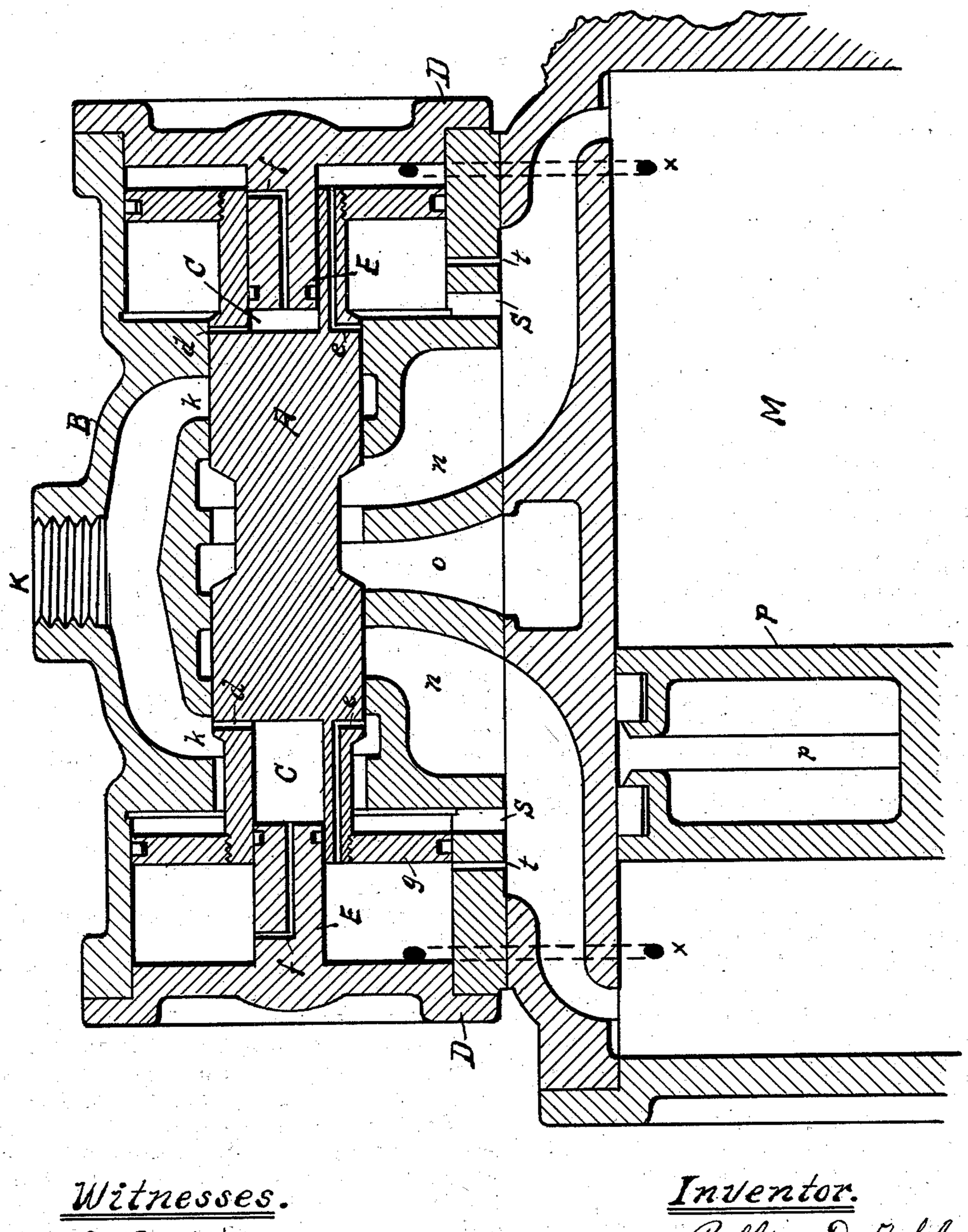
No. 750,331. PATENTED JAN. 26, 1904.

R. D. ACKLEY.

STEAM ACTUATED VALVE.

APPLICATION FILED OCT. 5, 1903.

NO MODEL.



Witnesses.

R R Wilder

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No. 750,331. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

ROLLIN D. ACKLEY, OF BATTLECREEK, MICHIGAN, ASSIGNOR TO AMERICAN STEAM PUMP COMPANY, OF BATTLECREEK, MICHIGAN.

STEAM-ACTUATED VALVE.

SPECIFICATION forming part of Letters Patent No. 750,331, dated January 26, 1904.

Application filed October 5, 1903. Serial No. 175,901. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN D. ACKLEY, a citizen of the United States, residing at Battlecreek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Steam-Actuated Valves, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to that class of steam or other fluid engines in which the valve is actuated by direct steam-pressure at each stroke of the piston.

The object of this invention is to provide means for cushioning the steam-valve near the end of its travel in order to prevent the valve-heads striking against the chest-walls, which might break or damage the valve.

The accompanying drawing shows my improved device in valve mechanism attached to a steam cylinder and piston constructed substantially in the manner shown in Letters Patent No. 442,905, granted to Foster M. Metcalf under date of December 16, 1890, the steam valve and chest used being constructed and operated in the same manner as shown and described in Letters Patent No. 649,739, granted to Foster M. Metcalf May 15, 1900. In this class of engines the live steam employed to trip or reverse the valve is conveyed to the steam-chamber formed in the space between the rings of the hollow piston by a passage leading from the upper chamber of the chest above the valve to the center of cylinder-cover through attached tube and hollow piston-rod. This pressure is used only for the purpose of tripping or reversing the valve by admitting steam alternately against the outer surface of the valve-heads through the connecting-passages near each end of the steam-cylinder. I have not attempted a more complete description of the operation of the valve mechanism for the reason that it is substantially the same as that described in the prior patents and is well known to persons familiar with this class of valves, a more complete description, moreover, not being necessary for a perfect understanding of my improvement and invention.

My improvement consists in providing cushion plugs or pistons attached to the steam-chest heads and interior cushion-chambers in each end of the steam-valve, which slidingly embrace the cushion plugs or pistons for the purpose mentioned.

In the drawing, A represents the steam-valve; B, the steam-chest; C C, the cushion-chambers, and E E the cushion-plugs.

I provide a double set of preadmission-ports. *e e* are made to communicate directly with the outside chest-chambers, while *d d* communicate with the same chambers indirectly through the cushion chambers and passages *f f* in the cushion-plugs except when the valve approaches the end of its travel, in which position the outlet of passage *f* on the outboard end is closed by entering the bore of the cushion-chamber, and the steam thus entrapped and confined in the same affords a cushion-stop to check and limit further travel of the valve.

Having thus fully described my improvement, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

In a steam-actuated valve of the class described, a steam-chest having suitable induction and eduction ports, in combination with a steam-valve arranged to operate therein having interior end cushion-chambers, said valve being further provided with small ports entering each cushion-chamber at its inside terminal wall and with preadmission-ports leading through the stem and valve heads, cushion plugs or pistons slidingly embraced within the cushion-chambers, and attached to the respective chest-heads, provided with central and lateral passages.

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

ROLLIN D. ACKLEY.

Witnesses:

ALBERT C. PERKINS,

RICHARD R. HICKS.