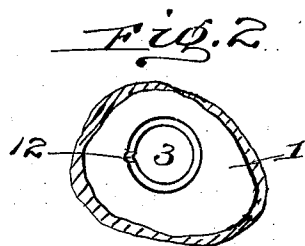
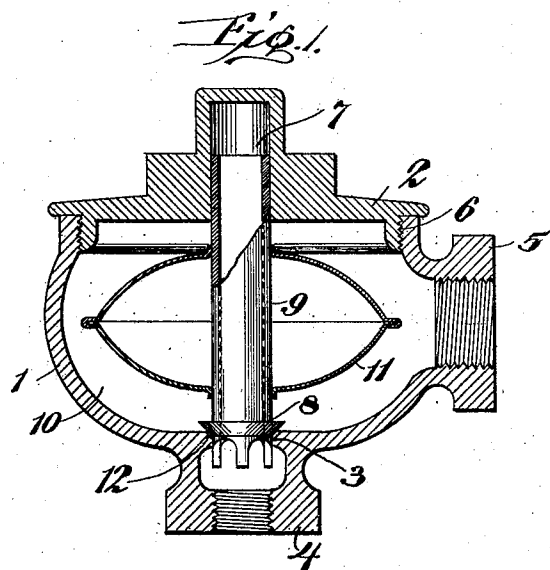


No. 823,805.

PATENTED JUNE 19, 1906.

A. McGONAGLE.
RELIEF VALVE FOR HEATING SYSTEMS.
APPLICATION FILED SEPT. 1, 1905.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ARTHUR MCGONAGLE, OF EAST ORANGE, NEW JERSEY.

RELIEF-VALVE FOR HEATING SYSTEMS.

No. 823,805.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed September 1, 1905. Serial No. 276 678.

To all whom it may concern:

Be it known that I, ARTHUR MCGONAGLE, a citizen of the United States of America, and a resident of East Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Relief-Valves for Heating Systems, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in relief-valves for heating systems, and particularly to valves adapted for employment with steam-heating systems known as "vacuum" systems and operating under pressure less than atmospheric pressure.

The main object of my invention is to provide a relief-valve of the simplest construction, so as to reduce to a minimum the liability of its getting out of order and to render the parts readily accessible and easily interchangeable.

A further object is to reduce the cost of manufacture of such devices to a minimum.

In order that my invention may be fully understood, I will now describe an embodiment thereof in detail as illustrated in the accompanying drawings and will then point out the novel features in a claim.

In the drawings, Figure 1 is a view in central transverse section of a relief-valve constructed in accordance with my invention. Fig. 2 is a detail top view of a portion of the casing, showing the valve-seat and the air-passage.

The casing as a whole comprises two parts, a body portion 1 and a removable cover 2. The body portion 1 has a discharge-opening 3, opening to a socket 4, internally screw-threaded for the reception of a pipe. This pipe in a vacuum system will lead to the exhausting apparatus, which may be a pump, ejector, or similar device. Another socket 5, also internally screw-threaded, constitutes an inlet to the said chamber and serves as means by which the valve as a whole may be connected to the radiator of a heating system or other part thereof, as may be desired. The cap 2 is screw-threaded into the body portion 1, as at 6, being preferably screwed down to a seat, so that a tight joint will be formed. The said cap has a cylindrical recess 7 arranged exactly opposite the opening 3, axially in line therewith. A valve 8 is fitted to the opening 3, being provided with a valve-stem 9 of a diameter substantially

equal to the opening 3. The stem 9 is tubular in form and extends at one end up into the cylindrical recess 7 and at the other end through the opening 3, so that the said stem extends clear through the chamber 10, inclosed by the casing. It will be seen by the foregoing that the valve 8 is balanced as to fluid-pressure and will open freely upon the slightest tendency to lift it, being kept closed only by gravity. A float 11 is secured upon the stem 9 to serve to open the valve if water should collect in the casing.

In operation it will be seen that no matter how much difference of pressure there may be upon opposite sides of the valve, due to a lowering of pressure beneath the valve, as in a vacuum system, or a raising of pressure above it, as in a pressure system, there will be no tendency to open the valve thereby, so that the valve will remain closed at all times against the passage of steam. A slight file-cut 12 is provided in the valve-seat, so that air which may collect in the seat may be readily discharged therethrough, such a file-cut being amply sufficient to readily discharge all the air, but being so small as to prevent all but a minute quantity of steam passing therethrough, it being remembered that air will pass in considerable quantities through an exceedingly minute space such as will practically exclude the passage of steam. Water collecting in the casing will immediately raise the valve by flotation, so that such water will be readily discharged. Thus the valve will act as a relief for air and water, but will substantially hold back steam and prevent its exhaust.

A valve constructed in accordance with the above is exceedingly cheap to manufacture because of the little finishing that is required. It is only necessary to finish the valve-seat and the walls of the chamber 7 and the screw-thread connection 6 of the casing and then to finish the stem 9 and valve 8, all of said parts to be finished being cylindrical and so capable of being turned in a lathe. There are practically but two parts to the whole device, the casing as a whole being one part and the valve-stem and float being the other and the movable part. The parts are readily interchangeable, and there is no danger of the parts sticking, for all the parts work quite freely and are entirely balanced.

What I claim is—

In a valve of the class described, the com-

5 bination with a casing-body and a removable cap or cover secured thereto, said casing-body having a discharge-opening with a valve-seat formed therein and provided with an air-passage, and the cap having a cylindrical recess of substantially the same diameter as that of the discharge-opening, opposite said opening and axially in line therewith, of a valve fitted to said opening and provided

with a hollow tubular stem of substantially 10 the same diameter as that of the opening and of the recess, and extending upward into said recess, and a float secured to said stem, substantially as set forth.

ARTHUR McGONAGLE.

Witnesses:

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