

W. BAKER.  
SOFT PLUG VALVE.  
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901,142.

Patented Oct. 13, 1908.

Fig. 1.

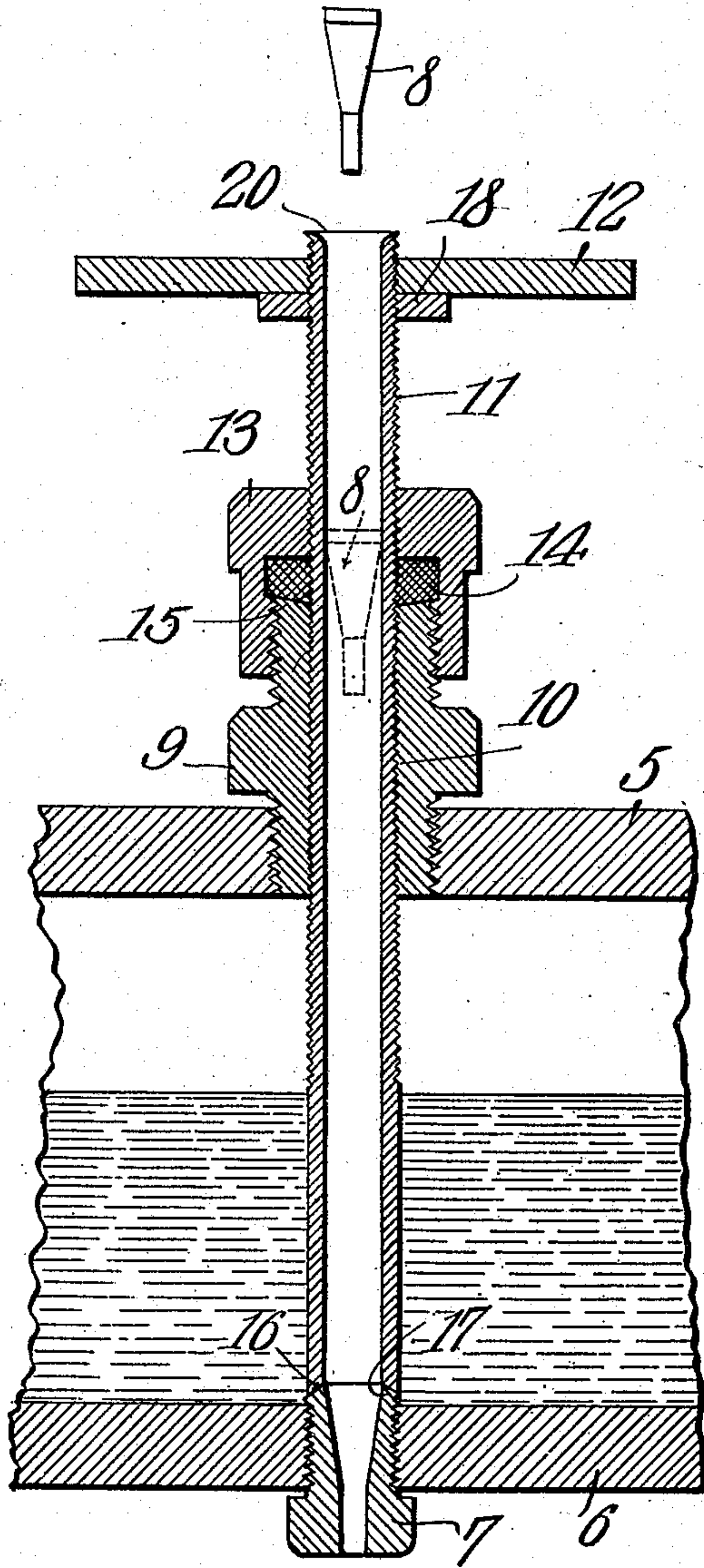
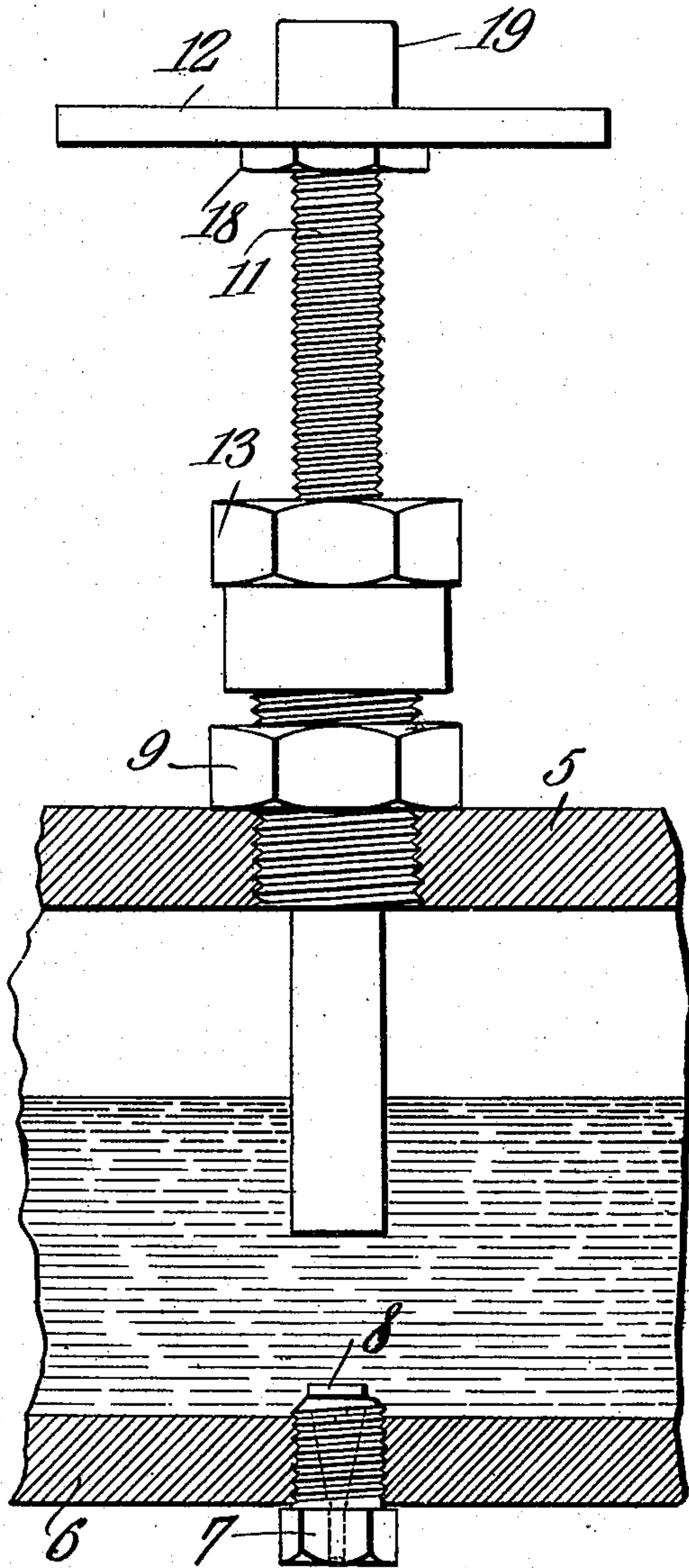


