No. 725,299. PATENTED APR. 14, 1903.

J. S. THURMAN.

CARPET RENOVATOR.

APPLICATION FILED AUG. 16, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

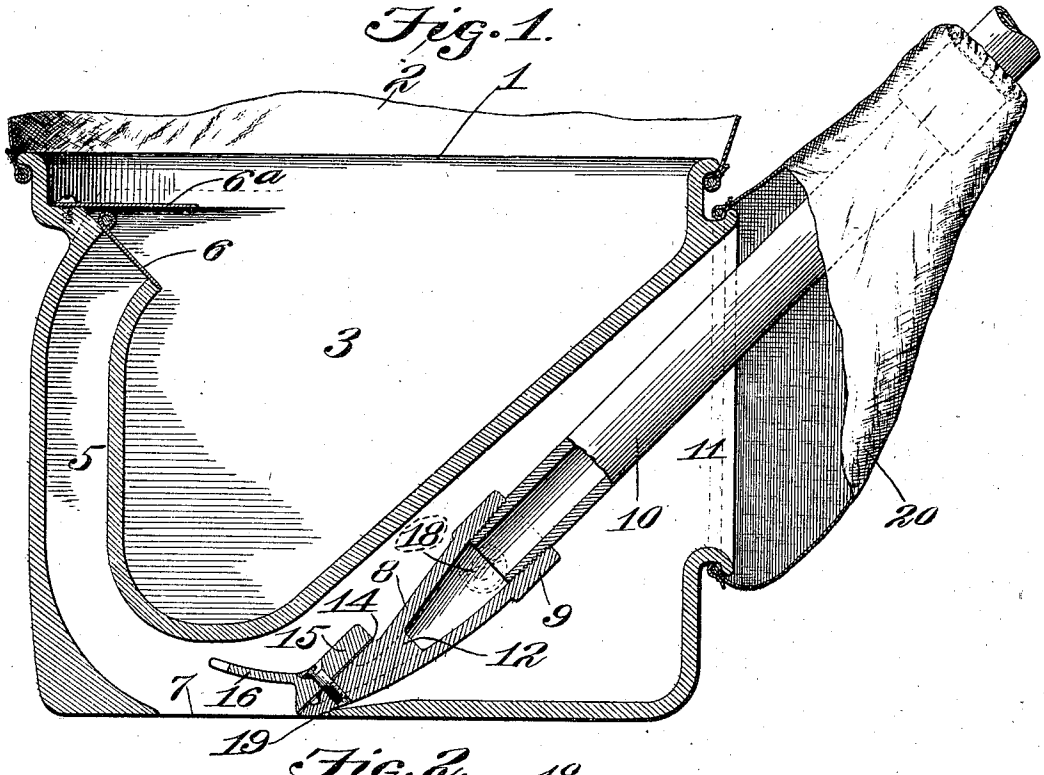
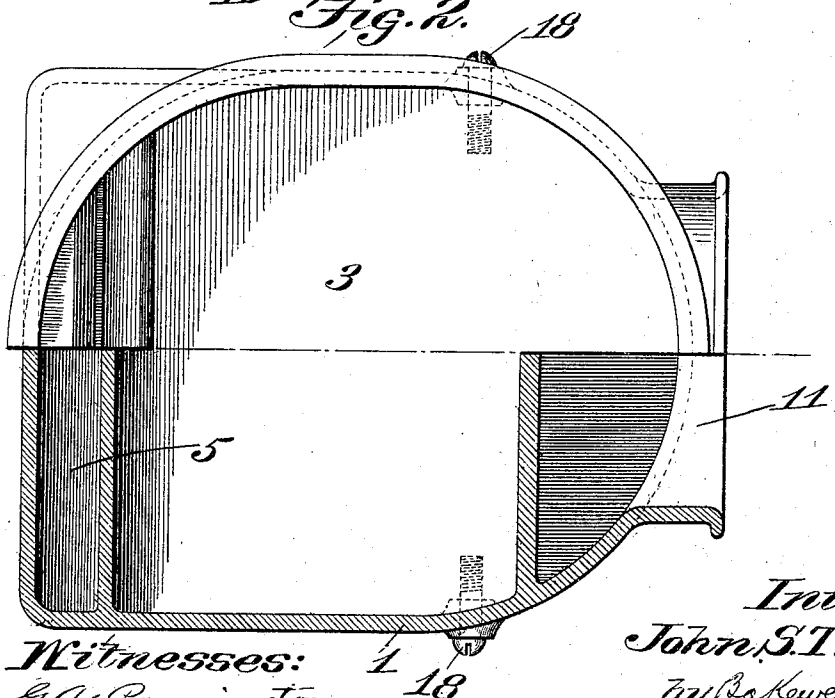


