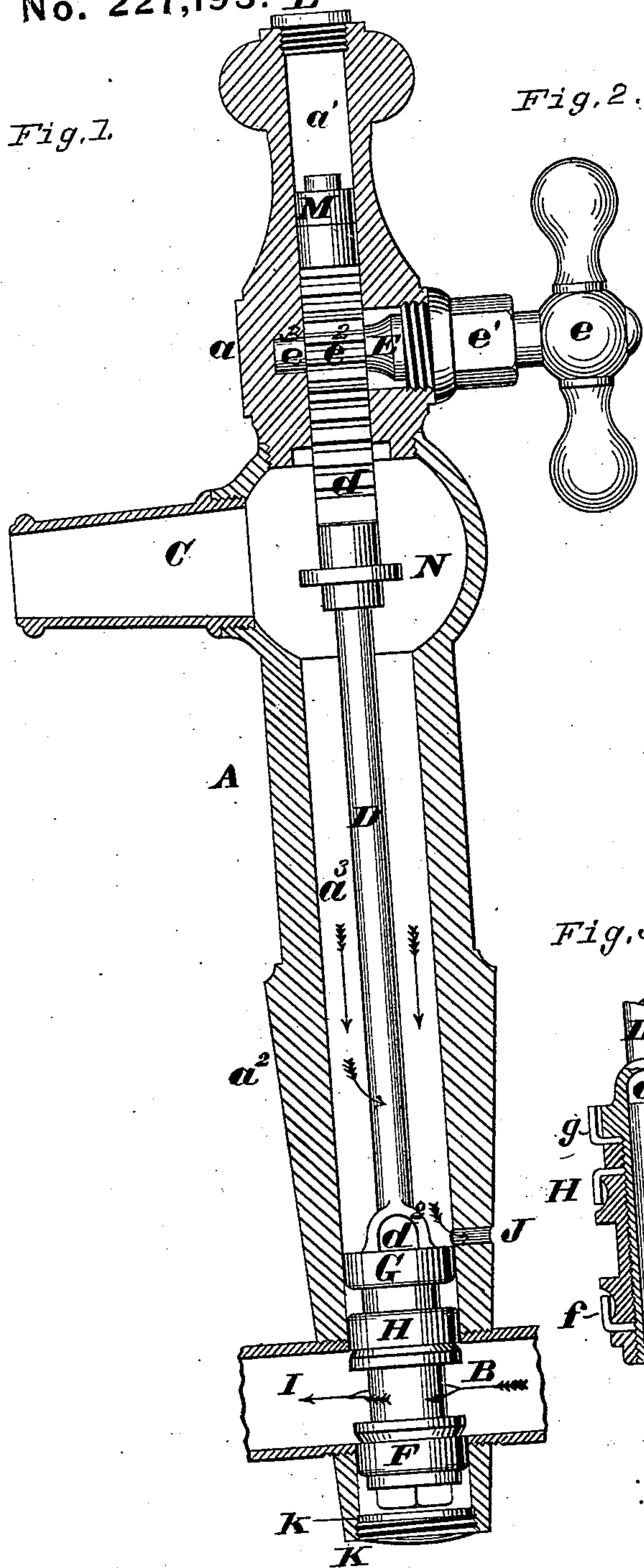


P. WHITE.  
Valve.

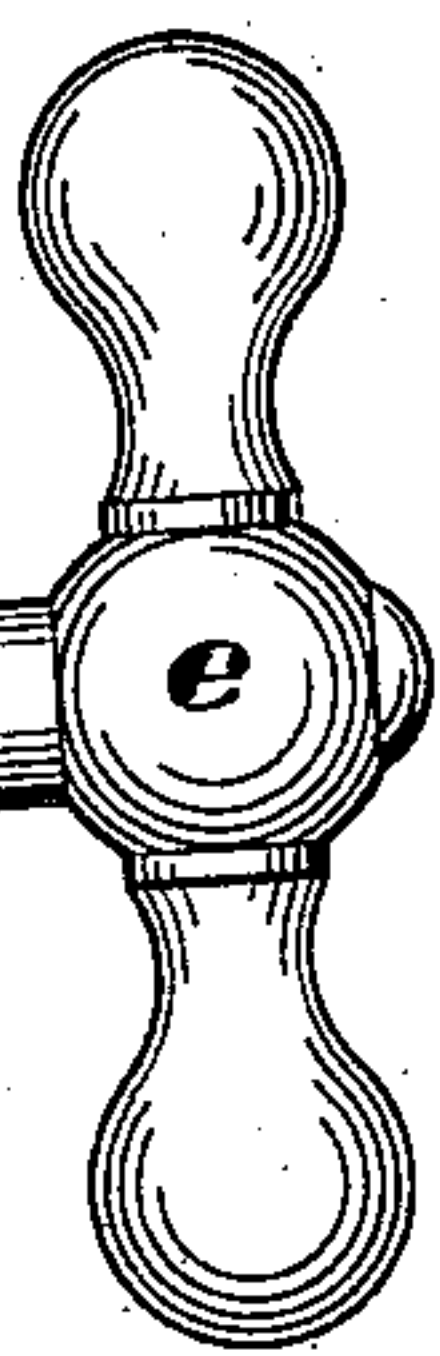
Patented May 4, 1880.

