

G. A. HINES.
Plugs and Seats for Valves.

No. 152,995.

Patented July 14, 1874.

Fig. 1.

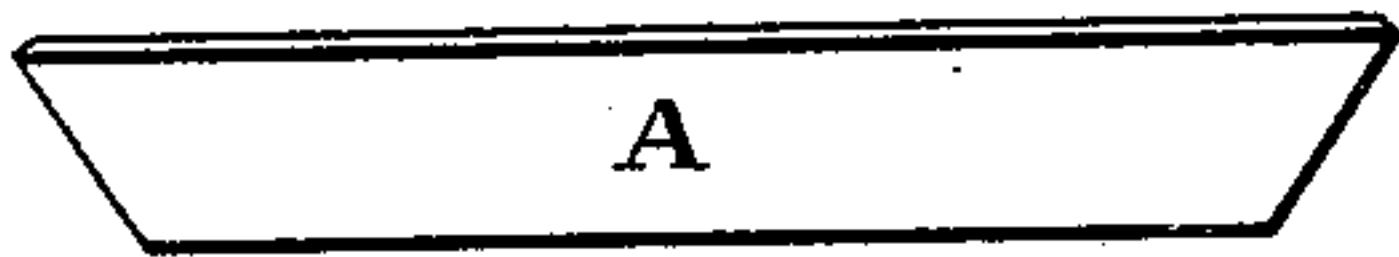


Fig. 2.

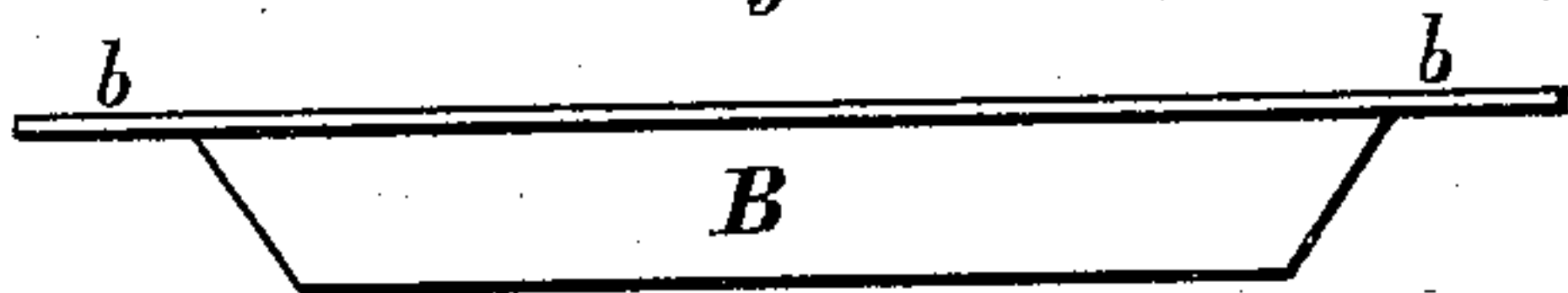


Fig. 3.

