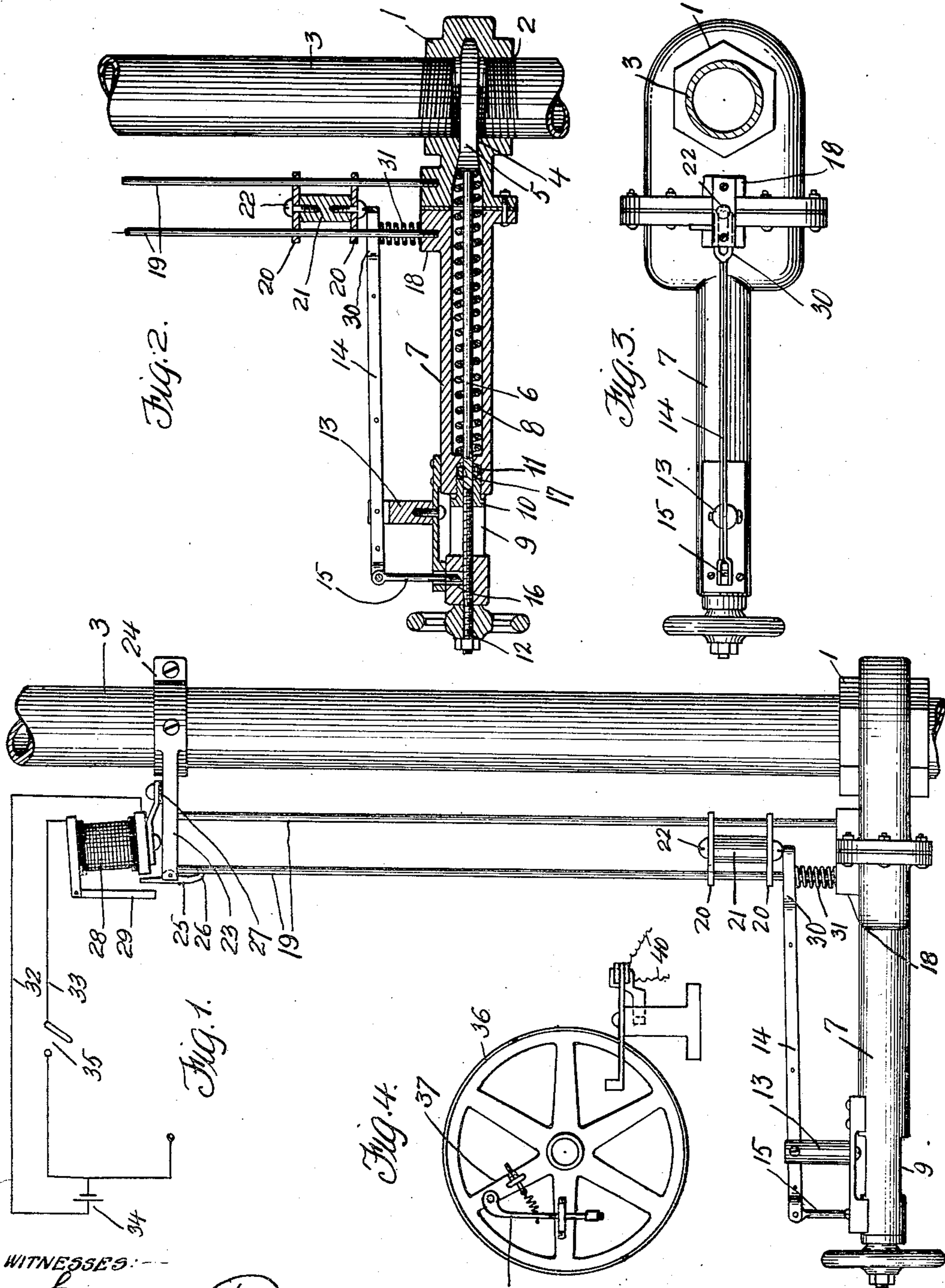


O. PENN.
EMERGENCY VALVE.
APPLICATION FILED SEPT. 15, 1909.

945,586.

