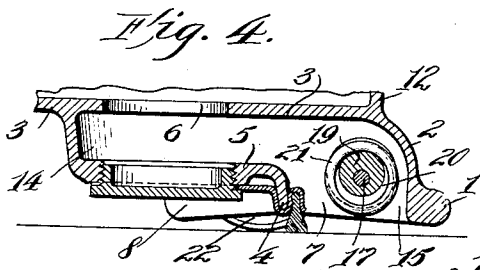
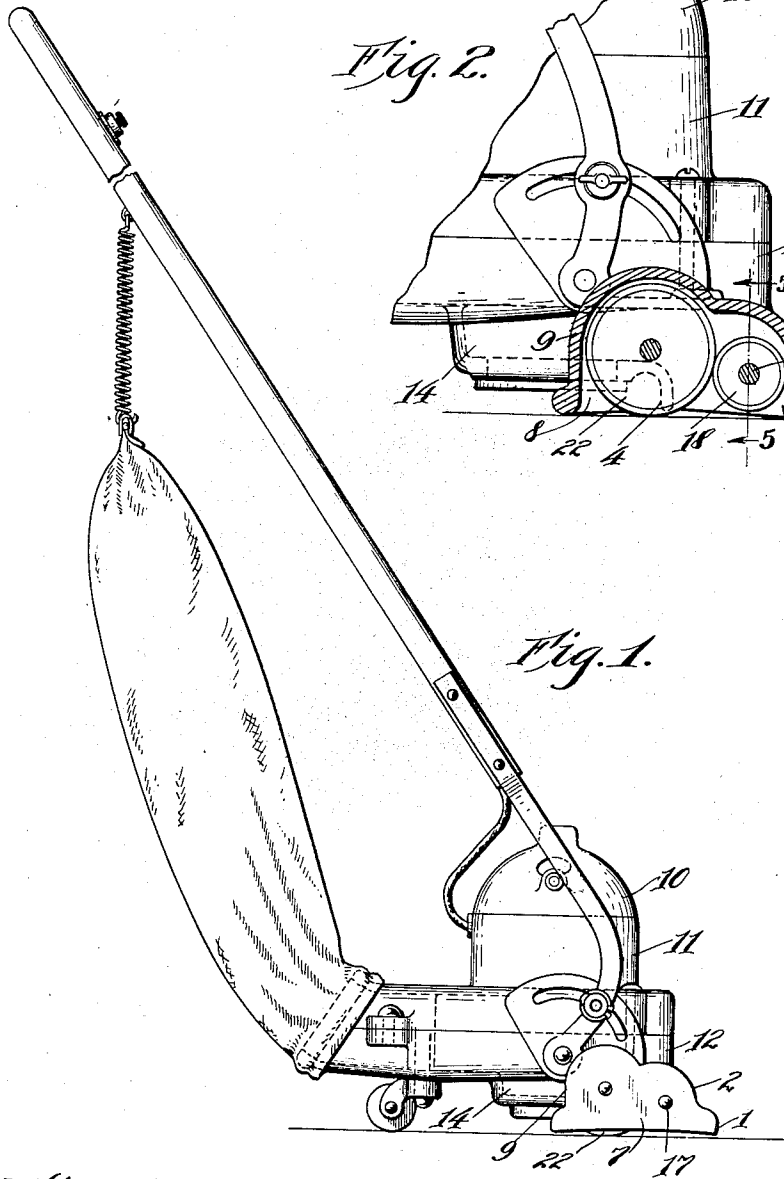
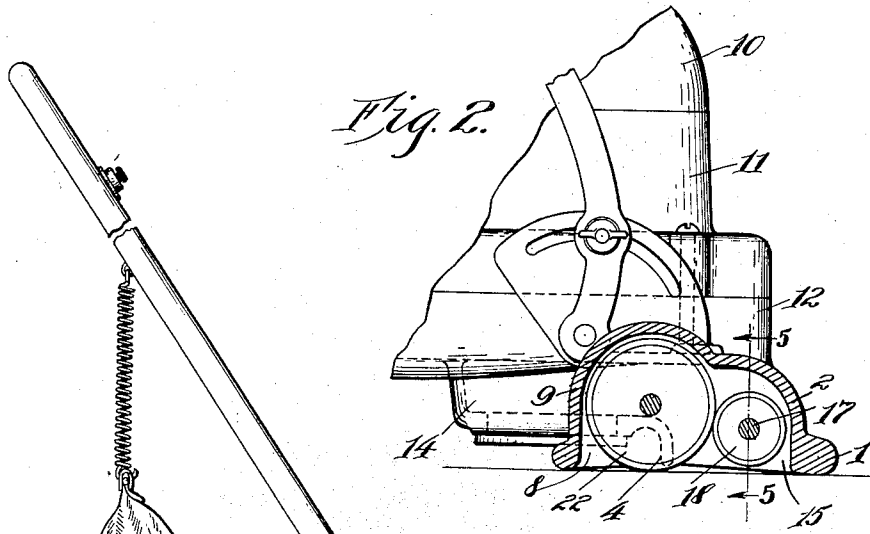


