

E. M. ZERBE.

Hydrant.

No. 229,933.

Patented July 13, 1880.

Fig. 1.

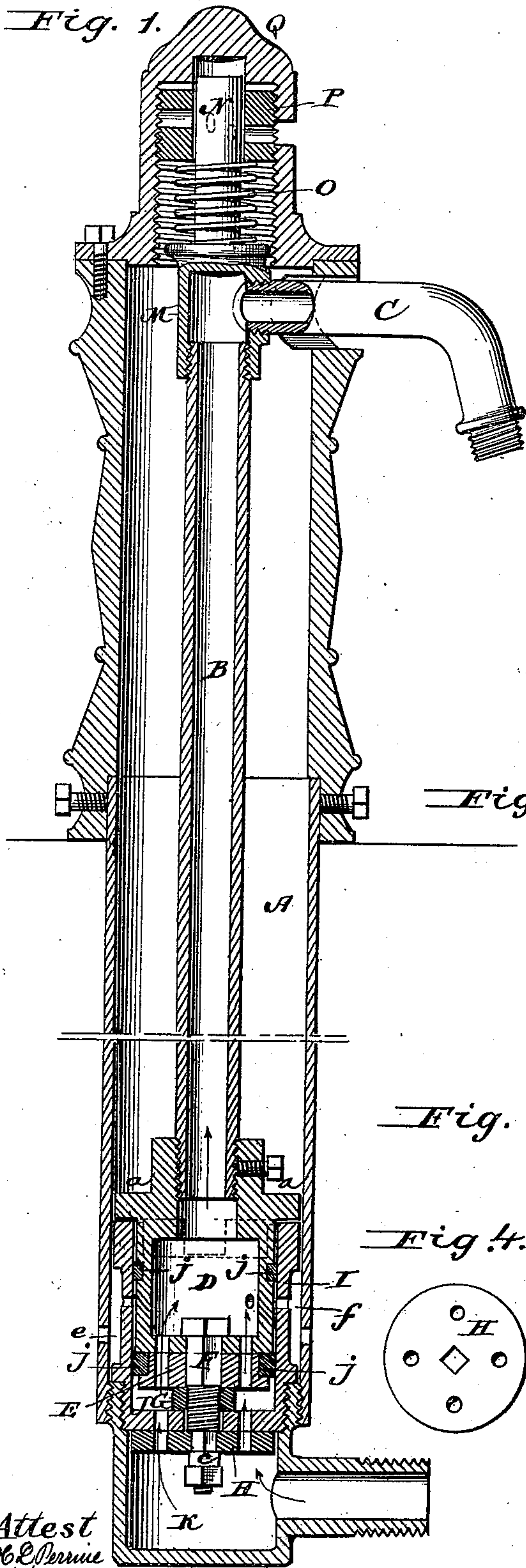


Fig. 2.

