

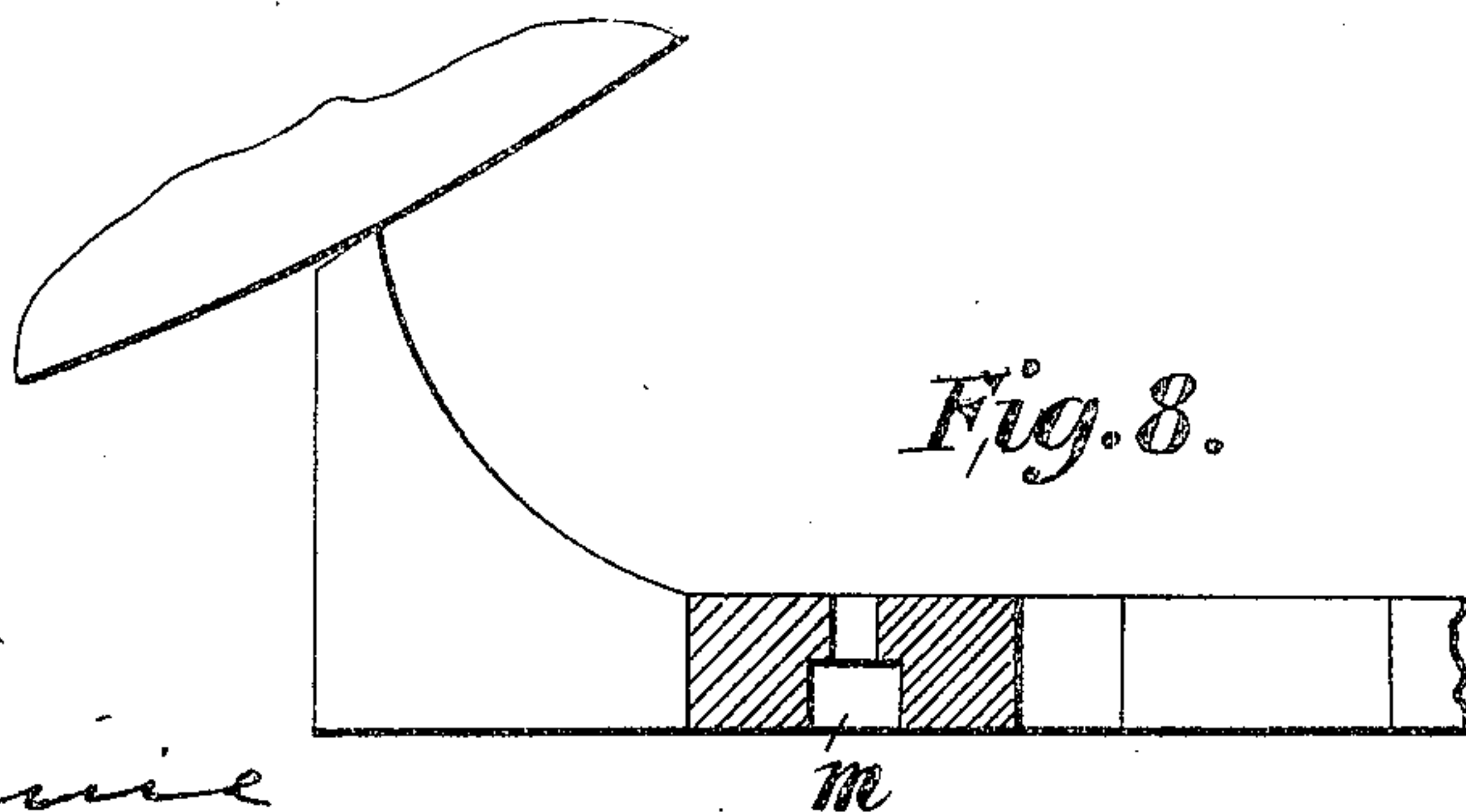
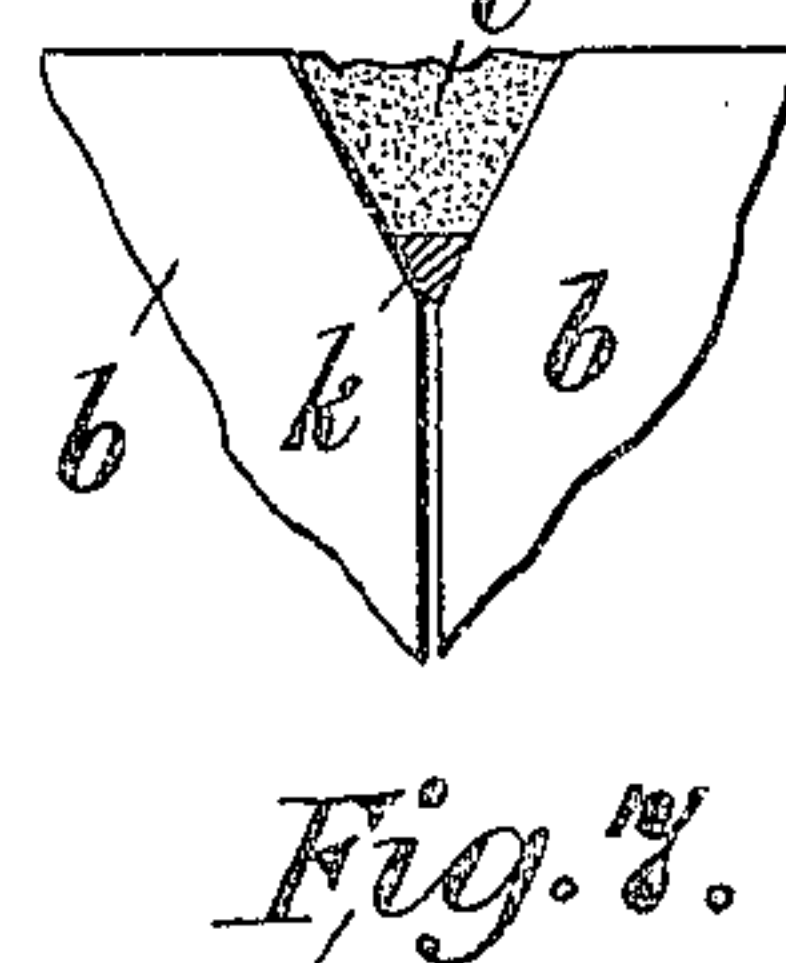