Patented Jan. 4, 1910.



WITNESSES:

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EMERGENCY-VALVE.

945,586.

Specification of Letters Patent.

Patented Jan. 4, 1910.

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To all whom it may concern:

Be it known that I, OLIVER PENN, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Emergency-Valves, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to emergency valves and is an improvement on my Patent No. 904,985, granted November 24, 1908, wherein there is illustrated and described an electrically controlled gate valve that can be used in connection with steam pipes.

The present invention aims to improve the valve referred to in the above mentioned patent by providing a gravity weight for releasing the automatically actuated gate of the valve, and to furnish the valve with electrical means for releasing the gravity weight. To this end, I have devised means whereby my valve can be used in a horizontal position upon vertical steam pipes, and in connection with governors of various types.

The invention will be hereinafter described in detail and then claimed, and reference will now be had to the drawing forming a part of this specification, wherein there is illustrated a preferred embodiment of the invention; but it is to be understood that the structural elements thereof can be varied or changed, as to the size, proportion and manner of assemblage without departing from the spirit of the invention.

In the drawing:—Figure 1 is a side elevation of a valve constructed in accordance with my invention, Fig. 2 is a longitudinal sectional view of the same, Fig. 3 is a plan of the valve, and Fig. 4 is a diagrammatic view illustrating a form of governor that can be used for releasing the valve.

In order that those not conversant with my patent can understand the principle of the present invention, a brief description is thought to be essential to a thorough understanding of my improvement, and is herewith set forth.

The reference numeral 1 denotes a valve body provided with alining ports 2 for the ends of pipes 3. The valve body 1 is provided with a vertical slot 4 for a gate 5 having the upper and lower ends thereof shaped to seat in the upper and lower parts of the slot 4. The gate 5 is connected to a

vertical rod 6 extending through a cylindrical casing 7 secured to the top of the valve body 1. Mounted in the casing 7 and encircling the rod 6 is a coil spring 8. The upper end of the casing is provided with a transverse opening 9, and in the opening 9 is mounted a gland 10 extending into a stuffing box 11 through which extends the rod 6. The upper end of the rod 6 is threaded for adjustable hand wheel 12 employed to raise the gate 5.

Located upon the casing 7 in proximity to the upper end thereof is a bearing 13 for a fulcrum lever 14. One end of the lever 14 is provided with a pivoted latch 15 adapted to extend into an opening 16 provided therefor in the upper end of the casing 7, said latch being adapted to engage in a notch 17 provided therefor in the rod 6.

The gate 5 is shown in a closed position in Fig. 2, and to open the gate, the hand wheel 12 is rotated to move the rod 6 until the latch 15 engages in the notch 17. The hand wheel 12 is then rotated to its normal position at the upper end of the rod, and the valve is set whereby the gate thereof will be released when the latch 15 is removed from the notch 17, it being understood that the tension of the spring 8 is sufficient to quickly close said valve.

Reference will now be had to my improvement. With the valve in a horizontal position as shown in Figs. 1 and 2, the enlarged confronting ends 18 of the valve body 1 and the casing 7 are provided with two vertical parallel guide rods 19 and slidably mounted upon these guide rods are the cross head 20 of a gravity weight 21, said cross heads being secured to the gravity weight 21 by screws 22 or other fastening means. The upper ends of the rods 19 are held by an arm 23 carried by a clamp 24 mounted upon the pipe 3. The outer end of the arm 23 is bifurcated for a pivoted catch 25 having a hook-shaped end 26 adapted to engage under a pin 26^a carried by the uppermost head 20 of the gravity weight.

Mounted upon the arm 23 and insulated therefrom, as at 27 is an annularly disposed electro-magnet 28 having a pivoted armature 29 adapted to be attracted to engage the upper end of the catch 25 when the electro-magnet is energized.

