

(No Model.)

2 Sheets—Sheet 1.

H. H. TURNER.

APPARATUS FOR CURLING AND SETTING HAT BRIMS.

No. 548,731.

Patented Oct. 29, 1895.

FIG. 1.

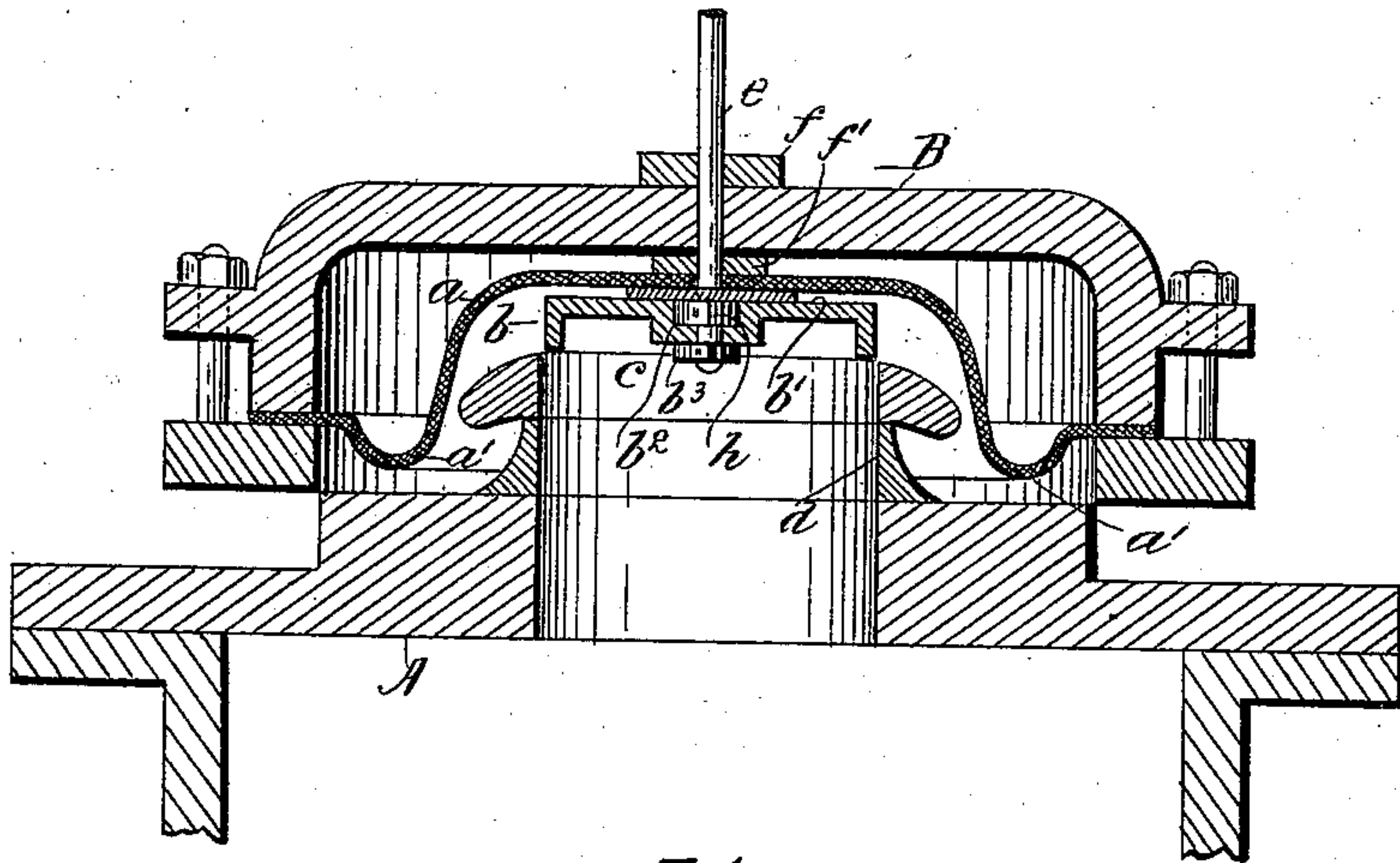


FIG. 2.