J. B. KIRBY.
PNEUMATIC CLEANER.
APPLICATION FILED JAN. 22, 1916.

1,206,116.

Patented Nov. 28, 1916.
2 SHEETS—SHEET 1.



Inventor,
James B. Kirby
By *Hull, Smith, Brock & West*
his Attys.

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Fig. 3.

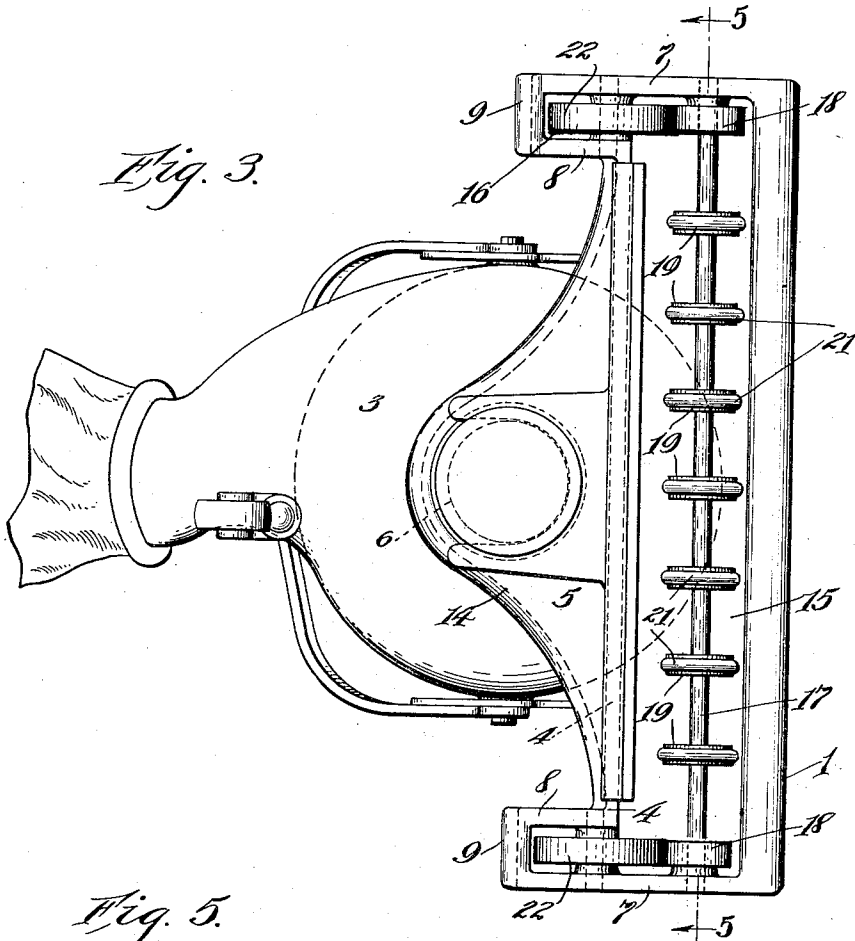
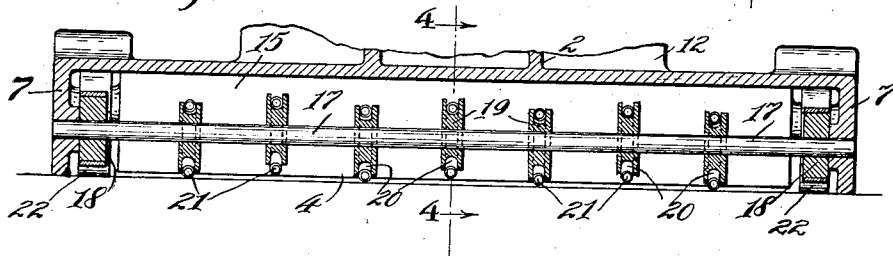


Fig. 5.



