

No. 703,268.

Patented June 24, 1902.

C. L. HUSTON.  
COVER PLATE FOR BOILERS.

(Application filed Feb. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

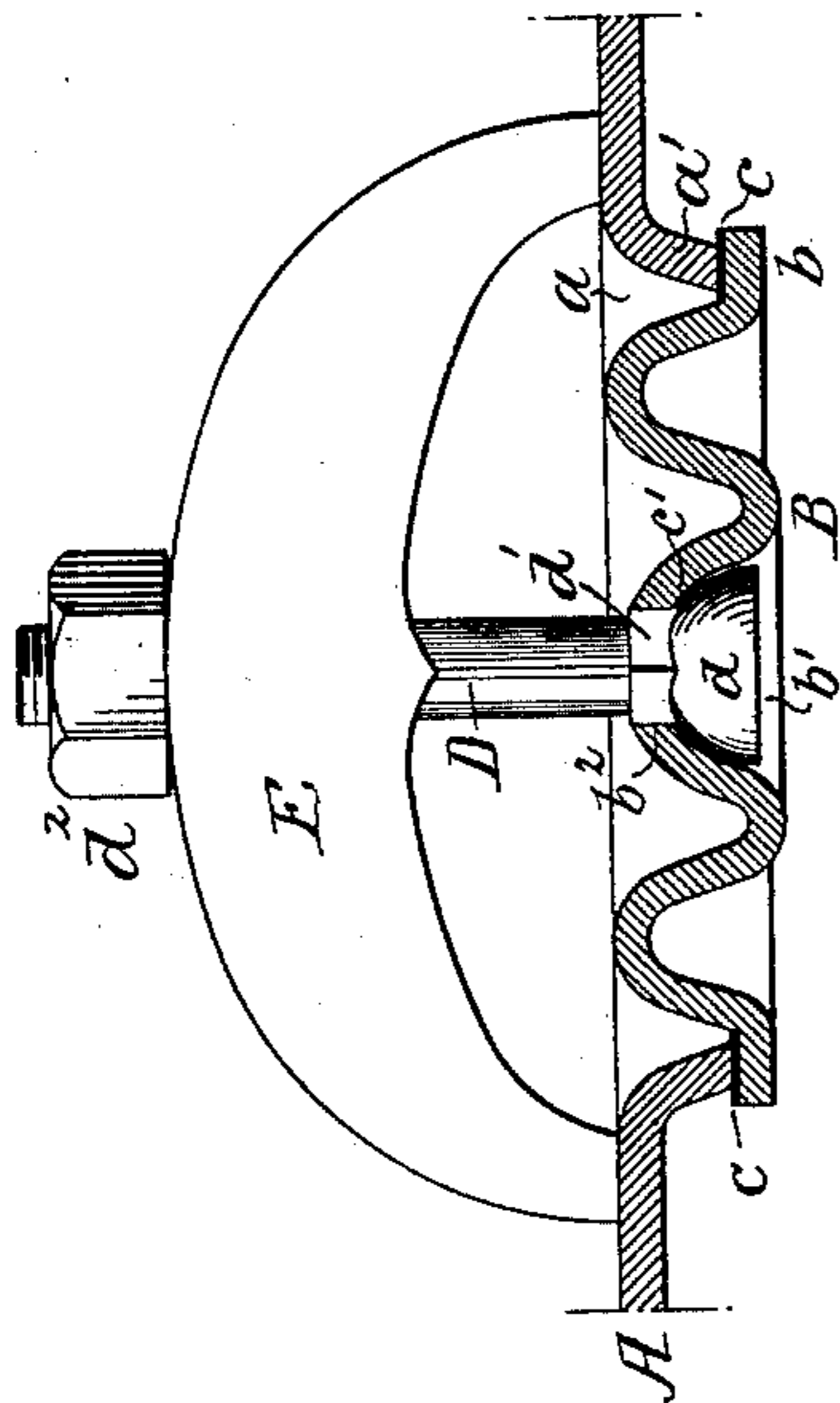


Fig. 2.

