No. 665,983. Patented Jan. 15, 1901.

# J. S. THURMAN.

## CARPET RENOVATOR.

Application filed June 18, 1900.)

(No Model.)

Fig. 1.

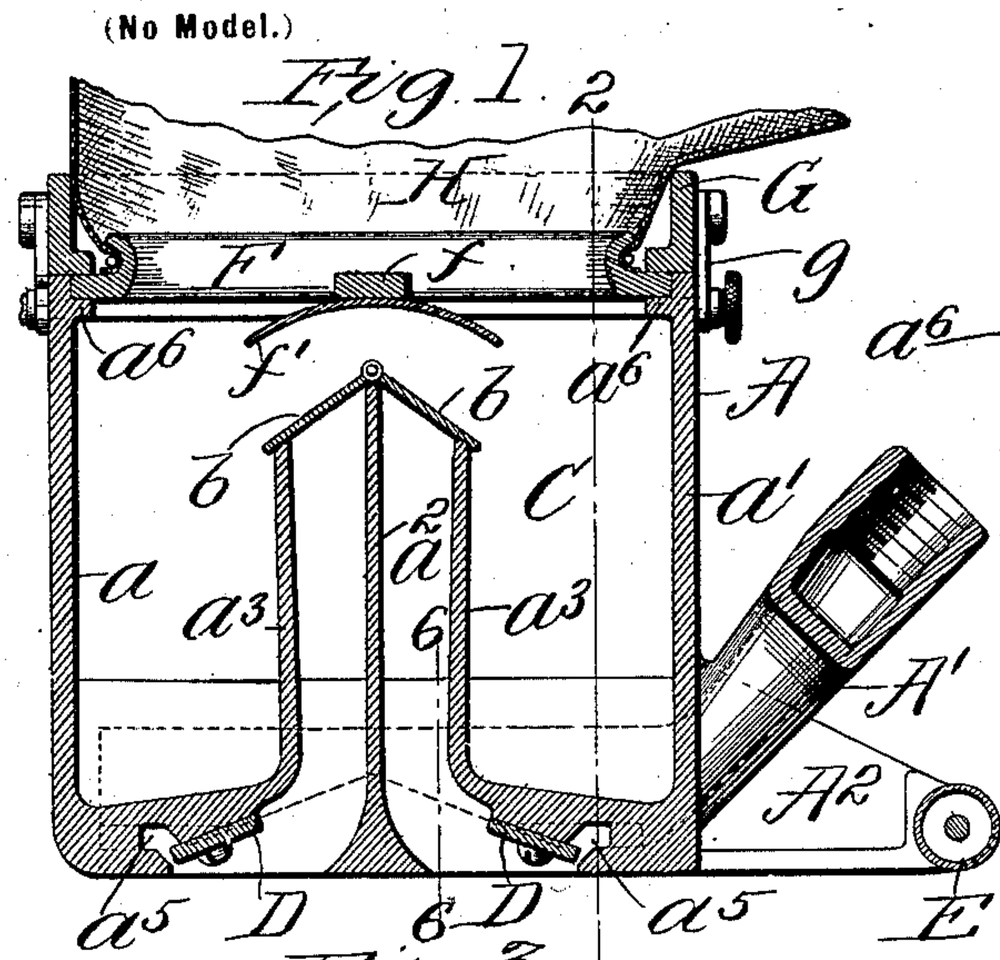



Fig. 2.

