(No Model.)

G. & G. G. CAMPBELL.

WATER VALVE.

No. 362,059. Patented May 3, 1887.

FIG. 1

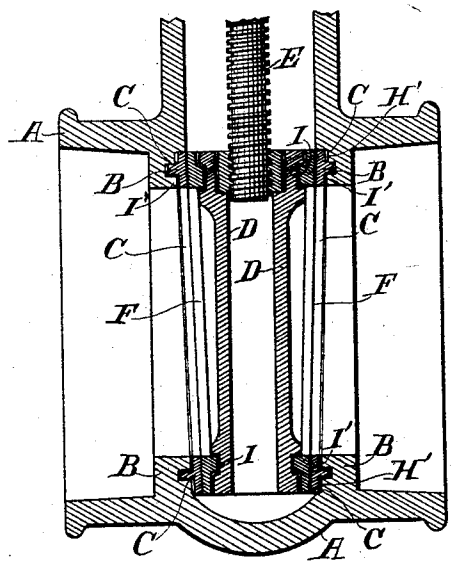


FIG. 3.

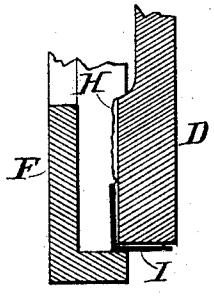


FIG. 4.

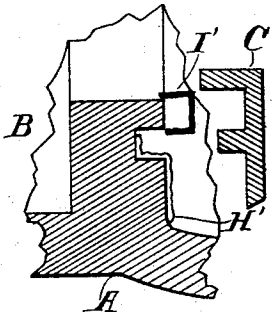


FIG. 5.

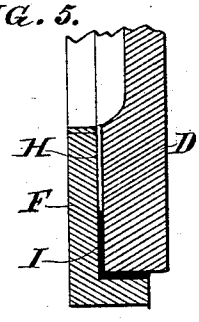


FIG. 2.

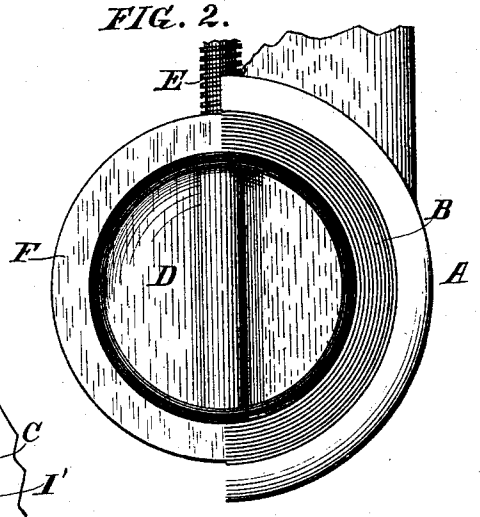


FIG. 6.

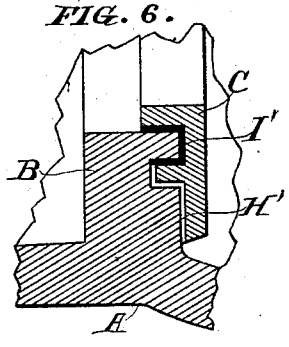
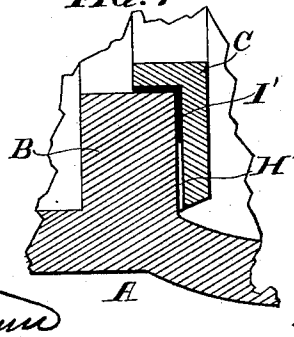


FIG. 7



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UNITED STATES PATENT OFFICE.

GARDINER CAMPBELL AND GEORGE G. CAMPBELL, OF MILWAUKEE, WIS.

WATER-VALVE.

SPECIFICATION forming part of Letters Patent No. 362,059, dated May 3, 1887.

Application filed February 21, 1887. Serial No. 228,303. (No model.)

To all whom it may concern:

Be it known that we, GARDINER CAMPBELL and GEORGE G. CAMPBELL, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Water-Valves; and we do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates especially to the peculiar forms of construction of the valve-face ring and its seat-ring and the method of securing them to their supporting-frames.

In the drawings, Figure 1 is a vertical central cross-section of the valve and its seat and supporting-frame. Fig. 2 is an elevation from the right of Fig. 1, showing the opening into the valve-chamber, the pipe being omitted on the left, exposing the face of the valve. Figs. 3, 4, 5, 6, and 7 are enlarged views of the joints made between the valve-face ring and its frame and the seat-ring and its frame, the different views showing slightly-modified forms of construction.