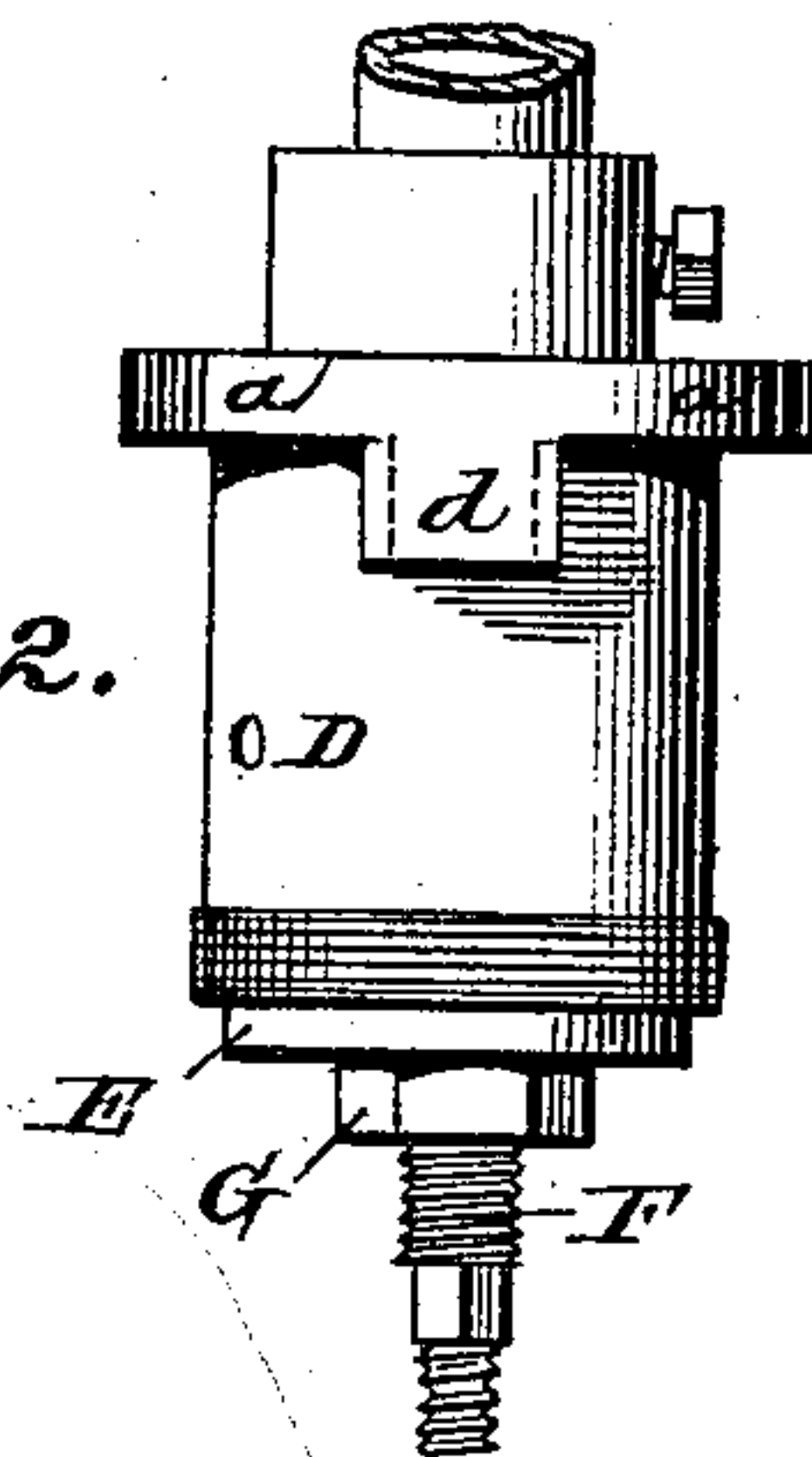


Fig. 2'

