

C. I. WILLIAMS.

CHECK VALVE.

APPLICATION FILED JAN. 10, 1908.

911,353.

Patented Feb. 2, 1909.

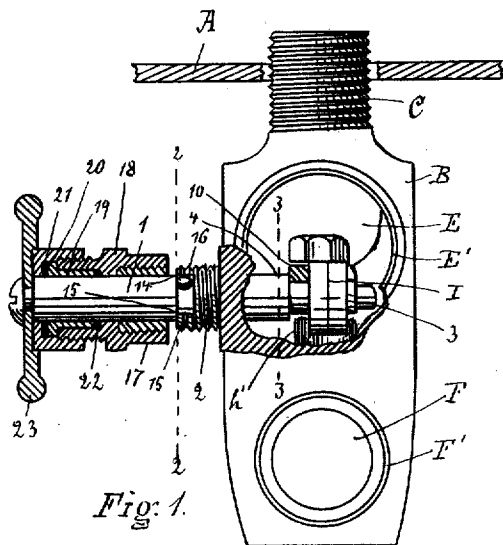


Fig. 1.

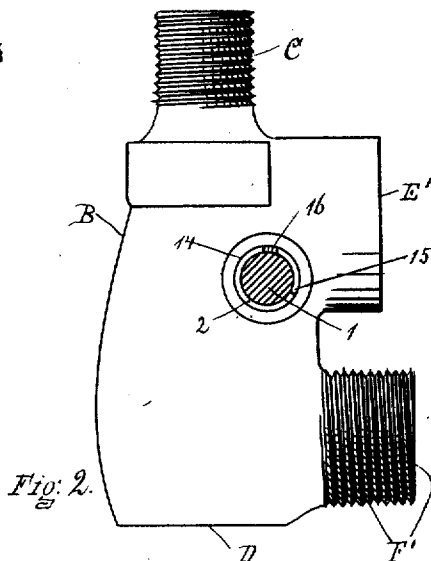


Fig. 2.

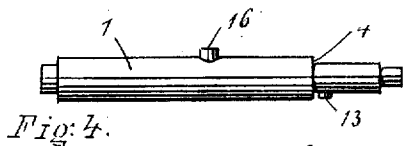


Fig. 4.

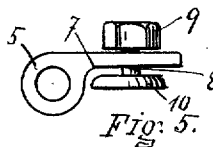


Fig. 5.

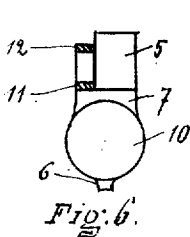


Fig. 6.

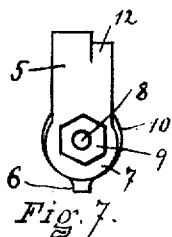


Fig. 7.

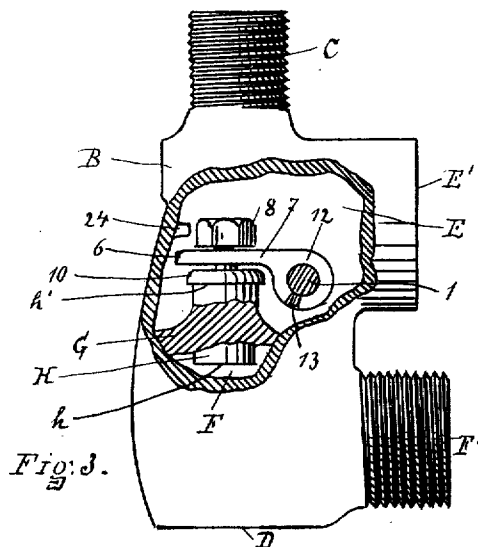


Fig. 3.

WITNESSES.
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UNITED STATES PATENT OFFICE.

CHARLES I. WILLIAMS, OF UTICA, NEW YORK.

CHECK-VALVE.

No. 911,353.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed January 10, 1908. Serial No. 410,087.

To all whom it may concern:

Be it known that I, CHARLES I. WILLIAMS, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Check-Valves, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an improved check-valve for water gages, and I declare the following is a full, clear, concise and exact description thereof, sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout.

The invention is illustrated as mounted in a casing which is used to carry and inclose the valves of a water gage and comprises elements by which such valves are automatically closed when the water-glass breaks, which normally remains open and can be held open, but which cannot be held closed.

I am aware that check-valves having or claiming such features have been used and patented, but they are open to various objections and I have invented a valve which I believe to be a substantial improvement upon them, as regards the elements of safety, economy and convenience.

Particularly an advantage of my device will be seen in the simplicity and ease of assembling the parts. To make this clear it is noted that in certain other structures an exact adjustment of the parts is necessary as the service of the device is dependent upon its correct adjustment and this requires one who is skilled in such matters to test the device during the assembling of the parts to make sure that the correct adjustment is made.

The invention is shown in one form in the accompanying drawings in which—

Figure 1 is a view of enough of the valve construction to show my invention, the view being of one of the casings looking upward into the upper one, for instance, certain parts being cut away, the bushings being shown unscrewed. Fig. 2 shows the casing, the stem being cut in section on line 2—2 of Fig. 1. Fig. 3 is a view of interior parts on the line 3—3 of Fig. 1. Fig. 4 is a view of the stem. Fig. 5 is a side view of the opposite side of the valve proper, from that shown in Fig. 3, while Figs. 6 and 7 are views from

the lower and the upper sides thereof, as it appears in said figures.

