March 31, 1925. 1,531,354

G. L. STACKPOLE

LIQUID SPRAYING APPARATUS

Filed Aug. 1, 1922

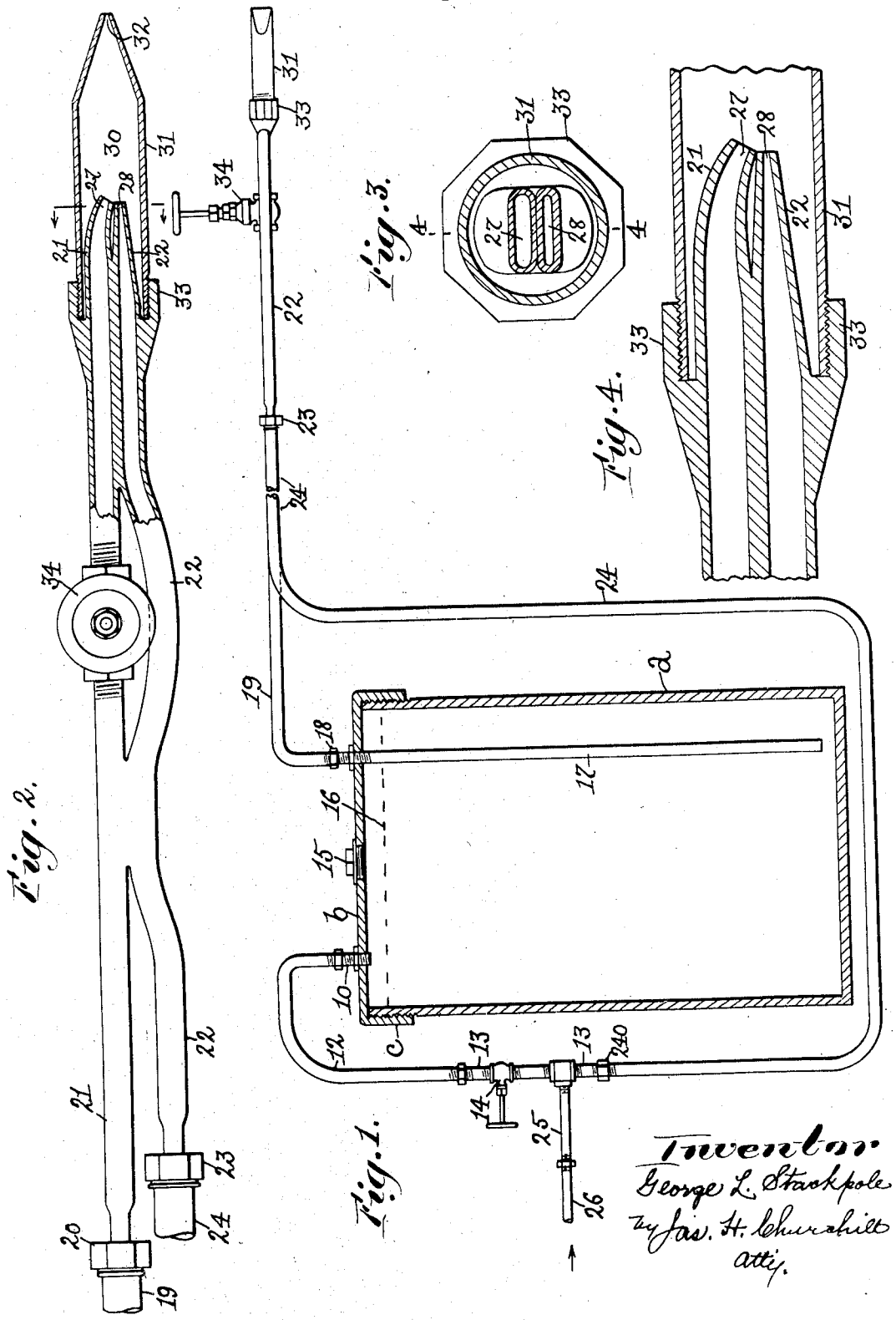


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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LIQUID-SPRAYING APPARATUS.

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To all whom it may concern:

Be it known that I, GEORGE L. STACKPOLE, a citizen of the United States, residing in Bangor, in the county of Penobscot and State of Maine, have invented an Improvement in Liquid-Spraying Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to an apparatus for spraying liquids and particularly paint and like liquids. The invention has for its object to provide a simple, efficient and inexpensive apparatus for the purpose specified.

The apparatus comprises a paint tank or container, and a paint gun of novel construction, as will be described, which is connected with the paint container for the passage of liquid paint and air.

The particular features of the invention will be pointed out in the claims at the end of this specification.

Fig. 1 is an elevation and section of an apparatus embodying this invention.

Fig. 2, a partial plan and section of the gun shown in Fig. 1.

Fig. 3, a section on the line 3—3, Fig. 2, and

Fig. 4, a longitudinal section on an enlarged scale of a portion of the gun, taken on the line 4—4, Fig. 3.

Referring to the drawings, *a* represents a tank or container for the paint or other liquid to be sprayed. The tank *a* is provided with a removable cover *b* which is preferably provided with a screw threaded flange *c* to engage screw threads on the body portion of the tank.

