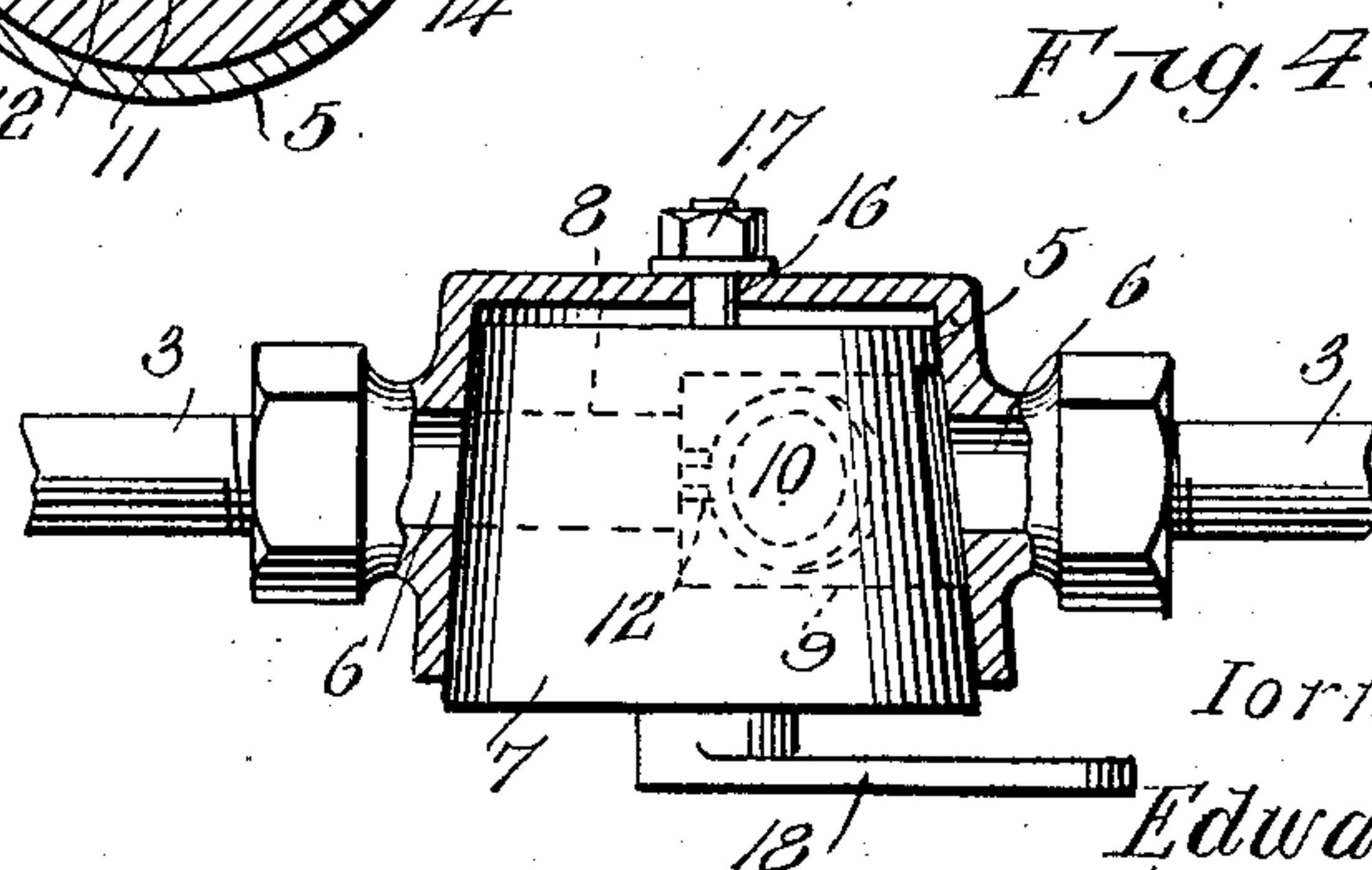
