

T. O. OSTERHOLM.
PNEUMATIC CLEANER.
APPLICATION FILED APR. 10, 1911.

1,022,499.

Patented Apr. 9, 1912.

2 SHEETS-SHEET 1.

Fig. 1.

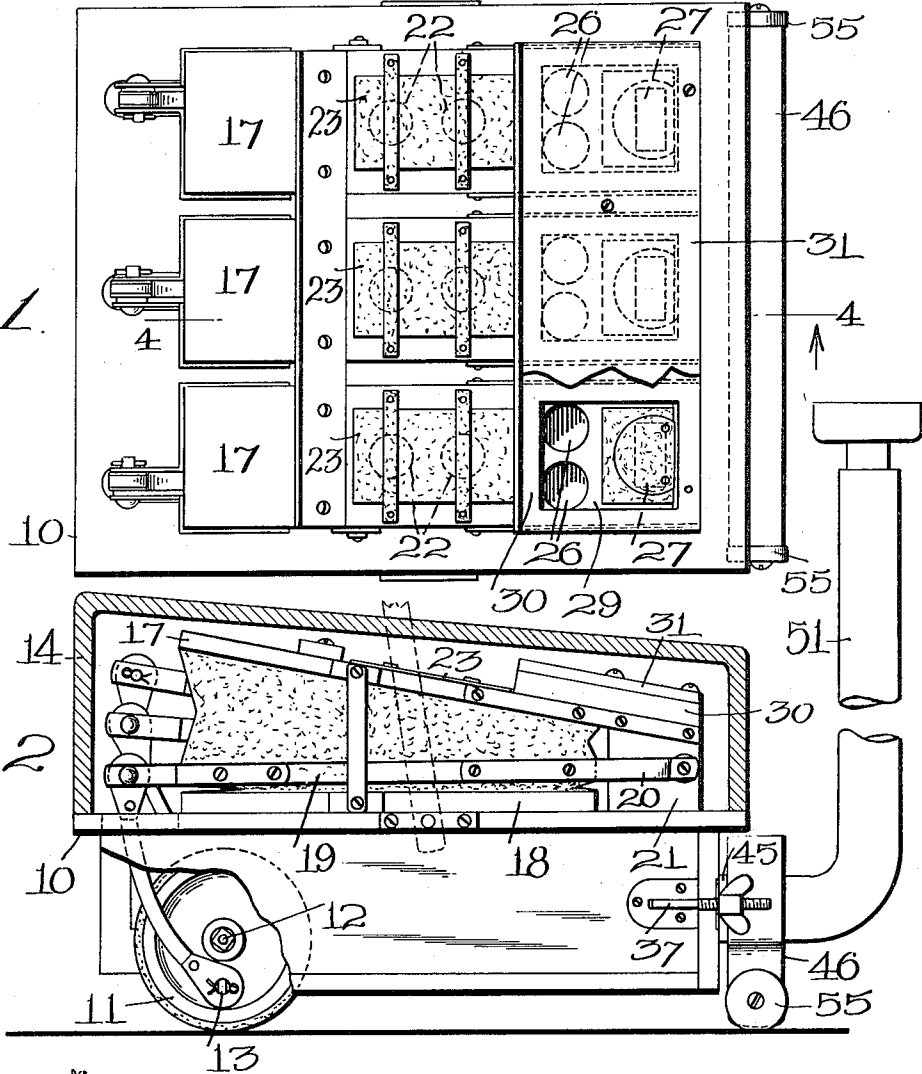


Fig. 2.