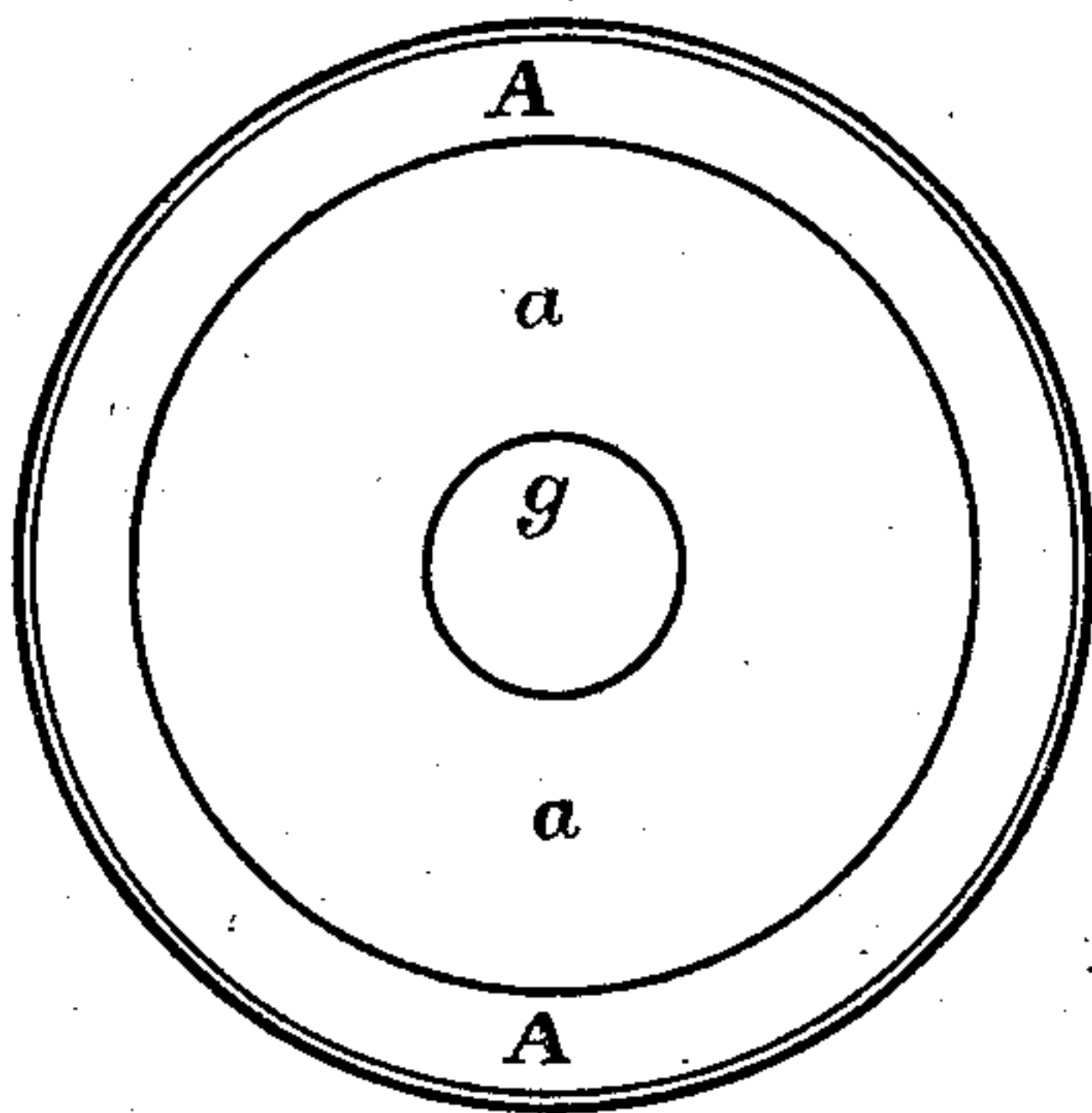


Fig. 4.

