

E. ERICSSON & E. G. THOREN.
VACUUM CLEANER.
APPLICATION FILED OCT. 6, 1909.

963,701.

Patented July 5, 1910.

FIG. 1.

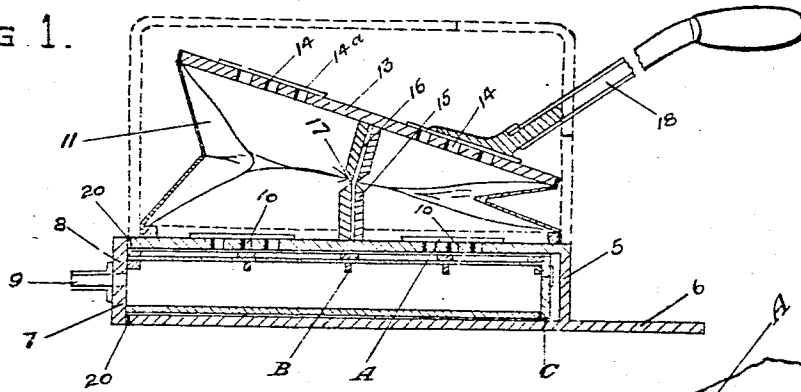


FIG. 2

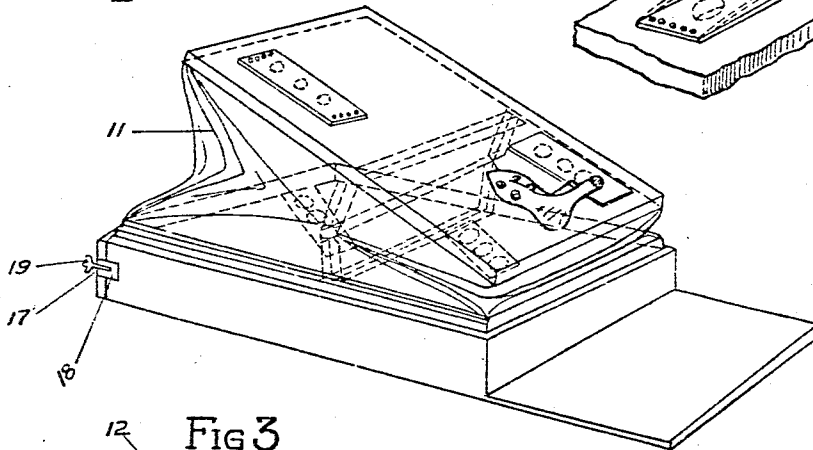


FIG. 4

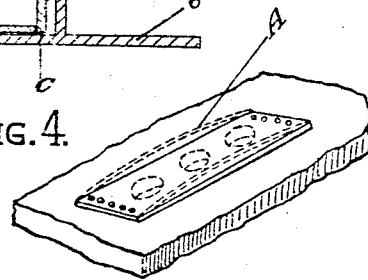
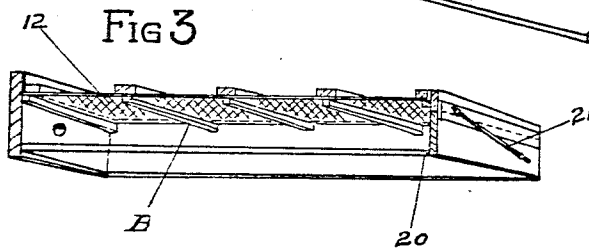


FIG. 3



WITNESSES

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ERIC ERICSSON AND ERIC G. THOREEN, OF WORCESTER, MASSACHUSETTS.

VACUUM-CLEANER.

963,701.

Specification of Letters Patent.

Patented July 5, 1910.

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To all whom it may concern:

Be it known that we, ERIC ERICSSON and ERIC G. THOREEN, citizens of the United States of America, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Vacuum-Cleaners, of which the following is a specification.

This invention relates to brushing and scrubbing and particularly to a pneumatically operated cleaner.

An object of this invention is to provide a novel bellows for creating a partial vacuum or suction of air through a head of a pneumatic cleaner, the said bellows being of an oscillatory type whereby power applied to a handle will serve to rock the said bellows on a novel pivot arranged therein.

