

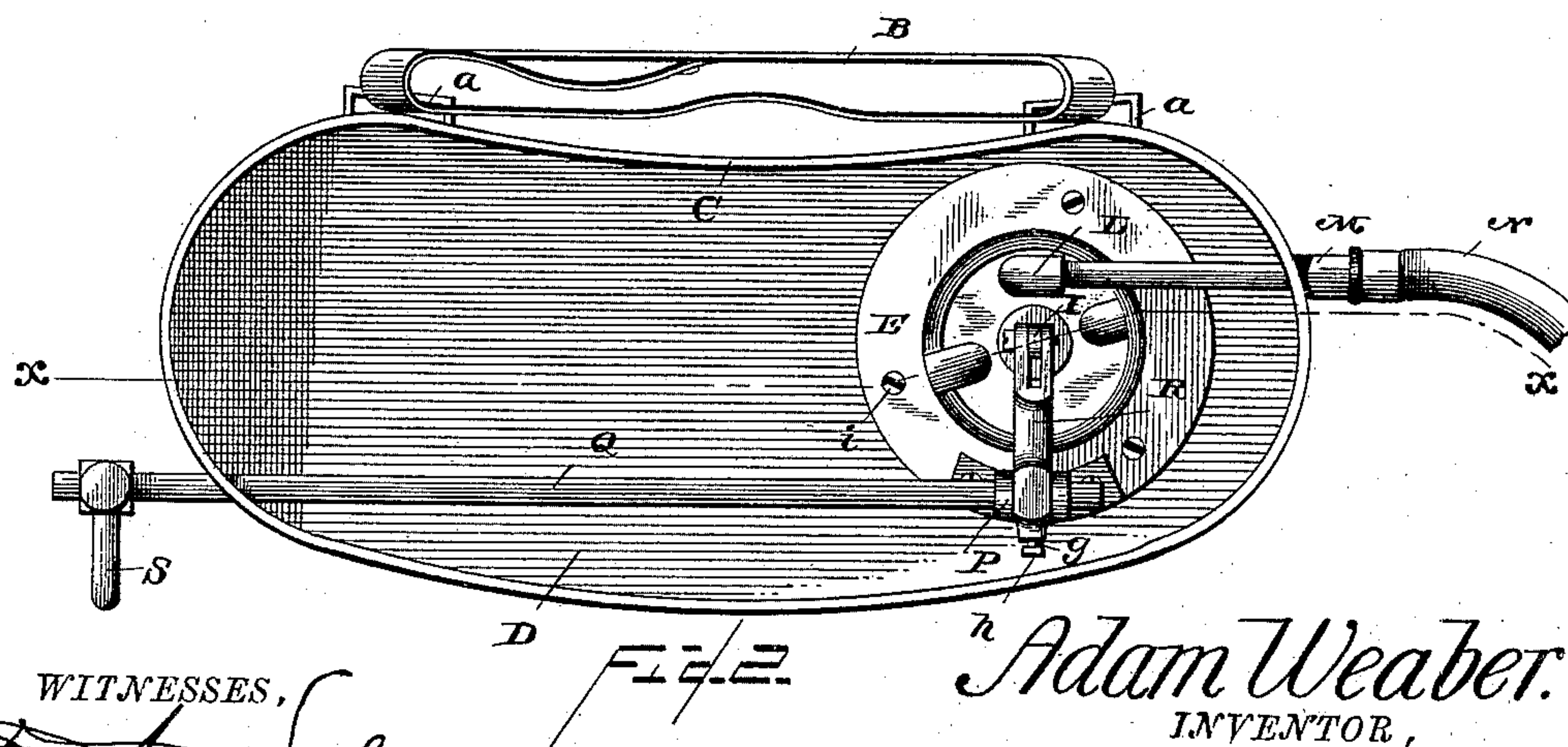
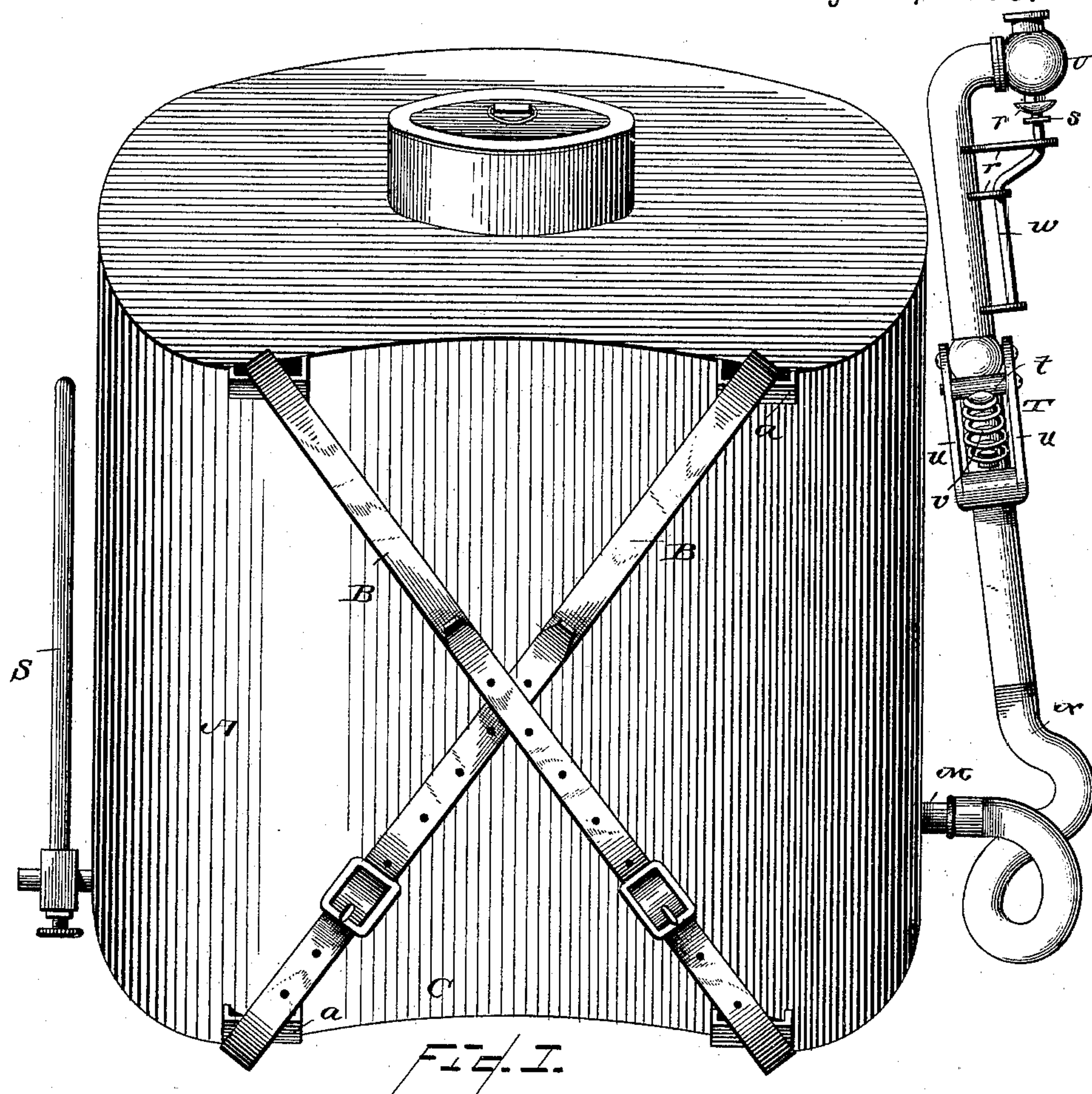
(No Model.)