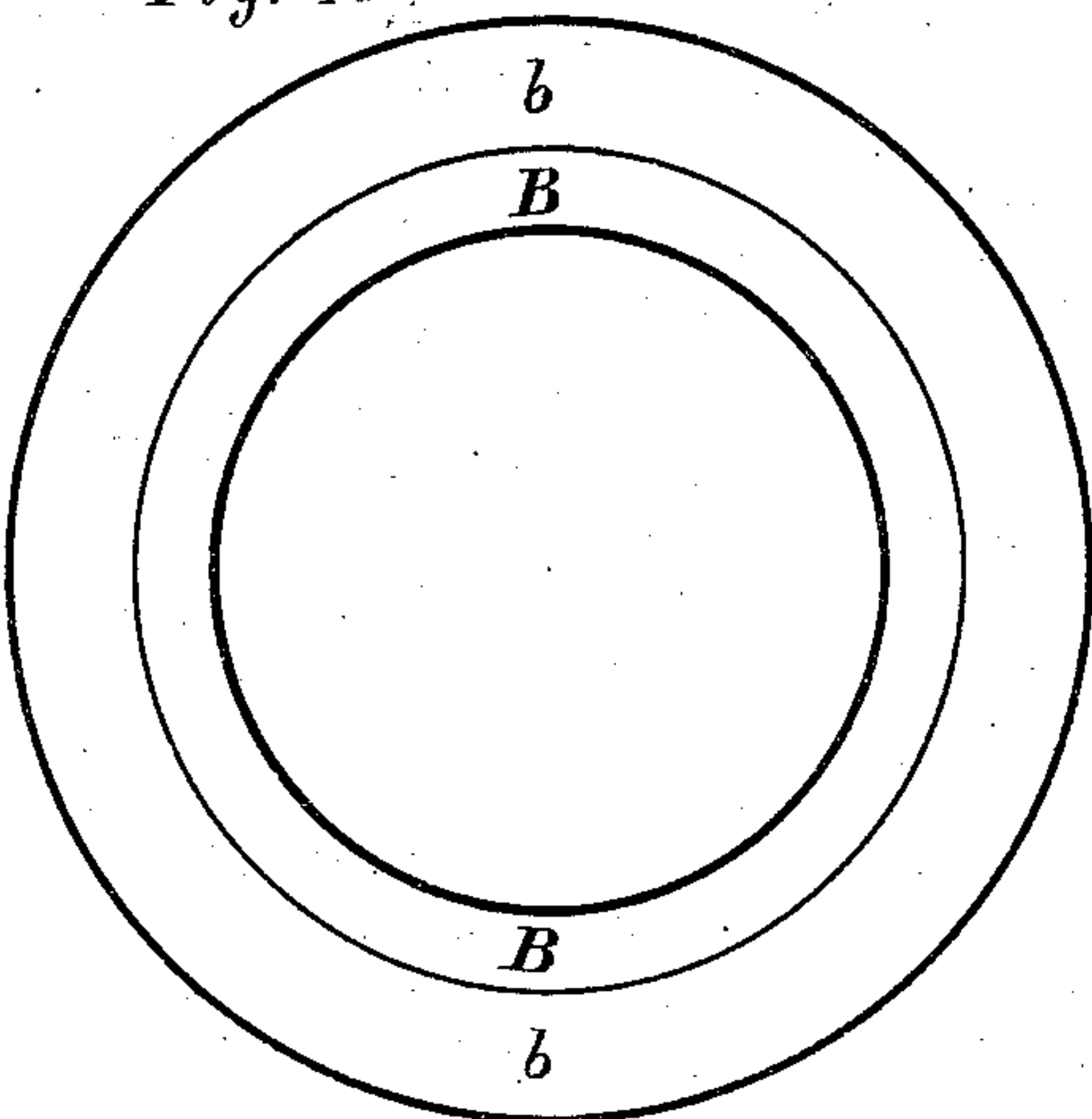


Fig. 5.