The valve or gate is such as is used in water-mains in cities for stopping the flow of water.

A is a short section of pipe adapted to be inserted in and forming a part of a line of water-mains, and forms the valve-chamber, being provided with circular flanges B B, integral therewith around on its inner surface, one on each side of the valve-chamber, forming shoulders or frames to which the valve-seats C C, one on each side of the valve, are affixed.

The valve or gate is of a circular form and of proper size and shape to enter and fit between the seats C C, closing the water-main and stopping the flow of water therethrough.

The valve consists of the frame D, provided with means for elevating and lowering the valve, usually a rotating screw-threaded stem, E, adapted to turn in the top of the frame, and the valve-face rings F F, one on each side, affixed to the frame by the method and in the form hereinafter described.

The bearings or joints made between the valve-face rings and the valve-frame and between the seat-rings and their supporting-frame may be made in practically the same form, and the bearing-faces of these joints may be in any of the forms shown in Figs. 3, 4, 5, 6, and 7—that is, the bearings may be simply in a right-angle form, as shown in Figs. 3, 5, and 7, or in the form of tongues or flanges and corresponding grooves or channels, as shown in Figs. 4 and 6; but the forms shown in Figs. 4 and 6 give greater bearing-surface, and are in many cases to be preferred.

The valve-face rings F F and the valve-seat rings C C are affixed to their respective supporting-frames as follows: A small supply of putty, cement, or other plastic material, H, is placed on the frame or on the valve-face ring on a surface that is to be a part of the joint between the frame and the valve-face ring. A strip or ring of lead, I, is then placed alongside the cement or putty on the valve-face ring or valve-frame on a joint-face, and the valve-face ring is then placed against the valve-frame and pressure is applied to force the ring firmly down to position on and relative to the valve-frame. The mass of putty or cement, being greater or thicker than the lead, receives the pressure of the valve-face ring, being forced against the valve-frame first, and when the force applied has pressed the valve-face ring tightly against the putty or cement and lightly against the lead the pressure is not increased, but continued at this amount, and the lead is then driven or calked into the joint, forcing it into all the pockets, crevices, and openings of the joint, making the connection between the valve-frame and the face-ring complete, firm, and tight. In practice the two valve-face rings are commonly applied and affixed to the valve-frame at the same time. A supply of putty and cement, H′, and a strip or ring of lead, I′, is then applied to the valve-seat ring or to the flanges B B on the bearings which are to form the joints between them, and the valve-seat rings are then placed in position in the pipe on the flanges B B. The valve is then put in its chamber at the top and is forced down to place, which valve, being somewhat wedge-shaped vertically, forces the valve-seat rings, as the valve goes down, to their proper position on the flanges B B, whereby they are forced into such position as to form a complete gate or tight valve-connection with the valve. The valve is re-

tained in this closed position, and the lead is then driven or calked into the joints between the seat-rings and the flanges B B, forming a complete, firm, and tight connection between the rings and flanges.

In the construction of water-valves of the class in which the valves have face-rings and the frame has seats affixed to each other, respectively, by lead or other intermediate substances, it has been found difficult to put and hold the face-rings and seats in position for attaching them to their respective supports. This difficulty we overcome by the use of the auxiliary plastic material, furnishing a readily yielding but sufficient support for the purpose. It has also been found that joints made with molten lead are imperfect and unsatisfactory, by reason of the porosity of the lead and its liability to form pockets and to contain holes, which difficulties we are able to obviate by our method of supporting the facings and seats in position and calking the lead into the joints.

What we claim as new, and desire to secure by Letters Patent, is—

1. The process of constructing water-valves in pipes, such valves having valve-face rings affixed to a valve-frame and valve-seat rings affixed to flanges on the pipe, by inserting between the valve-face rings and valve-frame and between the valve-seat rings and the flanges on the pipes, first, an auxiliary plastic material, and afterward a strip or ring of lead, forcing the valve-face rings and valve-seat rings to position against their supports and forcing the lead by driving or calking into the joint, substantially as described.

2. A water-valve formed and consisting of a valve-frame, D, and valve-face rings F F, in combination with an auxiliary plastic material, H H, and a calked lead-joint filler, I I, substantially as described.

3. In a water-gate, a valve-seat ring, C, and a water-pipe having flanges B B, in combination with an auxiliary plastic material, H H, and a calked lead-joint filler, I I, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GARDINER CAMPBELL.
GEORGE G. CAMPBELL.

Witnesses:
C. T. BENEDICT,
O. L. HOFFMANN.