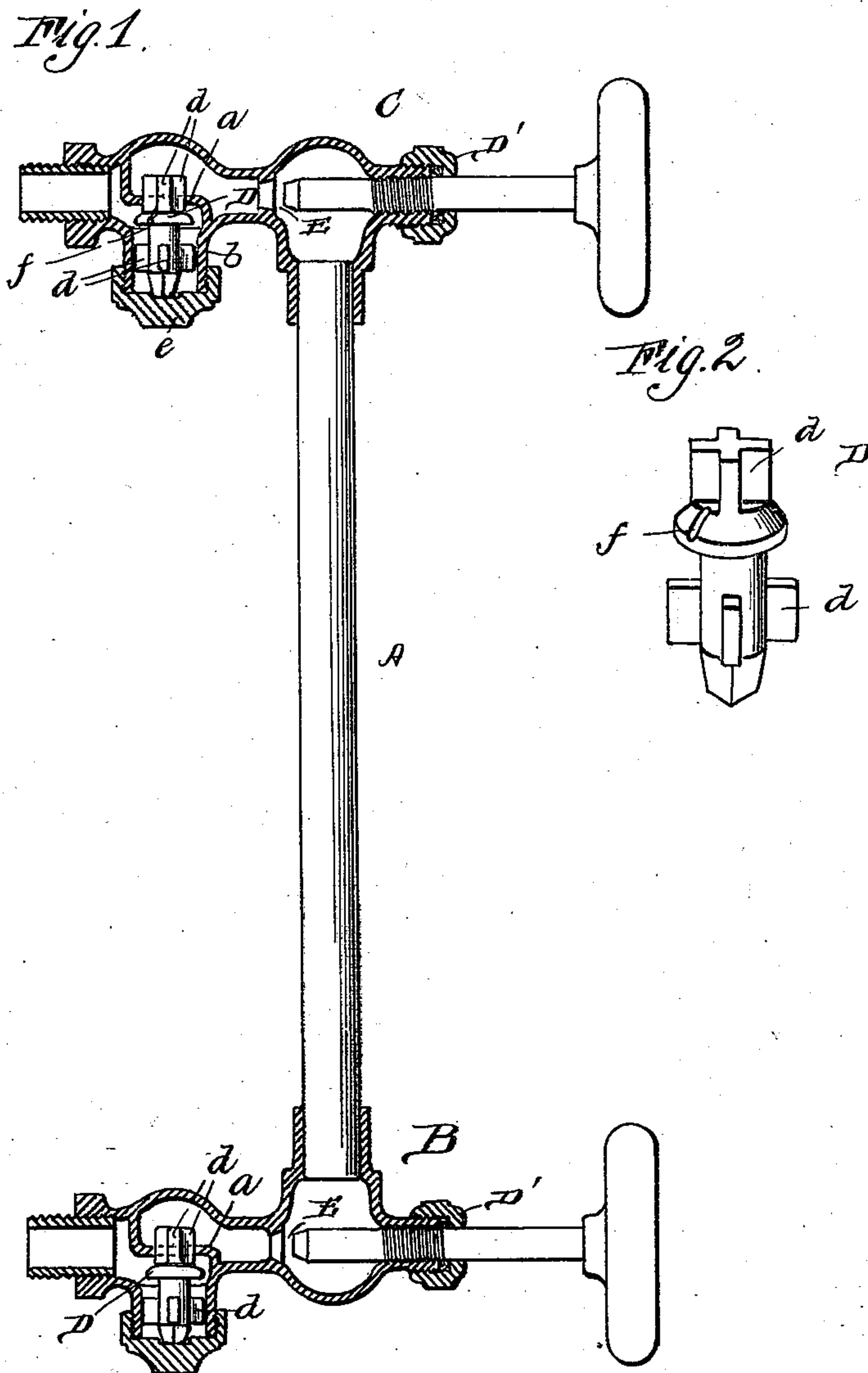


(No Model.)

M. DOERHOEFER.
GAGE FOR STEAM BOILERS.

No. 546,589.

Patented Sept. 17, 1895.



WITNESSES

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UNITED STATES PATENT OFFICE.

MARCUS DOERHOEFER, OF LOUISVILLE, KENTUCKY.

GAGE FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 546,589, dated September 17, 1895.

Application filed March 4, 1895. Serial No. 540,471. (No model.)

To all whom it may concern:

Be it known that I, MARCUS DOERHOEFER, a citizen of the United States, and a resident of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Gages for Steam-Boilers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a presentation of a central vertical longitudinal section through invention. Fig. 2 is a perspective view of check-valve.

This invention has relation to certain new and useful improvements in water-gages for boilers, the object being to provide an improved gage of that class wherein communication with the boiler is automatically cut off upon the breakage or bursting of the glass.

With this object in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the letter A designates the glass, B the lower shell or casting in which the glass is packed, and which forms the lower connection with the boiler, and C the upper shell or casting, which is a duplicate of the lower one. Formed in the horizontal arm of each of said castings between the boiler and the glass is a partition *a*, having a port therethrough, the wall of which on the under face is ground to form a valve-seat. Directly below said valve-seat each of said shells or castings is formed with a downward offset in which is a valve-chamber *b*, closed by a screw-cap *e*. In each of said chambers is placed an inverted or upwardly-seating puppet-check-valve D, which, under conditions of an equilibrium of pressure, will be held away from its seat by gravity. Upon each side of the valve is a stem or projection formed with guide wings or flanges *d*. One of the said valves, in the present instance the upper one, has filed in its seating-face a fine notch or groove *f*.

E E are screw-valves, one of which is provided with a bearing in the end of each shell or casting farthest from the boiler, and adapted, when closed, to shut off the passage leading from the glass to the boiler, its seat being between the glass and the valve-seat *a*. D D are stuffing-boxes for the stems of said valves.

The operation of the gage is as follows: Normally the valves D are held away from their seats by gravity, there being equal pressure upon the opposite sides thereof. When the glass bursts or breaks, this equilibrium of pressure is destroyed by the escape of the steam and water from the glass, and the excess of pressure on the boiler side at once closes both of said valves and shuts off the water and steam from the glass, except such small quantity as may find its way through the fine notch or groove *f*. This amount is so small as not to be dangerous. The screw-valves are then closed and the glass replaced with perfect safety without shutting down the operations of the boiler. The screw-valves are then again opened. The valves D will at first remain closed, owing to the excess of pressure on the boiler side, but in a short time sufficient water and steam will have escaped into the glass through the groove *f* to equalize the pressure, and the valves will fall from their seats.

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

1. In a safety gage for boilers, the combination of the upper and lower shells or castings provided each with means for their attachment to a boiler and with a seat for the glass, and having each in its horizontal arm a partition formed with a port therethrough and with a valve seat in its under face, and a downward offset underneath said valve seat having a valve chamber therein, an upwardly seating valve in each of the said chambers, one of said valves having a leak which forms a way of communication between the boiler and glass when the said valve is seated, and a glass held in said shells or castings, substantially as specified.

2. The herein described water gage for steam boilers said gage having in each of its boiler connections an inverted check valve

which is normally held away from its seat by gravity, but which when seated closes the passage connecting the boiler and glass, one of said valves having filed in its seating face
5 a fine notch or groove, and screw valves one of which is provided for each of the boiler connections, being arranged when closed to cut off all communication between the boiler and

the glass independently of the said check valves, substantially as specified. 10

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

MARCUS DOERHOEFER.

Witnesses:

FRANK L. REEDER,
EDWARD F. KESSLER.