

L. J. BORDO.
BOILER WATER GLASS.
APPLICATION FILED JULY 6, 1907.

973,337.

Patented Oct. 18, 1910.

2 SHEETS—SHEET 1.

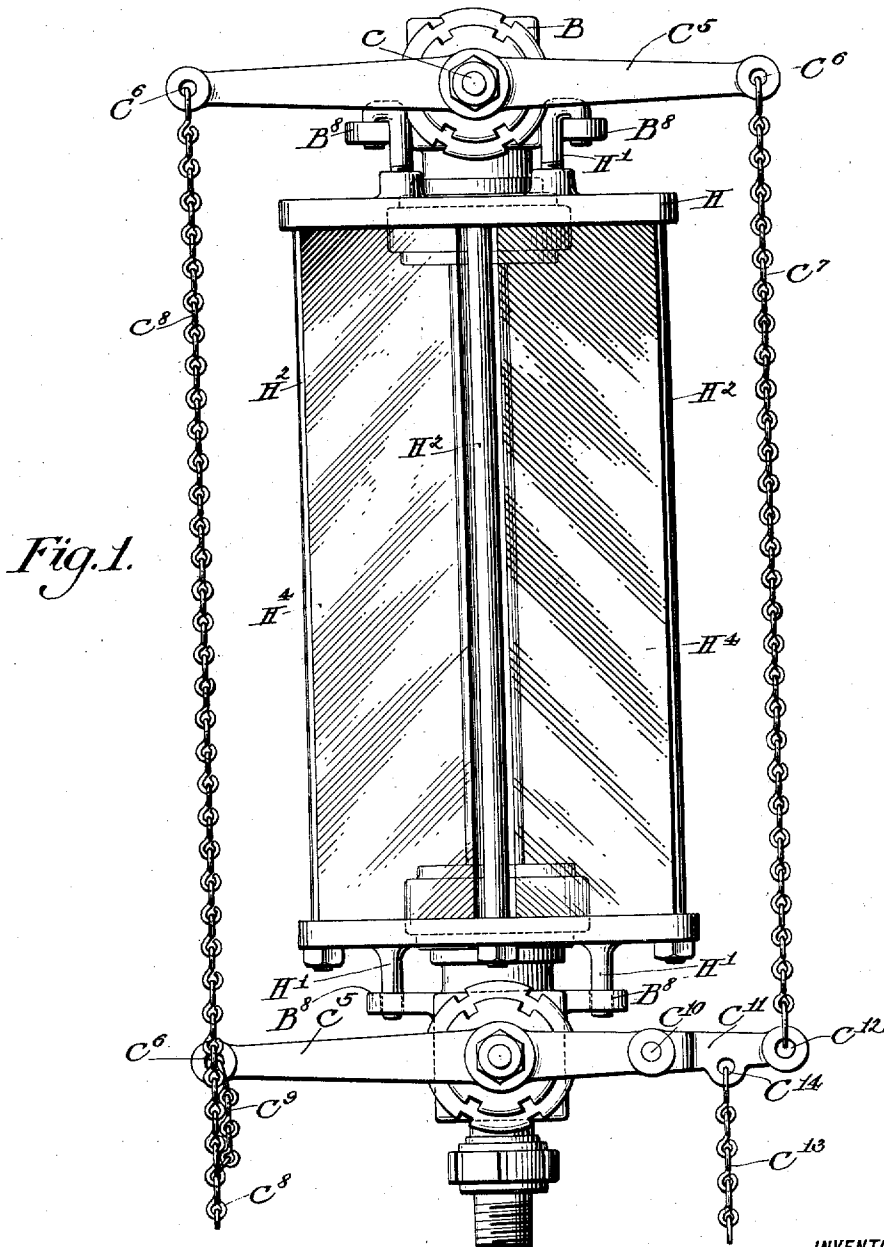


Fig. 1.

