

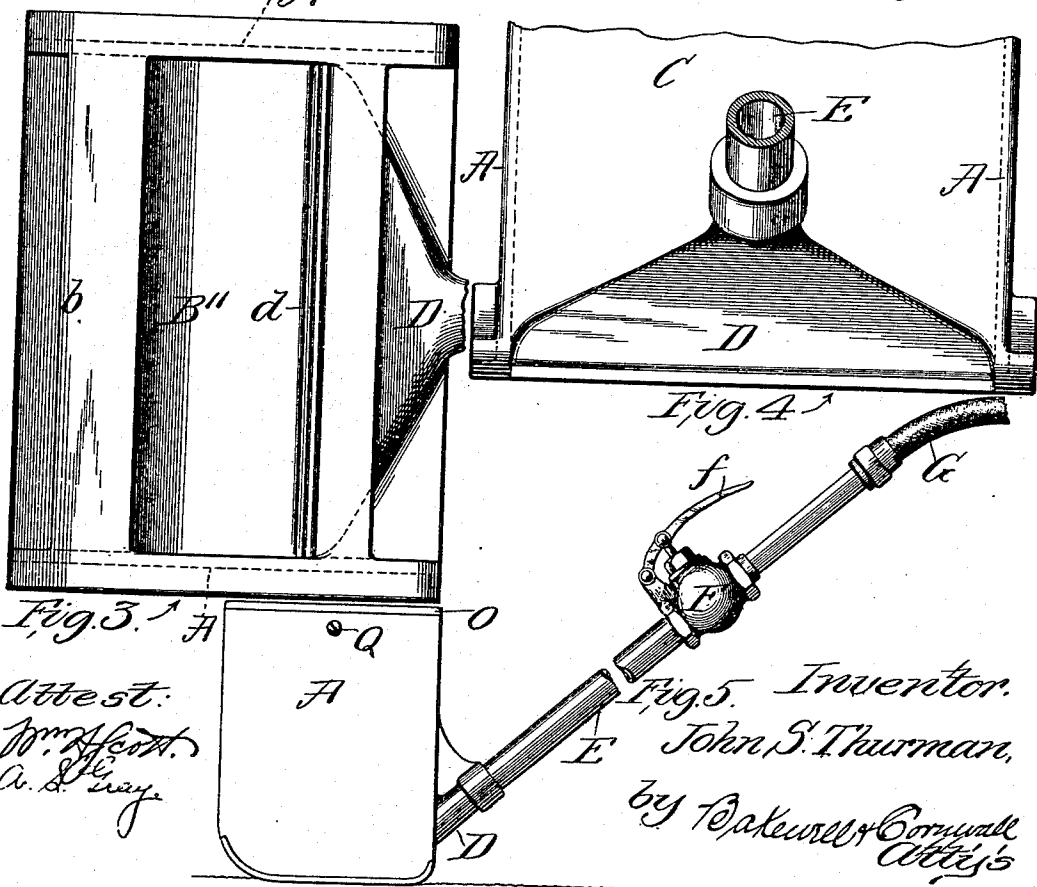
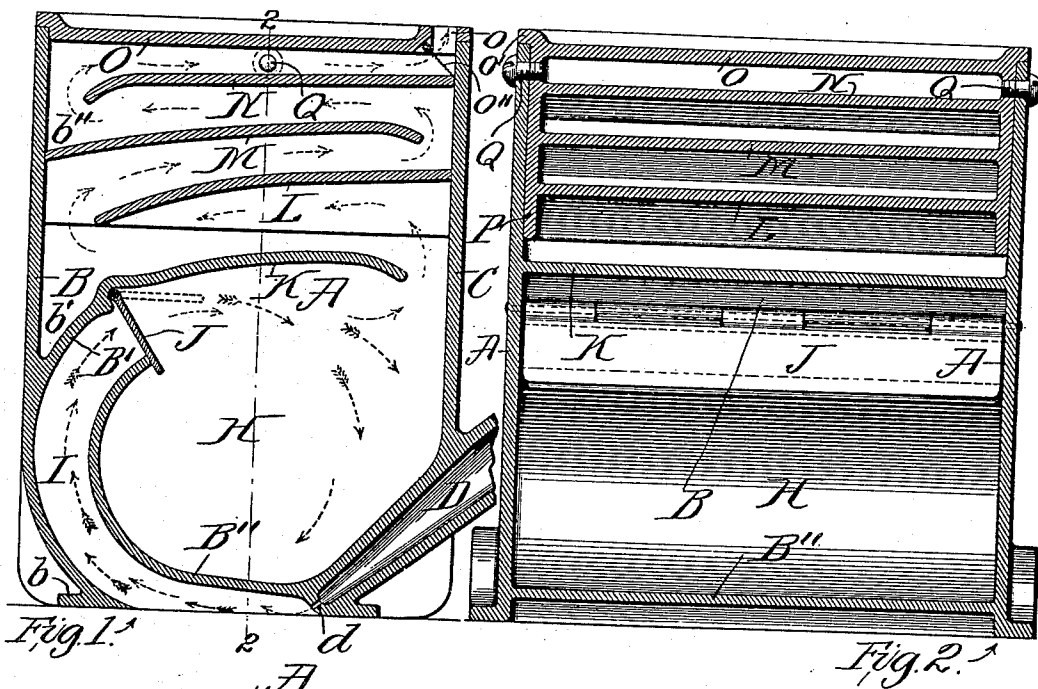
No. 634,042.

