

No. 662,253.

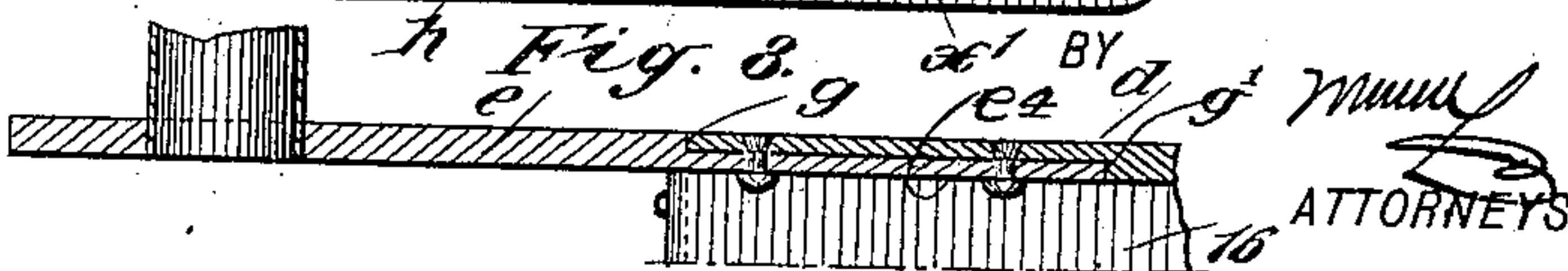
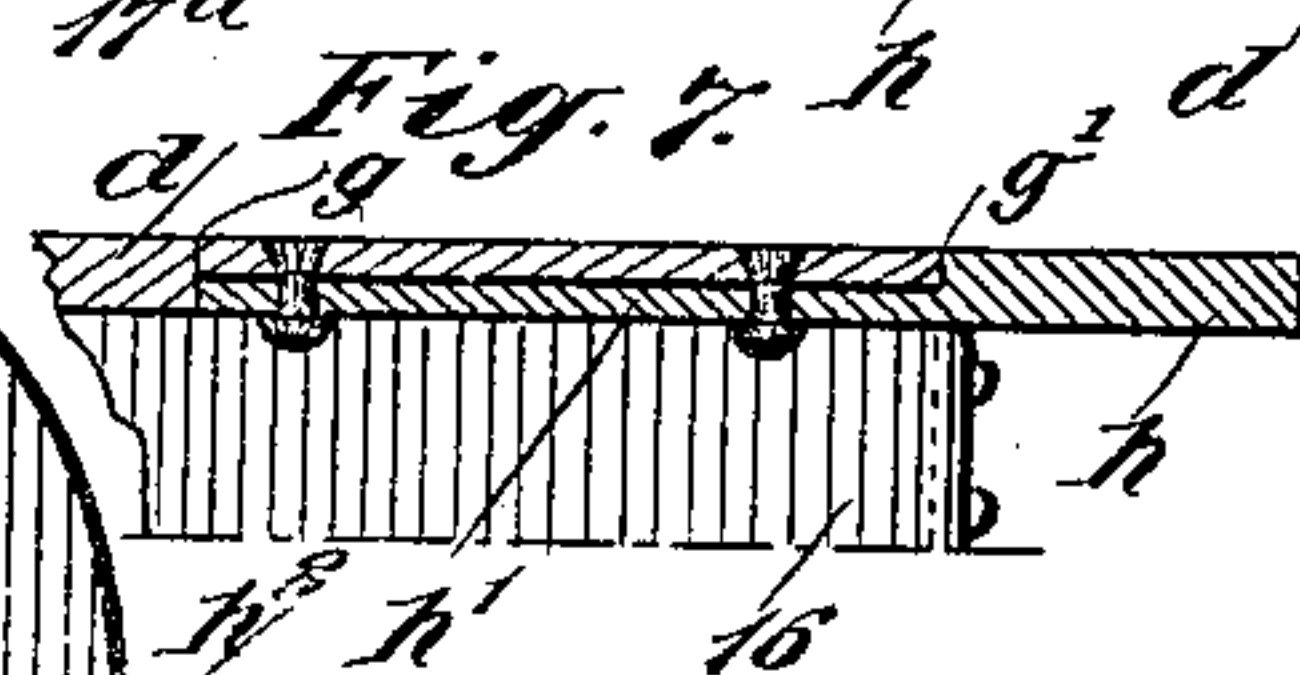