No. 227,193. *L*

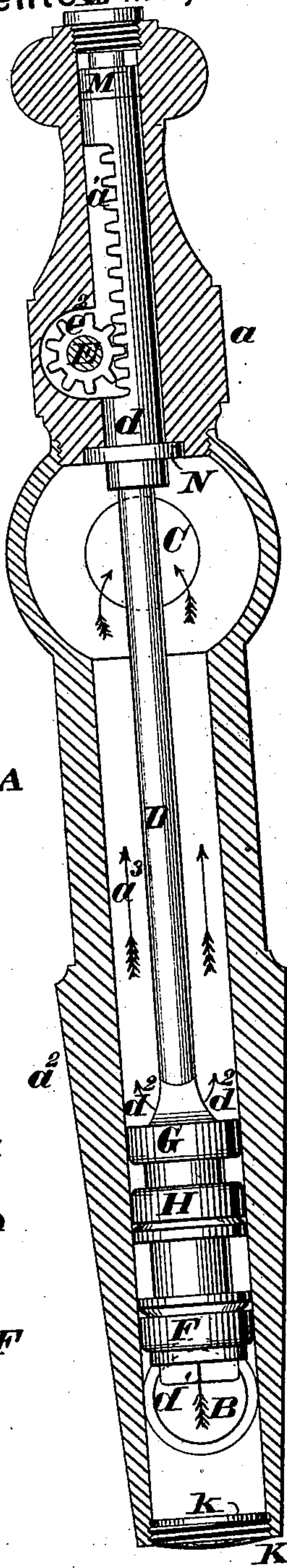
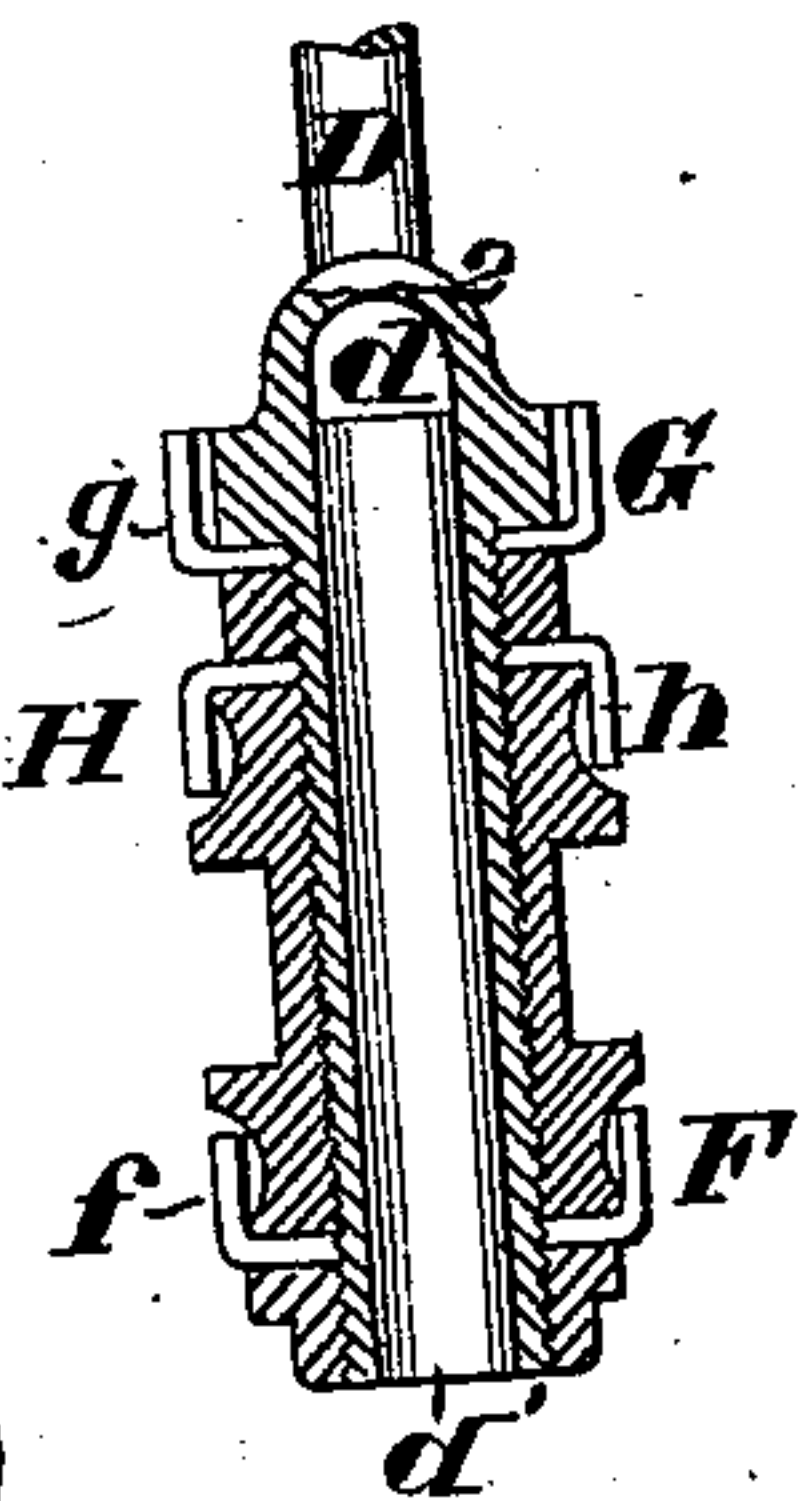
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Inventor,

