J. E. CUNLIFF.

WATER GAGE.

APPLICATION FILED FEB. 17, 1912.

1,141,381.

Patented June 1, 1915.

2 SHEETS—SHEET 1.

Fig. 1

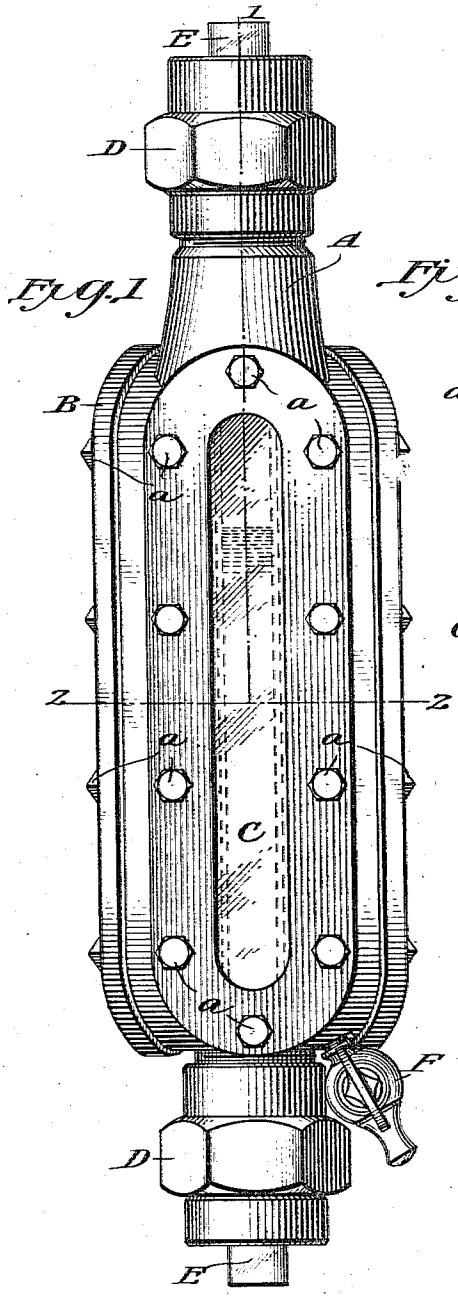


Fig. 2

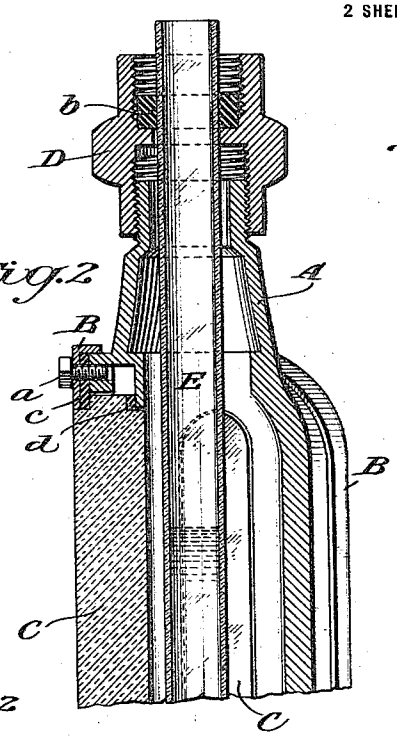


Fig. 4.

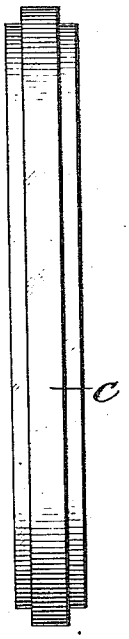
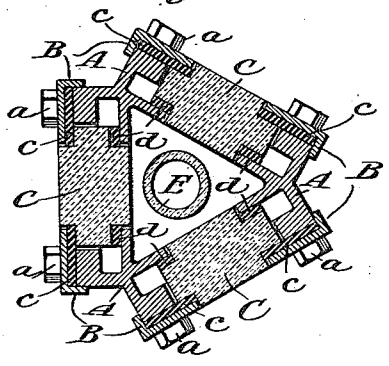


Fig. 3.



Witnesses:
Lawrence J. Collins,
James V. Walsh

Inventor:
James E. Cunliff,
per William Brenner Jr.
Attorney

J. E. CUNLIFF.

WATER GAGE.

APPLICATION FILED FEB. 17, 1912.

1,141,381.

Patented June 1, 1915.

2 SHEETS—SHEET 2.

Fig. 5.