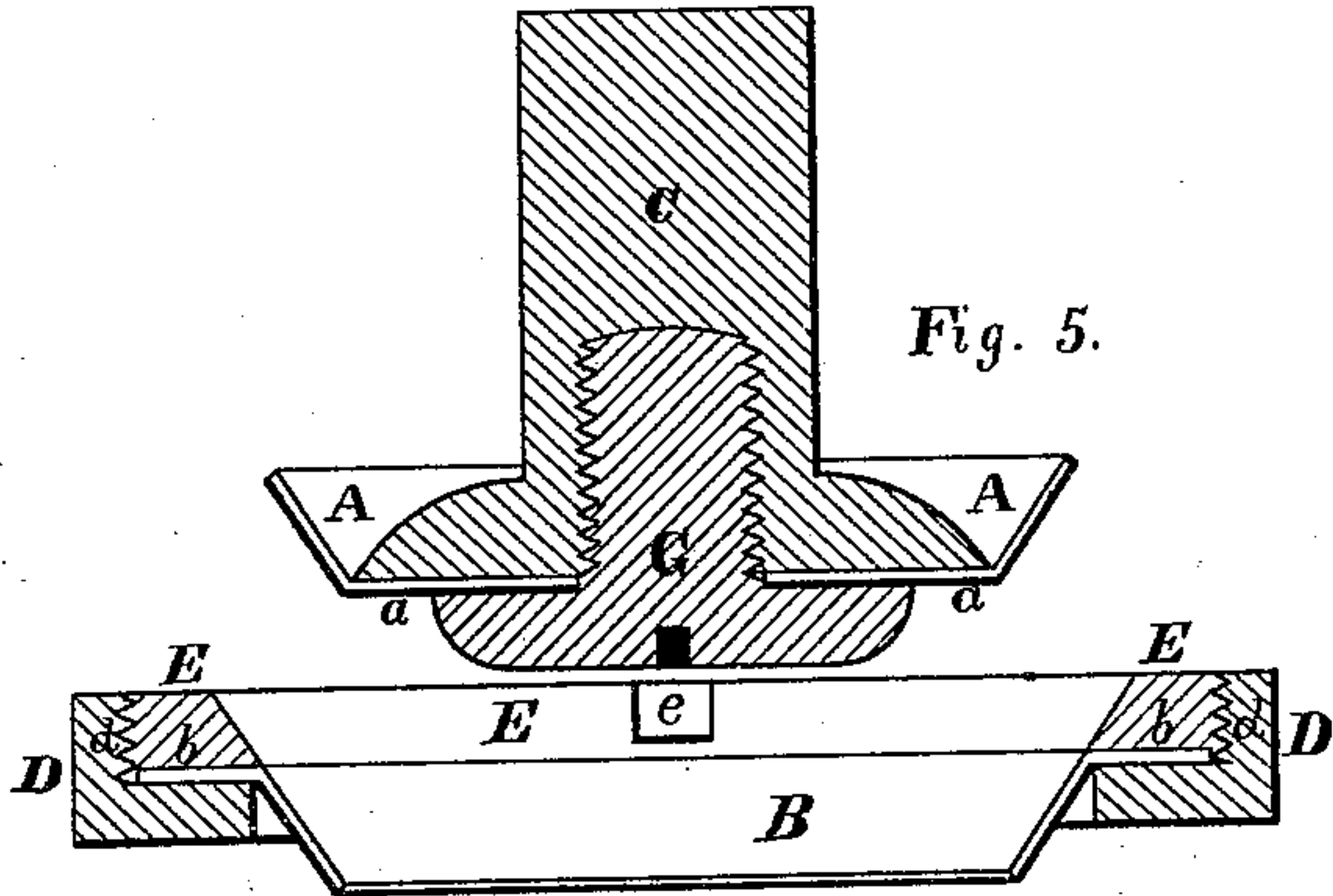


Fig. 6.

