

(No Model.)

2 Sheets—Sheet 1.

C. G. ETTE.  
HYDRANT AND STREET WASHER.

No. 440,552.

Patented Nov. 11, 1890.

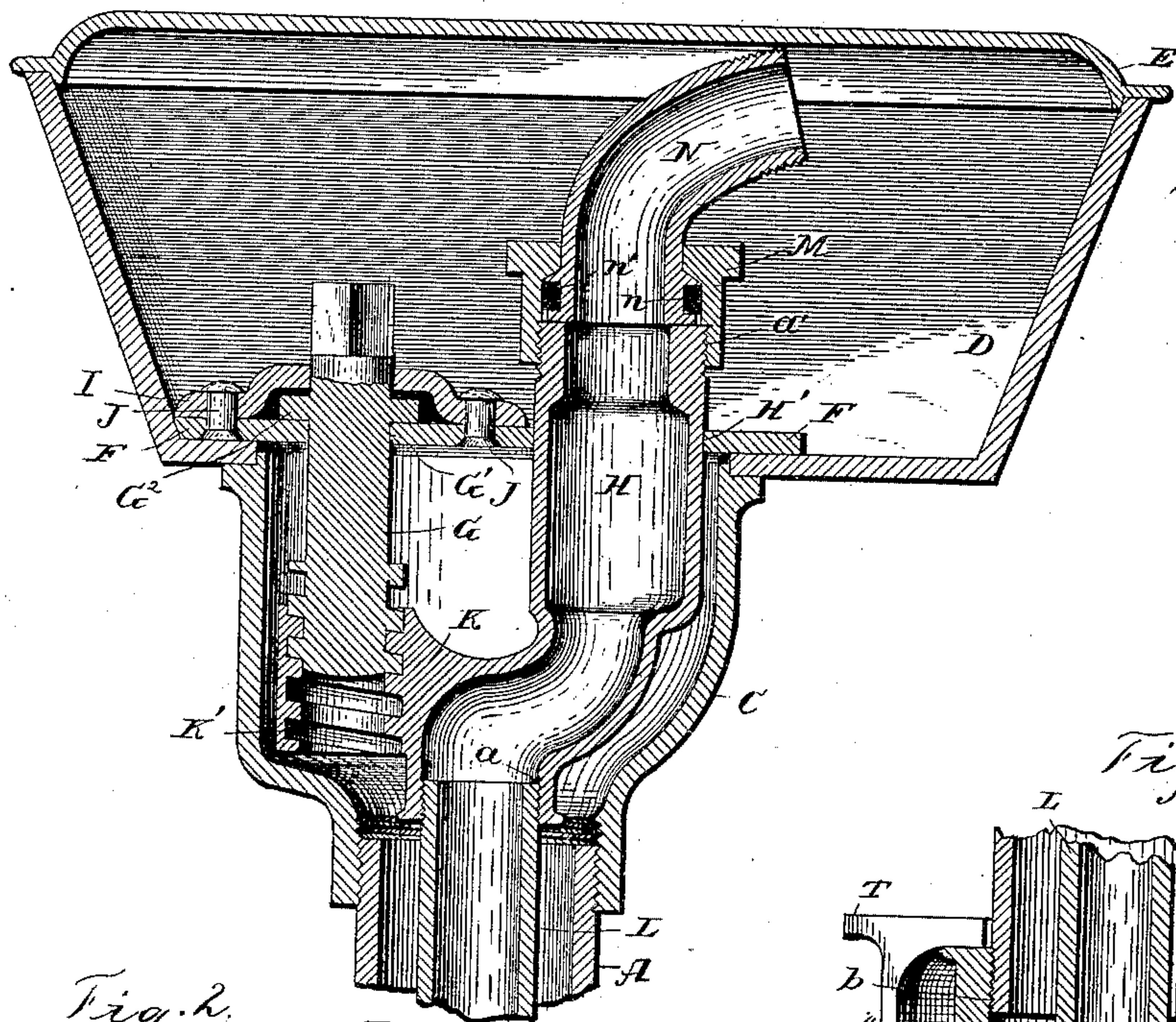


Fig. 1.

