

E. W. HARMON.  
Flat-Iron Heater.

No. 223,506.

Patented Jan. 13, 1880.

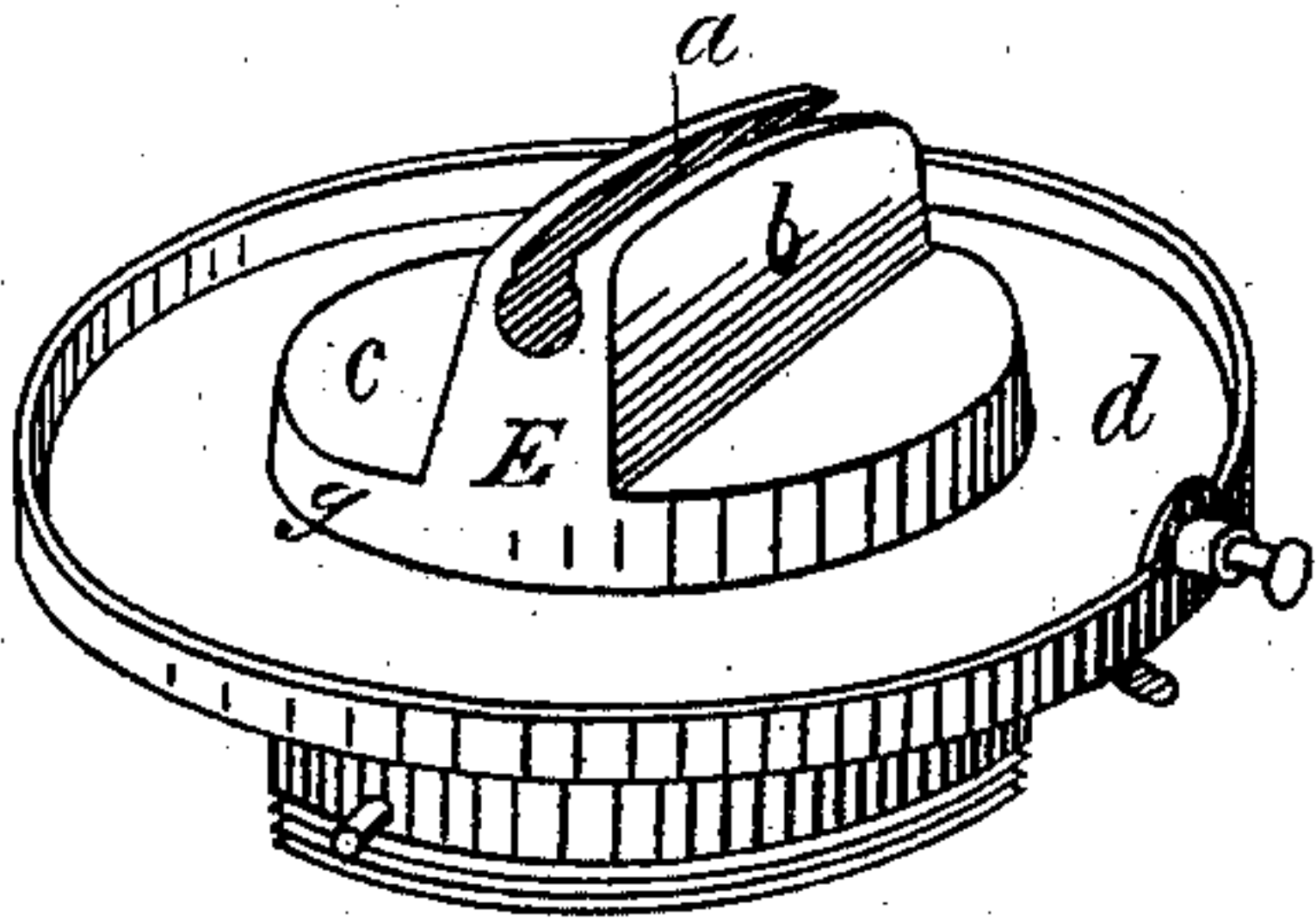


FIG. 1.

