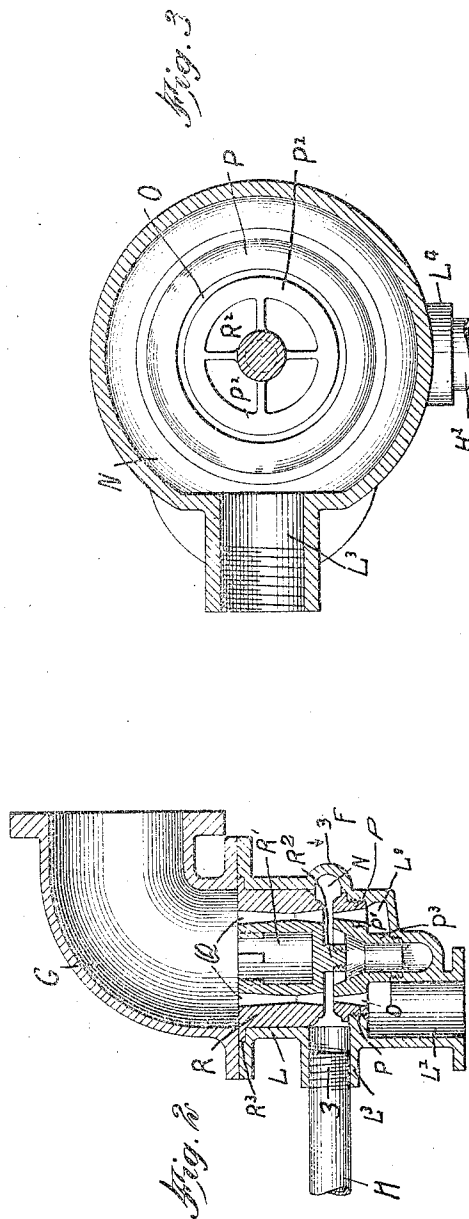
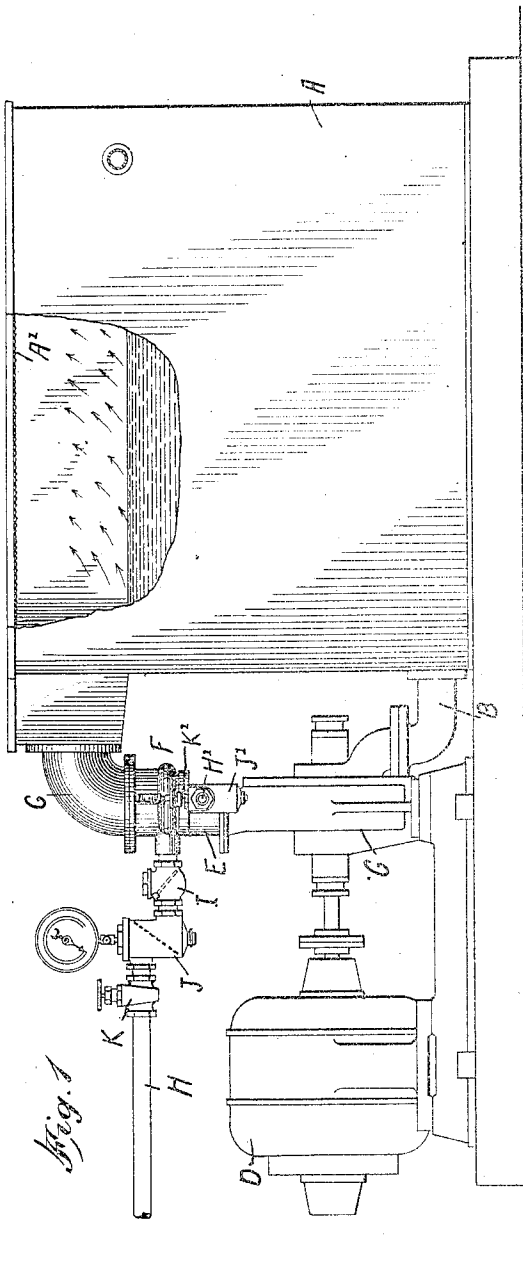


F. A. WEIMANN.
VACUUM PRODUCING APPARATUS.
APPLICATION FILED JULY 31, 1912.

1,108,644.

Patented Aug. 25, 1914.



WITNESSES
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FERDINAND A. WEIMANN, OF WEST HOBOKEN, NEW JERSEY.

VACUUM-PRODUCING APPARATUS.

1,108,644.

Specification of Letters Patent.

Patented Aug. 25, 1914.

Application filed July 31, 1912. Serial No. 712,449.

To all whom it may concern:

Be it known that I, FERDINAND A. WEIMANN, a citizen of the United States, and a resident of West Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Vacuum-Producing Apparatus, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved vacuum producing apparatus, more especially designed for use in vacuum cleaning systems and arranged to readily draw air and dust through the house pipe to slime the dust, and separate the air from the slimed dust, and to permit of using the water for sliming the dust over and over again.