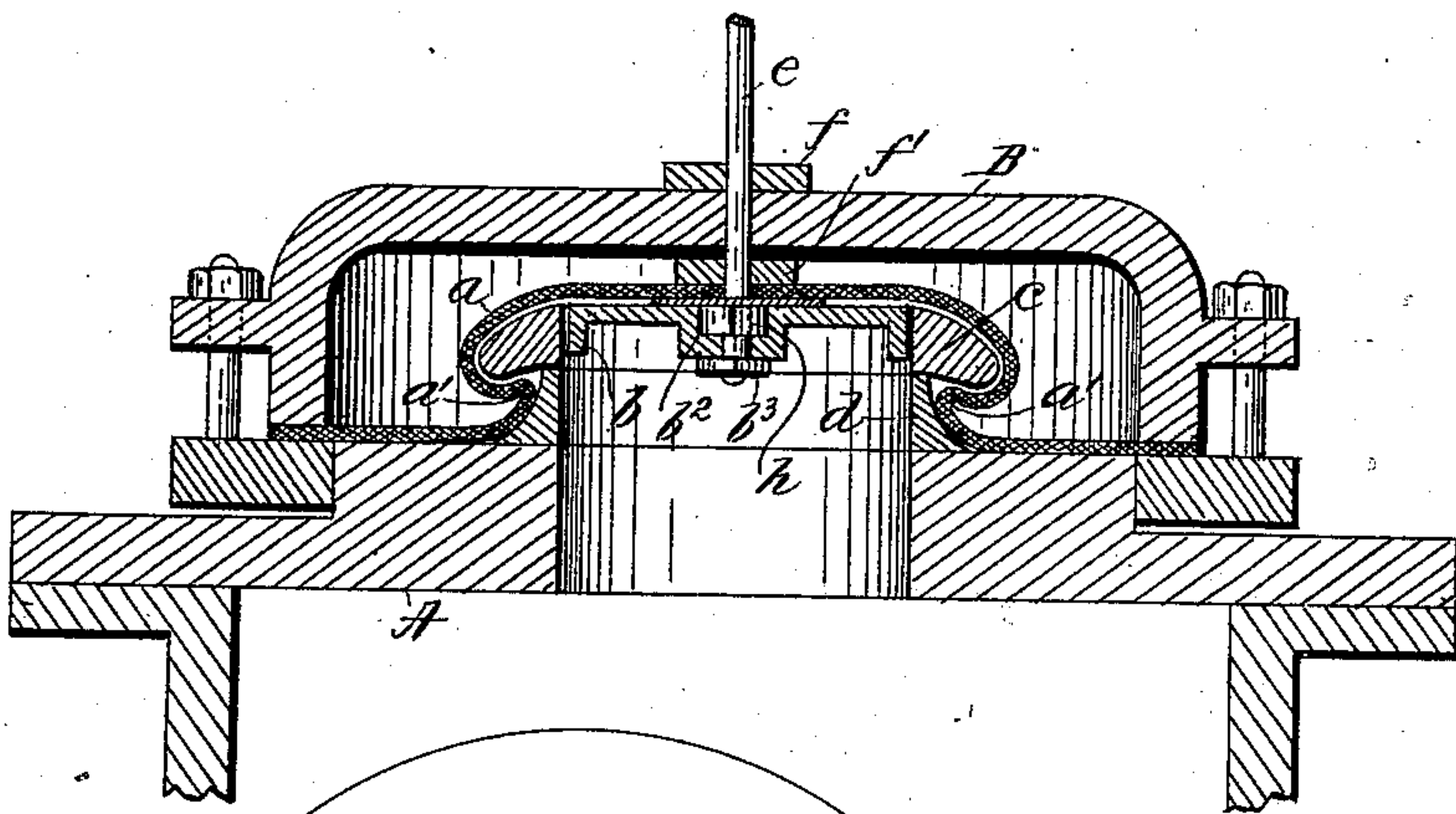
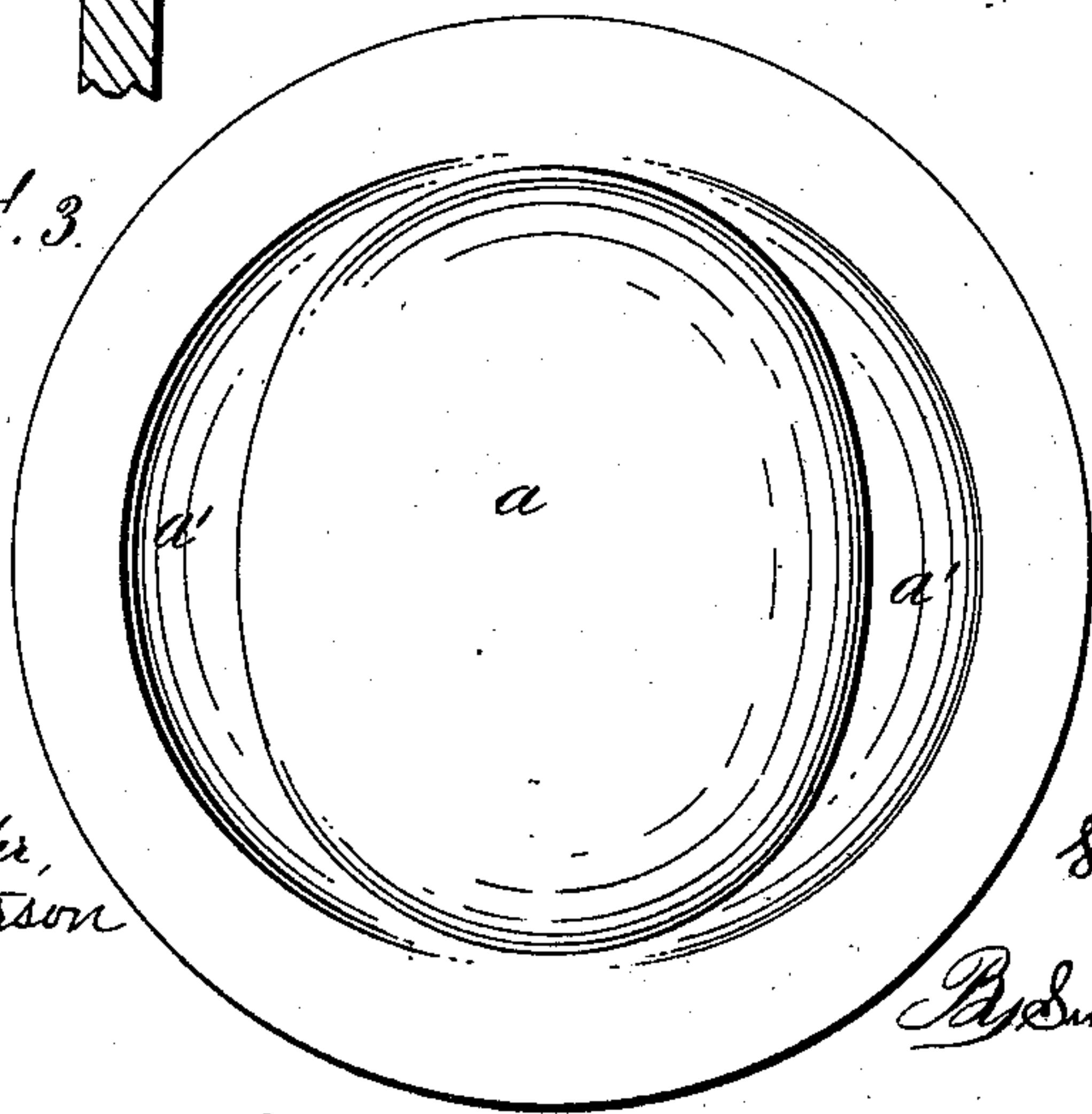


FIG. 3.



