(No Model.)

H. FROELICH.

SAFETY DEVICE FOR WATER GAGES.

No. 599,603. Patented Feb. 22, 1898.

Fig. 4.

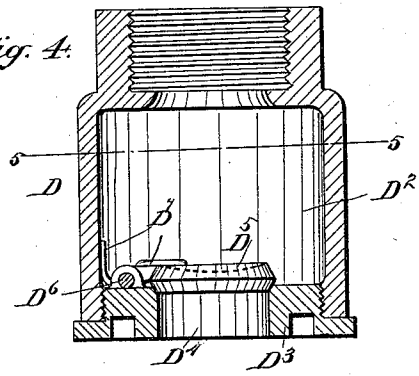


Fig. 2.

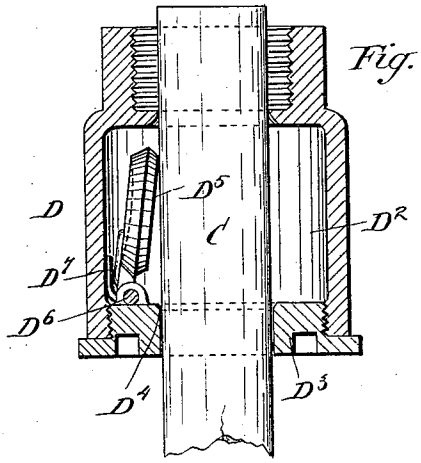


Fig. 5.

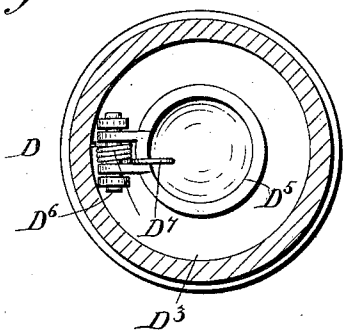


Fig. 3.

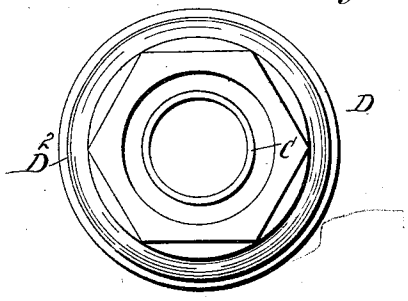
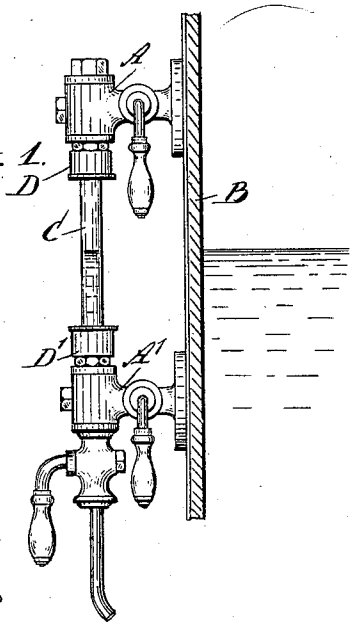


Fig. 1.



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HENRY FROEHLICH, OF HONOLULU, HAWAII.

SAFETY DEVICE FOR WATER-GAGES.

SPECIFICATION forming part of Letters Patent No. 599,603, dated February 22, 1898.

Application filed July 15, 1897. Serial No. 644,625. (No model.)

To all whom it may concern:

Be it known that I, HENRY FROEHLICH, of Honolulu, Hawaii, have invented a new and Improved Safety Device for Water-Gages, of which the following is a full, clear, and exact description.

The invention relates to water gages or indicators for marine or other boilers; and its object is to provide a new and improved safety device arranged to immediately close the gage on the breaking of the glass to prevent the undesirable escape of steam and water from the boiler.

The invention consists principally of a valve normally resting on the glass and adapted to be seated on a valve-seat through which passes the glass whenever the glass breaks and is forced out of the said seat.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied, with part of the boiler in section. Fig. 2 is an enlarged sectional side elevation of the improvement with the glass in position and the valve open. Fig. 3 is a plan view of the same. Fig. 4 is a sectional side elevation of the improvement with the glass removed and the valve seated, and Fig. 5 is a sectional plan view of the same on the line 5 5 of Fig. 4.

The water-gage is provided with the usual heads A A′, secured to the boiler B in the ordinary manner, and the outer ends of the heads are connected with each other by a water-glass C. On the opposite faces of the heads A A′ are secured safety devices D D′, which take the place of the usual packing-nuts and through which extend the upper and lower ends of the glass C, as is plainly indicated in Figs. 1 and 2.

The safety devices D D′ are alike in construction and each is provided with a casing D^2, screwed with one end to the corresponding head A or A′ and acting as a packing-nut. In the open end of each casing D^2 screws a cover D^3, formed with a central valve-seat D^4 for the passage of the corresponding end of the water-glass C and for the reception of a valve D^5, hung on a pivot D^6, supported on the inner face of the cover D^3, the said valve D^5 normally resting against the side of the water-glass C, as is plainly indicated in Fig. 2. A spring D^7 presses on the valve D^5, so that when the glass C breaks and the end thereof is forced by the steam or water pressure out of the corresponding head and the corresponding safety device then the valve D^5 is caused to swing to its seat by the action of the said spring D^7 and by the pressure of the steam and water entering the casing D^2 and exerting pressure on the said valve for the purpose mentioned. The valve D^5 has a beveled edge and the surface of the valve is concaved, as plainly indicated in the drawings, so that the steam or water has ready access to the said beveled edge and top surface to force the valve into a closed position as soon as its normal support—that is, the glass C—is removed from the safety device.

It is understood that the casing D^2 is made sufficiently large to allow of hinging the valve D^5 in such a manner that the said valve stands in an inclined position—that is, toward its seat D^4—to insure an instant closing of the valve either by the spring D^7 only or by the pressure of the water and steam as soon as the glass has passed out of the casing D^2. It is evident that when this takes place the casing D^2 is completely closed, and consequently steam or water cannot pass from the boiler through the heads A A′ to the outside.

It is understood that in the safety device D the valve D^5 swings downwardly to its seat, while in the safety device D′ the valve D^5 swings upward upon its seat, as soon as the ends of the water-glass C have passed out of the safety device.

The device is very simple and durable in construction and can be readily applied to the ordinary water-gages now in use.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a gage-glass and its mounting provided with a valve-seat through which extends the gage-glass, of a valve hinged in the mounting and held normally off its seat by the gage-glass and adapted to seat

itself on the seat to close the mounting on the removal of the gage-glass, substantially as shown and described.

2. The combination with a gage-glass and its mounting provided with a valve-seat through which extends the gage-glass, of a valve hinged in the mounting and held normally off its seat by the gage-glass and adapted to seat itself on the seat to close the mounting on the removal of the gage-glass, and a spring pressing the said valve to hold the latter against the gage-glass and to assist in closing the valve on the removal of the gage-glass, substantially as shown and described.

HENRY FROEHLICH.

Witnesses:
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EMIL KLEMME.