Nov. 18, 1924. 1,515,720

A. BLONDEAU

NONFREEZING BLOW-OFF VALVE

Filed Nov. 22, 1923

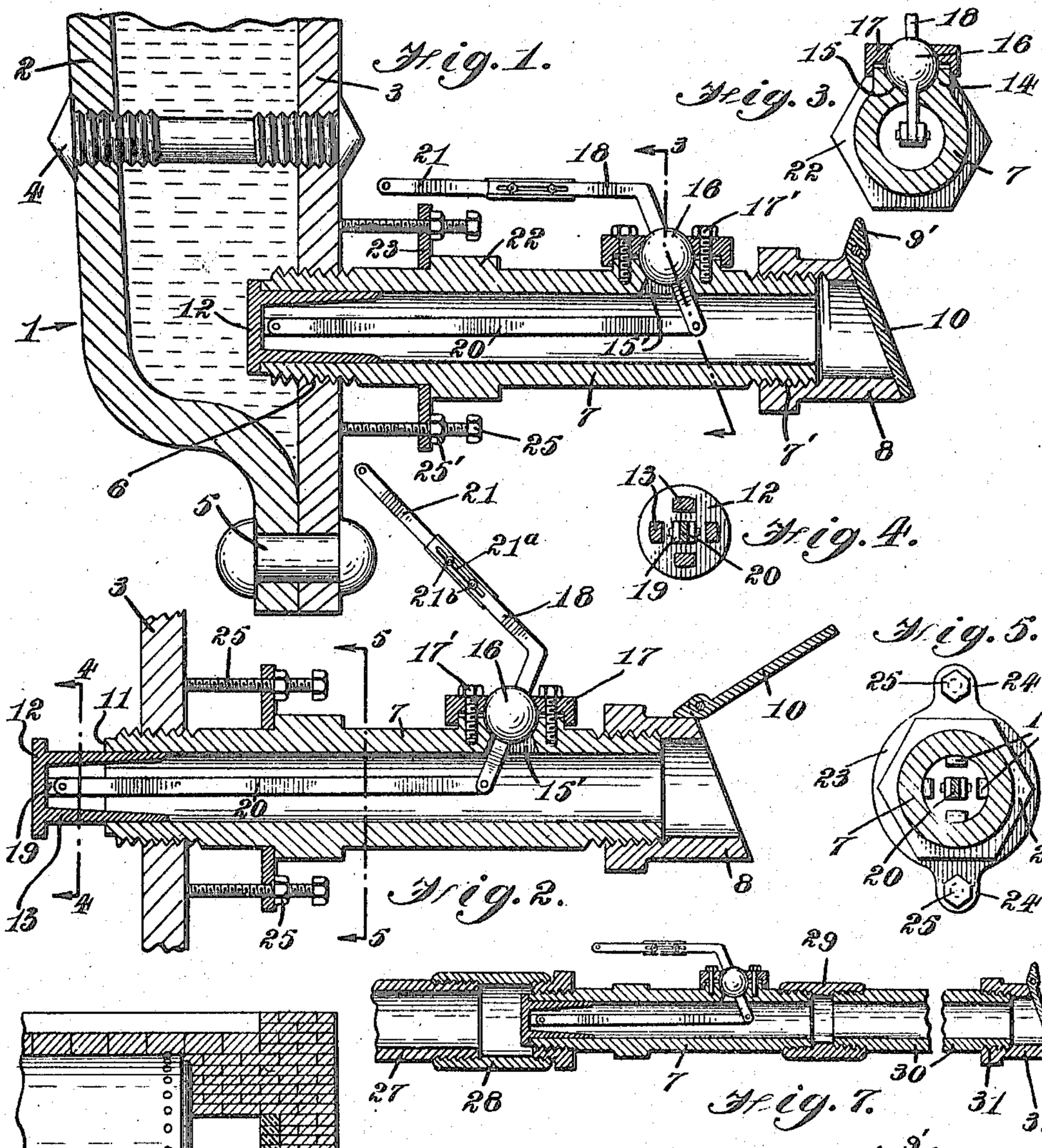

Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

Fig. 5.