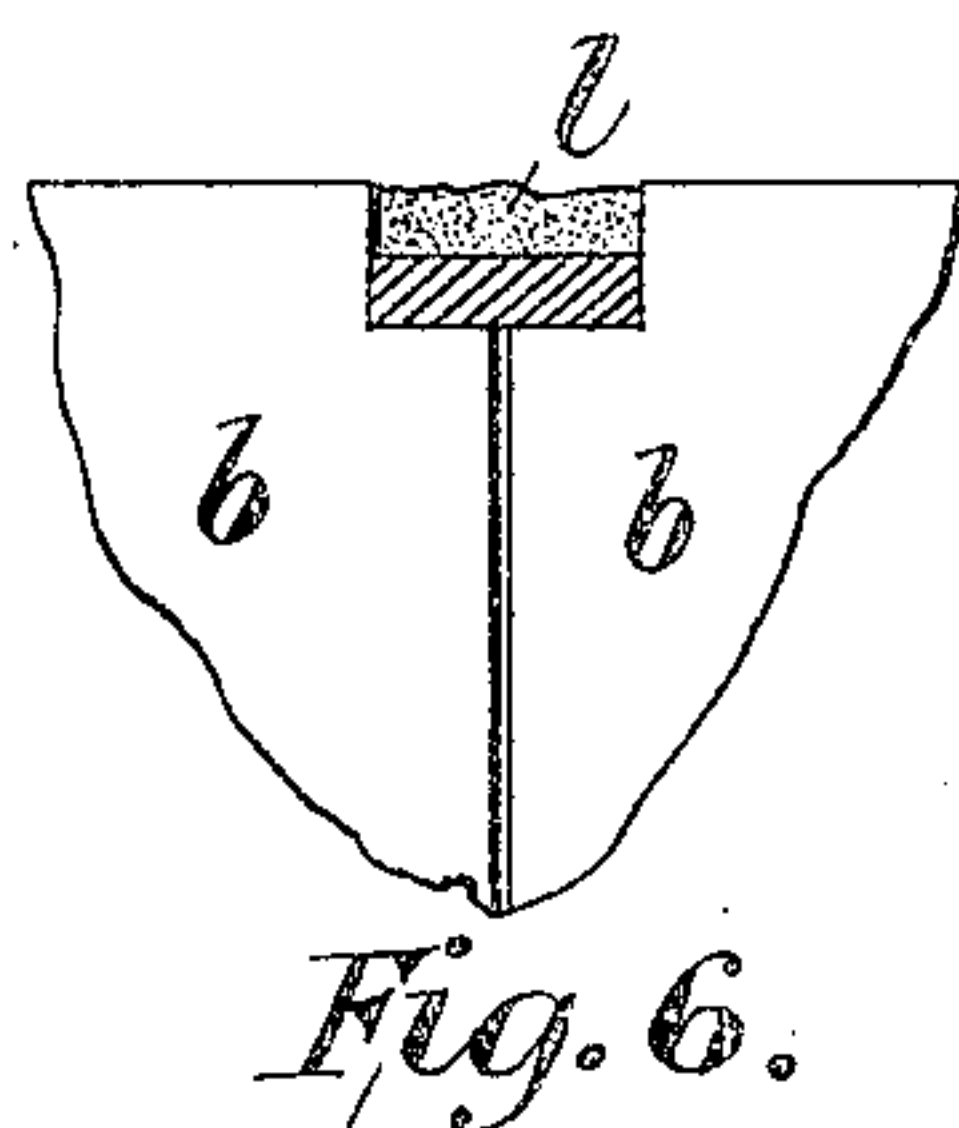
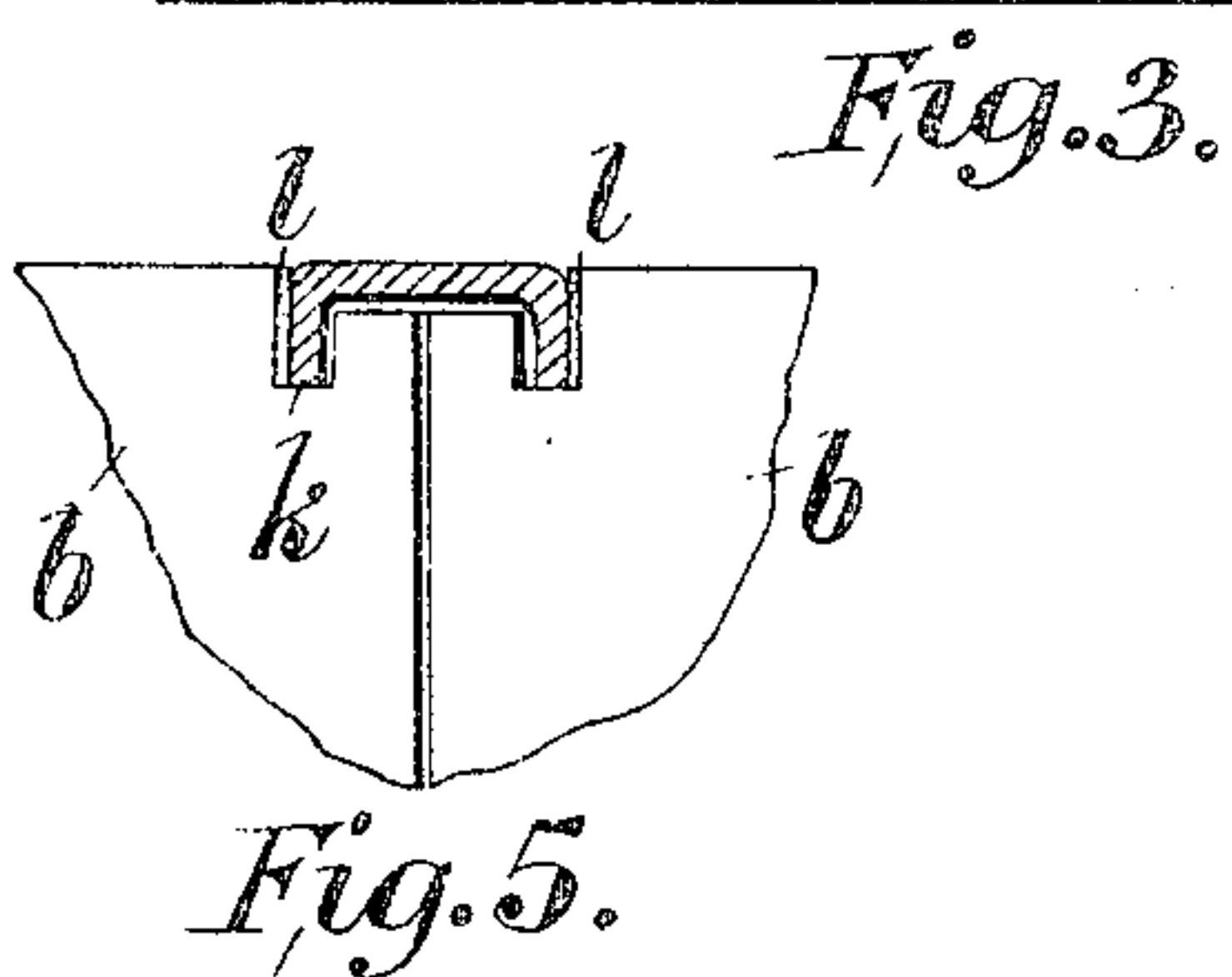