4 Sheets—Sheet 1.

A. WEABER.
SPRAYING PUMP.

No. 383,261.

Patented May 22, 1888.



WITNESSES,

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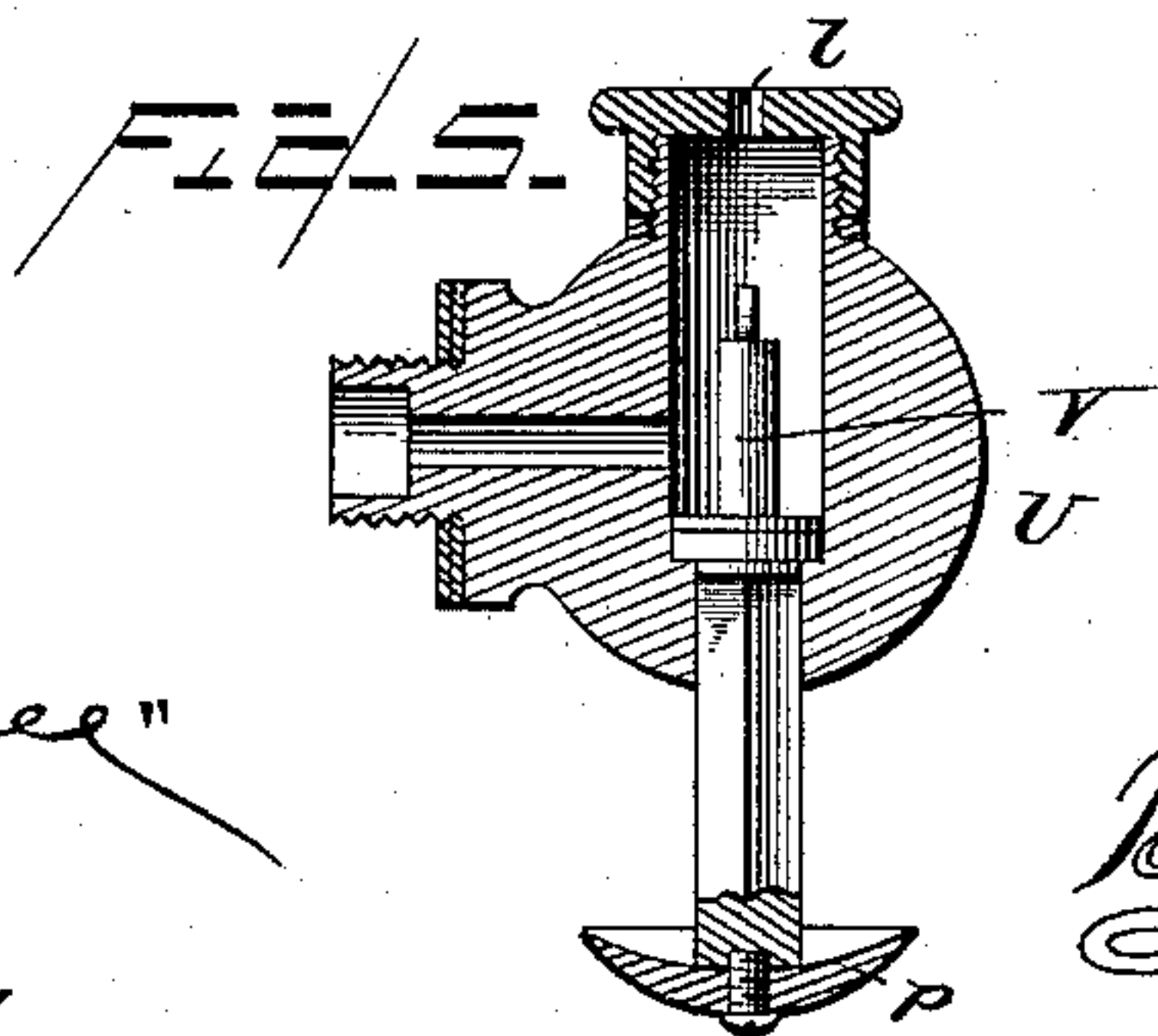
