

(No Model.)

W. G. BROWNE.
CUT-OFF FOR WATER PIPES.

No. 360,139.

Patented Mar. 29, 1887.

Fig. II—

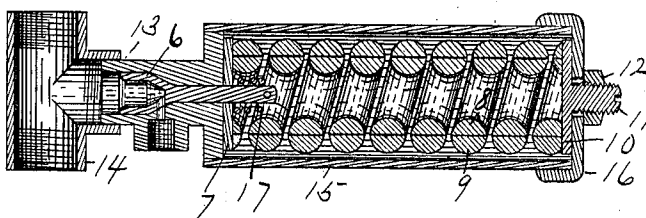


Fig. I—

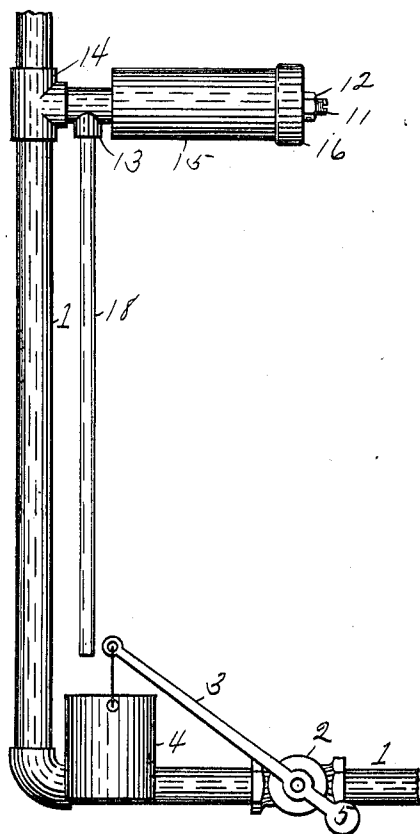


Fig. III—



Fig. IV—

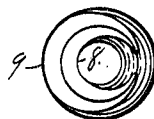
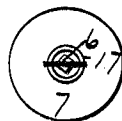


Fig. V—



Witnesses—

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UNITED STATES PATENT OFFICE.

WALKER G. BROWNE, OF ATLANTA, GEORGIA, ASSIGNOR TO THE UNITED STATES AUTOMATIC WATER CUT-OFF COMPANY.

CUT-OFF FOR WATER-PIPES.

SPECIFICATION forming part of Letters Patent No. 360,139, dated March 29, 1887.

Application filed August 23, 1886. Serial No. 211,683. (No model.)

To all whom it may concern:

Be it known that I, WALKER G. BROWNE, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Cut-Off for Water-Pipes; 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.

This invention is a device for automatically closing the valves of water-pipes, the actuating power being the contraction of a compound coil composed of metals having different expansive qualities; and it consists in means for utilizing the same, as will be hereinafter fully described.

In the accompanying drawings, Figure I is a view of the different parts of the device connected to a pipe. Fig. II is a longitudinal section through the compound coil, the inclosing case, and the valve. Fig. III is a detail showing the adjusting-plate by which the valve is set to open at any desired degree of temperature. Fig. IV is an end view of the compound coil. Fig. V is a view of the plate that acts as a wrench to turn the valve, and also showing the valve-stem and spring.

In these figures a water-pipe is represented at 1.

2 is a valve of any kind that will open and close by a partial rotary movement. 3 is a lever attached to the stem of this valve, on one end of which is hung a vessel, 4, and on the other end is a counter-balance, 5.

6 is a rotary valve having an opening to correspond with an opening in the valve-seat. The outer end of this valve fits the square hole in the plate 7, which plate is attached to the compound coil 8 9, the valve-stem being square and free to move through the square hole in the plate 7, but turning with said plate. The compound coil 8 9 is composed of two metals having different expansive qualities. To the opposite end of the compound coil is attached the plate 10, having the stud 11 on its side, on which is a nut, 12. The part 13, in which

is the valve-seat, is screwed into the pipe-fitting 14, and on the other end is screwed a casing having a cover, 16, through which the stud on the plate 10 passes and is held by the nut 12. The stem of the valve 6 is encircled at its outer end by a spring, 17, to keep it in place when there is no pressure of water against it. Into the part 13 is screwed the pipe 18. The valve 2 and lever 3 should be so set that when the valve is open the end of the lever to which the vessel is attached will be somewhat elevated.

The valve 6 should be so set that when the temperature shall have arrived at the point at which it is desired to close the valve the holes in the valve and its seat will coincide and allow water to flow from the pipe into the vessel 4, and by its weight to cause the valve to close. It is preferable that the valve 2 should be a stop and waste valve, in order that the parts beyond it will drain, and that the water shall flow from that valve to the point at which the part 13 is attached, in order that the water will stop flowing through the valve 6 whenever the pipes shall have been drained. The valve 6 assists in draining the pipes above it, and forms a vent for the pipes below.

The valve 2 being open and the vessel 4 being empty, the counter-balance will hold the valve in that position until the vessel shall have received a sufficient amount of water from the pipe 18 to turn the lever down and close it, which will occur whenever the unequal expansion of the metals in the compound coil shall have turned the valve sufficiently to cause a coincidence in the holes in the valve and seat.

The compound coil 8 9, which is preferably composed of steel and brass, the part 8 being steel and having a low expansive quality, and the part 9 being brass and having a high expansive quality, being brazed together, has a tendency to straighten by the excessive contraction of the brass on the lowering of the temperature, thus causing the valve to revolve and allow the water to flow through the pipe 18 to the vessel 4. The raising of the temperature will cause a reverse revolution to take place and close the aperture in the valve 6.

It is obvious that other metals might be used

in the compound coil, or that their positions might be reversed without changing the principle of its operation.

I am aware that it is not new to operate a
5 cut-off valve in water-pipes by means of a compound spring composed of two metals having different expansive qualities under the action of the same degree of heat, and do not
10 therefore broadly claim such an apparatus, but limit my claims to the specific construction which I have illustrated and described.

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

15 1. In a cut-off for water-pipes, the combination of the compound coil composed of two strips of different metals; 8 9, one end of said coil being stationary and the other having a rotary movement, as described, the valve-operating plate 7, the rotating valve 6, its stem
20 loosely fitting said operating-plate, but turning with it, the spring 17, and the fixed valve-

seat, all arranged and operating to cause a discharge of water through the pipe 18 by the change in the temperature of the compound coil, substantially as set forth.

2. In a cut-off for water-pipes, the combination of the compound coil and valve operated by said coil with the pipe 18 and valve 2, lever 3, and vessel 4, to contain water to act as a weight for closing said valve 2, substantially as specified.

3. In an automatic cut-off for water-pipes, the combination of the compound coil 8 9, the adjusting-plate 10, the plate 7, spring 17, valve 6, the part 13, and vessel 4, attached to a lever, 3, having counter-balance 5, arranged, substantially as described, to close the valve 2.

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

W. G. BROWNE.

Witnesses:

A. P. WOOD,
W. F. MANBY.