No. 613,905. Patented Nov. 8, 1898.

L. KNETZGER.

SPRAYER.

(Application filed June 13, 1898.)

(No Model.)

Fig. I.

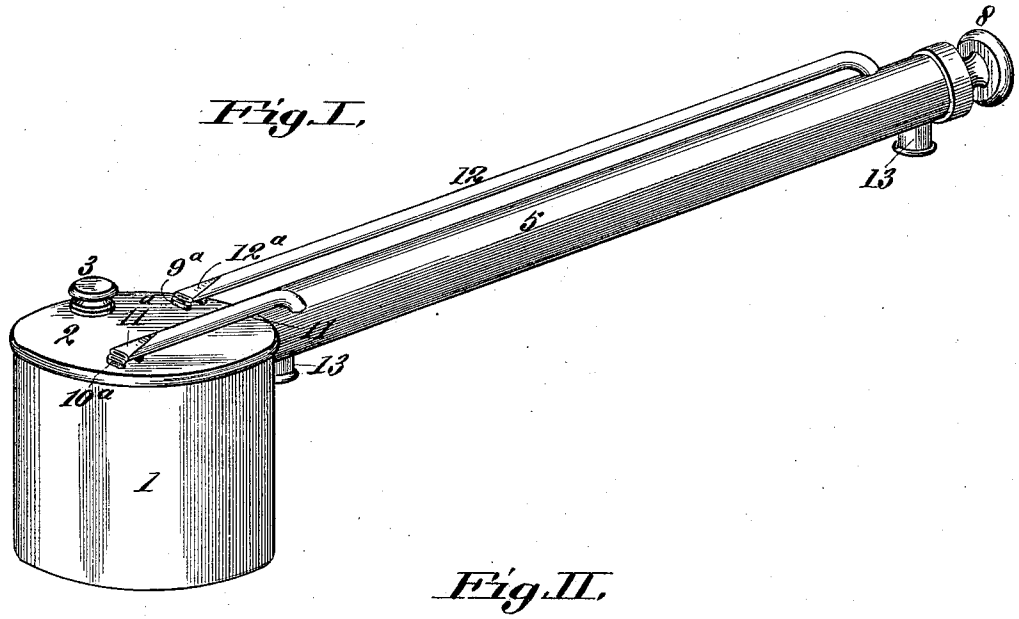
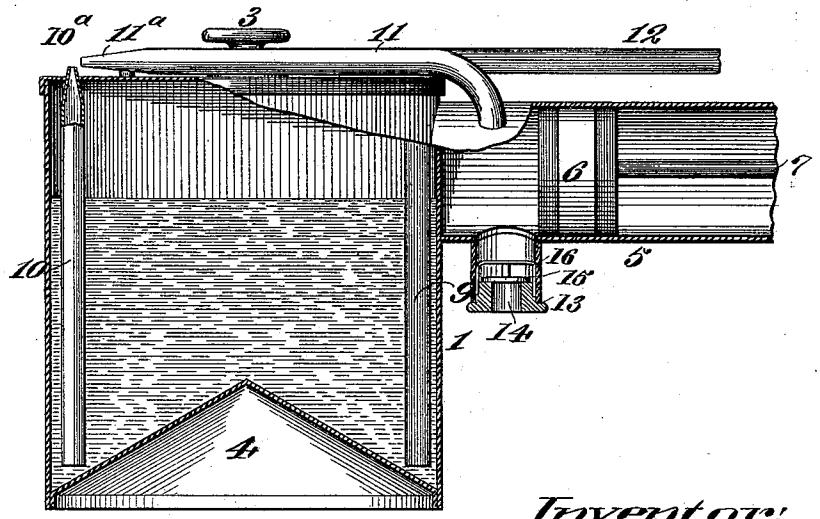


Fig. II.



Attest;
E. S. Knight
A. V. Alexander

Inventor;
Leonard Knetzger.
By Knight Bros.
attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEONARD KNETZGER, OF DU QUOIN, ILLINOIS.

SPRAYER.

SPECIFICATION forming part of Letters Patent No. 613,905, dated November 8, 1898.

Application filed June 13, 1898. Serial No. 683,309. (No model.)

To all whom it may concern:

Be it known that I, LEONARD KNETZGER, a citizen of the United States, residing at Du Quoin, in the county of Perry and State of Illinois, have invented certain new and useful Improvements in Sprayers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a device for spraying liquids or powder from a closed receptacle, the invention comprising a construction that provides for a continuous spraying operation in the use of the device; and the invention consists in novel features of construction that will be hereinafter fully described, and pointed out in the claims.

Figure I is a perspective view illustrating a sprayer constructed in accordance with my invention. Fig. II is an enlarged sectional view taken through the receptacle and the inner portion of the piston-cylinder, portions of the device being shown in elevation.