Fig. 2.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

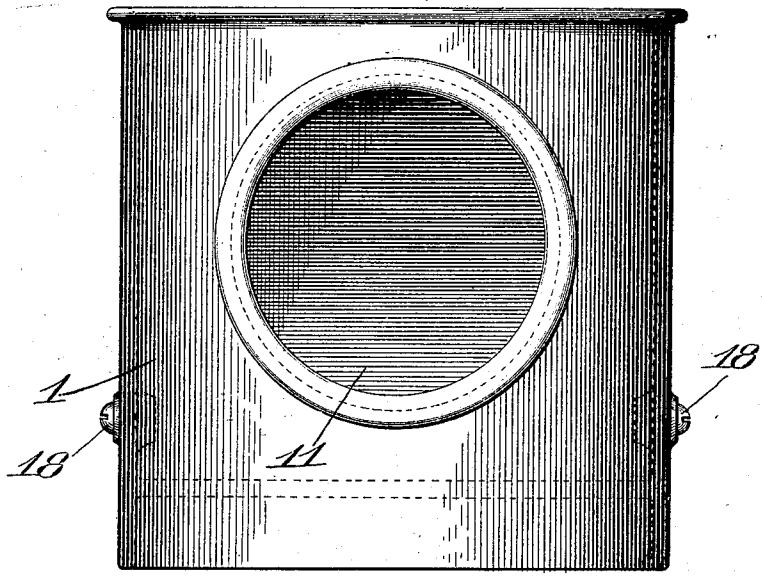


Fig. 4.

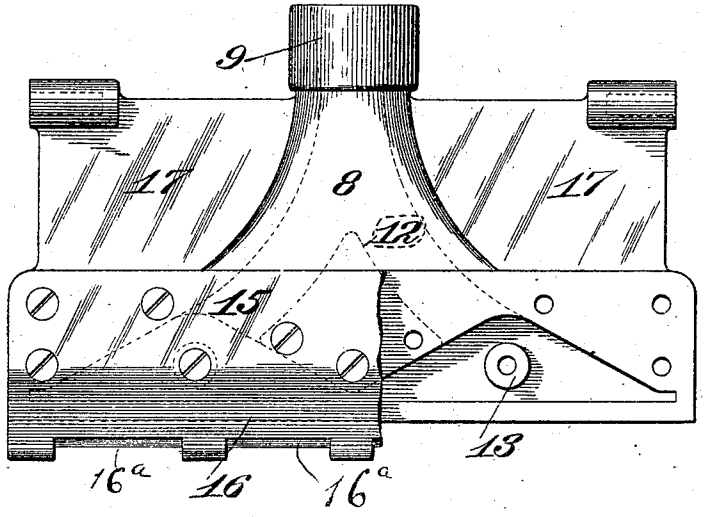
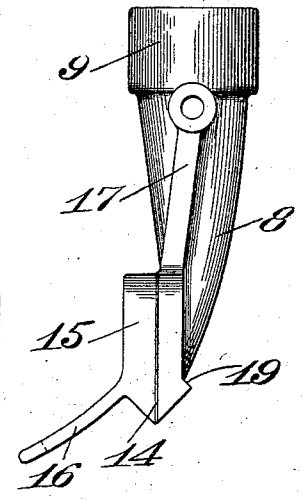


Fig. 5.



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UNITED STATES PATENT OFFICE.

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

CARPET-RENOVATOR.

SPECIFICATION forming part of Letters Patent No. 725,299, dated April 14, 1903.

