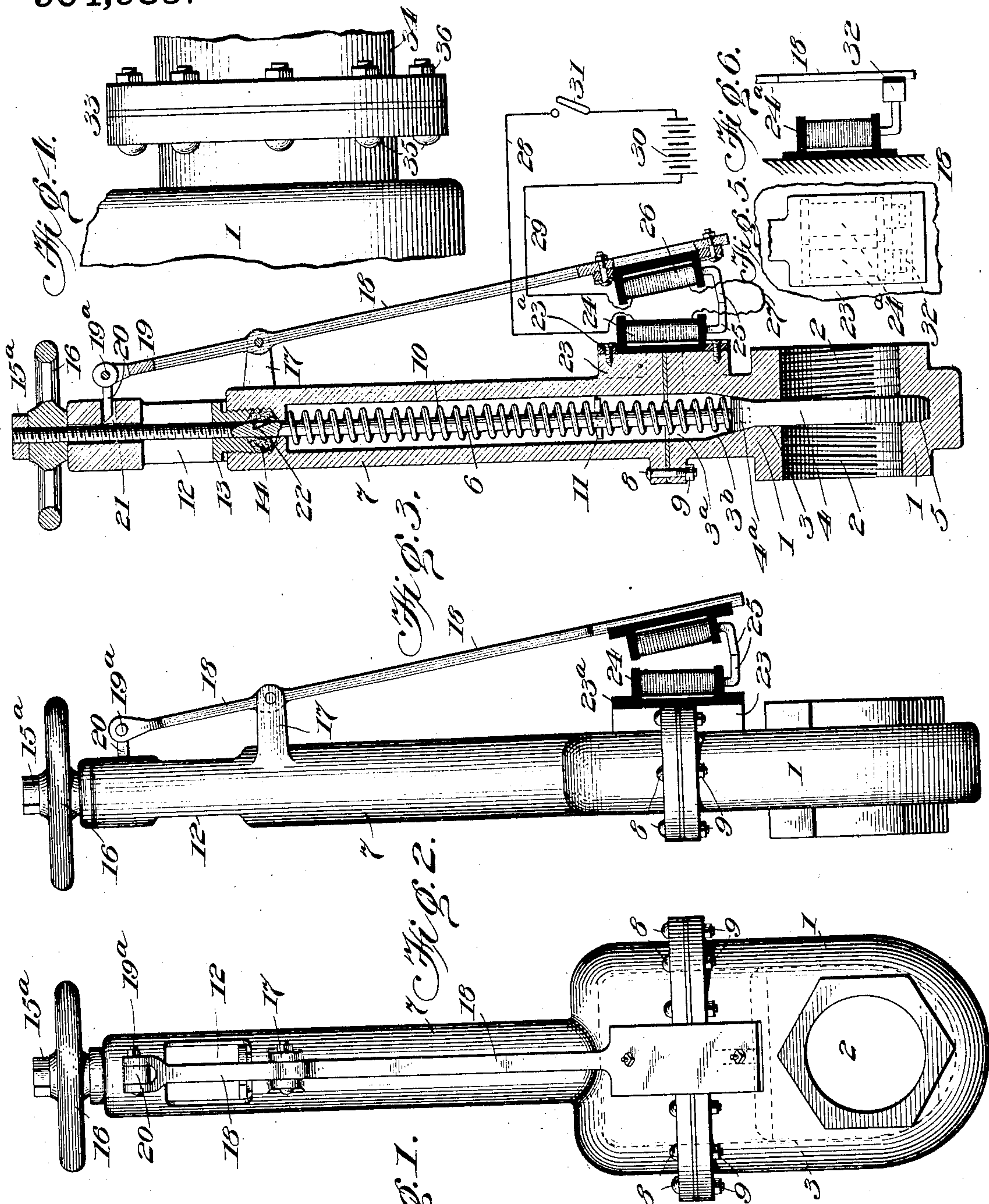


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EMERGENCY VALVE.  
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904,985.

Patented Nov. 24, 1908.



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# UNITED STATES PATENT OFFICE.

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## EMERGENCY-VALVE.

No. 904,985.

Specification of Letters Patent.

Patented Nov. 24, 1908.

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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 drawings.

This invention relates to valves, and more particularly to that type of valve commonly styled a "gate valve."

The primary object of my invention is to provide an electrically controlled gate valve that can be used in connection with steam pipes.

Another object of this invention is the provision of positive and reliable means in connection with a gate valve for automatically closing the same, said means being easily adjusted to insure a positive operation of the valve.

A further object of this invention is to provide a simple, durable and inexpensive valve that can be used for various purposes.

With the above and other objects in view which will more readily appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts to be presently described and then specifically pointed out in the appended claims.

In the drawings:—Figure 1 is a front elevation of the valve constructed in accordance with my invention, Fig. 2 is a side elevation of the same, Fig. 3 is a vertical sectional view of the valve illustrating the electrical connections, Fig. 4 is an elevation of a portion of a modified form of valve body, Fig. 5 is a front elevation of a portion of a valve lever, illustrating a modification of the invention, and Fig. 6 is a side elevation of the same.