Inventor,
James B. Kirby
By Hull Smith Brock & West
Attys.

UNITED STATES PATENT OFFICE.

JAMES B. KIRBY, OF CLEVELAND, OHIO.

PNEUMATIC CLEANER.

1,206,116.

Specification of Letters Patent.

Patented Nov. 28, 1916.

Original application filed August 19, 1911, Serial No. 644,956. Divided and this application filed January 22, 1916. Serial No. 73,581.

To all whom it may concern:

Be it known that I, JAMES B. KIRBY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Pneumatic Cleaners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to suction cleaners and has for its object the provision of new and improved devices for agitating and stirring up the dust or other refuse so as to be dislodged by the air stream; the provision of new and improved appliances for operating such agitating mechanism; the provision of agitator operating devices adapted to be driven by friction with the supporting surface but without admitting air to interfere with the normal operation of the cleaner; while further objects and advantages will appear as the description proceeds.

Specifically this application is a division of my prior application filed August 19, 1911, Serial No. 644,956.

Generally speaking my invention may be defined as consisting of the combinations and constructions recited in the claims hereto annexed and illustrated in one embodiment in the drawings accompanying and forming a part of this application, wherein—

Figure 1 is a view in elevation of a complete machine embodying my invention; Fig. 2 is an enlarged view in elevation of the machine proper, the end of the nozzle being broken away to show the traction devices; Fig. 3 is a bottom plan view; Fig. 4 is a cross section taken through the nozzle and suction chamber and showing the agitating device; and Fig. 5 is a section on the line 5—5 of Figs. 2 and 3.

Describing the parts by reference characters, the machine here shown has an outer casing formed in three sections shown at 10, 11 and 12. At the base of the casing is arranged a suction chamber 14, the wall of which at the rear is rounded and then flares outwardly and forwardly and terminates in a nozzle 15 formed with a downwardly-facing, elongated inlet mouth. The forward lip of said mouth is shown at 1 and is connected by means of an upwardly extending wall 2 with the division plate 3 which

forms the top of the nozzle and the bottom of the fan chamber. The rearward lip of this mouth is shown at 4 and is connected by the rearwardly extending wall 5 to the plate 3 at a point beyond the axis of the fan chamber. Communication is established between the suction chamber and fan chamber by means of an aperture 6 formed in the wall 3.

At each end of the nozzle is formed a small pocket or housing 16 adapted to contain the traction mechanism. Preferably this pocket or housing comprises a flat upright end wall 7 extending rearwardly from the lip 1 and a similar wall 8 extends rearwardly from the lip 4, said walls being connected at their rearmost portion by a web 9 which extends upwardly and forwardly as shown in Fig. 2 until it joins the wall 2 and completes said housing.

A shaft 17 extends longitudinally of the nozzle and the ends thereof are journaled in the end walls 7—7, and at each end of the shaft is rigidly secured a driving element such as the friction wheel 18. In each of the housings or pockets is mounted a small traction wheel 22 which projects downwardly below the bottom of the nozzle and extends forwardly into the main portion thereof and frictionally engages with the adjacent wheel 18; so that when the device is moved over the surface which is to be cleaned, the rotation of the traction wheels 22 will drive the friction wheels 18, causing the shaft 17 to revolve and operate the agitating devices. These devices in the present embodiment comprise a plurality of eccentrics 19 suitably spaced along the shaft 17 and each provided around its perimeter with a deep groove 20 in which is arranged a loosely fitting ring 21 of larger diameter than the body of the eccentric. When the shaft 17 is revolved these rings tend to assume and maintain an outward position by reason of centrifugal force, but yield upon striking the carpet or other floor covering so as to strike the same a succession of gentle blows or taps, which dislodge the dust without injuring the fabric or impeding the operation of the cleaner. The pockets or housings 7—8—9 being open only on their lower sides are effectually sealed against the admission of air when the cleaner is in use so that the operation of the agitating devices is effected without disturbing the suction ef-

fect, and the operation of the suction in
tending to elevate the floor covering into
contact with the nozzle tends to aid the op-
eration of said dust agitating devices since
5 it draws the carpet into closer contact with
the traction wheels.

