

No. 722,330.

PATENTED MAR. 10, 1903.

F. O. STANLEY.
LOW WATER ALARM FOR STEAM BOILERS.

APPLICATION FILED OCT. 25, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

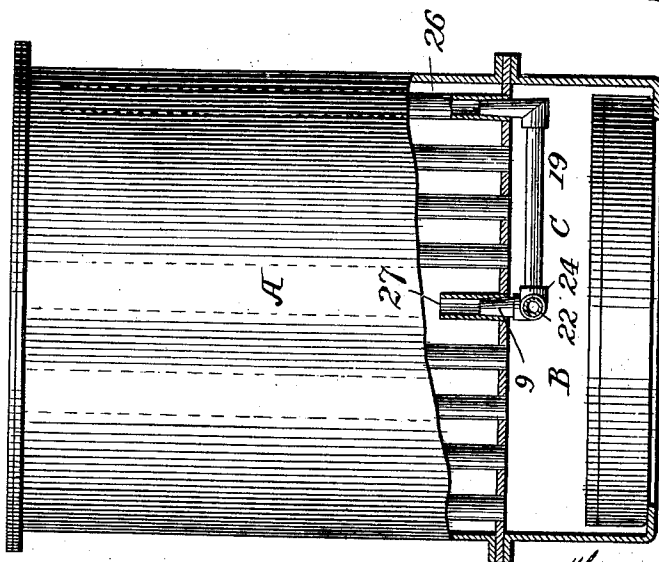
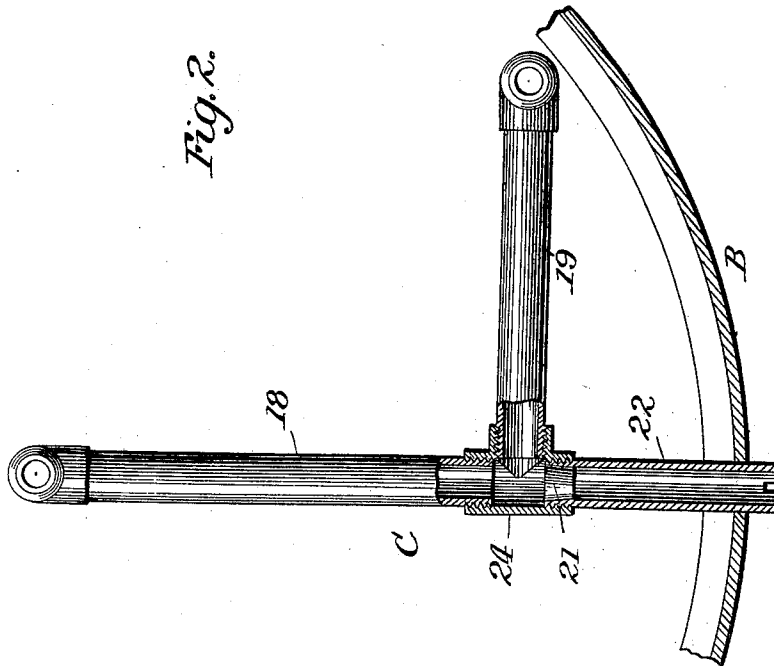


Fig. 2.

Fig. 1.

