

E. F. DONNELLY.
RELIEF VALVE.
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1,246,892.

Patented Nov. 20, 1917.

Fig. 1.

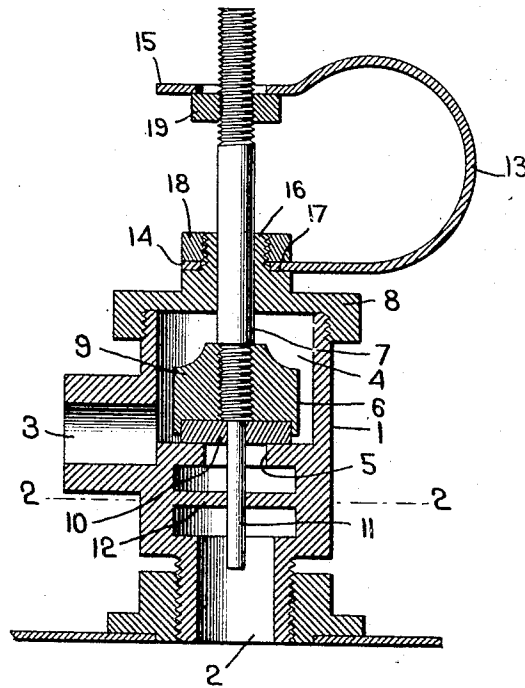
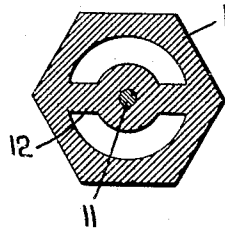


Fig. 2.



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UNITED STATES PATENT OFFICE.

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RELIEF-VALVE.

1,246,892.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD F. DONNELLY, a citizen of the United States, residing at Malden, county of Middlesex, State of Massachusetts, have invented an Improvement in Relief-Valves, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

10 This invention relates to relief valves such as are used in connection with water-distribution systems for relieving undue pressure in the water pipes. The embodiment of the invention herein shown is particularly designed to be used in connection with a kitchen boiler for relieving any undue pressure therein. The object of the invention is to provide an improved relief valve, all as will be more fully hereinafter set forth.

15 In order to give an understanding of my invention, I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claim.

Figure 1 shows a valve embodying my invention in vertical section;

Fig. 2 is a section on the line 2—2, Fig. 1. The device comprises a valve casing 1 having an inlet port 2 and an outlet port 3 and a valve chamber 4. The valve is connected to the piping system so that the inlet port 2 communicates with the water pipes. The valve casing is also provided with a valve-seat 5 which is situated slightly above the lower side of the outlet port 3. Co-operating with this valve-seat is a valve 6 carried by a valve-stem 7 that extends loosely through the end or cap 8 of the valve casing.

The valve may be of any suitable or usual construction. As herein shown, it comprises a metal shell or holder 9 which is screw-threaded to the valve-stem 7 and which is chambered to receive a gasket or packing 10 of rubber or similar material that seats on the valve-seat 5 and makes a tight joint therewith. The valve-stem projects below the valve, as shown at 11, and this projecting end operates in a bridge member 12 which extends across the space beneath the valve-seat and which constitutes

a guide for the lower end of the valve-stem. The upper end of the valve-stem is guided in the cap 8 and thus the valve will always be held in correct position to seat properly. The valve is yieldingly held to its seat by a novel spring arrangement which can be adjusted so that it will apply any desired pressure to the valve. This spring is in the form of a leaf-spring 13 having a general U-shape. One end of the spring is provided with a foot 14 which is clamped to the cap 8 of the valve casing, and the other end of the spring is provided with a head 15 through which the valve-stem 7 loosely extends. The cap 8 is formed with the screw-threaded boss 16 over which the foot 14 is placed and the foot is firmly clamped against the shoulder 17 by means of a clamping nut 18. The valve-stem has a collar or nut 19 screw-threaded thereto which engages the under side of the head 15, and the resiliency of the spring 13 will, therefore, press downwardly on the collar 19 and thus hold the valve seated with greater or less pressure, depending upon the adjustment of the collar 19. The adjustment of the collar upwardly will cause the spring to act against the valve with greater pressure and an adjustment downwardly will correspondingly relieve the pressure. The valve can thus be adjusted so that it will remain seated until a certain predetermined pressure develops in the pipe on the inlet side of the valve, at which time the valve will open, thus relieving the pressure.

One advantage of the construction herein shown is that the valve is always held in right line position and will thus be always properly seated. Another advantage is that the spring is situated entirely outside of the valve casing, and hence will not be subjected to the action of steam, hot water or any other influences, tending to deteriorate it.

I will preferably make the spring 13 of carbonized steel.

I claim:

In a relief valve, the combination with a valve casing having an inlet port, an outlet port and a valve-seat intermediate said ports, of a valve-stem, a valve thereon adapted to engage the outlet side of the valve-seat, said valve-stem extending below the

valve and the valve casing having a guiding bridge in which said valve stem extension is guided, said valve-stem extending loosely through the top of the valve casing, 5 a U-shaped spring having one end longitudinally secured to the valve casing and the other end provided with a head through which the upper end of the valve-stem loosely extends, and a nut adjustably carried by said valve stem and engaging the 10 under side of said head.

In testimony whereof, I have signed my name to this specification.

EDWARD F. DONNELLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."