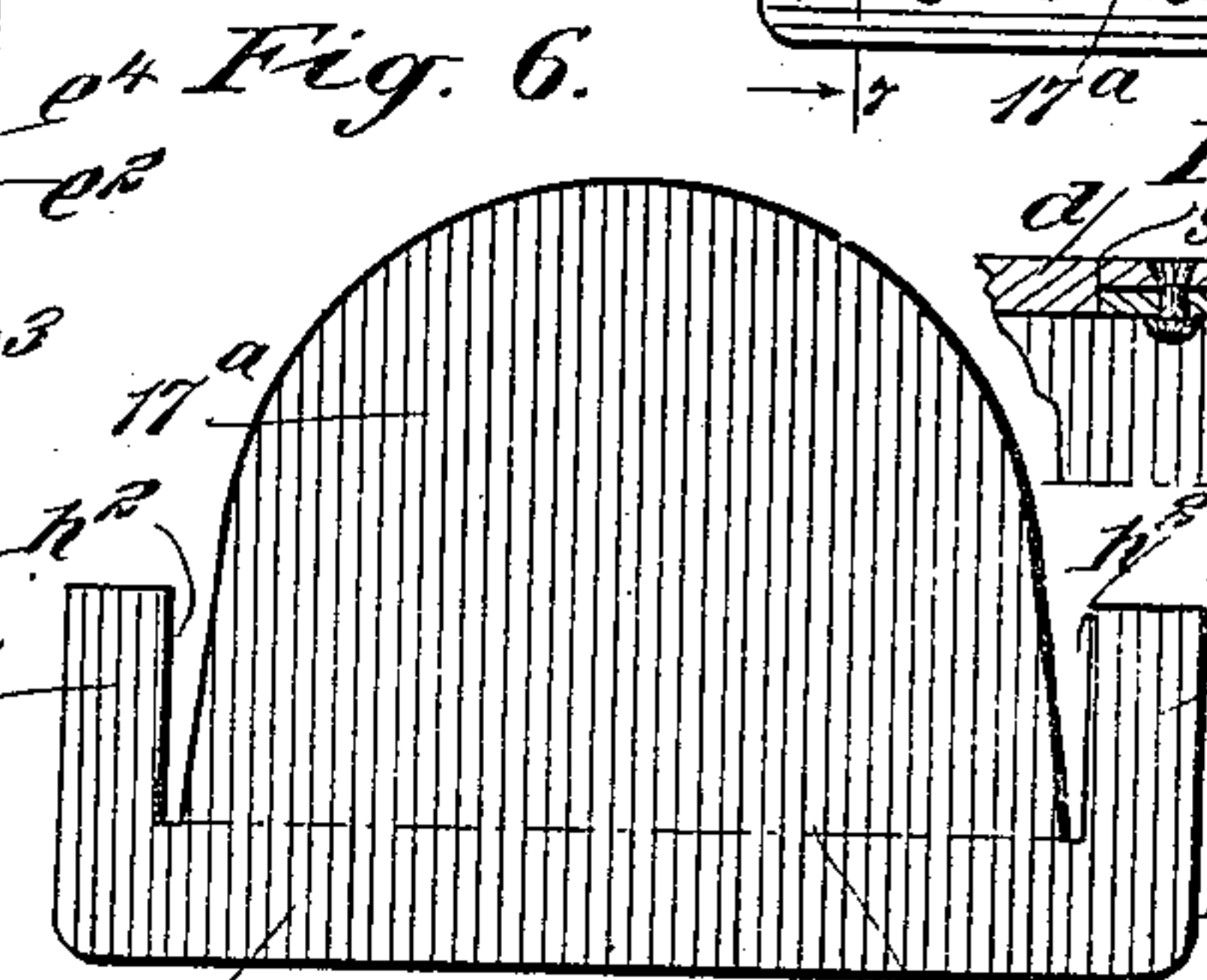
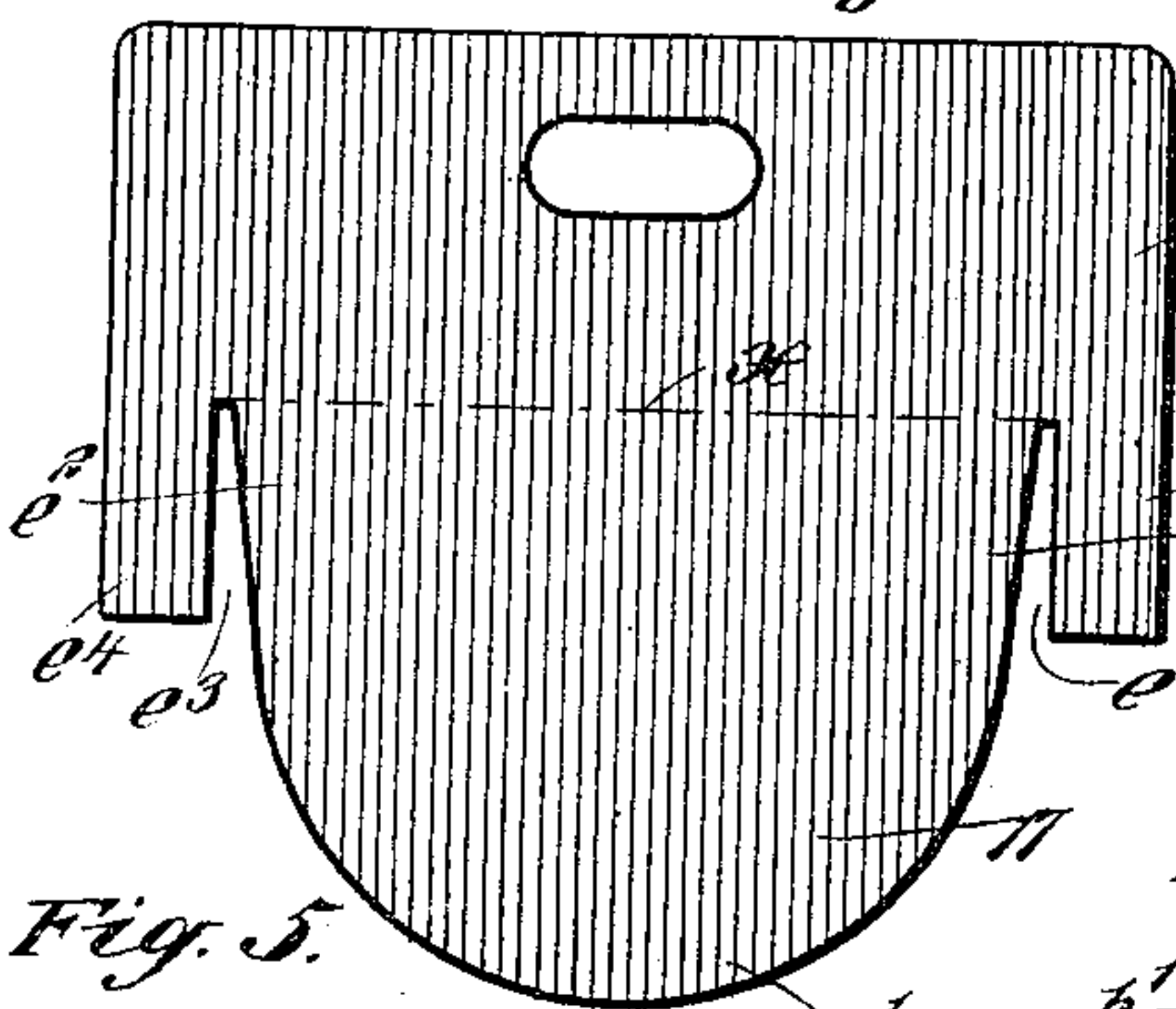