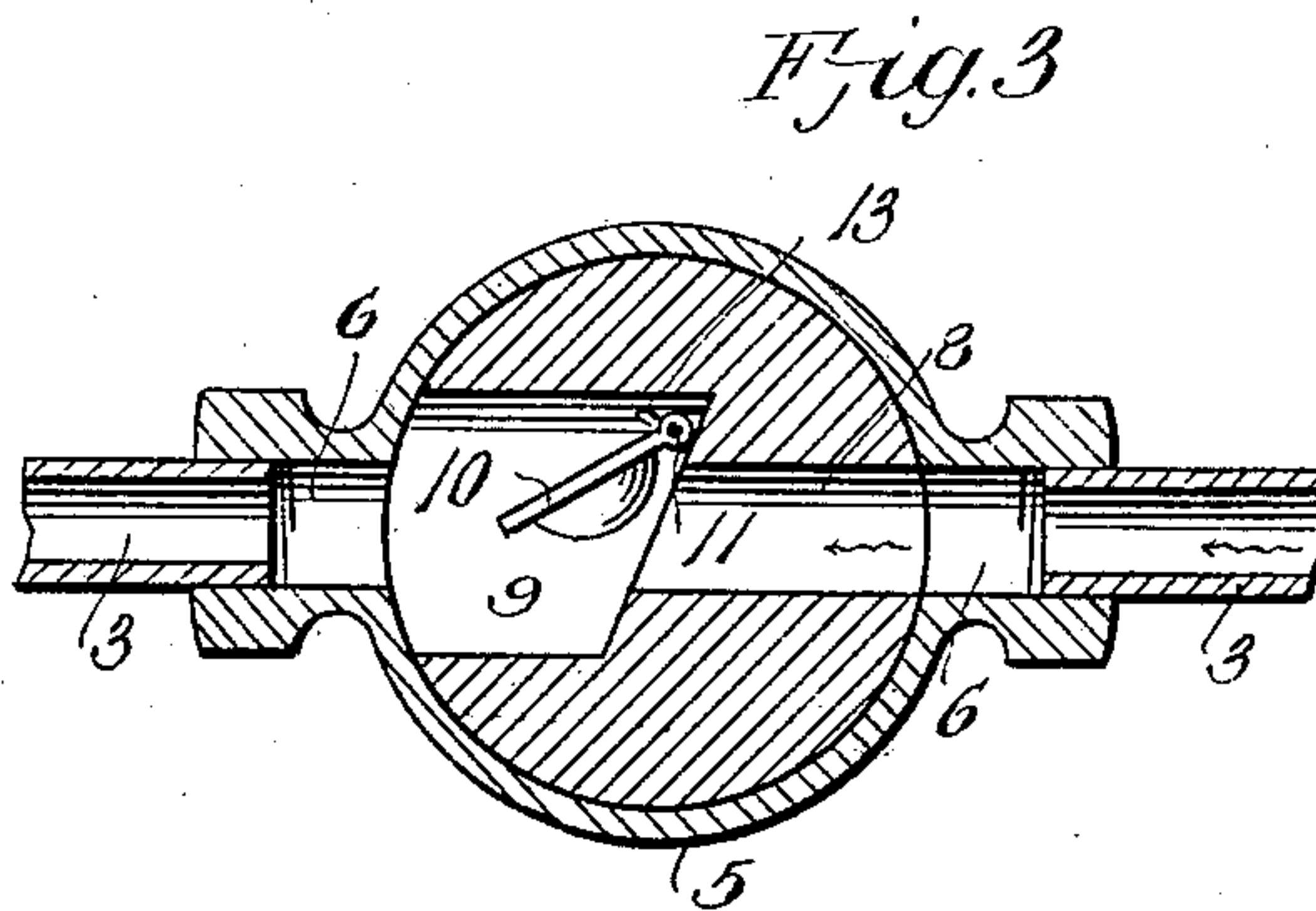
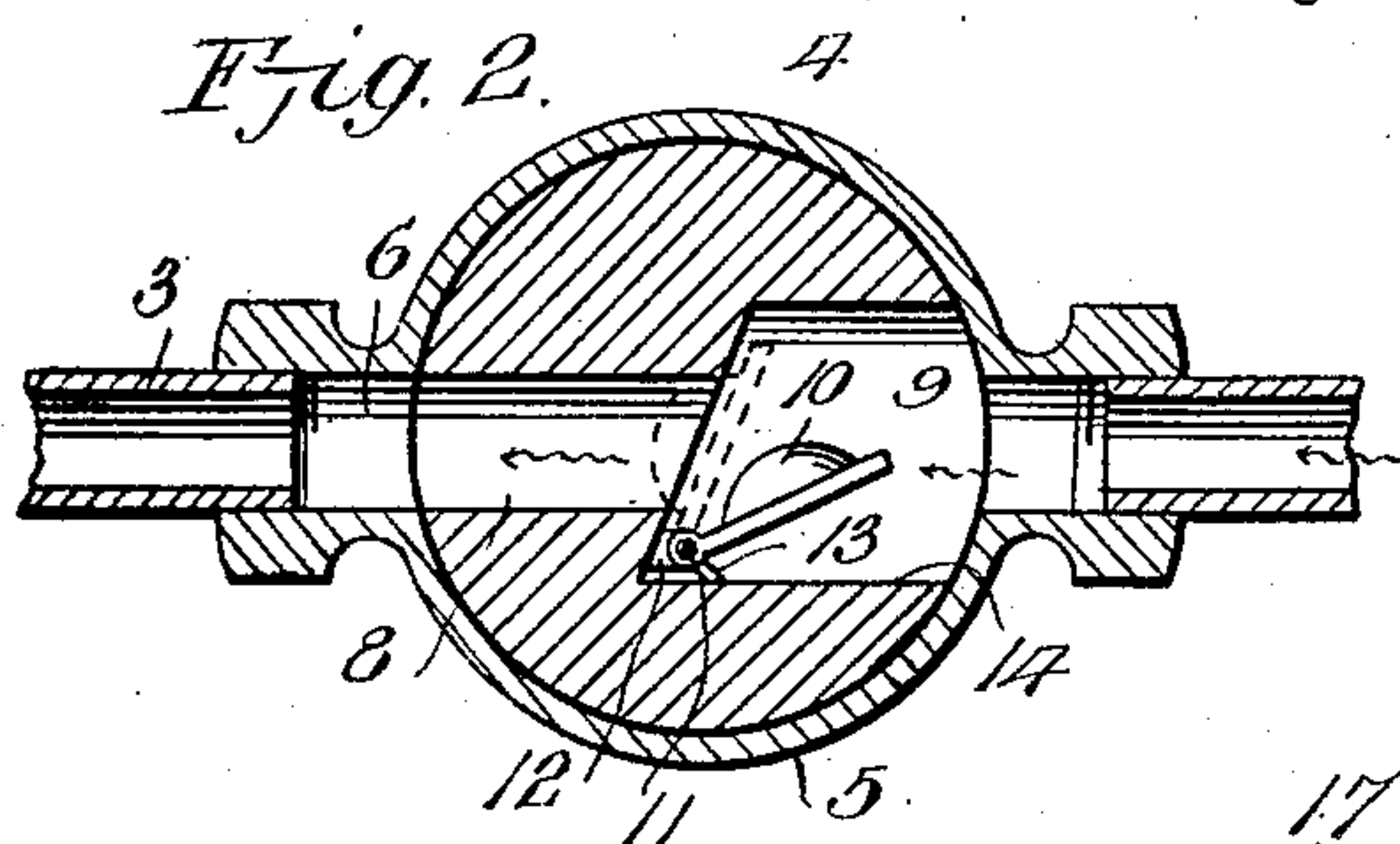
