F. F. BEESE.

WATER GAGE SAFETY VALVE.

APPLICATION FILED JULY 5, 1919.

1,339,383.

Patented May 11, 1920.

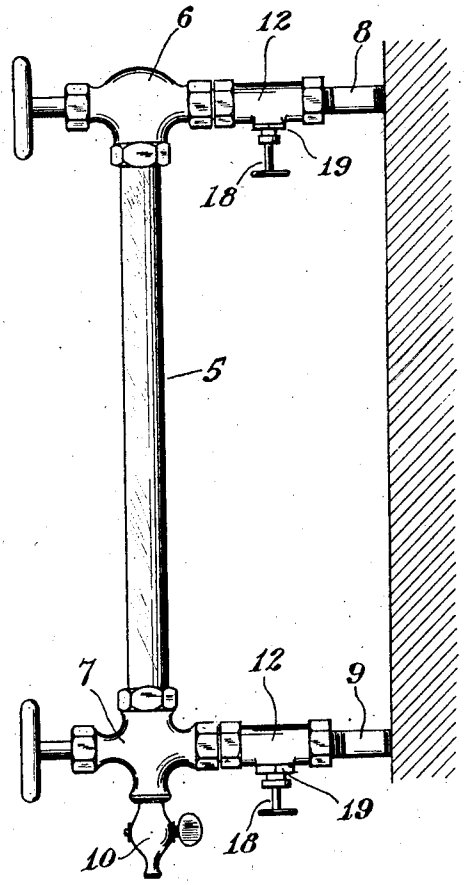
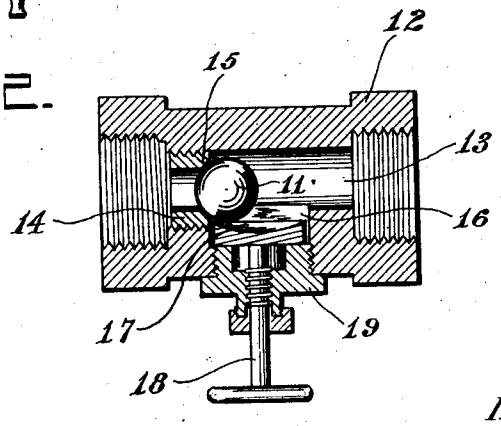


Fig. 1.

Fig. 2.



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WATER-GAGE SAFETY-VALVE.

1,339,383. Specification of Letters Patent. Patented May 11, 1920.

Application filed July 5, 1919. Serial No. 308,720.

To all whom it may concern:

Be it known that I, FRANK F. BEESE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Water-Gage Safety-Valves, of which the following is a specification.

This invention relates to gages employed in connection with steam boilers for indicating the water level, and consisting of a glass tube one end of which communicates with the water space of the boiler and the other end with the steam space.

The invention has for its object to provide the gage with a novel and improved safety valve which prevents the escape of steam and hot water in the event of breakage of the glass tube.

The object stated is attained by means of a combination and arrangement of parts to be hereinafter described and claimed, and in order that the same may be better understood, reference is had to the accompanying drawing forming a part of this specification.

In the drawing,

Figure 1 is an elevation of the gage, and

Fig. 2 is a sectional detail of the safety valve.

Referring specifically to the drawing, 5 denotes a gage glass connected at its upper end to a valve casing 6 and at its lower end to a valve casing 7. The casing 6 is connected by a tube 8 to the steam space of the boiler, and a tube 9 connects the casing 7 with the water space, so that the water level will be indicated in the glass tube 5. These parts, except as hereinafter noted, are of standard design, in view of which a detailed description thereof is not necessary. A drain valve 10, as usual, is also provided.

Between the gage glass 5 and the boiler, the tube or connection 8 is provided with a safety valve in the form of a sphere or ball 11. This valve is located in a casing 12 which is interposed between the tube 8 and the casing 7, said valve being located in a chamber 13 in said casing 12. One end of the chamber 13 is in open communication with the boiler, and the other communicates through a port with the gage glass 5. This port is the bore of a sleeve 14 screwed into a reduction at one end of the chamber 13. The end of the sleeve 14 which opens into the chamber 13 is beveled to form a seat 15 for the valve 11, and when the latter is on said seat, the gage glass is cut off from the boiler.

In the bottom of the chamber 13, at the inlet side of the port 14, is a pocket 16 in which seats a cup 17 carried by a screw stem 18 which is threaded through a plug 19 screwed through the casing 12 into the pocket. The pocket is so dimensioned that the valve 11 can pass therethrough, and hence it can be taken out and replaced upon removal of the plug 19.

Normally, the valve 11 is off the seat 15 and seats in the cup 17, this being due to the fact that the pressure is equal on all sides of the valve. If now the glass 5 should break, the superior pressure on the boiler side of the valve 11 will force it to the seat 15, and hence the steam cannot escape from the broken glass. After the glass has been replaced, the valve 11 can be forced off the seat 15 by running the stem 18 upward until the cup 17 pushes the valve off its seat. The pressure now again becomes equalized and the valve rolls by gravity into the cup, and upon again lowering the latter the valve remains seated therein, away from the seat 15. The cup 17 is designed to hold the valve 11 close enough to its seat so that it immediately engages the latter when the glass breaks, but not so close as to prevent the free passage of steam through the sleeve 14.

The connection 9 is also provided with a safety valve constructed and operating in the same manner as the one hereinbefore described.

I claim:

The combination with the glass of a water gage and the connection of said glass with the boiler; of a valve chamber in said connection in communication at one end with the boiler and having at the other end a port opening to the glass, said port having a valve seat, a ball valve in the chamber, a movable support below the valve on which it normally rests away from the aforesaid seat, said valve being free to move from the support to the seat, and a screw stem carrying the support for advancing the same to push the valve off its seat when it engages the same.

In testimony whereof I affix my signature.

FRANK F. BEESE.