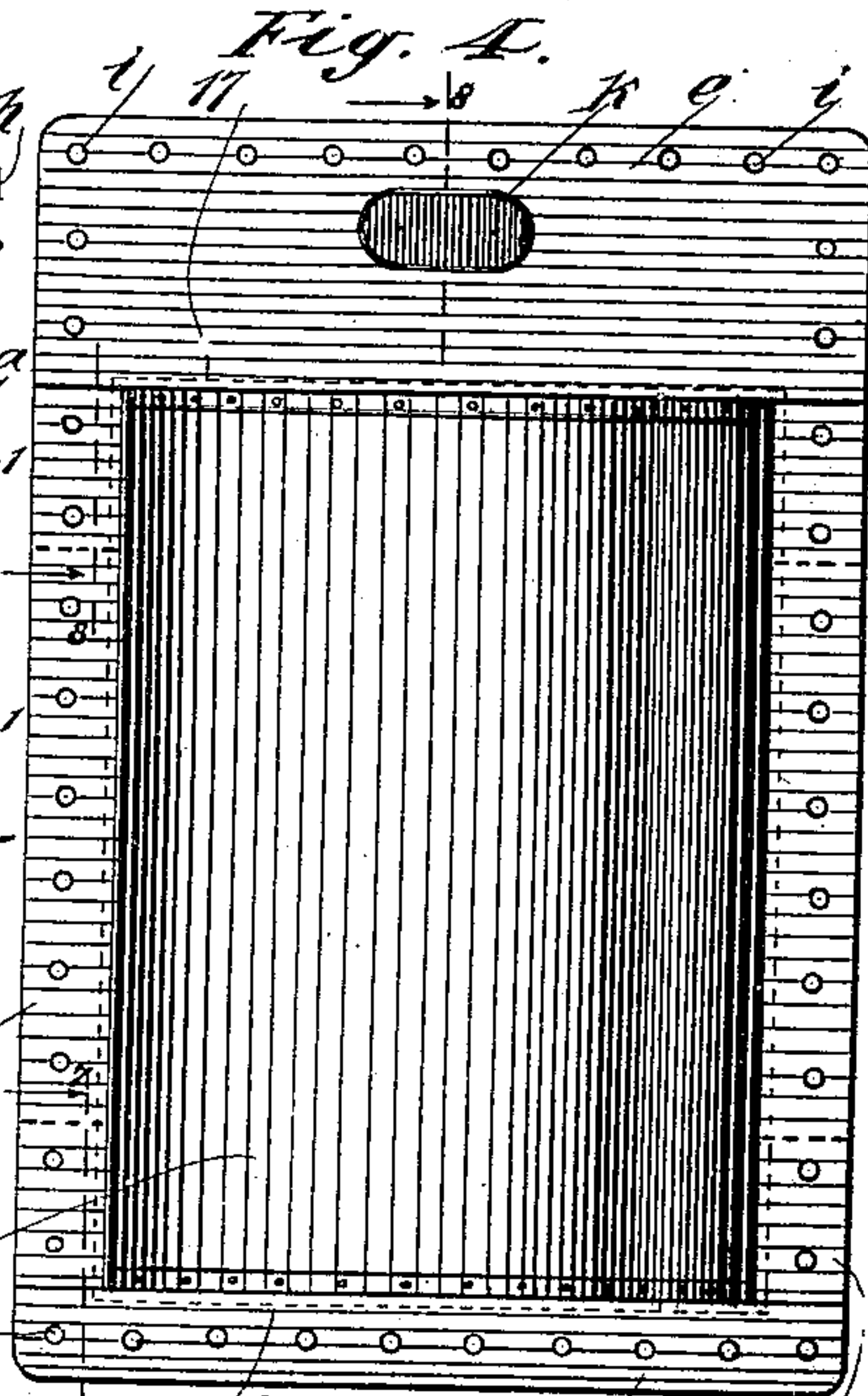
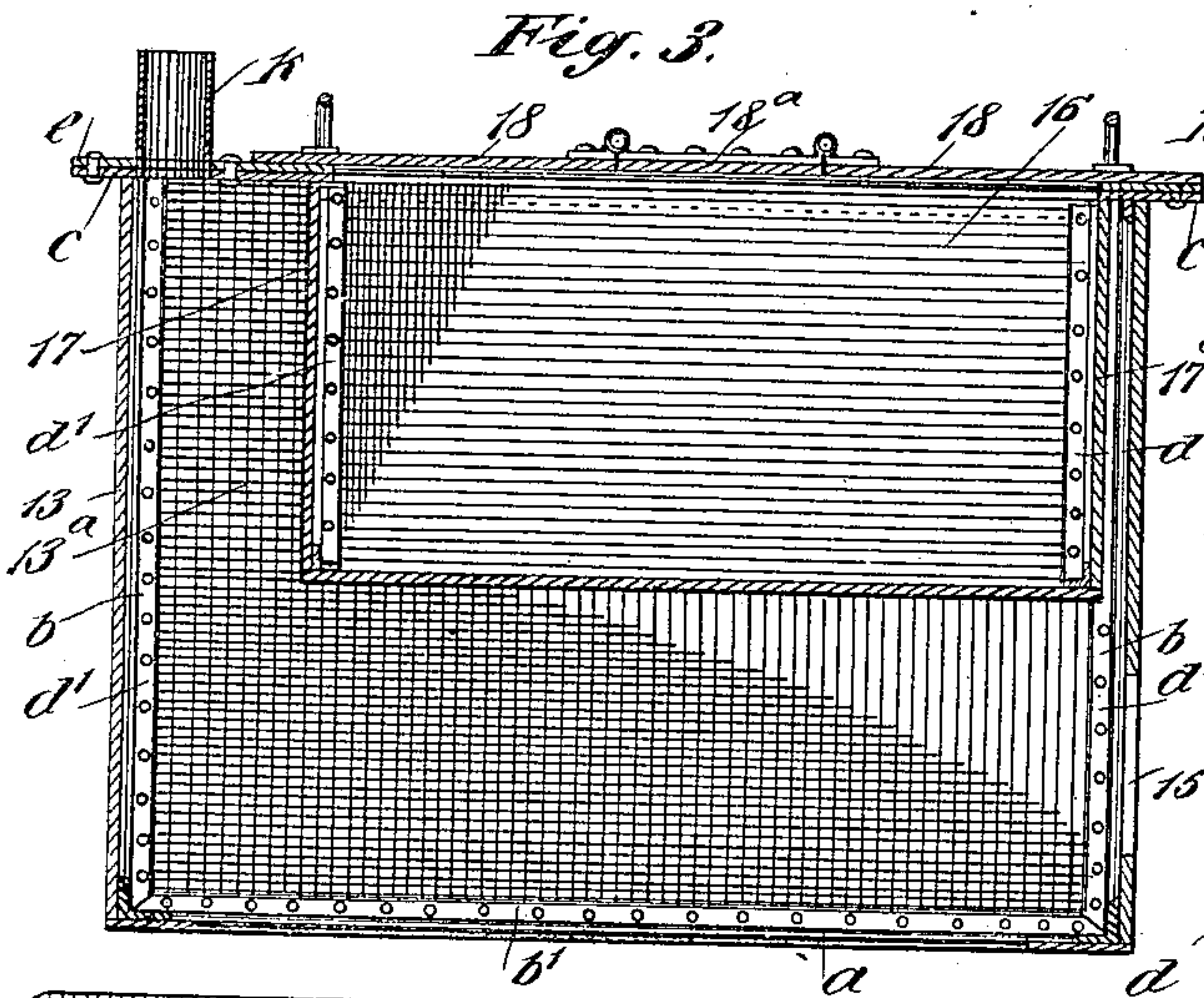
