C. P. BROCKWAY.

VACUUM SWEEPER.

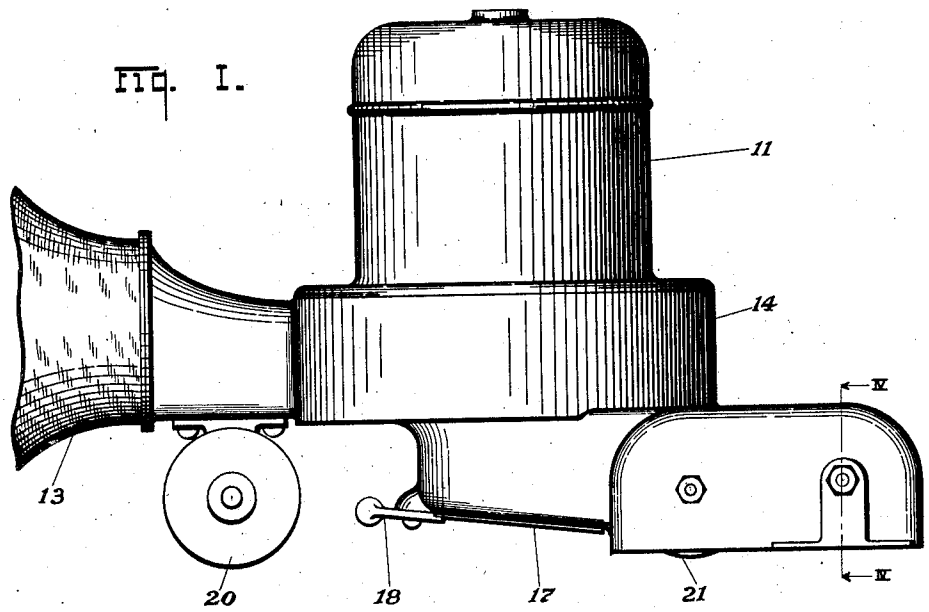
APPLICATION FILED JAN. 23, 1919.

1,361,563.

Patented Dec. 7, 1920.

2 SHEETS—SHEET 1.

FIG. I.



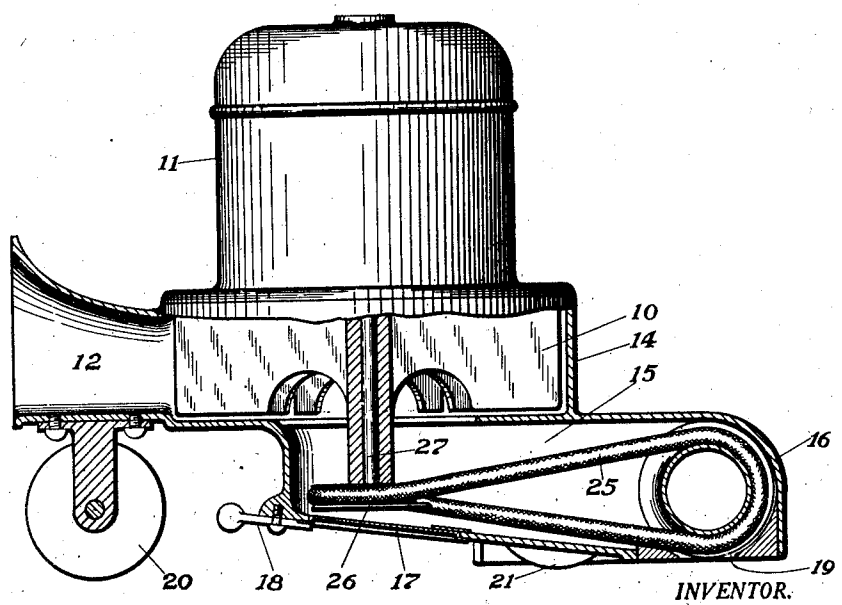


FIG. I.

INVENTOR.

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2 SHEETS—SHEET 2.

Fig. II.