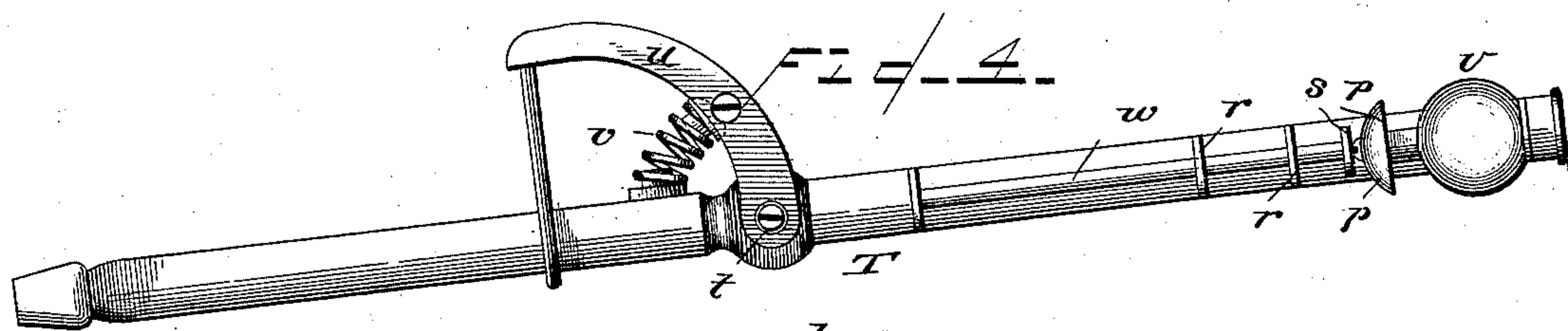
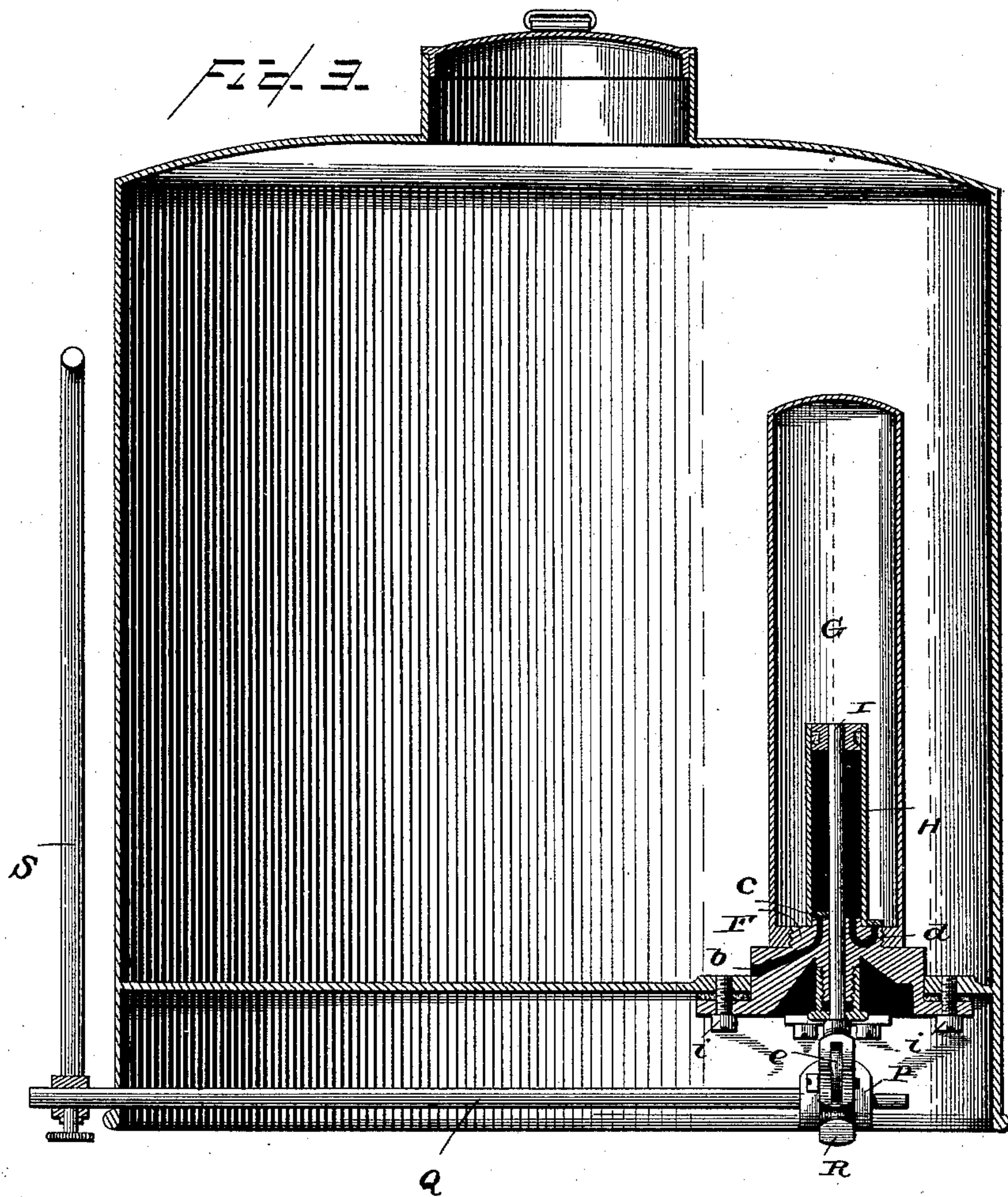
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A. WEABER.
SPRAYING PUMP.