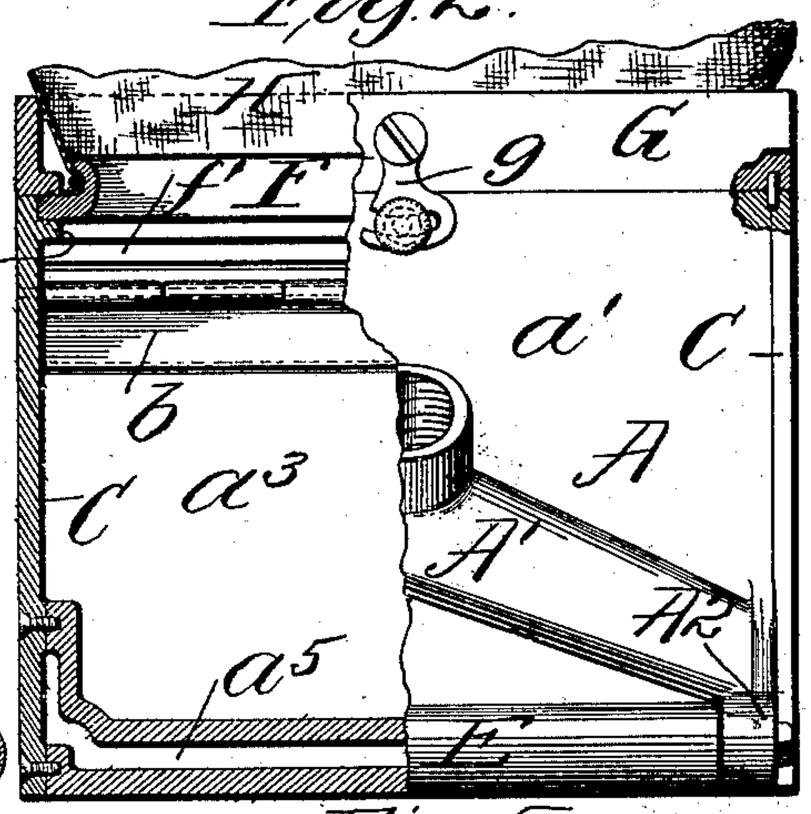



Fig. 3.

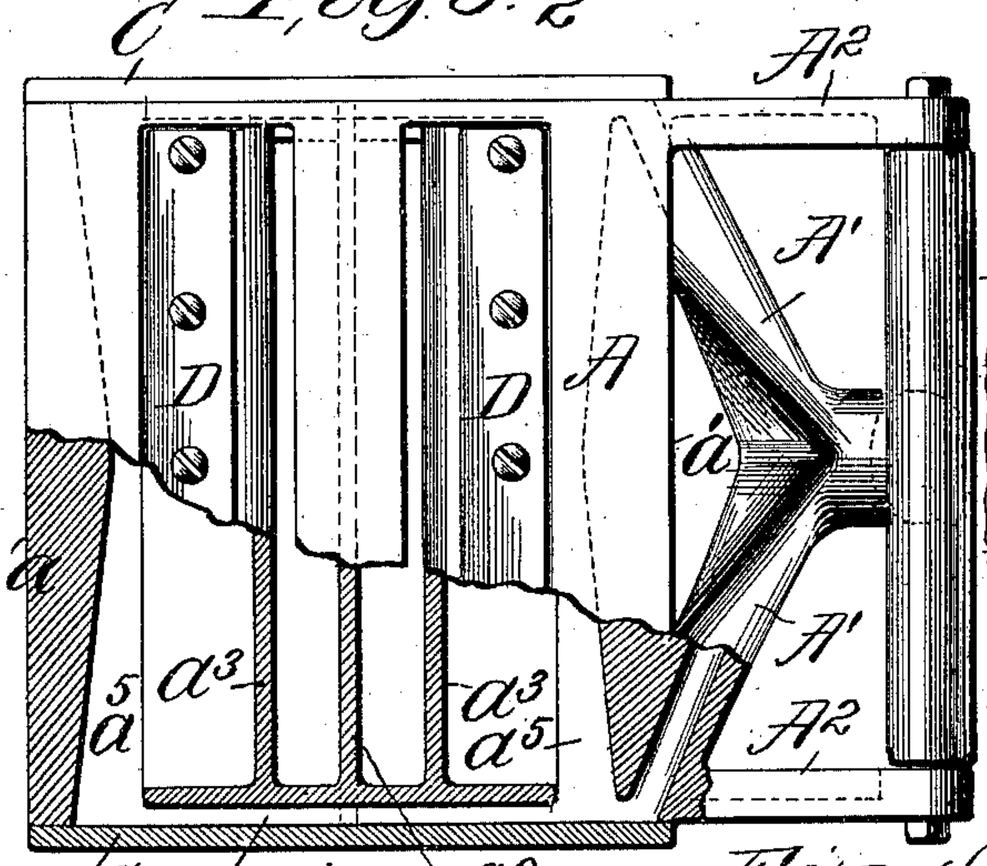



Fig. 4.

