J. A. LEAVITT.

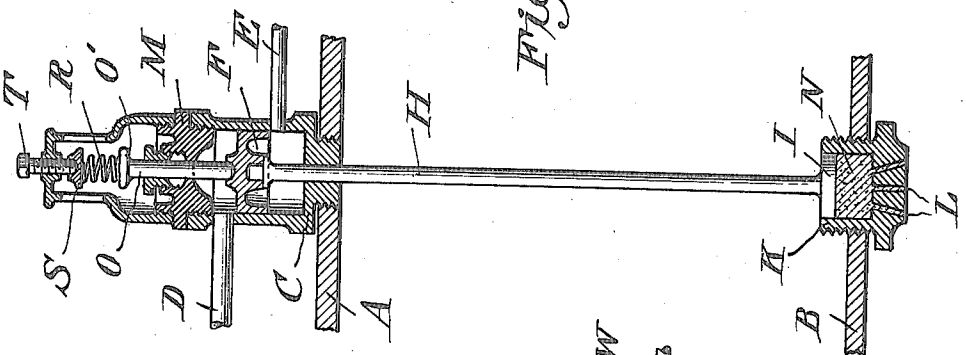
SAFETY ALARM FOR STEAM BOILERS.

APPLICATION FILED MAY 3, 1916.

1,206,341.

Patented Nov. 28, 1916.

Fig. 2.



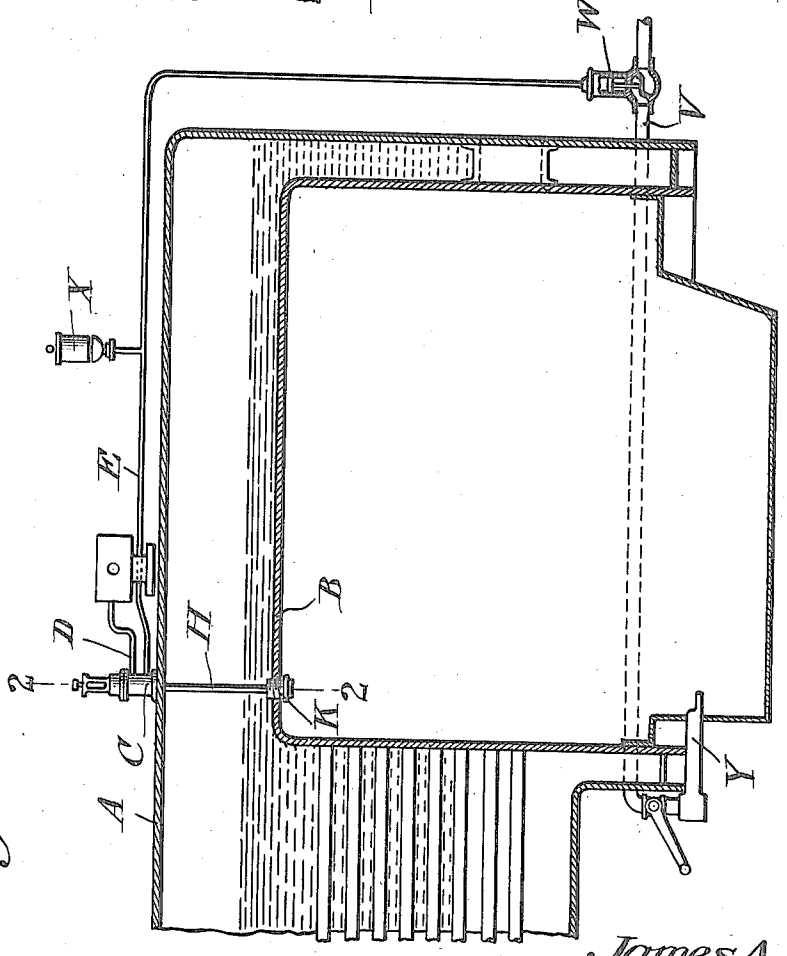


Fig. 1.

Witnesses

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SAFETY-ALARM FOR STEAM-BOILERS.