Witnesses
J. G. Hinkel
Samuel Gilman

Inventor
Fred O Stanley
By *Joseph Freeman*
Attorneys

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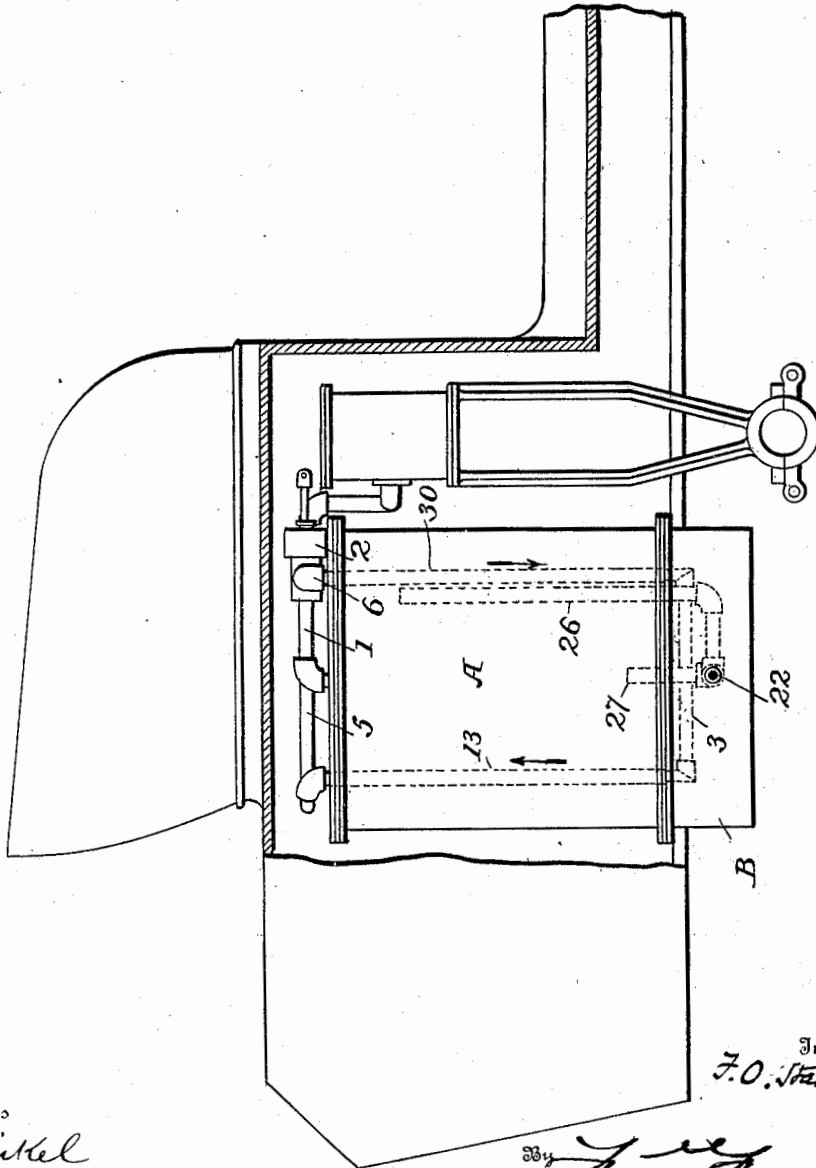
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2 SHEETS—SHEET 2

Fig. 3.



Witnesses

J. J. Hinkel

J. J. McCarthy

Inventor
F. O. Stanley

By *F. J. Freeman*

Attorneys

UNITED STATES PATENT OFFICE.

FREELAN O. STANLEY, OF NEWTON, MASSACHUSETTS.

LOW-WATER ALARM FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 722,330, dated March 10, 1903.

Application filed October 25, 1902. Serial No. 128,726. (No model.)

To all whom it may concern:

Be it known that I, FREELAN O. STANLEY, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Low - Water Alarms for Steam-Boilers, of which the following is a specification.

My invention relates to that class of low-water-alarms in which a plug of fusible metal is melted when the water-level is too low; and my invention consists of means for readily connecting and detaching the parts and in the arrangement of parts and details of construction fully set forth hereinafter and illustrated in one form in the accompanying drawings, in which—

Figure 1 is a side view, in part section, of the lower part of a steam-boiler and vapor burner and casing, showing my invention; and Fig. 2 is a part-sectional plan. Fig. 3 is a sectional elevation of part of a motor-vehicle body with my improvements shown in connection with the boiler.