Patented Oct. 3, 1899.

J. S. THURMAN.
PNEUMATIC CARPET RENOVATOR.

(Application filed Nov. 14, 1898.)

(No Model.)



Attest:
Wm. H. Smith,
A. D. May.

Inventor.
John S. Thurman,
by W. H. Smith & Cornwall
Attys

UNITED STATES PATENT OFFICE.

JOHN S. THURMAN, OF ST. LOUIS, MISSOURI.

PNEUMATIC CARPET-RENOVATOR.

SPECIFICATION forming part of Letters Patent No. 634,042, dated October 3, 1899.

Application filed November 14, 1898. Serial No. 696,458. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. THURMAN, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Pneumatic Carpet-Renovators, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal sectional view through my improved carpet-renovator. Fig. 2 is a cross-sectional view of the same on line 2 2 of Fig. 1. Fig. 3 is a bottom plan view of the renovator. Fig. 4 is a rear elevational view, the top portion being broken away. Fig. 5 is a side elevational view of the device.

This invention relates to a new and useful improvement in carpet-renovators, the object being to construct a device of the character described in a simple and cheap manner whereby carpets may be thoroughly renovated and cleaned without removal from the floor.

The invention may be said to consist, briefly, in a pneumatic dust-extractor designed to be placed over or in close proximity to the carpet whereby an air-blast is projected into and through the carpet, forcing the dust out into the collector, where it accumulates and is subsequently removed.

The essential features of my invention reside in the arrangement of a device on the end of a flexible hose leading from some suitable source of compressed-air supply, said device consisting in the combination of a suitable casing, an air-nozzle arranged at an angle in said casing, so as to project an air-blast at an angle onto or into and through the carpet, a suitable housing provided on said casing surrounding said air-blast, so as to collect the dust-laden air and conduct it into a suitable chamber, where the dust may be deposited, after which the air, thus relieved of its heavier particles of dust, is forced through a tortuous passage, which tends to relieve the air of its dust, said air finally escaping in practically a purified state into the room.

It is designed to provide a portable air-compressor in connection with the device illustrated in the drawings, so that by con-

necting a flexible hose to the reservoir of said compressor the renovator may be operated in a dwelling or other house conveniently without further disturbing the compressor.

I have found by observation of a machine with which I have conducted experiments that the renovator relieves and collects nearly all, if not all, the dust and dirt from the carpet over which it has traveled.