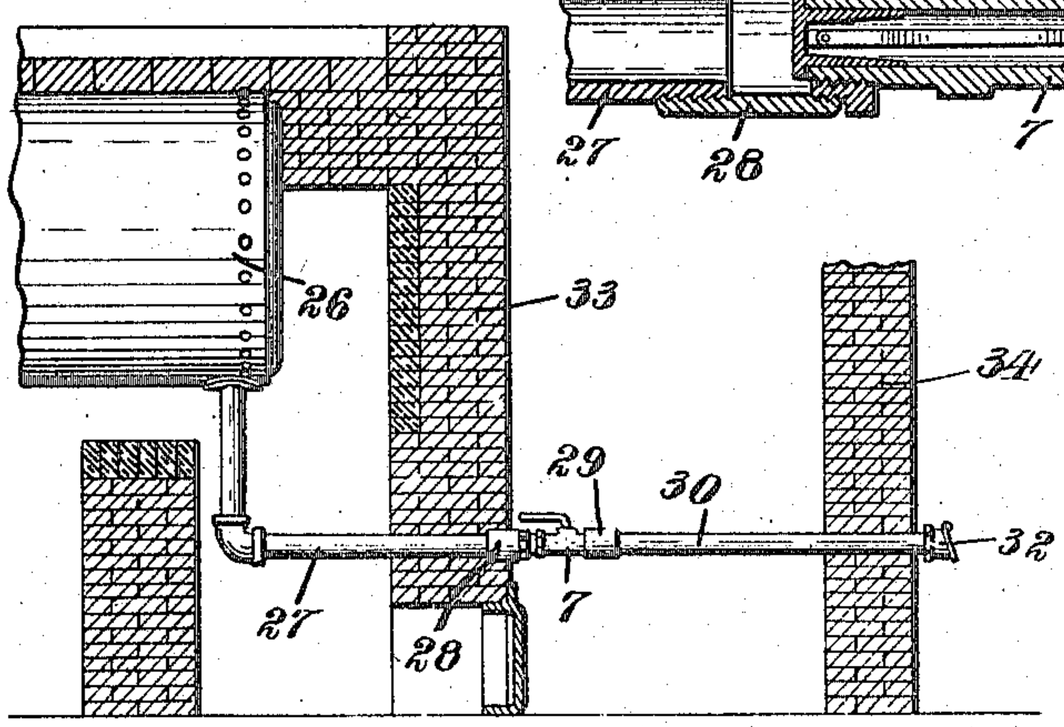

Fig. 6.

Fig. 7.

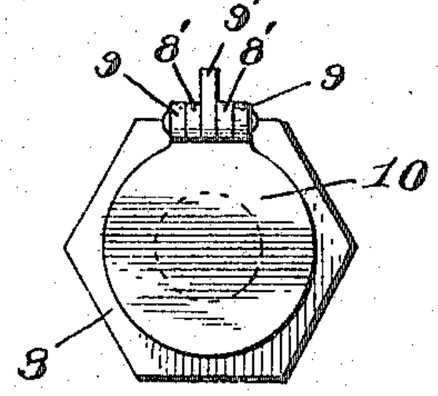

Fig. 8.

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UNITED STATES PATENT OFFICE.

ALEXANDER BLONDEAU, OF ESTEVAN, SASKATCHEWAN, CANADA.

NONFREEZING BLOW-OFF VALVE.

Application filed November 22, 1923. Serial No. 676,392.

To all whom it may concern:

Be it known that I, ALEXANDER BLONDEAU, a subject of the King of Great Britain, residing at Estevan, Province of Saskatchewan, Canada, have invented certain new and useful Improvements in Nonfreezing Blow-Off Valves; and I do hereby declare that the following is 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.

The present invention relates to a novel blow-off valve adapted for use in connection with railway or stationary boilers.

The principal object of this invention is a device of this character which is not susceptible to freezing and consequent clogging in cold weather. For this purpose, there is provided a valve body or casing having a valve seat formed thereon which is adapted to be disposed in a warm region of the boiler. The valve head operating means passes through the valve casing in such a manner as to prevent the leakage of water through the juncture whereby freezing of the working parts is avoided.

The invention further includes novel clamping means with which the valve body is maintained in proper position against the weight of the external working parts and the pull exerted thereon.

The invention is fully disclosed in the following description and in the accompanying drawings in which:

Figure 1 is a vertical section through the device as applied to a locomotive boiler;

Figure 2 is a similar view showing the valve in open position;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a section on the line 4—4 of Figure 2;

Figure 5 is a section on the line 5—5 of Figure 2;

Figure 6 is a side elevation of the device, slightly modified, applied to a return tube boiler;

Figure 7 is a longitudinal vertical section of the modification shown in Figure 6; and

Figure 8 is an outer end view.

Reference will now be had to these views by means of like characters which are employed to designate corresponding parts throughout.

In Figure 1 is shown the bottom water leg 1 of a boiler formed by a furnace plate 2 and shell 3 spaced by a bolt 4, and riveted together at the lower ends as at 5. An opening 6 is formed through the shell and receives the inner threaded end of a substantially tubular valve casing or body 7.