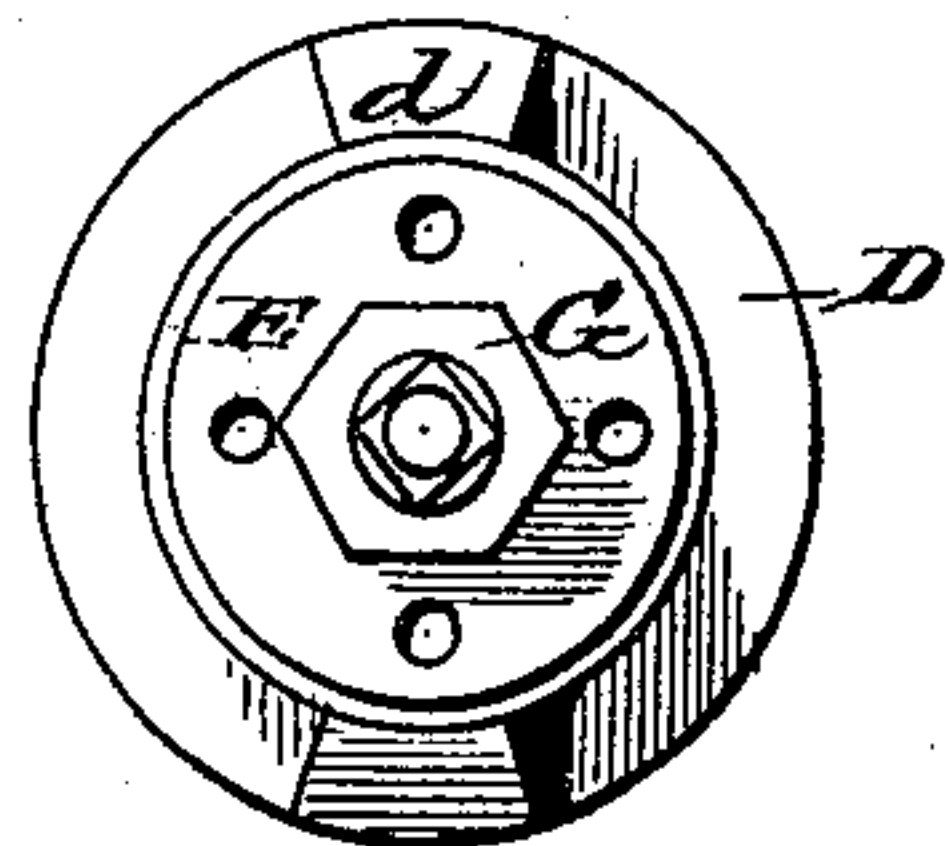


Fig. 3.

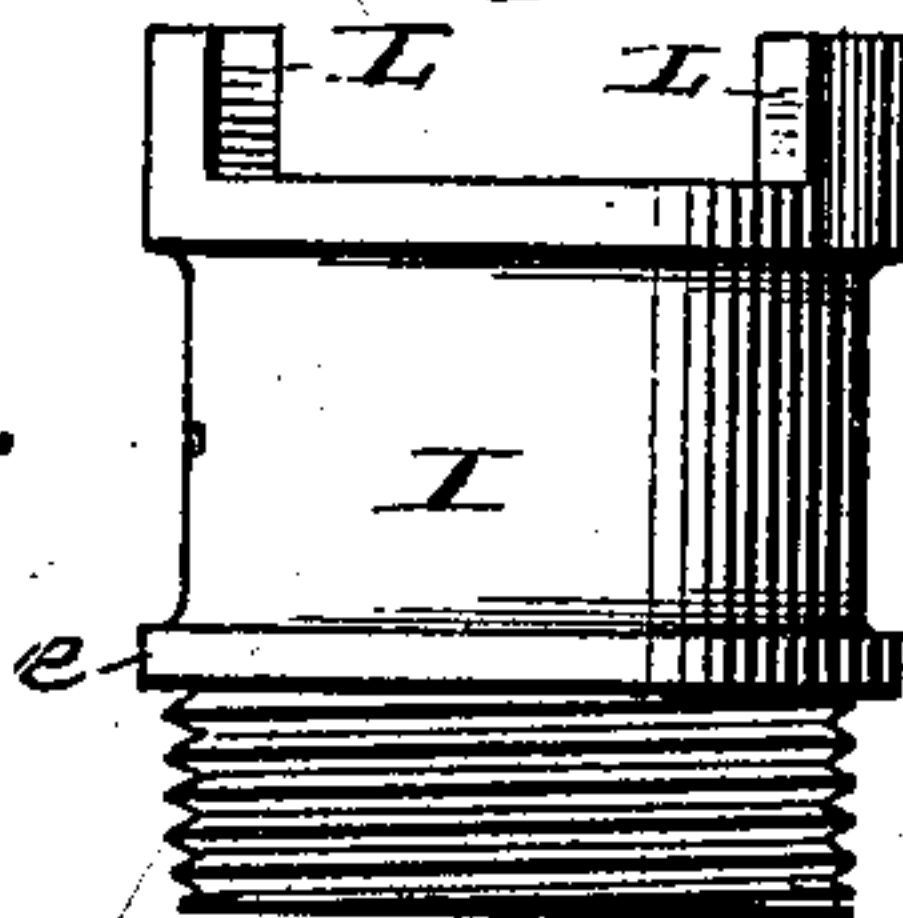


Fig. 3'