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Fig. 4.

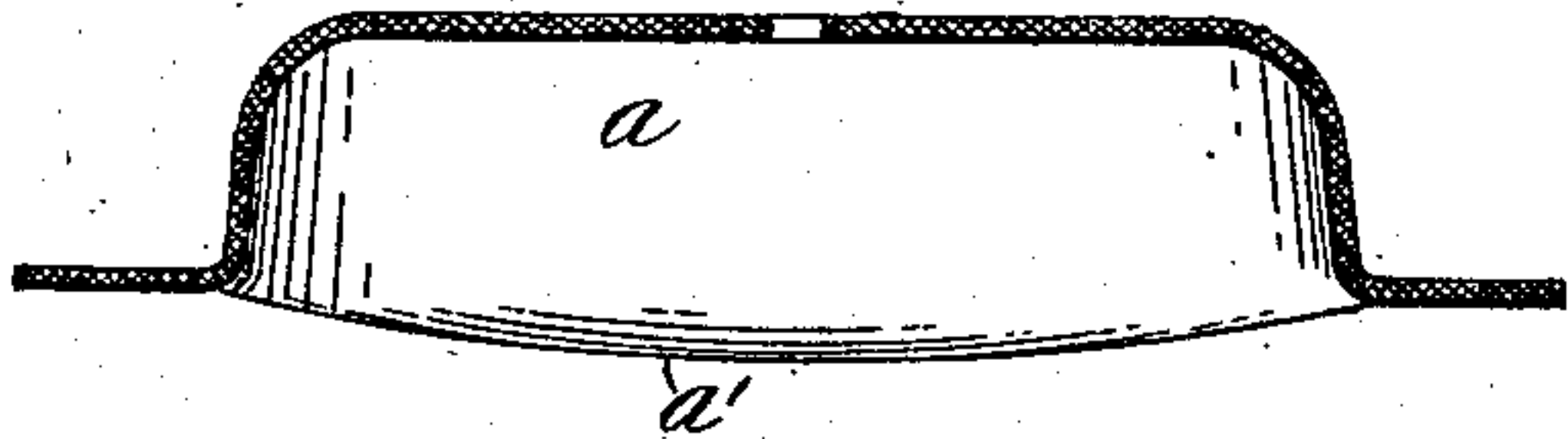


Fig. 9.

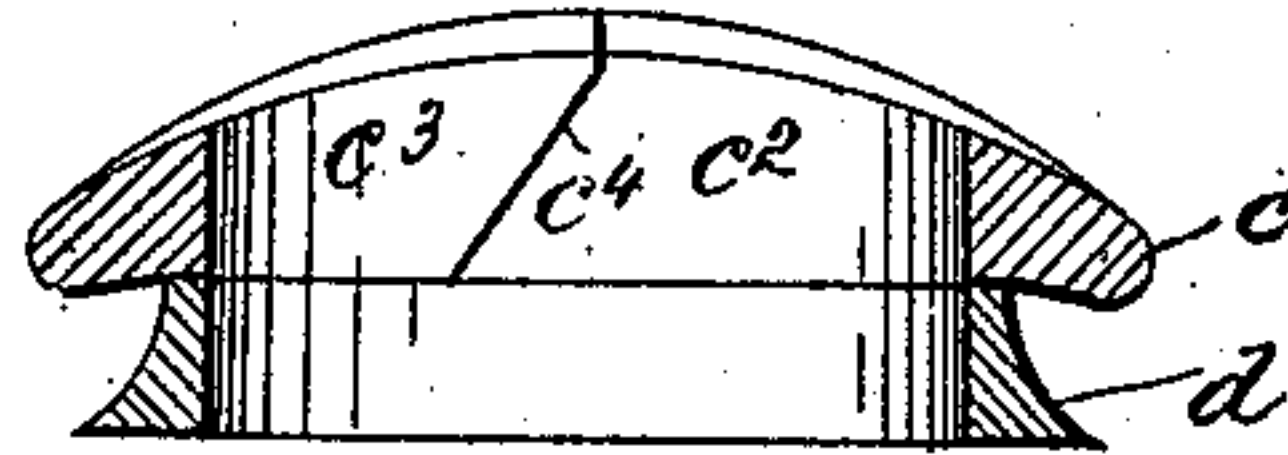


Fig. 5.