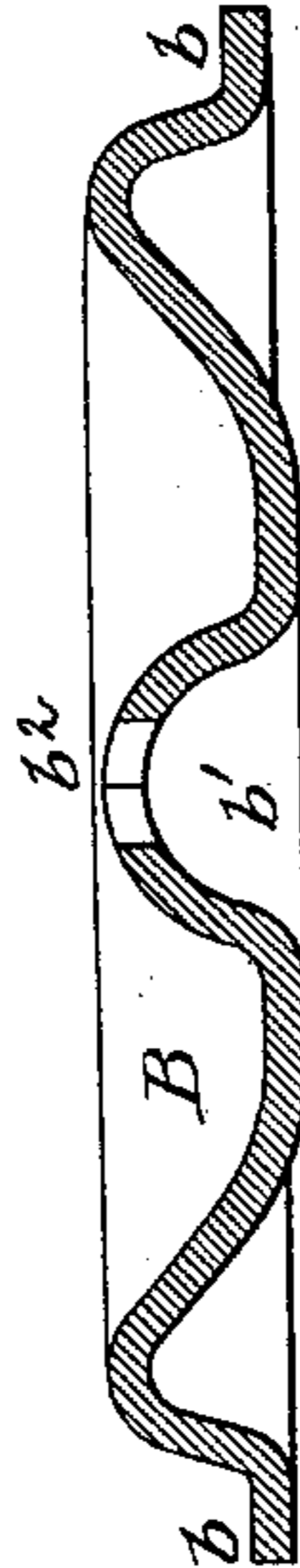


Fig. 3.