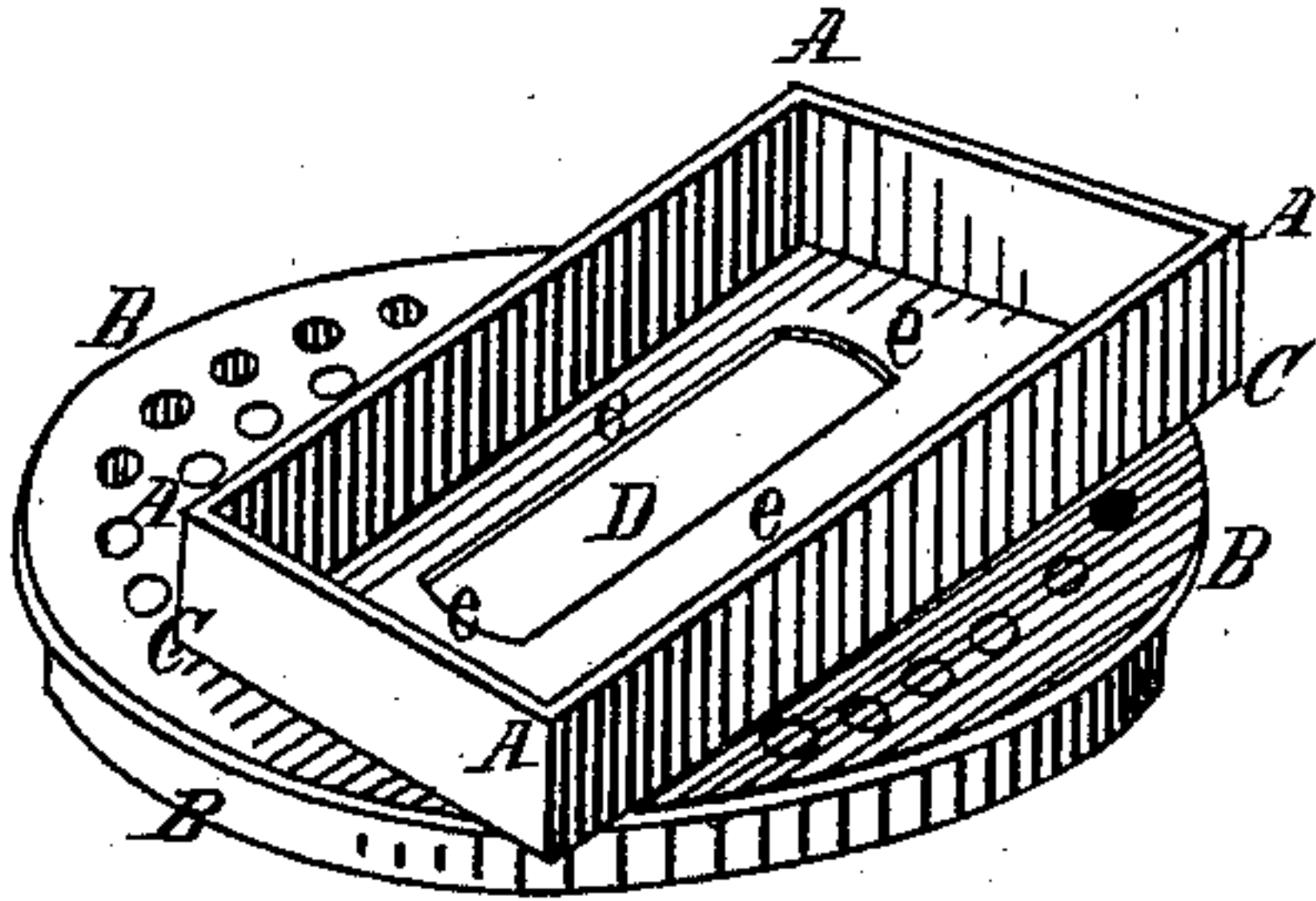


FIG. 2.

