

L. W. G. FLYNT.
VACUUM CLEANING APPARATUS.
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1,013,147.

Patented Jan. 2, 1912.

Fig. 1.

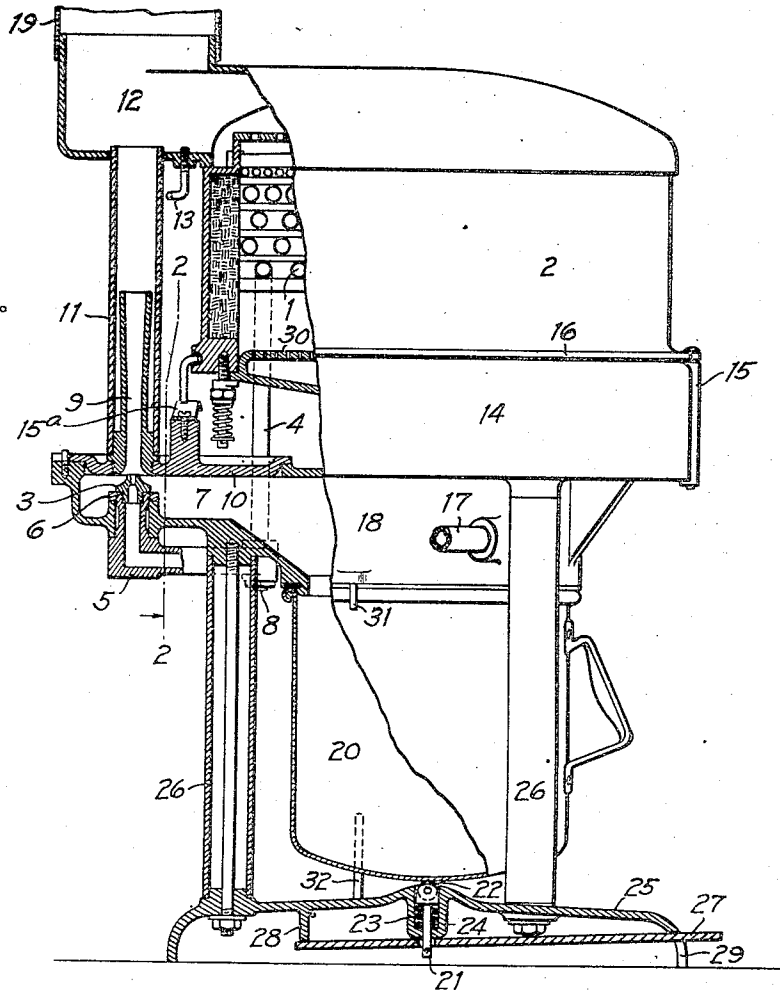
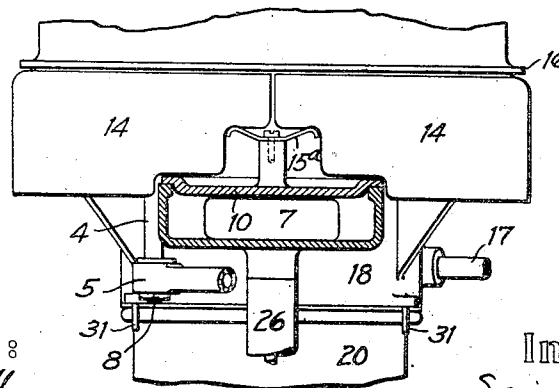


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

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VACUUM CLEANING APPARATUS.

1,013,147.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Original application filed April 10, 1911, Serial No. 620,113. Divided and this application filed October 18, 1911. Serial No. 655,400.

To all whom it may concern:

Be it known that I, LOUIS W. G. FLYNT, a subject of the King of Great Britain, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Vacuum Cleaning Apparatus, of which the following is a specification.

This invention relates to vacuum cleaning apparatus, and has for its object a dust-separator in which the heavier dust is separated from the lighter dust and collected in a receptacle that is readily removable; also means whereby the finer particles of dirt that enter the apparatus are subjected to steam and heated gases for the purpose of destroying them or rendering them harmless, before being discharged therefrom; and other improvements that will be described.

In the drawings:—Figure 1 is a side view, partly in section, of a vacuum cleaning apparatus embodying the invention in question; and Fig. 2 is a section on the line 2—2 of Fig. 1.

The invention is shown in the drawings in connection with a steam-generator and a steam-nozzle which, in conjunction with a draft-pipe, constitute vacuum-producing means in the form of an air-ejector. In the illustrated embodiment of the invention the generator is a flash-boiler 1 that is inclosed within a casing 2. The lower end of the boiler is connected with a steam-nozzle 3 by a pipe 4 and a casting 5. The casting 5 with the steam-nozzle 3 attached is held in place by a nut 6 which draws the casting 5 tightly up against the separating chamber or compartment 7, and a bolt 8 that locks together the casting 5 and pipe 4. Thus the steam-nozzle is readily removed.

