

G. I. ROCKWOOD.
 DRY PIPE VALVE.
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1,033,471.

Patented July 23, 1912.

Fig. 1.

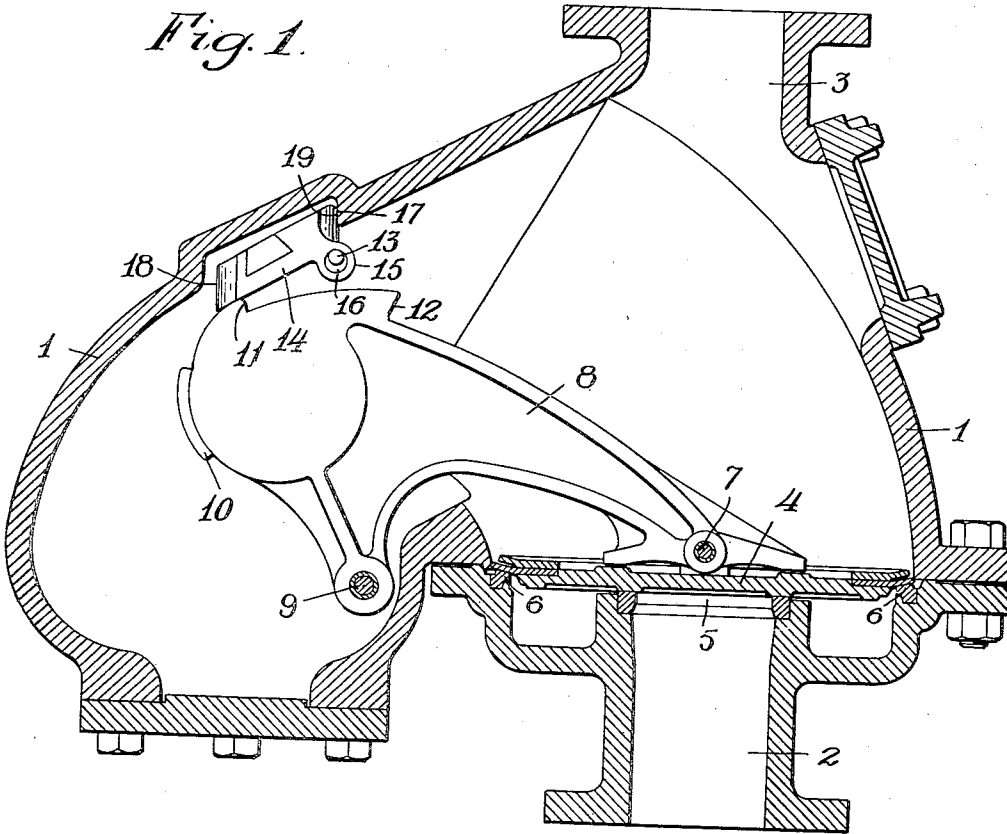
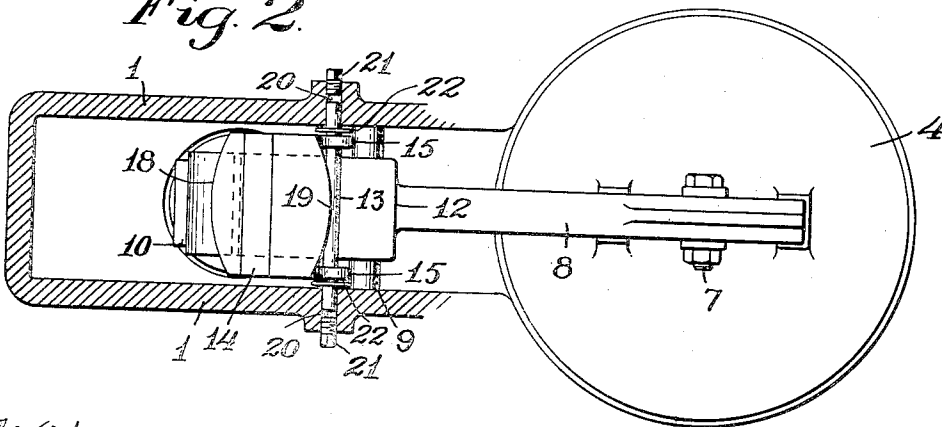


Fig. 2.



Witnesses

R. D. Tolman.
 C. E. Lombard.

Inventor

George I. Rockwood.
 By Rufus B. Fowler
 Attorney

UNITED STATES PATENT OFFICE.

GEORGE I. ROCKWOOD, OF WORCESTER, MASSACHUSETTS.

DRY PIPE-VALVE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE I. ROCKWOOD, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Dry Pipe-Valves, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a side elevation in central sectional view of a dry pipe valve embodying my present invention, and Fig. 2 is a plan view of the gravity latch for locking the valve in a raised position.

Similar reference characters refer to similar parts in the different figures.

