W. T. GRIFFIN.

PNEUMATIC CLEANER.

APPLICATION FILED SEPT. 11, 1905.

1,172,450. Patented Feb. 22, 1916.

Fig. 1.

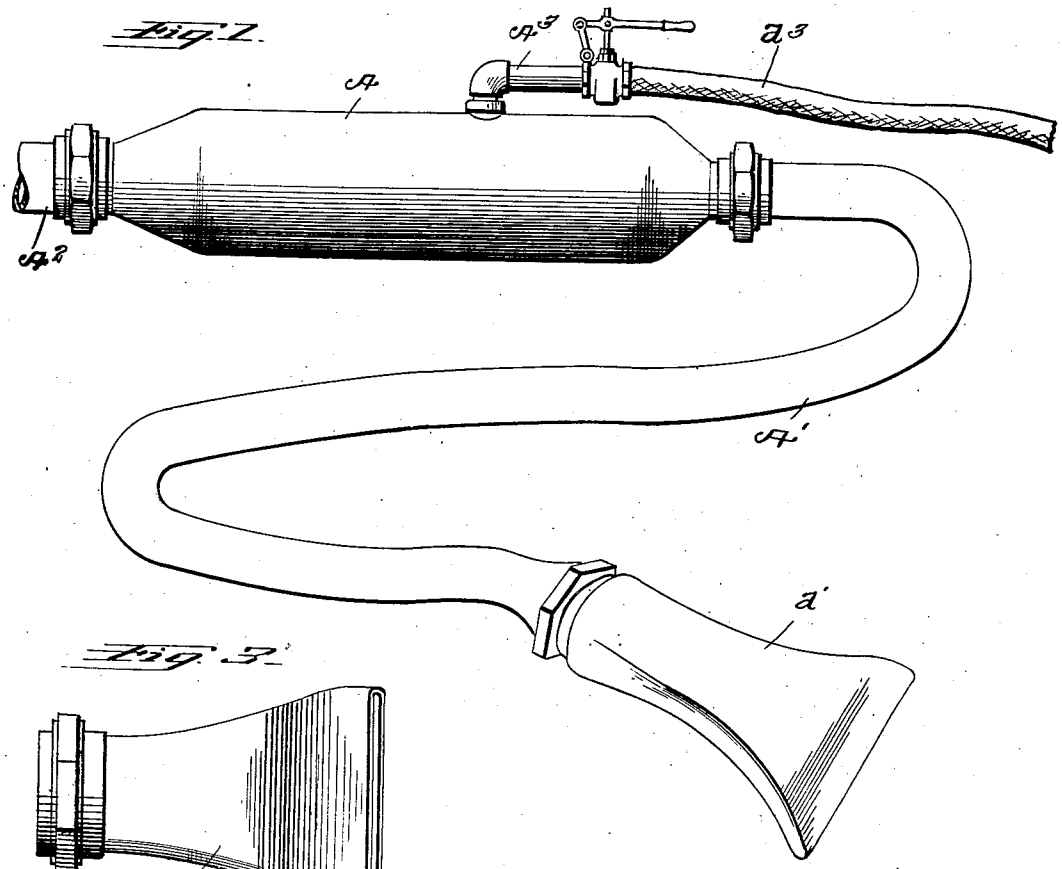


Fig. 3.

Fig. 2.

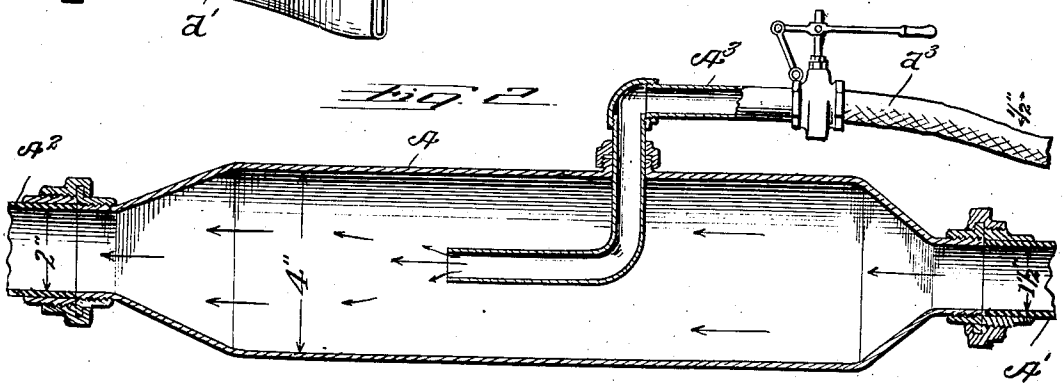
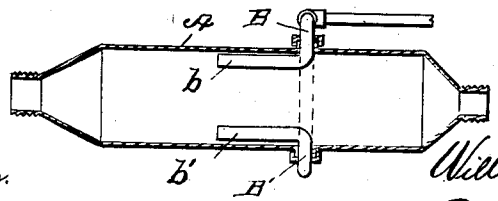


Fig. 4.