1,206,341. Specification of Letters Patent. Patented Nov. 28, 1916.

Application filed May 3, 1916. Serial No. 95,196.

To all whom it may concern:

Be it known that I, JAMES A. LEAVITT, a citizen of the United States, residing at Lompoc, in the county of Santa Barbara and State of California, have invented certain new and useful Improvements in Safety-Alarms for Steam-Boilers; 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in automatic safety devices for steam boilers and the object in view is to produce a device of this nature whereby, in the event of the water becoming low in the boiler, a signal will be sounded and the fuel supply shut off.

The invention comprises various details of construction, combinations and arrangements of parts which will be hereinafter fully described, shown in the accompanying drawings and then specifically defined in the appended claim.

My invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a sectional view through a boiler showing the application of my invention. Fig. 2 is an enlarged detail sectional view on line 2—2 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a steam boiler and B the crown sheet therein, and C designates a valve cylinder having threaded connection with an aperture in the top of the boiler. A steam supply pipe D leads to and communicates with the interior of said cylinder and an exit steam pipe E leads therefrom. A reciprocating valve F is mounted within the cylinder, and H is a stem or plunger connected at its upper end to said valve and its lower end is flaring as at I and rests in the hollow cup portion of the threaded plug K, which latter fits within a threaded aperture in the crown sheet B. Said plug has ducts L therein, and N designates a filling of fusible metal contained within the hollow portion of said plug and in said ducts. A threaded plug M is mounted within the upper portion of the piston cylinder and is apertured for the reception of the plunger O, the lower end of which engages a hollow in the upper surface of said valve and its upper end flares at O' and against which the lower end of the coiled spring R bears, the upper end of said spring engaging a plate S hollowed out upon its upper surface and engaged by the inner end of the set screw T which is fitted in a threaded aperture in the cap, as shown clearly in Fig. 2 of the drawings, said cap being adapted to regulate the tension of the spring R which bears against the plunger and which in turn, through the medium of said valve, bears against the stem H, thus tending to normally hold the latter at its farthest lowest limit. The exit steam pipe E has a whistle X communicating therewith and provided for the purpose of sounding a signal when the metal fuses and steam makes exit through the pipe E *en route* to the steam-actuated valve W which controls the passageway through the fuel pipe V leading to the burner Y which supplies fuel to the furnace of the boiler.

The operation of my invention will be readily understood and is as follows:— When the apparatus is set, the fusible metal is placed in a molten condition in the hollow portion of the plug valve K and the valve is held in the position shown in Fig. 2 of the drawings in a closed relation, preventing steam entering the piston cylinder from the pipe D and the plunger O holding the valve through the medium of the spring R, the tension of which is regulated by the set screw T. In the event of the water in the boiler lowering to a dangerous level and the temperature of the boiler being sufficient to cause the metal within the plug to fuse, the metal will make exit through the ducts in the bottom of the plug valve K and the coiled spring will force the piston down and allow the steam to pass from the pipe D into the piston cylinder and thence through the pipe E, causing the whistle to blow and the fuel supply to be automatically cut off, as will be readily understood.

What I claim to be new is:—

A safety device for boilers comprising a boiler and a crown sheet having registering apertures, a recessed threaded plug having threaded connection with one of the apertures and provided with ducts leading from the bottom of the recessed portion thereof through the end of the plug, the recess in the plug adapted to contain a fusible metal, a plunger having a head movable within

said recess and adapted to rest upon the fusible metal therein, a cylinder having threaded connection with the aperture in the wall of the boiler and centrally apertured for the reception of the stem of said plunger, a valve in the cylinder connected to the upper end of the plunger stem, the walls of the cylinder being provided with apertures, one above and one below the valve, pipes communicating with apertures of the cylinder, a threaded plug fitted to the upper end of the cylinder and centrally apertured, a spring-pressed plunger movable through said cap in the cylinder and adapted to bear against the valve in the latter, and a valved pipe communicating with one of said pipes which communicates with the cylinder.

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

JAMES A. LEAVITT.

Witnesses:
O. C. GENTRY,
GRACE FRICK.