The draft-pipe 9 through which the steam-nozzle discharges is attached to a removable plate 10 that gives convenient access to the separating chamber 7. A pipe 11 surrounds the draft-pipe 9 and serves as a flue to conduct to the incinerating chamber or compartment 12 the steam discharged from the nozzle 3, and air and dirt withdrawn from the separating chamber 7. When the pipe 11 is pushed up into the incinerating chamber 12 the plate 10 can be removed. The pipe 11 is held in elevated position by a hook 13 which turns in under it, and the plate 10 is held in place by two

doors 14, 14, which are hinged at 15 (see 55 Fig. 1) to the casing or frame of the machine at a point opposite the air-ejector, and, when closed, overlie the plate, being yieldingly held in their closed position in under, and up against the flange 16 on the casing 2 60 by a spring 15^a.

A vacuum-service main 17 discharges air and whatever dirt has been collected into the separating chamber 18. The latter opens into the pipe or flue 11, as shown in 65 Fig. 1, so that the air and the finer solid material are withdrawn by the air-ejector from the separating chamber and discharged with the steam up through the draft-pipe 9, thence into said pipe 11, and thence into the 70 combustion chamber 12, whence they pass off through the pipe or flue 19 into the chimney of a building, or to atmosphere direct.

The lower part of the separating chamber 75 consists of a removable can 20 that is forced up into close contact with the lower edge of the upper part 18 of the separating chamber by a spring-controlled bolt 21. This bolt is represented as provided with a roller 22 at its upper end to serve as a bearing for the can 20, and is held yieldingly up against the can by a spring 23, located in a recess 24 in the casting 25 on which the machine is supported by legs 26. The bolt 21 is depressed, for the purpose of facilitating the placing and removal of the can, by a lever 27 which is connected with the bolt and is fulcrumed on the projection 28 from the casting 25. The lever projects out through 80 an opening 29 in the casting so that it can be operated by the foot, and stops 31 and 32 serve to center the can.

A burner 30 for heating the boiler is supported beneath the boiler-coils. The hot 85 gases and products of combustion rise from the burner and pass up through the incinerating chamber 12 into the pipe or flue 19.

In operation the heavier material, such as sand, is deposited in the removable can 15, 110 while the finer particles, such as dust and germs, are withdrawn from the separating chamber 18 by the action of the air-ejector and discharged up through the flue 11 with the steam into the hot gases and products 115 of combustion in the incinerating chamber 12.

This application is a division of my co-

pending application relating to steam-generators, Serial No. 620,113, filed April 10, 1911.

I claim:—

- 5 1. In a dust-separator, the combination of a dust-separating compartment open at the bottom, a base upon which said compartment is supported, a removable vessel adapted to close the bottom of said compartment, a spring-controlled device on said base for holding said vessel yieldingly in contact with said compartment, and a lever adapted to withdraw said device from said vessel.
- 10 2. In a dust-separator, the combination of a dust-separating compartment open at the bottom, a base upon which said compartment is supported, a removable vessel adapted to close the bottom of said compartment, and a spring-controlled device on said base, provided with a roller for engaging said vessel, and adapted to hold said vessel yieldingly in contact with the compartment.
- 15 3. In an apparatus comprising a steam-generator and dust-separator, the combination of a steam-nozzle having a connection with the generator and discharging from the separator, a removable lid above the nozzle giving access to the nozzle end and to the interior of the separator, and a draft-pipe into which the nozzle discharges and which is supported above the nozzle by said lid.
- 20 4. In an apparatus comprising a steam-generator and dust-separator, the combination of a steam-nozzle having a connection with the generator and discharging from the separator, a removable lid above the nozzle giving access to the nozzle end and to the interior of the separator, a draft-pipe into which the nozzle discharges and which is supported above the nozzle by said lid, and a removable pipe adapted to rest upon the lid, surrounding the draft-pipe, and adapted to receive and conduct away the discharge therefrom.
- 25 5. In combination, a dust-separating and incinerating receptacle comprising a separating compartment having an inlet, an incinerating compartment having an outlet, and a generator compartment provided with a boiler and with a burner for heating the
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boiler, the generator compartment being arranged to discharge into the incinerating compartment; a flue exterior to said receptacle leading from the separating compartment into the incinerating compartment at a point above the boiler and burner; and steam-driven means for inducing dust laden air into said separating compartment and for conveying particles of dust from said separating compartment through said passage and thence into said incinerating compartment.

6. In combination, a dust-separating and incinerating receptacle comprising a separating compartment having an inlet, an incinerating compartment having an outlet, and a generator compartment provided with a boiler and with a burner for heating the boiler, the generator compartment being arranged to discharge into the incinerating compartment; a flue exterior to said receptacle leading from the separating compartment into the incinerating compartment at a point above the boiler and burner; and a steam-driven air-ejector arranged to discharge through said passage and thereby withdraw particles of dust from said separating compartment and discharge them into said incinerating compartment.

7. In combination, a dust-separating and incinerating receptacle comprising a separating compartment having an inlet, an incinerating compartment having an outlet, and a generator compartment provided with a boiler and with a burner for heating the boiler, the generator compartment being arranged to discharge into the incinerating compartment; a flue exterior to said receptacle leading from the separating compartment into the incinerating compartment at a point above the boiler and burner; and a steam-driven air-ejector comprising a steam-nozzle and a draft-pipe arranged to discharge through said passage and thereby withdraw particles of dust from said separating compartment and discharge them into said incinerating compartment.

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