

No. 682,237.

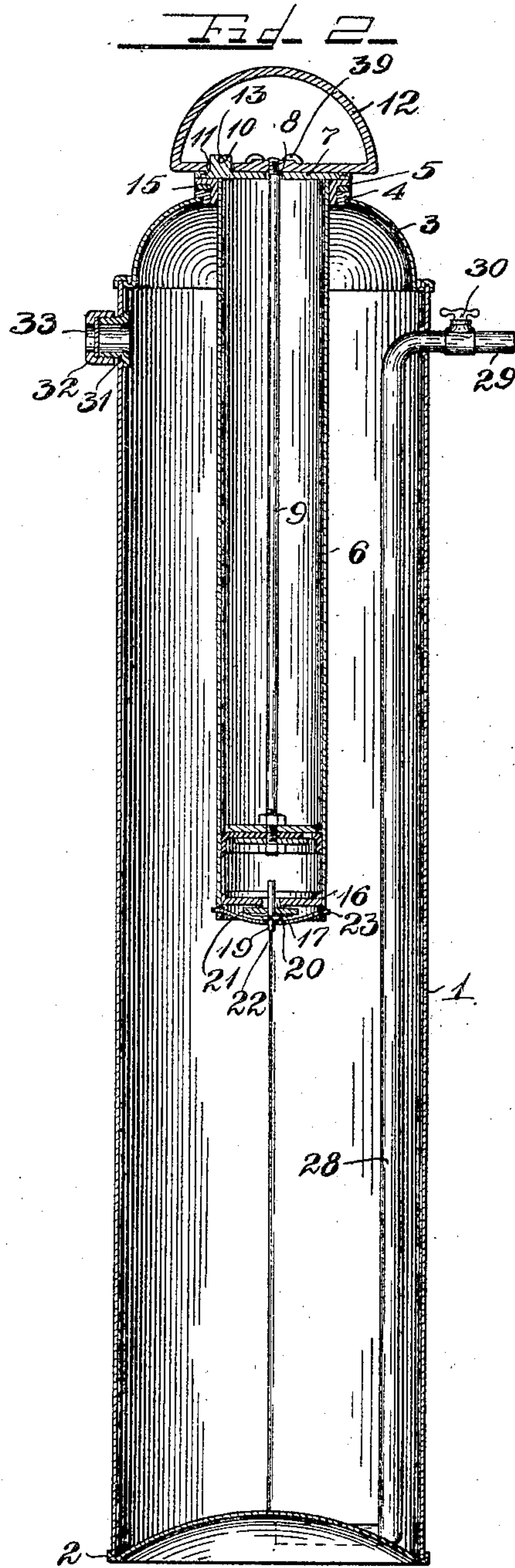
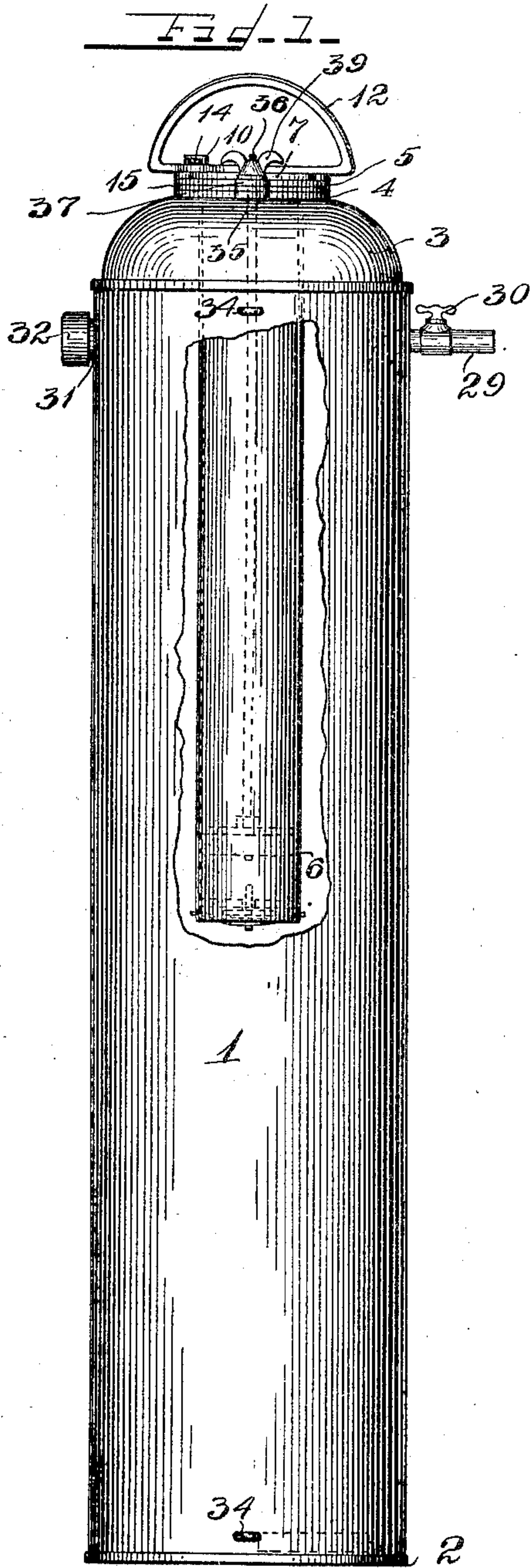
Patented Sept. 10, 1901.

