

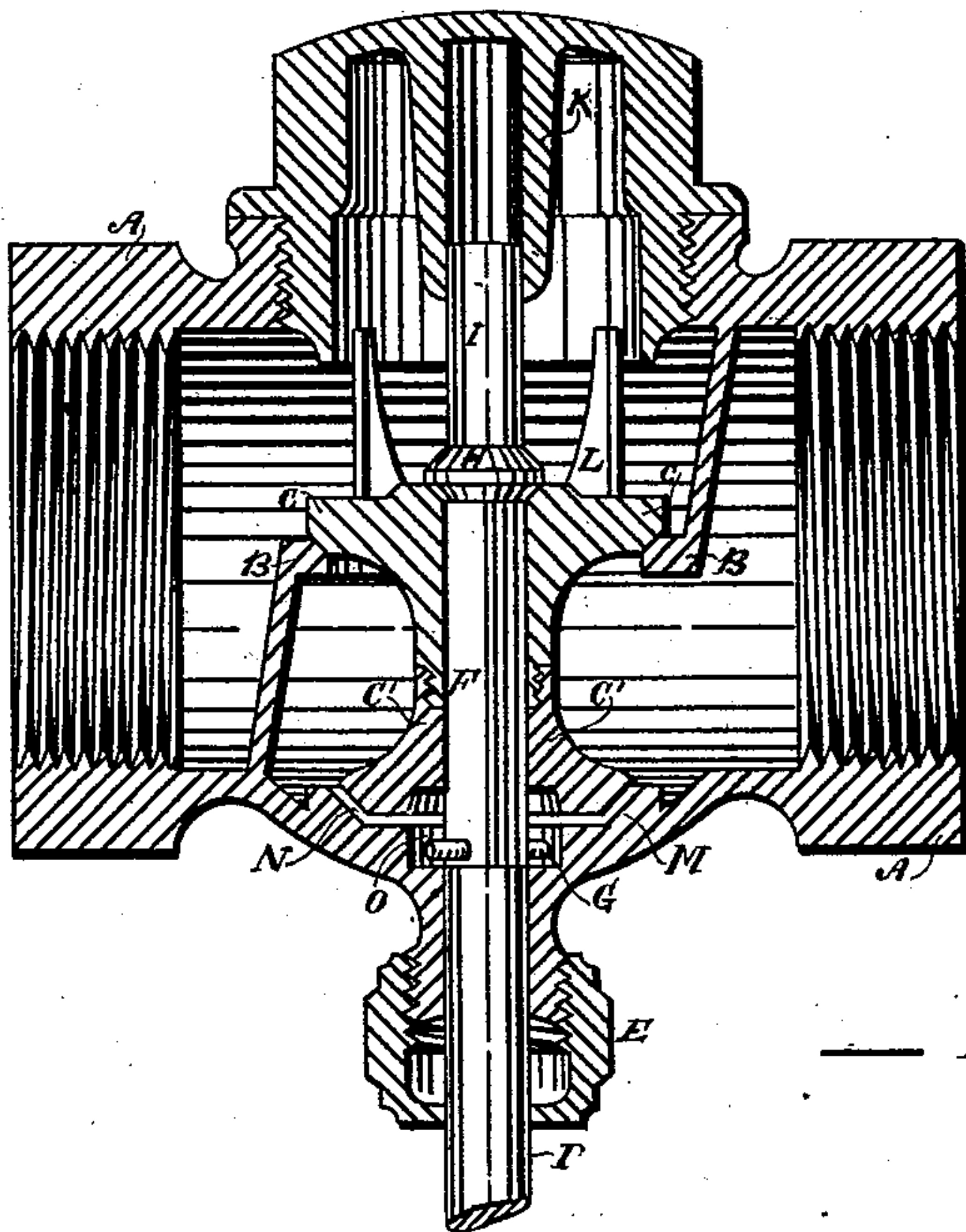
(No Model.)

