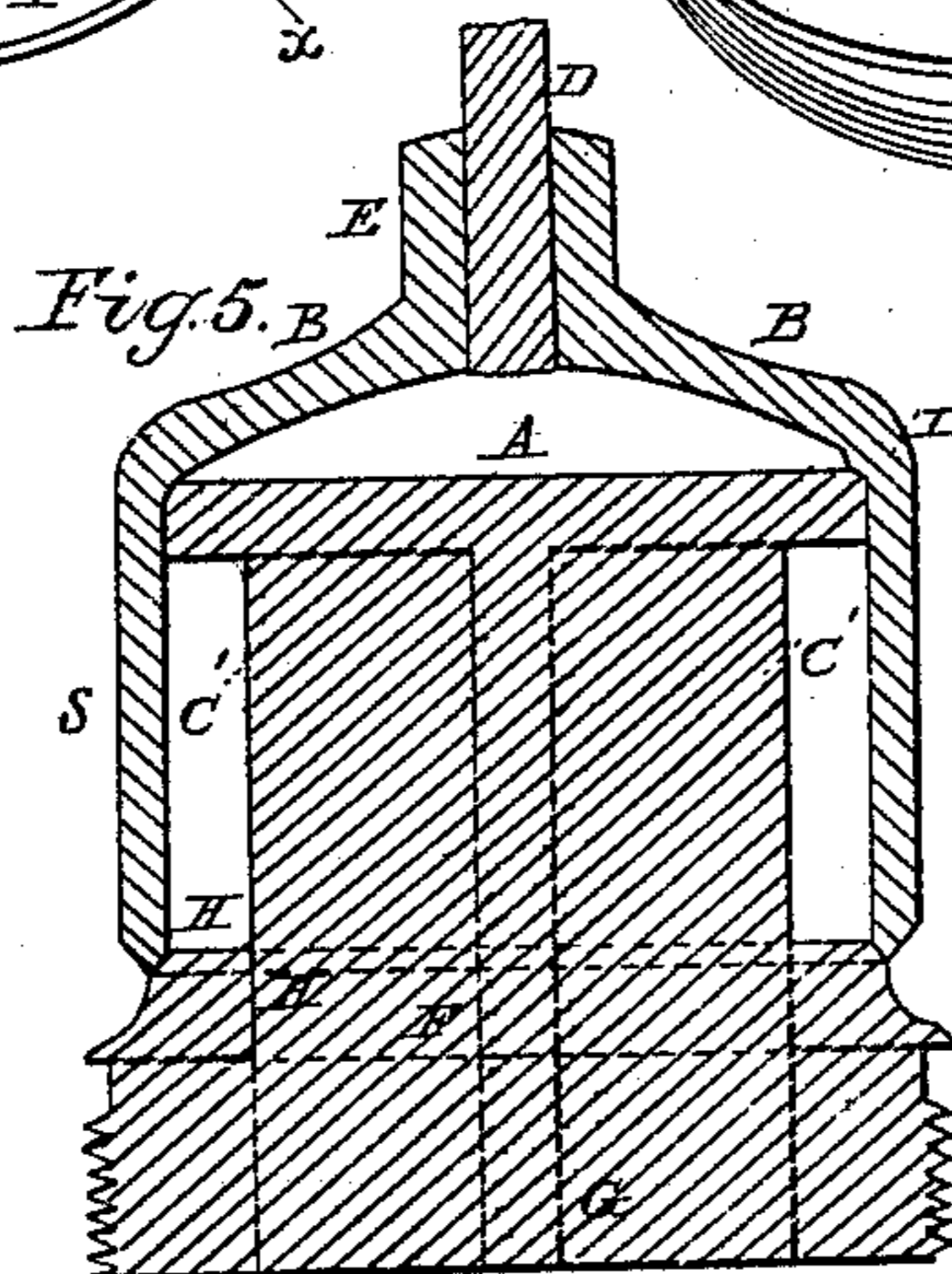