Application filed August 16, 1902. Serial No. 119,944. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. THURMAN, a citizen of the United States, residing at St. Louis, 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 renovator. Fig. 2 is a top plan view, partly in horizontal section. Fig. 3 is a rear elevational view of the casing. Fig. 4 is a detail view of the nozzle, and Fig. 5 is an end view of the nozzle.

This invention relates to a new and useful improvement in carpet-renovators of that type which is designed to be moved over a carpet or other article to be cleaned, compressed air being admitted through a nozzle, so as to direct a blast of air downwardly at an angle into and through the article being renovated.

One of the objects of my present invention is to pivot the nozzle, so that the angular relation thereof to the casing can be changed at the will of the operator.

Another object is to so construct the device that the space behind the nozzle is open to the exterior, which space tends to relieve the device of back pressure which might result in dust being blown out around the bottom edges of the casing. This back pressure is not of constant duration, being the result sometimes of the machine encountering considerable fine dust in one spot on a carpet, and at other times resulting from the closure of the meshes of the dust-arresting bag through which the dust finally escapes. Under ordinary conditions and where the dust-arresting bag is comparatively clean this back pressure does not exist. To prevent any dust from escaping to the exterior through this vent, I prefer to arrange a screen or dust-arresting fabric over said vent. In the absence of back pressure during the ordinary operation of the machine a current of air is induced to flow inwardly through the vent-opening, and consequently any particles of dust floating into the vent-opening will be carried back into the machine by the induced current referred to.

My invention consists in the construction, arrangement, and combination of the several parts of my device, all as will be hereinafter described, and afterward pointed out in the claims.

In the drawings, 1 indicates the casing, which is provided with an opening in its top, said opening being formed with a flanged wall around which is secured a dust-arresting bag 2, said bag being preferably composed of fabric of such mesh as to permit air to escape, but retain the particles of dust.

3 indicates a chamber in the casing for the reception of the heavier particles of dust.

The dust-laden air is forced upwardly through a conduit 5, said dust-laden air being introduced targentially into the chamber, so that centrifugal force will act to separate the heavier particles from the finer, said heavier particles being received in the chamber and the finer particles floating upwardly in the air and being arrested by the bag. The upper end of conduit 5 is normally closed by a flap-valve 6, which is raised by the pressure of the dust-laden air passing upwardly through the conduit 5, said valve closing when the pressure in chamber 3 exceeds that in the conduit 5, and in this way the back pressure of dust in the conduit 5 is avoided. As particles of dust are liable to be deposited upon the valve 6, so that its action will be interfered with, I arrange a projection or shelf 6^a above said valve, which overhanging hood affords a shelf for the deposit of dust at this point. The bottom of the casing is provided with an opening 7, through which a blast of air is directed from the nozzle, the dust-laden air again passing through said opening and up into the conduit 5.

8 indicates a blast-nozzle pivotally connected to the casing and whose construction is more clearly shown in Fig. 4. This nozzle consists of an attaching-boss 9, in which is screwed a handle 10 in the form of a hollow pipe, said handle projecting through an opening 11 in the back wall of the casing. The passage for the air through the nozzle is of