In the accompanying drawings, 1 designates a valve body provided with alining ports 2, these ports being interiorly screw threaded for pipe connections. The valve body 1 is provided with a vertical slot 3 for a gate 4. The upper end of the slot 3 is enlarged, as at 3<sup>a</sup>, and formed with oppositely disposed inclined sides 3<sup>b</sup>, providing a seat for the upper enlarged end 4<sup>a</sup> of the gate 4. The opposite end of the gate 4 is formed with oppositely disposed sides for seating in the lower part of the valve or body 1, as at 5, said gate forming a non-leakable partition

between the ports 2. It is impossible for steam to escape into the upper enlarged end 3<sup>a</sup> of the slot 3 by reason of the enlarged end 4<sup>a</sup> of the gate being firmly held against the inclined sides 3<sup>b</sup> of said slot, said gate seating in the lower part of the body 1, as at 5, and forming a partition between the ports 2.

The gate 4 is connected to a vertical rod 6 extending upwardly through a cylindrical casing 7 secured to the top of the valve body 1 by bolts 8 and nuts 9. Mounted in the casing 7 and encircling the rod 6 is a coil spring 10, and extending through the rod 6 between two of the convolutions of the spring is a pin 11. The object of this pin is to support convolutions of the spring between said pin and the upper end of the casing, and by rotating the spring, similar to a screw, the tension thereof can be increased or decreased by placing a greater number of convolutions above the pin than below and vice versa.

The upper end of the casing 7 is provided with a transverse opening 12, and in the opening 12 is mounted a gland 13 and stuffing box 14, through which extends the rod 6. The upper end of the rod 6 is threaded, as at 15, for an adjustable hand wheel 16, said wheel being employed to raise the gate 4. The extreme end of the rod 6 is provided with a nut 15<sup>a</sup> for preventing the adjustable hand wheel 16 from being accidentally removed.

Located upon the front side of the casing 7 in proximity to the upper end thereof is a bearing 17 for a fulcrumed lever 18. The upper end of the lever is bifurcated, as at 19, and provided with a bearing pin 19<sup>a</sup>, for a pivoted beveled latch 20, said latch extending through an opening 21 in the casing 7 for engaging a notch 22 formed in the side of the rod 6. The front side of the valve body 1 and the casing 7 at the confronting ends thereof, are enlarged, as at 23, and provided with a plate of insulation 23<sup>a</sup>, for an electro-magnet 24 having a soft iron core 25. This electro-magnet operates in conjunction with another magnet 26 located upon the lever 18 and suitably insulated therefrom. The electro-magnets are connected together by a wire 27 and by wires 28 and 29 to a battery 30. A suitable switch or push button 31 is located upon the wire 28, whereby the energizing of the electro-magnets 24 and 26 can be readily controlled.

In lieu of the two electro-magnets 24 and 26, I can provide the enlargement 23 with



two electro-magnets 24<sup>a</sup> and the lever 18 with a soft iron armature 32, as shown in Figs. 5 and 6 of the drawings. A modification of the valve body is illustrated in Fig. 4 where-  
 5 in the threads of the ports 2 are dispensed with, and the valve body flanged as at 33, whereby a flanged pipe 34 can be connected to the same by bolts 35 and nuts 36.

Operation. To open the gate 4 of the  
 10 valve, the hand wheel 16 is rotated to raise the rod 6 and place the spring 10 thereof under tension. When the notch 22 registers with the opening 21 of the casing 7, the lever 18 is swung to place the latch 20 in engage-  
 15 ment with the notch 22, such a position of the lever separating the soft iron cores 25 of the electro-magnets 24 and 26. The hand wheel 16 is then rotated to a raised position upon the rod 6, preferably in engagement  
 20 with the nut 15<sup>a</sup>, in order to clear the upper end of the casing 7 when the gate 4 is closed. By establishing a circuit through the electro-magnets 24 and 26, the soft iron core of the magnet 26 is attracted to the soft iron core  
 25 25 of the electro-magnet 24, this inward movement of the lower end of the lever 18 withdrawing the latch 20 from engagement with the notch 22, allowing the spring 10 to pull the gate 4 downwardly and maintain  
 30 the same in a closed position.

While in the drawings forming a part of this application, there is illustrated the preferred embodiments of my invention, it is to be understood that the elements therein can  
 35 be varied or changed without departing from the spirit of the invention.

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

1. A valve comprising a body, a gate mov-  
 40 ably mounted therein, a casing carried by said body, a rod secured to said gate and ex-

tending upwardly through said casing, a hand wheel adjustably mounted upon the upper end of said rod and adapted to engage said casing for elevating said rod, a coil 45 spring located in said casing and encircling said rod for lowering said rod and gate, a lever fulcrumed upon the side of said casing, a pivoted latch carried by the upper end of said lever and extending into said casing 50 for engaging a notch provided therefor in said rod, an electro-magnet carried by the lower end of said lever, an electro-magnet supported by said casing for attracting the first mentioned electro-magnet for moving 55 said lever, and means carried by said rod within said casing for increasing the tension upon said spring, substantially as described.

2. A valve comprising a body, a gate mov-  
 ably mounted therein, a casing carried by 60 said body, a spring-pressed rod movably mounted in said casing and connecting with said gate, a hand wheel arranged at the upper end of said rod for elevating the same and placing said spring under tension, a 65 lever fulcrumed upon said casing, a pivoted latch carried by said lever for engaging said rod and supporting the same in an elevated position, and a pair of electro-magnetic de-  
 70 vices associating with each other and with said lever and adapted when energized to shift the lever whereby said latch is released causing the automatic shifting of the rod in one direction to close the gate, one of said magnetic devices carried by the casing and 75 the other by said lever.

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

OLIVER PENN.

Witnesses:

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