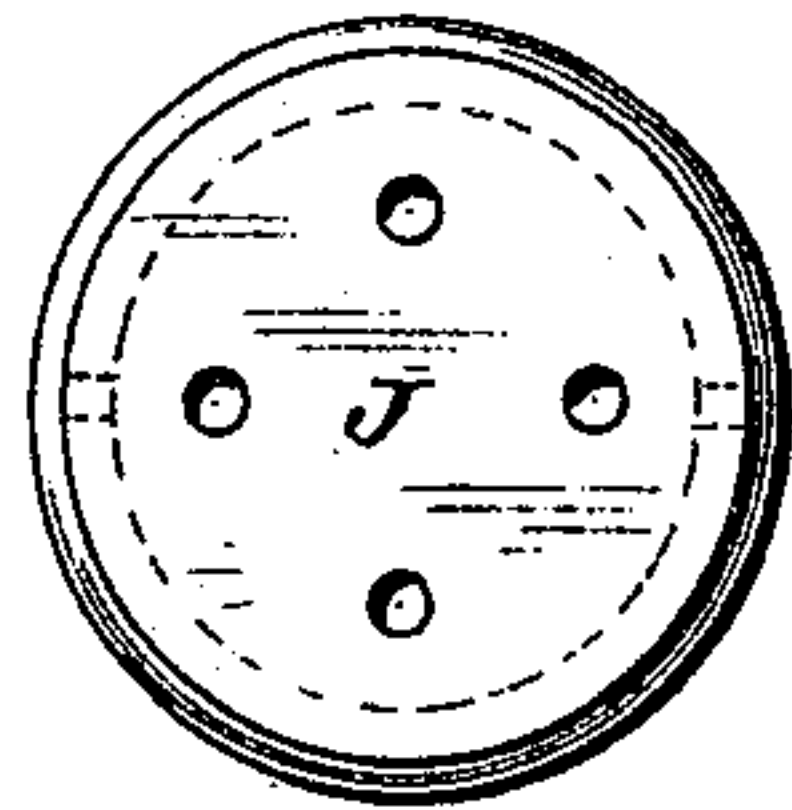


Fig. 4.

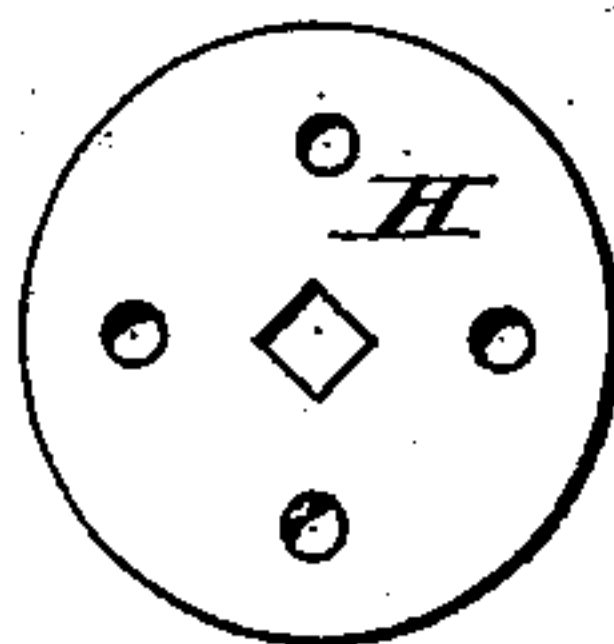
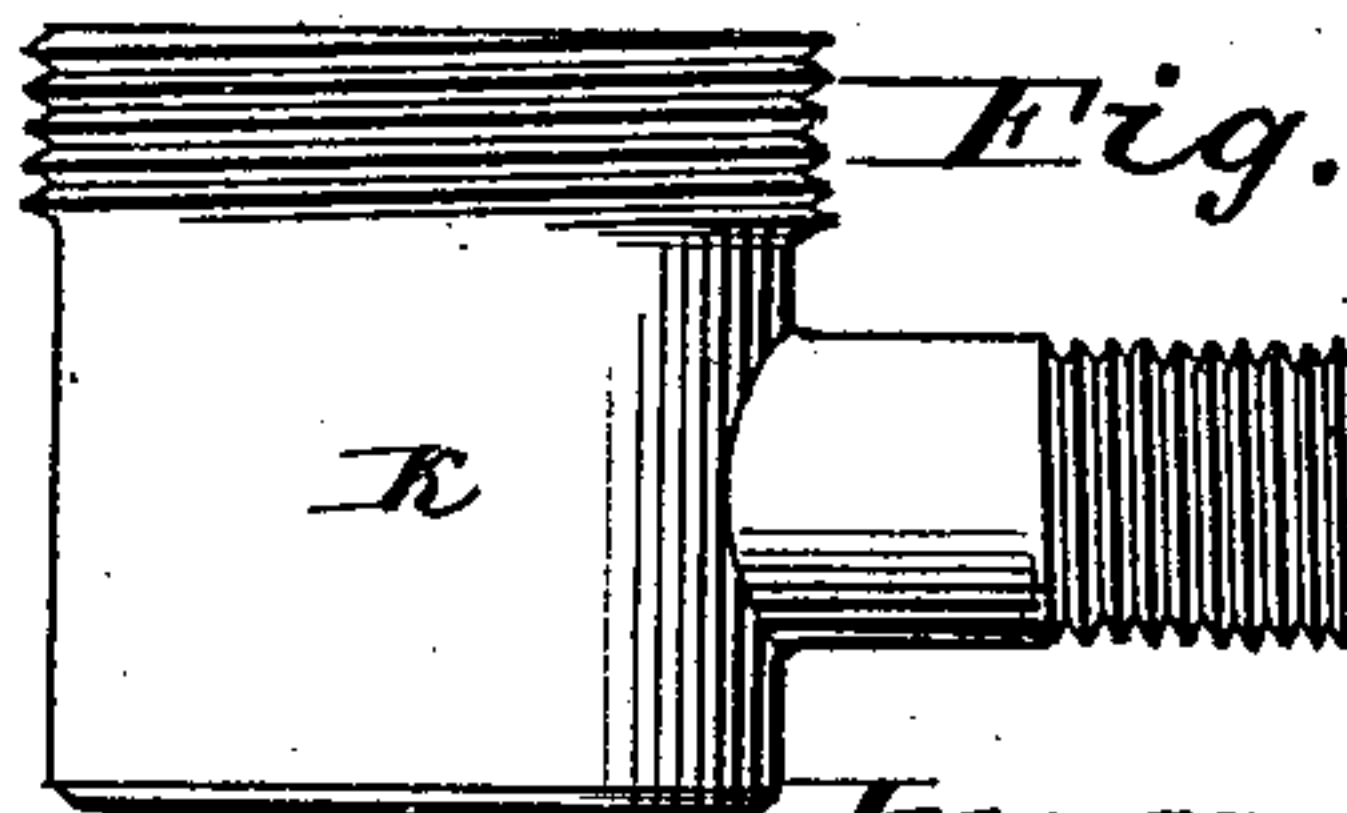


