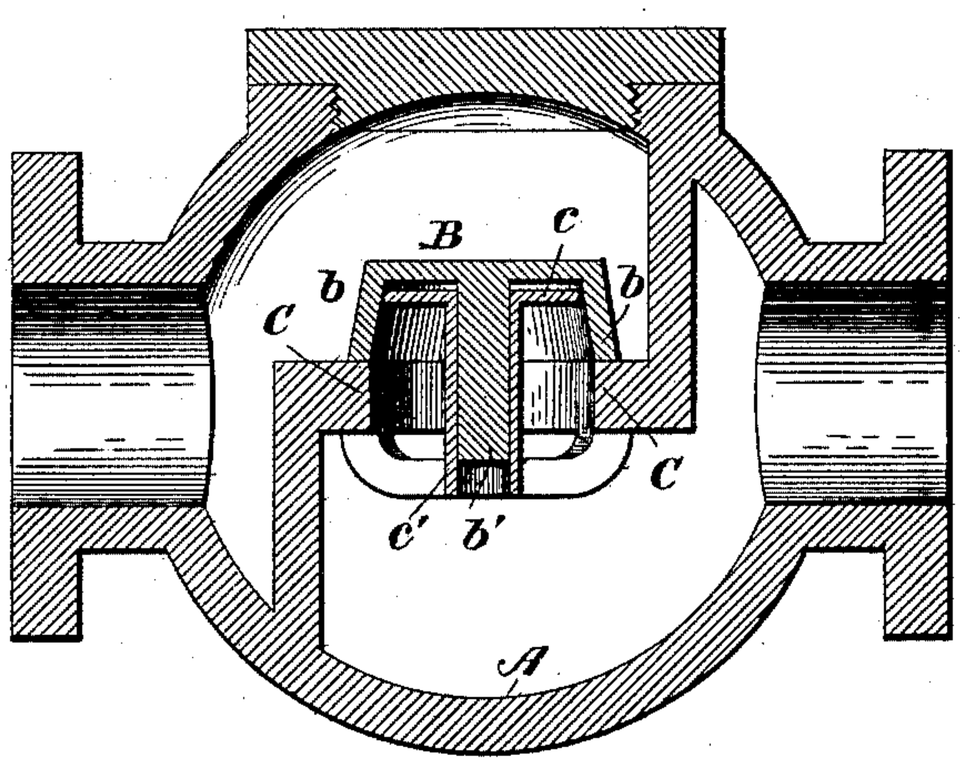
(No Model.)

E. A. MARSH.

CHECK VALVE.

No. 468,448. Patented Feb. 9, 1892.



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UNITED STATES PATENT OFFICE.

ELON A. MARSH, OF BATTLE CREEK, MICHIGAN.

CHECK-VALVE.

SPECIFICATION forming part of Letters Patent No. 468,448, dated February 9, 1892.

Application filed February 12, 1891. Renewed November 10, 1891. Serial No. 411,441. (No model.)

To all whom it may concern:

Be it known that I, ELON A. MARSH, a citizen of the United States, residing in Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Check-Valves; and I do hereby declare that the following is 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.

My invention relates to improvements in check-valves.

A special object of the invention is the production of a valve which will not hammer a stop when thrust upward and will seat quietly under rapid and heavy service, as in steam-pumps. Otherwise stated, the object is to prevent hammering, and thereby avoid the disagreeable noise incident thereto, as well as avoid the abrasion and wear and tear of the surfaces of the valve and its seat.

The invention consists in the combination of a valve and a valve-seat, one member being provided with a cupped recess or pocket and the other member carrying or sustaining a piston, which fits loosely in the pocket.

It also consists in other details hereinafter described and claimed.

The figure in the drawing is a central section showing my invention in its preferred form.

A is the valve-casing, B the valve, and C the valve seat.

The valve-casing A is of any usual form or character.

The valve B in the present case is provided with an inverted cupped recess or pocket, shown in the drawing as having flaring sides *b*.

The valve-seat C supports the piston *c*, which projects above the plane of the seat and into the recess or pocket of the valve.

The stem *c'*, which supports the piston-head, is tubular to provide a guide-socket for the guide-stem *b'* of the valve to work in.

Obviously a recess or pocket may be supported in the valve-casing and the valve may carry a movable piston without departing from my invention, an essential characteristic thereof being a pocket and a piston-head of a size to approximately fit said pocket.

In operation, when back-pressure takes place in the pipe in which this valve is located, the pocket being filled with liquid, the closing movement of the valve is retarded by the liquid partially confined between the walls of the pocket and the piston and the valve comes gradually to its seat, and when the valve is lifted so that its lower edge is in the same plane with the lower face of the piston-head it will come to rest, because the flow of the liquid is deflected laterally past the valve. In this way I am enabled to regulate and control the opening and closing movements of the valve, so as to avoid hammering under all conditions of pressure, either against a stop above or upon the seat below and in the simplest manner.

I am aware that ordinary dash-pots have been proposed to cushion the valve, and such I do not broadly claim; but,

Having described my invention, what I do claim is—

1. The combination of a valve having an inverted-cup-shaped cushioning-pocket, a fixed head or piston having a diameter less than that of the pocket, supported beneath the valve and projecting upward into the valve-pocket, and a stem or socket for guiding the valve to and from its seat, substantially as described.

2. The combination of a valve-casing, a valve-seat therein, a fixed head or piston supported on the valve-seat, and a valve having a pocket or recess with flaring sides, substantially as described.

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

ELON A. MARSH.

Witnesses:

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