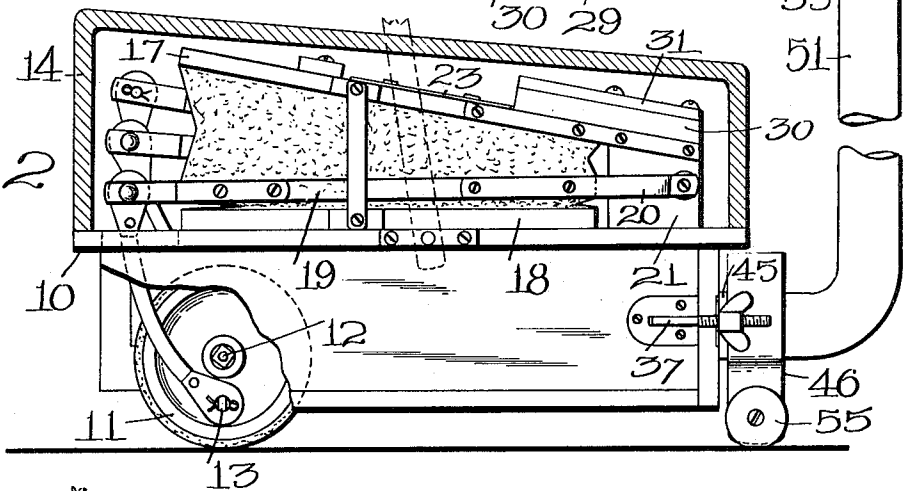
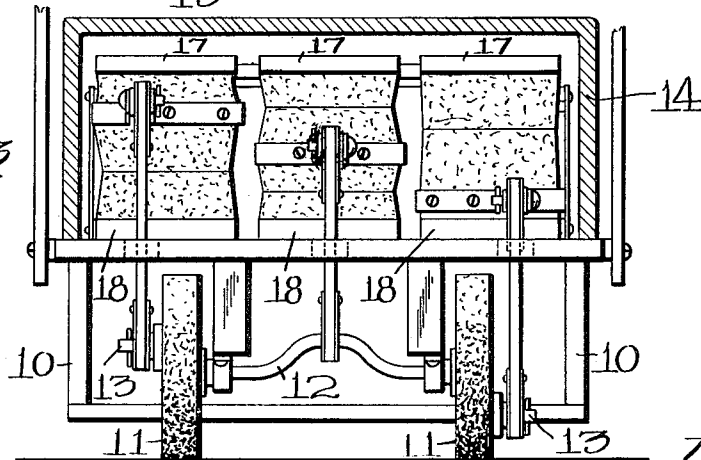


Fig. 3.



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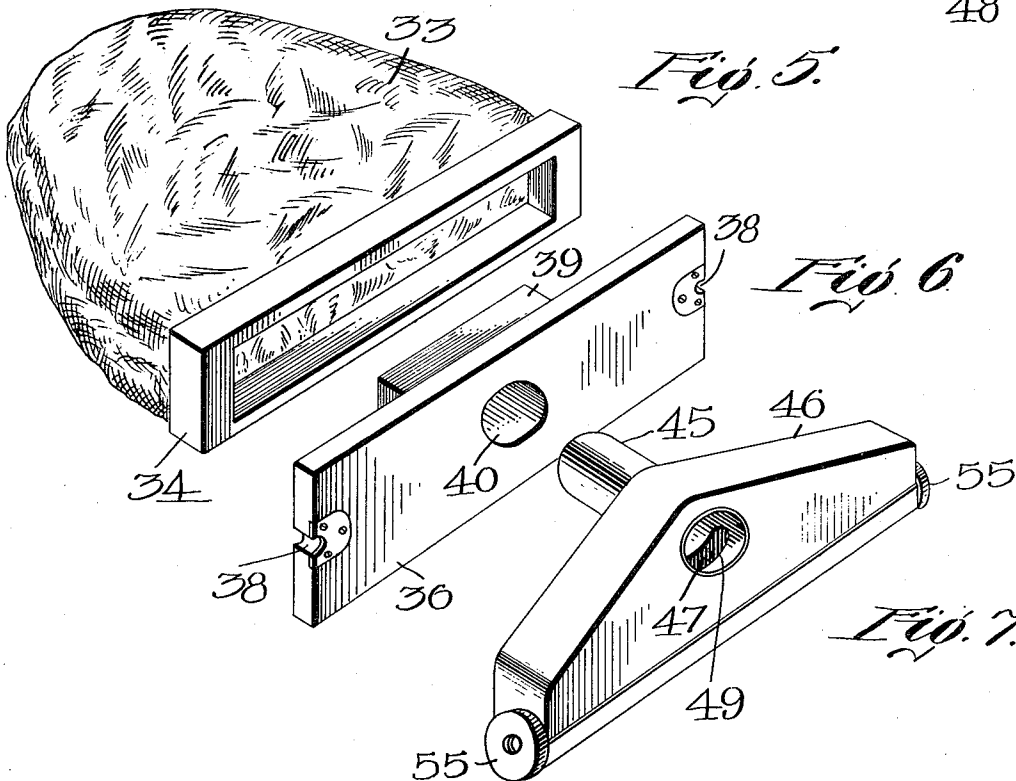
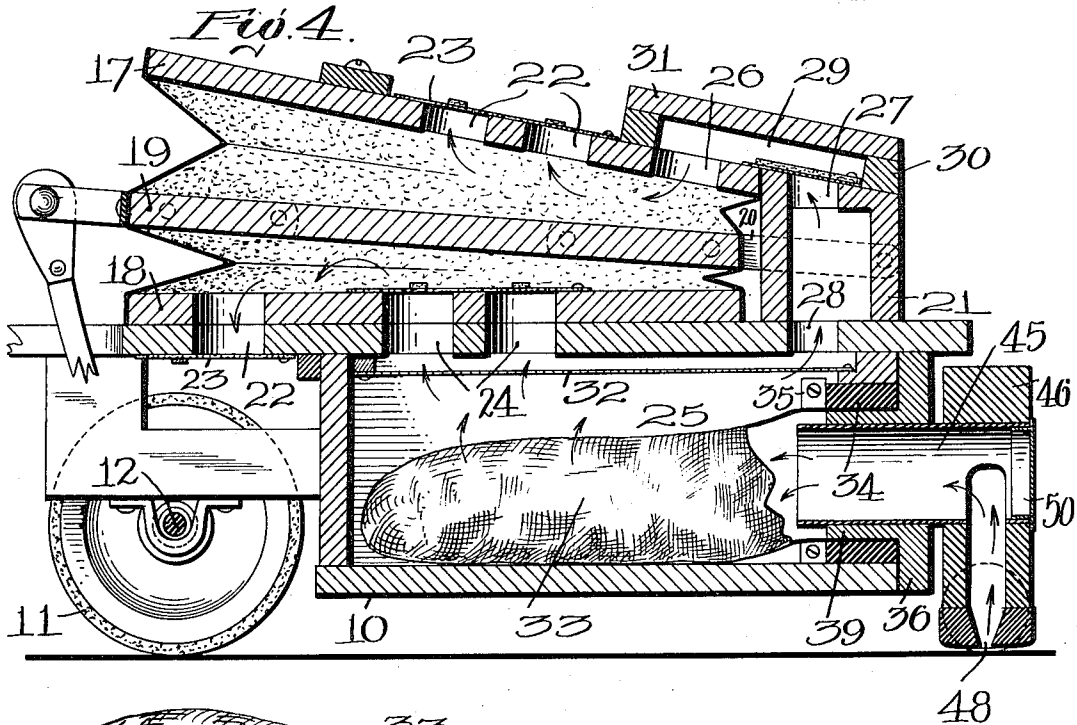
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2 SHEETS—SHEET 2.