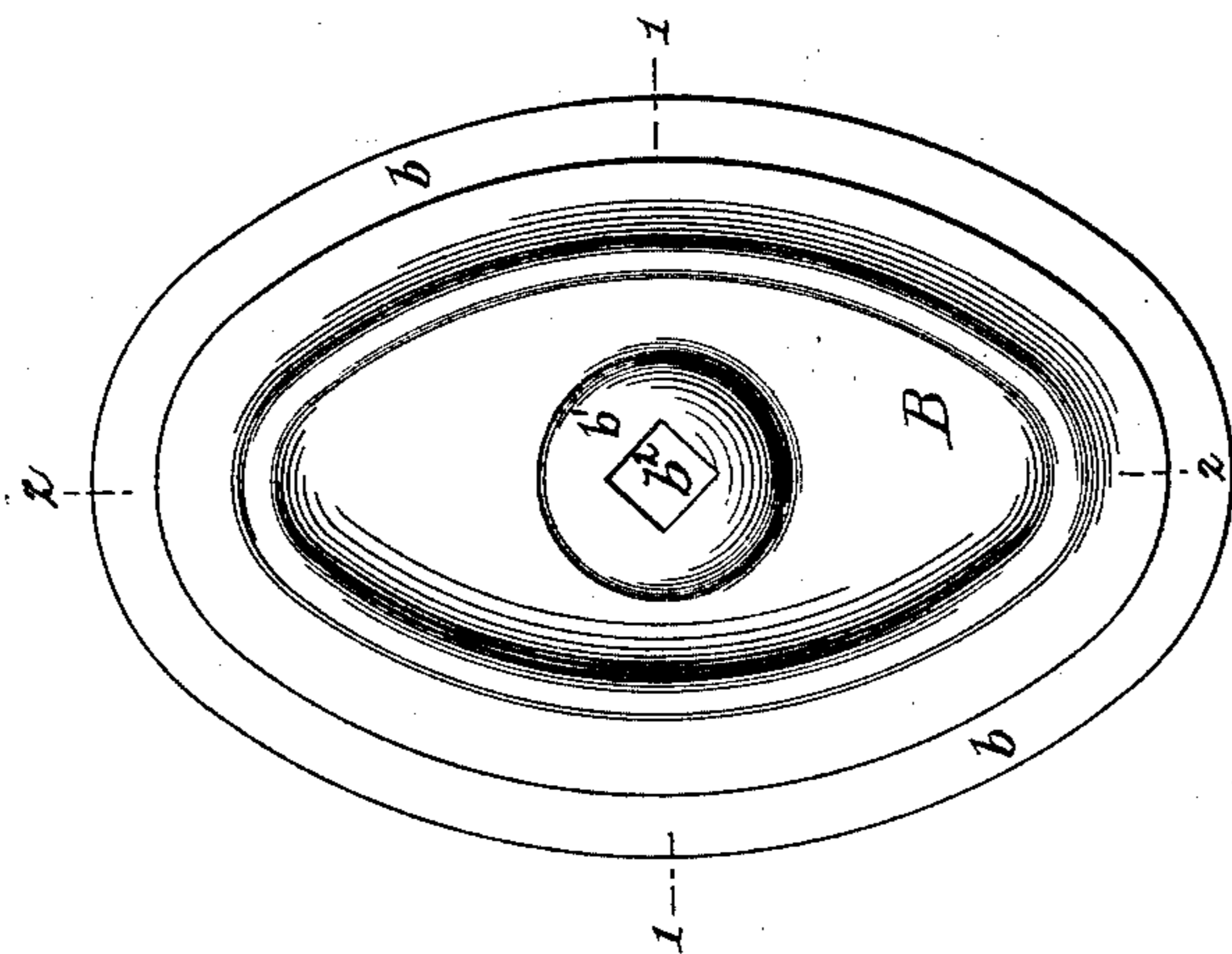
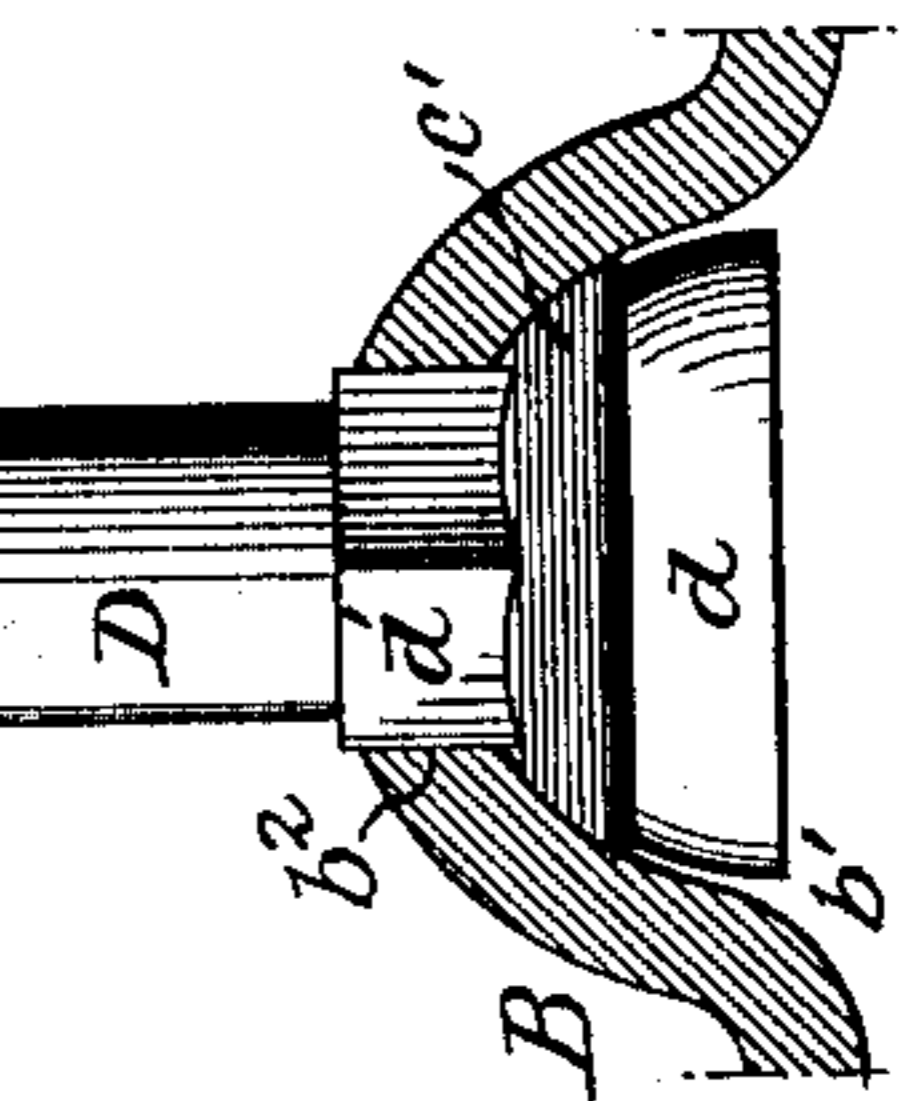


Fig. 4.



