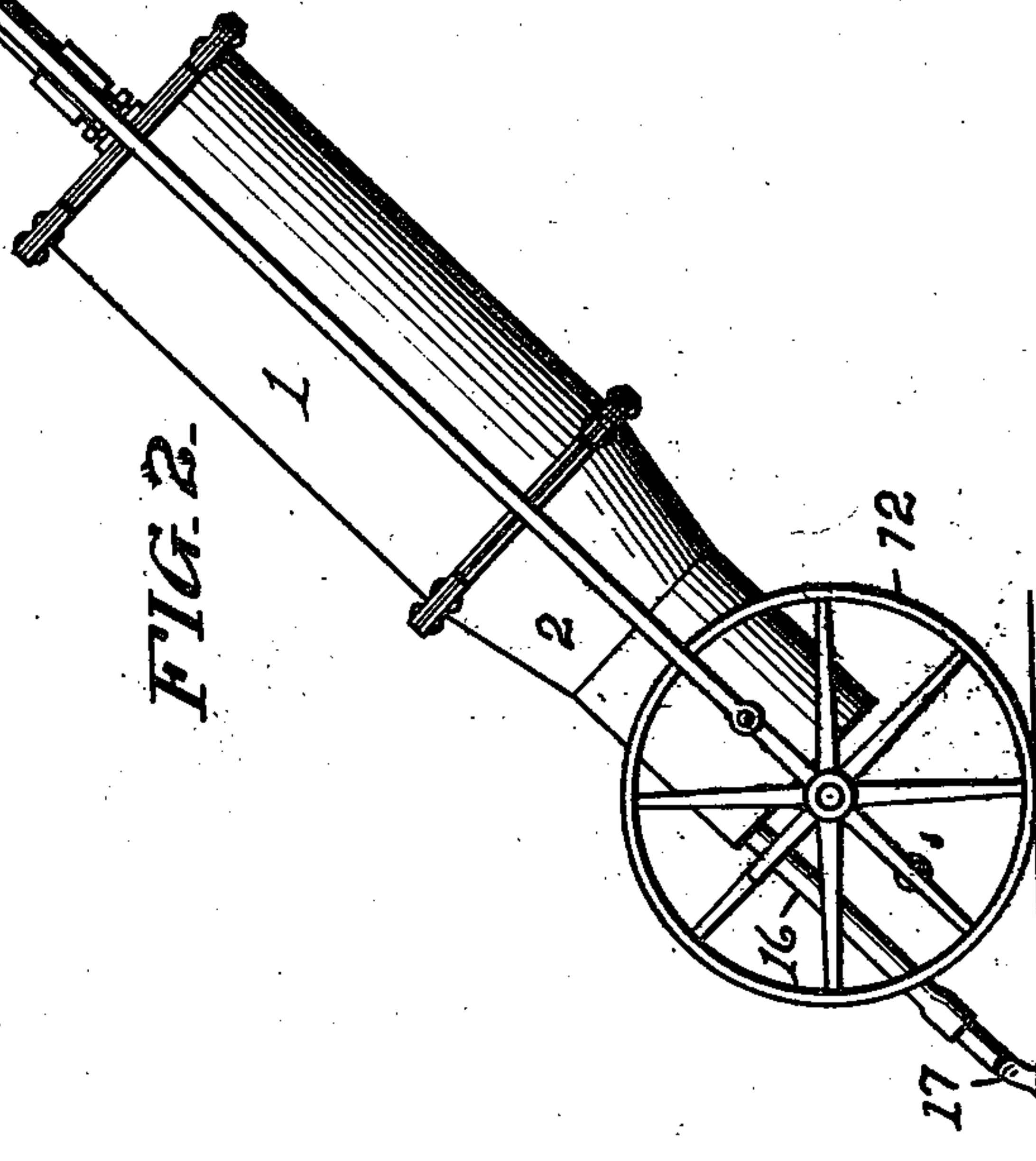


FIG. 4.