Fig. 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## SOFT-PLUG VALVE.

No. 901,142.

Specification of Letters Patent.

Patented Oct. 13, 1908.

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*To all whom it may concern:*

Be it known that I, WILFRED BAKER, a citizen of the United States, residing at Aberdeen, in the county of Brown and State of South Dakota, have invented a new and useful Soft-Plug Valve, of which the following is a specification.

This invention relates to boiler attachments and more particularly to means for placing soft metal plugs in the crown sheets of boilers.

It is a well known fact that when the water in a steam boiler falls below a predetermined level so as to expose the crown sheet, the intense heat generated in the fire box will burn the crown sheet and render the same unfit for further use. To avoid such damage of the crown sheet it has been proposed to insert a brass plug or bushing in said crown sheet for the reception of a soft metal plug, which latter will readily fuse at a low temperature and thus permit the steam generated in the boiler to enter the fire box and extinguish the fire.

The object of the present invention is to provide improved means for introducing a fusible plug within the pocket or bushing of the crown sheet without the necessity of entering the fire box or boiler for accomplishing this purpose.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a vertical sectional view of a boiler attachment constructed in accordance with my invention showing the cap removed and the fusible plug in position to enter the seat in the bushing of the crown sheet. Fig. 2 is a side elevation showing the conducting tube in elevated or inoperative position with the upper end thereof closed by the removable cap.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved attachment forming the subject matter of the present invention is principally designed for use in connection with

steam boiler furnaces and by way of illustration is shown in connection with a steam boiler of the ordinary construction in which 5 designates the boiler and 6 the crown sheet having the usual brass plug or bushing 7 for the reception of a fusible plug, indicated at 8.

Threaded in an opening in the boiler 5 is a bushing 9 having its interior walls threaded at 10 for the reception of a correspondingly threaded conducting tube or stem 11, which latter projects above the end of the bushing 10 and is provided with a hand wheel or lever 12 by means of which the stem or tube 11 may be adjusted vertically within the bushing 9.