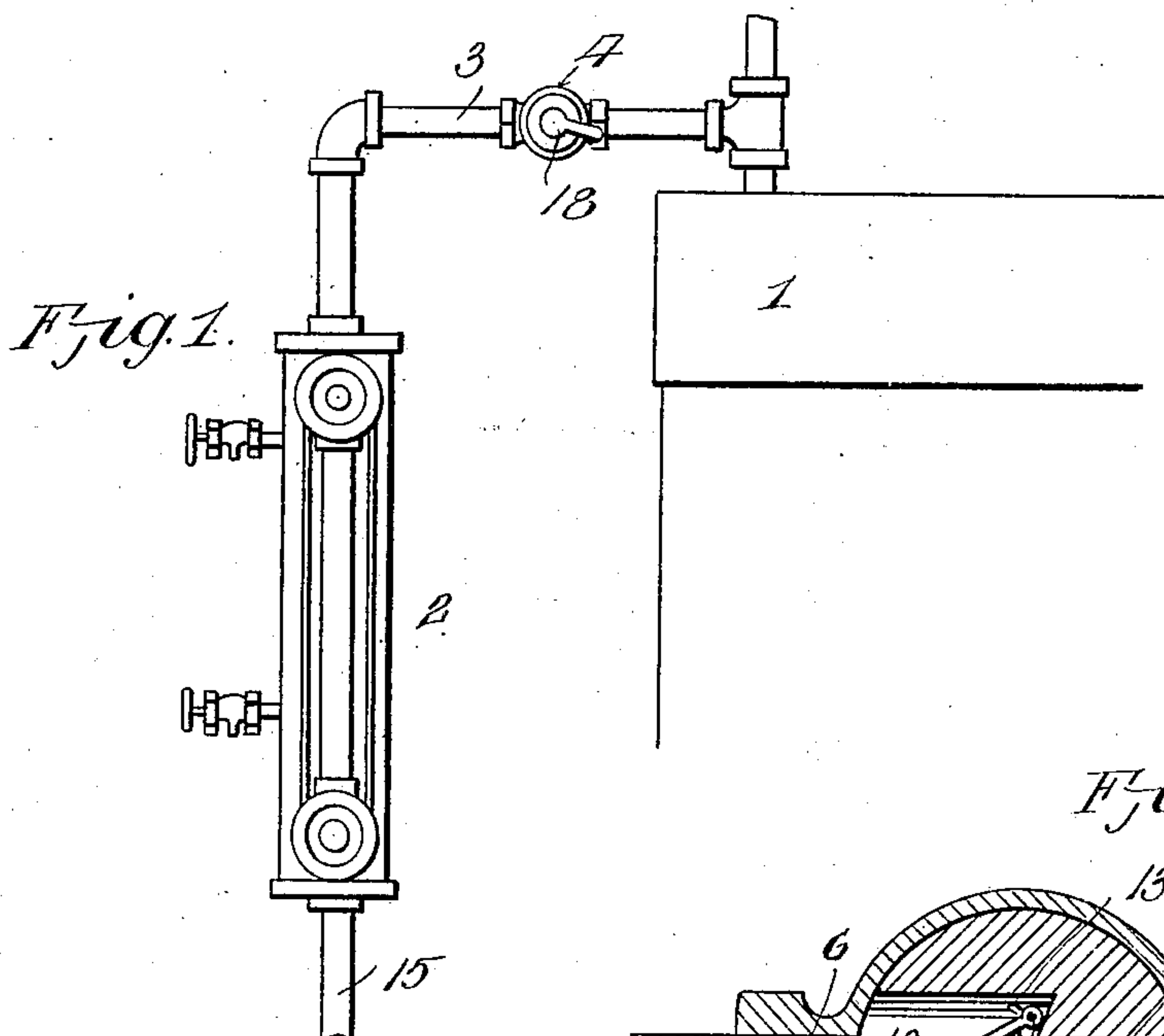