A further object of this invention is to provide a pneumatically operated cleaner in which novel means are provided for preventing particles of dust from gaining access to the bellows or from leaving a collector here shown in the form of a drawer; the invention contemplating further provision of novel reinforcing devices surrounding apertures and the application of guards to said apertures as heretofore indicated.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, in which—

Figure 1 illustrates a vertical sectional view of a cleaner embodying the invention; Fig. 2 illustrates a perspective view of a cleaner with the handle broken away; Fig. 3 illustrates a detail sectional view showing the interior of the dust collector; and Fig. 4 illustrates a detail view showing a fragment of the bellows with a valve applied thereto.

In these drawings 5 denotes a casing having a rearward extension 6, designed to prevent tilting of the casing when the bellows (to be hereinafter described) is operated. The forward end of the casing is provided with a drawer 7 designed to contain sweepings and the front of said drawer has an aperture 8, supplied with a nipple 9, de-

signed to connect with a hose, pipe or the like to which the head is attached. Neither the pipe, hose nor head is shown in the drawing for it will be understood that any form now commonly used may be employed in connection with this apparatus.

The upper wall of the casing is provided with two series of apertures 10, one series of such apertures being on each side of the central partition formed by ribs (to be hereinafter described) the said apertures offering a means of communication between the casing and the bellows. A strip of flexible material is applied to the top of the casing and is adapted to cover each set of apertures, there being one such strip A for each series of apertures and each strip is anchored to the casing in a manner to permit air to be drawn through the apertures by the bellows. This strip also acts as a valve to prevent air being forced therethrough when the bellows is collapsed, hence as said bellows is operated air is drawn into the sides thereof alternately and practically a continuous suction is maintained in the pipe during the operation of the bellows. The apertures 10 are guarded by a screen 12, which may be of wire, gauze, or textile material of fine mesh operative to prevent passage of dust there-through, while permitting air to be drawn through the nipple 9. The screen 12 may be held in place by the ribs B, although any other means for accomplishing this result may be employed. The top 13 of the bellows has apertures 14 and each series of apertures is guarded by a strip of material 14^a similar to the strip A heretofore described and serving as a valve to guard the openings when the bellows is manipulated. The interior of the bellows is provided with a rib 15, which is stationary and acts as a fulcrum for the rib 16 extending downwardly from the top of the bellows. The ribs 15 and 16 are each formed by two strips of material between which a flexible hinge member 17 is clamped and therefore as the bellows is manipulated through the medium of the handle 18, the top of the bellows rocks and operates to draw air through the drawer heretofore described, which action of the air results in collecting dust through the medium of the pipe and the head. The sides 11 of the bellows may be made of any appropriate material preferably in the form shown in Figs. 1 and 2 although we do not

wish to be limited with respect to the details of construction of the sides of the bellows.

The front of the drawer is provided with apertures such as shown at 17' and the end of the casing is provided with sockets as shown at 18 designed to receive the anchoring screws 19 for the purpose of holding the drawer in its closed position, it being understood that the joint formed by the drawer and casing may be provided with packing 20 to make the same air-tight.

From an inspection of the drawing, it will be observed that when the handle is manipulated, the front end of the bellows will be distended and it will thereby act to draw air into the bellows whereas when the handle is elevated, the front of the bellows is collapsed and the air that has been drawn into the bellows through the first mentioned operation will be expelled therefrom through the apertures in its top.

From the fact that the top of the casing and the top of the bellows have the valves thereon air may be drawn upwardly into the bellows through the apertures 10, but air cannot be forced from the bellows through the apertures 10 owing to the fact that the valves A guard said openings. It is furthermore apparent from an inspection

of the drawing that air is permitted to escape from the bellows through the openings 14 and that the valves 14* guard the openings against the ingress of air through said openings 14. It follows therefore, that the bellows operate to create a suction through the drawer whereas the said bellows cannot operate to force air in the opposite direction. The rear end C of the drawer or dust container has a spring 21 on its outer surface which spring acts to hold the rear end of the said drawer tightly closed.

We claim—

In a pneumatic sweeper, a casing having apertures, a screen for guarding the apertures, a bellows arranged thereabove, a rib comprising two strips of metal stationed on the casing, a rib comprising two strips of metal extending from the top of the bellows and coacting with the first mentioned rib, a flexible hinge interposed between the strips of the ribs, and a handle for oscillating the top of the bellows.

In testimony whereof, we affix our signatures in the presence of two witnesses.

ERIC ERICSSON.
ERIC G. THOREEN.

Witnesses:

O. A. TAFT
FRANK M. KNIGHT.