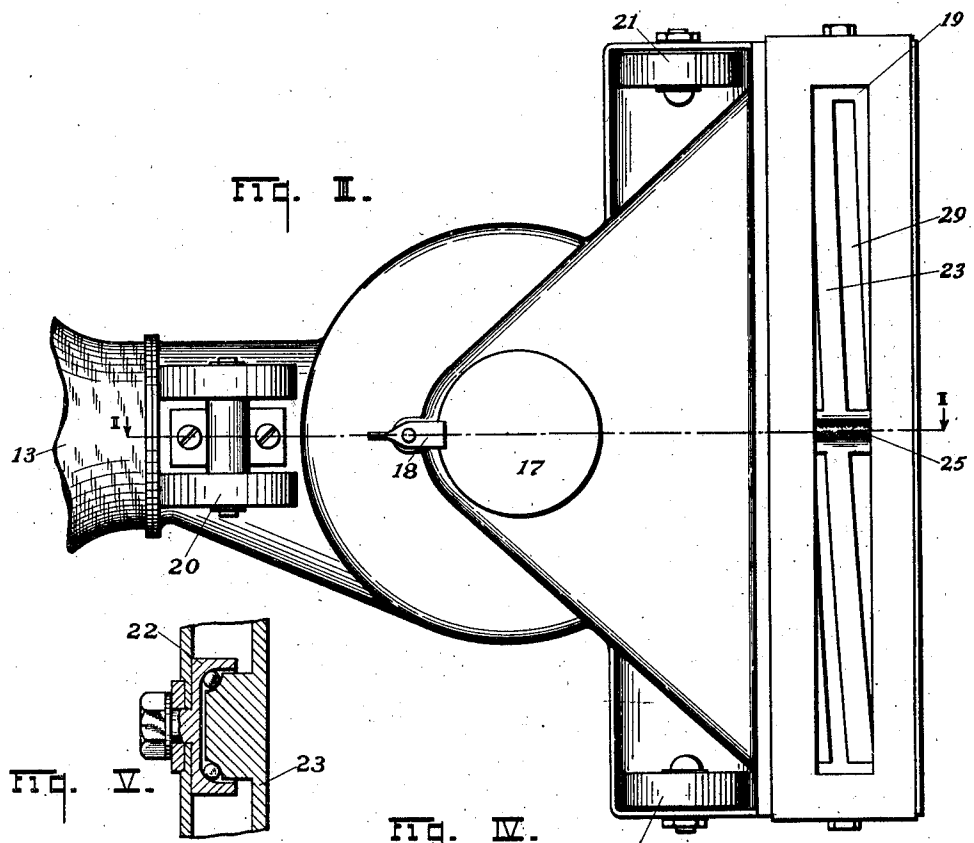


Fig. V.

Fig. IV.

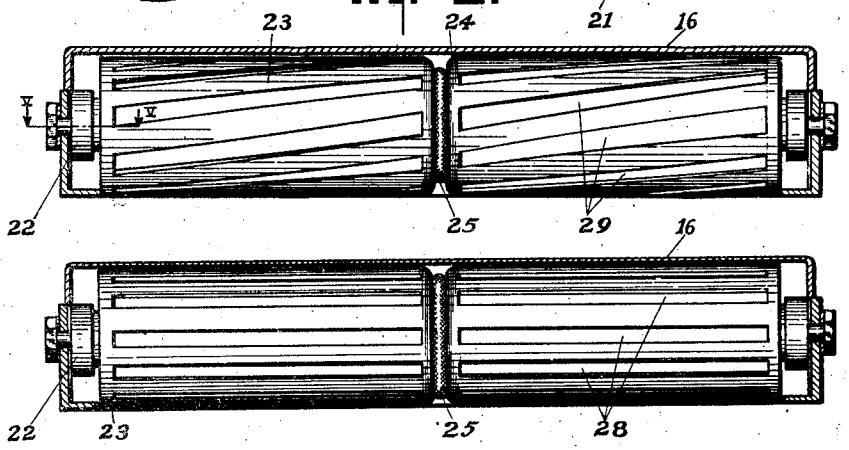


Fig. VI.

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UNITED STATES PATENT OFFICE.

CARL P. BROCKWAY, OF TOLEDO, OHIO, ASSIGNOR TO INDUSTRIAL RESEARCH CORPORATION, OF TOLEDO, OHIO, A CORPORATION OF DELAWARE.

VACUUM-SWEEPER.

1,361,563. Specification of Letters Patent. Patented Dec. 7, 1920.

Application filed January 23, 1919. Serial No. 272,725.

To all whom it may concern:

Be it known that I, CARL P. BROCKWAY, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Vacuum-Sweepers, of which I declare the following to be a full, clear, and exact description.

This invention relates to improvements in suction sweepers, and in particular to improvements upon the constructions shown in my co-pending applications, Serial Numbers 272726 and 272727.

The principal object of the invention is to provide means for causing a succession of movements of the air inlet across the mouth of the nozzle. By such movements pulsations in the suction are produced, which greatly enhance the effectiveness of the sweeping operation by agitating the fabric being cleaned, and also preventing the threads in the long nap of a carpet for instance, from being drawn together at the top and acting as a barrier against the movement of dust particles embedded in the carpet lower down.

Another object of the invention is the provision of means which will accomplish the succession of movements of the air inlet without any movement of the nozzle itself.

A further object is the provision of means for driving the inlet moving means from the exhaust fan.

