H. B. CHALMERS.

SPRAYING APPARATUS.

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988,693.

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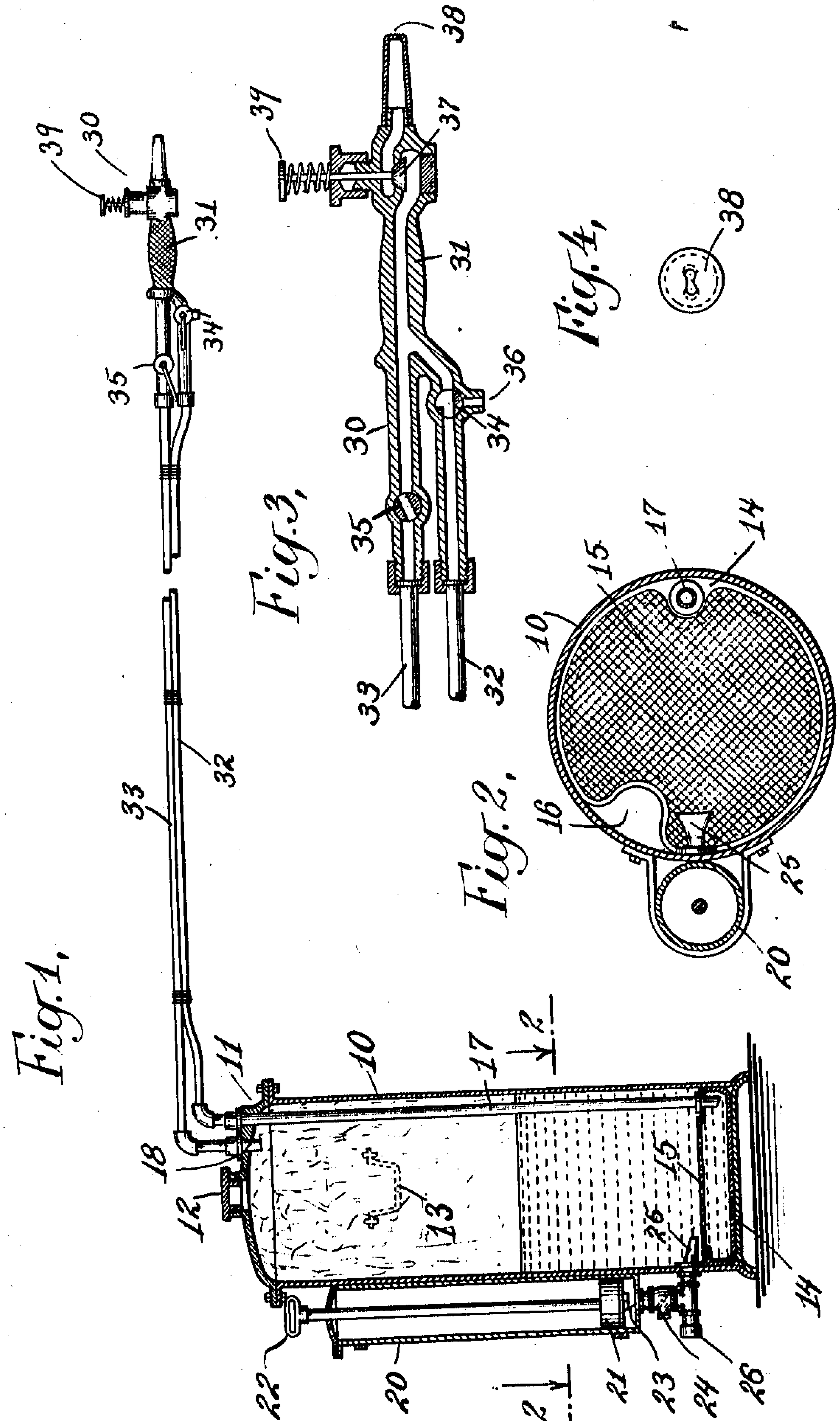

WITNESSES:

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SPRAYING APPARATUS.

988,693. Specification of Letters Patent. Patented Apr. 4, 1911.

Application filed January 9, 1911. Serial No. 601,650.

To all whom it may concern:

Be it known that I, HARRY B. CHALMERS, a citizen of the United States, and a resident of Dedham, in the county of Norfolk and State of Massachusetts, United States of America, have invented certain new and useful Improvements in Spraying Apparatus, of which the following is a specification.