A represents the side walls of the casing, which are preferably parallel to each other and connected by the end walls B and C. The end wall C, which is at the rear end of the casing, carries or has formed integral therewith a blast-nozzle D, whose mouth is contracted, as shown at *d*, said mouth being continuous and extending practically the width of the casing. This blast-nozzle D is arranged at an angle, as shown, and receives in its rear end a suitable handle E, preferably in the form of a pipe, through which compressed air is conducted to the nozzle. The pipe or handle E carries the controlling-valve F, whose operating-handle *f* is within convenient reach of the operator, so that the operator can control the strength of the blast of air projected from nozzle D. To the rear end of handle E is connected a flexible pipe G, which leads from any suitable source of compressed-air supply.

The front end wall B, before referred to, is curved rearwardly or inwardly at its lower end and receives the dust-laden air against its inner face, directing said air as indicated by the arrows. I prefer to form the flange *b* at the lower end of wall B, so as to increase the area of the bearing-face of this wall at its point of contact with the carpet to make as tight contact at this point as possible.

B' indicates an inwardly-projecting wall, forming practically a continuation of the curvature of the lower end of wall B, the function of which wall B' is to direct the dust-laden air inwardly into a dust-collecting chamber H. The bottom wall of chamber H is formed in part by the nozzle D and in part by a wall B'', which is connected to or extends from the forward end of nozzle D, said wall B'' then curving upwardly and inwardly to conform to the curvature of the lower end of the front wall, but leaving, of course, a suitable space for the passage of the dust-laden

air. I have lettered this space I in the drawings. The upper end of this space is closed by an inwardly-opening flap-valve J, which is pivoted at its upper end to the end of the wall B'. In operation the valve J is raised in proportion to the volume of the dust-laden air entering chamber II and tends to deflect the dust-laden air inwardly and downwardly in said chamber, as indicated by the arrows, so that the dust-laden air is given somewhat of a whirling motion, whereby the particles of dust in the air are thrown downwardly by centrifugal action and deposited in the bottom of the chamber.

K indicates a wall connected to or extending from the wall B' rearwardly, so as to form an escape-opening between its extremity and the rear wall C, through which the purified or partially-purified air passes. By the presence of a wall L, which extends from the rear wall C nearly to the front wall B and which is deflected downwardly at its forward end, the air is compelled to move forwardly, as indicated by the arrows, whence it passes upwardly and rearwardly by reason of the wall M, whose inclination corresponds substantially to that of the wall L. Wall N corresponds substantially to wall L in that it extends from the back plate and terminates short of the front wall B, while the wall O, which is the top wall of the casing, is provided with an escape-opening o, through which purified air is finally discharged.

When the air turns at the end of the wall K and passes under the wall L, it is compelled to make a short turn around the end of wall L and under the wall N, and in making this short turn particles of dust are thrown out by centrifugal action at the second turn or at the end of wall L and are deposited in the pocket b', formed by the wall B'. Likewise, due to the inclination of the wall M, a pocket b'' is provided for the reception of dust at its turn around the forward extremity of wall N, which is curved downward at this point for this purpose.

In operation, assuming that pipe G is properly connected to a source of compressed-air supply, the device is placed in position on the carpet and valve F opened, which causes a blast of air to be ejected from nozzle D at an angle onto the carpet or down into and through the carpet, which air dislodges the dust and carries it upwardly through space I beyond the valve J and into chamber H, where the air is relieved of its greatest portion of dust, after which the air is forced to travel the tortuous passage resulting from the arrangement of walls K, L, M, N, and O, and in making its turns around the ends of walls L and N will deposit the remaining particles of dust in the pockets b' and b''. The purified air finally escapes through the orifice o in the cover of the casing.