My present invention relates to a dry pipe valve comprising a rocking arm or lever carrying a valve, arranged to close a passage to the flow of water under pressure, said valve presenting different areas of pressure on opposite sides, whereby a small pressure against the side of greater area will resist a greater pressure against the side of lesser area.

Dry pipe valves of this class are now in common use, and my present invention relates particularly to the application of a gravity latch to hold the valve in a raised or partially raised position.

Referring to the accompanying drawings, 1 denotes a shell or casing having an inlet passage 2 and an outlet passage 3 for the flow of water therethrough. The inlet passage 2 is closed by a valve 4 which rests upon a valve seat 5. The outer edge of the valve 4 rests upon an annular valve seat 6. As the area of the valve within the valve seat 6 is much greater than the area of the valve within the valve seat 5, a downward pressure upon the upper surface of the valve will be capable of resisting a greater pressure within the inlet passage 2 applied to the under side of the valve. A water supply under pressure will, therefore, be held by the valve 4 by the application of a lesser pressure upon the upper surface of the valve. Devices of this class are employed in automatic sprinkler systems and, whenever the pressure above the valve is relieved by the opening of a sprinkler, the pressure of the water supply through the inlet passage 2 forcibly raises the valve and allows the current of water to pass through the shell 1 and outlet passage 3. The valve 4 is pivotally connected by a pin 7 with the

free end of a lever 8, which is pivoted within the casing 1 upon a pin 9. The lever 8 is provided with a counterweight 10, and arranged upon the arc of a circle concentric with the pivotal pin 9 are the ratchet teeth 11 and 12. Passing through the casing 1 is a pin 13, upon which is pivotally hung a gravity pawl 14 by means of lugs 15, having holes 16 considerably larger than the pivotal pin 13 in order to allow free play to the gravity pawl upon the pin 13. When the valve 4 is closed, the free end of the gravity pawl rests upon the tip of the tooth 11 and the opposite end of the pawl bears against a shoulder 17 formed in the casing 1. As the lever 8 is rocked by the lifting of the valve 4, the free end of the pawl will drop behind the tooth 11 preventing the return of the valve and, if the lifting movement is continued, the pawl will finally drop behind the tooth 12 and hold the valve in a partially raised position by its engagement with a tooth of the lever 8. If the force of the water through the inlet passage 2 raises the valve to the limit of its upward movement, the counterweight 10 will have been lowered sufficiently to hold the valve in its raised position, but any partial movement of the valve sufficient to allow either of the teeth 11 or 12 to be caught by the gravity pawl 14 will prevent the valve from closing. The pressure of either of the teeth 11 or 12 against the free end of the pawl will be resisted by the shoulder 17, relieving the pivotal pin 13 from pressure.

The free end of the pawl 14 is curved as shown at 18, presenting a curved surface to contact with the teeth 11 and 12. The opposite end of the pawl is curved at 19, presenting a curved surface to contact with the shoulder 17, so that the straight contacting surfaces of the teeth 11 and 12 will strike the curved surface 18 at a single tangential point, notwithstanding any lateral angular displacement of the pawl. Likewise the straight shoulder 17 will contact with the curved surface 19 at a single tangential point. The line of pressure, therefore, will lie between the single points of contact on the opposite curved surfaces of the pawl. The pivotal pin 13 may be inserted loosely through the holes 20 in the casing 1 and the holes closed by screws 21.

Between the casing 1 and the sides of the pawl I insert loose washers 22 of a non-corrosive material, which obviates the lia-

bility of impeding the free action of the pawl.

I claim,

1. A dry pipe valve, comprising a case
5 having inlet and outlet openings, a valve
closing said inlet opening, a rocking lever
carrying said valve and having a projecting
tooth, a pin through said case above said
lever, a pawl pivotally hung on said pin by
10 lugs having holes larger than said pin, said
pawl approximately the width of said lever
and arranged to engage said tooth by
gravity when said lever is rocked.

2. In a dry pipe valve, a case having inlet
15 and outlet openings, a pivoted valve for
closing said inlet opening, a gravity pawl
loosely pivoted at one end within said case
for holding said valve in a raised position,
and a shoulder in said case for engaging the
20 pivoted end of said pawl.

3. In a dry pipe valve, a case, a rocking
valve lever pivotally supported in said case
having a projection for a retaining pawl, a
retaining pawl loosely pivoted at one end
within said case and arranged to engage
said projection by gravity, and an abutting
member on said case arranged to resist the
end thrust upon said pawl.

4. In a dry pipe valve, a case, a rocking
valve lever pivoted within said case, a
gravity pawl loosely pivoted at one end
within said case, and a pawl abutting mem-
ber on said case to resist the thrust of said
pawl, said pawl having rounded contacting
ends.

GEORGE I. ROCKWOOD.

Witnesses:

PENELOPE COMBERBACH,
NELLIE WHALEN.