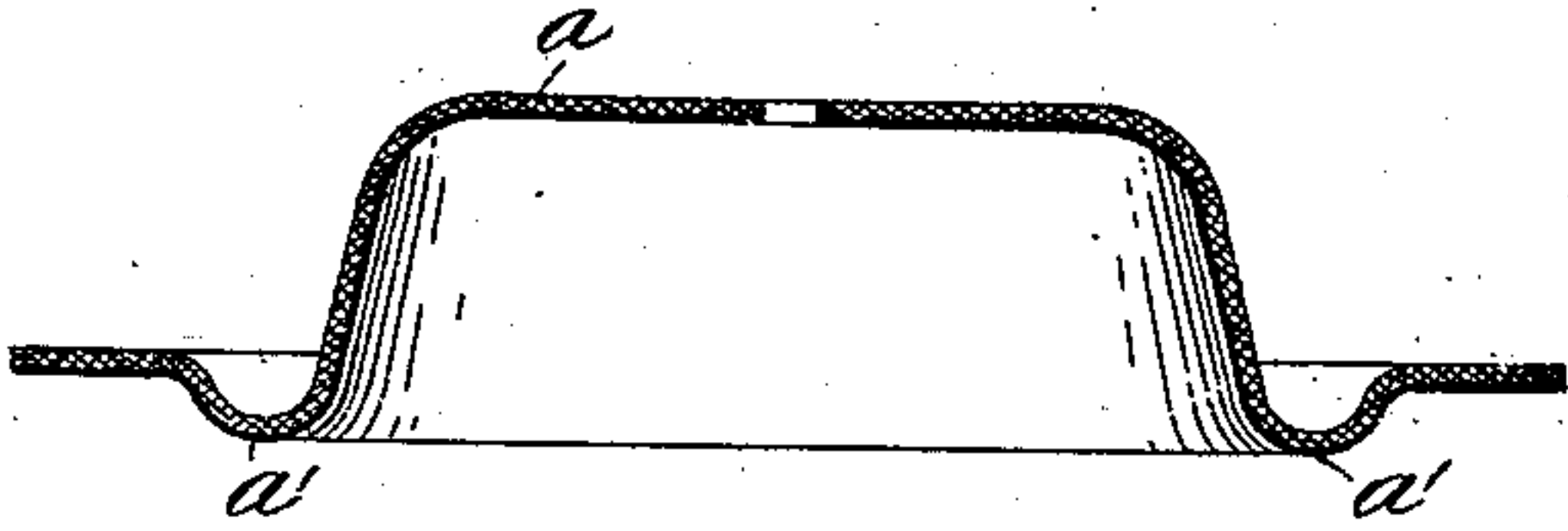


Fig. 10.

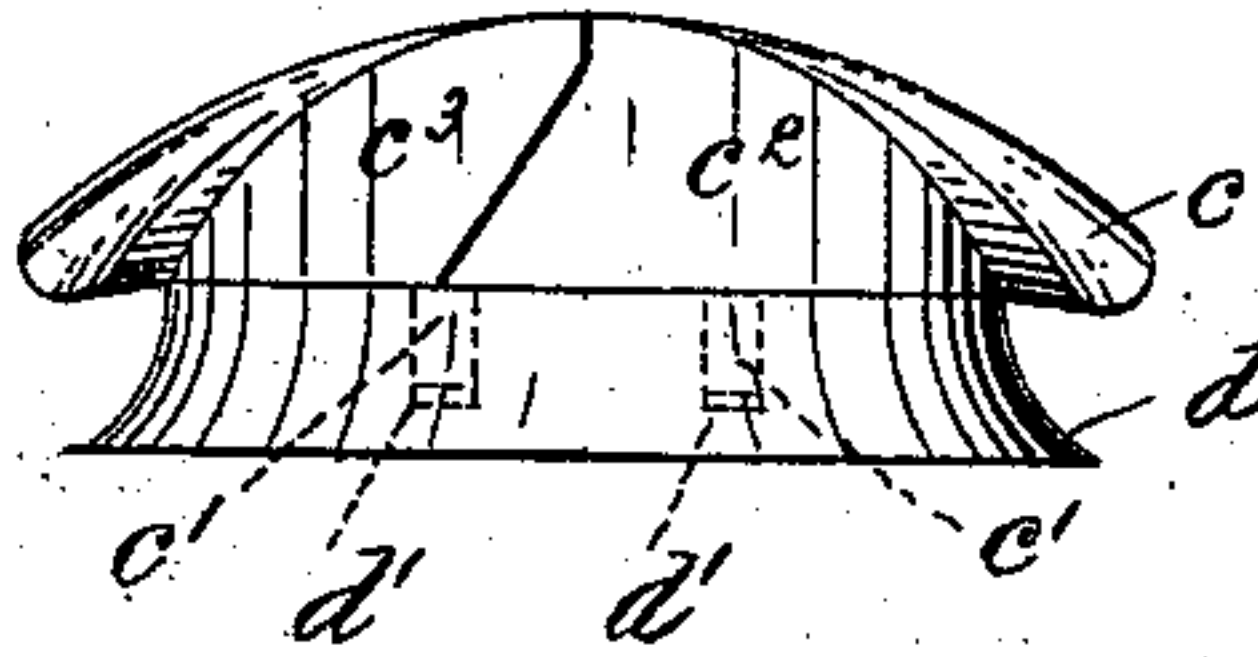


Fig. 6.