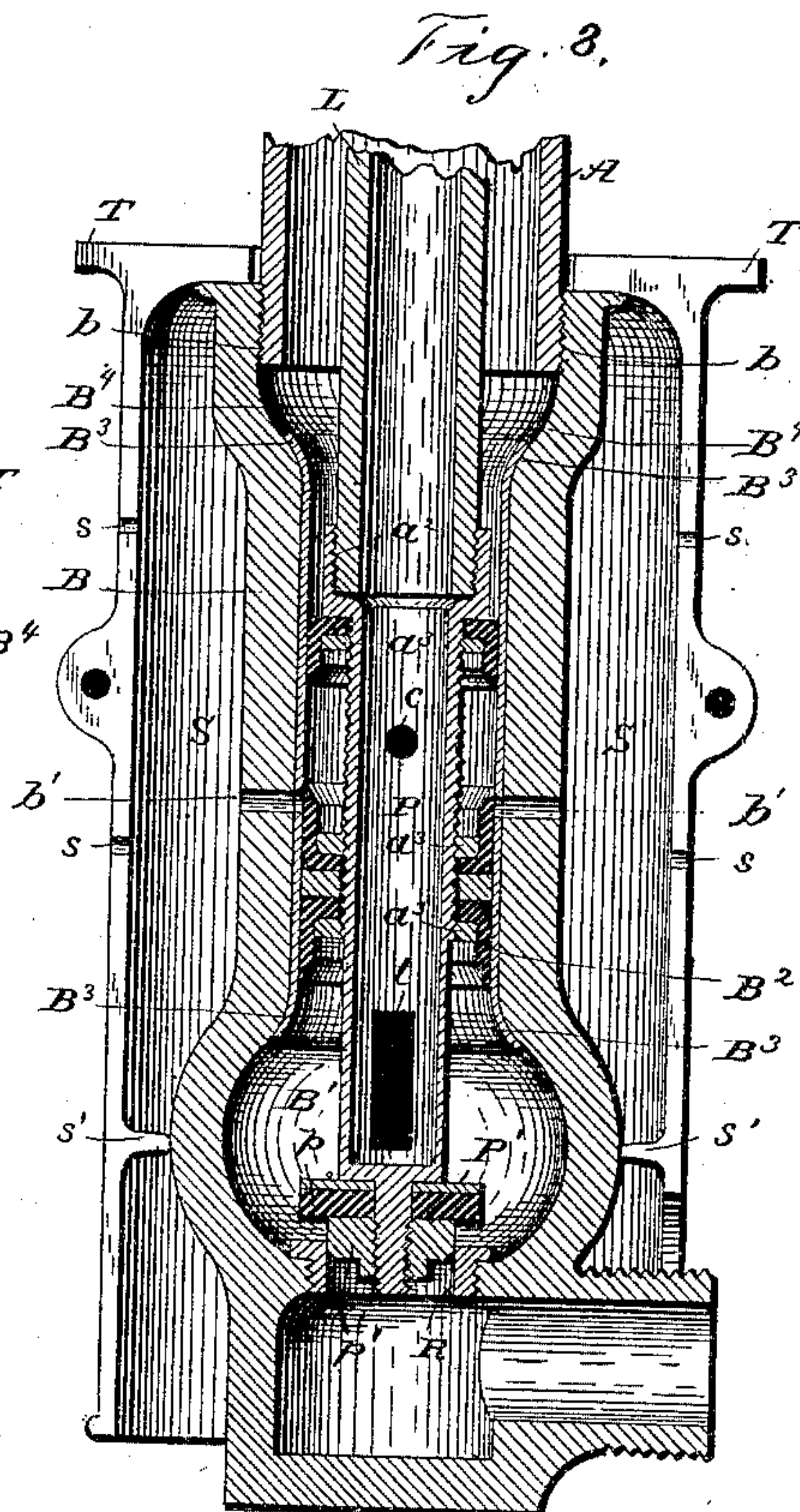
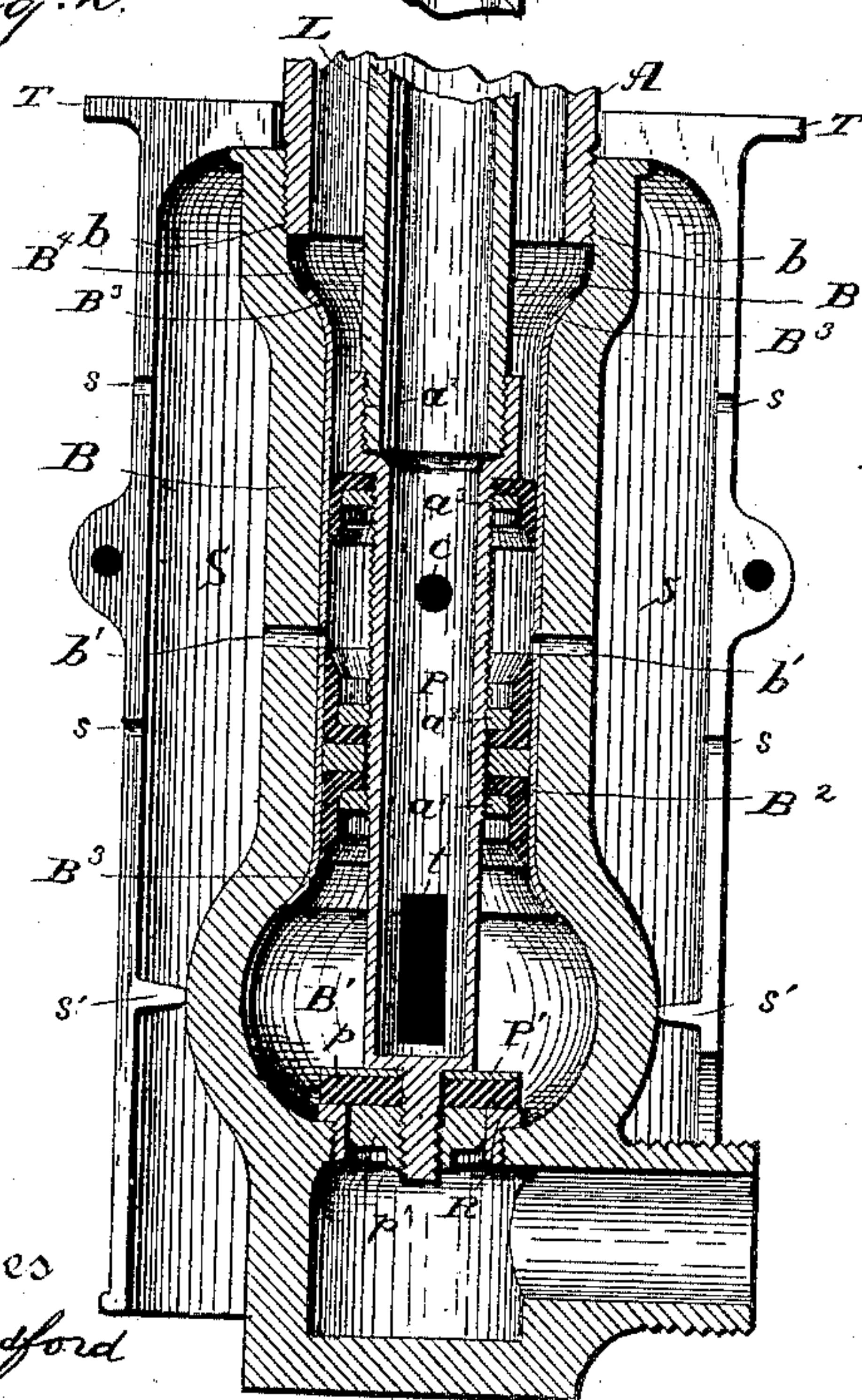
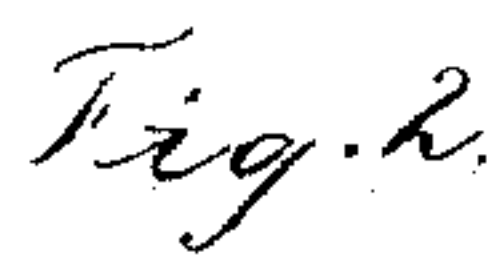