The outer end of the casing is also threaded as at 7′ for the reception of an internally threaded nipple 8. At the outer end of the nipple is formed a plurality of spaced ears 8′ between which are received similar spaced ears 9 of a lid 10. One of the ears of the lid is extended as at 9′ to form a stop adapted to limit the upward movement of the lid, as illustrated in Figure 2. The lid is normally retained in closed position by gravity, as is apparent from Figure 1.

A valve seat 11 is formed at the inner end of the casing which is disposed within the water leg and is adapted to be closed by a cap or head 12 on which is formed a plurality of spaced prongs 13 slidably received within the valve casing. On the outer wall of the casing is formed an enlargement 14 in the upper portion of which is cut a spherical cavity 15. This cavity communicates with the interior of the valve casing 7 through an aperture 15′. Within the cavity or socket is rotatably supported a bearing member 16 held in place by a cap 17 secured to the enlargement by means of bolts 17′. One leg of a bell crank lever 18 passes through the bearing to the interior of the valve body. A lug 19 at the inner face of the valve head is joined to the inner end of the bell crank lever by means of a stem or link 20. The outer end of the bell crank lever has connected thereto an operating link 21 by means of which the valve may be actuated from a distant point. The outer leg of the bell crank lever and the inner end of the link 21 are slotted as at 21ª. The two parts are held together by means of bolts 21ᵇ whereby the member 21 may be extended as far as desired within the limits of the slots.

In the above views the bell crank lever is shown as lying in a vertical plane. However, it may be desirable in some cases to turn the valve body so that the bell crank lever takes another position. In such a case, the nipple 8 may be maintained in the position indicated, because of its threaded connection to the valve body, so that the lid will always close by gravity, as above mentioned.

In order to maintain the valve body in

the desired position against the weight of the parts 16, 17, and 18 and against the pull exerted on the link 21, there is provided at the outer surface of the valve body a hexagonal collar 22 which is engaged on its inner face by a plate 23. The latter carries a pair of ears 24 through which are passed bolts 25 bearing against the shell 3. The bolts are turned until the plate 23 presses firmly against the collar 22 and are then locked in place by means of nuts 25′, the valve body being braced in this manner.

When it is desired to actuate the valve, it is only necessary to turn the bell crank lever whereby the bearing is rotated in its socket and the valve head moves inwardly, allowing the water to enter the spaces between the prongs 13. The pressure of the water is sufficient to raise the lid 10, as shown in Figure 2, to allow discharge. It is noted that in all positions of the valve, the bearing 15 is so disposed in its socket as to prevent leakage through the opening 15′.

In Figures 6 and 7, the device is shown applied to a stationary or return boiler 26. The valve body 7 is connected to the water discharge pipe 27 by means of a union 28. The threaded outer end of the valve body receives a nipple 29 to which is connected a take-off conduit 30. The latter is also threaded at its outer end as at 31 to receive the lid carrying nipple 32. As is apparent from Figure 7, the pipe 27 passes through the wall 33, while the take-off conduit 30 is supported in an exterior wall 34.

While a specific embodiment of the invention has been illustrated and described, it is to be understood that various alterations in the details of construction may be made without departing from the spirit of the invention as indicated by the appended claims.

Having thus fully described the invention, what I claim as new and desire to protect by Letters Patent is:—

1. A valve comprising a cylindrical casing, a seat formed at one end thereof, a valve head adapted to cooperate with said seat, a lever pivoted in the wall of said casing and extending to the interior of the latter, and a link connecting said lever to the valve head.

2. A valve comprising a cylindrical casing, a seat formed at one end thereof, a valve head adapted to cooperate with said seat, said valve head having a plurality of prongs slidably received within the valve casing, a lever pivoted in the wall of the casing and extending to the interior of the latter, and a link connecting said lever with the valve head.

3. A valve comprising a cylindrical casing having a spherical recess cut in the wall thereof, a bearing rotatably mounted in said recess, a lever extending inwardly from said bearing to the interior of the casing, a valve seat formed at one end of said casing, a valve head adapted to cooperate with said seat, and a link connecting said lever and valve head.

4. A valve comprising a cylindrical casing having a spherical recess cut in the wall thereof, a bearing rotatably mounted in said recess, a lever extending inwardly from said bearing to the interior of the casing, a valve seat formed at one end of said casing, a valve head adapted to cooperate with said seat, said head having a plurality of spaced prongs slidably received within the casing, and a link connecting said lever and head.

5. A valve comprising a cylindrical casing, a seat formed at one end thereof, a valve head adapted to cooperate with said seat, a lever pivoted in the wall of said casing and extending to the interior of the latter, a link connecting said lever to the valve head, and a lid hinged to the opposite end of said casing.

In witness whereof I have hereunto set my hand.

ALEXANDER BLONDEAU.