No. 838,327. PATENTED DEC. 11, 1906.

J. J. HEITZ.

AUTOMATIC SAFETY VALVE.

APPLICATION FILED SEPT. 20, 1906.

Fig. 1.

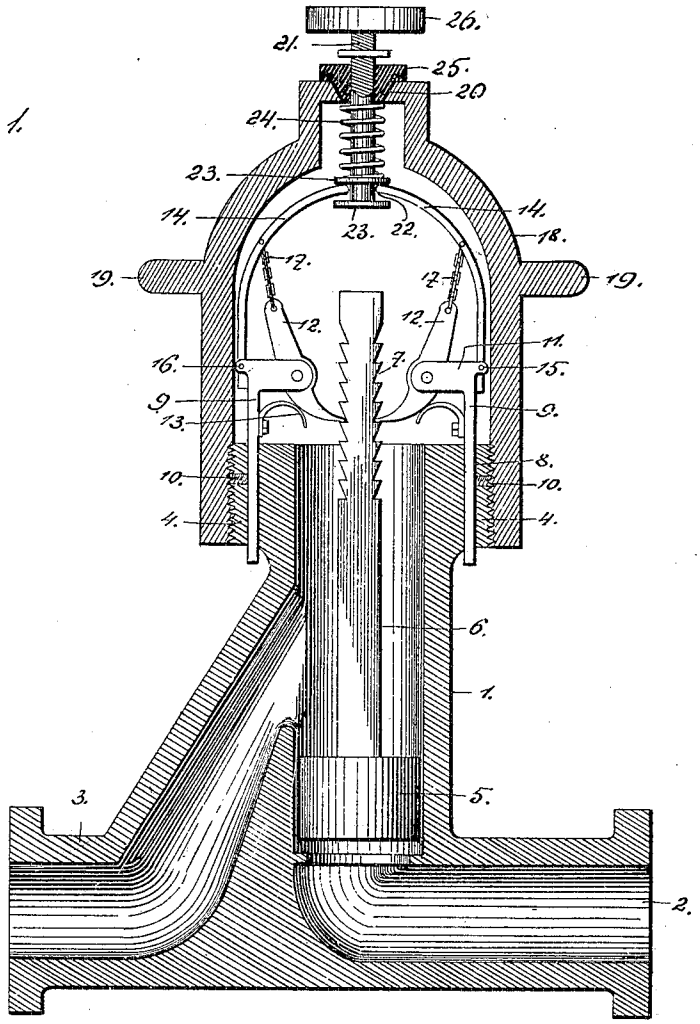
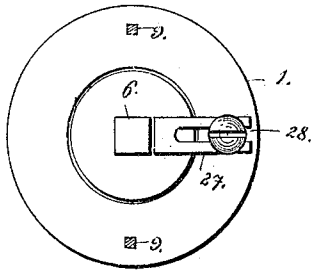


Fig. 2.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC SAFETY-VALVE.

No. 838,327. Specification of Letters Patent. Patented Dec. 11, 1906.

Application filed September 20, 1906. Serial No. 335,489.

To all whom it may concern:

Be it known that I, JOHN JACOB HEITZ, a citizen of the United States of America, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Automatic Safety-Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to safety-valves for gas-mains; and its object is to provide a valve which will automatically close when the pressure in the gas-main is reduced, together with means for locking the valve in its closed position.

A further object of this invention is to provide novel means for releasing the valve to permit it to be opened by the gas-pressure.

The construction of the improvement will be more fully described hereinafter in connection with the accompanying drawings, which form a part of this specification, and its novel features will be defined in the appended claims.

In the drawings, Figure 1 is a central vertical section of a valve-casing equipped with my improvement; and Fig. 2 is a detail plan of the upper end of the casing, showing means for preventing the valve from turning.

The reference-numeral 1 designates a vertically-disposed valve-casing having a gas-inlet 2 and communicating with a discharge or supply pipe 3. The upper end of the casing 1 is provided with an annular externally-threaded flange 4, and within the casing is supported a valve 5, provided with a stem 6, the latter being preferably of square or rectangular form in cross-section and having its upper portion provided with oppositely-disposed ratchet-teeth 7.