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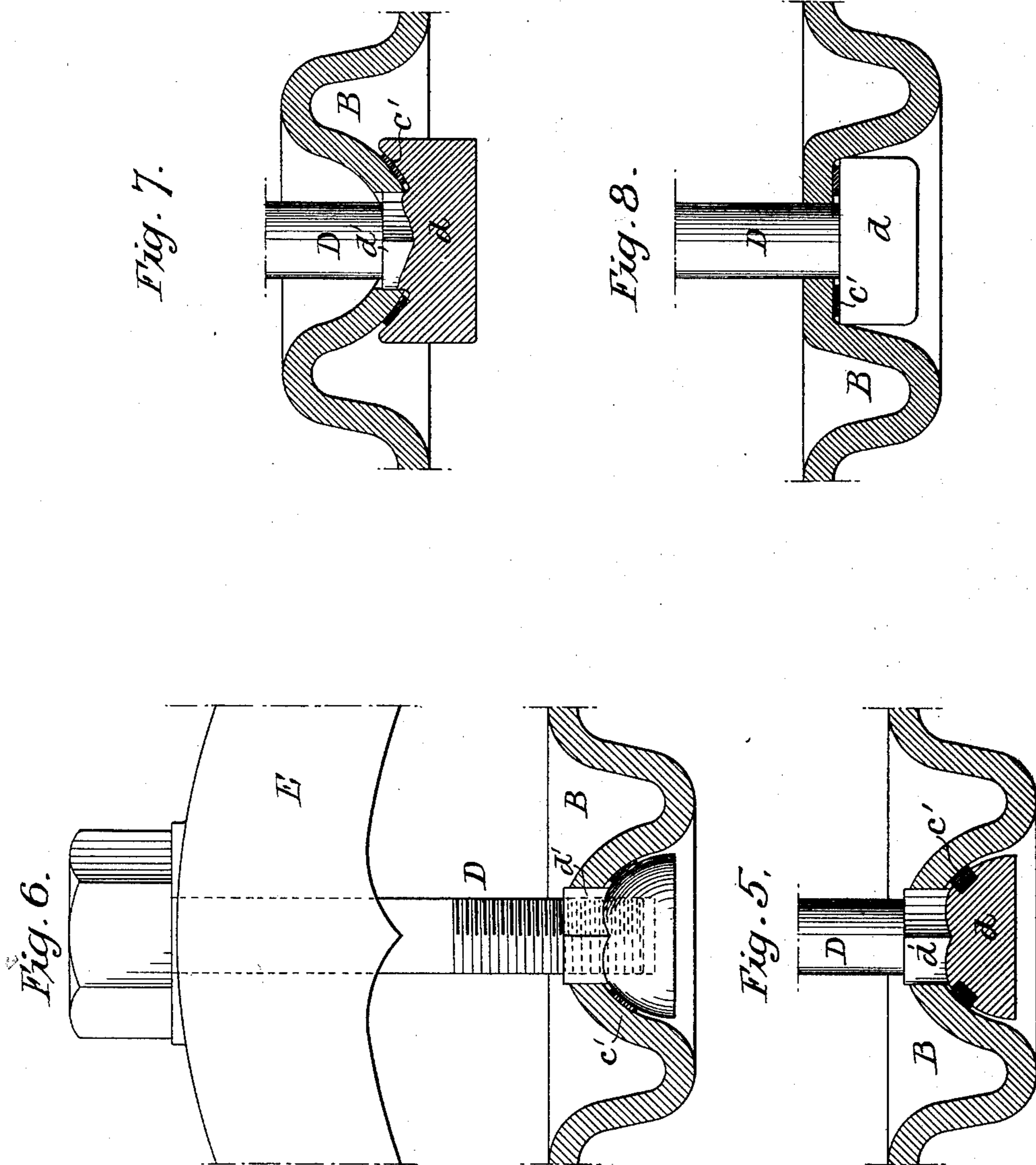
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by his Attorneys.  
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(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

CHARLES L. HUSTON, OF COATESVILLE, PENNSYLVANIA.

## COVER-PLATE FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 703,268, dated June 24, 1902.

Application filed February 20, 1899. Serial No. 706,235. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. HUSTON, a citizen of the United States, and a resident of Coatesville, Pennsylvania, have invented certain Improvements in Cover-Plates for Boilers, &c., of which the following is a specification.

The object of my invention is to provide a simple steam-tight manhole cover-plate for steam-boilers or other vessels to hold fluids under pressure. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view showing my improved cover-plate in position with the bolt and yoke attached, the section of the cover-plate being on the line 1 1, Fig. 3. Fig. 2 is a section of the cover-plate on the line 2 2, Fig. 3. Fig. 3 is a plan view of my improved cover-plate. Fig. 4 is an enlarged sectional view of a portion of Fig. 1, illustrating more clearly one of the main features of my invention. Fig. 5 is a view showing the bolt-head having a recess for the gasket. Fig. 6 is a view showing the nut in the form of a ball adapted to the socket of the plate instead of the head of the bolt. Fig. 7 is a view showing the socket in the head of the bolt and the ball on the plate, and Fig. 8 is a view of a flat-headed bolt adapted to a recess in the plate and a gasket between the head and the plate.