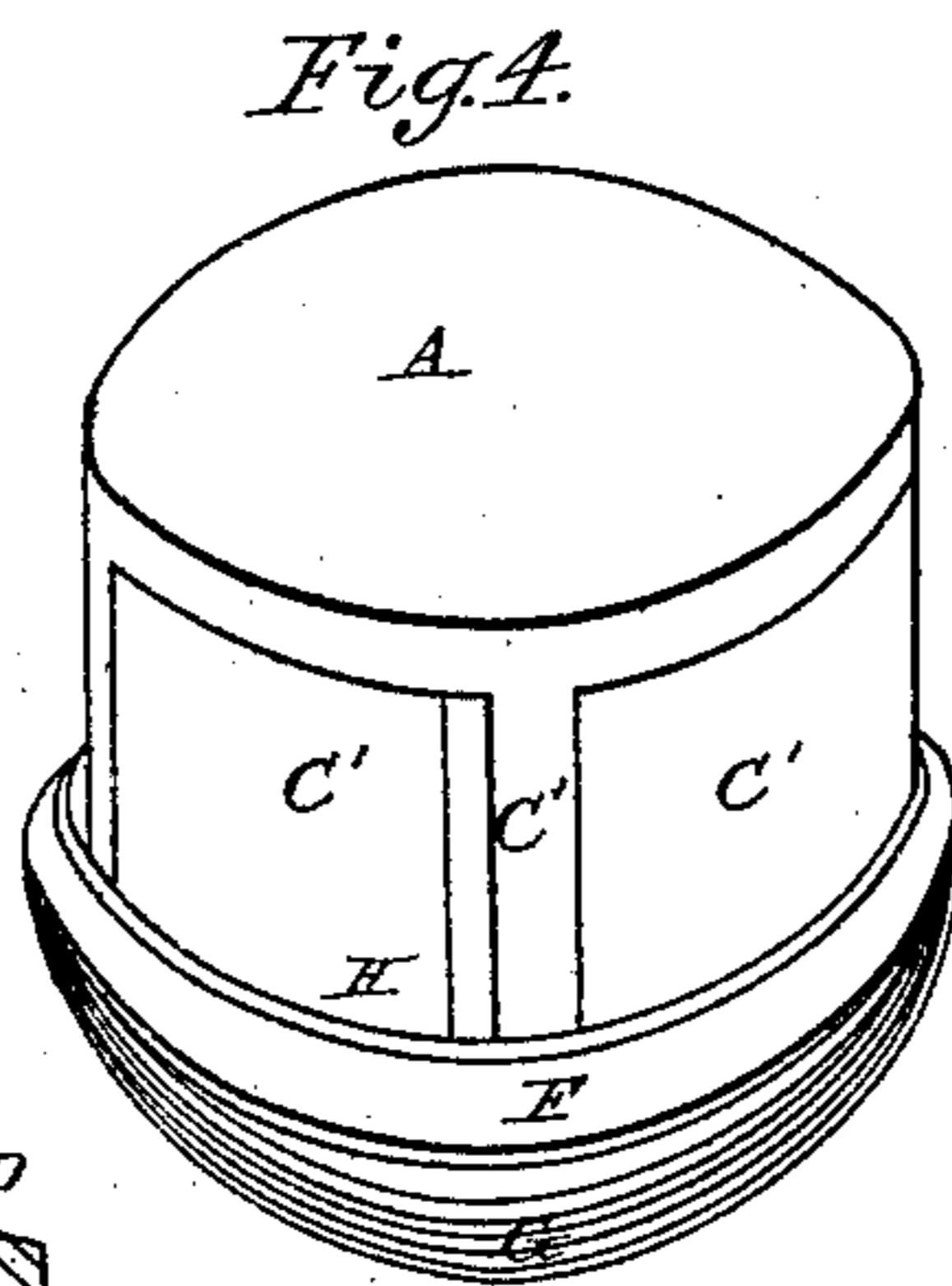
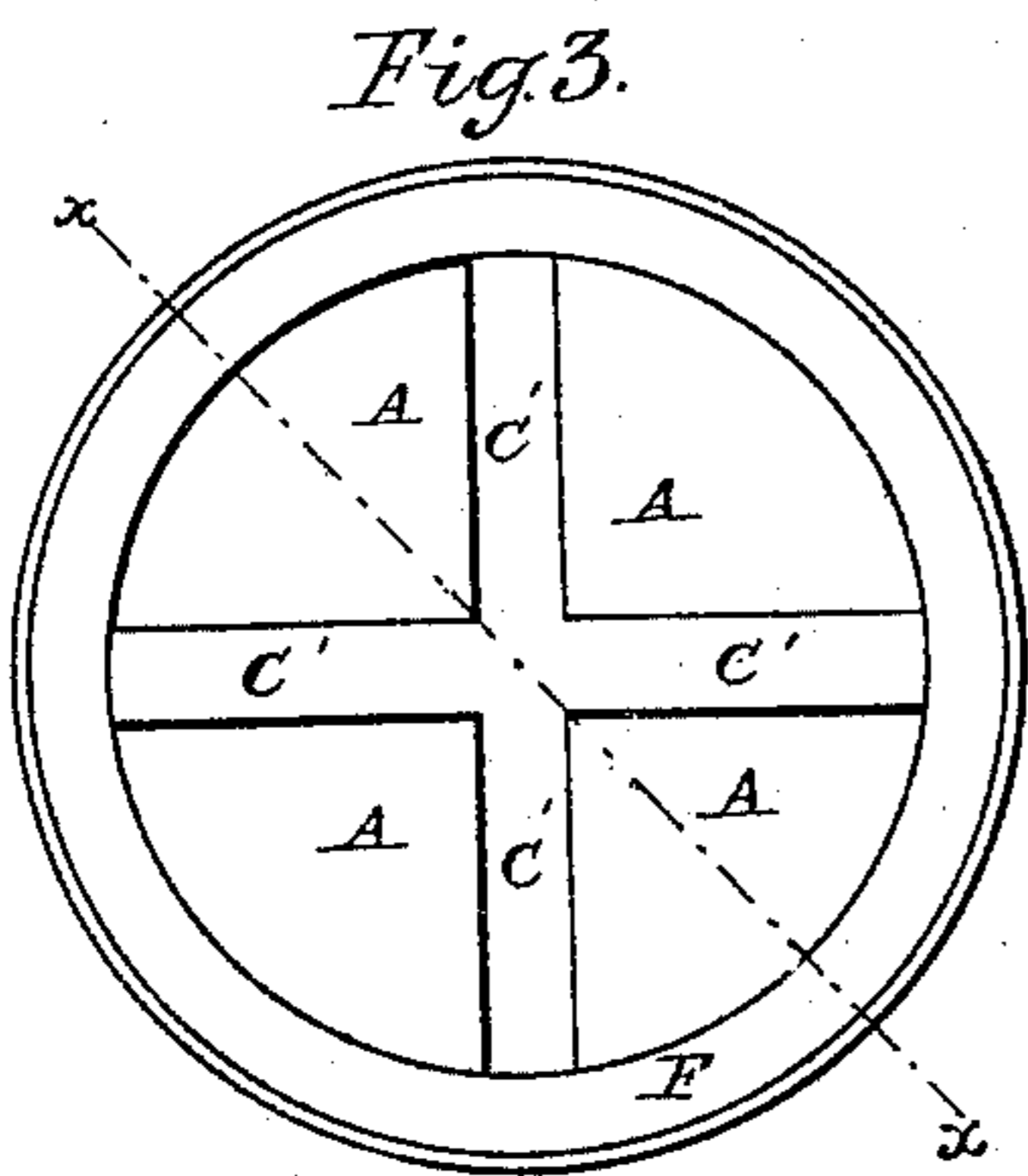