It will be apparent that numerous changes
in details can be made without departing
from the scope of my invention or the in-
10 tent of the claims hereto annexed.

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

1. In a suction cleaner, a nozzle having
spaced front and rear walls terminating in
15 spaced, parallel, horizontal lips defining an
elongated inlet mouth, spaced parallel
transverse walls extending from said first
walls, and defining a housing, a floor en-
gaging traction wheel journaled in said
20 housing, and floor-engaging agitating de-
vices located in said inlet mouth and opera-
tively connected to said traction wheel.

2. In a suction cleaner, a nozzle having
spaced front and rear walls terminating in
25 parallel, horizontal lips defining an elon-
gated inlet mouth, a vertical wall extending
rearwardly at right angles from each end
of each of said first walls, the rear wall of
said nozzle being shorter than the front wall
30 whereby said vertical walls are spaced from
each other, webs connecting said vertical
walls to complete the housings defined there-
by, a shaft mounted in said nozzle longi-
tudinally thereof, dust dislodging devices
35 carried by said shaft, and traction wheels
journaled in said housings and operatively
connected to said shaft.

3. In a suction cleaner, a nozzle having
spaced front and rear walls terminating in
40 parallel, horizontal lips defining an elon-
gated inlet mouth, the rear wall being
shorter than the front wall, transverse ver-
tical walls extending rearwardly from the
ends of each of said first walls and spaced
45 apart to define housings that communicate
with said inlet mouth, webs connecting the
top and rear edges of each pair of walls and
inclosing said housings, carrying wheels
journaled in said housings, and agitating
50 devices in said inlet mouth operatively con-
nected to said wheels.

4. In a pneumatic cleaner, the combina-
tion of a suction chamber provided with
an outwardly flaring nozzle, a housing
formed at each side of the suction chamber,
55 traction wheels mounted in said housings,
a shaft extending longitudinally of said
nozzle, friction wheels mounted on the ends
of said shaft and adapted to engage said
traction wheels, and agitating devices car-
ried by said shaft adapted to come in con-
tact with the surface which is to be cleaned
when said shaft is rotated.

5. In a suction cleaner, a nozzle having
a downwardly facing inlet mouth, a hori-
65 zontal shaft journaled in said nozzle above
said mouth, a plurality of eccentric mem-
bers carried by said shaft, and beating de-
vices loosely mounted on said eccentric
members and adapted to strike the working
70 surface when said shaft is revolved.

6. In a suction cleaner, a nozzle having
a downwardly facing inlet mouth, a hori-
zontal shaft journaled in said nozzle above
said mouth, a plurality of eccentrics carried
75 by said shaft and each having a deep pe-
ripheral groove, and rings loosely encircling
said eccentrics and fitting loosely in said
grooves and adapted to strike the working
surface when said shaft is revolved. 80

7. In a vacuum cleaner, a nozzle having
a plurality of rearwardly extending pockets
in open communication with the interior
thereof, nozzle supporting rollers rotatably
mounted within said pockets projecting
85 downwardly below the bottom of the noz-
zle and extending forwardly into the main
portion thereof.

8. In a vacuum cleaner, a nozzle having
a plurality of rearwardly extending pockets
90 in open communication with the interior
thereof, nozzle supporting rollers rotatably
mounted within said pockets projecting
downwardly below the bottom of the noz-
zle, a member mounted for rotation in the
95 nozzle, agitating devices operated by said
member, and friction driving means on said
member in direct contact with the surface
of the supporting rollers.

In testimony whereof, I hereunto affix 100
my signature.

JAMES B. KIRBY.