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PATENTED SEPT. 8, 1908.

I. O., E. & M. NORTHUP.
SAFETY DEVICE FOR SIGHT GLASSES.

APPLICATION FILED MAR. 29, 1907.



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UNITED STATES PATENT OFFICE.

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SAFETY DEVICE FOR SIGHT-GLASSES.

No. 898,254.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed March 29, 1907. Serial No. 365,392.

To all whom it may concern:

Be it known that we, IORN O. NORTHUP and EDWARD NORTHUP, citizens of the United States, residing at Kingston, in the county of Madison and State of Arkansas, and MALEN NORTHUP, a citizen of the United States, residing at Leavenworth, in the county of Chelan and State of Washington, have invented certain new and useful Improvements in Safety Devices for Sight-Glasses, of which the following is a specification.

This invention relates to safety devices for sight glasses and relates more particularly to a combined plug cut-out and check valve for use in connection with sight glasses for boilers and the like.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to manufacture, thoroughly reliable and efficient in use, and easy and convenient to manipulate.

A further object of the invention is the provision of a cut-plug in which is arranged a flap or check valve that is normally held in such position that a forcible passage of steam through the cut-out plug, as when the sight glass is broken, would automatically close the check valve and prevent the fall of steam pressure and the possible danger to the engineer by the escaping steam.