E. C. BROWN.  
SPRAYING APPARATUS.

(Application filed Feb. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses—

C. J. Schmidt.  
Max W. Zabel.

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EDWARD C. BROWN  
BY Charles A. Brown & Co.  
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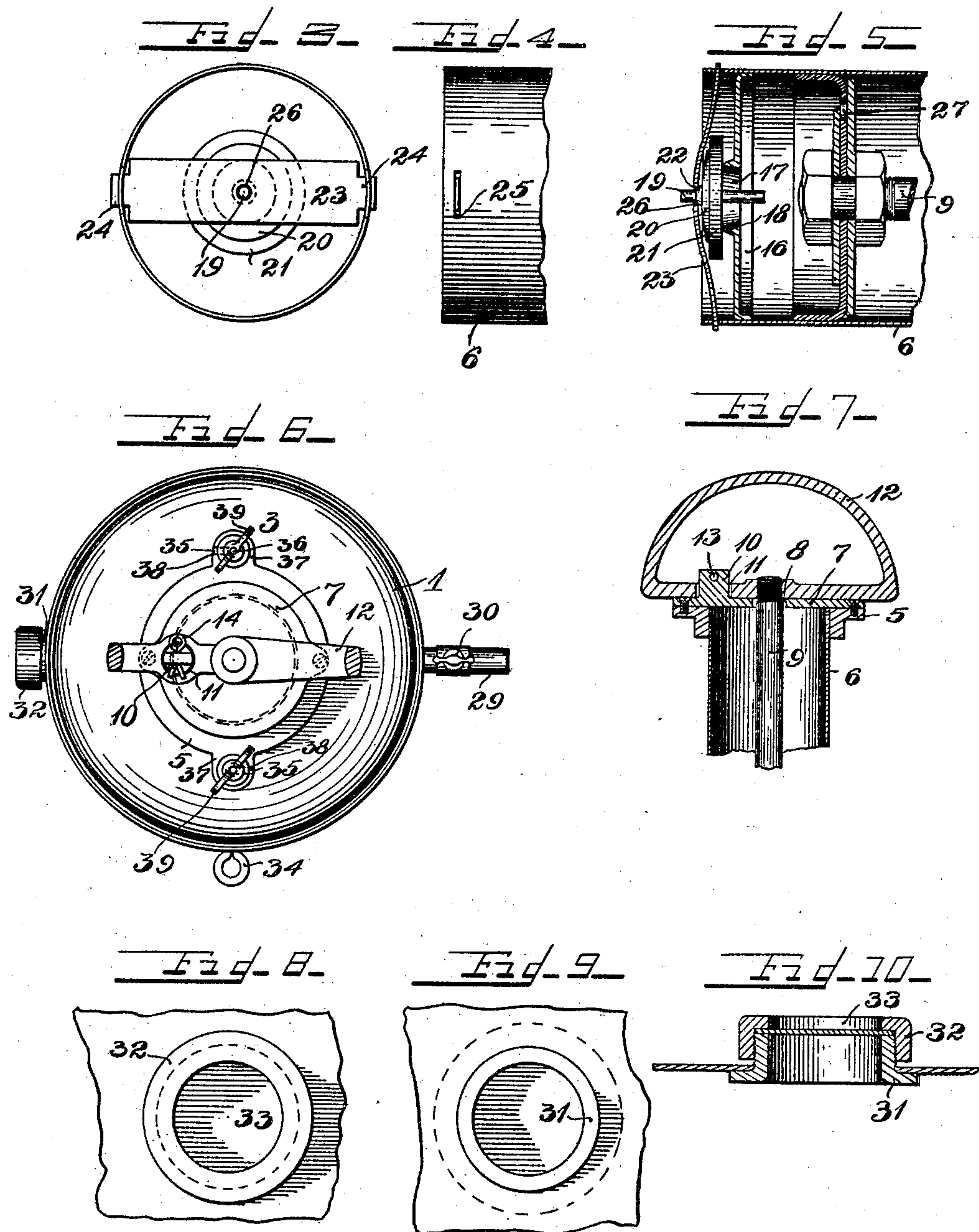
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# UNITED STATES PATENT OFFICE.