Referring to the figures more in detail, A shows the face of the boiler, B the casing of the valve which has screw-threaded end C to mount it on the boiler-plate. At the opposite end, D, the casing is formed to receive a valve stem to close one end of the valve-thimble, as is illustrated in an application filed by me May 23, 1907, Serial Number 375,223, the general form of such a stem and valve being so well-known that particular showing and description is unnecessary. The drawings in the said application also show the general contour and internal formation of the casing, which is also here seen to have two chambers, one shown as E with opening E' for a plug (not shown) and the other as F with opening F', exteriorly threaded for the mounting of the glass, there being between the chambers the partition G, through which is the thimble H, formed by boring and trimming the partition or by the insertion of a separate piece, as shown in said application, for instance. It will be understood that one end, *h*, of the thimble is prepared for the valve on the stem which has been referred to but is not shown and which may be used to close the valve at that end. The thimble is ground or otherwise prepared at its other end, *h'*, to receive the valve shown as a whole by I, and to which the invention more particularly relates.

The casing is bored transversely to receive the stem 1, as seen in Fig. 1, a nipple 2 being provided to support the stem, the inner end of which may also be supported in the wall of the casing, as at 3. The stem is provided with a shoulder 4, as seen in Fig. 4.

The valve I is formed with a sleeve part 5 bored for the stem 1, the sleeve projecting on one side in lug 6 designed to abut against a stop 24 on the interior wall of the casing at a proper point to limit the swing of the valve and prevent its opening so far that it will not be readily closed by the boiler pressure. The sleeve has projection or arm 7 bored to receive loosely bolt 8 (held by nut 9) which carries disk 10 which is ground to close the end *h'* of the thimble when the valve is swung thereto.

When the stem 1 is inserted for the support of the valve its shoulder 4 abuts against the adjacent end of the sleeve, part of which is, however, cut away leaving the shoulder 11 and rear or opposite side thereof 12, the con-

struction forming a lug or shoulder on one side of the sleeve.

Into the reduced portion of the stem 1 is set a pin 13 which, when the stem is turned strikes shoulder 11 and swings the valve open. But the cutout by which shoulder 11 is formed extends so far that the reverse turning of the stem cannot bring the pin 13 to shoulder 12 and thus hold the valve closed. 10 The limitation of that reverse movement of the stem is effected by the following means: The nipple 2 is cut out, as seen in Fig. 2, leaving the shoulder 14 and rear or opposite face 15, the construction being a lug or shoulder 15 on the end of the nipple. A pin 16 is set in the stem so that when it is turned in the direction to close the valve it strikes the shoulder 14 and cannot, therefore, go far enough to bring pin 13 against shoulder 12. In brief, turning the stem in one direction brings one pin in action to open the valve, while turning it in the opposite direction brings the other pin into action to prevent holding the valve closed by use of the stem.

For the purpose of making the improvements of my invention clear it should be noted that in certain other constructions an enlarged ring-like portion is formed integral with the stem and made with shoulders to engage with the shoulders on the valve sleeve. In practice, however, that portion is not made integral with the sleeve but is a separate ring held in the sleeve by a pin which is often known to be sheared off so that the valve stem flies out, disabling the valve and doing damage, but which is impossible in my construction because of features to be pointed out. It is impossible, at least very expensive, to make the ring-like portion integral with the stem, as the shoulders must be cut out in making the stem and therefore the device has lost efficiency by making it as is done. My construction, however, makes a more efficient, simpler and a cheaper device possible. 45

To further illustrate my invention, it is noted that to limit the reverse movement of the stem a ring is sometimes used which is held in place only by friction contact with its adjacent parts, which friction can be overcome, and is so should the parts become loosened or be imperfectly assembled, which may be the case since the construction does not provide for a definite and unalterable location of the ring. This requires great nicety of adjustment in assembling the parts.

On the stem is bushing 17 to thread on the nipple 2, and having an interior shoulder 18, and its outer end being bored to receive the sleeve 19 with collar 20 and the nut 21, packing 22 being placed as shown, the construction and fitting being such, and the packing being so placed, that the stem, when left in

the open position, will be turned by boiler pressure on the valve to permit the valve to close. It will be seen that the ring 18 on the bushing 17 prevents the stem from blowing out should the pin 13 become sheared or broken off. A wheel or other suitable member 23 is placed on the stem to turn it. 70

The device is shown in a single form, and it will be understood that modifications may be made without departing from the scope of the invention.

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

1. A device of the character described having a casing, a stem in the casing, a valve on the stem, the said valve having a lug adjacent the stem and the stem having a pin therein adapted, by engagement with the lug to turn the valve in one direction, a nipple on the casing cut away at its end to form a lug and a pin in the stem adapted by engagement thereof with the lug to stop the turning of the stem in the opposite direction, substantially as set forth. 85

2. In a device of the character described, a casing, a hinge valve therein, a stem supporting the valve hingedly, the stem having a shoulder to abut against the valve, the valve being cut away to provide space for a pin and a pin in the stem to play in said space on the turning of the stem and to open the valve by its contact with the end wall of said space, substantially as set forth. 90

3. In a device of the character described, a casing, a hinge valve therein, a stem supporting the valve hingedly, the stem having a shoulder to abut against the valve, the valve being cut away to provide space for a pin and a pin in the stem to play in said space on the turning of the stem and to open the valve by its contact with the end wall of said space, an exterior nipple cut away to provide a space for a pin and a pin in the stem to play in said space on the turning of the stem to limit the turning of the stem in the opposite direction and prevent the closing of the valve, substantially as set forth. 105

4. In a device of the character described, a casing, a nipple thereon having its end cut away to leave a stop, a stem, a pin in the stem engaging the stop on the nipple to limit the turning of the stem, and a bushing having an exterior collar adapted to engage the said pin and retain the stem in the casing, substantially as set forth. 110

In testimony whereof I affix my signature in presence of two witnesses. 120

CHARLES I. WILLIAMS.

Witnesses:

E. T. DE GIORGI,
H. C. BUCK.