No. 383,261.

Patented May 22, 1888.



WITNESSES.

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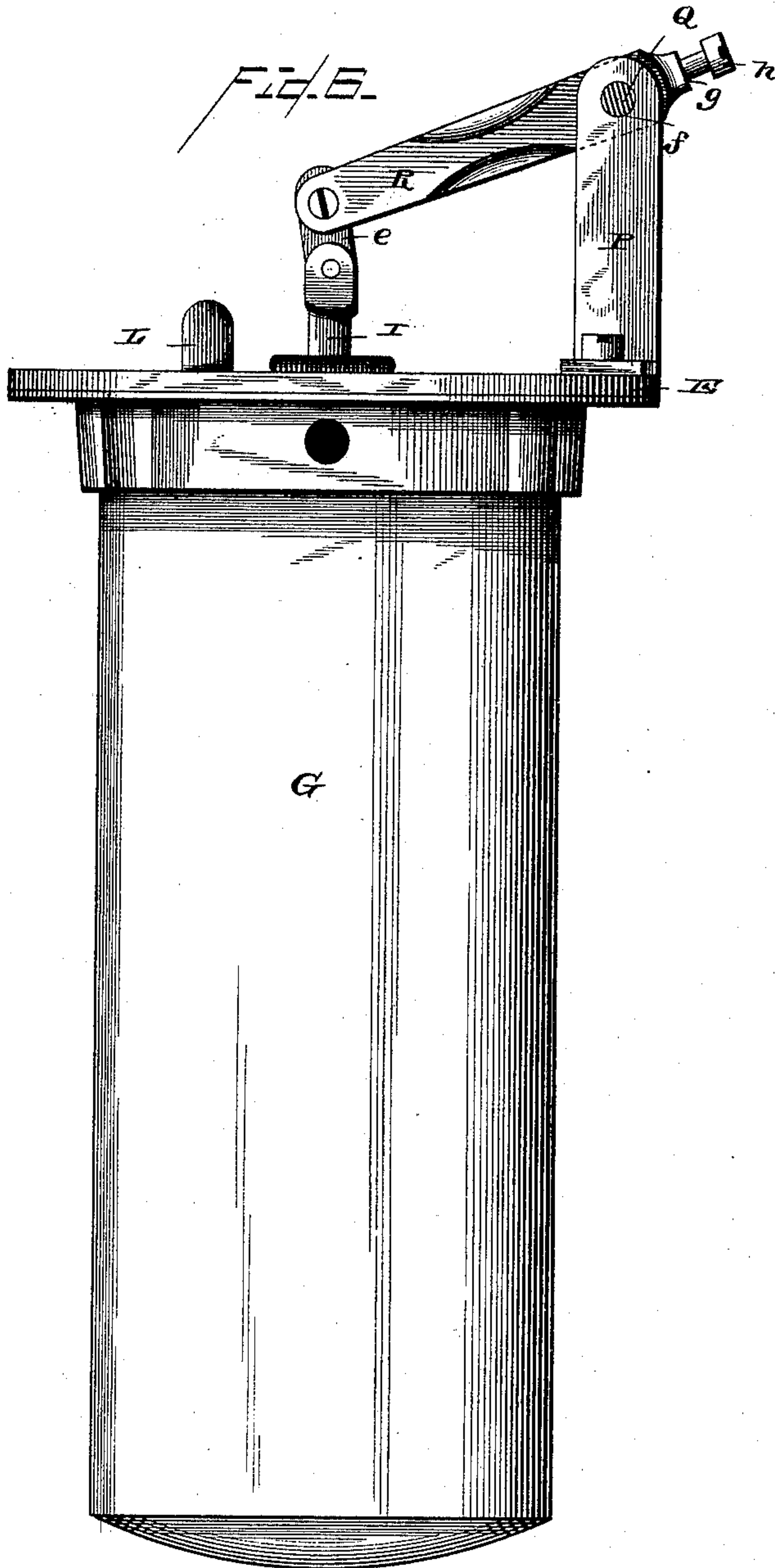
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A. WEABER.
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No. 383,261.