EDWARD C. BROWN, OF ROCHESTER, NEW YORK.

## SPRAYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 682,237, dated September 10, 1901.

Application filed February 26, 1900. Serial No. 6,516. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. BROWN, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Spraying Apparatus, (Case No. 5,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to spraying apparatus, and has for its object improved and simplified construction for a device of this kind.

By my invention I secure a compact, strong, efficient, and simple spraying mechanism by which the stored energy in the form of compressed air in the reservoir is utilized to perform the operation of spraying. I preferably reduce the diameter of the tank or reservoir portion and increase the length thereof. This shape greatly increases the strength of the end plates and also allows the tank to be easily and readily suspended from the shoulder of the operator by a strap or other means which is suitably fastened to said tank.

Another feature of my invention lies in the improved and simplified valve mechanism, the check-valve at the bottom of the air-pump cylinder being so constructed as to be certain of action and easily assembled and disassembled, as will hereinafter be more fully described. I preferably utilize the handle of the air-pump as a means for removing the pump from the tank. This I accomplish by means of a post or projection forming part of the pump-frame and extending through an opening in the pump-handle, a key or pin engaging a hole in said post or projection and serving to lock the handle to said pump-frame. When the pump is fastened to the tank, said handle may also serve as a handle to the apparatus. I may also provide a safety valve or device to guard against damage or accident due to the overpressure in the tank.

I shall describe my invention more particularly, with reference to the accompanying drawings, which illustrate the preferred embodiment of my invention, and in which—

Figure 1 is an elevation view of my improved apparatus, a portion thereof being cut away to disclose the pump-cylinder. Fig. 2 is a longitudinal vertical section thereof. Fig. 3

is a bottom view of the pump-cylinder, showing the valve. Fig. 4 shows the manner of engagement of the valve-spring with the wall of the pump-cylinder. Fig. 5 is a detail part-sectional view of the check-valve, plunger, and part of the cylinder. Fig. 6 is a top view of my apparatus, the handle being cut away to show the manner of locking said handle to the pump-frame. Fig. 7 is a sectional view of the handle and locking device. Fig. 8 is a plan view of my improved safety-valve. Fig. 9 is the same with the cap removed. Fig. 10 is a sectional view thereof.

Like characters of reference refer to like parts throughout the several figures.

A cylindrical pressure tank or reservoir 1 is securely fastened to a base-plate 2, preferably of convex shape, to afford strength, and to a headpiece or cap 3, preferably arched and encircling at its center and securely attached thereto, an annular collar or bushing 4, said bushing being provided with ears 35, supporting threaded posts 36. Another annular collar 5 surrounds the pump-cylinder 6, being soldered or otherwise securely fastened thereto. This collar is also provided with ears 37, said ears having slots 38 adapted to engage posts 36. Thumb-screws 39 in threaded engagement with said posts serve to clamp both collars together, the pump mechanism being thus firmly attached to the tank portion. A washer 15, of suitable material, is preferably interposed between collars 4 and 5 to hermetically seal the opening of the tank. A plate 7, fastened to collar 5, preferably by screws, has at its center an opening 8, serving as a guide for the plunger-rod 9. A post or projection 10, preferably cast integral with plate 7, engages an opening 11 in the base-wall of a stirrup-shaped plunger-handle 12, thus rigidly and not flexibly securing the handle to the plate, a hole 13 through said post accommodating a key or pin 14, said pin serving to lock said handle to plate 7, as best shown in Fig. 6. The plunger-rod 9 is preferably in threaded engagement with said handle. It is readily seen that the handle may serve either as a means for actuating the plunger of the pump or, in conjunction with the post 10, carried by the cylinder 6, as a means for readily inserting the pump within and removing it from the tank, or it may serve as a handle to the whole