Fig. 5.



Attest  
H. L. Perrine  
Chas. W. Long.

Inventor.  
Edw. M. Zerbe.

By *H. J. Affot*  
Atty.



# UNITED STATES PATENT OFFICE.

EDWARD M. ZERBE, OF LEWISTOWN, PENNSYLVANIA.

## HYDRANT.

SPECIFICATION forming part of Letters Patent No. 229,933, dated July 13, 1880.

Application filed April 17, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD M. ZERBE, a citizen of the United States, residing at Lewistown, in the county of Mifflin and State of Pennsylvania, have invented certain new and useful Improvements in Hydrants; and I do hereby 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a vertical longitudinal section of the hydrant broken in cross-section; Fig. 2, a detached side view of the valve; Fig. 2', a bottom view thereof; Fig. 3, a side view of the valve boxing and seat; Fig. 3', a bottom view thereof; Fig. 4, a detached bottom view of washer beneath the valve-seat; Fig. 5, a detached side view of the detachable extension of the casing.

My invention relates to hydrants; and it consists in the construction hereinafter described and claimed.

In the accompanying drawings, the letter A indicates the casing of the hydrant, it being made in two parts in cross-section, the upper portion being of wood, iron, or other suitable material, and the lower portion of cast-iron, or otherwise formed of any suitable material.

The hollow valve-rod B is connected at its upper end to the spout C, as shown, the spout extending through the hydrant-casing and being free to turn horizontally in a slot formed therein, and is connected at its lower end to the hollow valve D, it being screwed therein and held from turning by a thumb-screw passed through the valve and made to impinge against the rod. This valve is formed near its upper end with a flange, *a*, and on its sides, extending a short distance from the flange, are two lugs, *d*. The body of the valve-chamber is somewhat enlarged and is provided with several orifices in its sides for the escape of waste water, and its bottom is perforated to admit water into the valve from below. This valve has a washer, E, of brass, copper, or other metal against the lower face of its bottom, and which is held thereto by means

of a square shouldered and headed bolt, F, passed through the two, and also by means of a nut, G, screwed onto said bolt. This bolt also passes loosely through the valve-seat, which forms a part of the valve-box, and then through another washer, H, which bears against the bottom of the valve-seat, and is held thereto by a nut screwed onto the end of the bolt.