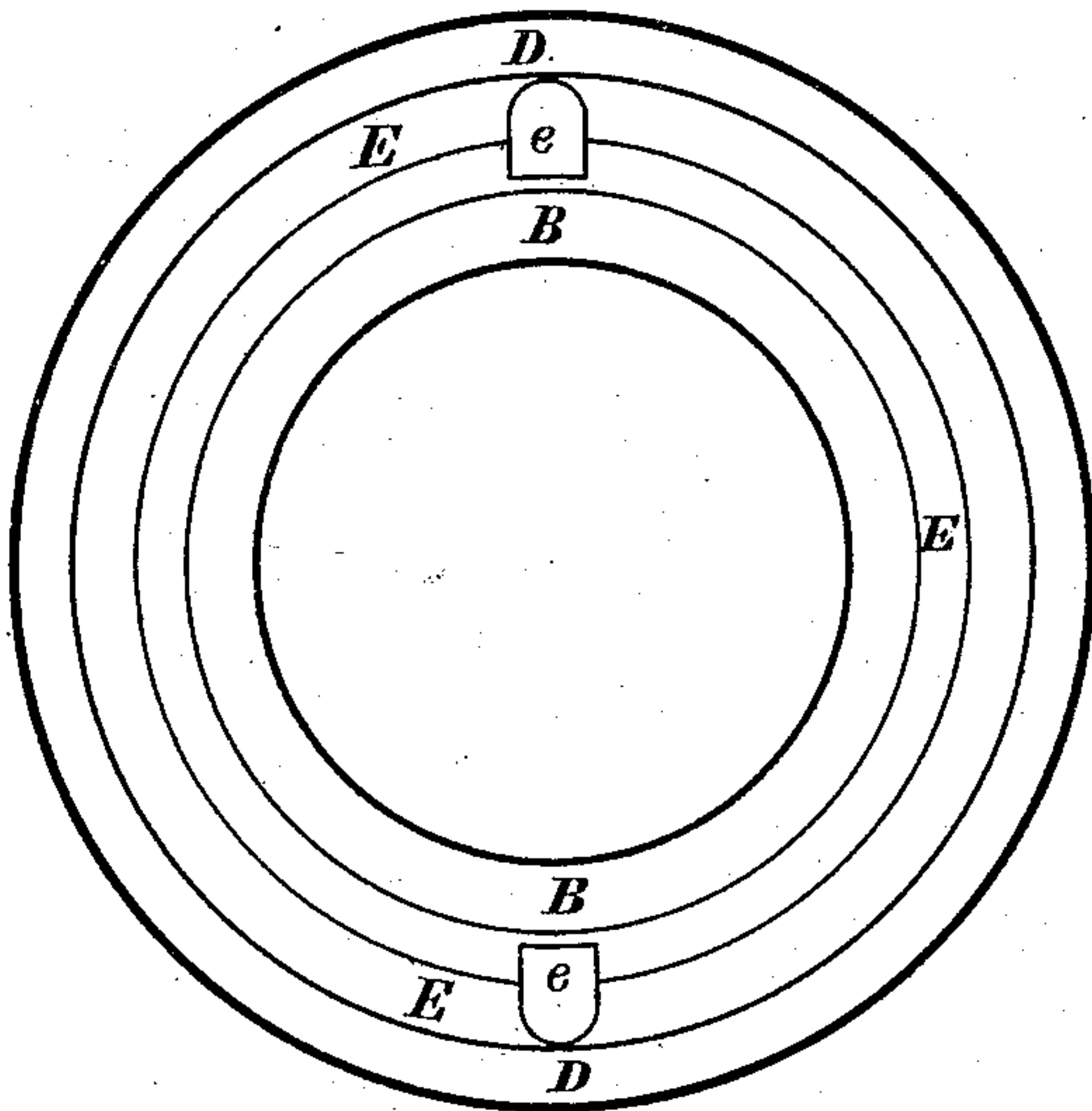
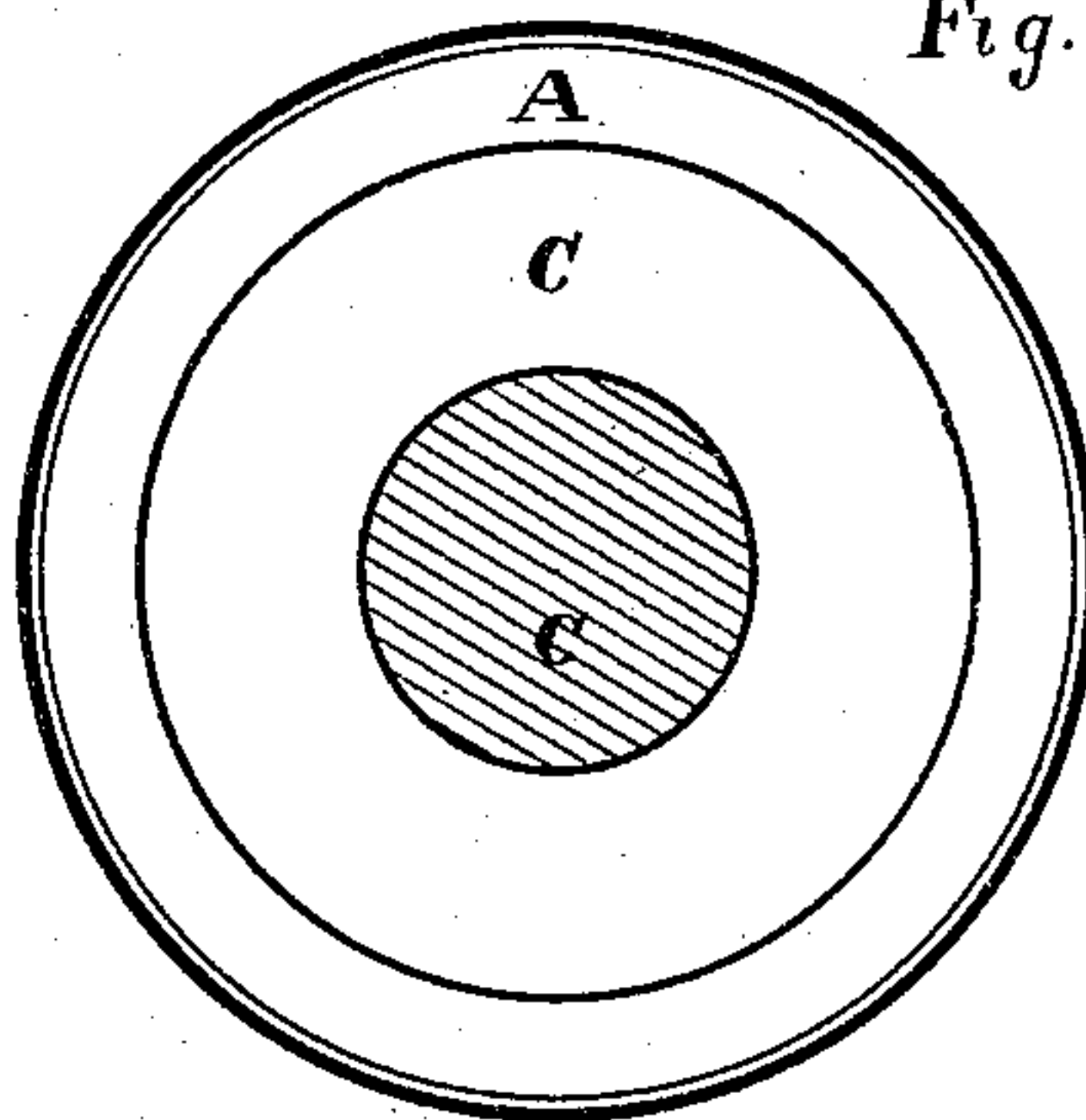