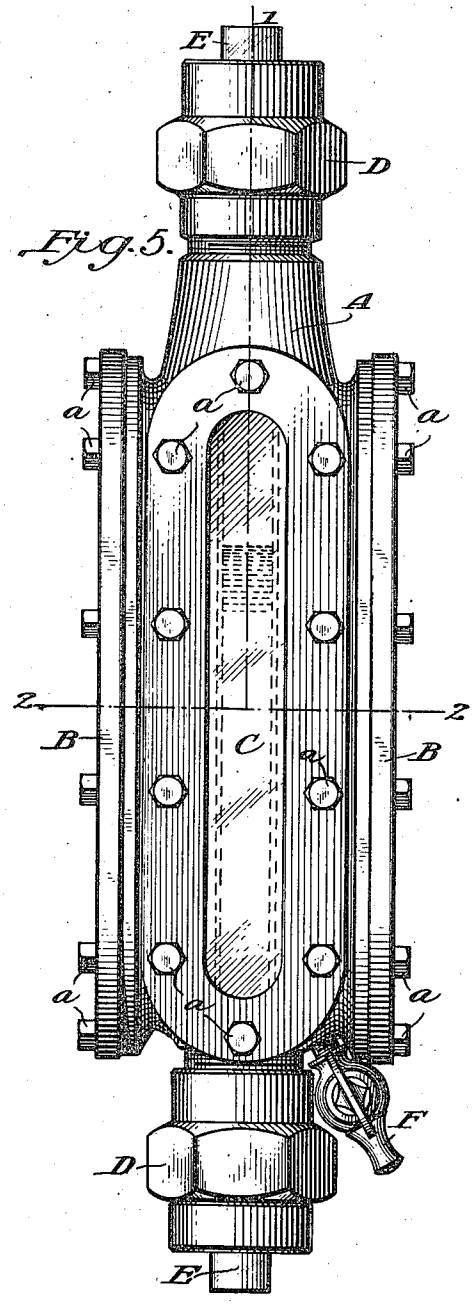


Fig. 6.

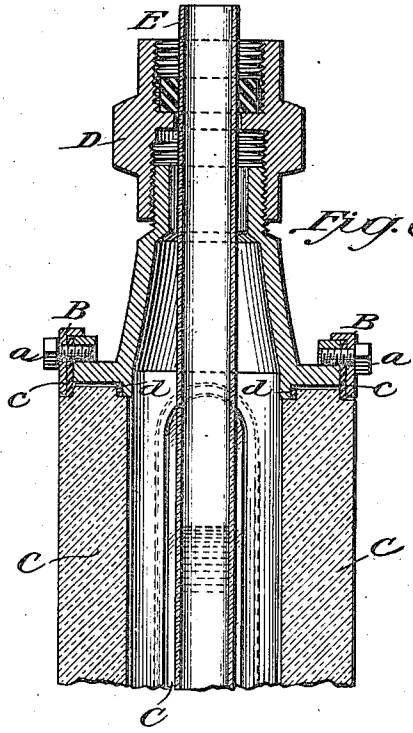
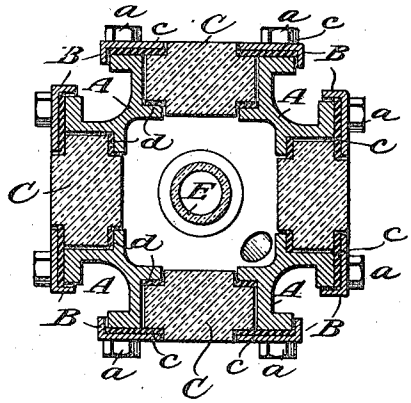


Fig. 7.



Witnesses:
Laurence J. Collins,
James V. Walsh

Inventor:
James E. Cunliff,
per William Brennan,
Attorney.

UNITED STATES PATENT OFFICE.

JAMES E. CUNLIFF, OF BUFFALO, NEW YORK.

WATER-GAGE.

1,141,381. Specification of Letters Patent. Patented June 1, 1915.

Application filed February 17, 1912. Serial No. 678,431.

To all whom it may concern:

Be it known that I, JAMES E. CUNLIFF, a citizen of the United States, residing at No. 1902 Bailey avenue, in the city of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Water-Gages, of which the following is a specification.

My invention relates to improvements in water-gages for use upon boilers of railroad locomotives and stationary engines and the objects of my invention are: First:—To eliminate all possibility of injury to the person, and especially to the eye-sight of those persons, who, by the very nature of their occupation, are in continual proximity to the water-gage on boilers. Second:—To provide an arrangement, wherein a strong outer glass, will take the place of the inner, or water-glass proper, when the latter breaks. I attain these objects by the mechanism illustrated in the accompanying drawings, one of which shows a combination water-gage, having three sides, while the other drawing shows a similar gage with four sides.

Similar letters refer to similar parts throughout the drawings.

