

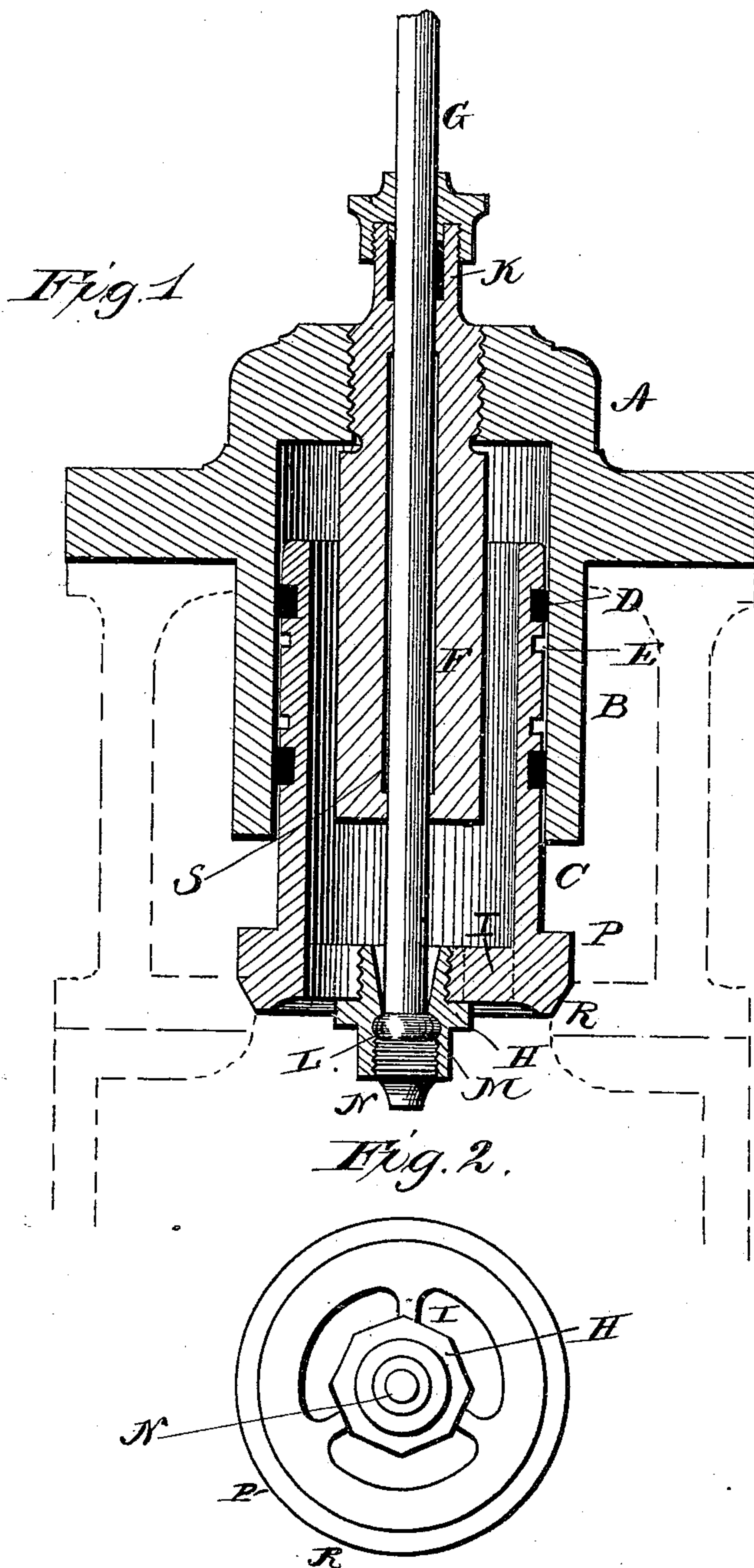
(Model.)

H. F. FRISBIE.

PUPPET VALVE.

No. 248,728.

Patented Oct. 25, 1881.



Witnesses.  
Frank L. Ouraud  
H. Aubrey Boulmin.

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# UNITED STATES PATENT OFFICE.

HAMLIN F. FRISBIE, OF CINCINNATI, OHIO.

## PUPPET-VALVE.

SPECIFICATION forming part of Letters Patent No. 248,728, dated October 25, 1881.

Application filed April 8, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, HAMLIN F. FRISBIE, of Cincinnati, in the county of Hamilton, and in the State of Ohio, have invented certain new and useful Improvements in Puppet-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in puppet-valves for engines of various descriptions—such as steam-engines, air-engines, gas-engines, and the like; and it has for its objects to provide certain means whereby the valve may be securely held to its seat by pressure within the valve-chest when said valve is seated, to balance the valve when raised from its seat, and to provide a means whereby the valve-rod may be kept truly in line, as more fully hereinafter specified. These objects I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical sectional view of my improved valve, and Fig. 2 a bottom view thereof.

The letter A indicates a cap, which is adapted to fit over the valve-chest of a steam or other engine, and to be secured thereto in any convenient manner. The said cap is provided with a cylindrical extension, B, which is adapted to set into the valve-chest when the cap is in place, and which reaches to within a short distance of the valve-seat.

The letter C indicates the valve, which is cylindrical in form and adapted to fit and slide in the cylindrical extension B. The said valve on its periphery is provided with a series of annular grooves, D and E, the grooves D being filled with a suitable packing, and the grooves E serving as a water packing.

The letter F indicates a centrally projecting boss extending from the cap into the interior of the hollow valve and casing. The said boss may be cast on or with the cap; but it is preferably made separate therefrom, and screw-threaded at its upper end, which screw-threaded portion is adapted to be secured in a female screw-threaded aperture in the cap.

The letter G indicates the valve rod or stem which extends through the boss, which is properly bored for the purpose. The lower end of said rod connects with a central hub, H, at the lower end of the cylindrical valve, the said hub being connected to the valve by means of radial

arms I. The upper end of the valve stem or rod passes through a stuffing-box, K, and the lower end is provided with an annular recess, M, in the central hub, H, and is confined therein by means of a screw-plug, N, secured to the lower end of the central hub. The lower end of the valve is provided with a flange, P, which constitutes a weight by means of which the valve is dropped readily to its seat and is kept from bounding from it. The flange may be varied in diameter, so as to adjust the weight as may be desired.

The valve cap and cylinder are set in the valve-chamber in the usual manner, and the operation of the valve is as follows: When seated the pressure of steam on the valve keeps it firmly in its place. When lifted the steam flows through the lower end of the valve, and, collecting above, balances it. The centrally-extending boss, by occupying most of the space within the valve and casing, displaces the steam, and thus obviates to a great extent the injurious effects of condensation.

The letter S indicates a space around the valve-stem in the central hub, which forms a water packing.

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

1. In combination with the cap, its cylindrical extension, and central boss, the valve-stem and valve, whereby steam is displaced in the valve-chamber and the effects of condensation obviated, substantially as and for the purposes specified.

2. In combination with the cap and its cylindrical extension, the cylindrical valve, shouldered, as described, as and for the purpose set forth.

3. In combination with the cap, cylindrical extension, and central boss, the valve-stem having an annular bead at its lower end, and the central hub provided with a seat for the same, substantially as specified.

4. In a puppet-valve, the combination, with the cap A, having cylindrical extension B, of an inwardly-projecting steam-displacing boss, F, for the purpose set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 8th day of April, 1881.

HAMLIN F. FRISBIE.

Witnesses:

H. AUBREY TOULMIN,  
ARTHUR VISSER.