

Johnson & Silmsen,

Stop Cock,

No 24,808.

Patented July 19, 1859.

Fig: 1

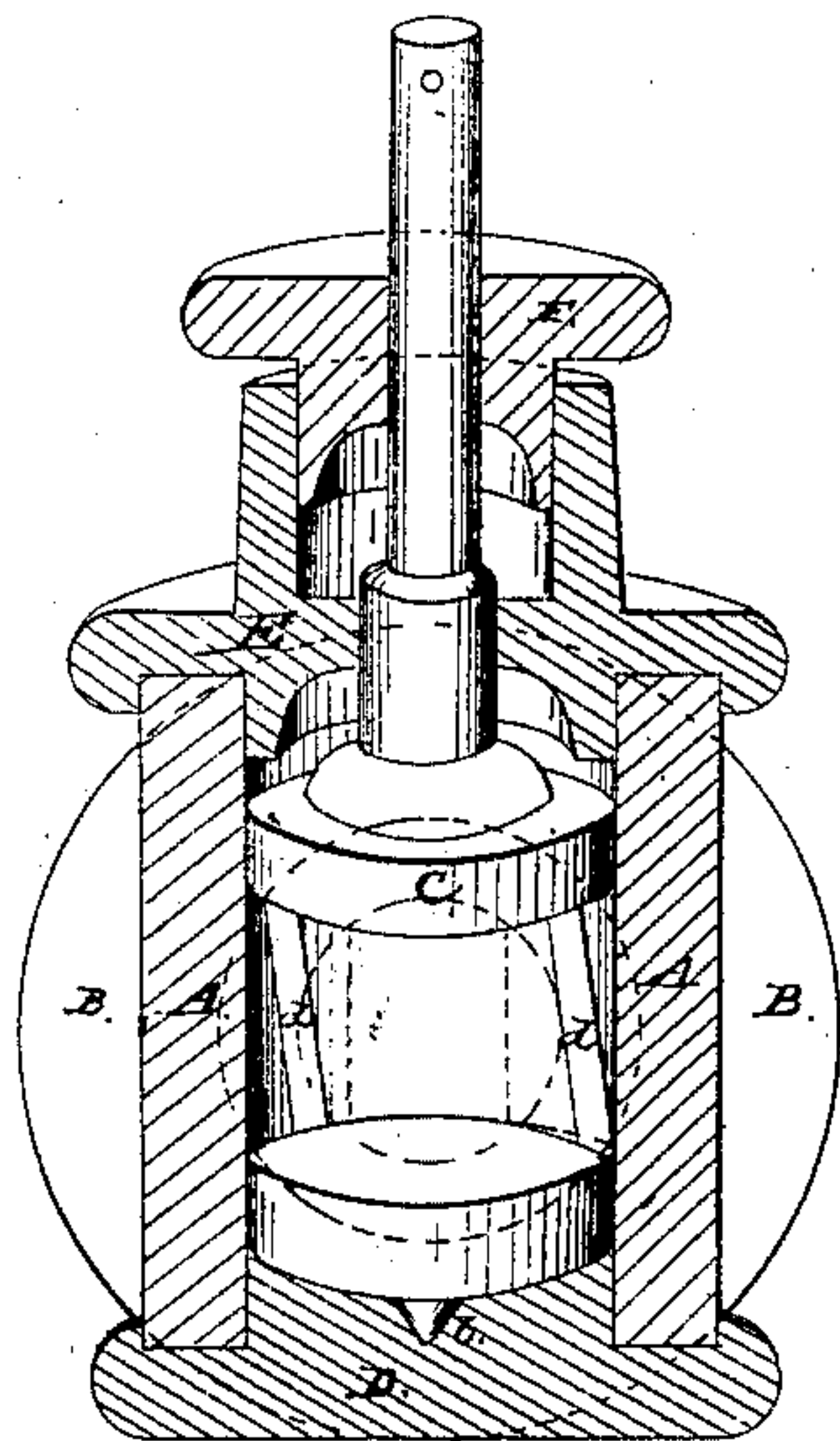


Fig: 3