Patented May 22, 1888.



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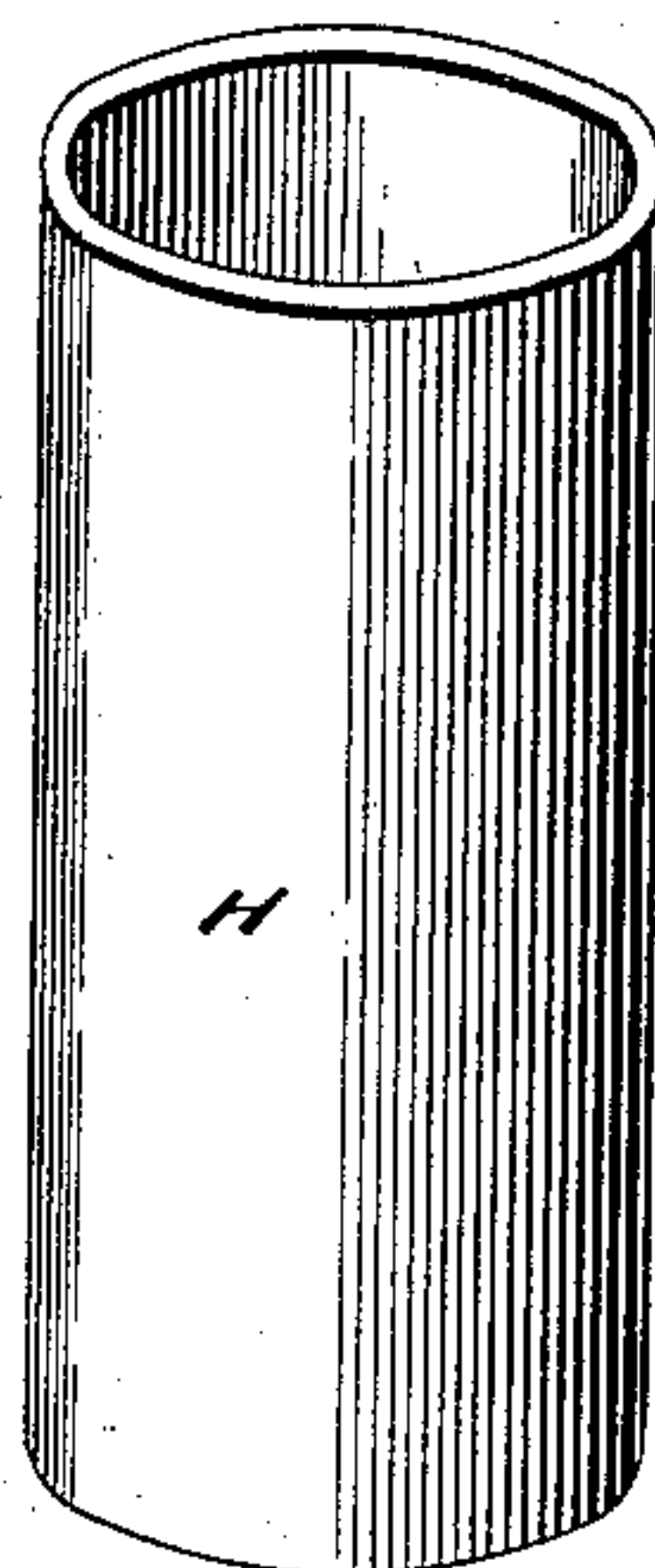
