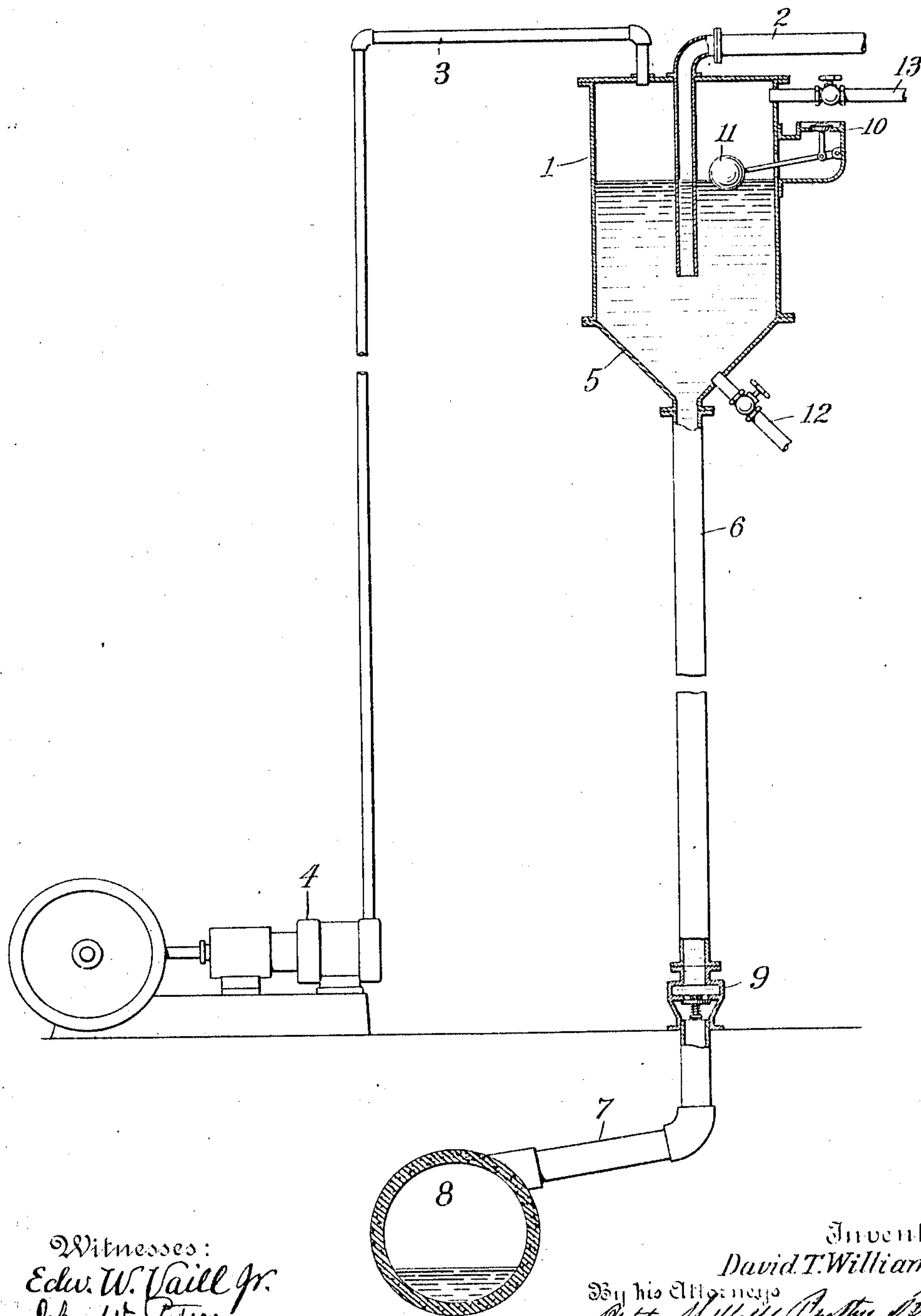


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DUST COLLECTOR FOR PNEUMATIC CLEANING SYSTEMS.
APPLICATION FILED MAR. 19, 1908.

993,133

Patented May 23, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

DAVID T. WILLIAMS, OF PATERSON, NEW JERSEY, ASSIGNOR TO VACUUM ENGINEERING COMPANY, A CORPORATION OF NEW YORK.

DUST-COLLECTOR FOR PNEUMATIC CLEANING SYSTEMS.

993,133.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed March 19, 1908. Serial No. 422,104.