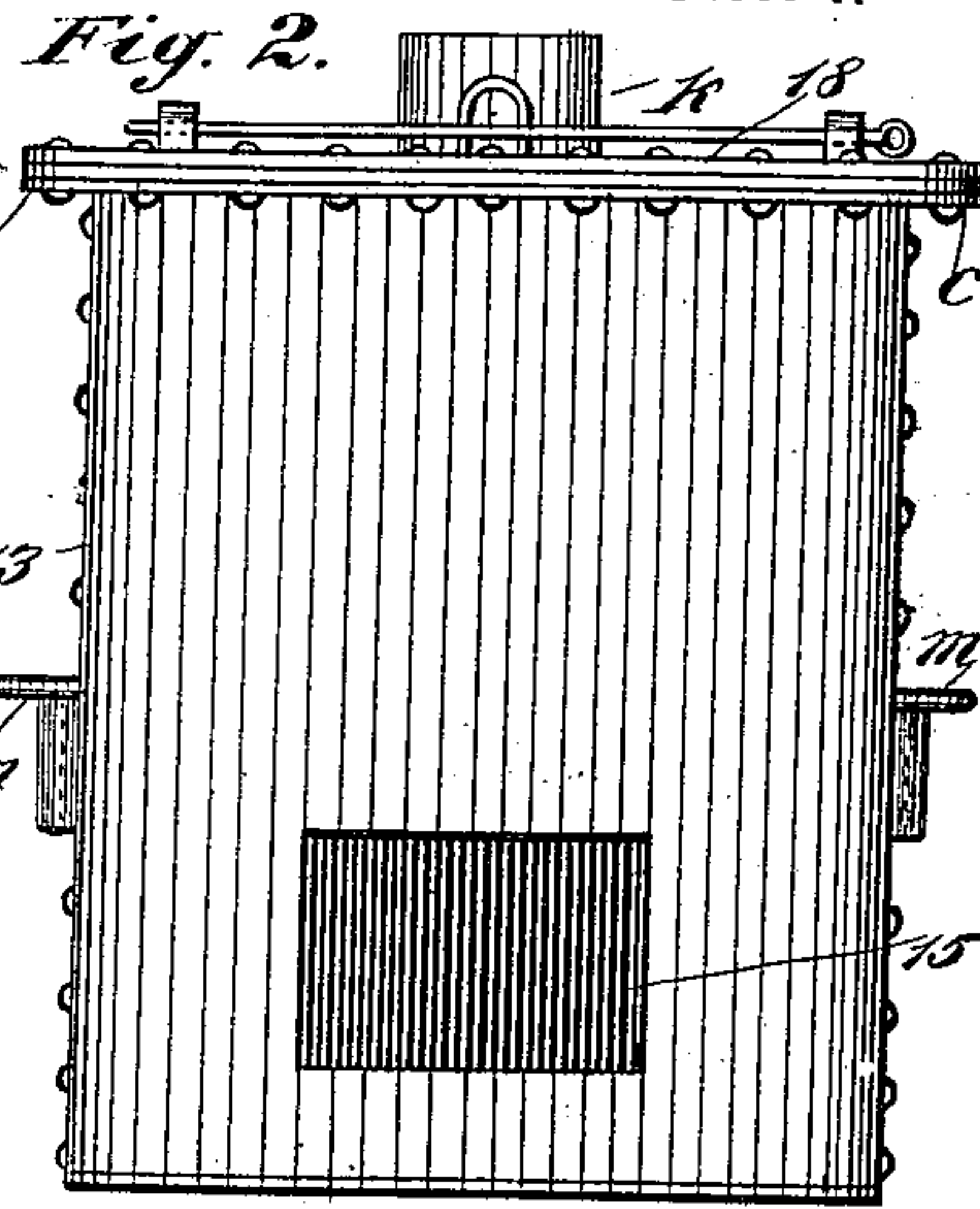
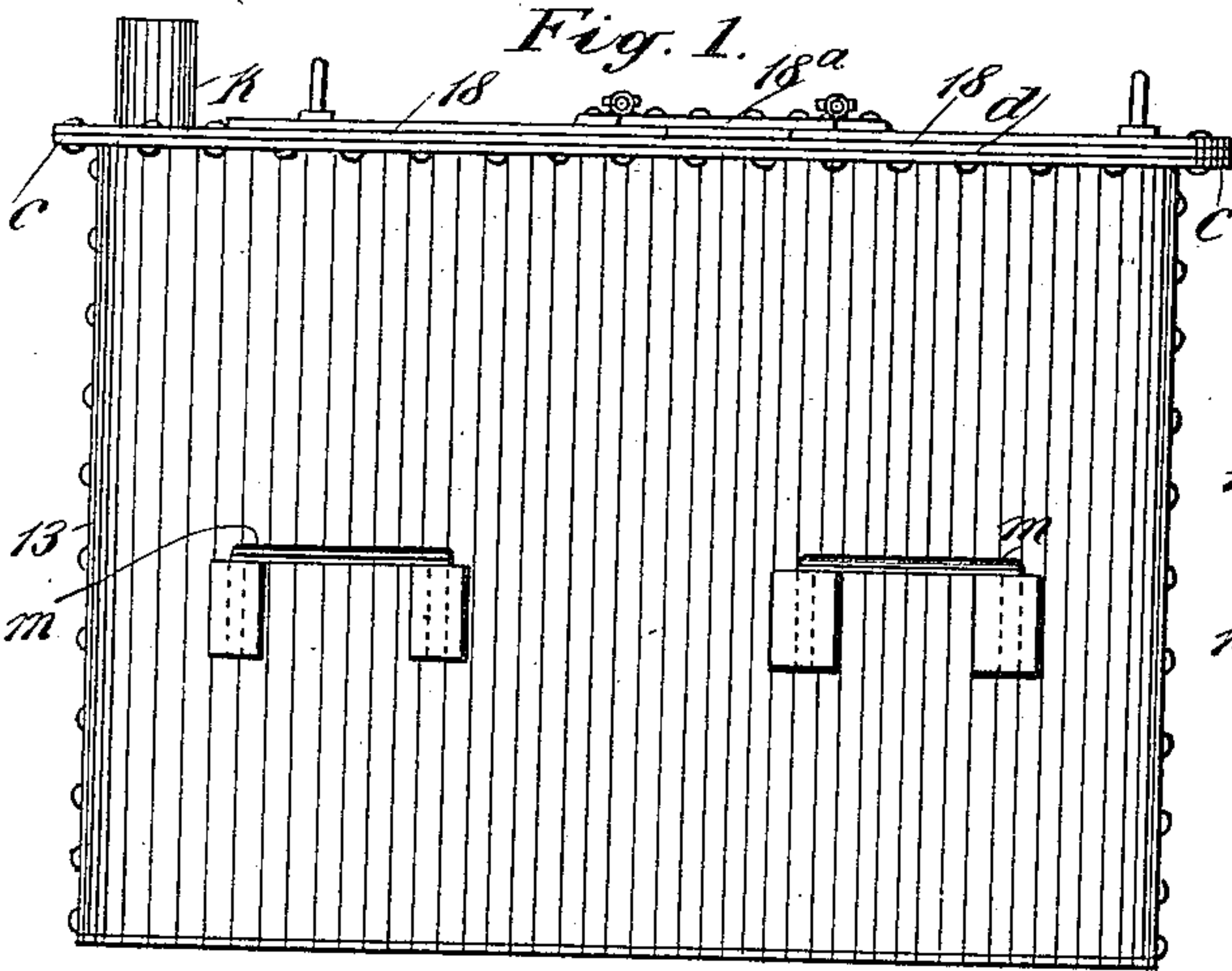
Patented Nov. 20, 1900.