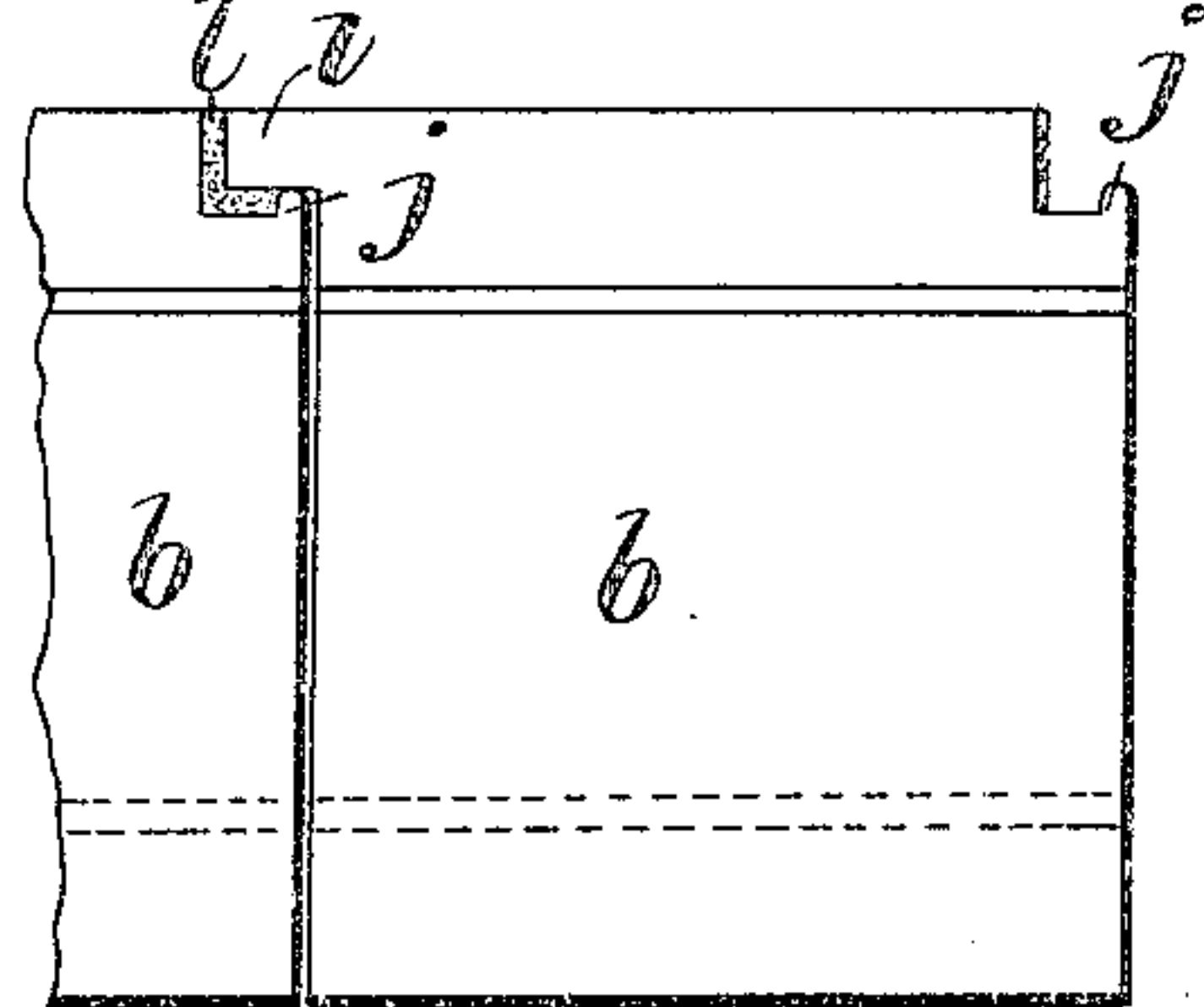
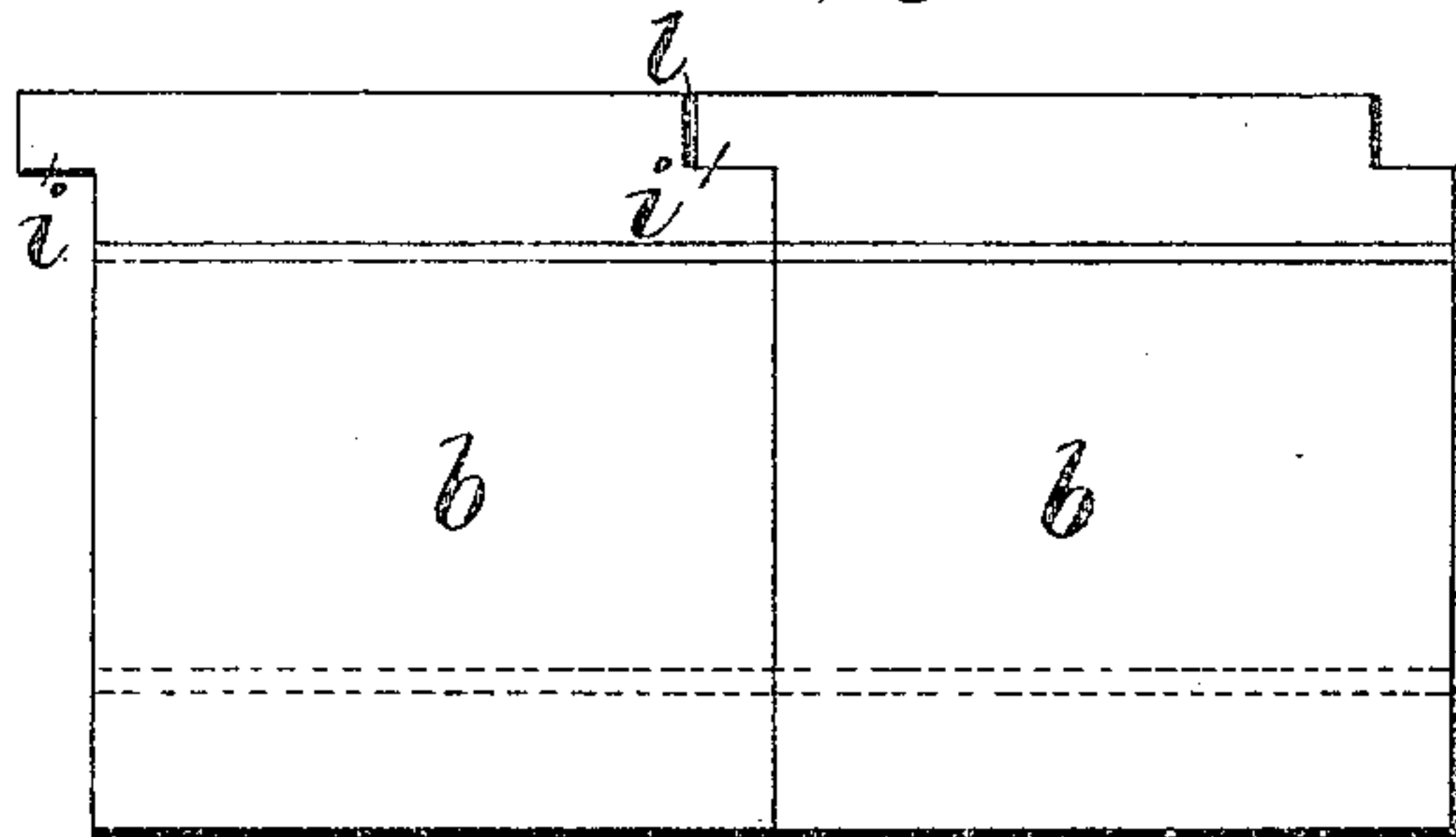