W. A. PENDRY.

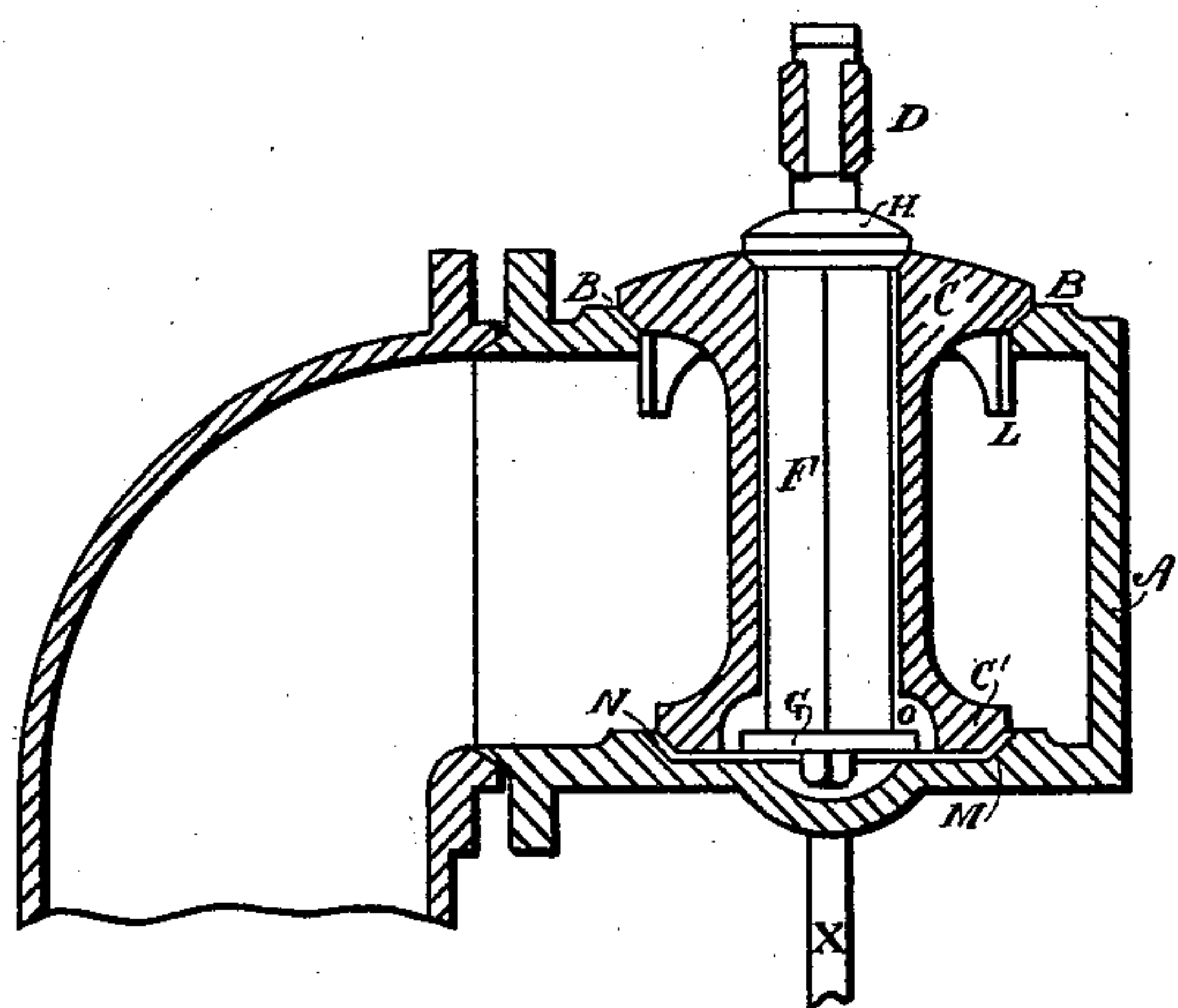
VALVE.

No. 282,766.

Patented Aug. 7, 1883.



— Fig. 1. —



— Fig. 2. —

Witnesses.
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UNITED STATES PATENT OFFICE.

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VALVE.

SPECIFICATION forming part of Letters Patent No. 282,766, dated August 7, 1883.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. PENDRY, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Valves, of which the following is a specification.

In the drawings, Figure 1 is a vertical section of my invention as applied to an ordinary globe-valve, and Fig. 2 is a vertical section of my invention as applied to the dry-pipe of a locomotive.

My invention consists in a valve which reaches nearly to the farther side of the passage which it controls, and having in its center a seat for a small valve attached to the spindle which lifts the valve proper, and controls a steam-passage extending through the valve proper, around the valve-stem, and opening into a thin annular space between the end of the valve and the opposite side of the steam-passage controlled thereby.

A represents the shell of a globe-valve or the dry-pipe of an engine, in which there is a common conical valve-seat, B.

C represents a valve fitting into valve-seat B and closing in the same direction with the current of steam or water. Valve C is extended through valve-seat B, (preferably made in two parts screwed together, as shown in the drawings,) and at the further end is enlarged, C', to substantially the same size as the surface it presents to the steam when closed. This end of the valve rests in a recess, M, formed in the opposite side of the steam-passage, but does not quite touch the side of said passage, a thin annular space, N, being left between them. Through the center of the valve C C' is cut a hole, in which lies the valve-stem D, that part of said valve-stem which is within said valve being smaller than the hole in which it plays, or else made triangular, as shown at F.

Rigidly attached to valve-stem D is a small valve, H, which closes a valve-seat cut in valve C.

G represents a pin through valve-stem D to raise valve C when stem D is raised by engaging with shoulders O in valve C C'.

E is a stuffing-box.

L represents fair leaders for valve C, and I is an extension of stem D to guide said stem, and playing in guide K.

X represents one of the connecting-rods from the rock-shaft, usually employed to operate the throttle-valve of a locomotive.

The operation of my invention is as follows: The valve, being closed, is held so firmly to its seat by the steam-pressure that great force is required to open it directly. When valve-stem D is pressed inwardly it first opens the small valve, H, which can be done without much force. Steam rushes into the hole through valve C, passing around the small part of stem D, and can only find exit into the steam-pipe by passing through the thin annular space N. This causes the steam to exert a pressure on the face of the end C' of valve C, which tends to counterbalance the steam-pressure on the other end of said valve, so that when pin G strikes shoulder O valve C can be raised easily. It is evident that this action of the steam can be increased or decreased by simply increasing or decreasing the proportional size of the end C' of valve C.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the shell A, provided with a valve-seat, B, the valve C, extending through its seat to a point adjacent to the opposite side of the passage through the shell, and provided with a longitudinal passage, and the valve-stem extending loosely through said passage, and having a valve, H, for opening and closing the said passage, said valve H being arranged to be opened by the valve-stem prior to the latter actuating the main valve, substantially as described.

2. The combination of the shell A, provided with a valve-seat, B, and a recess, M, opposite the same, the valve C, extending through the valve-seat, and having an enlarged end, C', adapted to the recess, and provided with a longitudinal passage, the valve-stem extending loosely through the longitudinal passage, and having a valve, H, for opening and closing the latter, and provided with a pin or projection, G, for lifting the main valve after the valve H has been raised, substantially as and for the purpose described.

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Witnesses:

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