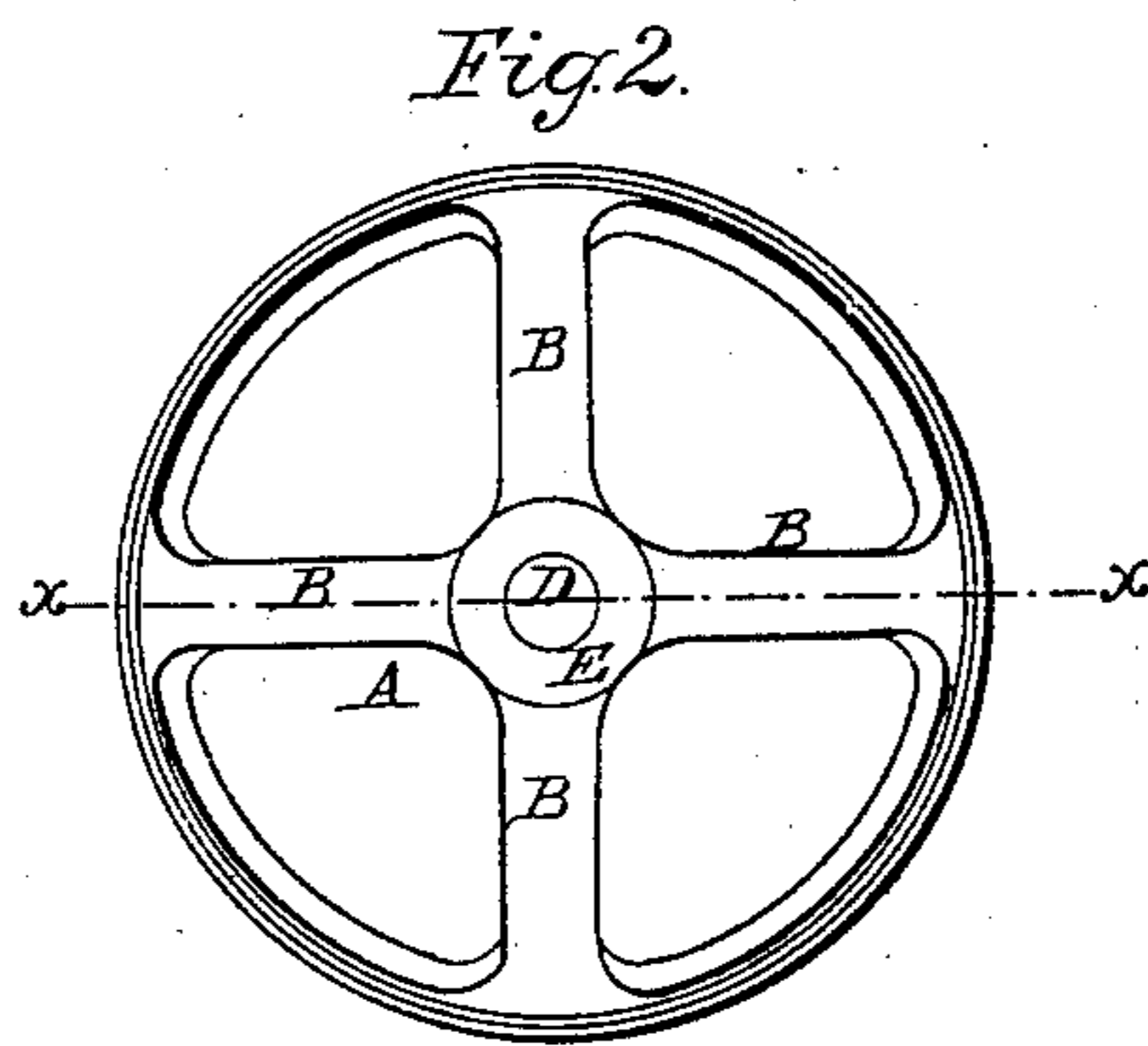