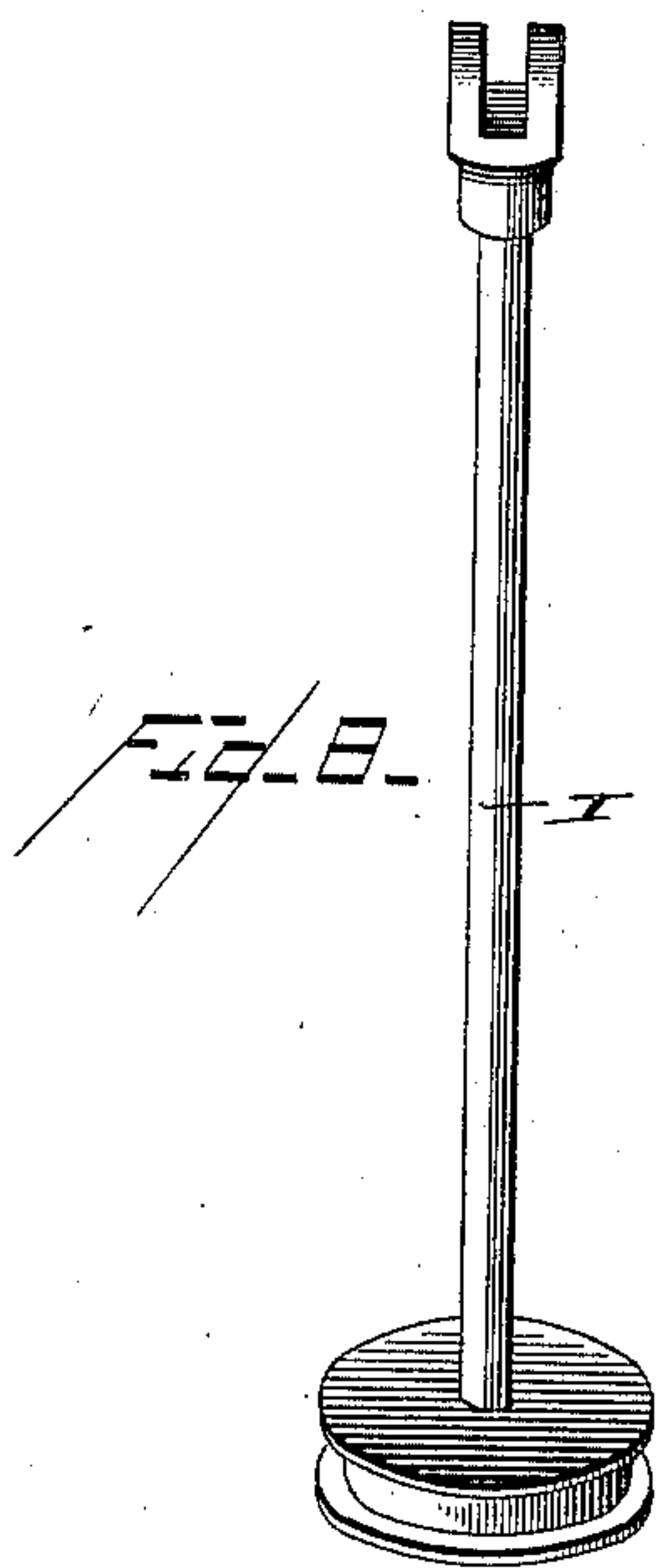
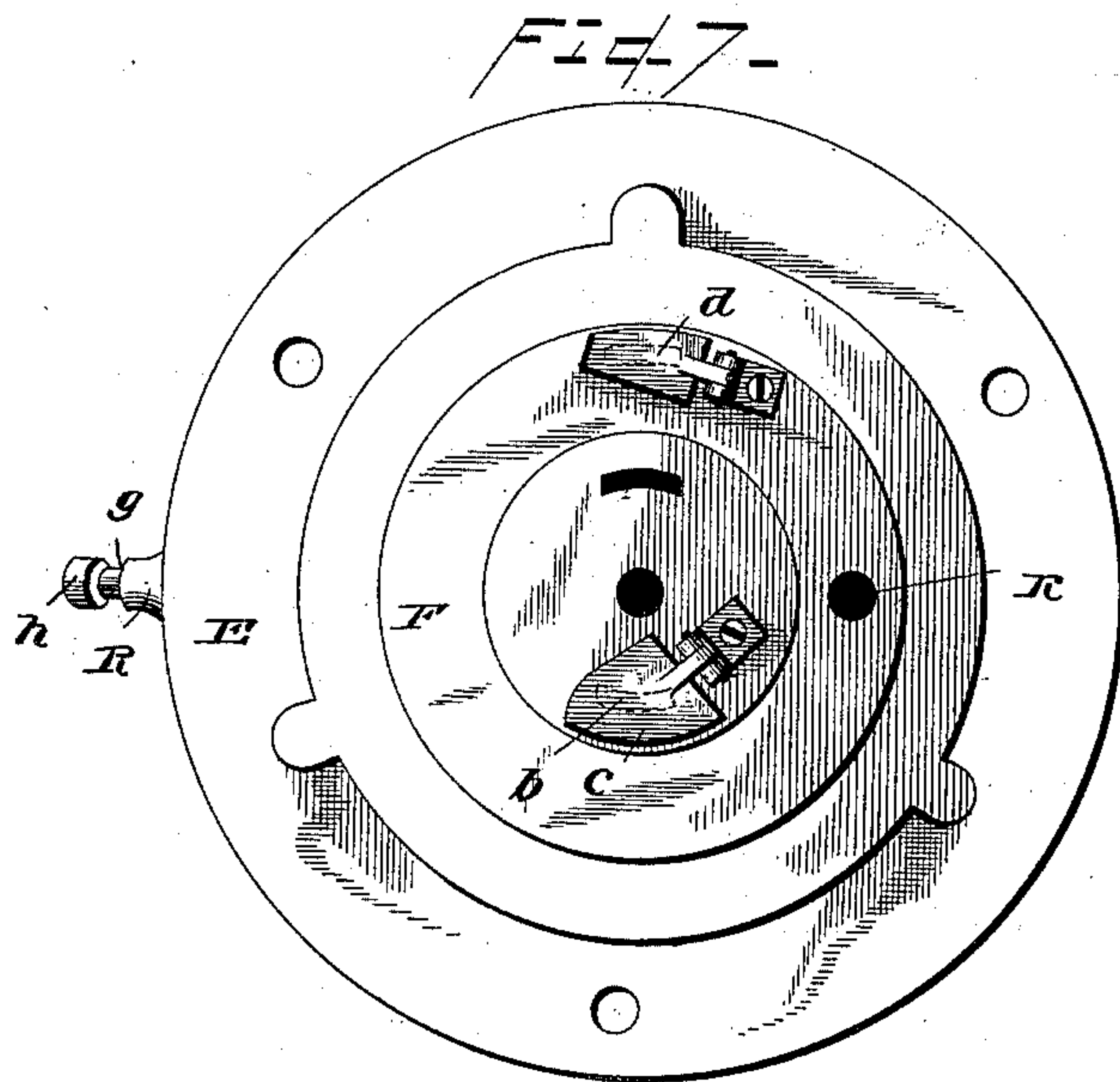
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4 Sheets—Sheet 4.