1 designates a receptacle having a top 2, provided with an inlet-opening closed by a cap 3. The bottom 4 of the receptacle is of pyramidal shape (see Fig. II) for the purpose of confining the substance to be sprayed within a small space when the receptacle is nearly empty, the substance lying in the channel at the base of the sloping bottom and confined between the bottom and the side wall of the receptacle.

5 designates a piston-cylinder attached to the receptacle 1 near the upper end thereof. This cylinder is also designed to constitute the handle of the sprayer. In the cylinder 5 is a piston 6, carried by a piston-rod 7. The piston passes through and operates in the outer end of the cylinder and is provided with a handle 8.

9 is a pipe suspended from the top 2 of the receptacle at the side of the receptacle at which the piston-cylinder is located, and 10 is a second pipe similar to the pipe 9, the pipe 10 being located at the opposite side of the receptacle from the pipe 9. The pipes 9 and 10 extend down into the receptacle 1, with their lower ends in the channel at the base of the pyramidal bottom 4. The pipes have their upper ends 9^a 10^a contracted and extend exterior of the top of the receptacle.

11 designates a tube attached to the piston-cylinder 5 at its inner end and having communication with the interior of said cylinder. The tube 11 extends across the top of the receptacle and has a contracted end 11^a, arranged in proximity to the upper end of the tube 10 in such position that a jet of air forced through the tube from the piston-cylinder may be directed across the contracted end of the pipe 10 and draw the substance from the receptacle and spray it on the inward movement of the piston 6.

12 is a tube attached to the outer end of the piston-cylinder 5 and having communication with the interior of said cylinder. The tube 12 has a contracted end 12^a, arranged in proximity to the contracted end 9^a of the pipe 9 in such position as to cause a jet of air from the tube to be directed across the upper end of the pipe 9 to draw the substance from the receptacle and spray it on the outward movement of the piston 6 in the cylinder 5.

The operation of my improved sprayer is as follows: In the forward movement of the piston 6 air is forced through the tube 11 across the open upper end 10^a of the pipe 10, in which action the substance within the receptacle 1 is drawn from the bottom of said receptacle and sprayed from the open upper end of the pipe 10. When the piston is drawn back, air is forced out of the cylinder 5 through the tube 12 and across the open upper end 9^a of the pipe 9, in which action the substance in the receptacle is drawn from the bottom thereof and sprayed from the open end of the pipe 9. In this way the action of the sprayer is continuous and the operation of spraying is kept up constantly in both the forward and backward movements of the piston 6 within the cylinder 5. The device therefore enables the accomplishment of double the amount of spraying that can be accomplished in a single-acting sprayer within the same time. By the use of the two pipes 9 and 10 in the receptacle, one in the front part and one in the rear part of the receptacle, it is possible to use the sprayer to direct the spray-

jet in either an upward or downward direction, and until the receptacle is completely emptied the pyramidal bottom serves to confine the substance in the receptacle within narrow limits at the location of either of the pipes 9 or 10, so that the substance may all be reached by the pipes irrespective of whether the sprayer be directed in an upward or downward direction.

It will be readily understood that this device is suitable for use for spraying substances of either liquid or powder form.

The piston-cylinder 5 has at its lower side valve-boxes 13, that contain passage-ways 14, over which check-valves 15 are adapted to seat to control the passage-way from the exterior air into the piston-cylinder. The valves 15 are arranged to play within a cage 16. On the inward movement of the piston 6 the valve in the boxing 13 at the outer end of the piston-cylinder is unseated by the suction created within the piston-cylinder and air enters such cylinder past the valve ready for the return movement of the piston. It will be understood that during the forward stroke of the piston the valve at the inner end of the piston-cylinder is held closed by the pressure of air exerted against it from the interior of the cylinder. On the reverse movement of the piston the valves operate in contrary action to that just described—that is, the valve at the outer end of the cylinder closes and the valve at the inner end of the cylinder is thrown open for the admission of air into the cylinder.

I claim as my invention—

1. In a sprayer the combination with a receptacle, of pipes located in said receptacle at opposite sides thereof and extending to the exterior of said receptacle, a cylinder connected to said receptacle, a tube communicating with said cylinder at its inner end and leading to the upper end of one of said pipes and a second tube communicating with the outer end of said cylinder and leading to the other of said pipes, substantially as and for the purpose set forth.

2. In a sprayer, the combination of a receptacle, a pyramidal-shaped bottom extending into said receptacle, pipes located in said receptacle at opposite sides thereof, a cylinder connected to said receptacle, a piston within said cylinder, and a pair of tubes connected to said cylinder, one of said tubes communicating with the inner end of said cylinder and extending into proximity with the upper end of one of said pipes and the other of said tubes communicating with the outer end of said cylinder and extending into proximity with the upper end of the other of said pipes, substantially as described.

LEONARD KNETZGER.

In presence of—
JOHN C. SYLVESTER,
S. E. EVANS.