The end of the lever 14 which extends above the enlargement 18 is looped or slotted, as at 30 to surround and provide

clearance for one of the guide rods 19, the end of said lever extending into the path of the gravity weight 21. Interposed between the looped or slotted end of the lever and the enlargement 18 is a coil spring 31 encircling the guide rod 19, this spring normally holding the latch 15 of the lever 14 in engagement with the rod 6.

As shown in Fig. 1 of the drawing, the electro-magnet 28 is connected by wires 32 and 33 to a suitable source of electrical energy, as a single cell battery 34, and interposed upon the wire 33 is a switch 35.

An improvement constructed as above described operates in the following manner:—

After the gate 5 has been opened by moving the rod 6 inwardly, placing the spring 8 under tension and the latch 15 in engagement with the notch 17, the gravity weight 17 is elevated to the arm 23 and held in an elevated position by the catch 25. When the switch 35 is closed, the electro-magnet 28 is energized and through the medium of the catch 25 releases the gravity weight 21, allowing the same to descend and engage the looped or slotted end of the lever 14, causing the opposite end of the lever to raise the latch 15, release the rod 6 and allow the coil spring 8 to close the gate 5 of the valve.

As an example of the manner in which my improvement can be used in connection with a governor, I have illustrated diagrammatically in Fig. 4 a fly wheel 36 having one of the spokes 37 thereof provided with a pivoted spring held weighted lever or contact arm 38. Assuming that the wheel 36 is revolved by an engine to an excessive speed, the centrifugal force of the wheel 36 is adapted to swing the lever 38 outwardly and cause the same to engage a movable contact arm 39, which establishes a circuit through the wires 40 to the electro-magnet 28, thereby releasing the gravity weight 21 and closing the gate 5, shutting off the supply of steam to the engine. It is through the medium of electrical connections that my valve can be used as a safety factor in various places, where it is desired to automatically close a gate valve.

Having now described my invention what I claim as new, is:—

1. The combination with a spring-actuated mechanism for closing a gate valve, and a locking means for said mechanism adapted when actuated to release the mechanism to close the valve, of an actuating means for the locking means, said actuating means comprising a pair of guide rods fixed at one end, bracing means for the other end of said rods, a gravity movable weight

adapted when released to engage the locking means to actuate it, said weight sliding upon said rods, a pivoted catch supported by the bracing means and engaging the weight for normally maintaining it in an elevated position, and an electro-magnetic device provided with a pivoted armature, adapted when said device is energized, to engage said catch to swing it clear of the weight, thereby releasing the latter.

2. The combination with a spring-actuated mechanism adapted when released to close a gate valve, of a latch engaging said mechanism for locking it, a pivoted actuating lever carrying said latch and adapted when actuated to shift the latch clear of said mechanism to release the latter, a pair of guide rods fixed at one end, one of said rods straddled by said lever, bracing means for the other end of said rods, a gravity movable weight adapted when released to engage that end of the lever which straddles the guide rod, thereby actuating the lever and moving the latch clear of said mechanism, a pivoted catch supported by said bracing means and engaging said weight for normally maintaining it in elevated position, and an electro-magnetic device supported by said bracing means and having a pivoted armature adapted when said device is energized to engage said catch to swing the latter clear of the weight, thereby releasing it.

3. The combination with a spring-actuated mechanism adapted when released to close a gate valve, of a latch engaging said mechanism for locking it, a pivoted actuating lever carrying said latch and adapted when actuated to shift the latch clear of said mechanism to release the latter, a pair of guide rods fixed at one end, one of said rods straddled by said lever, bracing means for the other end of said rods, a gravity movable weight adapted when released to engage that end of the lever which straddles the guide rod, thereby actuating the lever and moving the latch clear of said mechanism, a pivoted catch supported by said bracing means and engaging said weight for normally maintaining it in elevated position, and means arranged in operative relation with respect to said catch and adapted to engage the same to shift it upon its pivot thereby releasing said weight.

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

OLIVER PENN.

Witnesses:

CHARLES WOCHLEY,
JAMES A. WOCHLEY.