Fig. 3.

Witnesses  
Edwin L. Bradford  
Frank Dorian.

Inventor  
Chas. G. Ette

By his Attorney in fact

Chas E Barbur



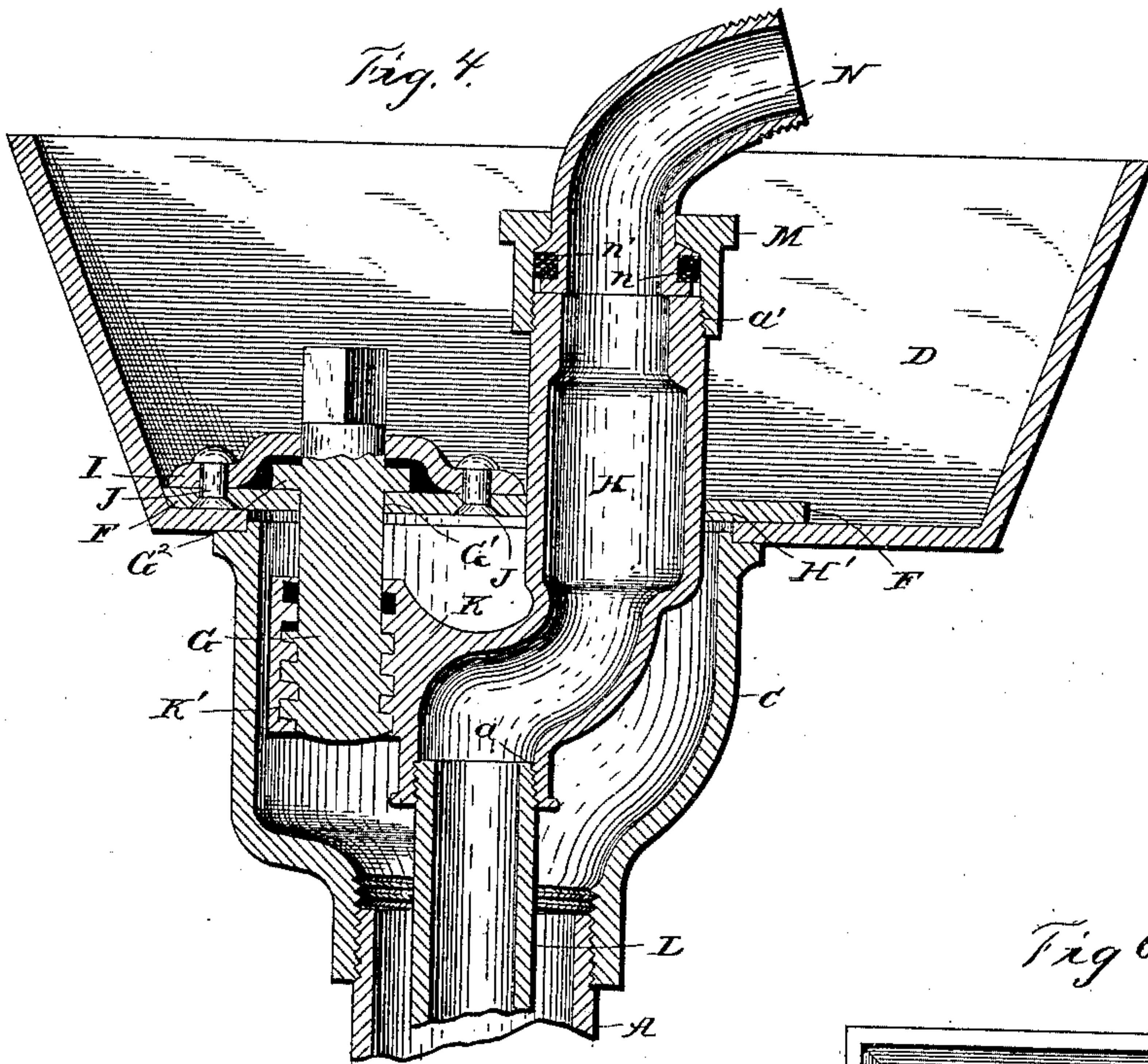
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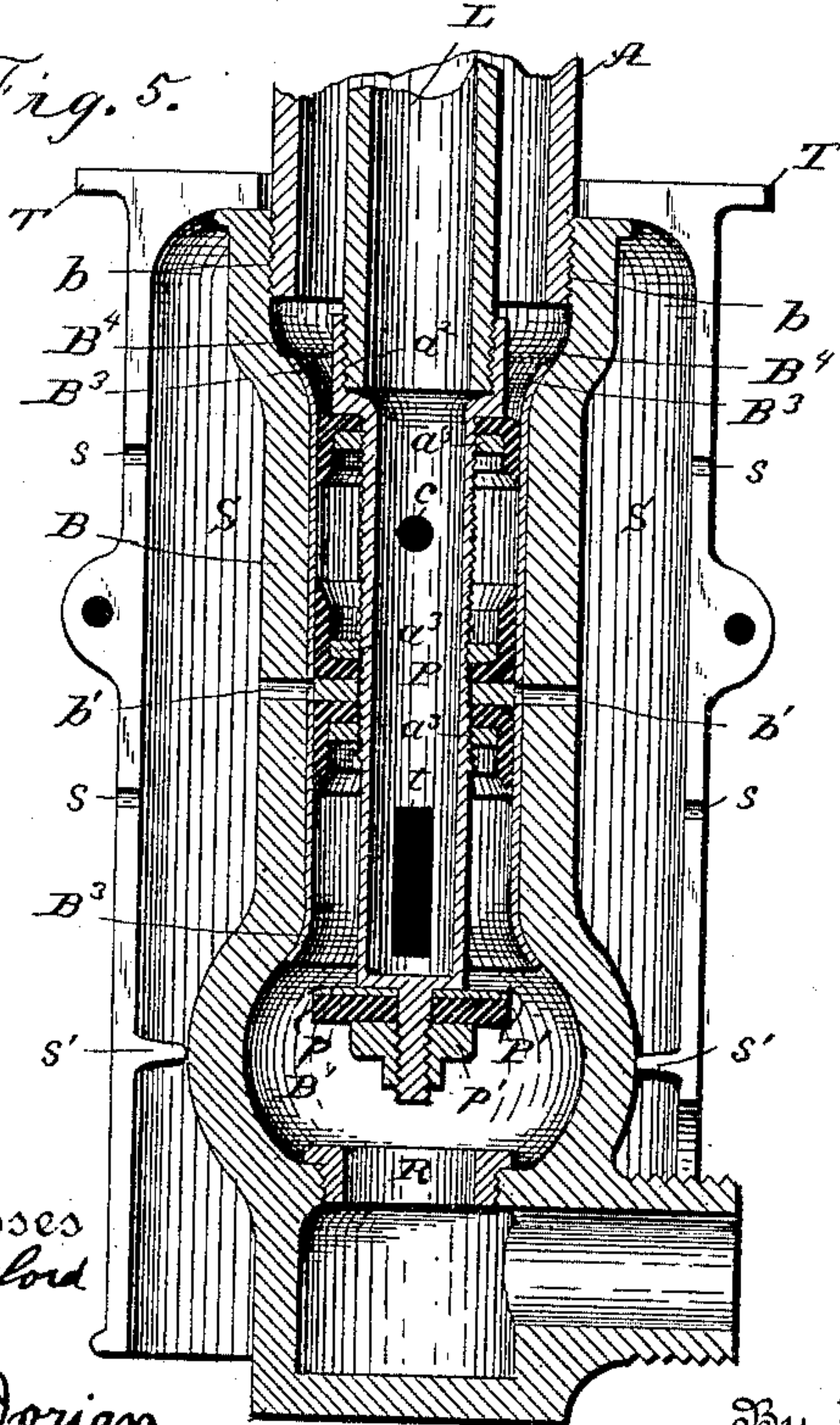