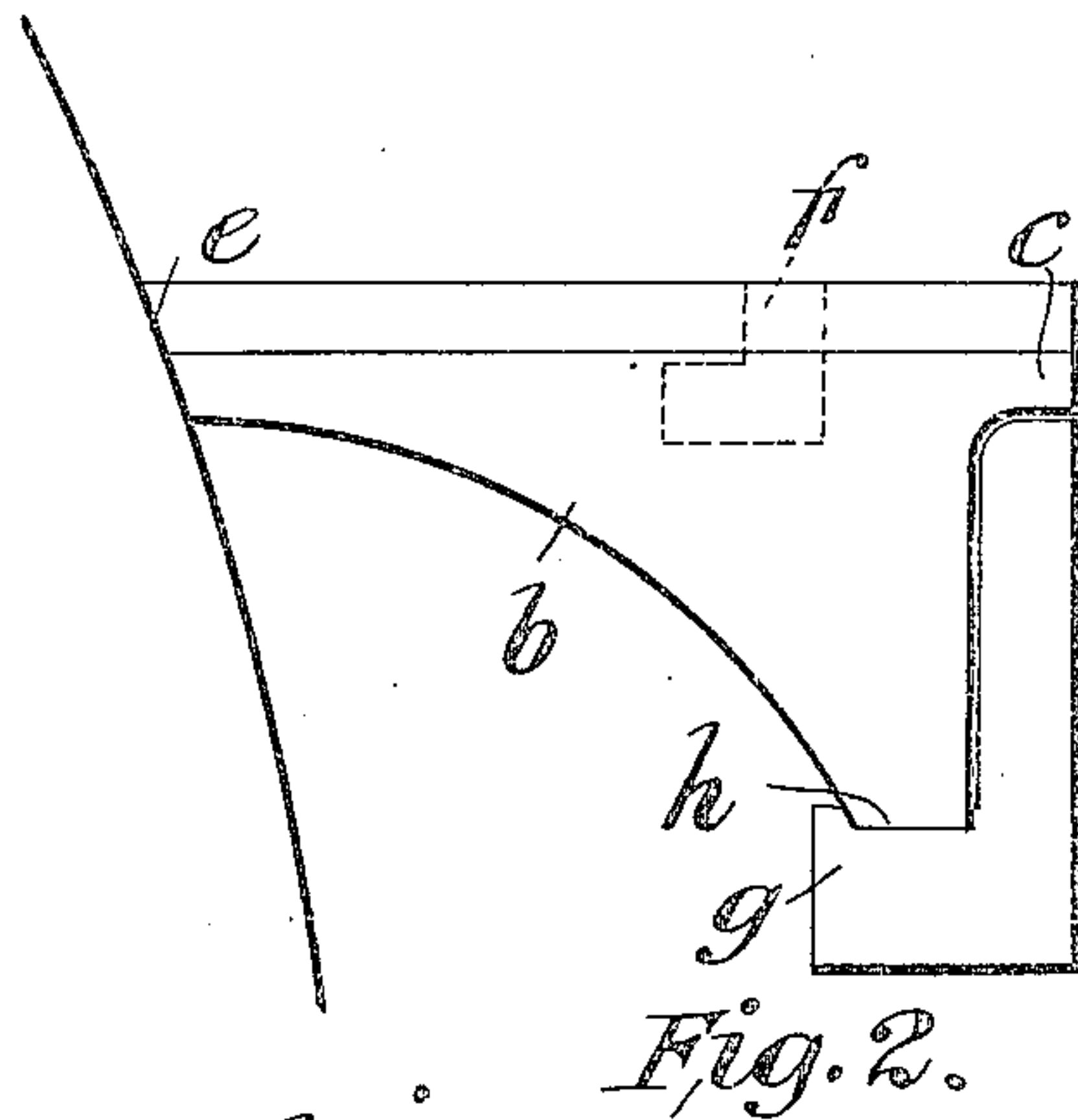
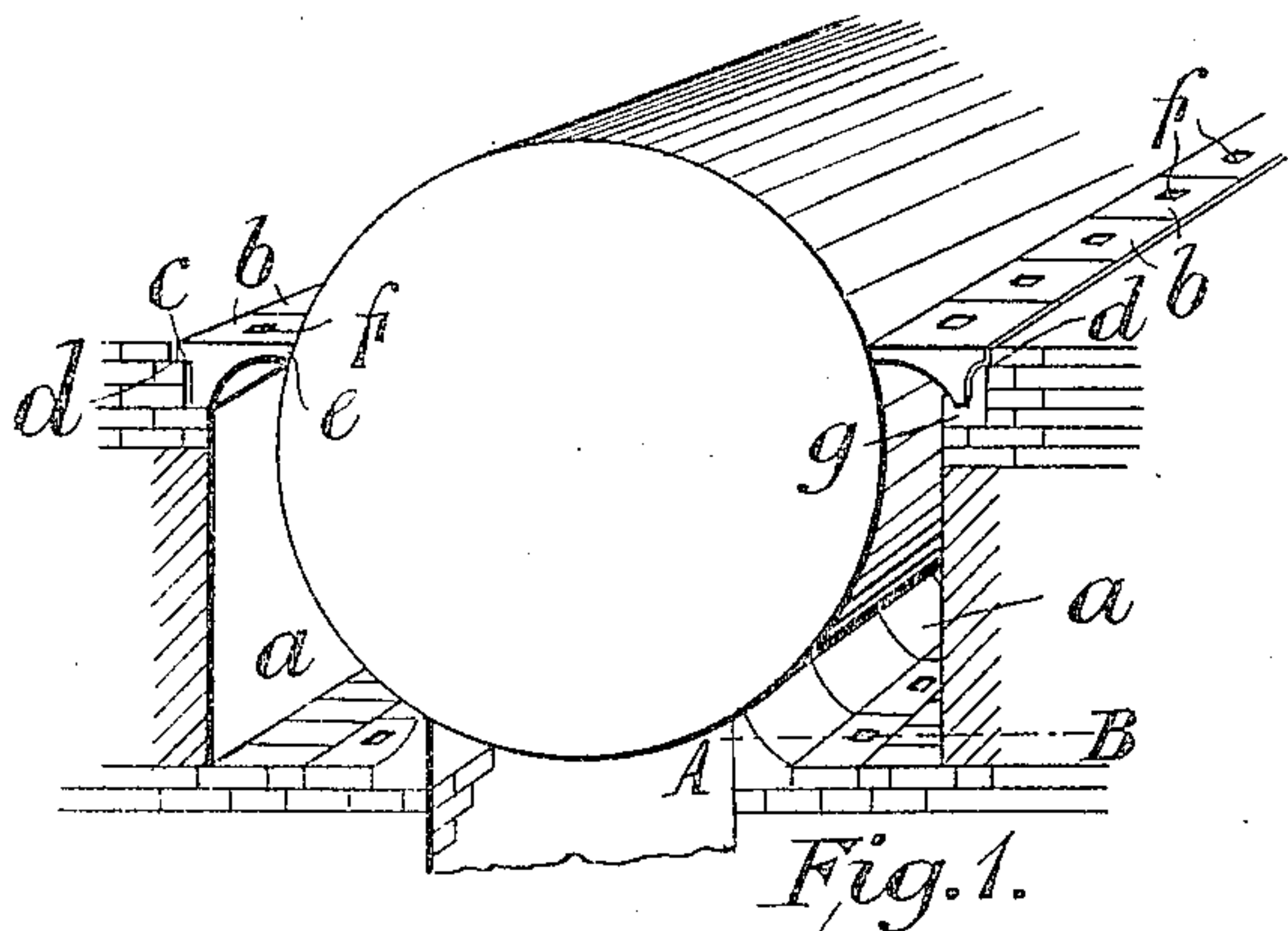
No. 808,853.