E. CUBBIDGE.  
FIREPROOF TAR KETTLE.

(Application filed Aug. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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No. 662,253.

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(Application filed Aug. 30, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 9.

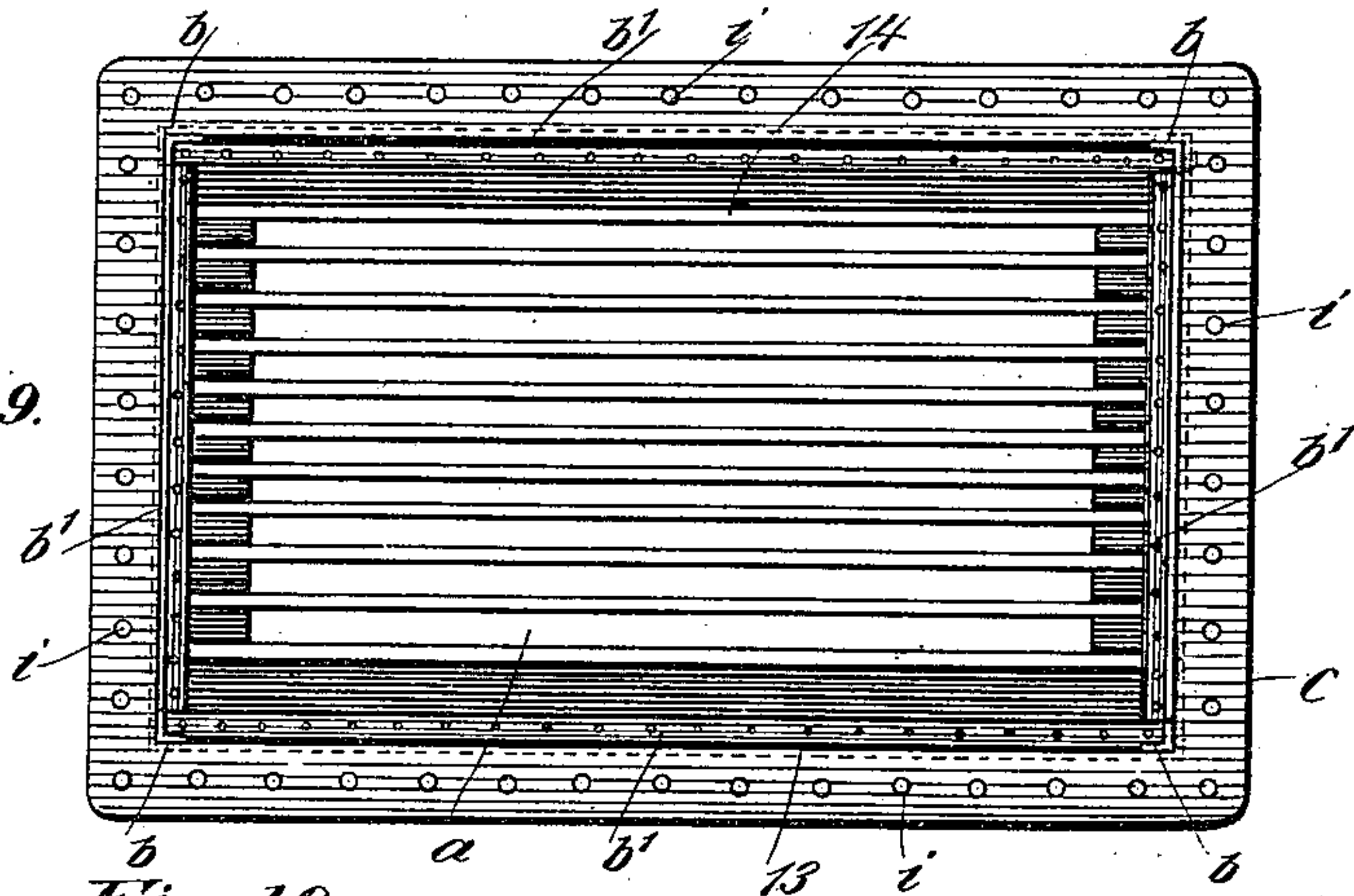


Fig. 10.