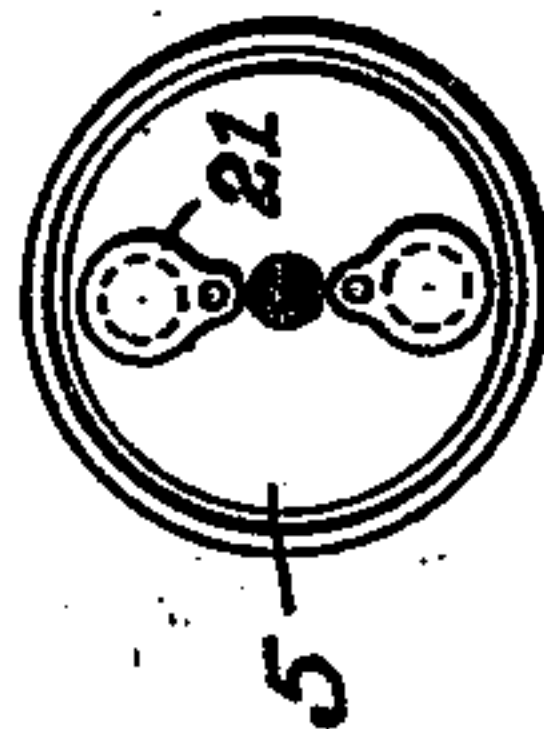
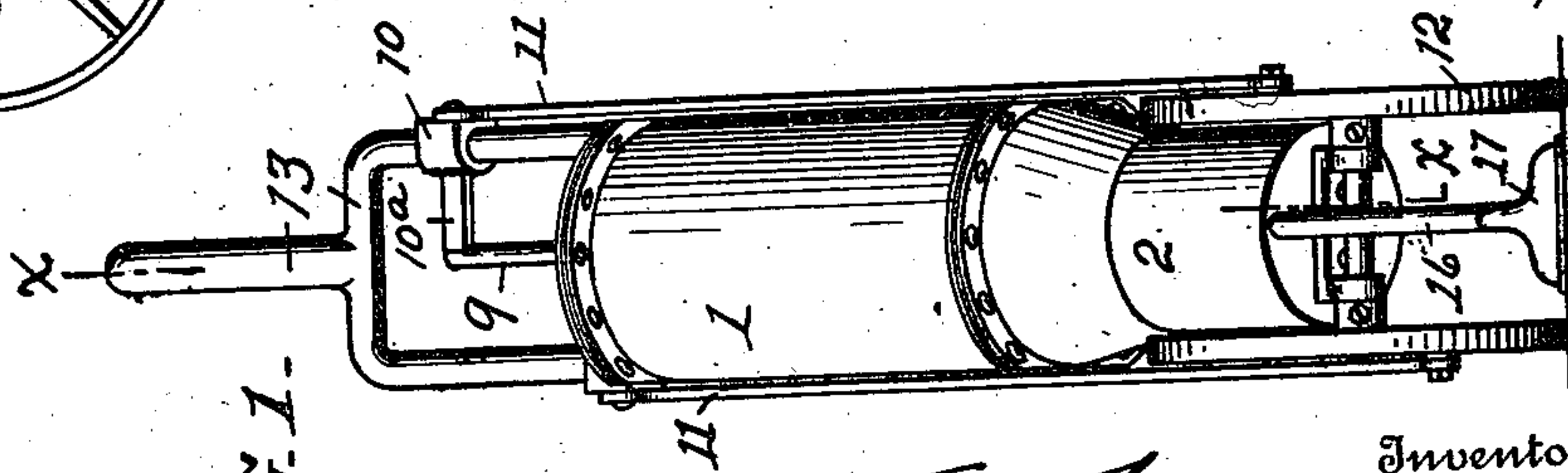


FIG. 1.



Witnesses
J. O. Kelly.
E. J. Meyer.

J. A. Forney, Inventor

By E. J. Kelly, Attorney

UNITED STATES PATENT OFFICE.

JOHN A. FORNEY, OF READING, PENNSYLVANIA.

VACUUM-CLEANER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN A. FORNEY, citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Vacuum-Cleaners, of which the following is a specification.

This invention relates to improvements in vacuum cleaners and the present invention is intended more particularly for domestic use, and, as shown, is intended to be operated by hand.