WITNESSES:

Wm. J. Williams

INVENTOR

Lambert J. Bordo

BY

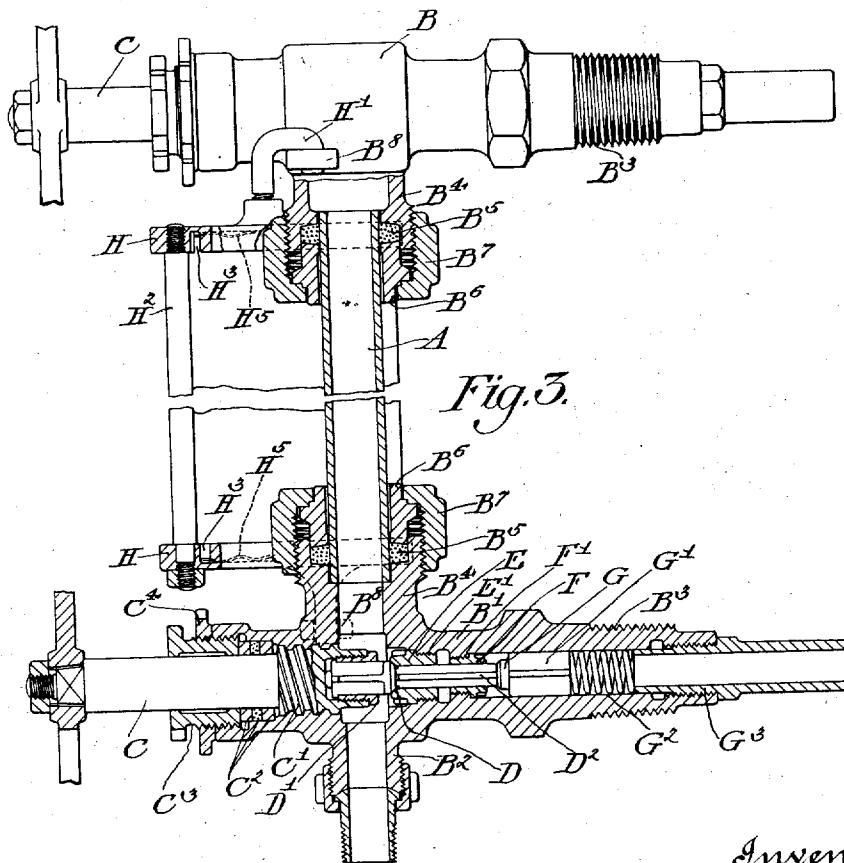
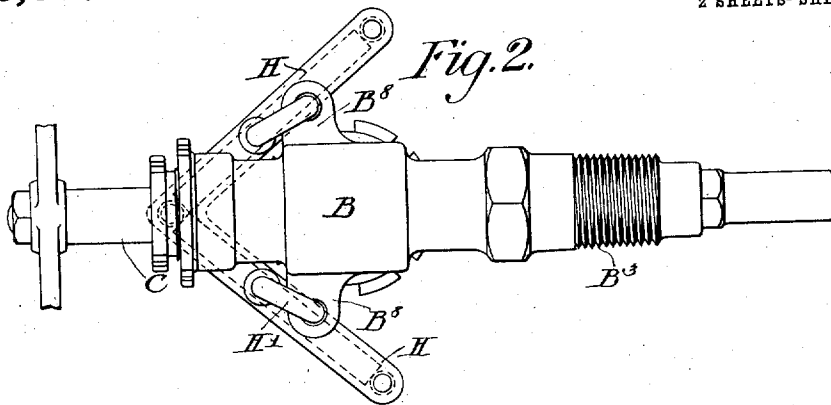
Francis J. Chamberlain

his ATTORNEY.

L. J. BORDO.
BOILER WATER GLASS.
APPLICATION FILED JULY 6, 1907.

Patented Oct. 18, 1910.
2 SHEETS—SHEET 2.

973,337.



Witnesses
Stewart
D. J. Williams

Inventor
Lambert J. Bordo
by his atty.
Francis J. Chambers

UNITED STATES PATENT OFFICE.

LAMBERT J. BORDO, OF PHILADELPHIA, PENNSYLVANIA.

BOILER WATER-GLASS.

973,337.

Specification of Letters Patent,

Patented Oct. 18, 1910.

Application filed July 6, 1907. Serial No. 382,471.