The cover *b* in accordance with this invention has secured to it a pipe section or nipple 10, to which is connected an air pipe or hose 12 leading to a pipe section 13 provided with a valve 14, for controlling the admission of air under pressure into the tank *a*. The cover *b* is also provided with a removable cap or plug 15 normally closing an inlet port through which the tank may be filled with paint or other liquid, indicated by the dotted line 16. The cover *b* is further provided with a pipe 17 which is of sufficient length to extend into the tank *a* to near the bottom thereof, preferably to about half an inch from said bottom. The pipe 17 constitutes a paint outlet pipe for the tank and has detachably secured to its end above the cover *b* by a coupling 18, a hose or pipe 19 which may be of any suitable or desired length, which has its other end detachably connected, as by a coupling 20, to a metal pipe 21 forming the paint conducting member of a paint gun.

The pipe 21 has welded or otherwise secured to it a metal pipe 22 arranged lengthwise thereof and constituting the air conducting member of said paint gun. The air pipe 22 has one end connected as by a coupling 23, with one end of a flexible hose or pipe 24, whose other end is connected by the coupling 240 with the pipe section 13, which has a branch pipe 25 which is connected by a hose or pipe 26 with a suitable source of supply for air under pressure.

The paint and air pipes 21, 22 of the paint gun are provided with elongated and substantially narrow outlet mouths 27, 28 respectively, see Fig. 3, which may be obtained by contracting or flattening the cylindrical pipes at their outlet ends.

The air outlet mouth 28 is preferably made narrower than the paint outlet mouth 27, and the outlet end of the paint pipe 21 is curved toward the longitudinal axis of the air pipe 22, as represented in Figs. 2 and 4, so that the outlet mouth 27 of the paint pipe will discharge the paint transversely with relation to the path of the air stream issuing from the mouth 28 of the air pipe, with the result that the paint stream is broken up by the air stream, and a mixture of the paint and air is effected within a relatively large atomizing chamber 30, preferably formed by a nozzle 31 which encircles the outlet ends of the paint and air pipes 21, 22 and is provided with an elongated narrow discharge mouth 32 whose longer dimension extends in the same direction as that of the outlet mouths of the air and paint pipes. The nozzle 31 may be a piece of pipe which is flattened at its outlet end as represented in Figs. 1 and 2, and whose rear end is externally threaded to engage the internal threads of a collar 33 which is soldered, welded or otherwise secured to the paint and air pipes 21, 22, as represented in Fig. 2.

The paint issuing from the paint pipe 21 is broken up or atomized within the nozzle 31 and is projected out therefrom through the narrow outlet mouth 32 of the nozzle in the form of a still finer spray under the influence of the air pressure, which is of suffi-

cient force to project the spray upon objects located as far as six feet from the nozzle thereby enabling objects in inaccessible places to be coated with paint.

The paint pipe of the gun may and preferably will be provided with a valve 34 by which the flow of paint to the nozzle 31 may be controlled by the operator handling the gun.

From the above description, it will be seen that the air pipe section 10 and the paint outlet pipe 17 are carried by the removable cover *b*, which enables these pipes to be removed from the tank or container *a* with the cover, which leaves the tank free or unobstructed for the purpose of cleaning the same.

It will also be noticed that the air pipe 10 terminates near the underside of the cover and above the level of the paint therein, which enables the air under pressure to act on the body of paint or other liquid in the tank, to force it out through the pipe 17, without agitating or stirring up the paint, and further prevents the paint flowing back into the air pipe. Furthermore, by disconnecting the hose 19 from the outlet pipe 17 and connecting the air pipe 12 with the pipe 17, air under pressure may be forced through the paint to agitate the same, which may be desirable in cases where the apparatus has not been used for a number of days and the paint has been allowed to stand in the tank.

It will also be observed that the elongated mouths of the paint and air pipes 27, 28 of the gun, cause the paint and air to issue therefrom in substantially thin wide streams, and by shaping the end of the paint pipe so that its outlet mouth will cause the paint stream to flow across the air stream, an efficient breaking up of the paint stream is effected and an initial spraying of the paint within the nozzle is accomplished, which initial spraying or atomizing of the paint is supplemented by the atomizing action of the elongated narrow mouth of the nozzle 31, from which the paint issues in a substantially flat wide stream of finely divided paint, which is projected by the air pressure away from the gun in the form of a fine spray.

Claims:

1. In an apparatus of the character described, a paint gun comprising an air conducting pipe having an elongated substantially narrow outlet mouth, a paint conducting pipe arranged lengthwise of said air conducting pipe and provided with an elongated substantially narrow mouth arranged with relation to the mouth of the air pipe to discharge liquid paint transversely with relation to the air stream issuing from the mouth of said air conducting pipe, and a nozzle having its rear end encircling the paint and air pipes to form an atomizing chamber and provided with an elongated substantially narrow mouth to cause the paint atomized within the nozzle to be projected therefrom in a finer spray.

2. In an apparatus of the character described, a paint gun comprising an air conducting pipe having an elongated substantially narrow outlet mouth, a paint conducting pipe arranged lengthwise of said air conducting pipe and provided with an elongated substantially narrow mouth arranged at an angle to the mouth of the said air pipe and with relation thereto so as to discharge liquid paint transversely with relation to the air stream issuing from the mouth of said air conducting pipe, a collar surrounding said pipes and attached thereto, and a nozzle detachably secured to said collar and encircling said pipes to form a relatively large atomizing chamber and provided with an elongated substantially narrow outlet mouth to cause the paint atomized within said nozzle to be discharged therefrom in a finer spray.

In testimony whereof, I have signed my name to this specification.

GEORGE L. STACKPOLE.