For the purpose mentioned use is made of a discharge nozzle having an annular passage connecting at one end with a chamber connected with the house pipe, and a water supply nozzle having an annular passage opening into the said chamber directly opposite the entrance end of the said discharge nozzle.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a vacuum producing apparatus and showing a portion of the water tank broken out; Fig. 2 is an enlarged sectional side elevation of the injector; and Fig. 3 is an enlarged sectional plan view of the same on the line 3—3 of Fig. 2.

A tank A for containing water is connected at its lower end with the suction pipe B of a pump C, preferably of the rotary type, and driven from a suitable motor D. The discharge pipe E of the pump C connects with an injector F having a discharge pipe G connected with the upper end of the tank A. The injector F is also connected with the house pipe H provided with the usual check valve I, strainer J and valve K, as indicated in Fig. 1.

The casing L of the injector F is provided at its lower end with a water inlet L' connected with the pipe E and leading to an annular chamber L², as plainly shown in Fig. 2. The casing L is also provided with an air and dust inlet L³ connected with the house pipe H and leading to a chamber N into which opens from the bottom an annu-

lar passage O of a nozzle formed of two concentric rings P and P', of which the ring P screws in the casing L and the ring P' is provided at the top with a spider P² and at the bottom with a hollow stem P³ screwing in the casing L and leading to an air admission pipe H' similar to the house pipe H but considerably smaller, and likewise provided with a check valve (not shown) the same as the valve I, a strainer J' and a valve K'.

From the top of the annular chamber N leads an annular passage Q of a nozzle formed of an outer ring-shaped part R and an inner part R' provided at the bottom with a stem R² screwing centrally in the spider P² of the ring-shaped member P' of the water discharge nozzle. The outer ring-shaped part R of the discharge nozzle is provided at the top with a flange R³ seated on the casing L and held in place by the pipe G. Now by the arrangement described it will be seen that both passages O and Q are annular and wholly unobstructed so that water passing through the passage O is forced through the chamber N into the passage Q, and in doing so a suction is produced in the house pipe H to draw the air and dust through the said pipe into the chamber N to mix with the water from the water discharge nozzle. The water, air and dust that have not become slimed. When the pipe G to be finally delivered to the upper end of the tank A. In this tank the water with the dust slimed therein separates from the air which can readily escape through the top of the tank A and which top is preferably provided with a strainer A' to prevent the escape of the particles of dust that have not become slimed. When the valve K' in the air admission pipe H' is opened then air is also drawn into the chamber N by way of the hollow stem P³ and the ring-shaped inner member P' of the water discharge nozzle. This air also mingles with the water in the chamber and passes with the water through the passage Q into the pipe G and into the tank A. The passage O is gradually contracted toward the chamber N while the passage Q has its lower portion provided with converging sides and the upper portion with beveled sides, as will be readily understood by reference to Fig. 2, so that the air and dust readily pass into the passage Q and are forced through the same by the water passing through the passage O. It will also be

noticed that the water is drawn from the tank A and is forced by the pump C through the injector F and pipe C back into the tank A, to be used over and over again. In case the water in the tank becomes too muddy with the dust, it is replaced with fresh water. Suitable means are provided for filling and emptying the tank A and for maintaining a uniform level of the water by a suitable overflow.

The injector shown and described is very simple and durable in construction, can be cheaply manufactured, and the parts thereof are not liable easily to get out of order.

The vacuum producing apparatus has been shown and described in connection with a vacuum cleaning system, but it may be used for other purposes, for instance, removing the condensation and air in vacuum heating systems.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A vacuum producing apparatus provided with a casing having a water inlet, an air and dust inlet, a water supply nozzle connected with the said water inlet and formed of two concentric parts secured in the casing and spaced apart to form an unobstructed annular passage, a discharge nozzle within the casing and spaced from the said water inlet nozzle to form a chamber connected with the said air and dust inlet, the said discharge nozzle

being made of two concentric parts spaced apart to form an unobstructed annular passage, the outer concentric part of the discharge nozzle being held on the casing and the other being attached to the inner part of the said water supply nozzle.

2. A vacuum producing apparatus provided with a casing having a water inlet, an air and dust inlet and an outlet for the water, air and dust, a water supply nozzle connected with the said water inlet and formed of two concentric parts secured in the casing and spaced apart to form an unobstructed annular passage, the inner concentric part of the water supply nozzle being hollow and connected with an air supply, a discharge nozzle within the casing and spaced from the said water inlet nozzle to form a chamber connected with the said air and dust inlet, the said discharge nozzle being made of two concentric parts spaced apart to form an unobstructed annular passage, the outer concentric part of the discharge nozzle being held on the casing and the other being attached to the inner part of the said water supply nozzle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FERDINAND A. WEIMANN.

Witnesses:

THEO. G. HOSTER,
JOHN P. DAVIS.