PATENTED JAN. 2, 1906.

H. S. MARSH.
BOILER SETTING AND BLOCKS THEREFOR.

APPLICATION FILED AUG. 10, 1904.

2 SHEETS—SHEET 1.



Witnesses

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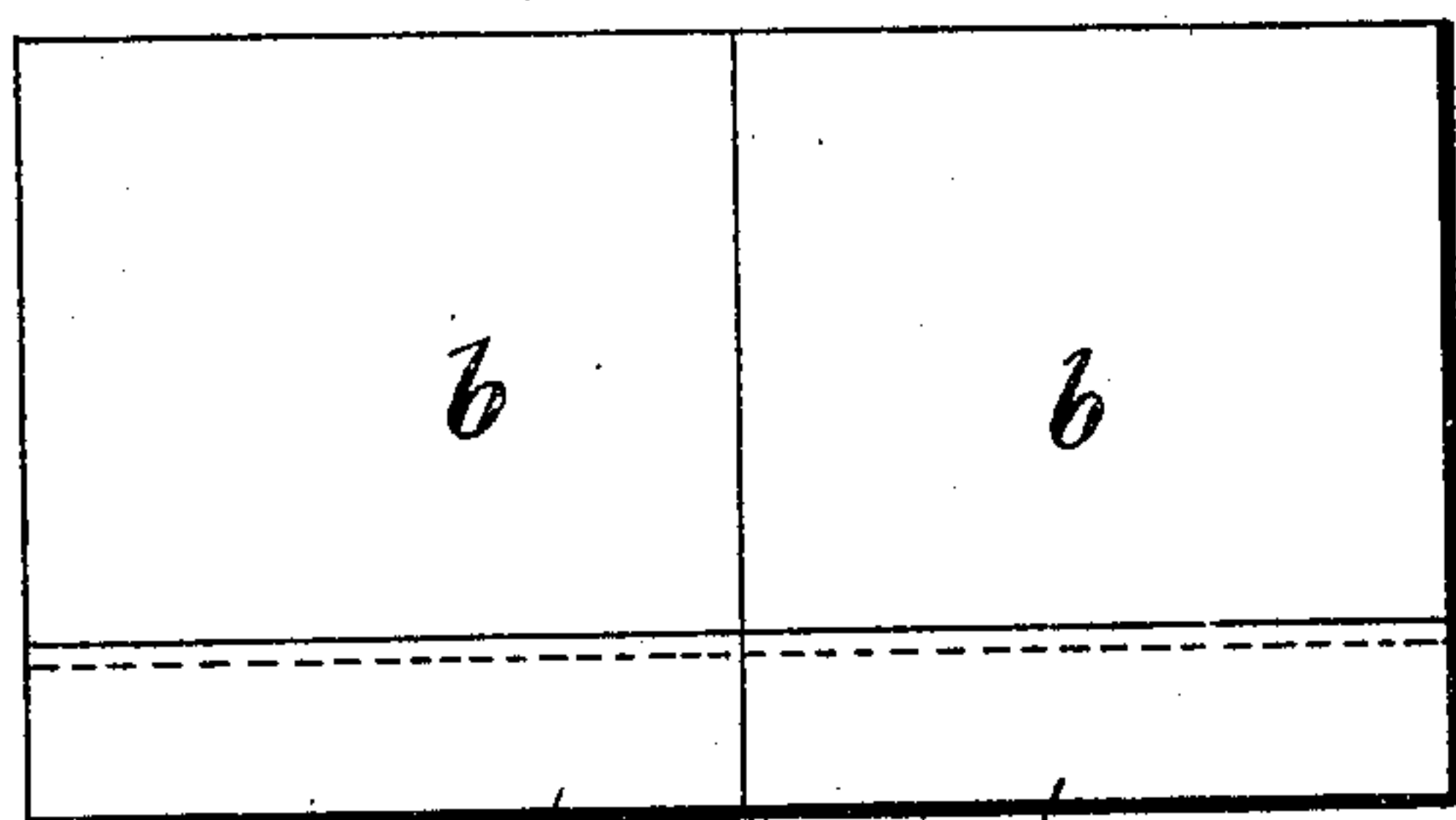


Fig. 9.