A. WEABER.
SPRAYING PUMP.

No. 383,261.

Patented May 22, 1888.



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UNITED STATES PATENT OFFICE.

ADAM WEABER, OF VINELAND, NEW JERSEY.

SPRAYING-PUMP.

SPECIFICATION forming part of Letters Patent No. 383,261, dated May 22, 1888.

Application filed February 16, 1888. Serial No. 264,243. (No model.)

To all whom it may concern:

Be it known that I, ADAM WEABER, a citizen of the United States, residing at Vineland, in the county of Cumberland and State of New Jersey, have invented certain new and useful Improvements in Spraying-Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to pumps for spraying-liquid preparations on plants, vines, and fruit-trees of every description; and it consists in the peculiar construction, novel arrangement, and adaptation of devices, as will be hereinafter more fully described and claimed.

The invention will be more fully understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved device. Fig. 2 is an inverted plan view. Fig. 3 is a vertical central sectional view taken longitudinally. Fig. 4 is a view of the spray-pipe and its attachments. Fig. 5 is a sectional view of the valve employed on the end of the spray-pipe. Fig. 6 is a side elevation of the water-chamber removed from the tank, showing a portion of the piston-rod and its link-connections. Fig. 7 is an inverted plan view of the removable casting which forms the base and cap of the pump-cylinder and water-chamber, showing its valves and valve-ports. Fig. 8 is a view of the plunger and its head, and Fig. 9 is a perspective view of the pump-cylinder.

Referring by letter to the said drawings, A indicates the main tank or reservoir, which may be formed of tin or sheet metal, and has a top opening carrying a cap for the introduction of water or liquid preparations as used in spraying plants. This tank has one side depressed, so as to conveniently bear against the back of a person carrying it, and this depressed side is provided at top and bottom with loops *a*, for the reception of breast or shoulder straps B, whereby the whole may be attached to the back and carried, similar to that of an ordinary knapsack. This tank is designed with a skirt-flange, C, which protects and conceals from view the pump-shaft plunger-rod and its

connections, and also serves as a bearing for the said shaft.

D indicates the floor of the tank, which is provided at a suitable point with a vertical aperture, which aperture is closed by the casting E. This casting E is provided on its inner upper side with a threaded elevation, F, which is designed to receive the internally-threaded lower open end of the air-chamber G. Within this air-chamber is arranged vertically the pump-cylinder H. This pump-cylinder is arranged centrally upon the casting E, and this casting has a central annular aperture for the passage of the plunger-rod I. This casting is stepped, as shown, and is provided with a lateral port, *b*, which communicates with the interior of the main tank, and its opposite end with the interior of the pump-cylinder, where a valve is provided, as shown at *c*, and in addition to this inlet-port an outlet-port, *d*, communicates the interior of the said pump-cylinder with the interior of the air-chamber G, from which chamber an outlet, K, is formed which is designed to connect or form a connection with the spray-pipe or nozzle, as more fully shown in Fig. 7 of the drawings.

It should be observed that the valve *c* is a lift-valve, and that the exhaust-port *d* within the air-chamber is provided with a lift-valve. It will thus be seen that when water has been drawn into the pump-cylinder by the action of the pump-rod and its head on the upstroke the valve *c* will be seated on the downstroke, and the water which has been confined in the pump-cylinder will be allowed to flow into the air-chamber, but will be prevented from a backflow by the valve on the said port *d*.

In the aperture or port K leading from the base of the air-chamber I screw a short pipe, having an elbow, L, from the opposite end of which leads horizontally and through an aperture in the skirt-flange a pipe, M, which is designed to receive one end of a flexible tubing, N, the opposite end of which is attached to the nozzle or spray-pipe.