My invention relates to improvements in spraying apparatus which is especially designed for use with liquid paint and varnish removers, although it may obviously be used with other materials. Its object is to provide a simple and efficient apparatus by means of which the desired material may be applied to a surface in the form of a spray, and which shall have advantages over such devices as have hitherto been available for this purpose.

I will describe my invention in the following specification and point out the novel features thereof in the appended claims.

Referring to the drawings, Figure 1 is a sectional side elevation of a spraying apparatus made according to my invention. Fig. 2 is a sectional plan view of this apparatus on a somewhat larger scale, the section shown in this figure being taken on the line 2—2 of Fig. 1. In Fig. 3 the spraying head of my improved apparatus is shown in section. Fig. 4 is an end view of the nozzle.

Like characters of reference designate corresponding parts in all of the figures.

10 designates a cylindrical casing which forms a closed receptacle. 11 is the cover of this casing which is preferably removably affixed to the casing by means of bolts. This cover is provided with an opening over which fits a screw-cap 12 through which opening the desired material may be introduced into the receptacle. At the sides of the casing handles 13 are provided by means of which it may be carried. On the bottom of the receptacle rests a shallow cup-like member 14, the top of which is covered by a screen 15. This, in effect, divides the lower part of the receptacle into a secondary chamber which is separated from the main portion of the receptacle by the screen. The side of the member 14 is depressed at 16 for a purpose which will be pointed out later. An outlet pipe 17 runs from the inside of this secondary chamber up through the cover 11. 18 is a short outlet pipe which also runs through the cover but terminates just inside of it.

On one side of the casing 10 is affixed the cylinder 20 of an air pump. 21 is its piston which is provided with a usual check-valve, and 22 is a handle by means of which it may be manipulated. The outlet of this pump is through a port 23 in the bottom thereof, which is carried by suitable pipe fittings through a check-valve 24 with an air nozzle 25 in the lower portion of the casing. This nozzle is placed directly above and at one side of the screen 15. Another air inlet is provided at 26 which, in the drawings, is closed by a threaded cap.

30 designates the spraying head. This is constructed to form a handle 31 through which is a passage which is in communication with the receptacle through flexible tubes 32 and 33 which are connected, respectively, with the outlet pipes 17 and 18. The passage from the tube 32 is controlled by a valve 34 in the spraying head, and 35 is another valve in this head by means of which the passage from tube 33 may be controlled or adjusted. The valve 34 is also arranged to close the passage from the tube 32 and to open communication between the passage through the handle 31 and an outlet 36. Another valve 37 is provided in the head to control the passage to the nozzle 38. This valve is provided with an operating button 39, and, if desired, a spring may be added to assist in holding it in closed position.

The operation of this device is as follows: The receptacle is partly filled with liquid paint or varnish remover. This apparatus is especially adaptable for that class of removers which are composed of volatile chemical material in which is dissolved a waxy substance. By turning the handle 22 at right-angles to the position in which it is shown in Fig. 1, the piston 21 may be raised and the pump used to force air into the receptacle 10 through the nozzle 25. This nozzle is designed as shown to throw the air into the receptacle in a sheet-like form directly above the screen 15. It will thus blow off from the screen any solid matter which may accumulate thereon and thereby tend to keep the screen clear. The air thus injected enters the receptacle through the liquid material therein and passes up through it, volatilizing some of its ingredi-

ents, and enters the upper portion of the receptacle in the form of a gas under pressure. This pressure will, of course, be transmitted to the liquid and will tend to force it out of the receptacle through the pipe 17 and the tube 32 to the spraying head. The outlet pipe 18 and tube 33 will lead the gases in the upper part of the receptacle to the spraying head.

It is to be understood that when I use the term "gas" in the claims herein I use it in contradistinction to the word "liquid" and the term is intended to be broad enough to include air if the liquid substance in the receptacle is of such a nature that it does not volatilize when the air passes from the nozzle 25 through it. In many places a supply of air under pressure is available, and for the purpose of utilizing such air supply I provide an inlet 26. A tube from any suitable source of air pressure may be attached to this inlet after the screw-cap has been removed.

The valve 37 is normally closed either by the pressure within the head or by means of the spring which is provided, or by both. This valve is easily opened by a pressure of the thumb to allow the material within the head to pass out through the nozzle 38. The opening in the nozzle is preferably of some such form as that shown which will give to the spray ejected therefrom a form which will spread considerably in one plane but which will not spread much in a transverse plane.