an inverted-Y shape, the two branches passing on each side of a spreading-post 12 and entering into enlarged chambers in each side of the nozzle. These enlarged chambers also contain spreading-posts 13, which are smaller in size than the post 12 referred to, and the air from each branch is by the posts 13 again divided so that it will be uniformly distributed throughout the nozzle-opening. The nozzle-opening is determined by the thickness of a paper washer 14, arranged on the face of the nozzle 8, which paper washer is located between the main portion 8 of the nozzle and a removable plate 15. The plate 15 is provided with an overhanging hood or nose portion 16, extending above and preferably some distance in advance of the nozzle-opening, so as to give to the dust-laden air a direction toward the conduit 5. This overhanging nose acts as a deflecting-hood. The nozzle referred to is provided with lateral wings 17, in which are formed bearings for pivot-bolts 18, introduced through the side of the casing. The rear lower face of the nozzle is formed with a shoulder 19, which acts as a stop to arrest the nozzle in its lowermost position, said stop coöperating with the bottom wall of the casing, as shown in Fig. 1. When the nozzle is in its lowermost position, its opening is of course located close to the surface of the article being cleaned. Where such article is provided with nap, as some of the well-known makes of carpet, it will be evident that the lower edge of the removable plate 15 will engage the nap, bending it forwardly, so that the blast of air will have direct access to the body of the carpet. By depressing the handle 10 the nozzle can be elevated slightly, so that the blast of air is directed over the nap in proximity thereto. This has been found advantageous in practice, because the nap in carpets frequently is mashed in different directions, and where a considerable amount of dirt is held by a carpet of this character it is desirable to elevate the nozzle, so that it only comes in contact with the surface of the nap until it is freed of the major portion of the surface dust, and then the nozzle is lowered into the nap of the carpet to entirely free it from dust. It is to be understood that the weight of the casing and the operator pressing on the handle 10 depresses the renovator into the nap of the carpet, submerging the nozzle when said nozzle is in the downward position. Passing the machine over a carpet once or twice with the nozzle slightly elevated places the carpet in better condition for treatment when the nozzle is depressed. As the foot portion of the main nozzle 8 is worn by frictional contact with the carpet the bottom wall may be cut away, so as to compensate for such wear and permit the nozzle to go to its lowermost position. It is intended that the nozzle in its lowermost position shall at least be flush with the bottom face of the casing, and good results can be obtained by permitting the foot portion of the nozzle to extend slightly below the face of the casing, whereby said nozzle is brought into contact with and turns the nap of the carpet. It will be observed that when the nozzle is raised the nose portion 16, being cut away, as shown at 16^a, determines its elevated position, and at the same time it does not close the space above the nozzle, and thus communication through these cut-away portions is preserved with the conduit 5. When the nozzle is elevated, a communication between the chamber containing the nozzle and the conduit 5 is also established beneath the nozzle. Consequently in both positions of the nozzle, if there is no back pressure in the chamber 3, a current of air is induced to flow through the opening in the rear wall of chamber containing the nozzle inwardly past the nozzle and into the conduit 5. The opening in the rear wall of the casing, through which the handle 10 extends, is surrounded by a flange, under which is secured the mouth of a screening-bag 20, said bag being also provided with an opening, through which the handle extends. The function of this screening-bag, as before described, is to take care of such dust as may be forced thereinto by back pressure; but in the ordinary operation of the machine air from the interior flows into the bag and into the nozzle-chamber, the nozzle acting as an injector. For these reasons the bag 20 is not absolutely necessary to the operation of the device and may be removed, its use being desirable only under the conditions of back pressure above mentioned.

I am aware that many minor changes in the construction, arrangement, 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 as new, and desire to secure by Letters Patent, is—

1. In a carpet-renovator, the combination with a casing having a chamber open to atmosphere, a nozzle arranged in said chamber for directing a blast of air to the carpet to be renovated, and a forwardly-extending portion on said nozzle for directing the dust-laden air up into the casing; substantially as described.

2. In a carpet-renovator, the combination with a casing having a dust-collecting chamber, of a conduit for the dust-laden air leading into said chamber, said conduit communicating with a chamber which opens to atmosphere, and a nozzle arranged in said last-mentioned chamber; substantially as described.

3. In a carpet-renovator, the combination with a casing having a dust-collecting chamber, of a conduit for conveying dust-laden air into said chamber, a chamber with which said

conduit also communicates, said last-mentioned chamber opening to atmosphere, and a nozzle pivotally mounted in said last-mentioned chamber; substantially as described.

4. In a carpet-renovator, the combination with a casing having a dust-collecting chamber, of a conduit for conveying dust-laden air into said chamber, said conduit also communicating with a chamber open to atmosphere, a nozzle arranged in said last-mentioned chamber, and a screen over the opening in said chamber; substantially as described.

5. In a carpet-renovator, the combination with a casing having a dust-collecting chamber, of a conduit for conveying dust-laden air into said chamber, said conduit also communicating with a chamber open to atmosphere, a pivoted nozzle arranged in said last-mentioned chamber, a handle on said nozzle which extends outside the casing, and a flexible screen covering said opening to atmosphere, said screen being secured to said handle; substantially as described.