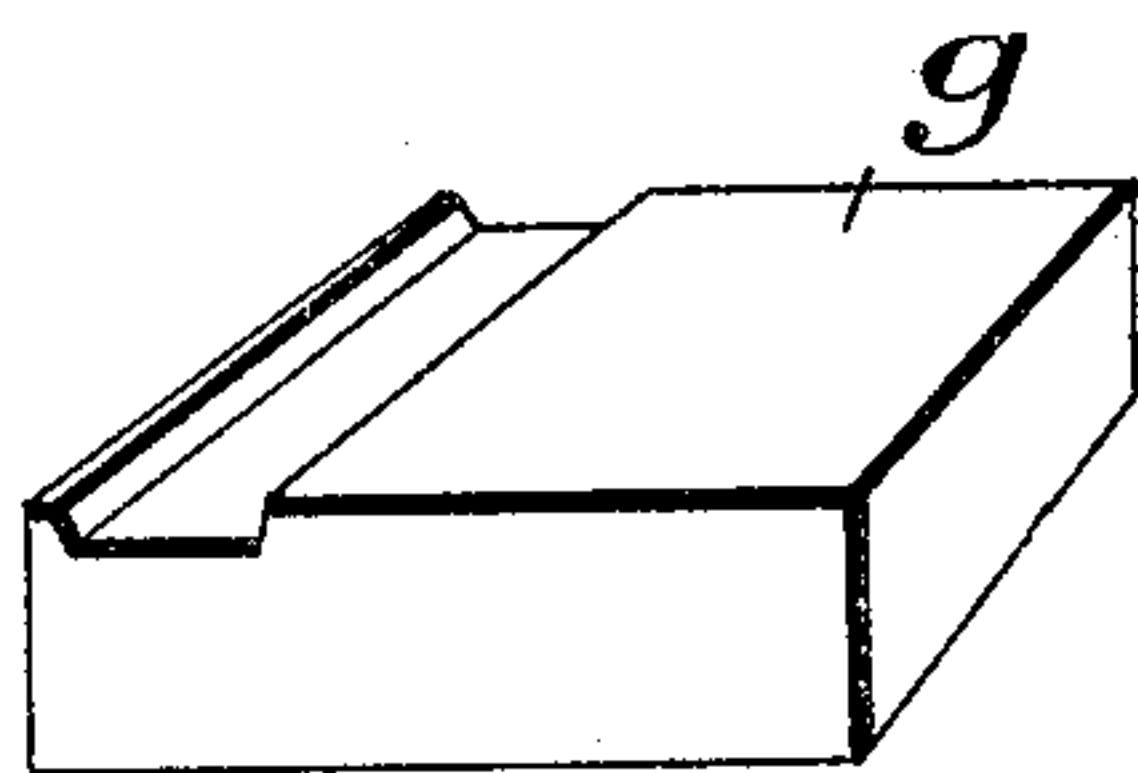
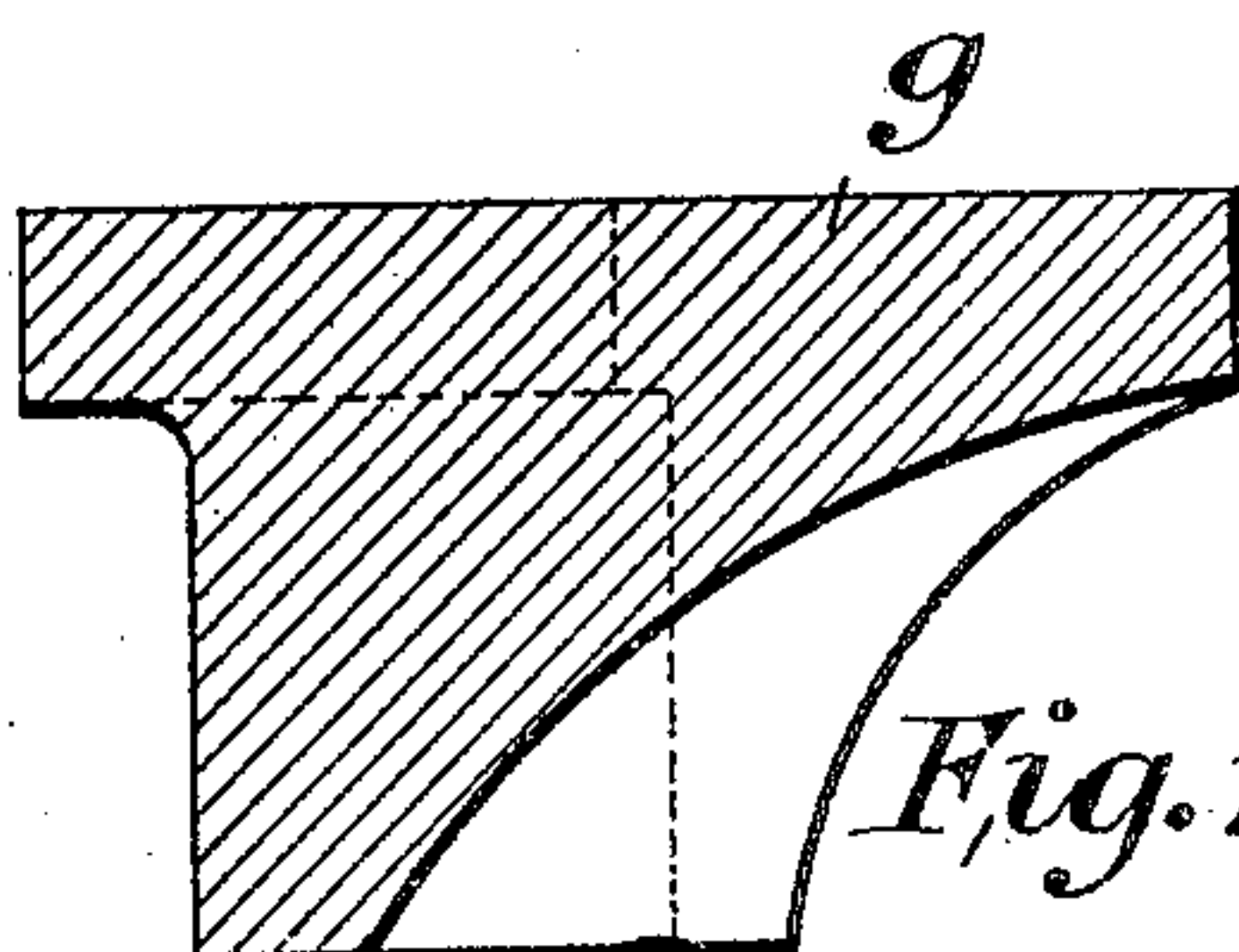


Fig. 10.