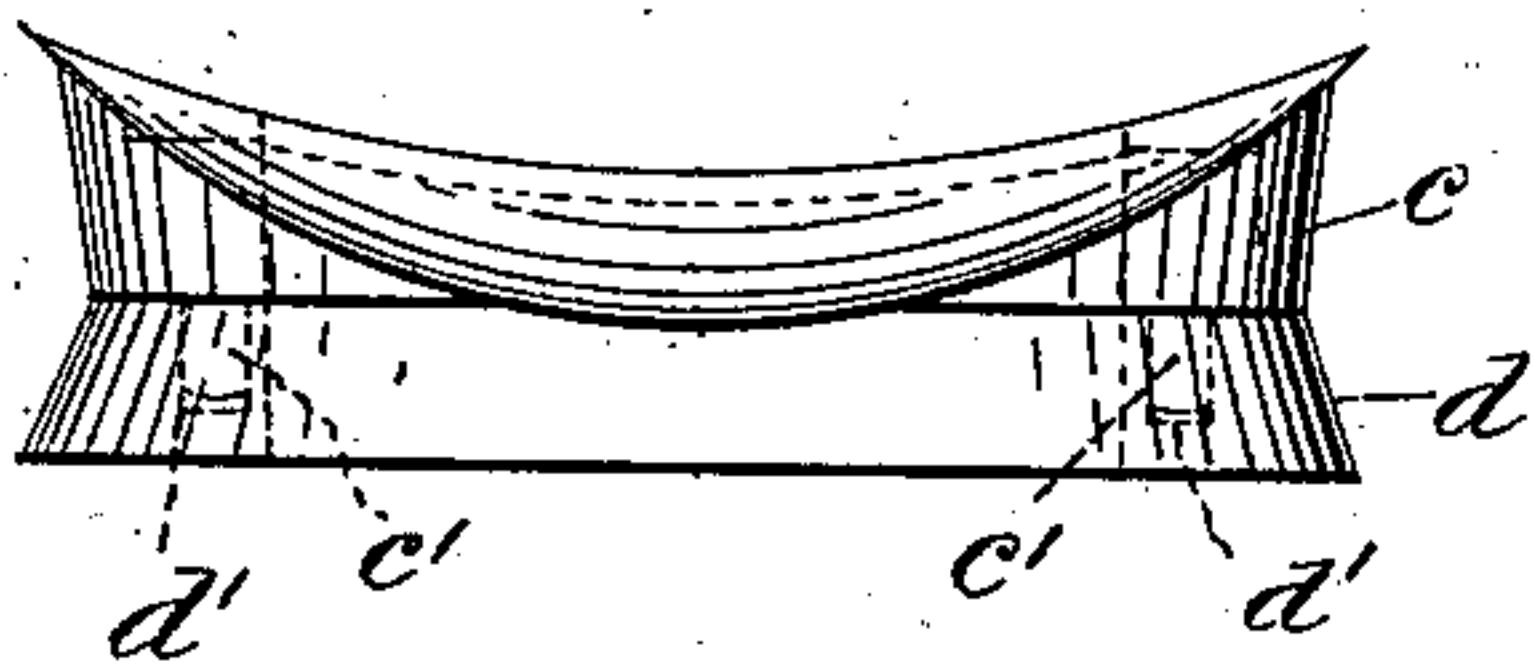


Fig. 11.

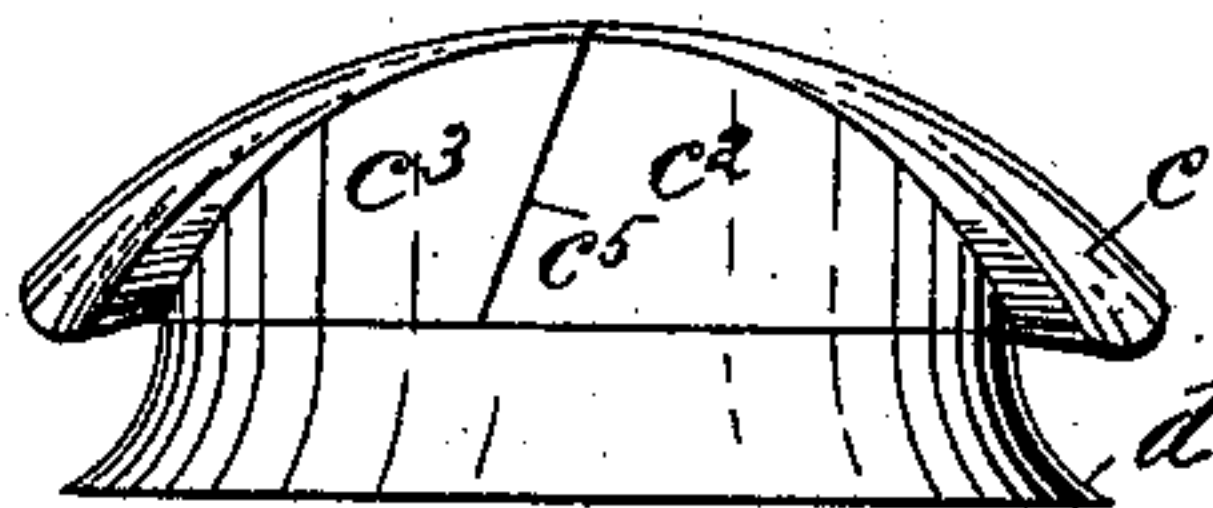


Fig. 7.