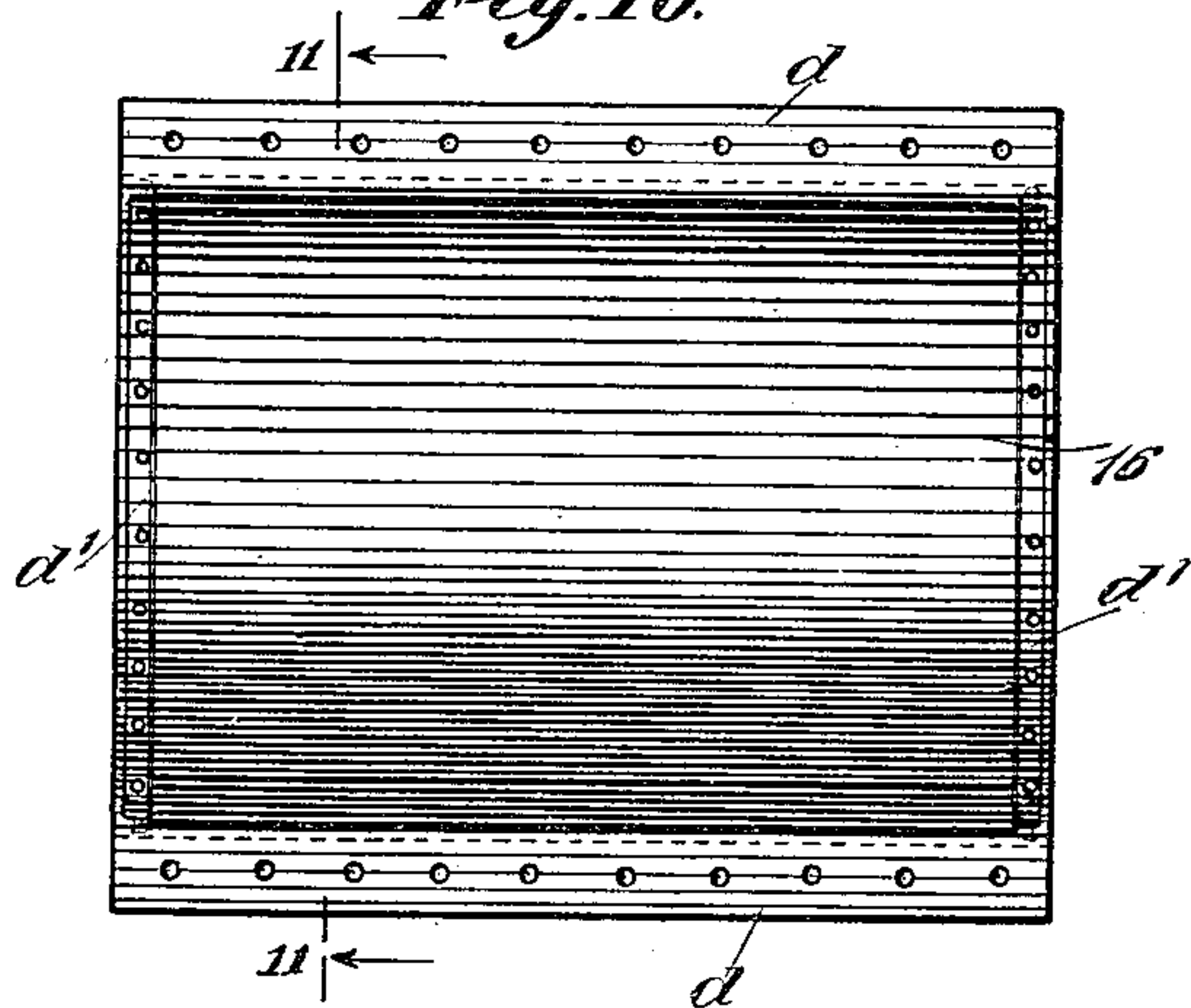


Fig. 11.

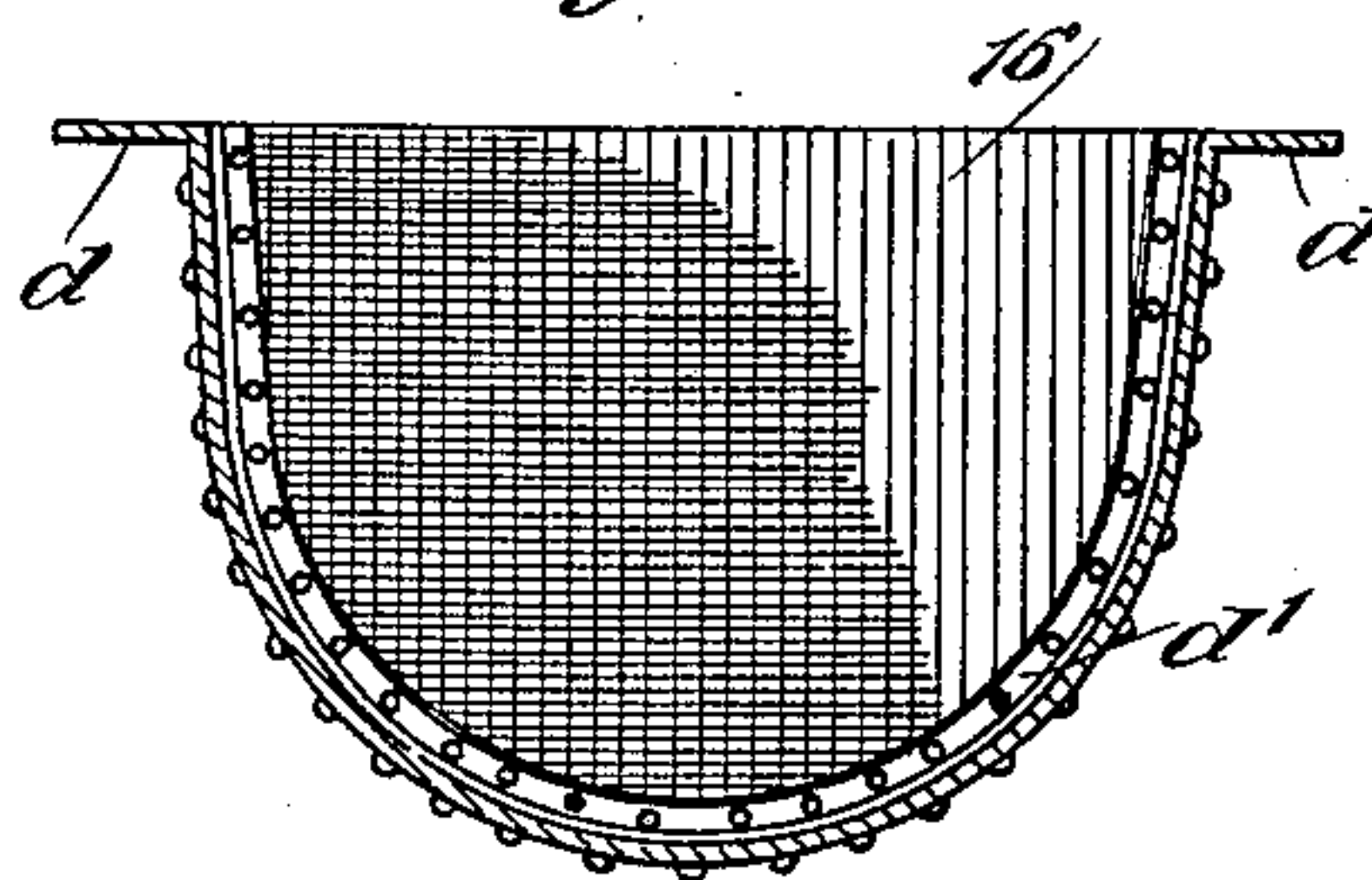
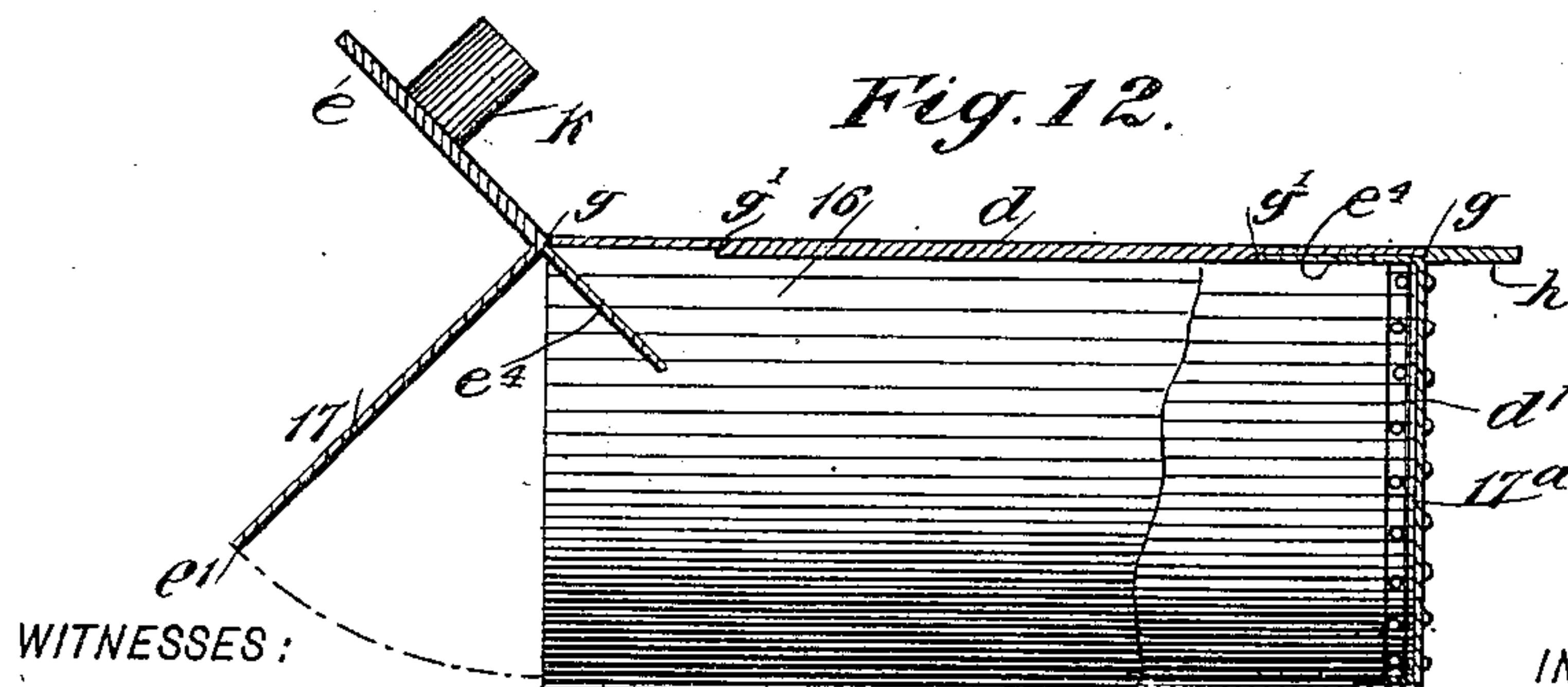


