

(No Model.)

A. C. MEADY.
MUFFLED POP SAFETY VALVE.

No. 452,230.

Patented May 12, 1891.

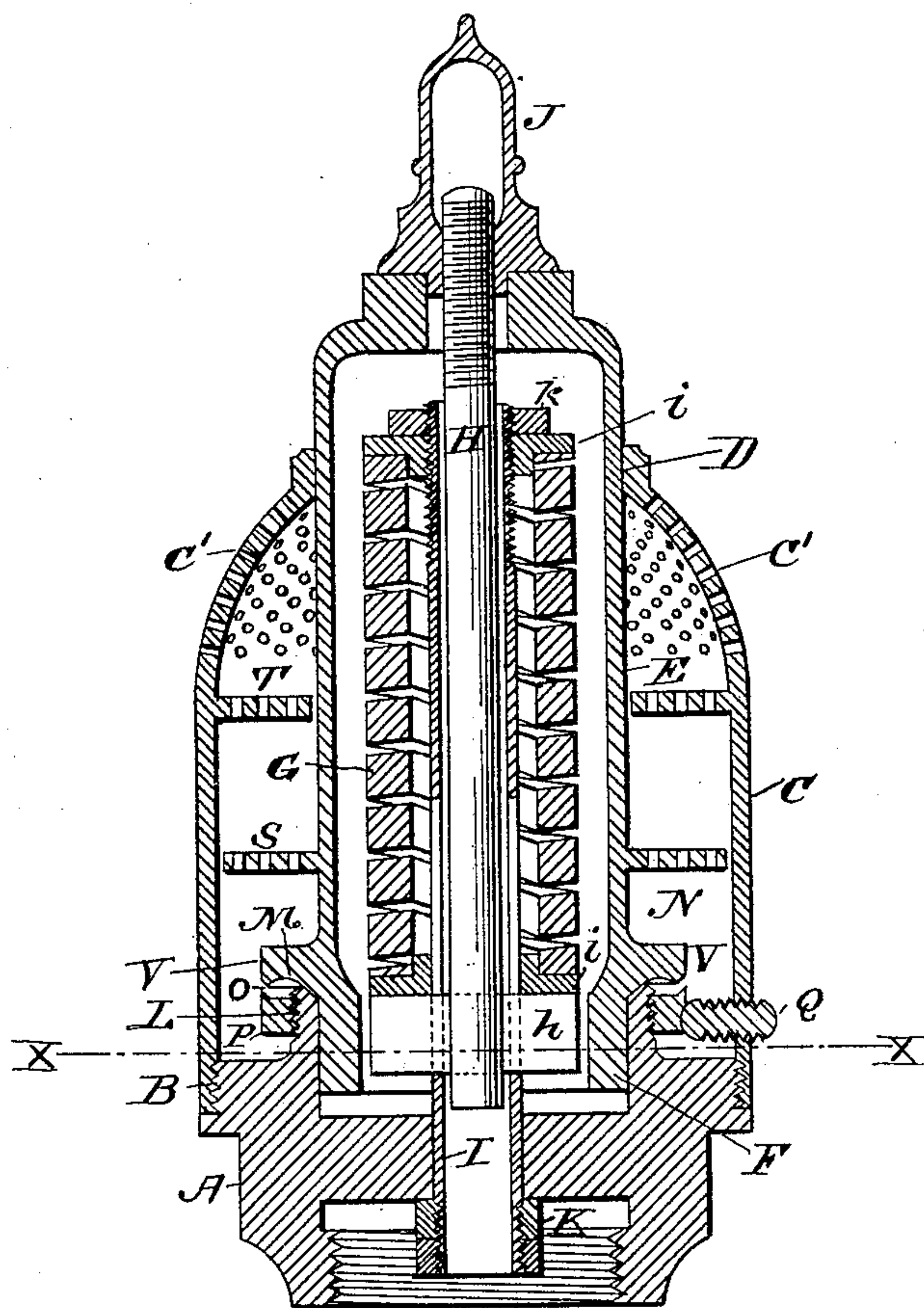
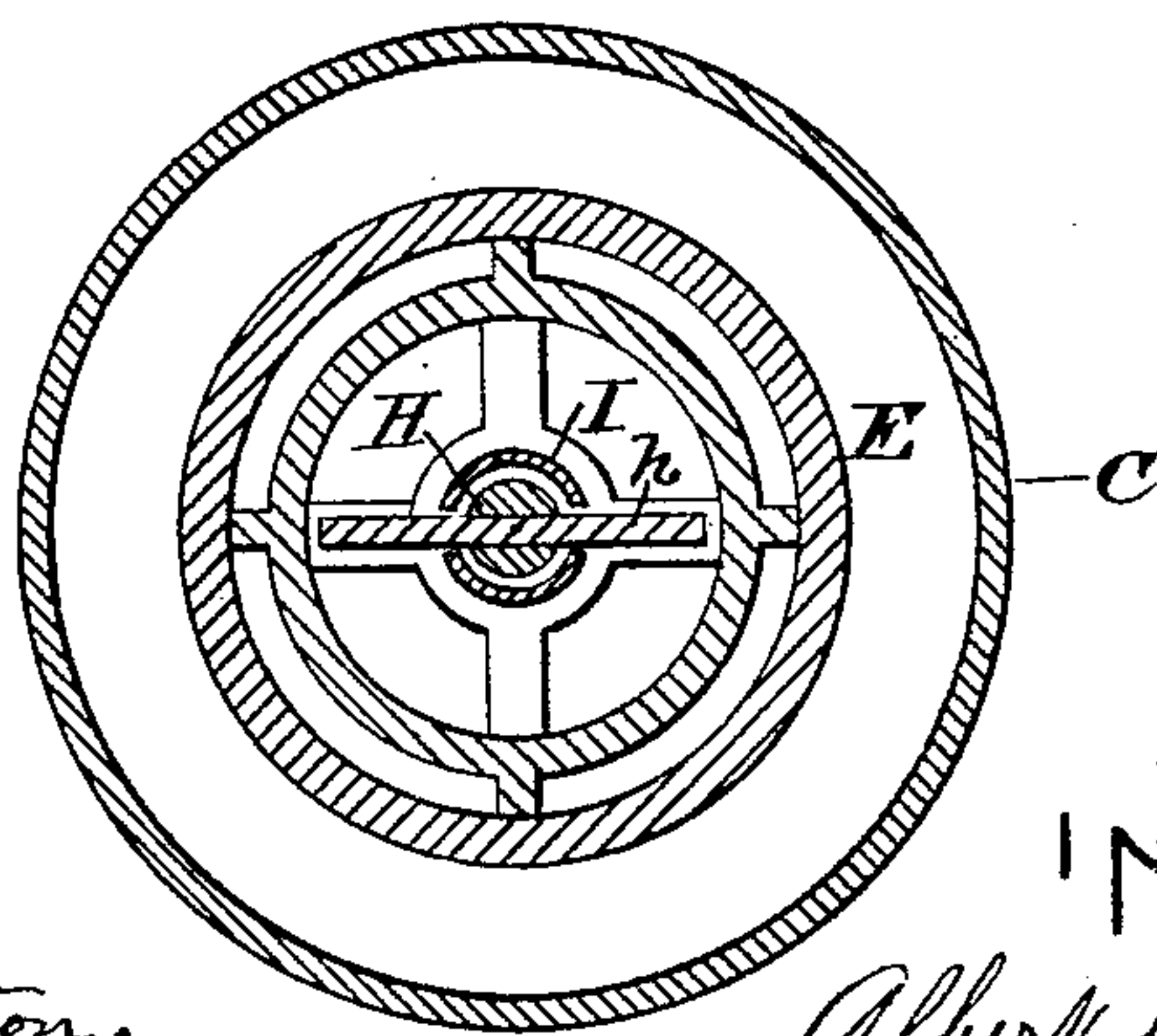