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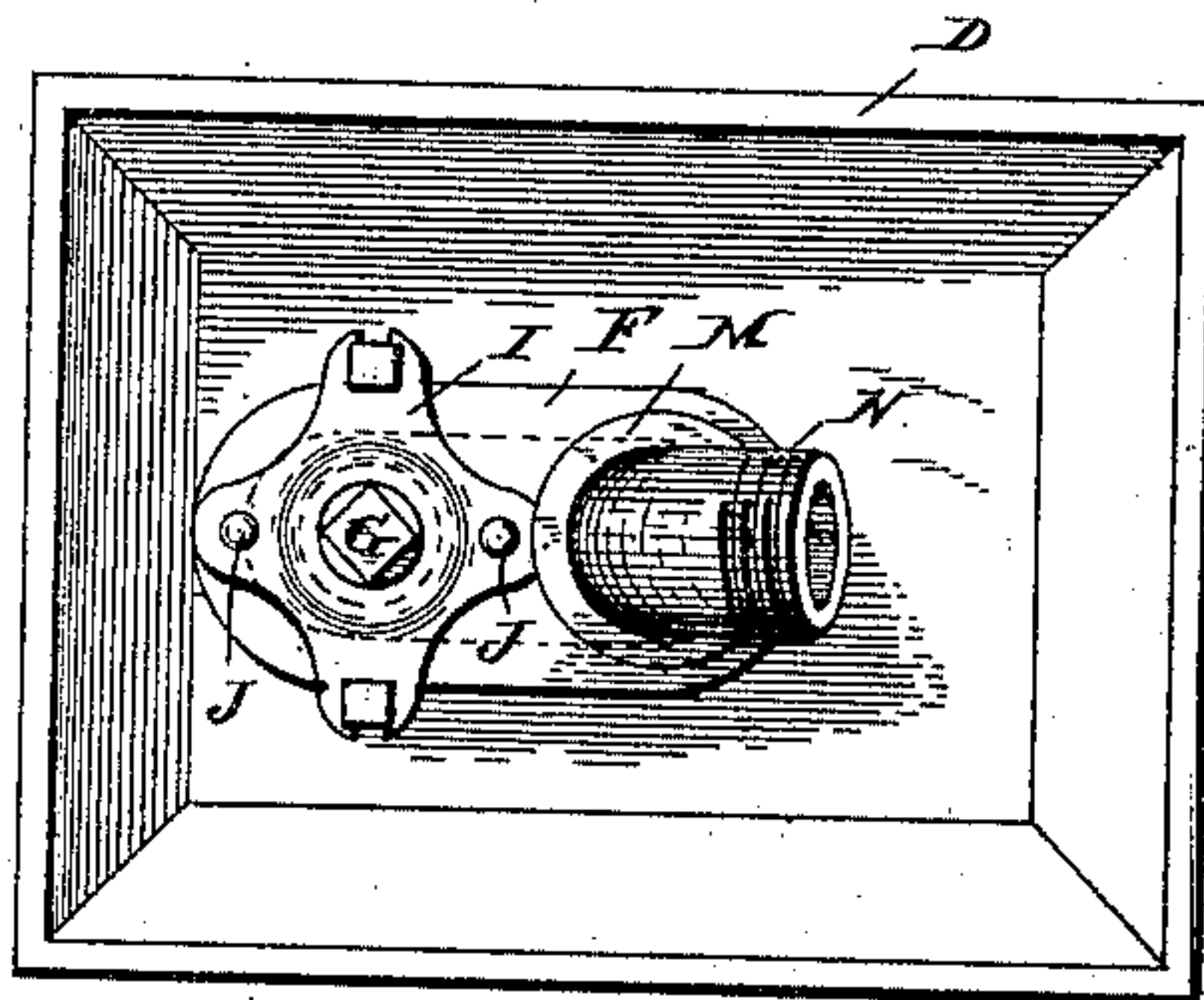
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*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