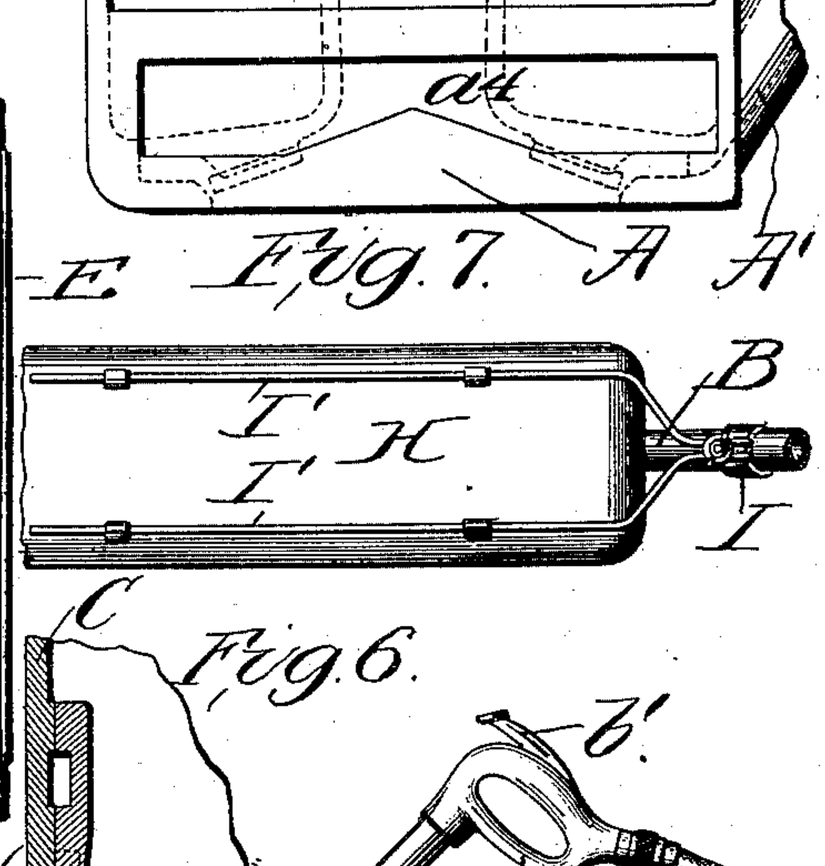



Fig. 5.

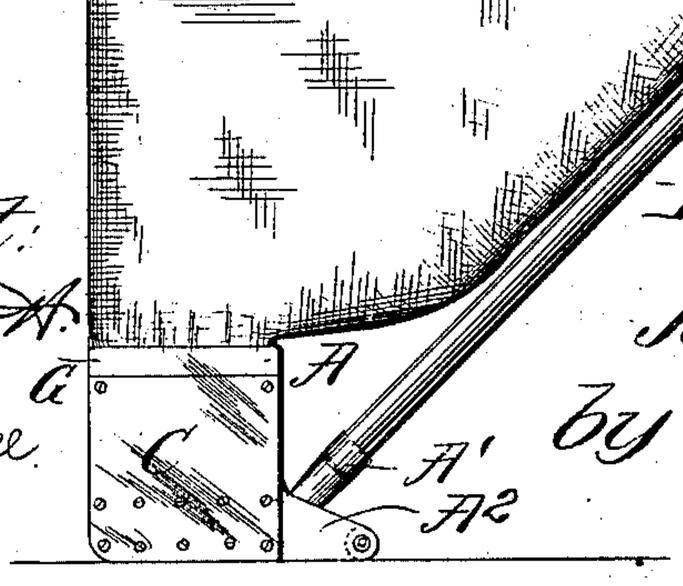



Fig. 6.



Fig. 7.




Attest:
Wm. H. Scott.
George Bakewell.

Inventor:
John S. Thurman
by Bakewell & Cornwall
Attys.

# UNITED STATES PATENT OFFICE.

JOHN STROTHER THURMAN, OF ST. LOUIS, MISSOURI.

## CARPET-RENOVATOR.

SPECIFICATION forming part of Letters Patent No. 665,983, dated January 15, 1901.

Application filed June 18, 1900. Serial No. 20,675. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN STROTHER THURMAN, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in 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 vertical sectional view through my improved carpet-renovator. Fig. 2 is a rear elevational view, partly in section, the sectioned portion being on line 2 2, Fig. 1. Fig. 3 is an inverted plan view, partly in section. Fig. 4 is a side elevational view of the renovator. Fig. 5 is a side elevational view of the lower portion of the base-casting, the near cover-plate being removed. Fig. 6 is a sectional view on line 6 6, Fig. 1; and Fig. 7 is a top plan view showing the means for suspending the inverted bag from the handle.

This invention relates to a new and useful improvement in carpet-renovators, the object being to construct a device of the character described in such manner that a blast of air is utilized to drive the dust from the carpet into a chamber, from which chamber the air escapes, having to pass through a second chamber in communication with the first, in which second chamber the air is permitted to escape in such manner that it is practically still in order that the fine particles of dust floating in the air will be collected.

With this object in view the invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings, A indicates a casting forming the base of the machine, said casting being provided with front and back walls $a$ and $a'$, as shown in Fig. 1. $a^2$ indicates a partition extending from the bottom of the casting nearly to the top thereof, said partition being arranged transversely and having its lower end enlarged to form a flat bearing-face on a plane with the bottom of the casing. The walls $a^3$ are provided on each side of the partition-wall $a^2$, so as to form passages for conducting the dust-laden air into the machine. These walls $a^3$ are preferably shorter than the partition-wall, the partition-wall having pivoted to its upper end flap-valves $b$, which rest upon the walls $a^3$.