Figure 1, is an elevation of a three sided water-gage. Fig. 2, is a vertical section of the upper part of the said water-gage on the center line. Fig. 3, is a horizontal section through the middle of the gage on the lines Z—Z, of Fig. 1. Fig. 4, is an elevation of one of the transparent glass panels C, showing the web around its entire surface. Fig. 5, is an elevation of a four sided water-gage. Fig. 6, is a vertical section of the upper part of the said water-gage on the center line. Fig. 7, is a horizontal section through the middle of the gage, on the lines Z, Z, of Fig. 5.

In Fig. 1, A, is the body of the water-gage comprised of a single piece of material, through which the water-glass E passes forming a chamber between the outside of the water-glass E, and the inner portion of the body A, and the panels C, C. The water-glass E, is supported at the top and bottom of said body by the coupling nuts D, D. The top and bottom of the body A, are circular in form, and have outside threads to receive the coupling nuts D, D. B, B, B, are plates holding the panels C, C, C, said plates being attached to the body A, by means of screws *a*, *a*, etc., and forming outside flanges to engage with the packing *c*, *c* etc., and the web of the panels C, C, C, which in turn engage with the packing *d*, *d*, etc. on the inside flanges of the body A. The panels C, C, C, are made of glass or similar transparent material, and are of extra thickness as shown, and are provided with a web for engaging packing *d*, *d*, etc., on the inside flanges on the body A, and on the outside with the packing *c*, *c*, etc., and the plates B, B, and B. F, is a vent cock, screwed into the lower portion of the body A, and communicates with the said chamber as shown more particularly in Fig. 7. *b*, is a packing in the coupling nut D, for making a steam and water tight joint between the water-glass E, and the coupling nut D. The lower coupling nut D, is provided with a similar packing *b*, (not shown on drawing). Coupling nuts D, D, have a flange in the center, as shown, and are inside threaded at each end. *c*, *c*, etc., and *d*, are packings made of suitable material, for the purpose of making steam and water tight joints between the body A, the panels C, C, C, and the plates B, B, B.

Figs. 5, 6, and 7, are similar in construction to Figs. 1, 2, and 3, with similar letters; except that the body has four sides, four panels, and four glass plates. As long as the tube E, thus contained in the body A, remains unbroken, the body A, with the glass panels C, C, C, incased in its sides, serves merely as a shield about the water tube E. But as soon as the tube E breaks, the water, condensed steam, and powdered glass, escape through the vent cock F, inserted in the lower portion of the body A, between two of its sides. By then closing F, the body A, becomes a perfect water-glass, since the fragments of the broken tube E, that remain in the chamber within the body A, in no way interfere with the water remaining at its true level in the body A.

While the body A, could be used as a water-glass as well, independently of the tube E, as in combination with it, still, it is the intention, in combining them both here, that the body A, shall serve merely as a shield to the tube E, as long as the latter remains unbroken, and be used as a water-glass, only in cases of emergency, as for instance when the tube E, breaks, while the locomotive, on which it is installed, is en route from one destination to another.

It is understood that changes in the precise embodiment of the invention herein dis-

closed can be made within the scope of the following claims without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, of the United States of America, is:

1. In a means for protecting the ordinary water glass and forming a supplementary glass, the combination with said water glass of a metallic body provided with openings, transparent panels provided with webs covering said openings in said body, flanges formed on said body and surrounding said openings, packing between the webs of said panels and said flanges, plates for holding the panels to said body and a packing between said plates and the web of said panels, a coupling nut on each end of said body and a packing in said coupling nut for making a tight joint around said water glass.

2. In a water-gage, the combination of a metallic body composed of a single piece of material, said body having side openings, transparent panels covering side openings, a transparent tube passing through the center of said metallic body, couplings at the top and bottom of said body, to form a steam and water tight chamber, in said body, and exterior to said tube, and means communicating with said chamber, to indicate the breakage of said tube and whereby the contents of said chamber may be retained in the event of the breaking of said tube.

3. In a water-gage, the combination of a circular glass tube surrounded by a metallic body having glass sides attached thereto in a steam and water tight manner, and forming a chamber between said glass tube and said metallic body, said body provided with a cylindrical neck at each end, and having coupling nuts screwed over each of said necks, and into each of which coupling nuts are fitted steam and water tight gaskets, said metallic body being formed of a single piece of material, and having a vent valve in the lower portion of said body communicating with said chamber.

4. In a water gage, the combination of a permanent shield of refractory material provided with sight openings, transparent panels covering said openings and provided with webs around their outer edges, packing means between said webs and said shield, plates for holding said panels to said shield, packing means between said plates and said webs, said shield adapted to be placed on an ordinary water glass which extends through said shield in such a manner as to form a chamber between said shield and said water glass, an opening in the base of said shield communicating with said chamber whereby the steam and water may escape to indicate the breaking of said water glass, and means to close said opening whereby said shield becomes a secondary water glass.

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

JAMES E. CUNLIFF.

Witnesses:
JAMES V. WALSH,
WILLIAM BRENNAN, Jr.