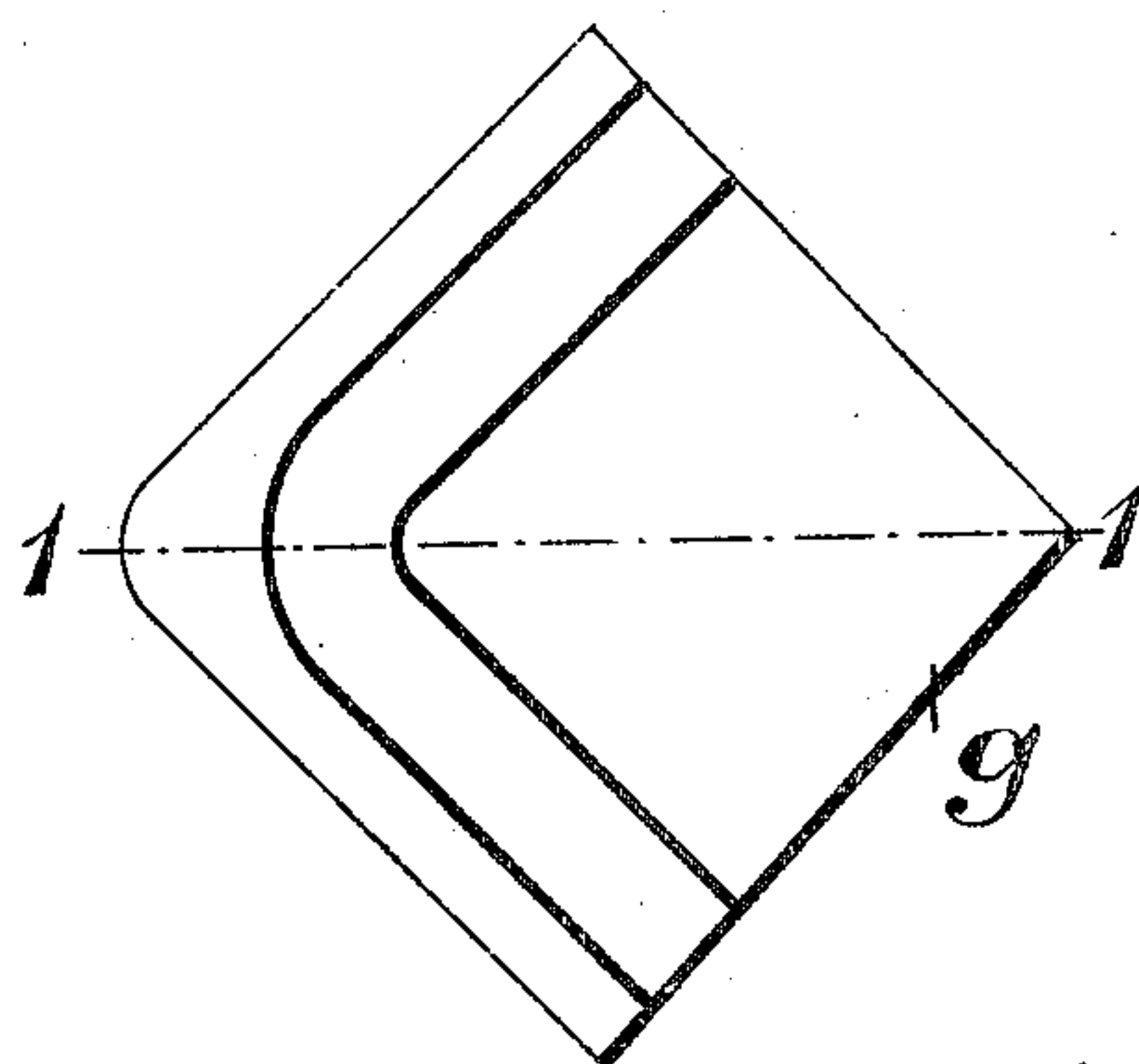


Fig. 11^a.

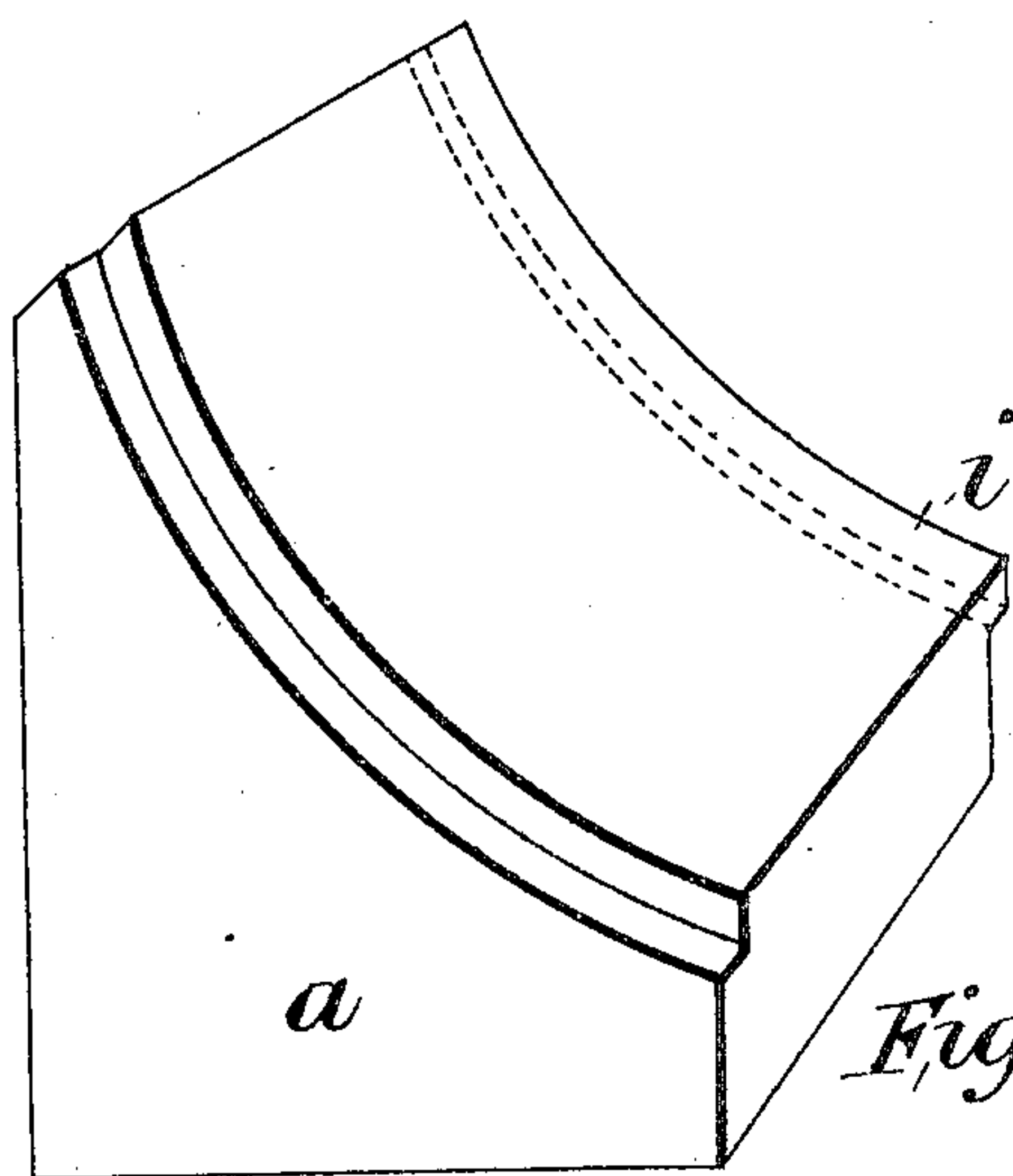


Fig. 12.

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UNITED STATES PATENT OFFICE.

HORACE SMITH MARSH, OF READING, ENGLAND.

BOILER-SETTING AND BLOCKS THEREFOR.

No. 808,853.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed August 10, 1904. Serial No. 220,293.