Still other objects, and objects relating to details of construction and economies of manufacture, will appear as I proceed with the description of that embodiment of the invention which, for the purposes of the present application, I have illustrated in the accompanying drawings, in which,

Figure I is a side elevational view of a suction sweeper embodying my invention.

Fig. II is a view similar to Fig. I, parts of the casing being broken away to better illustrate the invention.

Fig. III is a bottom plan view.

Fig. IV is a vertical cross section taken substantially on the line IV—IV, Fig. I.

Fig. V is a detailed sectional view on the line V—V, Fig. IV.

Fig. VI is a view similar to that of Fig. IV but showing a modified form of rotating cylinder.

Similar reference characters refer to similar parts throughout the views.

In the drawings, the numeral 10 indicates a suction fan driven by direct connection with an electric motor 11 and discharging through a passage 12 into a dust collecting bag 13. The fan is surrounded with a suitable casing 14, which is extended to form a chamber 15, connecting the nozzle 16 with the fan chamber. If desired, a movable closure 17, held in position by a latch 18, may be employed, in order that a connection may be made with a flexible tube to which auxiliary cleaning nozzles of different shapes may be attached. At such times the mouth 19 of the nozzle 16 must be closed by some means, not shown. These latter features are well known in the art and constitute no part of my invention. They are shown and described as merely incidental to the construction illustrated.

The machine is mounted for movement over the floor, being supported at the rear upon a two wheeled caster 20, and at the front directly behind the nozzle upon two traction wheels 21.

In the ends of the nozzle 16 are ball bearings 22 which rotatably support a cylinder 23, preferably constructed of sheet metal and provided intermediate its length with a circumferentially depressed portion 24, forming a belt groove in which runs a belt 25, the latter being driven by a pulley 26 mounted upon the lower end of the motor shaft 27, which preferably carries the fan 10 also. The greater part of the space within the nozzle 16 is filled with the cylinder 23, which completely bridges the mouth 19 of the nozzle. The suction is not entirely interrupted however, for air is permitted to enter from the mouth 19 through openings in the cylinder, and to pass from the interior of the cylinder through other openings into the chamber 15 and thence to the exhaust fan. The openings that I prefer to use are longitudinal slots which may be parallel to the axis of the cylinder as shown at 28 in Fig. VI or oblique as shown at 29 in Fig. IV.

In the operation of my invention, the sweeper is moved over the floor by means of any suitable handle, not shown, and the motor being set in motion drives the fan 10 to create suction and the belt 25 to rotate the cylinder 23, by means of which the inlet for air entering through the mouth 19 of the nozzle is constantly changing its po-

sition. In the construction illustrated in the drawing there will always be at least one slot 28 or 29 so disposed as to permit the entry of air into the machine. The rapid motion of these slots across the mouth of the nozzle produces the desired effect of agitating the threads of the fabric being cleaned, thereby greatly assisting in the operation of removing the dust particles.

While I have described my invention in more or less detail and as being embodied in certain forms, I do not desire or intend to be limited thereto, as quite to the contrary, my invention contemplates any proper changes in the form, construction and arrangement of parts as well as the omission of immaterial elements and certain coöperating parts and the substitution of equivalents therefor, as circumstances may suggest or necessity render expedient.

I claim as my invention:

1. In a suction sweeper, a suction creating means, a nozzle, a chamber providing a passageway between said suction creating means and nozzle, a rotatable cylindrical shell mounted in said nozzle and provided with openings through which air must pass in moving toward said suction creating means and means for rotating said shell.

2. In a suction sweeper, a suction creating means, a nozzle, a chamber providing a passageway between said suction creating means and nozzle, a rotatable cylinder mounted in said nozzle and extending over the mouth thereof, said cylinder being provided with longitudinal slots and being impervious elsewhere, and means for rotating said cylinder.

3. In a suction sweeper, a suction creating means, a nozzle, a chamber providing a passageway between said suction creating means and nozzle, a rotatable cylinder mounted in said nozzle and extending over the mouth thereof, said cylinder being formed of impervious material and being provided with longitudinal slots separated by spaces of less width than the width of the mouth of the nozzle, and means for rotating said cylinder.

4. In a suction sweeper, a suction creating means, a nozzle, a chamber providing a passageway between said suction creating means and nozzle, a rotatable cylinder formed of impervious material mounted in said nozzle and extending over the mouth thereof, said cylinder being provided with obliquely arranged, longitudinally extending slots, and means for rotating said cylinder.

5. In a suction sweeper, a suction fan, a nozzle, a chamber providing a passageway between said suction fan and nozzle, and a rotatable power driven cylindrical shell mounted in said nozzle and provided with openings through which air must pass in moving toward said fan.

In testimony whereof I affix my signature.

CARL P. BROCKWAY.