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Witnesses:

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UNITED STATES PATENT OFFICE.

THEODORE O. OSTERHOLM, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD
TO A. IVAR POLLACK AND ONE-THIRD TO SIXTEN A. ROSEN, BOTH OF WORCESTER,
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PNEUMATIC CLEANER.

1,022,499.

Specification of Letters Patent.

Patented Apr. 9, 1912.

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To all whom it may concern:

Be it known that I, THEODORE O. OSTERHOLM, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Pneumatic Cleaner, of which the following is a specification.

This invention relates to a pneumatic cleaning device particularly adapted for use as a carpet sweeper, but capable of general use for cleaning purposes.

The principal objects of the invention are to provide a device of this character which can be operated easily and conveniently by moving it along a surface, as for example, a carpet; to provide an improved way of connecting the supporting wheels with the pneumatic wind inducing devices, whereby the maximum weight of the device will come on these wheels, so that they will operate efficiently; to provide certain improvements in the pneumatics themselves for increasing the ratio of the power thereof to the space occupied; to provide an improved arrangement of dust bag and holding frame therefor; to provide improved means for holding the frame and dust bag in the casing removably so that they can be taken out in an exceedingly simple manner; to provide an improved way of mounting the nozzle which collects the dust so that it will remain at all times at the proper distance from and parallel with the surface being operated upon; and to provide several other improvements in the arrangement of the nozzle itself.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a plan of a carpet cleaner constructed in accordance with this invention. Fig. 2 is a side elevation thereof. Fig. 3 is a rear elevation. Fig. 4 is a central sectional view on the line 4—4 of Fig. 1. Fig. 5 is a perspective view of the dust bag. Fig. 6 is a perspective view of the holding plate therefor, and Fig. 7 is a perspective view of the nozzle.

The invention is shown in the drawings in the form of a carpet sweeper as that is the preferred form thereof. However it is to be understood that most of the features of the invention are capable of application to other pneumatic dust removing devices and

the invention is not limited to carpet sweepers.

The carpet sweeper is shown as comprising a frame or casing 10 supported at the rear by a pair of wheels 11 having solid rubber tires thereon. These wheels are fixed on a shaft 12 having cranks 13 thereon. In the present case two of these cranks are shown as on the wheels themselves. The pneumatics are inclosed in a cover 14.

The pneumatics are shown as mounted on the top of the casing. Any desired number of these pneumatics can be employed three being shown in the drawings. Each pneumatic is shown as consisting of two fixed leaves 17 and 18 and one intermediate movable leaf 19. This movable leaf is provided with extending arms 20 which are pivoted at a point beyond the small end of the pneumatic to a transverse block or bracket 21. On account of this construction the power of each pneumatic is much greater for the space that its movable leaf occupies than it would be if the central leaf were pivoted at the small end of the pneumatic itself, as has been the case heretofore. Each pneumatic is provided with outlet ports 22 and valves 23 shown as of the flap type, these being located in each of the fixed leaves. The interior of the lower half of each pneumatic is connected directly with a suction chamber 25. The upper half of each pneumatic is connected with this chamber through ports 26 and 27, the latter of which are controlled by flap valves, and passages 28. The ports 26 and 27 for each pneumatic are located in a box 29 formed by a skeleton frame 30 on the block 21 covered by a plate 31. The lower valves of the pneumatics are connected with the chamber 25 by ports 24. It will be understood, however, that any other way of connecting these pneumatics with the chamber 25 and properly controlling the ports can be employed with this invention.