To all whom it may concern:

Be it known that I, HORACE SMITH MARSH, engineer, a subject of the King of Great Britain and Ireland, residing at 41 South street, Reading, county of Berks, England, have invented certain new and useful Improvements in Boiler-Settings and Blocks Therefor, of which the following is a specification.

This invention relates to boiler-settings and blocks therefor, more especially for Lancashire, Cornish, or other cylindrical boilers. Boilers of this type are usually set with side, end, and bottom flues of brickwork lined or faced in parts with fire-brick blocks. The tops or covers of the side and end flues are usually formed by arch-shaped or concave blocks set in the brickwork so that they are partly supported by the brick walls and partly rest on the boiler-shell. They are then usually bricked over or if not bricked over are cemented in place in a fairly secure manner, so that if the flues are to be opened up for inspection or otherwise considerable trouble is involved in removing the brickwork or blocks.

The object of the present invention is to devise a method of setting and form of setting or cover block which will enable the flues to be readily and easily inspected at any time and without the necessity of breaking down the brickwork setting.

The invention consists in covering the side and end flues by means of easily-removable blocks adapted to be placed in position to form an effective gas or air tight covering for the flues, but at the same time adapted so that one or more blocks may be readily and bodily removed without necessitating any breaking down of the adjacent brickwork.

The invention also consists in the special blocks substantially as hereinafter described.

Figure 1 is a perspective view illustrating the application of the improved blocks. Fig. 2 shows one form of improved block as applied to the side flue of a boiler. Figs. 3 and 4 are side views of side flue cover-blocks, while Figs. 5 to 7 illustrate details hereinafter referred to. Fig. 8 is a detail illustrating the application of the invention to facilitate removal of seating-blocks. Figs. 9 and 10 represent modifications hereinafter described, while another modification hereinafter described is shown in Figs. 11 and 11^a, the former being a section on the line 1 1 and the

latter a reverse plan view of Fig. 11. Fig. 12 is a perspective view of another modification.

In carrying out the invention according to one modification the side or end flues *a* are covered by a number of fire-bricks or like blocks *b*, the under surfaces of which form the tops of the flues, while the upper surfaces form the top of the setting and require no brickwork covering, being preferably arranged flush with the adjacent brickwork. Each block *b* is preferably curved in a segmental or concave manner on its under side, but is flat or horizontal on its upper surface. The other side adjacent the brickwork is preferably vertical and arranged with a projecting lip *c* at the top, adapted to fit in a corresponding recess *d*, left in the brickwork. The edge *e*, resting on the boiler-shell, is preferably beveled when used on the side flue of a boiler; but such edge is left vertical when used for the end flue of a boiler. The lower edge *h*, on which the block rests on the brickwork, is preferably flat or V-shaped. The top of the block is formed with a recess *f*, adapted to receive a suitable key by which the block may be readily lifted. The recess may comprise a vertical hole leading into another at right angles or it may simply comprise a single hole and have a cross-bar or bridge-piece fitted to receive the lifting-key. Only a few of the blocks in a set need be formed with key-recesses, because when one block is removed the adjacent blocks can be easily removed by hand without a key.

Instead of setting the blocks direct onto the brickwork they are sometimes set onto fire-brick or other supporting-blocks *g* set therein. These may each comprise an angular block having a vertical portion at right angles thereto, the latter being recessed or formed as a trough to receive the bottom edge *h* of the setting-block in a gas-tight manner. If this lower edge is flat, then the trough is flat, or if the edge is V-shaped the trough is correspondingly formed to receive it. It may in some cases consist of a number of V-shaped hollows to receive a corresponding number of ridges on the edge of the setting or cover block, or vice versa. The vertical side of the supporting-block is made of a length in accordance with the height of the setting or cover block, and as the latter is provided with an overhanging lip *c*, as before referred to, such vertical side terminates in an edge adapted to receive the under side

of such lip in a fairly gas-tight manner, as shown in Fig. 2. Thus the setting or cover block may be adapted to rest on its lower edge *h*, so that slight clearance may be left
 5 between the vertical sides of the cover-block and supporting-block, respectively. When setting the blocks in position, a mixture of sand or other loose or easily-removable material is packed between the blocks and the set-
 10 ting and, if desired, between the blocks themselves. When the boiler has been heated up for a time, the top of the joints may be finished off with cement. An expandible cement may be employed instead of the sand,
 15 if desired. It is preferred, however, to have the lateral edges overlap, as at *i*, Fig. 3, in which case the sand at *l* or other filling material is prevented from falling through into the flue. A lip *j* may also be provided, as
 20 shown in Fig. 4, or a metal or other plate or asbestos strip may be placed over the joint to prevent the sand or other material falling through—for instance, as shown at *k* in Figs. 5 to 7.

25 In applying the invention to seating-blocks to enable the latter to be readily removed the blocks between them and the setting are provided with keyholes *m*, as shown in Fig. 8, and such blocks are not rigidly cemented in
 30 place, but adapted so that any one or more may be readily removed when desired to enable the adjacent seating block or blocks to be removed. The seating-block for the same reason may be made with overlapping
 35 edges *i*, as shown in Fig. 12, so as to obviate the necessity for cement between them, and thereby facilitating removal.

In some cases the upward extension of the supporting-block *g* may be dispensed with,
 40 the block being then made as shown in Fig. 10. It will be seen that the block *g* is left flat, it being grooved as before to receive the lower edge of the cover-block *b*, as seen in the side view, Fig. 9.

45 In Figs. 11 and 11^a is shown a form of

brick or block adapted to be used as a corner-brick, where the side and the end flues meet. In the view the side flanges *i* are omitted; but it is obvious that they may be employed.

It is to be understood that the form of
 50 block or cover and keyhole therein may be variously modified to suit any particular type of boiler or key without departing from the scope of the invention, so long as the blocks
 55 may be set normally gas-tight, but may be readily removed without injury to the setting to permit of inspection or cleaning of the flues.

Having now described my invention, what I claim as new, and desire to secure by Let-
 60 ters Patent, is—

1. A removable covering or seating for steam-boilers, capable of removal without necessitating interference with the adjacent
 65 structure, comprising series of blocks having means for effecting temporary joints between their adjacent edges and recesses in some of the blocks for the reception of a key, substan-
 70 tially as and for the purpose hereinbefore described.

2. A removable covering or seating for steam-boilers, capable of removal without necessitating interference with the adjacent
 75 structure, comprising series of blocks having rabbeted adjacent edges and recesses in some of the blocks for a key, substantially as and for the purpose hereinbefore described.

3. A removable covering for steam-boilers, capable of removal without necessitat-
 80 ing interference with the adjacent structure comprising series of blocks *b* having rabbeted adjacent edges *i* with lips *j*, and key-recesses *f*, substantially as and for the purpose de-
 85 scribed.

In witness whereof I have hereunto set
 my hand in presence of two witnesses.

HORACE SMITH MARSH.

Witnesses:

ALBERT E. PARKER,
 FRANCIS J. BIGNELL.