A′ indicates a cored extension projecting rearwardly and upwardly from the rear wall of the casting, said extension forming substantially a Y-shaped coupling for receiving one end of a supply-pipe B. The openings or passages in this coupling communicate on each side of the casing with channels $a^4$. (See Fig. 5.) These channels are formed by recessing the outer side faces of the base-casting, after which a side cover-plate C is introduced thereover to form a passage for the air along each side of the casing. These passages, or rather "by-passes," as they might be termed, are preferably connected by channels $a^5$, whose walls are so formed that the area is reduced about the middle portion, so that an equal pressure will be exerted on the blast throughout the length of the blast-opening. These passages $a^5$ open downwardly at an angle, their mouths being preferably contracted by means of adjustable plates D, secured in juxtaposition thereto. (Shown in Fig. 1.) These plates are rendered adjustable by enlarging or transversely elongating the openings through which the securing-screws pass into the bottom of the casting.

$A^2$ indicates rearward extensions or runners, whose lower faces are on the plane of the base-casting, said runners carrying a roller E at their rear ends, whereby in operation the machine may be pushed forward over the carpet, and when being returned or drawn backward it may be tilted, so as to ride on the roller E. Inwardly-extending flanges $a^6$ are arranged at the top of the casing composed of the front and back walls $a$ and $a'$ and the two side plates C, upon which flanges rests a frame F, said frame being held in position by a clamping device G, provided with suitable hooks $g$, coöperating with screws on the front and back walls of the casing. This frame F preferably fits snugly in the top of the casing and is provided with upwardly and outwardly extending flanges to receive a securing-band or draw-string, by which the fabric H may be secured in position on the frame F. Frame F is also pro-

vided with a cross-piece *f*, carrying a deflector-plate *f'*, preferably located above the flap-valves *b*, limiting the opening movement of said valves, and, should said valves be displaced, assisting in deflecting the dust-laden air into the chamber formed by the casing.

The material or fabric H, which is secured to the movable frame F, before described, is preferably shaped as shown in Fig. 4—that is, it forms a chamber in communication with the chamber within the casing, and this chamber or "inflatable bag," as it might be termed, receives the air and permits its slow escape to the exterior. In order to support the bag at its upper end, I prefer to arrange an adjustable clamp I on the supply-pipe B and extend suitable supporting-arms I' from said clamp, which pass through rings on the bag.

The outer end of supply-pipe B preferably carries a handle B', in which is arranged a controlling-valve operated by a lever *b'*. A flexible supply-pipe $B^2$, leading from some suitable source of compressed-air supply, is in communication with the supply-pipe B.

In operation, compressed air being supplied through the flexible pipe, the quantity of said air is controlled by the operator through the medium of the valve-lever, and the strength of the blast may be regulated as desired. When the valve is opened, the air passes through the pipe B, which also forms a handle-staff, said air passing through the by-pass on each side of the machine and down through the contracted openings forming the nozzles. The air is directed at an angle in opposite directions onto or into and through the carpet to be cleaned, and the dust in the carpet is forced upwardly into the passages formed by the partition-wall and the walls $a^3$. The base-casting rests upon the carpet on all four sides, the object being to prevent air escaping in any other way than through the passages above mentioned. The air being directed in opposite directions into and through the carpet agitates the dust and, seeking the easiest path of escape, passes upward, carrying the dust with it through the passages along the partition-wall, raising the flap-valves, which flap-valves direct the air downwardly into the "first" chamber, as it might be called, or that chamber contained within the walls of the base portion of the machine. The deflector-plate *f'* may assist in deflecting the air downwardly. The air entering this first chamber under pressure will deposit the heavier particles of dust in the bottom chamber and will then pass upwardly through the opening in the frame F and into the bag H. The material of which this bag is composed is woven sufficiently close to be inflated by the air under pressure, and when the air reaches the chamber in the bag its escape is retarded by the close meshes, and therefore it reaches what might be termed a "static" condition. The air being thus brought to a standstill by reason of the resistance offered to its escape by the close weaving of the material of which the bag is composed will more quickly give up fine particles of dust, which, if screens were used, would escape into the external atmosphere. Of course on account of this resistance some slight back pressure is offered to the blast of air introduced into the bottom of the machine; but this back pressure is not sufficient to prevent a distinct current of air operating to drive the dust into the primary chamber. The air being freed from its heavier particles in the primary chamber will pass upwardly into the bag-chamber, whence it is permitted to escape in all directions equally, so that no active current is present to carry with it those finely-divided particles of dust which are practically held in suspension by the air.