The chamber 25 is provided for holding the dust bag 33, which is separated from the ports by a screen 32. This dust bag is mounted on a frame 34 which is not provided in any way with fastening devices but rests against cleats 35 in the chamber. It fits the mouth of the chamber and is flush therewith on the outside. On the mouth of this chamber and engaging the outer surface of this frame is a cover plate 36. This plate is held in position by arms

37 hinged to the sides of the casing and adapted to extend into open ended slots 38 on the plate. They are provided with wing nuts for securing the plate in position. In this way it will be seen that the plate and dust bag are firmly held in position by readily detachable means, so that they can be removed very easily and replaced without mechanical skill. This cover plate is provided with a block 39 extending inwardly and fitting between the walls of the frame 34 and forming a guide to assist in holding the cover plate centrally in position. The principal function, however, of this block is to provide a long cylindrical passage 40 at the center of the plate.

In the passage 40 extends a tube 45 which projects from and is fixed to a nozzle piece 46. This construction of the nozzle piece with the stationary part of the casing is an important feature as will appear hereinafter. The nozzle is held in position on the casing by the frictional engagement of this tube in the passage 40, and ordinarily will be removed from the casing with the plate. The nozzle piece is provided with a passage 47 in the interior thereof which communicates with an elongated slot 48 on the bottom. This is the slot for receiving air and dust. The passage 47 communicates with the interior of the tube through an opening 49 in the latter. The end of the tube is intended ordinarily to be closed by a cap 50 but if desired a pipe or tube 51 fitting frictionally therein can be introduced in place of the cap so as to cover the opening 49 and in that case the machine can be used with any of the ordinary nozzles for cleaning purposes in general.

It has been observed that the nozzle piece is pivotally mounted on the casing and is free to swing on its pivot which is transverse to the nozzle, that is, longitudinally arranged with respect to the casing and centrally located. This is to permit the nozzle to swing so as to remain always parallel with the surface on which it is operating so that the slot can pick up dust throughout its entire length at all times. In order further to assist in securing this result the nozzle piece is provided with two rollers 55 at its ends. They project slightly beyond the surface of the slot and therefore bear on the carpet or other device to be cleaned, and keep the slot at a proper distance therefrom and parallel therewith. These rollers support one end of the casing but on account of the position of the wheels the latter are intended to bear the most of the weight thereof.

It will be seen therefore that the device is practically designed to produce the above

specified results in an economical and simple manner.

While I have illustrated and described a preferred embodiment of the invention and shown it as applied to a carpet sweeper, I am aware that the invention can be carried out with many modifications and that it can be applied to other cleaning devices than carpet sweepers. I am also aware that certain parts of the invention can be applied to pneumatic devices in general. Therefore I do not wish to be limited to all the details of construction herein shown and described, or to the particular use of the invention herein mentioned, but

What I do claim is:—

1. In a pneumatic carpet sweeper, the combination with wind inducing devices and a dust collector, of a casing therefor having a cylindrical passage therein, a nozzle having an elongated slot for collecting the dust and provided with a tube extending therefrom and fitting in said passage by which tube the nozzle is pivotally mounted on the casing, said tube having an opening connecting with said slot and being provided with an open end whereby a pipe can be inserted in the tube to shut off its communication with the slot and permit the exhaustion of air through the pipe.

2. In a carpet sweeper, the combination of a casing, wheels for supporting one end thereof, wind inducing devices connected with said wheels to be operated thereby as the device moves over a surface, a nozzle pivotally mounted on the casing and having an elongated slot for collecting dust, and wheels on said nozzle in position to support it in proper relation to the surface on which it moves and to support the end of the casing.

3. In a carpet sweeper, the combination with a casing having wind inducing devices and adapted to be moved over the surface to be cleaned, of a nozzle having an elongated slot and mounted on the casing to swing on an axis transverse to said slot and provided with rollers or wheels projecting slightly beyond the plane of said slot, whereby as the device is moved over a surface the said rollers will support the end thereof and keep the slot at the proper distance from the surface and parallel therewith independently of the position of the casing.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

THEODORE O. OSTERHOLM.

Witnesses:

C. FORREST WESSON,
MARY E. REGAN.