The flange 4 of the valve-casing is formed with diametrically opposite vertical openings 8, within each of which is adjustably supported a rod 9 by means of a set-screw 10. Projecting inwardly from the upper end of each of the rods 9 is a bracket 11, upon which are pivotally secured two oppositely-disposed pawls 12, adapted to engage the teeth 7 of the valve-stem, as illustrated in the drawings. Below each of the pawls 12 is a curved spring 13, said springs being secured to the inner sides of the rods 9.

The reference-numeral 14 designates a bail, the ends of which are secured by pins 15 to perforated lugs 16, projecting from the brackets 11, and the upper ends of the pawls 12 are loosely secured to said bail on opposite sides of the valve-stem 6 by chains 17.

The mechanism thus far described is inclosed by a dome-shaped cap or cover 18, internally threaded at its lower end to fit upon the threaded flange 4 of the valve-casing and provided with an annular flange 19, preferably formed with a flattened edge to provide a wrench-hold.

The upper end of the cap 18 is formed with a central opening 20, through which extends a rod 21, the lower end of which extends through a central opening 22, formed in the bail 14. Collars 23 on opposite sides of the bail secure the latter to the rod, and above the upper collar 23 a coil-spring 24 surrounds the rod 21, the upper end of said spring bearing against the end wall of the cap 18, while its lower convolution rests upon the upper collar 23. The opening 20 at the top of the cap is beveled to provide a seat for a beveled packing-ring 25, which is held tightly in its seat by the tension of the spring 24. The upper end of the rod 21 is provided with a knob or handle 26.

The utility and operation of the valve mechanism constructed as thus described will be readily understood. Normally the valve 5 is held in open position to permit the gas to pass from the inlet 2 into the pipe 3 by the pressure of the gas on the under side of the valve. When this pressure is reduced to such an extent that it will not support the valve in its elevated position, the latter drops by gravity and is automatically locked by the engagement of the pawls 12 with the teeth on the valve-stem. When it is desired to release the valve from its locked position, the pawls are withdrawn from their engagement with the teeth of the valve-stem by pulling upon the knob 26, which raises the bail 14 and operates the pawls through the medium of the suspending-chains 17.

The rods 9, carrying the brackets 11, may be vertically adjusted when necessary by means of the set-screws 10 after the cap 18 has been unscrewed.

To prevent the valve-stem 6 from turning, I employ a slotted plate 27, the flat end of which rests in close proximity to one of the flat sides of the valve-stem. This plate is adjustably secured upon the upper edge of

the valve-casing 1 by a set-screw 28 in position to prevent radial movement of the valve 5 and stem 6, the screw extending through the slot in said plate.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a valve-casing provided with inlet and outlet passages, and having an externally-threaded flange at its upper end, of a cap internally threaded to fit said threaded flange, a valve within the casing, a valve-stem formed on opposite sides with ratchet-teeth, oppositely-disposed pawls pivotally supported within said cap, and means for releasing said pawls from their engagement with the teeth of the valve-stem, comprising a rod extending through the top of the cap, a bail suspended from said rod, and connections between the pawls and bail.

2. The combination with a valve-casing, provided with an inlet and an outlet passage, of a valve within the casing, a valve-stem formed on opposite sides with ratchet-teeth, oppositely-disposed pawls to engage said teeth, and means for supporting said pawls adjustably comprising parallel rods extending through the upper portion of the casing, brackets projecting from the upper ends of said rods, and springs secured to said rods, bearing upon the lower ends of the pawls.

3. The combination with a valve-casing provided with inlet and outlet passages, and formed at its upper ends with an annular externally-threaded flange, of an internally-threaded cap fitting upon said flange, a valve within the casing, a valve-stem formed on opposite sides with ratchet-teeth, rods extending through openings in said flange, brackets projecting from the upper ends of said rods, oppositely-disposed pawls pivotally supported upon said brackets, a bail having its ends attached to said brackets, flexible connections between said pawls and bail, a rod extending through an opening in said cap and secured at its lower end to said bail, a knob or handle at the upper end of said rod, a packing-ring on said rod, and a coil-spring surrounding the rod.

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

JOHN JACOB HEITZ.

Witnesses:

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J. F. BREI.