Fig. 1.



WITNESSES.

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Fig. 2.

for W. H. Singleton.
Atty

UNITED STATES PATENT OFFICE.

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MUFFLED POP SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 452,230, dated May 12, 1891.

Application filed December 10, 1890. Serial No. 374,181. (No model.)

To all whom it may concern:

Be it known that I, ALBERT CECIL MEADY, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Muffled Pop Safety-Valves; 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.

My invention relates to improvements in a muffled pop safety-valve wherein there is no back-pressure on the valve as the steam escapes.

My invention further relates to improvements in muffled pop safety-valves, by which I am enabled through suitable devices to apply to the valve the resilient force of the operating-spring by means of a central bolt firmly secured at its lower end and having a steam-tight regulating-nut at its upper end, the valve being forced to its seat or relieved through the operation of the said nut.

My invention further relates to the peculiar arrangement of a hollow cylindrical valve in which the operating-spring is inclosed, the upper end of the said valve being closed, while its lower end is left open for the free entrance of the steam into the spring-chamber.

My invention further relates to the peculiar arrangement of a perforated outer casing and baffling-plates in connection with the passage of the steam through the valve and its escape into the atmosphere, by means of which the noise of the issuing steam is muffled in a degree never before attained within my knowledge.

For the accomplishment of the objects herein set forth I employ the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the instrument entire, and Fig. 2 a horizontal section on the line *x x*, Fig. 1.

Similar letters refer to similar parts throughout the drawings.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, and to letters of reference marked thereon.

The cylindrical valve-seating A is internally screw-threaded at its lower end for attachment to the steam-boiler, and at its extreme periphery it is provided at B with a screw-thread to receive the lower end of the outer casing C, which is of a hollow, cylindrical, and dome-shaped form, furnishing at its upper end at D a guide for the inclosed valve E, the lower end of which is guided by wings cast upon the metal of the valve at F. The tubular screw-threaded bolt I contains within it the tension-bolt H, and on the outside of these is mounted the operating-spring G, the ends of which are lodged upon properly-formed washers *i*, between which the spring is suitably compressed and its force properly modified by screw-nut J. These two bolts are connected together by a transverse key, (shown at *h*), upon which the lower washer rests, while the washer at the top of the spring is secured by check-nut *k*. The key *h* is rigidly attached to the lower end of bolt H, and a longitudinal slot in the tubular bolt I permits the bolt H and its key to slide upward or downward.

The steam enters the spring-chamber freely, it being open at its lower end to receive the spring, and the steam in making its escape passes over the valve-seat L, formed at the top of the valve-seating, into a small annular chamber or cavity M, and thence into the outer chamber N through a circumferential passage O, the opening through which is governed by a screw-ring P on the outside of the seating, where it is secured by a set-screw Q, inserted through the wall of the outer casing.

The outer chamber N is provided with two annular transverse partitions S and T, both of which are perforated, the lower one being cast upon the body of the valve and the upper one upon the interior surface of the outer casing, both having near contact with the wall opposite. The dome-formed part of the outer casing at C' is also closely perforated with steam-vents to break up still more completely the issuing steam in its final discharge into the atmosphere.

My improved safety-valve having been

mounted, the spring is brought to proper tension by manipulation of the steam-tight regulating-nut J. If the accumulating steam-pressure should exceed the prescribed limit, 5 the spring will be compressed and the valve raised from its seat, allowing steam to escape until only the desired pressure is retained. To modify the pressure, the regulating-nut J is turned, bringing a greater or less amount 10 of pressure on the valve. The valve is adjusted to loss of steam-pressure in discharging by the variable ring P below the lip V of the valve.

Having thus described my invention, what 15 I claim is—

1. The combination of a valve and its casing, the latter having steam-vents, a seat for the valve, and an opening, the valve protruding through such opening, whereby when steam 20 operates the valve the steam passes through the vents and the valve moves in the opening without back-pressure, as set forth.

2. A hollow steam-valve, the valve-seating, and its casing, in combination with a spring

within the valve, the latter interposed between the spring and the seating, as set forth. 25

3. The combination of the casing having steam-vents, and the flange T, provided with perforations, and the opening D, with the valve E, protruding through the opening D 30 and having the flange S, provided with perforations, as set forth.

4. The combination of the valve-seating A, the casing C, attached thereto and having the opening D, and the valve E, having the wing-guides F seated in seat A and protruding 35 through the opening D, as set forth.

5. The combination of the hollow valve E, the valve-seating A, the hollow bolt I, the solid bolt H within the bolt I, the spring G around 40 the bolt I, and the nut J outside of the valve E and secured to the bolt H, as set forth.

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

ALBERT C. MEADY.

Witnesses:

JOSHUA H. MILLETT,
DUDLEY P. BAILEY.