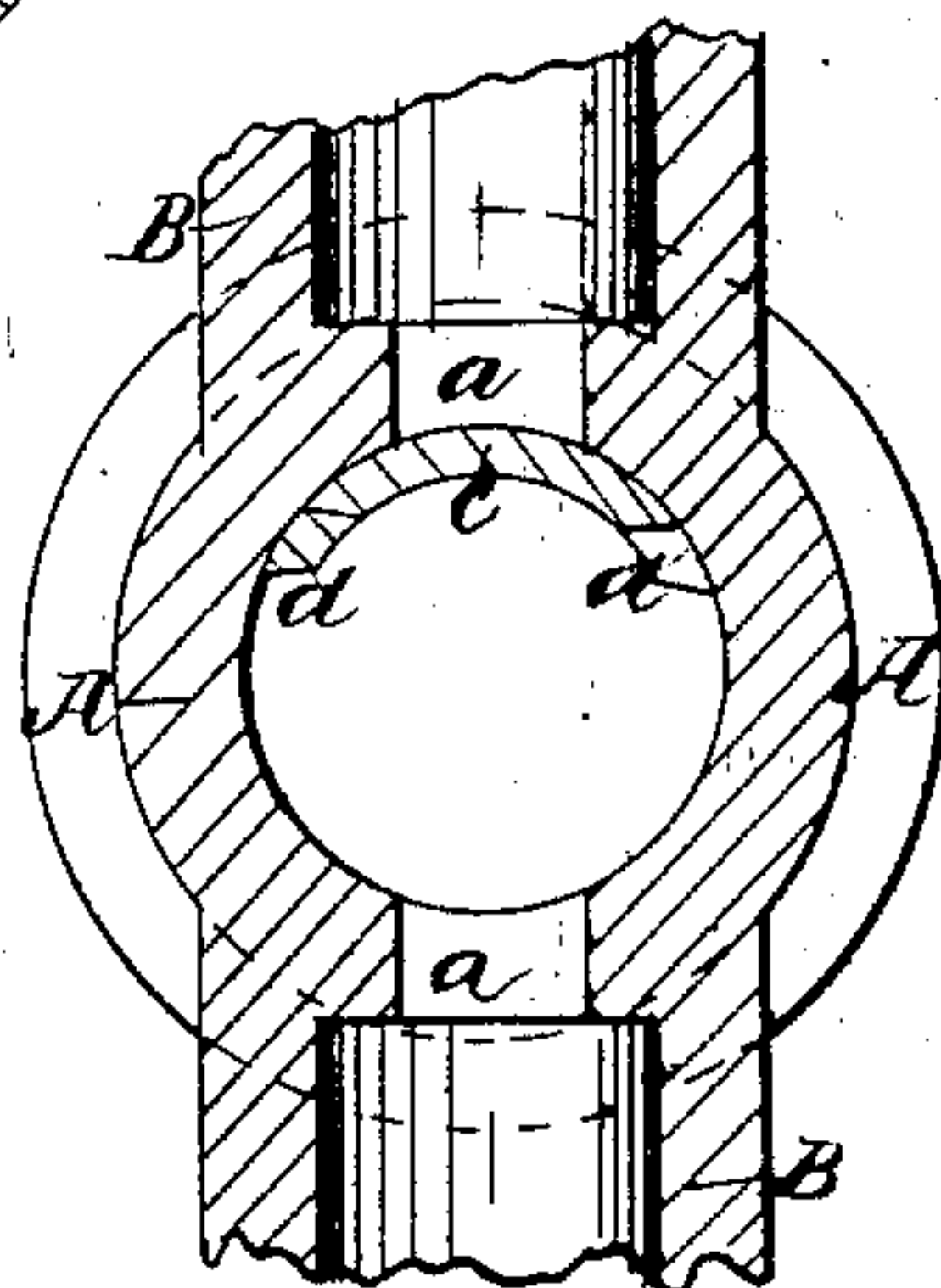
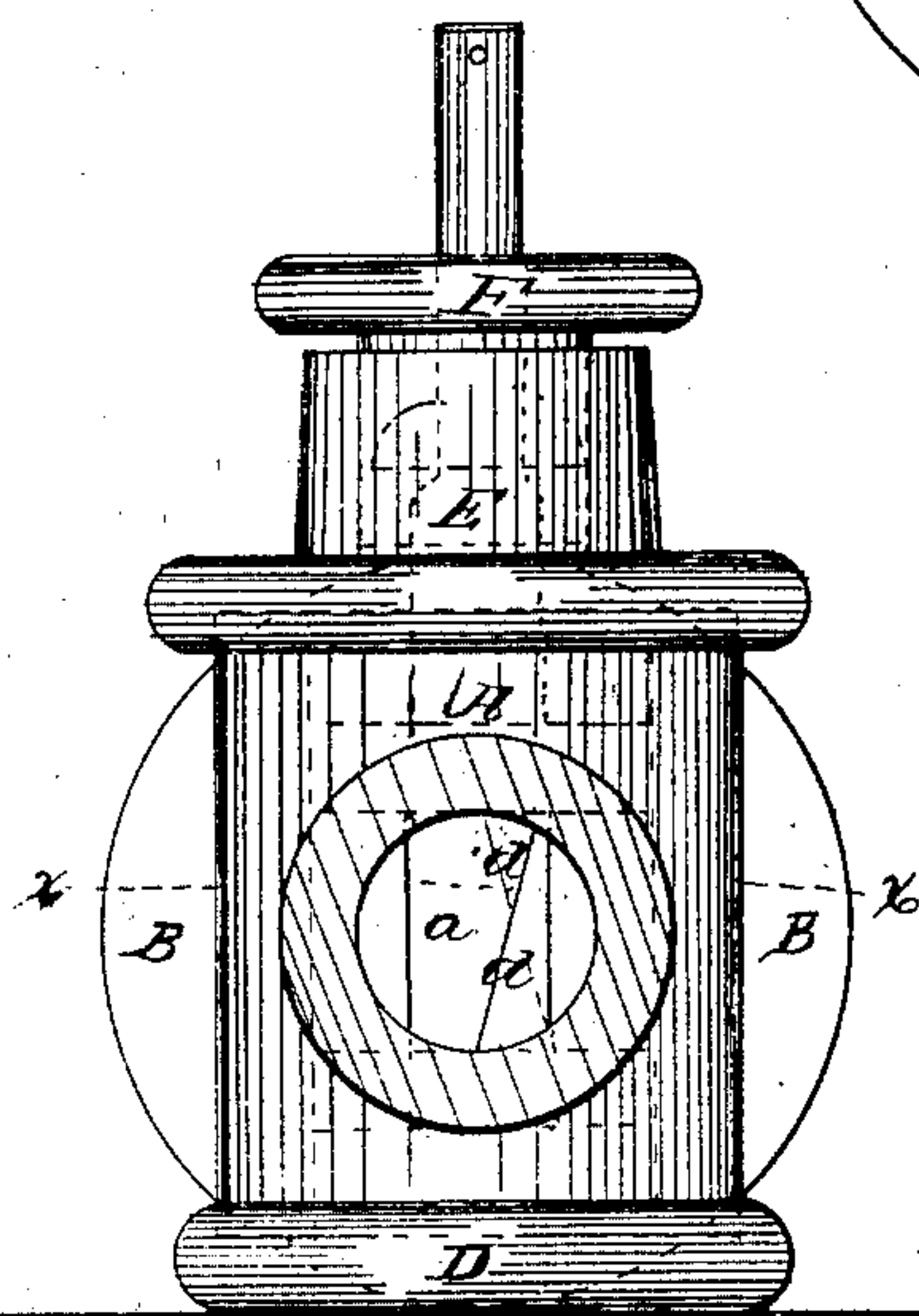