Fig. 12.



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# UNITED STATES PATENT OFFICE.

ELIJAH CUBBIDGE, OF NEW YORK, N. Y.

## FIREPROOF TAR-KETTLE.

SPECIFICATION forming part of Letters Patent No. 662,253, dated November 20, 1900.

Application filed August 30, 1900. Serial No. 28,574. (No model.)

*To all whom it may concern:*

Be it known that I, ELIJAH CUBBIDGE, a subject of the Queen of Great Britain, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and improved Fireproof Tar-Kettle, of which the following is a full, clear, and exact description.

This invention relates to a class of portable kettles used for boiling tar or asphaltum for road-making and other purposes, and has for its object to provide a device of the indicated character which will effectively prevent the tar from taking fire while it is undergoing the boiling operation, this being a dangerous contingency to which kettles of ordinary construction are liable.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of the complete device. Fig. 2 is an end view of the same. Fig. 3 is a sectional side view. Fig. 4 is a plan view of the kettle with the covers removed. Fig. 5 is a side view of a plate-metal blank which in completed condition forms one end wall of the kettle proper. Fig. 6 is a similar view of the blank for the other end wall of the kettle. Fig. 7 is an enlarged longitudinal sectional view taken substantially on the line 7 7 in Fig. 4. Fig. 8 is a longitudinal sectional view taken substantially on the line 8 8 in Fig. 4. Fig. 9 is a plan view of the furnace-shell, the kettle being removed. Fig. 10 is a plan view of the kettle-body, the end walls being removed. Fig. 11 is a transverse sectional view substantially on the line 11 11 in Fig. 10; and Fig. 12 is a side view of the kettle-body, partly in section, showing one end wall in place and the opposite end wall shown partially placed thereon.

Tar-boiling kettles of the class to which the invention pertains are usually constructed of sheet metal having an elongated body and a curved bottom integral with opposite side walls of the body. The kettle is ordinarily

provided with an outwardly-extending angle-iron flange around the upper edge, seating upon a flange bent inwardly around the rectangular top edge of the side wall of the furnace, these flanges being connected by rivets. It has been found that the rivets soon burn off and drop out, leaving orifices for the passage of flame up through the orifices. As the tar, pitch, or asphaltum mixed with oil or alone, which is usually boiled in the kettle, is very inflammable, the smoke thrown off from such material frequently takes fire from the jets of flame and the whole mass of matter in the kettle burns fiercely.

The improvement provides a fireproof connection between the top of the kettle-top and the wall of the furnace, so that flame cannot pass out from the top of the furnace, and it is evident that this will obviate the contingency of an accidental conflagration of the molten tar or asphaltum held in the kettle.

In the drawings which illustrate the construction and application of the improvement, 13 represents the rectangular plate-metal side wall or shell of a furnace, such as is usually employed for the purpose hereinbefore stated. The furnace 13 may be provided with grate-bars 14, placed over an opening *a* in the lower side of the furnace, and have a door-opening 15 at the front end above the grate-bars. Preferably the shell 13 is formed of two side plates, two end plates, and a bottom plate joined together at the corners of the shell by four upright angle-iron pieces *b* and four horizontal angle-iron strips *b'*, whereon the plates are secured near their edges, as indicated in Figs. 3 and 9. The upper edge of the shell 13 is outwardly bent at a right angle to produce a continuous flange *c* integrally thereon, as shown in Fig. 9.

The body 16 of the kettle proper is of less length than the furnace-shell 13 and comprises two sides and a bottom portion bent from a single sheet of metal, the bottom being curved in cross-section, as shown in Fig. 11.

The top edges of the kettle-body 16 are outwardly bent to provide two horizontal flanges *d*, located in the same plane, and bent angle-iron strips *d'* are secured by rivets within the body at its ends, said strips affording flanges whereon the end walls of the kettle



are secured by rivets that engage spaced perforations in the angle-iron strips and the edge of the metal plate, as will be further explained.