6. In a carpet-renovator, the combination with a casing having a chamber 3, a conduit 5 leading into said chamber, an opening 7 in the bottom of the casing communicating with the conduit 5 and with another chamber opening to atmosphere through an opening 11, of a nozzle pivoted in said last-mentioned chamber and having a handle extending out through the opening 11, the edges of said opening 11 being formed with outwardly-extending flanges, and a fabric bag secured in position under said flanges and upon the handle 10; substantially as described.

7. In a carpet-renovator, the combination with a casing having a chamber open to atmosphere, and a nozzle arranged in said chamber for directing a blast of air downwardly at an angle into and through the carpet to be renovated, said blast of air inducing a current of air to flow inwardly through the chamber containing the nozzle; substantially as described.

8. In a carpet-renovator, the combination with a casing having a chamber, of a nozzle pivoted in said chamber, and means coöperating with its lower end for limiting the movement of said nozzle; substantially as described.

9. In a carpet-renovator, the combination with a casing having a chamber, of a nozzle pivotally mounted in said chamber, said nozzle being provided with a stop 19 which cooperates with the bottom wall of the casing; substantially as described.

10. In a carpet-renovator, the combination with a casing having a chamber, of a nozzle pivotally mounted in said chamber, and a nose 16 extending forwardly from said nozzle for coöperating with the top wall of the chamber and determining the elevated position of the nozzle; substantially as described.

11. In a carpet-renovator, the combination with a chamber open to atmosphere, of a nozzle pivotally mounted therein, the free end of said nozzle coöperating with the wall of said chamber in proximity thereto, and a forwardly-extending nose portion on said nozzle; substantially as described.

12. In a carpet-renovator, the combination with a chamber open to atmosphere, of a nozzle pivotally mounted therein, the free end of said nozzle coöperating with the bottom wall of said chamber, and a forwardly-extending nose portion on said nozzle, said nose portion being cut away at places to permit an induced current of air to flow in from a point behind the nozzle; substantially as described.

13. In a carpet-renovator, the combination with a casing having a chamber open to atmosphere, of a nozzle pivoted in said chamber, a forwardly-extending nose portion on said nozzle, and a handle with blast-passage therethrough for adjusting the angular position of said nozzle with relation to said casing; substantially as described.

14. In a carpet-renovator, the combination with a casing having a dust-collecting chamber, and a conduit for conveying dust-laden air to said chamber, of a nozzle pivotally mounted in said casing and having a shoe portion thereon, designed to ride upon the article being cleaned, the front face of said nozzle being rigidly connected and acting as a wall for bending over the nap to give access to the air-blast thereto; substantially as described.

15. In a carpet-renovator, the combination with a casing having a dust-collecting chamber and a conduit for conveying dust-laden air thereto, of a nozzle pivotally mounted in the casing and having a nose extension projecting forwardly above the discharge-opening therein, said nozzle, in the operation of the machine, being designed to contact with the article being cleaned, and means for adjusting the angular position of said nozzle with respect to said casing-walls; substantially as described.

16. The herein-described nozzle comprising a body portion with a passage therethrough and formed with a Y-shaped opening below said passage, the branches of said opening leading to enlarged chambers at the end of the nozzle, a plurality of spreading-posts in said chambers at the mouths of said branches, and a removable face-plate secured to said body portion over said Y-shaped opening for forming one wall of the nozzle at the discharge end thereof; substantially as described.

17. In a carpet-renovator, the combination with a casing, of a nozzle comprising a body portion having winged extensions provided with bearings, pivots passing through the walls of the casing and into said bearings, and a handle extending from said nozzle to the exterior of the casing; substantially as described.

18. In a carpet-renovator, the combination with a casing, of a nozzle with pivot-bearings

therein movable in said casing and having a handle extending to the exterior of the casing, said nozzle being composed of a main body portion, a removable plate forming one wall of the nozzle-opening, and a washer interposed between said plate and said body portion for determining the width of the nozzle-opening; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 14th day of August, 1902.

JOHN S. THURMAN.

Witnesses:
F. R. CORNWALL,
GEORGE BAKEWELL.