If desired to apply a spray of liquid unmixed with air or other gases the valve 34 is opened and the valve 35 closed. Then the operator, by manipulating the valve 37, may apply the spray in desired quantities to any surface. If it is desired to mix air or other gas with the liquid the valve 35 may be opened a desired amount. One of the advantages of this construction of the spraying head is that the valve 34 may be turned to shut off the supply of liquid and to open a passage from the interior of the spraying head through the outlet 36. Then, by opening the air or gas valve 35, the gaseous material may be blown through the head and out through the outlet 36, or, by depressing the valve 37, through the nozzle 38. This is of great importance and performs a most useful function, especially when the liquid material is at all dense, or contains waxy materials. This is because such liquids or waxy materials tend to clog up the interior parts of the spraying head, and any sediments which may accumulate therein may be blown out in this manner.

I have already shown that the air in entering the receptacle 10 is so directed as to clear the screen 15.

The head 11 is made removable so that the entire receptacle may be cleaned. In order to facilitate this the depression 16 in the member 14 is provided so that by partially rotating this member the depression may be brought directly in line with the nozzle after which it may be raised out of the receptacle for a more thorough cleansing.

What I claim is:—

1. A spraying apparatus comprising a receptacle arranged to be partly filled with a liquid, a screen across the lower portion of the receptacle forming a secondary chamber therein, an air nozzle directly above the screen, means for introducing air through said nozzle to clean the screen and to produce a pressure within the receptacle; and a spraying head having a nozzle and constructed with a passage to said nozzle, a valve controlling said passage, a connection from said secondary chamber to said passage, and a second connection from the upper portion of the receptacle to said passage.

2. A spraying apparatus comprising a receptacle arranged to be partly filled with a liquid, a cup-like member, a screen covering the top thereof, said member being in the bottom of the receptacle and forming a secondary chamber therein, an air nozzle directly above said screen, means for introducing air through said nozzle to clean the screen and to produce a pressure within the receptacle; and a spraying head having a nozzle and constructed with a passage to said nozzle, a valve controlling said passage, a connection from said secondary chamber to said passage, and a second connection from the upper portion of the receptacle to said passage.

3. A spraying apparatus comprising a receptacle arranged to be partly filled with a liquid, a removable cover for said receptacle, a cup-like member, a screen covering the top thereof, said member being in the bottom of the receptacle and forming a secondary chamber therein, an air nozzle directly above said screen projecting from the inner wall of the casing, one side of said member being constructed with a depression of sufficient size to clear said nozzle, means for introducing air through said nozzle to clean the screen and to produce a pressure within the receptacle; and a spraying head having a nozzle and constructed with a passage to said nozzle, a valve controlling said passage, a connection from said secondary chamber to said passage, and a second connection from the upper portion of the receptacle to said passage.

4. A spraying apparatus comprising a receptacle arranged to be partly filled with a liquid, a screen across the lower portion of the receptacle forming a secondary chamber therein, an air nozzle directly above the screen, means for introducing air from said nozzle to clean the screen and to produce a pressure within the receptacle; combined

with a spraying head comprising a nozzle and constructed with a passage to said nozzle, a self-closing valve controlling said passage, a gas connection from the upper portion of the receptacle to said head, a regulating valve in said gas connection, and a liquid connection from the lower portion of the receptacle to said head.

5. A spraying apparatus comprising a receptacle arranged to be partly filled with a liquid, a removable cover for said receptacle, a cup-like member, a screen covering the top thereof, said member being in the bottom of the receptacle and forming a secondary chamber therein, an air nozzle directly above said screen projecting from the inner wall of the receptacle; one side of said member being constructed with a depression of sufficient size to clear said nozzle, means for introducing air through said nozzle to clean the screen and to produce a pressure within the receptacle; combined with a spraying head comprising a nozzle and a passage to the nozzle, a self-closing valve controlling said passage, a gas connection from the upper portion of the receptacle to said head, a regulating valve in said gas connection, a liquid connection from said secondary chamber to the head, a valve in said head arranged to control the passage from the liquid connection through the head or to open an outlet passage from the head.

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

HARRY B. CHALMERS.

Witnesses:
ERNEST W. MARSHALL,
ELLA TUCH.