No. 617,847. Patented Jan. 17, 1899.

E. J. YOUNG.

SPRAYER.

(Application filed Mar. 21, 1898.)

(No Model.)

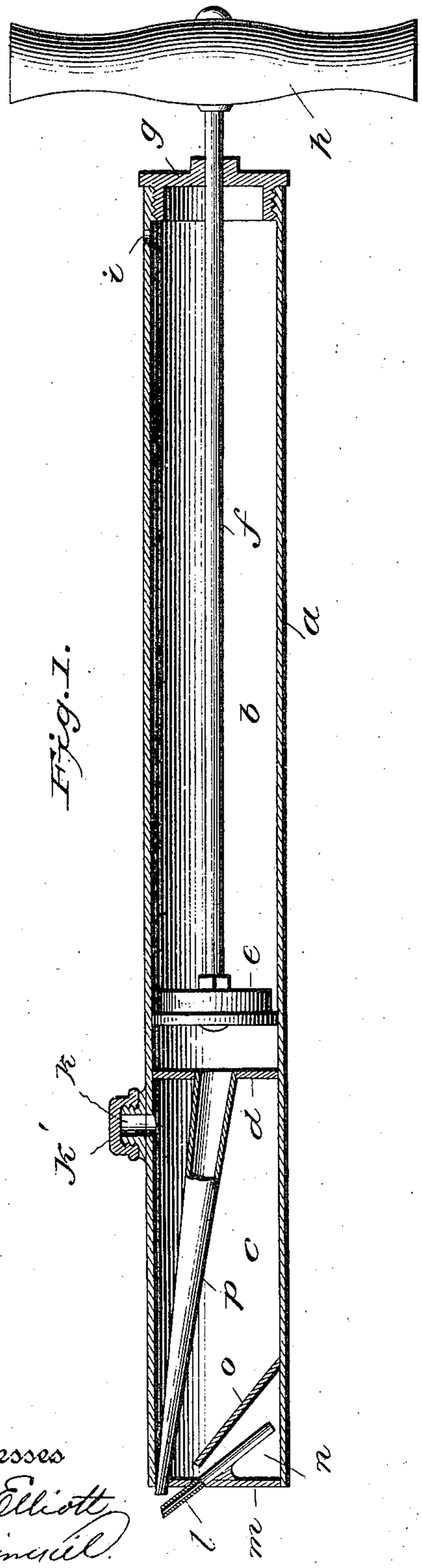

Fig. 1.

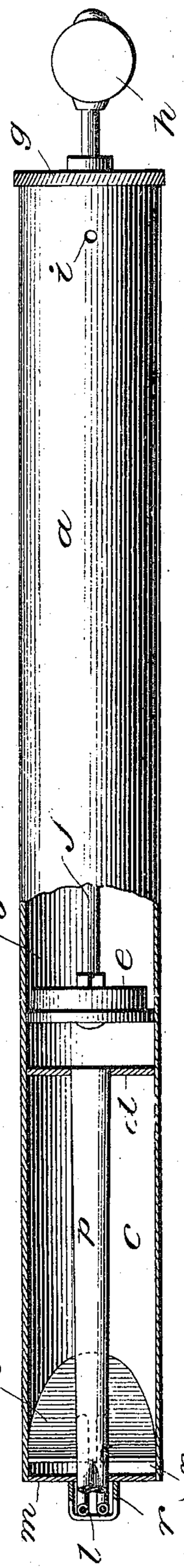

Fig. 2.

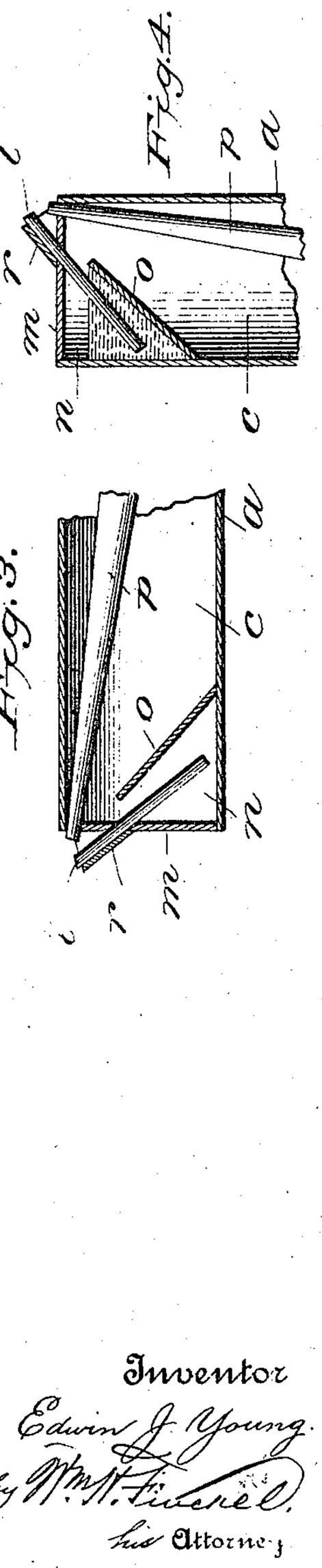

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWIN J. YOUNG, OF WADSWORTH, OHIO.

SPRAYER.

SPECIFICATION forming part of Letters Patent No. 617,847, dated January 17, 1899.