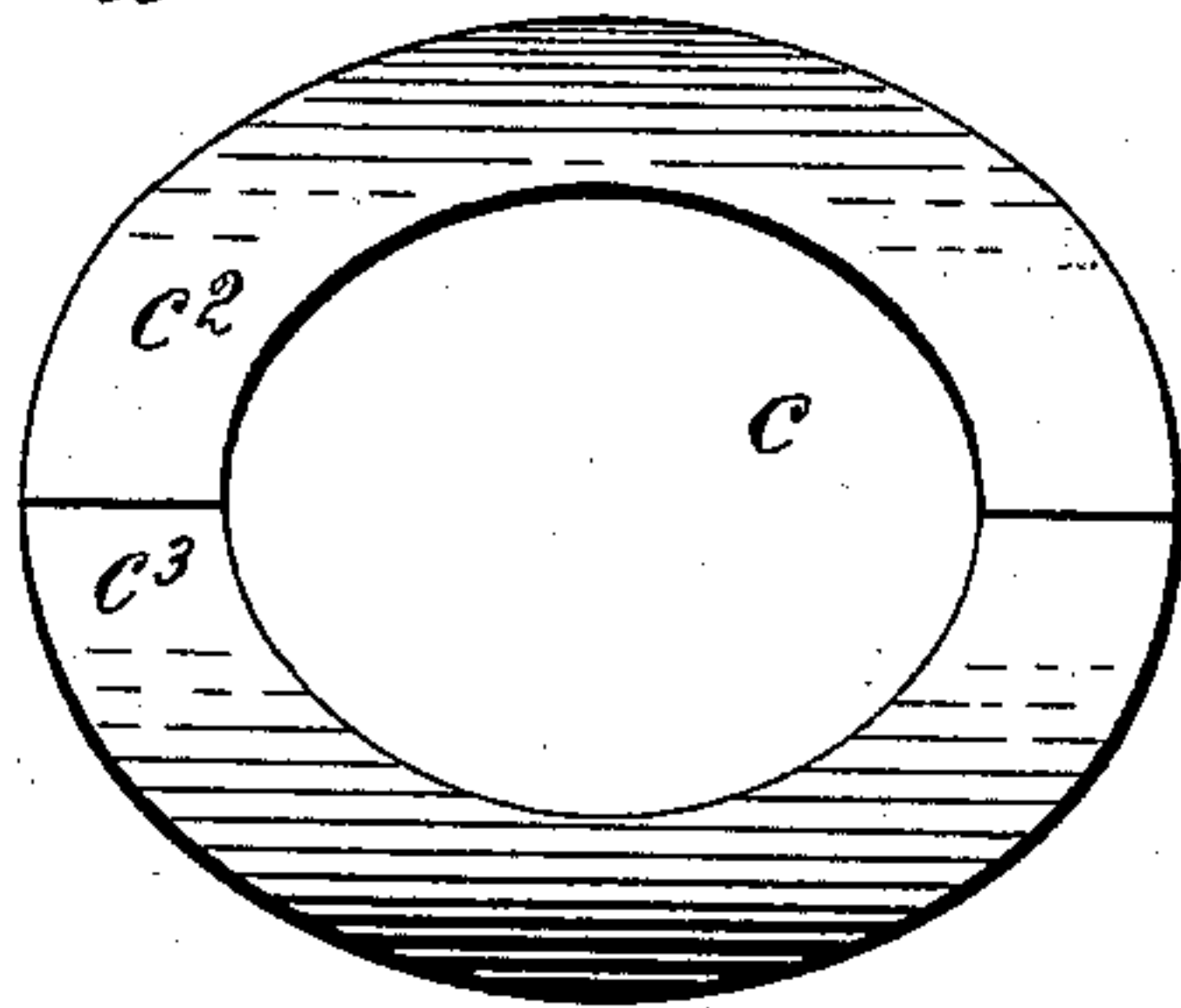


Fig. 12.

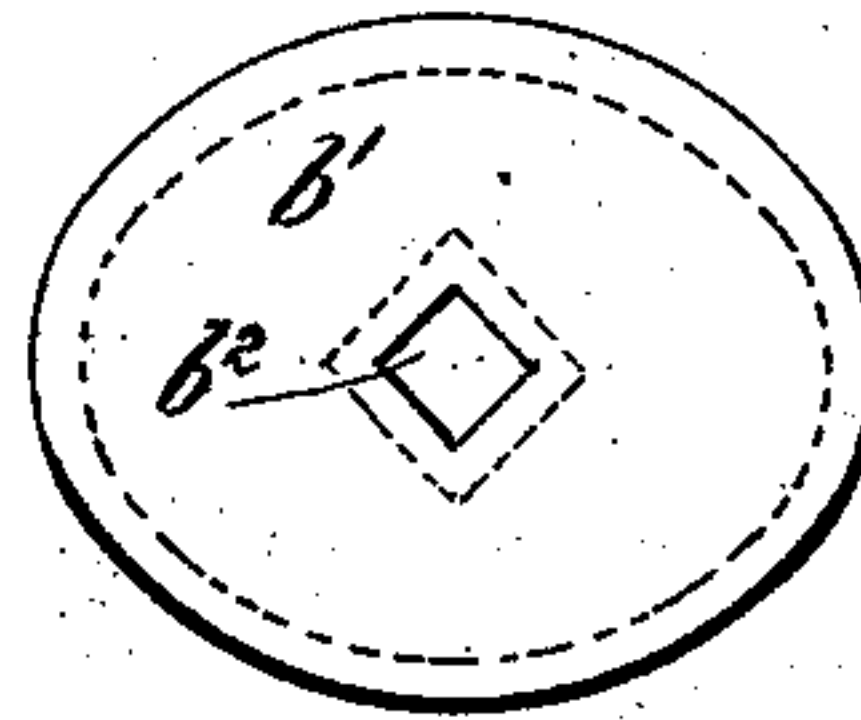


Fig. 8.