Attest,

Charles Pickles  
Paul Bakerwell

Peter White.  
by Charles D. Moody,  
atty.



# UNITED STATES PATENT OFFICE.

PETER WHITE, OF ST. LOUIS, MISSOURI.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 227,193, dated May 4, 1880.

Application filed December 8, 1879.

*To all whom it may concern:*

Be it known that I, PETER WHITE, of St. Louis, Missouri, have made a new and useful Improvement in Valves, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a longitudinal section of the invention, the valve being closed; Fig. 2, a longitudinal section taken at right angles to that of Fig. 1, and showing the valve opened; and Fig. 3, a detail, being a longitudinal section taken through the lower end of the valve-rod, and showing the valves in section.

The same letters denote the same parts.

The chief advantages of this improvement are as follows: The valve is readily opened and closed, and in cases where the valve-chest and valve-stem are extended, as in a hydrant-valve, it is self-closing; an improved means for shutting off the waste in opening the valve is obtained; the water from the main can flow directly through the valve-chest without interruption whether the valve is opened or closed, enabling the valve to be used without interfering with the delivery of the water at other points; the lift of the valve can be regulated; the working parts can be easily withdrawn from and replaced in the valve-chest; the improvement is adaptable to a hydrant, a fire-plug, a beer-cock, or an ordinary faucet; it also allows of the discharge being in the upper stories of a building, while the lower end of the construction, including the waste-opening and the valve proper, may be in the cellar, or sufficiently low to prevent trouble from freezing; and the means for operating the valve may be arranged at any point between the ends of the valve-chest.

It consists partly in the combination of the two lower valves and the supply-pipe, partly in the combination of the two upper valves and the waste-opening, partly in the combination of the three valves, and the supply-pipe, perforated valve-stem, and waste-opening, and partly in various details, all as hereinafter specifically set forth.

Referring to the drawings, A represents the valve-chest, B the point of supply, and C the discharge. The chest is substantially a

straight pipe of uniform diameter from the lower end upward to the point of discharge. The upper end, *a*, of the chest may be in the form of a removable cap, and the perforation *a'* within it, and in which the upper end of the valve-stem moves, may, if desired, be of smaller diameter than that of the main portion of the chest. Externally the chest may be of any desirable form to suit the particular requirements of the kind of valve in which the improvement is being used. If a beer-faucet, as shown, it may have a taper, *a*<sup>2</sup>, at the end that is driven into the keg. The chest also may be of any length according to the character of the valve. It may, for instance, be long enough to reach from the cellar to the uppermost story of a building, or it may have the proportions of an ordinary faucet.