To all whom it may concern:

Be it known that I, DAVID T. WILLIAMS, a British subject, and a resident of Paterson, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Dust-Collectors for Pneumatic Cleaning Systems, of which the following is a full, clear, and complete disclosure.

10 The object of my invention is to provide a dust or dirt collector in which water may be used for absorbing and removing from the air the dust conveyed through the pipes by the apparatus for producing pneumatic
15 suction.

In dust collectors heretofore employed in connection with vacuum cleaning apparatus, it has been necessary to stop the apparatus and the action of the suction device in order
20 to withdraw the dirt and saturating water or other liquid from the collecting or depositing chamber, owing to the fact that the suction under which the apparatus is operated would either prevent the outflow of
25 water or permit the admission of air. It has also been necessary in other cases to provide a separate outlet for the water and dirt, which is connected to a suction device, in order to withdraw the dirt and water while
30 the suction remains active in the collecting chamber. My invention overcomes these objectionable features by providing a device in the nature of a barometric column, by means of which the water and dirt may flow
35 from the collecting chamber under the influence of gravity, without the use of an additional suction device, and without stopping the apparatus.

40 For a full and detailed description of one form of my invention, which I at present deem preferable, reference may be had to the following specification and to the accompanying drawing, in which the device is shown in elevation and partly in section, and as arranged for actual operation.

Referring to the drawing, the numeral 1 indicates the collecting or depositing chamber, which is provided with an inlet pipe 2, for the dirt and air.

50 The numeral 3 indicates a suction pipe connected with any suitable means for pro-

ducing a pneumatic suction, such as the vacuum pump 4.

The bottom of the collecting chamber 1 is preferably made conical in shape, as indicated at 5, and the conical portion is connected with a vertical stand-pipe or column 6, the lower end of which is provided with a suitable pipe connection 7, communicating with the sewer or drain 8. The lower portion of the column 6 may be provided with a suitable check-valve 9 to prevent the back flow of water from the sewer, should the pressure therein become greater than atmospheric pressure. Check-valve 9, under normal conditions, remains open, the liquid flowing downward through the pipe 6 and emptying into the sewer or drain 8. When, however, the sewer or drain is flooded and the pressure therein is greater than atmospheric pressure, the check-valve 9 closes, preventing an overflow into the vacuum-pump. A suitable float-valve 10 is connected with a passage opening into the depositing chamber, and is operated by means of the float 11 resting upon the surface of the water in the depositing chamber 1. Water may be admitted to the depositing chamber 1 in any suitable manner, such as by the water-supply pipe 12 or the pipe 13.

If water is used with the cleaning devices connected with the apparatus, of course the water thereby supplied tends to add to the amount in the saturating chamber, but in that case the discharge of the water from the depositing chamber will be automatically controlled, as when the water enters through the pipes 12 or 13 only.

When the apparatus is in operation, air and dirt, or air, dirt and water will be sucked in through the pipe 2 by the action of the vacuum pump 4 through the pipe 3, and since the pipe 2 extends below the surface of the water in the collecting chamber, the dust and dirt will be deposited, and the air that is withdrawn will be free of materials that would tend to injure the pump. The float valve 10 maintains a substantially constant level of the water in the collecting chamber, without regard to any variation in the amount of suction or the vacuum produced by the pump. It is obvious that the

height of the water in the collecting chamber above the lower end of the column 6 should be such as to correspond to the suction produced by the pump. Should a
5 larger amount of water be supplied than is required, the float 11 of the float-valve 10 allows said valve to open and admit air until the height of the water returns to its normal level. It will, therefore, be seen that
10 the collecting chamber 1 and the pipe 6 constitute a device in the nature of a balanced barometric column through which the dirt and water may continuously flow without affecting the action of the suction and with-
15 out interrupting the operation of the apparatus.

Having thus described this form of my invention, I do not wish to be understood as being limited to the exact details of form
20 and arrangement of parts set forth, for various changes may be made without depart-

ing from the spirit and scope of my invention, but

What I claim and desire to protect by Letters Patent is:

In a pneumatic cleaning apparatus, the combination of a closed depositing chamber, means for exhausting air therefrom, a downwardly discharging pipe leading therefrom, means for supplying water and dirt and air
25 to said depositing chamber and for gradually allowing dirt and water to escape by way of said downwardly discharging pipe, and means whereby the degree of exhaustion, or vacuum, in said chamber is regulated by the level or height of the water in
30 said chamber, substantially as described. 35

Signed this 16th day of March, 1908.

DAVID T. WILLIAMS.

Witnesses:

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