Another object of the invention is the employment of a check valve so designed as to be readily opened, after once having been closed, by the simple manipulation of the cut-out valve.

With these objects and others in view, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter, and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention:—Figure 1 is a front elevation of a sight glass and steam pipe connected therewith, in which the combined cut-out and check valve is arranged. Fig. 2 is a vertical longitudinal sectional view of the valve device showing the check valve in normal position by full lines, and in emergency position by dotted lines. Fig. 3 is a similar view showing the

cut-out plug of the valve device in a different position. Fig. 4 is a horizontal sectional view showing the parts in elevation.

Similar reference characters are employed to designate similar parts throughout the several figures of the drawings.

Referring to the drawings, 1 designates a steam boiler or other apparatus containing liquid and vapor under pressure, and connected therewith is a sight glass 2 which may be of any approved construction. In the present instance, the steam connection between the boiler and sight glass is alone shown. In the steam connection 3 is arranged the combined cut-out and check valve, designated generally by 4, that constitutes the safety device for sight glass. This valve device 4 comprises a casing 5 constructed somewhat in the shape of a cup and provided with apertured and tapped bosses 6 for connection with the parts of the steam pipe 3. Fitted in the casing 5 is a frusto-conical cut-out plug 7 that is provided with a diametrically-extending passage 8, one end of the passage being enlarged to form a chamber 9. In the chamber 9 is pivoted a check valve 10 of the flap type, provided with a spherically convex rubber or other portion for engaging the valve seat to close the passage 8. The valve 10 is fulcrumed at 11 on lugs 12, and the said valve is provided with a stop or projection 13 adjacent the fulcrum portion thereof so as to engage one wall of the chamber 9 to hold the valve in a normally inclined position. As shown in Fig. 2, the stop 13 engages the wall 14 of the chamber 9 and holds the valve 10 so that its free end is disposed approximately in line with the center of that portion of the pipe 3 that connects it with the steam space of the boiler. The object of this is to cause the sudden rush of steam through the pipe 3 and combined cut-out and check-valve, as for instance, when the sight glass is broken to pick up the check valve 10 and throw it to the dotted line position shown in Fig. 2, thereby positively cutting off the flow of steam. By turning the cut-out plug through ninety degrees from its normal position, the solid portion of the plug 7 closes the apertured bosses 6 so that danger of steam leaking is prevented.

Although only the steam pipe 3 is shown equipped with the valve device, it is to be understood that the water pipe 15, Fig. 1, that connects with the water space of the

boiler, may with advantage be provided with a combined cut-out and check valve. The cut-out plug is provided with a threaded stem 16 that extends through the side wall of the chamber 5 to receive a nut 17 which holds the plug 7 firmly seated in the casing. At the side of the cut-out plug 7, opposite from the stem 16, is a lever 18, whereby the plug can be turned by hand when desired.

10 From the foregoing description taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily appreciated by those skilled in the art to which the invention appertains. The normal position of the parts is shown in Fig. 2, and as long as the sight glass is in perfect condition, the check valve 10 will remain inactive. If, however, the sight glass is broken, the check valve is immediately closed.

20 In order to restore the check valve after a new sight glass is put in, the cut-out plug is turned half a revolution so that the pressure of the steam will open the check valve and throw it to the position shown in Fig. 3. After a pressure is thus restored in the sight glass, the cut-out plug is turned to its normal position, whereupon the check valve will automatically open and rest in the position shown in Fig. 2.

Having thus described the invention, what is claimed, is:—

A device of the character described comprising a frusto-conical cup-shaped casing with a turnable frusto-conical shaped plug 35 therein provided with a diametrically extending passage which is enlarged at one end to form a chamber, steam pipes on opposite ends of the casing arranged in alinement with the passage, a check valve pivoted in the chamber for closing said passage and the steam pipe adjacent thereto, said check valve having a stop at right angles therewith, the terminal of which contacts with one wall of the chamber to hold the valve in an inclined and partially open position, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

IORN O. NORTHUP.
EDWARD NORTHUP.

Witnesses:

M. C. COGER,
J. J. HORDY.

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

MALEN NORTHUP.

Witnesses:

G. W. HATHAWAY,
W. L. DAVIS.