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B. HADLEY & B. MOYLAN.
CHECK VALVE FOR WATER GAGES.
APPLICATION FILED JUNE 17, 1905.

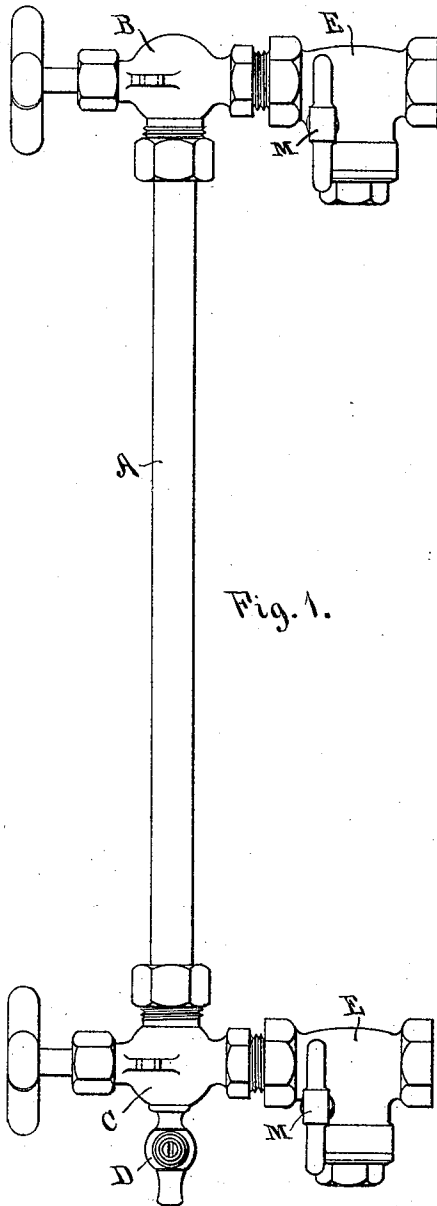


Fig. 1.

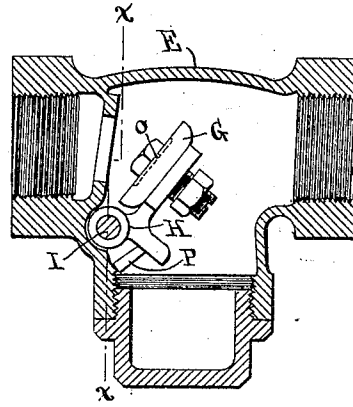


Fig. 2.

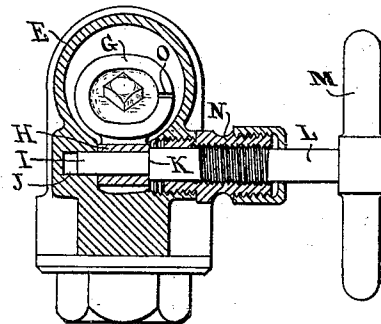


Fig. 3.

WITNESSES

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BENJAMIN HADLEY AND BRYAN MOYLAN, OF ELMIRA, NEW YORK.

CHECK-VALVE FOR WATER-GAGES.

No. 810,746.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed June 17, 1905. Serial No. 265,704.

To all whom it may concern:

Be it known that we, BENJAMIN HADLEY and BRYAN MOYLAN, citizens of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented a new and useful Check-Valve for Water-Gages, of which the following is a specification.

This invention relates to improvements in check-valves to be used in connection with water-gages on steam-boilers and the like to prevent the escape of water and steam in the event of the breaking of the gage-glass, the object of our improvements being to provide a check-valve for this purpose which will close quickly upon the breaking of the gage-glass and which will open freely of itself when the gage-glass has been replaced.

A further object is to provide means for locking the valve in its open position to allow the gage to be blown out from time to time as occasion requires.

We attain our objects by the use of a check-valve constructed and arranged as illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a water-gage with our improved check-valves applied thereto; Fig. 2, a vertical longitudinal section through one of the check-valves, and Fig. 3 a vertical transverse section on the line *x x* in Fig. 2.