In order to remove the collected dirt and dust in the chamber H and pocket b', I arrange the walls L, M, N, and O on supports sep-

arate from the side walls A, as indicated in Fig. 2. These separate supports really consist of side walls P, which are transversely connected by the walls mentioned, the ends thereof being open, as shown in Fig. 1. These removable walls are suspended from the side and end walls of the casing by suitable flanges o', the whole being held in place by the screws Q. When the screws Q are removed, this removable part consisting of these walls is lifted bodily out of the casing and in so doing discharges the dust from pocket b'', after which by turning the casing upside down the dust and dirt in chamber H and pocket b' are discharged.

The renovator in practice is moved back and forth over the carpet to be renovated in substantially the same manner as one would employ a carpet-sweeper.

While I have described my invention with relation to the renovation of carpets, which can be accomplished quite easily without necessitating the removal of the carpets from their floors, still it is obvious that there are other articles which can be renovated equally as well—such as bedclothes, wearing-apparel, &c.—the only feature to be observed in the renovation of these other articles being the provision of suitable imperforate supports for the articles. Otherwise the dust will be blown through and not collected in its proper receptacle.

I prefer to arrange a screen o'' under the opening o, so that the air before it is finally discharged will be compelled to pass through the small meshes of said screen and in that manner give up any particles of dust to the screen which may have been carried with the air through the tortuous passage.

I am aware that many minor changes in construction, arrangement, and combination of several parts of my improved renovator may be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a renovator, the combination with a suitable casing open at its bottom, the walls of said casing extending down to engage the article to be cleaned or renovated, so that said article practically forms a bottom for the opening in the casing, of a nozzle carried by said casing and arranged to one side of said opening for discharging air under pressure at an angle, and in a definite direction through the bottom of said casing, a passage for the dust-laden air leading up from the opening in the bottom of the casing at a point opposite the nozzle, said passage communicating with a chamber in the casing, into which chamber said passage enters tangentially, and a pressure-supply pipe connected to said nozzle; substantially as described.

2. In a renovator, the combination, with a

suitable casing, of a nozzle carried thereby and discharging air under pressure at an angle through the bottom of said casing, a supply-pipe connected to said nozzle, walls forming a space through which the dust-laden air is conducted into a chamber within said casing, and a flap-valve arranged at the point of entrance of the dust-laden air into the chamber; substantially as described.

3. In a renovator, the combination, with a suitable casing, of a nozzle carried thereby for ejecting a blast of air through the bottom of said casing, said casing being formed with a space I, for the passage of the dust-laden air, a valve J, mounted in the casing at the upper extremity of the space I, and chamber H, into which the dust-laden air is discharged, said chamber collecting dust from the air, and transversely-arranged walls forming a tortuous passage through which the air is forced; substantially as described.

4. The combination, with a casing, provided with transversely-disposed walls in its upper portion, forming a tortuous passage, which leads from a chamber arranged in the lower portion of said casing, said casing being also provided with a separate passage to one side of the chamber, and entering said chamber tangentially at one extremity, and a blast-nozzle, discharging into said passage at an angle, at the other extremity of said passage; substantially as described.

5. The combination, with a casing, formed

of the side and end walls, of a removable section carried in the upper portion of said casing, said removable section being provided with transversely-disposed walls forming a tortuous passage which connects with a chamber in the lower portion of the casing, and a blast-nozzle for discharging the dust-laden air under pressure, into said chamber; substantially as described.

6. The combination, with a suitable casing, of a blast-nozzle carried thereby, which discharges through the bottom of said casing, said casing being provided with suitable transversely-disposed walls forming a conducting-passage for the dust-laden air, and a chamber in which said dust-laden air is discharged, and a removable section secured in the upper end of said casing, which removable section consists of transversely-arranged walls forming a tortuous passage which connects with the dust-collecting chamber, said transversely-disposed walls of the casing, and removable section forming pockets at the bends of the tortuous passage for the collection of dust and dirt; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 12th day of November, 1898.

JOHN S. THURMAN.

Witnesses:

F. R. CORNWALL,
WM. H. SCOTT.