Fig. 7.



Witnesses;

John F. Winston
Albert H. Miner

Inventor;

George Arnold Hines

UNITED STATES PATENT OFFICE.

GEORGE A. HINES, OF BRATTLEBOROUGH, VERMONT.

IMPROVEMENT IN PLUGS AND SEATS FOR VALVES.

Specification forming part of Letters Patent No. **152,995**, dated July 14, 1874; application filed April 27, 1874.

To all whom it may concern:

Be it known that I, GEORGE ARNOLD HINES, of Brattleborough, in the county of Windham and State of Vermont, have invented a new and Improved Plug and Seat for Valves, of which the following is a specification:

The first part of my invention relates to the forming of the plugs and seats of valves of a minimum quantity of metal, thus allowing them to be at a maximum as regards quality, both as to hardness and non-corrosion, and, as a natural sequence, allowing the shell or covering, whatever the form adopted, to be of a minimum grade of metal. It also allows the plugs and seats, when impaired by long service, to be readily displaced and new ones substituted, without requiring any mechanical manipulation to perfect the surfaces in contact, and at a trifling cost. Also, when the plug is pressed to its seat, they have, from the nature of their construction, sufficient elasticity to eliminate any errors of eccentricity. The second part of my invention relates to the manner of attaching the plug to its stem. The third part of my invention relates to the manner of attaching the seat to its diaphragm.

Figure 1 is a side elevation of the plug; Fig. 2 is a side elevation of the seat; Fig. 3 is a plan of the plug; Fig. 4 is a plan of the seat; Fig. 5 is a vertical section, showing the manner in which the plug is attached to its stem, and the seat to its diaphragm; Fig. 6 is a plan of the seat, diaphragm, and confining ring; Fig. 7 is a plan of the plug and stem.

A is the plug, of the shape of a conical frustum, and is formed in a suitable mold with punch, under pressure, from sheets having a proper thickness of any hard non-corrosive metal or alloy. It has through its bottom *a a*, Fig. 3, the hole *g*, by means of which it can be attached to a stem. B is the seat, of the requisite shape to receive the plug A, and it is formed in the same manner as the plug,

as described above; it has its upper edge flanged or turned over, as at *b b*, to support it on the diaphragm. C, Figs. 5 and 7, is a stem of any suitable dimensions, flaring sufficiently at the bottom to cover the bottom *a a* of the plug A on the inside. The plug A is attached to the stem C, by means of the screw G passing through the hole *g* in *a a* and into the stem C, in the manner as set forth in the drawing. D D, Figs. 5 and 6, is a portion of the diaphragm of a valve; it is wrought out in the center just large enough to receive the largest conical part of the seat B. It is also cut down around the hole which receives the conical part of B, sufficiently large and of suitable depth to receive the flange *b b* of the seat B, and also to receive the confining-ring E E. The confining-ring E E is threaded with the diaphragm D at *d d*, Fig. 5, and it has the holes *e e*, Figs. 5 and 6, by which it can be screwed down to its bearing, thus confining the seat B to the diaphragm D. The plug A and seat B may have a shell or covering of any of the ordinary forms, and the plug A may be made to press and recede from the seat B by any of the mechanical arrangements for that purpose.

I claim as my invention—

1. The plug A provided with an opening, *g*, and the seat B provided with flange *b*, both struck up from sheet metal or alloy, substantially as set forth.
2. The combination of the stem C, plug A, and screw G, substantially as shown and described.
3. The seat B provided with flange *b*, in combination with the diaphragm D and confining-ring E, substantially as shown and described.

GEORGE ARNOLD HINES.

Witnesses:

JOHN F. VINTON,
ALBERT A. MINER.