P indicates a standard or lug which is firmly secured to the marginal under side of the casting E, and on the outer end of this standard, which is forked, I journal, by means of the op-

erating pump-rod I, a lever, R, which has its inner end connected with the lower end of the plunger-rod by means of a pivotal link, *e*. This lever R is provided at its outer end with a longitudinal internally-threaded aperture, which communicates at a right angle with the eye *f* for the passage of the rod Q, and in this threaded aperture *g*, I arrange a thumb-screw, *h*, which is designed to fix the said rod Q with relation to the lever R. It will thus be observed that by partially rotating or rocking the shaft Q the pump-plunger will be reciprocated within its cylinder.

S indicates a hand-lever which is provided with an eye and threaded aperture similar to that of the lever R, so that it may be fixed to the outer end of the rock-shaft Q and brought into a convenient position for the person carrying the tank upon his back to operate the pump.

I attach importance to the fact that the air-chamber and pump-cylinder, as well as the valves and other working parts of the pump, are attached to the casting E, as it will be seen by this construction, should, anything occur—such as the forming of sediment or any of the parts become inoperative—by simply removing the screws *i* the said casting may be removed and all of the parts of the pump withdrawn from the tank, so that access may be readily had to them for repair or cleansing.

T indicates the spray-pipe or nozzle, which has one end adapted to be connected with the outer end of the tubing N. This spray-pipe is of a peculiar construction, having its forward end turned laterally and provided with a nozzle, U, which is adapted to be removably attached to the said spray-pipe, as more fully shown in Fig. 5. This nozzle has an L-shaped way, and in one of its branches is arranged a valve, V. The discharge end of this nozzle is covered with a threaded cap having a central perforation, *l*, for the discharge of the liquid. By reference to Fig. 5 it will be seen that this valve V has a rearwardly-extending guide-stem, *n*, provided at its outer end with a stop, *p*, and its forward end within the nozzle is reduced, as shown at *m*, and is of a diameter to permit it to pass through the discharge-perforation *l* in the threaded cap.

It will be seen that when liquid has been introduced from the spray-pipe into the nozzle through the lateral branch of the L-shaped way it will first strike the valve V, and pushing it rearwardly, as shown in Fig. 5, will allow the water to discharge. As it frequently occurs that sediment—sand and the like—forms in the chamber of the nozzle and clogs the discharge-aperture *l*, I have adapted the valve therein to clean the same.

W indicates a push-rod, which is better shown in Fig. 1. This rod is supported in guide-arms *r*, extending laterally from the spray-pipe, and has its forward engaging end provided with a stop, *s*, which is adapted,

when the rod has been pushed forward, to abut against the cap *p* of the valve-stem and force its reduced forward end through the aperture *l* in the threaded cap, thereby clearing the same.

This spray-pipe is also provided with a valve or turn-plug at a suitable point, and preferably about midway of its length. This turn-plug or valve *t* has secured to its opposite ends, which extend from the sides of the spray-pipe, curved thumb-levers *u*, which are normally held raised by means of a small coil-spring, *v*, which has its lower bearing on a suitable seat on the upper side of the said spray-pipe and its upper bearing against the under side of a short cross-bar which connects the said thumb-levers. From the outer ends of the curved thumb-levers depends a yoke or loop which encircles the spray-pipe and serves as a stop to the upward movement of the said levers. This is a very convenient and positively-acting device for shutting off the supply while the operator is directing the spray from one plant to another.

The operation of my invention is as follows: After the main tank has been filled with the water or liquid to be used, it is secured upon the back by means of the shoulder-straps, as before described. The operator then places the nozzle in one hand, with his thumb on the levers *u*, and by means of his other hand grasps the handle or lever S. The device is now ready for sprinkling or spraying. By oscillating the said hand-lever the shaft Q will be rocked, which motion, through the medium of the lever R and the link *e*, reciprocates the pump rod or plunger within its cylinder, when the water or liquid will be first drawn into the pump-cylinder, thence discharged therefrom into the air-chamber, and from there to the spray-pipe through the flexible tubing, where it can be discharged at the will of the operator by simply manipulating the thumb-levers.

Having described this invention, what I claim is—

1. The combination, with a tank or reservoir adapted to be carried on the back, of an inverted pump-cylinder secured to the bottom of the said reservoir and connected with its interior by means of a valve-port, an air-chamber surrounding the pump-cylinder and connected therewith by means of a valve-port, a discharge-pipe connected with the air-chamber, a plunger-rod in the pump-cylinder and depending from the bottom of the main reservoir, a horizontal rock-shaft connected with the said plunger-rod, and a hand-lever connected with the opposite end of the said rock-shaft, substantially as specified.

2. The combination, with a reservoir adapted to be carried on the back and having a skirt-flange, as described, and also an aperture in its floor, of the casting E, removably secured in the said aperture and having valve-ports

and a discharge-pipe, a pump-cylinder, and an air-chamber, respectively secured to the said fastening, whereby the whole may be removed from the reservoir for repair or the like, substantially as specified.

3. The combination, with spray-pipe having its forward end curved laterally, of the nozzle secured thereto, and the valve arranged in the said nozzle and having a reduced for-

ward end adapted to clear the discharge-aperture, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ADAM WEABER.

Witnesses:

ALEX. W. PEARSON,
EVAN R. WHITE.