apparatus, in which last two cases said handle is rigidly locked to the pump-frame, as before described. The pump-cylinder 6 extends down into the tank and terminates in  
 5 check-valve mechanism. A plate 16, securely fastened into the cylinder, has a central opening or port 17, the walls of which extend to form a seat 18 for the check-valve, which consists in its preferred embodiment of a  
 10 valve-stem 19, a metallic disk 20, and a washer 21, preferably of rubber. A collar 22, preferably integral with the valve-stem, forms a seat for disk 20, said disk serving to reinforce the washer 21, said washer being inter-  
 15 posed between said disk and the valve-seat being held against said seat by a leaf-spring 23. This leaf-spring is preferably of the shape shown in Figs. 3 and 5, its ends being reduced to form tongues 24, adapted to en-  
 20 gage slots 25 in the pump-cylinder. An opening 26 in the center of said spring is in bearing engagement with collar 22 on the valve-stem, said stem passing through said opening. I preferably make the bearing-face of  
 25 said collar of a convex shape and bevel the walls of the opening 26 for engaging said convex surface. This provides a rocking bearing between the spring and the valve and insures at all times the pressure of the spring  
 30 upon the central portion of the valve. This form of valve mechanism is certain of action and easily removed and assembled. The plunger-valve is of the ordinary type, the air passing through an opening 27 upon the  
 35 upstroke of the piston. A discharge-tube 28 passes from the outlet 29 to the bottom of the tank and into the liquid, a stop-cock 30 being preferably interposed in the outlet-pipe 29, to which may be attached a hose and suitable  
 40 spraying means. A safety-valve to guard against bursting of the tank or other accidents consists in its preferred embodiment of a bushing 31, secured in the tank-wall and threaded to receive a cap 32, said cap being  
 45 provided with an opening 33, adapted to form a continuation of the opening in the bushing. The diaphragm, which may be of thin sheet-copper, is clamped over the opening in the bushing 31 by means of the cap 32 and  
 50 upon bursting may be readily replaced by another diaphragm.

As hereinbefore stated, I preferably make the tank of slender shape and the operator can readily suspend the tank in a horizontal  
 55 position from his shoulder by means of a strap, which preferably fastens to eyes 34, secured to the tank.

As changes in my invention may be readily made without departing from the spirit thereof, I do not wish to be limited to the precise  
 60 construction set forth; but,

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a pressure-tank 65 for receiving and discharging fluid, of a pump-cylinder having engagement with the said pressure-tank, a piston adapted to be reciprocated within the pump-cylinder, a piston-rod extending from the piston, a handle se- 70 cured to the piston-rod, and means for rigidly engaging the handle with the pump-cylinder, whereby the pump-cylinder may be readily inserted within and removed from the pressure-tank, and whereby the handle may 75 be maintained close to the pump-cylinder to enable the entire apparatus to be readily carried, substantially as described.

2. The combination with a pressure-tank 80 for receiving and discharging fluid, of a pump-cylinder having clamping engagement with the said pressure-tank, a piston adapted to be reciprocated within the pump-cylinder, a piston-rod extending from the piston, a han- 85 dle secured to the piston-rod, the said handle being stirrup-shaped and provided with a base extending transversely to the piston of the pump, the said base being provided with an aperture eccentric to the piston-rod, and a post 10 adapted to project through the said 90 aperture, whereby the pump-cylinder may be engaged or disengaged from the tank, substantially as described.

3. The combination with a pressure-tank 95 for receiving and discharging fluid, of a pump-cylinder having clamping engagement with the said pressure-tank, a piston adapted to be reciprocated within the pump-cylinder, a piston-rod extending from the piston, a han- 100 dle secured to the piston-rod, the said handle being stirrup-shaped and provided with a base extending transversely to the piston of the pump, the said base being provided with an aperture eccentric to the piston-rod, and a post 10 adapted to project through the said 105 aperture, and the said post being provided with a hole and a pin or key adapted for insertion through said hole in the post, whereby the apparatus may be readily carried, sub- 110 stantially as described.

4. In a spraying device, the combination with a pressure-tank for containing liquid to be subjected to pressure, of a pump for forcing air under pressure into the said tank, a bushing secured in the wall of the tank, a 115 safety-diaphragm closing the bushing and a clamping-cap for securing the safety-diaphragm in place, the said cap being provided with an opening adapted to form a continua- 120 tion of the opening in the bore of the bushing when the said safety-diaphragm is broken, substantially as described.

In witness whereof I hereunto subscribe my name this 15th day of February, A. D. 1900.  
 EDWD. C. BROWN.

Witnesses:

J. B. KILEY,  
 FAHY GALLIGAN.