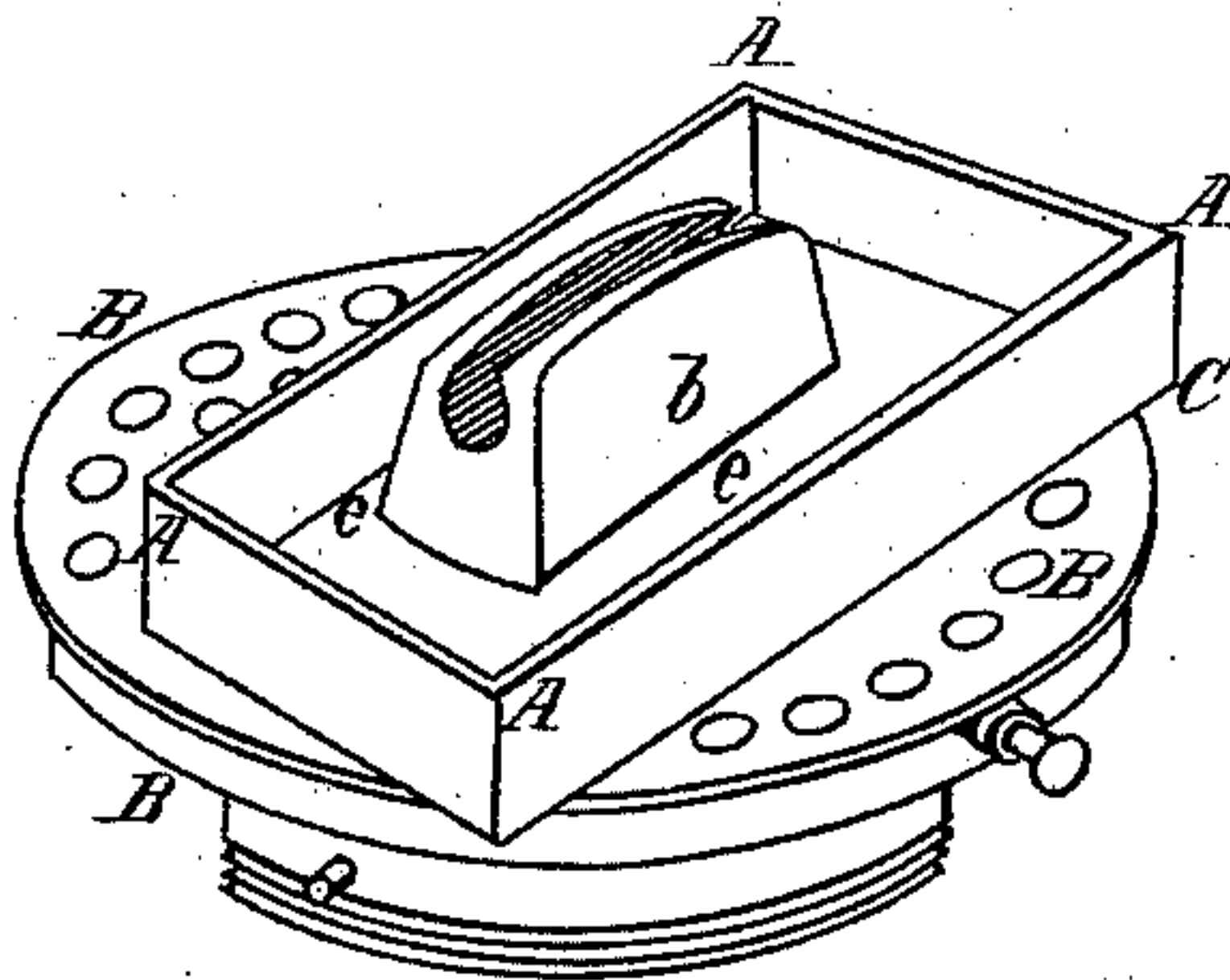


FIG. 3.