CHARLES G. ETTE, OF ST. LOUIS, MISSOURI.

## HYDRANT AND STREET-WASHER.

SPECIFICATION forming part of Letters Patent No. 440,552, dated November 11, 1890.

Application filed July 3, 1888. Serial No. 278,940. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES G. ETTE, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Hydrants and Street-Washers, of which the following is so full, clear, and exact a description as will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of the upper portion of a street-washer and hydrant constructed in accordance with my invention, showing the position of the operating mechanism and the coupling when the hydrant is closed. Fig. 2 is a longitudinal vertical section of my valve-casing and waste-casing, showing the valve closed in the valve-casing. Fig. 3 is a longitudinal vertical section of the same, showing the valve raised a sufficient distance to close the waste-outlet without opening the main water-way. Fig. 4 is a longitudinal vertical section of the upper portion of a street-washer and hydrant, showing the position of the operating mechanism and the coupling when the hydrant is open. Fig. 5 is a longitudinal vertical section of my valve-casing and waste-casing, showing the valve wide open in the valve-casing. Fig. 6 is a top plan view of the box and the top of the hydrant and street-washer.

In the accompanying drawings, A designates a casing, which connects the valve-body B with the top casing C, containing the valve-operating mechanism, to the top of which is secured a street-washer box D. This street-washer box is provided with a removable or hinged cover E.