A is the boiler-sheet, in which is a manhole-opening *a*. The edges of the sheet around the manhole-opening are flanged at *a'*, and the edge of the flange *a'* is surfaced for the reception of the cover-plate.

B is the cover-plate, made, preferably, of sheet-steel struck up and crimped in the manner shown, so as to make it rigid to withstand the pressure to which it is subjected. The plate is oval, as illustrated in Fig. 3, so that it can be readily placed in the manhole from the outside and turned into position or removed, as it will be understood that the plate is mounted on the inner side of the boiler or other container, and its flange *b* rests against the edge of the flange *a'*. A gasket *c*, of rubber or other suitable material, is placed between the flange *b* of the cover-plate and the edge of the flanged portion *a'* of the boiler, so as to make a steam-tight joint.

In the center of the cover-plate, Fig. 1, is a socket *b'* for the reception of the rounded head *d* of a bolt D. This bolt has in the present instance a portion *d'*, so shaped as to prevent the bolt from turning in the opening *b'* in the cover-plate when it is in position, as shown in Fig. 1. The bolt passes through a yoke E, which rests against the exterior of the boiler, and on the bolt is a nut *d''*, so that on turning the nut the bolt will draw the cover-plate into position against the flange on the boiler.

In order to make a steam-tight joint between the head of the bolt and the socket in the cover-plate, I insert a gasket *c'*, Fig. 4, of rubber or other suitable material, which when the bolt is drawn up will make a perfect joint between the head of the bolt and the cover-plate. At the same time it will allow the cover-plate a limited movement, so that it will properly adjust itself to the flange around the manhole-opening.

By the above construction I am able to make a very simple and steam-tight joint, in which, even if the bolt should break, the cover-plate would still retain its position, owing to the steam-pressure against it; but there is very little strain upon the bolt, it being simply for the purpose of keeping the cover-plate in such contact with the boiler-shell as to make a steam-tight joint.

The cover-plate may be made of other material than pressed steel, although I prefer to press the cover-plate, as shown, and it may be corrugated in a different manner, or two or more bolts may be adapted to the cover-plate where a particularly large opening is to be closed.

My invention can be applied to all covers for boilers or other containers, and especially those in which fluid is contained under pressure.

It will be understood that one of the main features of my invention is to make the connection between the cover-plate and the retaining-bolt in the form of a ball-and-socket joint, with means between the two for preventing the leakage of steam, this means being in the present instance a gasket of rubber, soft metal, or other suitable material.

In Fig. 5 I have shown a recess in the bolt-head *d* for the reception of the gasket *c'*.

In Fig. 6 I have shown a modification in which the nut is shaped to conform with the socket and having a square shank adapted to the square opening in the cover-plate.

5 In Fig. 7 the head of the bolt is recessed to form a socket, and the plate is so shaped as to adapt itself to the head, and a gasket is placed between the head and cover-plate; and in Fig. 8 I have shown a square and flat-headed  
10 bolt adapted to a socket in the cover-plate, so shaped as to prevent the head from turning, and between the head and the cover-plate is a suitable gasket making the joint steam-tight.

15 I claim as my invention—

1. The combination with a boiler or other container having an opening provided with an internal flange, of a struck-up sheet-metal cover-plate having a flat flange, packing be-  
20 tween the flange of the cover-plate and the flange of the boiler, a central socket in one face of the cover-plate and an irregular opening extending through the cover-plate at the socket, a yoke on the outside of the boiler, a  
25 bolt having a rounded head mounted in the

socket and having an irregular-shaped portion under the head constructed to fit the opening in the cover-plate, said bolt extending through the plate and the yoke and having a nut by which it is drawn tightly to its  
30 seat, and packing between the bolt-head and the plate, substantially as described.

2. As a new article of manufacture, a struck-up sheet-metal cover-plate for a boiler or other container, having a peripheral bearing-flange, said cover-plate being crimped to  
35 form a corrugation of an outline similar to the contour of the plate and being depressed at the center to form a curved socket, an irregular opening extending through the cover-  
40 plate at the socket and through which a securing-bolt may extend, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of  
45 two subscribing witnesses.

CHARLES L. HUSTON.

Witnesses:

WILL. A. BARR,

JOS. H. KLEIN.