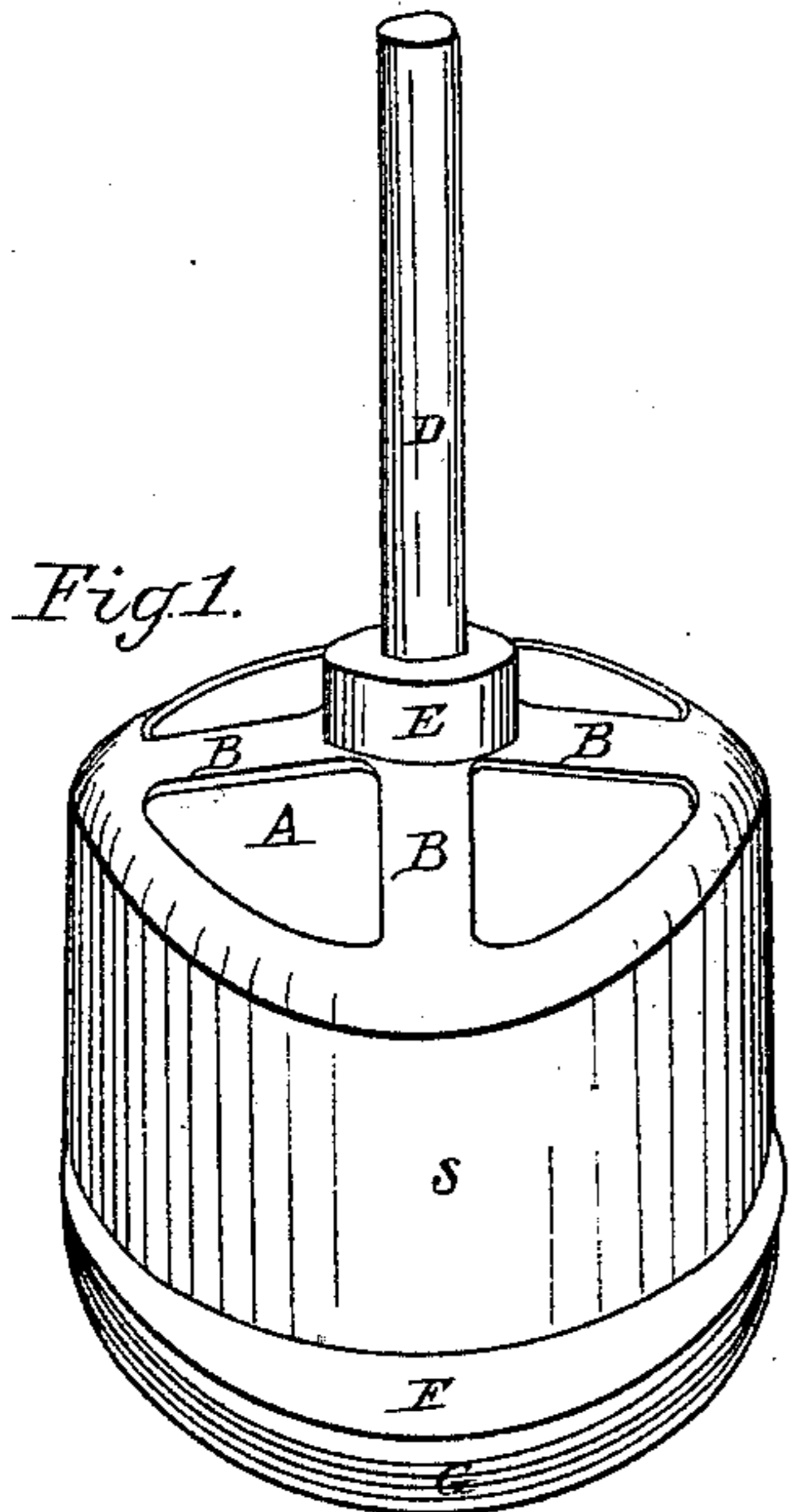