In the inner lower portion of the street-washer box D is secured a plate F, which serves as a guide-piece for the operating-screw G, which extends through a perforation G', and the main outlet H, which extends through a perforation H' in the plate F. The operating-screw G is provided with a flange G<sup>2</sup>, which is located between the plate F and the cap I, which is secured to the plate F by rivets, bolts, or screws J. The shell K is provided with an internally-screw-threaded perforation K', with which registers the lower portion of the operating-screw G, which operating-screw

is provided with corresponding external screw-threads. The lower portion of the shell K is internally screw-threaded at *a*, where it receives the upper end of the water-pipe L, which is correspondingly screw-threaded at this point. The upper end of the main outlet H is screw-threaded at *a'*, where it receives a correspondingly-screw-threaded perforated cap M. Through this perforated cap extends the bent swiveled coupling N, which is provided with packing *n*, which is wrapped around the recessed portion *n'*.

The valve-body B is screw-threaded at the point *b* at the top where it receives a correspondingly-screw-threaded portion of the casing A. The lower portion of the valve-body is provided with an enlarged chamber B', which by reason of its enlarged flaring inner-surface permits of the introduction of the lining B<sup>2</sup>, and allows it to be spun out at B<sup>3</sup> to prevent its accidental displacement vertically. The upper portion of the valve-body B is also made flaring at B<sup>4</sup>, which facilitates the spinning of a corresponding flange B<sup>3</sup> at the top or upper end of the lining B<sup>2</sup>, which prevents the accidental displacement of the lining as the plunger or valve-stem and washers are forced down. Between the upper and lower ends of the valve-body B are waste-openings *b'*, which extend through the valve-body and the inner lining B<sup>2</sup>.

The main water-pipe L is screw-threaded at *a*<sup>2</sup>, where it is incased by the upper correspondingly-screw-threaded end of the plunger P. This plunger P is provided with external screw-threads for the reception of the cup-washers and the usual metallic washers *a*<sup>3</sup>, which hold the cup-washers in place. The plunger P is hollow and has a washer P' secured to its lower end, which is provided with a flat section *p*, the lower face of which closes against the top of the seat R. The washer P' is also provided with an elongated portion *p'*, which extends vertically below and beyond the lower horizontal face of the flat section *p*. This elongated portion *p'* fits snugly within the seat R and slides vertically on or against the inner vertical section of the seat R in such a manner that it serves to keep the opening through the valve-seat R closed until the washers on the plunger occupy a position within the valve-body opposite the perfora-



tion  $b'$ , through which the waste-water escapes into the waste-casing S. The lower portion of the valve-stem is perforated at  $t$  to provide a passage-way for the water to escape from the main up into and through the water-pipe L. It is also perforated at  $c$  to permit the waste-water to escape from the water-pipe L into the valve-body and thence into the waste-casing S, when the valve is closed. The waste-casing S encircles the valve-body B and is made somewhat larger than the outer diameter of the valve-body, forming a waste-chamber between the valve-body and the inner surface of the waste-casing of a size sufficient to receive all or a portion of the waste-water from the hydrant when the valve  $P'$  is closed.

Heretofore great difficulty has been experienced where hydrants are set in clay soil below freezing-point in the ground. The trouble has been, first, that the clay will not absorb or permit of the escape of the waste water from the hydrant with sufficient rapidity to prevent its freezing in the outlet or water pipe, or both. In the second place, where hydrants are placed in this clay soil in a freezing-climate the clay is so firm when frozen around the hydrant that the frost will raise the hydrant or street-washer box to such an extent as to distort or rupture the valve-body and its connections. The first difficulty is overcome by making the waste-casing of a size sufficiently greater than the outer diameter of the valve-body to form a chamber between the valve-body and the waste-casing, with an area sufficient to accommodate the greater portion of the waste water, or a sufficient portion of the waste water to allow the hydrant to waste or empty itself instantly, as it can do when constructed in accordance with my plans, without the necessity of waiting for the disappearance of the waste water, which is now by the old methods affected, though imperfectly and slowly, by absorption. It will be seen at a glance that by the use of a waste chamber and casing S this difficulty will be entirely overcome, because the water will escape instantly into the waste-casing, and it then has a large area and many points of escape from this waste-casing into the surrounding soil. The waste-casing will not be fitted snugly at the top of the valve-body, and it will be open at the bottom and may have perforations  $s$ , if additional avenues of escape seem to be required. The inner lower portion of the casing may be provided with a projection or projections  $s'$  to keep it in place. The top of the casing S is provided with an enlarged flange or rim T, which may or may not be formed integral with the casing.