Like letters of reference designate like parts in the several views.

A represents the glass tube of a water-gage, which is supported in the customary manner between the two stop-cocks B and C, said stop-cocks being usually connected directly into the boiler.

D is the blow-off cock for the lower stop-cock, by which the water-gage may be cleaned out from time to time.

Where no means is provided for checking the flow through the cocks B and C, in the event of breakage of the gage-glass steam and water from the boiler will be blown out in such volumes as to render it difficult to get at the stop-cocks B and C to shut them off. To overcome this difficulty, we insert between the cocks B and C and the boiler check-valves E, so arranged as to close automatically when a flow of steam or water through the valves is caused by the breakage of the gage-glass. To render these check-valves entirely automatic, we provide in each a valve G, hinged at H at a point below a substantially vertical valve-

seat, the valve being hinged to a pin I, one end of which enters the socket J, formed in the valve-casing, and the other end of which projects from a screw-threaded stem L, thereby forming a shoulder K, which will abut against one face of the knuckle H on the valve-arm. The stem L is screwed into a stuffing-box N and is provided on the outside with a suitable handle M. Normally the stem L will be set with the shoulder K out of contact with the knuckle H, so that the valve will be free to swing upon the pin I. It will be noted that the stem is so threaded that in setting the shoulder against the knuckle it will turn in the same direction as that in which the valve is swung to open position. The turning action of the shoulder against the knuckle will therefore have an opening effect upon the valve, thus insuring the locking of the valve in open position. The valve is so hung upon the pin that gravity will swing it away from the valve-seat into the position shown in Fig. 2. A pin or projection from the valve-arm at P prevents the valve from swinging too far open, and the valve is so positioned normally that the blowing out of steam or water through the check will carry the valve with it into closed position and hold it closed so long as there is atmospheric pressure only in the forward part of the gage due to a broken gage-glass. As soon, however, as the gage-glass has been replaced equilibrium of pressure will be reestablished, and the valve, by reason of the manner in which it is hung, will swing back into its normal position. In order to reestablish this condition of equilibrium, we provide a small notch or channel at O in the face of the valve (or it may be in the valve-seat) in order that a slight leakage of steam or water will take place past the valve and into the cocks B and C to bring the pressure therein up to boiler-pressure after a broken glass has been replaced. The slight escape of steam or water which takes place through the groove O will not interfere with the closing of the stop-cocks B and C after a glass has been broken, but will be sufficient to fill the parts A, B, and C when the break has been repaired, and so reestablish equilibrium in pressures on the two sides of the check-valves.

As it is necessary to frequently blow out the gage to keep the glass clear and to remove sediment which may collect in the stop-cocks, it will be necessary to provide some means for holding the check-valves open in

order that the steam or water may blow through them freely. By giving the stems L a turn to the right the shoulders K will be brought up against the knuckles of the valve-arms, thereby preventing them from turning on the pins I and holding them locked in open position. After blowing out the gage through blow-off cock D the locking-stems will be turned back to release the valves.

10 The check-valves may be formed integrally with the gage-cocks or made in separate fittings, as shown, and the valves may be hung above instead of below their seats, provided they will swing away therefrom by gravity.

15 Having thus described our improved check-valve and without confining ourselves to the precise arrangement and construction of the parts as herein described and illustrated, what we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with a water-gage, of

a check-valve hinged at one side of its seat, and an adjustable hinge-pin therefor having a screw-threaded stem and a shoulder adapted to engage one side of the valve-knuckle, said stem having the screw-thread thereon cut in a direction whereby, when setting the shoulder against the knuckle, the stem will turn in the same direction as the valve turns when moving to open position. 25 30

2. The combination, with a water-gage, of a check-valve supported on an arm hinged at one side of the valve-seat, and a hinge-pin therefor having a shoulder at one side of the arm-knuckle and a screw-threaded stem operated by a handle outside the valve-casing. 35

In testimony whereof we have affixed our signatures in presence of two witnesses.

BENJAMIN HADLEY.
BRYAN MOYLAN.

Witnesses:

JAS. H. O'BRIEN,
M. E. VERBECK.