*W. Evered.*

*Steam Engine Balance Valve.*

*N<sup>o</sup> 86,381.*

*Patented Feb. 2, 1869.*



*Witnesses:*  
*E. C. Gibson.*  
*J. B. Chapin*

*Inventor:*  
*William Evered*



WILLIAM EVERED, OF CHICAGO, ILLINOIS.

Letters Patent No. 86,381, dated February 2, 1869.

IMPROVEMENT IN STEAM-ENGINE BALANCED VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom this may concern:

Be it known that I, WILLIAM EVERED, of Chicago, in the county of Cook, and State of Illinois, have invented an Improved Balance-Valve; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and letters of reference marked thereon, making a part of this description, in which—

Figure 1 is a perspective representation of my invention.

Figure 2, a top view of the same.

Figure 3, a view of the bottom, the valve being inverted.

Figure 4, a representation of the inner part removed from the shell.

Figure 5, a vertical section, taken through the inner part on the line *x x*, fig. 3, and through the outer part on the line *x x*, fig. 2.

The present invention relates to an improvement in that class of steam-valves that are so balanced, as to operate under a heavy pressure of steam, by the application of only so much power as is required to overcome the friction of the parts.

To enable others to fully comprehend the construction and nature of my invention, I have marked corresponding parts with similar letters, and will now give a detailed description.

F represents a cylindrical metal seat, having a screw-thread cut on the lower part of its periphery, for securing it in position to a steam-chest or steam-pipe.

Attached to the inner periphery of this cylinder, and projecting inward from it, are four wings, C', which are cast solid to it, and project far enough upward to provide a suitable guide for a reciprocating valve-shell, S, when it is opened to give a suitable steam-area.

Cast solid to the upper ends of these wings C', is a

plate or disk, A, whose periphery is even with the outer edges of said wings, and has its upper corner so bevelled inward as to fit a seat, I, made on the inner periphery of the shell S, as it is shown at fig. 5.

This shell is made of any suitable metal, and to slide easily on the wings C', and it has suitable openings between the arms B, to permit a full pressure of steam to bear on the top of the disk A.

The lower edge of this shell is so bevelled off as to fit closely against a seat, H, fig. 5, made on the top of the cylinder F; while, at the same time, the seat I bears on the disk A, both seats being steam-tight.

The inner ends of the arms B support a cylindrical projection, E, to which a valve-stem, D, is fastened in the usual manner.

In the manufacturing of valves, care must be taken to make the area between the arms C' and cylinder F, fig. 3, equal to the area of such steam-port or ports, as would be suited for an engine to which my valve is to be attached, and to give the valve-stem D such length of stroke as will give a corresponding area between the lower edge of the shell S and seat H.

It will be seen, from this description, that the shell S operates under only so much pressure as is necessary to hold it in position, and prevent any imperfect operation of the engine from accidentally opening it.

Having thus described my invention,

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

The construction of the balanced valve, with cylinder F, seat H, guide-arms C, plate A, and shell S, with its seat I, substantially as set forth.

WILLIAM EVERED.

Witnesses:

G. L. CHAPIN,  
E. E. GIBSON.