Fusible plugs have heretofore been arranged in connection with steam-boilers to be melted when the water descends below the proper level, but when directly connected with the boiler have been inaccessible, and the dis-association of the parts of the apparatus has been needed to replace the plug. To avoid this difficulty, I place the plug in a detachable tube, the end of which extends outward to a position to be readily engaged by a suitable tool, so that it can be easily removed, a new plug inserted, and replaced. When the plug is below the boiler A and above a vapor or other burner B, it must necessarily connect with a pipe communicating with the boiler-tubes, and to secure this connection, while permitting the ready removal and replacing of the pipe, I form it as a hollow bracket C, with two branches 18 19 at right angles to each other, each terminating in an L, with a tapering vertical branch 9 of the L, which is driven into the lower end of a boiler-tube, expanding the latter and securing a joint which will remain tight under all pressures, while the bracket may at any time be removed by the use of a suitable tool. This bracket is used for the support of the fusible plug 21, which is inserted in a tube 22, having a thread-

ed end fitting a threaded socket of a T-shaped coupling 24 between the branches 18 and 19, and the tube 22 extends outward beyond the burner-casing B, so as to be readily turned, detached, and replaced by another when the plug is melted or to permit the insertion of a new plug. The outer branch 19 communicates with a tube 26, extending upward into the steam-space of the boiler, while the end of the branch 18 communicates with a tube 27, extending only to a point in the boiler near the center, which is as low as the safety-level of the water should be with the boiler vertical or inclined. So long as the level of the water is above the upper end of the tube 27 the presence of water in the tubular bracket will prevent the plug 21 from melting; but when the water sinks below this level the body of water in the bracket will be so small and incapable of circulating with that in the boiler that it will evaporate quickly and before that which remains in the boiler, and as its presence no longer prevents a rise in the temperature of the bracket the latter will at once become so heated as to melt the plug, the escape of steam indicating the dangerous condition of the water-supply in the boiler.

By the arrangement of one of the branches at or near the center of the boiler the inclination of the latter, resulting in the vehicle being on an incline in any direction, will not prematurely expose the end of the pipe in some cases or delay its proper exposure in others, as would result if the pipe were near the back or front of the boiler. By making the bracket L-shaped instead of using a straight pipe between the tubes 26 27 expansion of the branches of the bracket will not tend to loosen the fittings.

While I have shown the pipe 22 as connected to the bracket at the corner, it may extend to any other part of the bracket.

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim—

1. The combination with a boiler and burner, of a pipe below the boiler, a tube connected detachably with said pipe and containing a fusible plug at a point above the burner, and having its outer end open and exposed, substantially as described.

2. The combination with a boiler having tubes of different lengths, of a hollow bracket having tapering branches fitting said tubes, and a detachable pipe containing a fusible plug and fitting a socket of the bracket, substantially as set forth.

3. The combination with a boiler having tubes of different lengths, of a hollow bent bracket having tapering branches fitting said tubes, and a detachable pipe containing a fusible plug and fitting a socket in the bracket, substantially as set forth.

4. The combination with a boiler having tubes of different lengths, and with a burner-casing below the boiler, of a hollow bracket having tapering branches fitting said tubes, and a detachable pipe containing a fusible plug and fitting a socket of the bracket and extending through said casing, substantially as set forth.

5. The combination with a boiler and burner, of vertical tubes of different heights within the boiler, a connection between the tubes below the boiler, and a detachable pipe hold-

ing a fusible plug extending from said connection above the burner and open at the outer end, substantially as set forth.

6. The combination with a boiler and burner, of vertical tubes of different heights within the boiler, a connection between the tubes below the boiler, and a fusible plug supported by a pipe open at the outer end and communicating with said connection, substantially as set forth.

7. The combination with a boiler and burner, of vertical tubes of different heights within the boiler, a connection between the tubes below the boiler, and a fusible plug in a detachable pipe open at the outer end and supported by said connection, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREELAN O. STANLEY.

Witnesses:

J. W. BACON,
MARGARET L. HART.