The upper end of the bushing 9 is formed with exterior threads for engagement with the interior threads of a stuffing box or gland 13, which latter also engages the threads on the stem 11 and is provided with an interior chamber for the reception of a suitable packing 14. The packing 14 bears against the concaved face 15 of the bushing 9 so that when the stuffing box is moved in the direction of the boiler, the packing 14 will be compressed and thus prevent leakage of steam.

The lower end of the conducting tube or stem 11 extends within the boiler and is provided with a concaved seat 16 adapted to engage a correspondingly concaved or beveled seat 17 formed on the upper end of the brass plug or bushing 7. A lock nut 18 engages the threads on the upper end of the stem or tube 11 and bears against the lever 12 so as to prevent rotation of the lever independently of said stem.

The upper end of the stem 11 preferably projects a short distance above the upper surface of the lever 12 to form a threaded extension for engagement with a removable cap 19, which latter forms a closure for the tube so as to prevent the escape of steam through the latter when the tube is moved to elevated or inoperative position.

Should the water in the boiler fall below a predetermined level so as to expose the crown sheet the heat generated in the fire box will melt or fuse the plug 8 thus permitting the steam in the boiler to pass through the opening in the plug 7 into the fire box and extinguish the fire.

When a new plug is to be inserted in the member 7, the handle 12 is rotated until the concaved face 16 of the tube bears against the



inclined face 17 of the brass plug or bushing 7, thus cutting off communication between the boiler and fire box and also between the interior of the boiler and the atmosphere.

5 The cap 19 is then removed and a fusible plug introduced in the open end of the stem 11 and allowed to drop by gravity through said tube to its seat in the member 7, as best shown in Fig. 1 of the drawings. Attention  
10 is here called to the fact that the upper end of the tube is also preferably inclined or beveled at 20 to assist in guiding the fusible plugs within the tube 11 when the device is in use.

15 After the plug has been positioned within the brass bushing 7 the tube 11 is elevated to the position shown in Fig. 2 of the drawings and the cap 19 threaded on the upper end of said tube so as to prevent the escape of the  
20 steam through the tube to the atmosphere.

Having thus described the invention what is claimed is:

1. The combination with a boiler having a crown sheet, of a bushing carried by the  
25 crown sheet and adapted to receive a fusible plug, a vertically adjustable exteriorly threaded open ended tube extending through one wall of the boiler and having its interior walls at the opposite ends of the tube beveled, the lower beveled end of the tube forming a seat for engagement with the adjacent  
30 end of the bushing when said tube is in lowered position, and a cap engaging the exterior threads on the tube for forming a closure for the upper beveled end of said tube  
35 when the latter is in elevated position.

2. The combination with a boiler having a crown sheet, of a bushing carried by the crown sheet and adapted to receive a fusible  
40 plug, an open ended exteriorly threaded tube extending through one wall of the boiler, said tube being adjustable vertically and having its opposite ends inclined or beveled, an operating handle having a threaded perforation formed therein for the reception of  
45 the tube, a cap threaded on the upper end of the tube and arranged to bear against the upper surface of the handle to form a closure for said tube when the latter is in elevated  
50 position, and a clamping nut also threaded

on the tube and bearing against the lower face of the operating handle.

3. The combination with a boiler having a crown sheet provided with an opening adapted to receive a fusible plug, a bushing  
55 extending through the walls of the boiler and having its interior walls threaded and provided with a concaved face, a tube having exterior threads for engagement with the interior threads of the bushing, a packing resting  
60 on the concaved face of said bushing, a stuffing box engaging the threads on the tube and bushing, respectively, and bearing against said packing a handle for rotating the tube to effect the adjustment of the latter,  
65 and a cap arranged to bear against the handle and forming a closure for the upper end of the tube when the latter is in elevated position.

4. The combination with a boiler having a crown sheet, of a bushing threaded in the crown sheet and adapted to receive a fusible  
70 plug, a bushing extended through one wall of the boiler and having its interior walls threaded, said boiler bushing being provided with a concaved face and having an exteriorly threaded extension, an open ended tube engaging the interior threads of the boiler  
75 bushing, the opposite ends of said tube being beveled and the lower beveled end of the tube arranged to bear against the face of the plug carrying bushing, a stuffing box engaging the threads on the tube and the extension  
80 of the boiler bushing, respectively, a packing interposed between the concaved face of the bushing and said stuffing box, a handle carried by the tube and spaced from the upper  
85 end of the latter to produce an extension, and a cap engaging the threads on said extension and arranged to bear against the handle to form a closure for the upper end of the tube  
90 when the latter is in elevated position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILFRED BAKER.

Witnesses:

K. O. LEE,

G. W. ROBERTS.