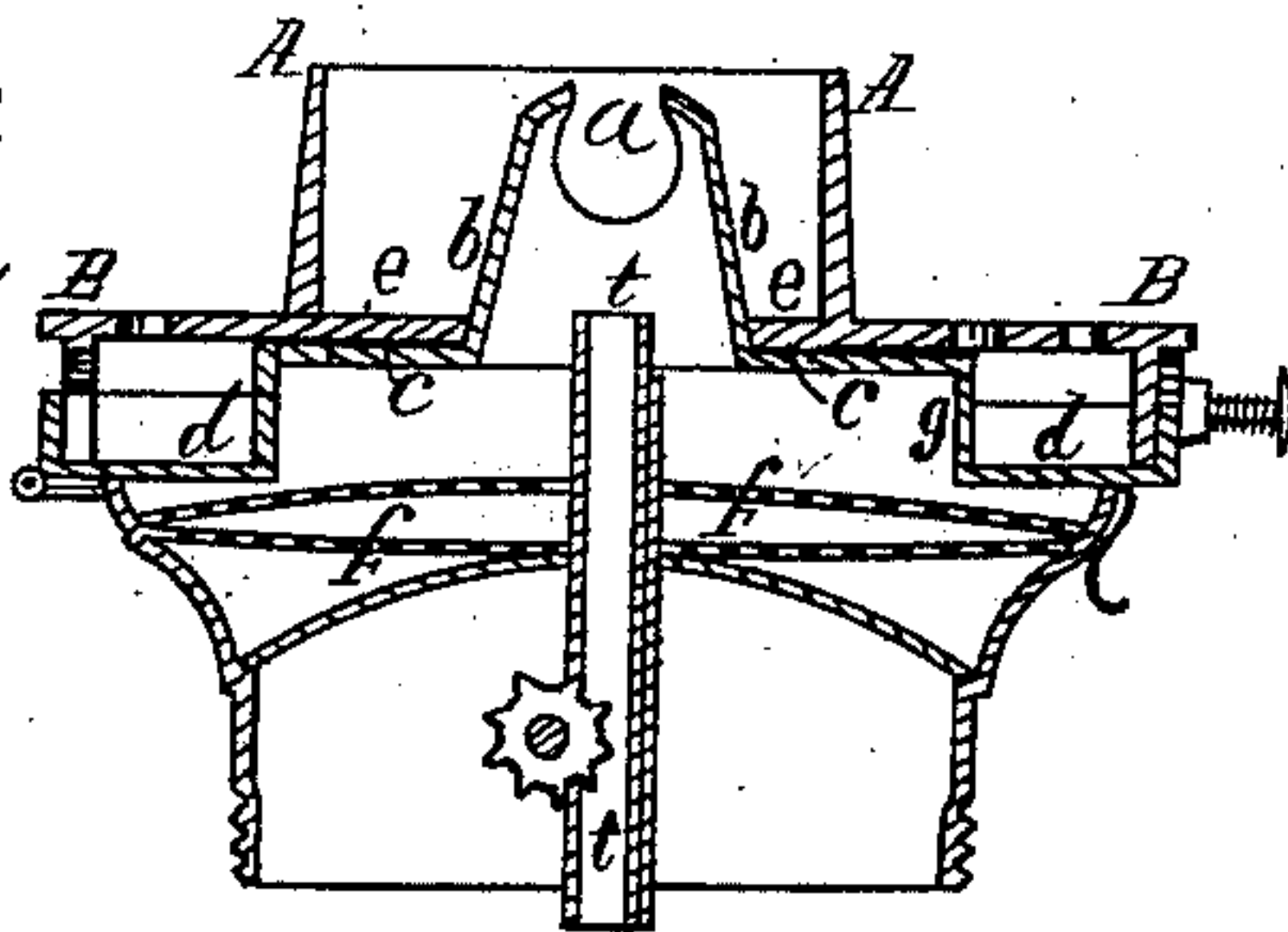


FIG. 4.