To all whom it may concern:

Be it known that I, LAMBERT J. BORDO, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Boiler Water-Glasses, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My present invention relates to the construction of water glasses or water level indicators for steam boilers and the like, and has for its object to improve the operation of such glasses by the provision of a single simple and effective means for quickly and positively closing the connections between the two ends of the glass and the boiler when necessary, as on the breakage of the water glass barrel, and to provide a simple effective transparent shield for the glass barrel so that on the breakage of the latter the broken parts and escaping steam and water will not injure the boiler attendant or other person at hand.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, and the advantages possessed by it reference may be had to the accompanying drawings and descriptive matter in which I have illustrated one of the forms in which my invention may be made.

Of the drawings, Figure 1 is an elevation of the water glass structure, Fig. 2 is a plan, and, Fig. 3 is an elevation taken at right angles to Fig. 1, with parts in section.

In the drawings, A represents the water glass or barrel proper, which is connected at its upper end to a cock B, and at its lower end to a cock B¹. The cocks B and B¹ are substantially identical in construction with the exception that the lower one is provided with the usual pipe extension B² for attachment to a drip or waste cock. Each of the cocks has a threaded portion B³ adapted to be screwed into the boiler wall, and a lateral hollow boss B⁴ into which the proper end of the glass steam and water barrel A is tightly secured by means of the packing B⁵, gland B⁶, and cap B⁷. Each cock has a valve spindle or operating stem C in threaded engagement with the casing of the cock at C¹ and surrounded with the packing rings C²

held in place by the gland C³ and jam nut C⁴. In the form shown such valve spindle has removably secured to it as its inner end by a threaded member D¹ a valve member D adapted to seat itself on the removable valve seat member E, which is threaded into the valve casing at E¹. The valve member D has a fluted inner stem or extension D² which passes through the port in the valve seat member E and through the port in a second valve seat member F, threaded into the valve casing at F¹. Each extension D² holds a check valve G off its seat against the valve seat member F in either the normal open or closed position of the valve D. The check valve G constantly tends to seat itself under the action of a spring G² extending between the inner end of the fluted stem G¹ of the check valve G and a sleeve G³ screwed into the inner end of the valve casing. The fluid pressure back of the valve G also urges the valve toward its seat at all times. The purpose of the check valve G is to close the passages through the valve casings when it is desired to remove the valve spindles C and attached valves D in order to repair or replace the valve seats E. This arrangement, which is also novel to me, is not claimed herein but is claimed in my co-pending application Serial Number 382,472 filed of even date herewith.

The two arms formed by the opposite ends of the cross bar C⁵ secured to the spindle C in the upper valve casing B are similar and are each provided with a perforation C⁶ to which an operating connection or member, in the present case, chains C⁷ and C⁸, may be secured. The lower cross bar C⁵ has its left hand end of the same form as each of the arms of the upper cross bar, and the perforation C⁶ formed in this arm is connected to the chain C⁸ by a short chain C⁹. The right hand end of the lower cross bar C⁵ is shorter than the left hand end, and has pivoted to it at C¹⁰ an extension link C¹¹ provided with a perforation C¹² to which the lower end of the chain C⁷ is connected. It will be observed that the chain C⁷ forms a member which is pivotally connected at its ends to the arm C⁶ and the link C¹¹. An operating connection in the form of a chain C¹³ is secured in the perforation C¹⁴ formed in the link C¹¹ between its ends.

In operation both valves D may be simultaneously moved off of their seat by a pull on the chain C⁸. If the chain C⁸ is not ex-

actly proportioned in length to the length of the portion of the chain C⁸ extending between chains C⁹ and the ear C⁸ in the upper cross bar, the valves will not be opened to exactly the same extent, but minor variations in the degrees to which the two valves open are of no particular importance in a water glass construction. By pulling the chain C¹³ both valves D may be forced tightly against their seats regardless of the relative degrees of opening, since the lower end of the chain C⁷ forms a fulcrum on which the link C¹¹ may turn to complete the closing movement of the lower valve if the upper one closes first, and the pivot C¹⁰ serves as a fulcrum on which the link C¹¹ can turn to close the upper valve if the lower valve closes first. This arrangement, it will be observed, provides a means by which the two valves can be quickly and positively closed by a single operating device which is highly desirable upon the breakage of the glass barrel A for instance. It is unnecessary to arrange and connect the left hand arms as the right hand arms are arranged and connected, since with the simple flexible connection between the left hand arms shown any excess of turning movement of one valve spindle over the other necessary to tightly close the valves is unhindered.