Fig: 2



Witnesses:
M. H. Tilton
M. H. Ward

Inventor:
J. Johnson
Martin Silmsen

UNITED STATES PATENT OFFICE.

WILLIAM JOHNSON AND MARTIN SILMSER, OF AUBURN, NEW YORK.

IMPROVED STEAM-COCK.

Specification forming part of Letters Patent No. 24,808, dated July 19, 1859.

To all whom it may concern:

Be it known that we, WILLIAM JOHNSON and MARTIN SILMSER, of the city of Auburn, county of Cayuga, State of New York, have invented certain new and useful Improvements in Steam-Plug Cocks, of which the following is a full, clear, and accurate description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a perspective view of the interior of the cock and the plug. Fig. 2 represents an end elevation of the cock with the connecting-pipe removed, and Fig. 3 represents a transverse section through the cock on the line X X of Fig. 2.

The ordinary steam-plug cock, from its simplicity, the ease with which it can be repaired and kept steam-tight, its little liability to open or close as other valves by jars, highly recommend its application to steam-engines, especially locomotives, to regulate the admission of steam from the boiler to the valve-chest. Heretofore it has been but little used in this situation, owing to the contracted opening through the plug, which renders it liable to clog with dirt or silt, and also from the form of opening through the cock not being well adapted to regulate the admission of steam to the valve-chest to meet the requirements of the engine under all circumstances. To obviate these defects in the plug-cock and thus adapt it to the induction-pipe of the steam-engine is the principal object of our improvements; and our invention for effecting this object consists in making that portion of the plug opposite the openings through the plug-case a section of a hollow cylinder, and also inclining the edges of the opening through the plug to its axis and to the sides of the opening made through the plug-casing into the connecting-pipes, by which means increased area is given to the opening through the plug, which prevents its being clogged by dirt, and such form of opening given to the cock is well adapted to regulate the admission of steam to the valve-chest to meet the requirements of the engine.

In the accompanying drawings is represented a plug-cock embracing our improvements, which consist of a hollow cylindrical

casing A, to either side of which, and cast with it, is a short flange-pipe B. Rectangular openings *a* are made through the opposite sides of the casing leading into the flange-pipes, the height of the opening being nearly equal to the diameter of the pipe on the interior. The interior of the case, which is bored slightly tapering, is accurately fitted with a plug C, whose lower bearing is in a step *b* in the lower cap D of the case, and the upper end of the plug may be slightly rounded and covered by a cap E, similar to stuffing a box-cap, so as to pack the upper end of the cock. The stem of the valve is made steam-tight by passing through a stuffing-box F, fastened to the cap E.

The central portion of the plug (that part between the upper and lower edges of the opening through the plug-case) consists of a section of a hollow cylinder whose edges *d* are parallel and inclined to the axis of the plug, and the length of the periphery of the cylinder transverse to its axis is greater than the width of the opening through the plug-case, in order to cover the same when turned, as the edges of the plug are inclined to the sides of the opening when it is turned in either direction over either of the openings through the case it produces a drawing cut.

The area of opening through the cock disclosed by each unit of movement of the plug varies in different parts. On the first part of the throw each successive unit moved discloses a greater area for each unit than that disclosed by the unit preceding. Thus a small area for the passage of the steam is given on the first part of the opening of the cock on starting the engine, which may be rapidly increased as the engine gains motion, thereby avoiding heavy strains on the engine near the end of the opening in the position in which the cock would generally be when the engine is working with its accustomed load and when only slight changes are required in the area of the opening to maintain the engine at a regular speed, as the pressure in the boiler varies the increase of the area for each unit moved is small. At the center, where a rapid change in the area is necessary to control the engine as the work is thrown off, and prevent its attaining a sufficiently

high speed to injure the engine, the variation in the area for each unit of motion is at the maximum.

Having thus described our improvements in plug-cocks, what we claim therein as new, and desire to secure by Letters Patent, is—

A plug-cock with a sectional plug whose sides are inclined to its axis, in combination with a single casing through which and directly opposite are openings whose sides are

parallel to the axis of the plug, and constructed as described.

In testimony whereof we have subscribed our names.

WM. JOHNSON.
MARTIN SILMSER.

Witnesses:

MATTHEW SILTSOR,
W. H. WARD.