In operation the device may be used in substantially the same manner as a mechanical carpet-sweeper, and in order to lessen the work of returning the device or moving it backward it may be tilted, so as to roll on the roller E, as has been before described.

I am aware that minor changes in the arrangement, construction, and combination of the several parts of my device can 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, is—

1. In a renovator, the combination with a casing open at its top and bottom, of a nozzle located at one edge of said bottom opening and arranged to discharge air under pressure at an angle, less than a right angle, to and directly into the article to be renovated, walls forming a passage-way for the dust-laden air from said bottom opening to an enlarged chamber in the casing, means for deflecting the dust-laden air down into said chamber, whereby the larger particles of dust are deposited in the chamber, and a bag composed of fabric arranged on said casing the chamber in said bag being in communication with the enlarged chamber of the casing, whereby the smaller particles of dust are arrested when the air escapes through the meshes of the bag; substantially as described.

2. In a renovator, the combination with a suitable casing, of a nozzle carried thereby for 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, a flap-valve arranged at the point of entrance of the dust-laden air into the chamber, and a bag of fabric or other suitable material for receiving the dust-laden air from said chamber; substantially as described.

3. The combination with a casing open at its top and bottom, of walls arranged in said casing and terminating short of the upper edges thereof and forming a passage-way for

the dust-laden air from the bottom opening of said casing, a nozzle arranged in juxtaposition to said bottom opening for delivering air under pressure directly into the article to be renovated, a removable frame arranged on said casing, and a bag composed of fabric arranged on said removable frame; substantially as described.

4. The combination with a casing of a renovator, of a removable frame F provided with upwardly and outwardly extending flanges, fabric forming a bag, said fabric being secured in position around said flanges, a clamping-frame G for holding the frame F in position, and means for securing said clamping-frame G to the casing; substantially as described.

5. The combination with the casing of a renovator, of a removable frame carrying a bag composed of fabric, and a deflector arranged on said frame; substantially as described.

6. 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, whereby the dust-laden air is wholly confined within the casing, a plurality of blast-nozzles arranged at the edges of said opening at angles to each other and a partition-wall arranged midway between said blast-nozzles, whereby the blasts from said nozzles will not interfere with each other; substantially as described.

7. A renovating-casing provided with a plurality of blast-nozzles discharging in opposite directions, in combination with a partition-wall arranged between said nozzles; substantially as described.

8. 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, whereby the dust-laden air is wholly confined within the casing, said casing being provided with a plurality of blast-nozzles arranged at the edges of said opening, a vertical partition-wall arranged midway between said blast-nozzles to prevent the blasts issuing therefrom, from interfering with each other a by-pass for connecting said nozzles, and a separate side wall for covering said by-pass; substantially as described.

9. In a renovator, the combination with a base-casting designed to contact with the article to be renovated, and provided with walls $a^2$ $a^3$, of blast-nozzles arranged at an angle to each other and discharging through the bottom of the casing, a by-pass connecting said nozzles, and removable side plates; substantially as described.

10. In a renovator, the combination with a casing provided with a passage for the dust-laden air and a chamber into which said passage discharges, of a blast-nozzle, rearwardly-extending runners flush with the lower edge of the casing, whereby the side and bottom walls of said casing contact with the article to be cleaned and prevent the escape of dust-laden air, a roller E mounted between the rear extremities of said runners, said roller being so mounted that its periphery does not contact with the article being cleaned when the side and bottom walls of the casing bear upon said article, and a handle or staff rigidly fixed to the casing for manipulating the same, said handle being capable of tilting the casing backward to raise the side and bottom walls out of contact with the article being cleaned, in which position the casing is supported by the roller; substantially as described.

11. In a renovator, the combination with a base-casting provided with a Y-shaped coupling, by-passes in communication with the passages through the coupling, passages $a^5$ arranged transversely and in connection with the by-passes, said passages $a^5$ being contracted about their middle portions, and adjustable plates D for regulating the escape of air from the passages $a^5$; substantially as described.

12. The combination with a renovator having a hollow staff B arranged at an angle of approximately forty-five degrees relative thereto, of an adjustable clamp arranged on said staff, rods I′ adjustably arranged on said clamp, and a bag composed of fabric attached to said renovator, hollow staff, and rods I′; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 15th day of June, 1900.

JOHN STROTHER THURMAN.

Witnesses:

CHAS. HOLLE, Jr.,

HARRY J. GOLDEN.