The valve casings B and B¹ are provided with ears B⁸ perforated to receive the ends of rods H¹ or projections connected to the water glass shield. This shield comprises a framework formed of end members H into which the rods H¹ are secured, and which are secured together by rods H² having threaded ends screwed into the frame members H. As shown, each end member H comprises two parts extending to each other at an angle rather less than 90°, each part being formed with a slot H³ in which is received one end of one of the two rectangular pieces of plate glass H⁴ which form the shield. To allow the glass plates H⁴ to be held firmly in the frame while at the same time protecting them against injury from vibration or the like, corrugated strips H⁵ of resilient material are placed in the slots H³ extending between the edges of the glass plates and the bottom walls of the slots. It will be observed that the upper rods H¹ are bent to form hooks while the lower rods are not so hooked so that the shield may be readily put in place by simply raising or lowering the frame to carry the ends of the rods H¹ out of or into the perforations in the ears B⁸. The plates of glass H⁴ prevent particles of glass or steam and water from flying out either in front or laterally when the water glass A breaks, while at the same time they are so arranged as not to obstruct the inspection of the water glass from any point where it would otherwise be visible.

With the construction described the boiler attendant is not only protected from injury on a breakage of the water barrel but may quickly and easily close both valves leading to the water glass and thereby shut off the escape of steam and water.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A water level indicator for boilers, comprising a glass barrel, valve casings for connecting the top and bottom ends of the glass barrel to the boiler, a valve in each valve casing having a spindle projecting through the casing, an arm secured to said spindle without the casing whereby the valve may be rotated to open and close it, means for preventing the rotation of each valve in the valve closing direction after the valve is closed, a link having one end pivoted to one of said arms, a member pivotally connected to the other end of the link and pivotally connected to the other arm, and an operating connection engaging the link between its two ends.

2. A water level indicator for boilers comprising a glass barrel, valve casings for connecting the top and bottom ends of the glass barrel to the boiler, a valve in each valve casing having a spindle or stem in threaded engagement with the valve casing, and an arm secured to the outer end of each spindle, a link having one end pivoted to one of said arms, a member pivotally connected to the other end of the link and pivotally connected to the arm of the other valve, and an operating connection engaging the link between its two ends.

3. A water level indicator for boilers comprising a glass barrel, valve casings for connecting the top and bottom ends of the glass barrel to the boiler, a valve in each casing having a stem or spindle in threaded engagement with the valve casing, arms extending in opposite directions from each spindle, one arm from one spindle having a link pivoted to it, a member pivotally connected to the other end of the link and the corresponding arm of the other valve, a pull connection for closing the valves engaging the link between its two ends, and a pull connection for opening the two valves having a flexible connection to the other arm of each of the two valves.

4. A water level indicator for boilers comprising a glass barrel, valve casings for connecting the top and bottom ends of the glass barrel to the boiler, a manually controlled valve in each valve casing, a transparent shield for the glass barrel comprising a framework and plates of glass supported by said framework and meeting at an angle to inclose the glass barrel in front and at its sides, and perforated parts carried by the

valve casings, and projections extending from the shield framework by which the shield may be detachably secured in place.

5 5. A water level indicator for boilers comprising a glass barrel, valve casings for connecting the top and bottom ends of the glass barrel to the boiler, each valve casing being provided with a perforated ear B^s and a transparent shield for the glass barrel com-
10 prising top and bottom frames H provided with slots H^s and rod H² connecting the frames H, glass plates having their top and

bottom edges received in said slots H^s and meeting at an angle, corrugated resilient strips in the slots extending between the 15 edges of the glass plates and the bottom wall of the slots and projections H¹ secured to the frame and arranged to be detachably received by the perforations in the ears B^s.

LAMBERT J. BORDO.

Witnesses:

ARNOLD KATZ,
D. STEWART.