Application filed March 21, 1898. Serial No. 674,655. (No model.)

To all whom it may concern:

Be it known that I, EDWIN J. YOUNG, a citizen of the United States, residing at Wadsworth, in the county of Medina and State of Ohio, have invented a certain new and useful Improvement in Sprayers, of which the following is a full, clear, and exact description.

The object of this invention is to provide a device for spraying trees, plants, and other vegetable growths and other objects which while eminently efficient may at the same time be produced and sold cheaply and used economically.

In carrying out my invention I employ a cylinder which is divided into two chambers, one of which is an air-chamber and contains a piston, and the other of which is a liquid-receptacle for receiving the fluid to be sprayed. The liquid-receptacle is provided with one or more discharge-nozzles, and a tube leads from the air-chamber to the discharge-nozzle and is adapted to convey air under pressure thereto to eject and break up the liquid in the form of spray, after the manner of an atomizer. The liquid-chamber contains a pocket at one end, from which the discharge-nozzle leads and which always contains a portion of the liquid to be sprayed in whatever operative position the device may be held.

Having thus stated the nature and principle of my invention, I will proceed now to describe the same in detail, and then point out distinctly what I claim as my invention.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a view showing the two-part cylinder in longitudinal section with the piston in elevation and the tubes partly in section and partly in elevation. Fig. 2 is a plan view with a portion of the cylinder broken away. Fig. 3 is a longitudinal sectional elevation of the discharge end of the modified construction of discharge-tubes shown in Fig. 2. Fig. 4 is a longitudinal sectional elevation of the discharge end, showing the pocketing of the spraying fluid in the end of the liquid-chamber when the device is used in substantially vertical position.

The cylinder *a* may be of metal or other suitable material, of tubular form, and divided longitudinally into an air-chamber *b* and a liquid-chamber *c* by means of the transverse partition or wall *d*.

e is a piston of any approved construction having a stem *f*, which is supported in any suitable cap *g* and is provided with any suitable handle or grip *h*, the chamber *b* and the piston and its appurtenances constituting an air-pump or air-forcing device.

i is a vent for the chamber *b*.

The chamber *c* is provided with an inlet-opening *k*, which is supplied with a suitable closing device, as a screw-cap *k'*, by means of which the fluid to be sprayed is introduced into the chamber and retained therein.

l is a discharge-nozzle preferably set obliquely in the head *m* of the cylinder. This discharge-nozzle opens into a pocket *n* formed in the end of the liquid-chamber *c* by means of an oblique wall or partition *o*, which extends transversely across said chamber.

p is a tube secured in the wall or partition *d* and opening from the air-chamber *b* and extending across the liquid-chamber and opening outside of the head *m*, adjacent to the mouth of the discharge-nozzle *l*.

The tubes *l* and *p* may be single tubes, as shown in Fig. 1, or they may be double tubes, as shown in Figs. 2 and 3, and, as also shown in Figs. 2, 3, and 4, the adjacent ends of these tubes may be arranged over a drip-pocket *r*, secured to the head of the cylinder.

An appropriate liquid having been introduced into the chamber *c* and flowing into the pocket *n*, the air-pump is operated, and forcing a column of air through the tube *p* the liquid is discharged through the tube *l* upon the object to be sprayed. The double tubes (shown in Figs. 2 and 3) will admit of a larger quantity of liquid being supplied at one time than the single tube.

If it be desired to use the sprayer in an upright or substantially vertical position, the pocket *n* catches and holds sufficient of the liquid to admit of such use, the supply to such pocket being periodically renewed, as may be required.

I am aware that prior to my invention spraying devices have been devised consisting of a cylinder having an air chamber or pump and the liquid receptacle or chamber arranged in a straight line; but the coöperating tubes for atomizing the liquid have been

arranged outside of the cylinder, and thus exposed to injury in the handling and packing of the device, and one important feature of my invention consists in the concealing of the tubes within the cylinder, where they are not only removed and protected from liability of injury in such use, but are also less liable to be choked up by exposure to external conditions. This feature and the feature of the pocket in the end of the liquid-chamber, by means of which the device may be used in an upright position and also to drain the liquid-chamber of its entire contents, constitute main features of my invention.

I do not limit my invention to the mere details of construction, as these may be varied.

What I claim is—

1. A sprayer, comprising a straight-line cylinder, divided transversely into an air-chamber and a liquid-chamber, the latter having a discharge-nozzle, and an air-tube extending from the air-chamber through the liquid-chamber, and contained or concealed within said liquid-chamber, and having its outlet in the head of the liquid-chamber adjacent to the outlet of the discharge-nozzle, and an external drip-cup, substantially as described.

2. A sprayer, comprising an air-pump and a liquid-chamber divided by a transverse partition, the pump-chamber having an air-passage extending through and concealed within the liquid-chamber and having its outlet in the head of the liquid-chamber, a pocket at the head end of the liquid-chamber, and a discharge-nozzle leading from such pocket through the head of the liquid-chamber and having its outlet adjacent to the head of the air-passage, substantially as described.

3. A sprayer, comprising an air-pump and a liquid-receptacle, atomizing-nozzles, and a drip cup or pocket adjacent the discharge ends of the liquid-atomizing nozzle, substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of March, A. D. 1898.

EDWIN J. YOUNG.

Witnesses:
BIRT FREEBORN,
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