D represents the valve-stem. At or near its upper end it is made in the form of or is provided with a rack, *d*.

E represents a shaft having a handle, *e*, and extending through a stuffing-box, *e'*, into the valve-chest, and provided with a pinion, *e*<sup>2</sup>, which engages with the rack *d*, and by means thereof the valve-stem can be moved longitudinally in the valve-chest. The lower end, *d'*, of the stem is made hollow, the perforation extending from the lower end of the stem upward to the point or points *d*<sup>2</sup> *d*<sup>2</sup>, where it opens into the interior *a*<sup>3</sup> of the valve-chest.

F G H respectively represent three cup-leather valves attached to the stem D between the two ends of the perforation *d'*—that is, the valve F is attached to the stem above the opening into the perforation *d'*, and the flange *f* of the valve is turned upward, the valve G is arranged below the points *d*<sup>2</sup> *d*<sup>2</sup>, and the flange *g* of the valve turns upward, and the valve H is arranged between the valves F and G, and the flange *h* of the valve turns downward.

The valves F and H are spaced apart a distance equal or thereabout to the diameter of the supply-pipe B.

I represents an extension of the supply-pipe, leading from the valve-chest or in any desired direction.

J represents a waste-opening through which the water is drained from the interior *a*<sup>3</sup> of the valve-chest.



K represents a plug that closes the lower end of the chest, and L a plug that closes the upper end of the chest.

The valve-stem, when raised, may be made to encounter the plug L, and by screwing the latter farther into the chest the lift of the valve may be shortened.

The upper end of the stem may be provided with a packing, M; and, if preferred, another packing, N, may be used to close the opening into the cap when the valve-stem is raised, as indicated in Fig. 2.

The operation of the invention is as follows: Let the valve be closed, as in Fig. 1. The valve F then prevents the descent of the water below the level of the supply and from entering the perforation  $d'$  at the lower end thereof. The valve H prevents the water from passing upward into the chamber  $a^3$ , and thus the water can flow onward through the pipes B I without interruption or waste. To open the valve the handle  $e$  is rotated, causing the pinion  $e^2$  to rapidly lift the stem and bringing the parts into the position shown in Fig. 2. The water can still flow freely onward into the pipe I, but it can also now pass into the perforation  $d'$  at the lower end thereof, thence through the outlets at  $d^2$   $d^2$  into the chamber  $a^3$ , and thence out at C. In this position the valve G is above the waste-opening J and the valve H below it, preventing any waste of water while the valve is open; but as soon as the valve is closed the valve G is brought below the opening J, and the water in the chamber  $a^3$  can now drain out, preventing trouble from freezing.

The shaft E projects beyond the valve-stem and is furnished with a journal,  $e^3$ , which turns in a bearing in the valve-chest. This serves

to hold the shaft properly and to facilitate the operation of the valve, especially in closing it, for an important aim and benefit of the rack and pinion is to enable the valve to be self-closing, the weight of the parts being sufficient in a hydrant to cause the valve to descend and close.

The perforation  $a'$  serves as a guide for the valve-stem.

A further advantage of the rack and pinion is that it provides for moving the valve rapidly, and the valve can be hammered upon its outer or upper end (as is often done in using beer-cocks) without injury.

The stem, if desired, may seat upon a leather washer,  $k$ .

I claim—

1. The combination of the chest A, having the perforation  $a'$ , and the stem D, having the packing M, substantially as described.

2. The combination of the chest A, stem D, valves F and H, and pipes B I, said pipes being opposite each other, substantially as described.

3. The combination of the chest A, stem D, pipes B I, arranged as shown, and valves F, G, and H, said chest having the waste-opening J, arranged as shown, substantially as described and shown.

4. The combination of the chest A, having the waste-opening J, arranged as described, the pipes B and I, the stem D, having the perforation  $d'$ , and the valves F G H, substantially as described.

Witness my hand this 15th November, 1879.  
PETER WHITE.

Witnesses:

CHAS. D. MOODY,  
PAUL BAKEWELL.