The end walls 17 17<sup>a</sup> of the kettle are shaped as represented in Figs. 5 and 6, which show these walls and the integral flanges thereon as they appear when in a flat condition. The blank from which is formed the end wall 17 is rectangular edgewise for a portion of its length, such portion extending from one end thereof, as at *e*. Upon the opposite end the edge is curved, as at *e'*, and merges into the straight-edge portions *e*<sup>2</sup>. The transverse dimension of the rectangular portion *e* equals the width between the outer side edges of the flanges *d* *d* on the body 16 of the kettle.

The contour of the portion of the blank 17 defined by the curved edge *e'* and straight edges *e*<sup>2</sup>, together with the area bounded by the same, adapts this portion of said blank to fill the space at one end of the kettle-body 16 and be seated upon a flange of the angle-iron strip *d'* that is secured at that end of the body.

Two like slots *e*<sup>3</sup> are cut in the portions of the blank 17 that extend laterally beyond the side edges *e*<sup>2</sup>, said slots serving to prolong these side edges and increase the height of the end wall, thus adapting it to fill the end of the kettle-body, as before mentioned.

The slots *e*<sup>3</sup> serve to cut free two like flanges *e*<sup>4</sup> from the end wall proper, these flanges projecting from the flange *e* in parallel planes. The portion *e* of the end wall 17 is bent at a right angle to said wall on the line *x*, and the act of bending raises the flanges *e*<sup>4</sup> to a corresponding angle at the opposite side of the end wall. A shoulder *g* is formed where each flange joins the end wall 17, and like shoulders *g'* are produced where the ends of the flanges *e*<sup>4</sup> engage the end portions of the flanges *d*, said shoulders being formed by reducing the thickness of the flanges *e*<sup>4</sup> and *d* where they lap upon each other, as shown clearly in Fig. 8.

The lapped flanges *e*<sup>4</sup> and *d* are riveted together, thus joining them securely and uniting the flange *e* with the side flanges *d*, as shown in Fig. 4. The lapping together of the flanges *e*<sup>4</sup> and the ends of the flanges *d* is effected by sliding the end of the plate-metal body 16 into the slots *e*<sup>3</sup> while the end wall 17 is inclined outwardly, as shown clearly in Fig. 12. When the body is fully inserted in said slots *e*<sup>3</sup>, the end wall 17 may be rocked toward the angle-iron strip *d'* at that end of the kettle-body and be secured thereto by rivets, as before mentioned. It will be seen that the flange *e* now extends in the same plane with that of the flanges *d* and that it in effect becomes a continuation of said flanges rearwardly of the kettle-body.

The right-hand end wall 17<sup>a</sup> is constructed in the same manner as the left-hand end wall 17, having a flange *h* extended outwardly therefrom and two flanges *h'* formed at opposite side edges of the end wall by slots *h*<sup>2</sup>, as shown in Fig. 6. By bending the end wall

17<sup>a</sup> on the line *x'* at a right angle to the flanges *h* and *h'* the end wall may be placed in the right-hand end space of the kettle-body 16 against the angle-iron *d'*, as shown at the right in Fig. 12, which will dispose the flanges *h'* beneath the ends of the flanges *d*, upon which they may be secured by rivets, as shown in Figs. 7 and 12, the flange *h* then becoming level with the flanges *d*.

As before mentioned, the flanges *e*<sup>4</sup> and *d* where they have contact are so reduced in thickness as to render these lapped portions together equal in thickness to that of the flange *e* and the flanges *d*, and the same is true with regard to the thickness of the flanges *h'* and the ends of the flanges *d*, whereon they are imposed and secured, so that the border-flange formed on the top edge of the kettle-body 16 is of equal thickness throughout its extent and level on the lower as well as the upper surface.

The length of the continuous border-flange formed on the upper edge of the kettle-body 16 is equal to that of the upper flanged edge of the furnace-shell 13, so that the flange on the kettle may be seated upon the flange *c* of the furnace-shell, said flanges having series of registering perforations *i* formed therein for the reception of securing-rivets.

The comparative length of the flanges *e* and *h* locates the kettle-body 16 forwardly in the furnace-shell 13, thereby affording an upwardly-extended flue 13<sup>a</sup> at the rear end of the kettle. Upon the flange *e* a thimble *k* is secured around a suitable draft-hole in the flange, and upon the thimble a draft-pipe may be placed to afford draft for the fire within the furnace when the device is in service.

A pair of covers or lids 18 are hinged upon a transverse strip 18<sup>a</sup> of plate metal, which is secured by the ends thereof upon the flanges *d*, said lids having handles secured upon them near their free ends to permit them to be rocked manually on their hinges for opening and closing them.

To adapt the furnace 13 for convenient portage, handles *m* are secured oppositely on its side walls, as shown in Figs. 1 and 2, and in service the furnace may be seated upon a low brick foundation or other non-combustible blocks that will elevate the furnace a few inches from the ground to admit air into the opening *a* of the furnace-shell.

It will be seen that the projection of the flanges on the furnace-shell and kettle-body outwardly therefrom and the riveted attachment of these continuous level flanges one upon the other will provide a fireproof joint between them which will not burn out and that will effectively prevent flame from entering the top of the kettle while the furnace is in use. It is also obvious that the peculiar construction of the border-flange on the top edge of the kettle enables the formation of the same in a perfect manner and provides a long rear flange *e* thereon to cover the draft-flue 13<sup>a</sup> and engage with the rear end flange



of the furnace-shell, which is very essential for the proper construction of the complete fireproof kettle.

5 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

10 1. A tar-kettle, comprising a plate-metal body portion, two outwardly-extending side flanges on said body, end walls having flanges thinned at and near the ends thereof, which lap upon thinned end portions of the side flanges on the kettle-body, and means to secure said lapped flanges together to form a continuous level flange at the top of the kettle.

15 2. A tar-kettle, comprising a plate-metal body having two outwardly-extending side flanges at the upper edge thereof, end walls, flanges on said end walls lapping beneath the side flanges of the body and secured thereto, 20 and flanges held projected integrally from the end walls in the same plane with the side flanges of the kettle-body.

25 3. A tar-kettle, comprising a plate-metal body bent from a single piece, curved on the bottom and laterally flanged outwardly at the

side edges, angle-iron strips secured in the ends of the body, end walls affixed in the body upon the angle-iron strips, integral flanges on said end walls adapted to lap upon the ends of the side flanges and be secured thereto, and end flanges integral with the end walls and extended outwardly therefrom level with the side flanges of the body. 30

4. In an apparatus of the character described, the combination with a furnace-shell 35 having an outwardly-extending continuous flange at the top, of a kettle also flanged outwardly, said flange seating upon the flange on the furnace-shell, and secured thereto by rivets, leaving a draft-flue behind the kettle, 40 and a cover adapted for close-seated engagement with the upper side of the kettle-flange.

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

ELIJAH CUBBIDGE.

Witnesses:

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JNO. M. RITTER.