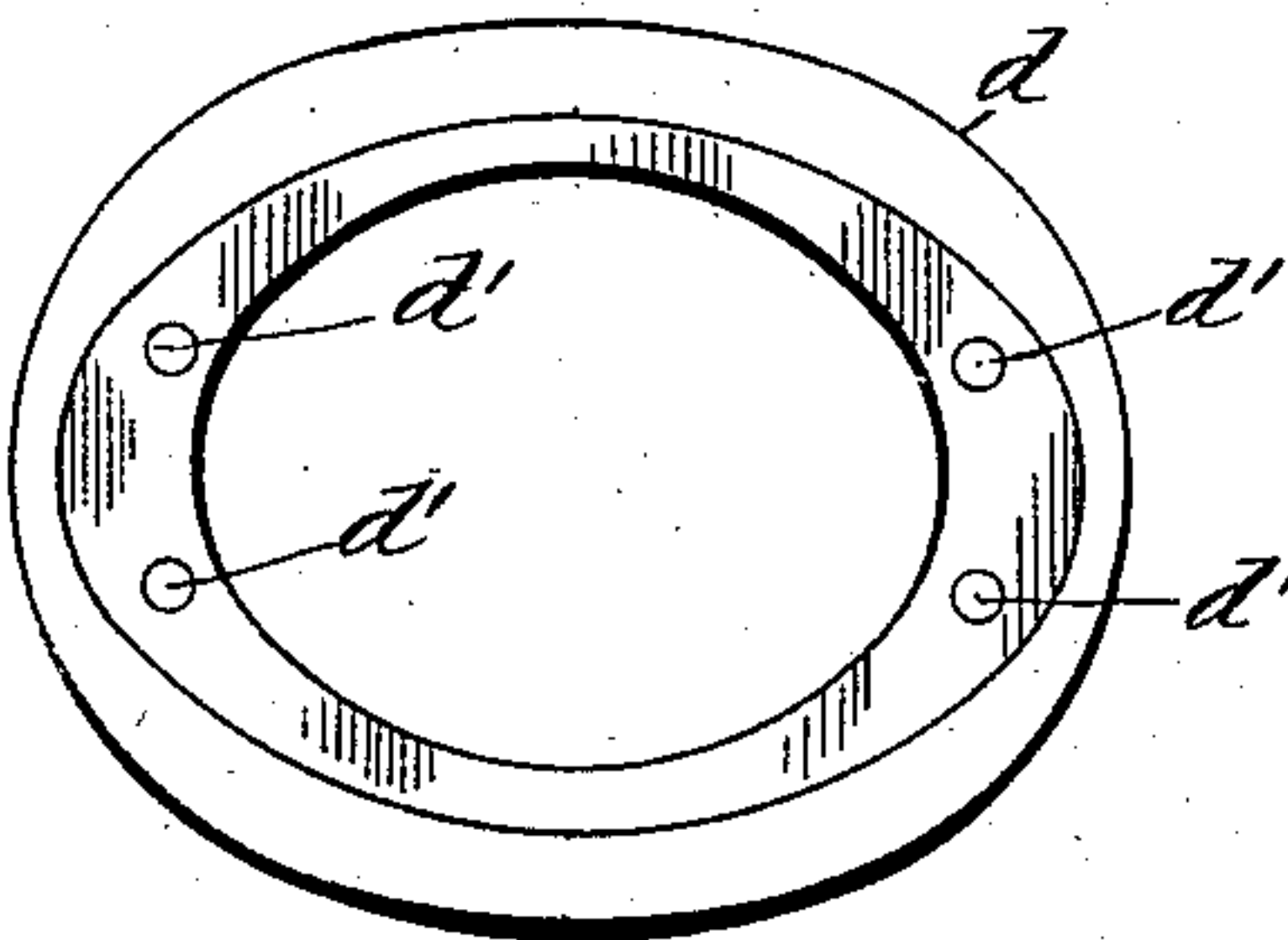
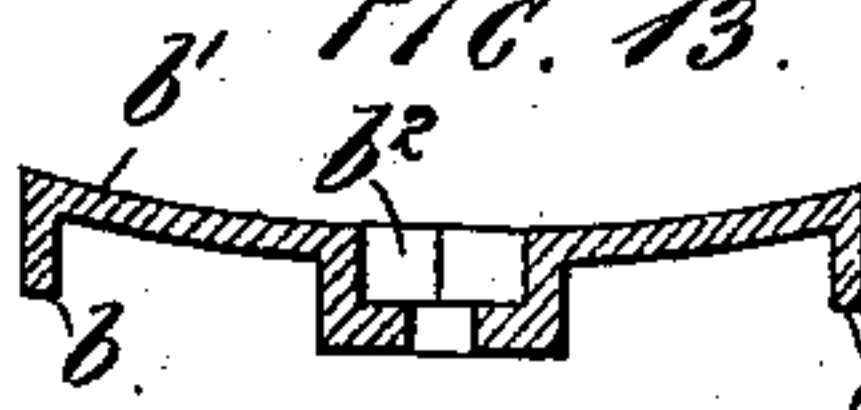


Fig. 13.



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UNITED STATES PATENT OFFICE.

HENRY H. TURNER, OF DANBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF
TO ALBERT TURNER, OF DENTON, ENGLAND.

APPARATUS FOR CURLING AND SETTING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 548,731, dated October 29, 1895.

Application filed July 3, 1894. Serial No. 516,413. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. TURNER, a subject of the Queen of Great Britain and Ireland, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Apparatus for Curling and Setting Hat-Brims, of which the following is a specification.

My invention relates to improvements in that class of apparatus which has for its object the "curling" and "setting" of hat-brims simultaneously and at one operation; and it consists in the parts hereinafter described and set forth, and more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 shows a vertical cross-section of the movable dome or cover of a hydraulic press fitted with my improved apparatus before the movable dome is closed, the frame, base-plate, and brow being shown in vertical cross-section. Fig. 2 shows a view similar to that in Fig. 1 with the movable dome closed and before hydraulic pressure is applied. Fig. 3 is a top plan view of the india-rubber bag or diaphragm. Fig. 4 is a longitudinal section of said bag or diaphragm. Fig. 5 is a vertical cross-section of said bag or diaphragm. Fig. 6 is a side view of the frame and its base-plate. Fig. 7 is a plan view of the frame with its base-plate. Fig. 8 is a plan view of said base-plate. Fig. 9 is a vertical cross-section of my preferred construction of frame and base-plate. Fig. 10 is a front view of said frame and base-plate. Fig. 11 is a vertical cross-section of a modified form of frame and base-plate. Fig. 12 is a plan view of my improved brow. Fig. 13 is a longitudinal section of said brow.

Similar letters refer to similar parts throughout the several views.

The letter A denotes the top of a hydraulic press ordinarily used with the class of apparatus to which my invention relates, and B the movable dome or cover of said press.