The second difficulty mentioned is overcome by the provision of the rim T, which forms a sufficient area to support a quantity of ground, the weight of which will counteract the heaving force or action of the frost. By the use of this extended flange or rim the

ground is forced to slide in its heaving on the surface of the casing of the hydrant, unless it acts with sufficient force to fracture this rim, which will be guarded against by making the rim of sufficient size and strength to enable it to resist the force of the action of the frost. In this instance I have shown the waste-casing made in sections; but it is quite obvious that it might be made in a single piece without departing from the spirit of my invention.

From the foregoing it will be understood that the swiveled coupling at the top slides vertically and automatically with the rising and lowering of the main valve-stem and valve as the water is turned off or on. It is noted here that the hose is secured to the coupling ordinarily before the water is turned on; but when the water has been turned on and the hose is in use it is desirable that the operator should be free to move in any and all directions from the hydrant without liability to injury to the hose or coupling by its kinking or being turned at short angles, as is experienced by the use of rigid couplings.

I am aware that heretofore street-washers have been constructed having a swiveled elbow-necked outlet-pipe which operates up and down vertically within a cap or casting to which the water-supply pipe is connected, which cap or casting is actuated by a lifting-screw projecting into the washer-box to open or close a valve located at the connection of the water-pipe and the water-works main, so that when the water is turned on by revolving the lifting-screw to raise the main pipe from its valve on the water-works main the water rushing up into the outlet-pipe and against its elbow-neck will force and hold the same up above the top of the washer-box. Such a construction as this I do not, therefore, claim, as my construction and combination of parts hereinabove specified are essentially different from this. In my construction the valve-operating screw lifts the outlet-pipe, so that the swiveled hose-coupling carried thereby is by this movement projected clean above the washer-box, and the action of the water in rushing up through the water-pipe does not serve to push the hose-coupling up into the position that it normally occupies while the street-washer is in use, but the valve-operating screw alone is the agency which operates to lift the hose-coupling into the desired position.

Having now described the objects, uses, and advantages of my device, what I believe to be new, and desire to secure by Letters Patent of the United States, and what I therefore claim, is—

1. In a hydrant and street-washer, the combination of a street-washer box, the underneath casing below the same, the main outlet-pipe extending into the washer-box, the swiveled hose-coupling carried upon the upper end of said outlet-pipe within the washer-box, and the valve-operating screw engaging



a shell on the outlet-pipe and having its upper end within the washer-box, the valve-body having suitable waste-openings and in the lower end thereof a valve-seat above the inlet, the casing connecting the valve-body with said underneath casing, the main water-pipe connected to the outlet-pipe, the hollow plunger connected to the main water-pipe and carrying a valve operative on both the horizontal and vertical surfaces of the valve-seat, said plunger being provided near its lower end with an inlet-opening and near its upper end with waste-openings, a washer surrounding said plunger above the waste-openings therein, and also a washer surrounding the plunger between the waste and inlet openings, said washer being so located that when the plunger rises the waste-openings in the valve-body will be closed before the water-way is opened, substantially as described.

2. The combination of the street-washer box, the main outlet-pipe extending thereinto, the valve-operating screw engaging said pipe and having its upper end within the washer-box, the main casing, the valve-body B, having valve-seat R above the inlet and enlarged at its upper end at B<sup>4</sup> and at its lower end at B', said enlargements being for the

purpose of retaining the lining B<sup>2</sup> more firmly in place, and said body having waste-openings b', the hollow plunger P, having inlet-openings t and waste-openings c and carrying the valve that operates on both the horizontal and vertical surfaces of the valve-seat, the cup-washer surrounding the plunger above openings c, and the double cup-washer surrounding the plunger below opening c, substantially as described.

3. In a hydrant and street-washer, the combination, with the water-pipe, outlet-pipe, main casing, and valve-body, of an outer cylindrical casing surrounding the valve-body, having the top rim or flange T widened sufficiently to support a quantity of ground, the weight of which will counteract the heaving force or action of the frost, and said outer casing having also internal projections s's', which bear upon the valve-body, substantially as described.

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

CHARLES G. ETTE.

Witnesses:

CHARLES E. BARBER,  
FRANK DORIAN.