WITNESSES:

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WILLIAM T. GRIFFIN, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-THIRD TO ANDREW A. HANCOCK, OF WASHINGTON, DISTRICT OF COLUMBIA.

PNEUMATIC CLEANER.

1,172,450. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed September 11, 1905. Serial No. 277,956.

To all whom it may concern:

Be it known that I, WILLIAM T. GRIFFIN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Pneumatic Cleaners, of which the following is a specification.

The object of my said invention is to utilize pneumatic pressure from the compressed air cylinders of cars, or other sources, for the purpose of cleaning said cars, or any other places, and it consists in an improved construction of device for accomplishing this purpose, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a perspective view of an apparatus embodying my said invention, Fig. 2 a central longitudinal section through the same, Fig. 3 a detail underside plan view of the suction nozzle, and Fig. 4 a view of a modified form.

In said drawings the portions marked A represent the body of the device which consists of a casing preferably cylindrical in form, of any suitable material, preferably aluminum in order that it may be light, formed with each end somewhat contracted in size. To one end is attached a suction tube or hose A′ and to the other a discharge tube A^2. A compressed air pipe A_3 leads into one side of the casing through a suitable fitting and is turned to extend parallel with the sides of said casing and adapted to discharge into the forward portion of said cylinder toward the discharge tube. Said compressed air pipe A_3 is connected by a hose a^3 with any suitable source of supply, such as the compressed air cylinder commonly found on modernly equipped cars.

Particular importance, in so far as a successful operation of the device is concerned, is attached to the particular construction and the relative proportions of the cylinder or casing and the suction and discharge tubes. It will be noted by reference to the drawing that the said casing as illustrated is indicated to be 4 inches in diameter, while the suction tube is 1½ inches and the discharge tube 2 inches in diameter, while the compressed air tube is ½ inch in diameter. Variations in these proportions may be made, of course, without materially interfering with the successful operation of the device, but these proportions have been found to work well and they are mentioned as indicating a construction adapted to secure satisfactory results. In operation the compressed air coming through the ½ inch tube and discharging into the 4 inch cylinder is permitted to expand suddenly and rush forward toward the discharge end A^2, causing a powerful suction through the suction end of the cylinder and suction tube, which operates to draw in dirt, cinders, filth, dust or other substances, which it is desired to remove, through the suction nozzle a' on the end of the suction tube A′ and force it with the air through the discharge tube A^2, which may lead to the outside of the car through the car window, or to any point where it is desired to discharge said substance. By reason of the discharge end of the cylinder being larger than the suction end back pressure is guarded against and the free flow of the air through said discharge end, carrying with it the filth and dirt, is permitted, while the unobstructed interior of the cylinder permits the free expansion of the compressed air and its forward movement toward discharge pipe A^2 and thus creates a vacuum behind said air discharge, which causes the suction required for the purpose. While these proportions may be somewhat varied, as above stated, I do regard it as important, and as a feature of my invention, that substantially the above mentioned relative proportions and arrangement of discharge openings of the several ports, be maintained.

In Fig. 4 I have shown the compressed air tube as having two branches B and B′, with two discharge ends b and b' on opposite sides of the casing. Such an arrangement or any number of branches, may be used, if preferred, as will be readily understood.

While I have shown the casing A as cylindrical it will be understood that its form in cross-section is not material, but may be modified as desired. Also that the suction nozzle a' may be of the form shown, or any nozzle particularly adapted for any particular work to be done.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:—

In a pneumatic suction cleaning device, the combination of a hollow casing of a

larger diameter in its middle portion than at its ends, one end being connected to a discharge pipe and the other end to a suction pipe, the discharge pipe being of a larger diameter than the suction pipe and both of a smaller diameter than the central portion of said casing which is free and unobstructed in its central interior, and an injector connected with a suitable compressed air supply and leading through the side of said casing and turned parallel with and close to the sides thereof to discharge toward the discharge end of said casing, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Washington, D. C., this 11th day of September, A. D. nineteen hundred and five.

WILLIAM T. GRIFFIN. [L. S.]

Witnesses:

A. E. W. BRADFORD,

ANDREW A. HANCOCK.