The india-rubber bag or diaphragm is shown at *a*. The inner face of the top of this bag is shaped as usual to conform substantially to the arch of the hat-brim. The outer rim or flange of the diaphragm is provided at the points where the hat-brim is to be curled with

concavo-convex depressions *a'*, these depressions, which in effect are at the junction of the sides of the bag-crown with the bag rim or flange, being slight at the front and rear of the bag and gradually increasing in depth or extent of projection below the level of the flange or rim as they approach the center of the sides. This construction of the bag produces less strain and wear and tear upon the rubber and permits it to be "crowded," so to speak, under the curl of the flange of the frame and to conform perfectly to the required shape of the hat-brim, as indicated in Fig. 2. In this figure the parts are shown in the position they assume when the dome is closed. Owing to the construction and form of the bag (having reference here to the concavo-convex depressions *a'*) the mere act of closing the dome has the effect of carrying these projections *a'* up under the flanges of the matrix into a position best calculated to enable them to instantly perform their work when pressure is applied. As the action thus takes place quickly and while the hat-brim is quite soft, I thereby produce a more even curl and prevent what is termed "crimping" of the hat-brim.

The brow is shown at *b*. It is made of any suitable material and shape and preferably in one piece and has a top *b'*, which corresponds in contour and arch to the band of frame *c*.

Sustaining means are of course provided for the brow, the same consisting in this instance of the usual sustaining stem or bolt *e*.

It is of course necessary that the brow should be brought into accurate register with the opening in the matrix, so that when it is lowered it may enter and fit therein. Heretofore, so far as I am informed, it has been the practice to first attach the brow to the sustaining-bolt and then to adjust it by hand. For this purpose the workman has been compelled to stoop down and look up inside the dome and manually adjust the brow to bring it into what he guesses to be register with the opening in the matrix and then lower the dome to find out whether the brow will fit into the matrix. Proper adjustment is rarely effected, except after repeated trials. To avoid the great inconvenience and loss of time attending this operation, I combine with

the brow and its sustaining means registering devices, whereby when the brow is attached to its sustaining means it will thereby be brought to and held in a position in which it will register accurately with the opening in the matrix, thus leaving nothing to guess-work and assuring the brow in its proper position by the act of attaching it to its sustaining means. The preferred embodiment of this portion of my invention is illustrated in Figs. 1, 2, 12, and 13 of the drawings, the registering devices being carried by the stem *e* and the brow, respectively. In the center of the top part *b'* of the brow is a recess *b²*, of contour other than circular, (in this instance rectangular,) designed to receive a nut or flange *h* on the bolt or stem *e*, shaped to engage the walls of the recess in such manner as to prevent the brow from rotating on the bolt *e*, the arrangement being such that when the nut is fitted into the recess the brow thereby will be assured in proper position with reference to the frame and the brim of the hat supported by said frame, so that it will in descending register with and enter the central opening in the frame without striking the hat-brim.

The "matrix" is composed of a frame *c* and a base *d*, which may be in one piece, but, as here shown, and preferably, are made separate from one another, the frame being mounted on and supported by the base, with their two contiguous faces in contact with each other and with dowel or steady pins *c'*, projecting from the under face of the frame into sockets *d'*, formed for their reception in the top of the base.

The matrix should be divided into two or more separable parts to facilitate its removal from the hat. In the construction shown in the drawings the frame *c* for this purpose is divided into two parts *c²* *c³*, and the division is made by either cutting the frame at both the front and rear thereof through by a diagonal or slanting cut *c⁵*, or by a bevel cut part way through and a straight cut the balance of the way, as at *c⁴*. Either of these constructions prevents the hat-brim becoming marked at the cutting or splitting point by the pressure of the hat-brim upon the frame; but I prefer the frame split in two pieces by a partly bevel and partly straight cut, as indicated in Figs. 9 and 10.

The base *d* fits into and is held on the press-top A in any suitable manner.

The bag or diaphragm *a* is connected in the usual manner to the stem of the sliding or lost-motion bolt *e*, by means of which the dome or cover B is lifted, so that the bag may be raised and a portion of the water above it discharged before lifting the dome.

f f' denote the nut-washers on the bolt *e*,

and *h* the nut on said bolt, by means of which nut the bag is held firmly against the nut-washer *f'*.

It only remains to say that water under pressure is introduced into the press from any suitable source through a pipe, as usual, provided for that purpose in the top of the press, as illustrated, for example, in patent to Polak and Lowe, No. 322,004, of July 14, 1885.

The operation of the device, except in so far as it has already been described, is as follows: When the bag has been placed upon the matrix in the press by the closing of the top, as indicated in Fig. 2, and hydraulic pressure is exerted in the usual way upon the bag or diaphragm, the bag comes forcibly down upon the hat-brim and presses the same at all points upon the frame *c*, while at the same time the portions of the bag already bending around and extending under the curl of the matrix are forced in like manner up against the matrix, causing at once the hat-brim to take the exact form of the curl and set of the matrix, the brow *b* (which by its registering devices has been caused to accurately take its place in the band of the hat-brim contained in the opening in the matrix) acting to keep the band in shape while pressure is being applied.

Having described my invention and the best way now known to me of carrying the same into effect, what I claim herein, and desire to secure by Letters Patent, is as follows:

1. In apparatus for curling and setting hat brims, the combination of a matrix, an india rubber bag or diaphragm formed with concavo-convex depressions at the points where it adjoins the curl of the matrix, a dome by which said bag is secured, and a base co-operating with the dome, whereby when the latter is closed the concavo convex depressions in the bag will contact with the base and will thereby be forced up under the curl of the matrix, substantially as set forth.

2. In an apparatus for curling and setting hat brims, the combination with the dome, having a rubber bag or diaphragm and a base having a matrix, of a dome-sustaining and operating stem, a brow, means for causing the registering of the brow with the matrix, and means for detachably supporting the brows upon the stem, whereby when the dome is moved into operative position, the brow will register with the matrix, substantially as hereinbefore set forth.

In witness whereof I have hereunto affixed my signature, on this 2d day of July, 1894, in the presence of two witnesses.

HENRY H. TURNER.

Witnesses:

N. L. FROTHINGHAM,
ROBT. C. TAYLOR.