The device consists of a carriage, capable of being moved along the surface to be cleaned, the movement of which creates the power to operate the suction pump.

The invention consists of a pump having a pair of suction pistons connected by crank arms to the wheels of the device in such manner that when the machine is moved along the surface to be cleaned, the pistons are operated. Each piston is connected to one of the wheels through the medium of piston rods, cross-heads and driving arms and they are so connected that the pistons move toward and away from each other at every revolution of the wheels.

A further object is to utilize the operating handle for the triple purpose of a handle, guides for the cross-heads and an outlet or exhaust from the pump.

The invention is more fully described in the following specification and clearly illustrated in the accompanying drawing, in which:—

Figure 1 is a front elevation of my machine. Fig. 2 is a side elevation thereof. Fig. 3 is a central sectional view through line X—X of Fig. 1. Fig. 4 is a detail view of one of the suction pistons.

The numeral 1 designates the pump, which is shown as a cylindrical casing with a dust receptacle 2 secured to its lower end and having a dust strainer 3 interposed between the dust receptacle and the pump. This joint is also provided with a rubber washer 4 to insure an air tight joint.

The numerals 5 and 6 designate the upper and lower suction pistons, respectively. These pistons each are provided with a piston rod and they move in opposite directions. The rod 9, connected to piston 6 is solid and passes through the upper piston 5 and its hollow rod 8 and the upper end of each of these rods is connected to a cross-

head 10 which is in turn connected to a driving rod 11.

The casing is suitably mounted on a pair of wheels 12 and the rods 11 are connected, each to one of these wheels and at diametrically opposite points, so that the cross-heads will always move in opposite directions, and consequently the pistons will move in the same manner, and this movement will take place at every revolution of the said wheels when the machine is moved along the floor. The piston rod 8 is formed with a vertical slot 8^a to permit the arm 10^a on the cross-head 10 to slide therein when the cross-heads pass each other, as when the pistons move away from each other.

The numeral 13 designates the operating handle of the machine. This is in the form of a hollow tube and serves as a guide for the cross-heads and in addition thereto, it also serves as an outlet or exhaust from the pump. Its extremity 14 may be provided with a hose connection 15 for a blower if desired.

The dust receptacle 2 is provided with an inlet tube 16 to which any suitable nozzle 17 may be secured. A deflector 18 is provided, inside the receptacle and over the tube opening, to deflect the current of air and dust. The dust screen 3 is provided with a central disk 19 of rubber, leather or like material, and the under side of the lower piston 6 is provided with a central lug 20, so that when the piston reaches its lowermost point, the lug will strike the disk and this tapping at each stroke will tend to keep the screen clean.

It is evident that with my improved machine, the movement of the device on its wheels along the floor will, through the driving rods, cross-heads and piston rods, move the pistons in opposite directions, and as each piston is provided with valves which open upwardly, the suction into and exhaust from the machine will be even and regular. The valves 21 in the pistons, being arranged to open upwardly, will insure the proper inlet and outlet from the pump at each stroke of the pistons toward and away from each other. The screen will of course, retain the dust in the receptacle and allow the air to pass upward through the pump and out through the hollow handle.

Having thus fully described my invention, what I claim is:

In a device of the character described the

combination of a cylindrical casing, a pair of oppositely moving pistons located in said casing each of which is formed with a pair of valves, the valves in both pistons opening
5 in the same direction; a hollow piston rod secured to one of the pistons, said rod having a vertical slot therein; a solid piston rod connected to the other piston and adapted to move in the hollow piston rod, said solid rod
10 having an arm at its top adapted to move in said slot, cross-heads secured to said piston rods; outlet tubes from said casing, said tubes acting as guides for the cross-heads and also as an operating handle for the de-

vice; driving rods secured to said cross- 15 heads; a pair of wheels on which the casing is mounted and to which the driving rods are connected at diametrically opposite points; an inlet tube to the casing passing through its bottom; and a deflector located 20 in the casing immediately over the inner opening of the inlet tube.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN A. FORNEY.

Witnesses:

ED. A. KELLY,

J. O. R. KELLY.