A packing, *c*, of leather or other suitable material, is preferably placed between the nut at the end of the bolt and the lower washer, and that part of the bolt that passes through the lower washer is formed with square shoulders, so that when the valve and the washer E are turned the washer H will also be turned. Both washers E and H, and also the valve-seat, are formed with corresponding perforations or ports, as illustrated in the drawings.

The valve D is fitted in a box, I, the bottom J of which constitutes the valve-seat. The lower exterior of this box is threaded and screwed into an extension, K, which is screwed into the lower end of casing A, as indicated.

A flange, *e*, on the valve-box rests on the top edge of the extension K, and a portion of the upper edge of box I is cut away or recessed, as shown in Fig. 3, so as to form shoulders L, into which recesses the lugs on the valve fit, and between which shoulders they play when the valve is turned to open or cut off the supply of water, and against which they bear when the valve is turned in the operation of separating the parts, as hereinafter described.

The valve-box is provided with openings in its sides, corresponding to those in the valve, and its sides are also recessed, so as to form a chamber, *f*, between the box and casing A, in which latter there is formed one or more openings for the escape of the waste water that passes out of the valve and through the valve-box into chamber *f*. Suitable packings *j*, of leather or other material, fit between the valve and valve-box, as shown.

The top of the hollow valve-rod is closed above the discharge-spout by the cap M, from the top of which there projects vertically a rod, N, around which there is fitted a coiled spring, O, the same resting on cap M. On this same rod, and resting on the spring O,



is a nut, P, threaded exteriorly and provided with a series of lateral cavities adapted to receive any suitable instrument inserted through an opening in the hydrant-cap Q, for the purpose of turning the nut, and thereby increasing or decreasing the pressure of the spring on the valve-rod, whereby the valve D is set and the pressure of water from the same is relieved and the wear on the valve lessened.

10 The cap Q of the hydrant is hollow, to allow the rod N, spring O, and nut P to fit therein, and it is threaded interiorly, so that the threaded nut P may be screwed up and down therein, and it is bolted or otherwise securely held  
15 to the top of the hydrant, as illustrated.

In operation, to turn the water on, the spout C is turned sufficiently far to bring the ports in the valve D and washers E and H opposite the ports in the valve-seat, which is determined  
20 by the flow of water, which flows from the main in the direction indicated by arrows in Fig. 1. When the water is to be turned off the spout is further turned in the same or contrary direction until the ports in the valves and wash-  
25 ers are removed from those in the valve-seat and the ports in the latter closed. This last movement brings the ports in the side of the valve opposite those in the valve-box, and any water in the valve will then pass out through  
30 said side ports and those in casing A.

When the hydrant is to be repaired the water is turned off from the main, and spout C and that portion of the casing above the ground are removed, and the valve-rod turned  
35 until the lugs on the valve are brought into contact with the shoulders on the valve-box, and then continued to be turned until the valve-box is unscrewed from its connection with the extension K, after which the parts are lifted  
40 out of the casing.

No excavating is necessary in repairing the hydrant.

The several parts of the hydrant are made of any suitable material, are simple in construction, cheap of manufacture, effective in  
45 operation, and the hydrant is non-freezing.

Having described my invention, what I claim is—

1. The valve D and box I and valve-seat J, in combination with washers E and H and  
50 connecting-bolt F, formed with shoulders, as described, the parts being arranged to operate as set forth.

2. The combination of valve D, provided with lugs d, valve-box I, provided with shoulders L, and extension K, the valve and its box  
55 being held together by suitable means, and the box being screwed into the extension K, so as to be separated therefrom, substantially as and for the purpose set forth. 60

3. The combination of casing A, valve D, formed with lugs, box I, formed with shoulders, and hollow valve-rod B, the valve and its box being provided with ports and held together and adapted to be removed without  
65 casing A, substantially as set forth.

4. The combination, with valve-rod B, its connecting valve-ports, cap M, and rod N, of the spring O, threaded and recessed nut P, and slotted cap Q, the parts being adapted to  
70 operate as described.

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

EDWARD M. ZERBE.

Witnesses:

THOMAS J. HIBSHMAN,  
ADOLPH P. BOEHNER.