Witnesses:

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Inventor:

Edward W. Harmon  
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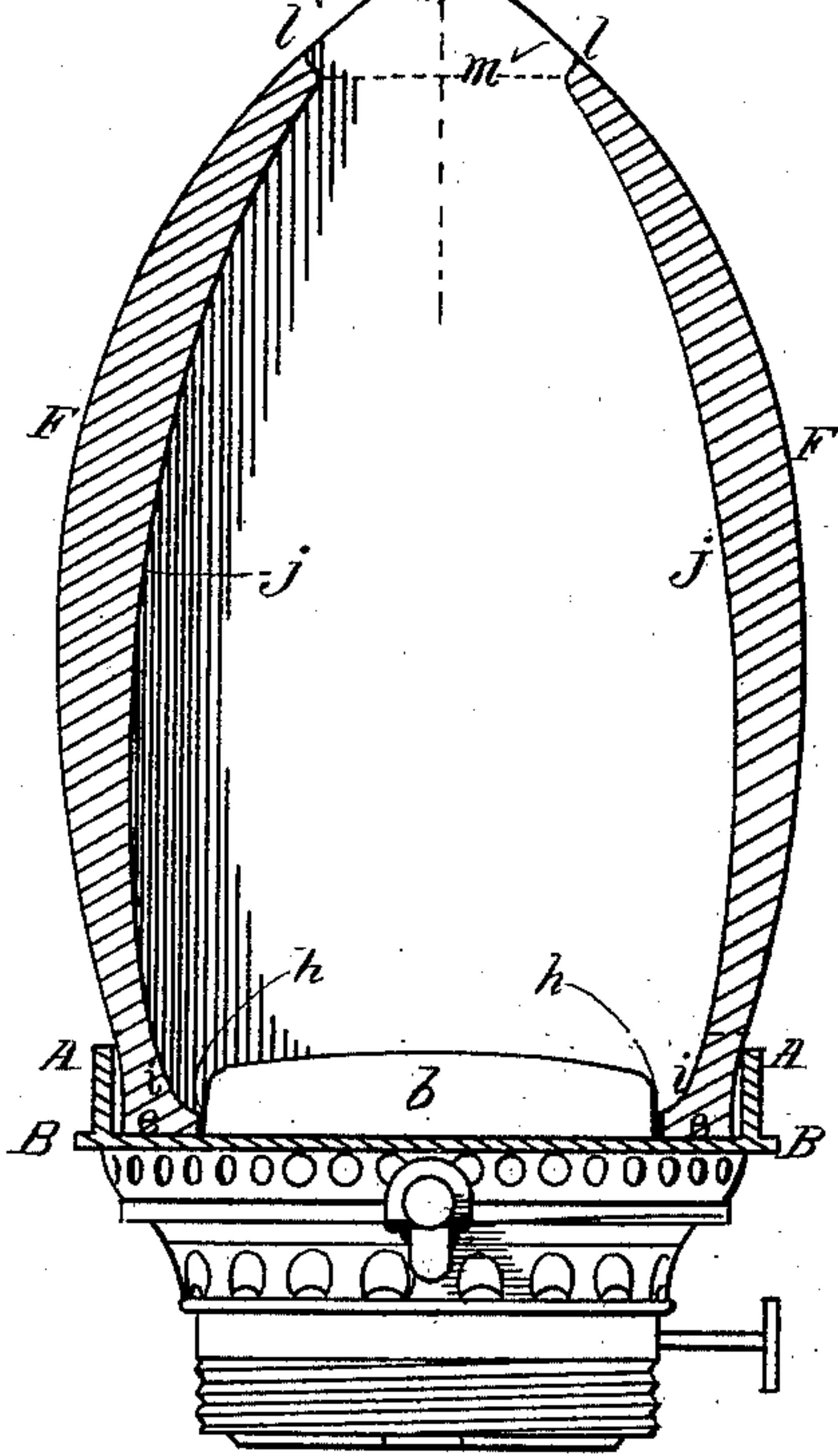


FIG. 5.

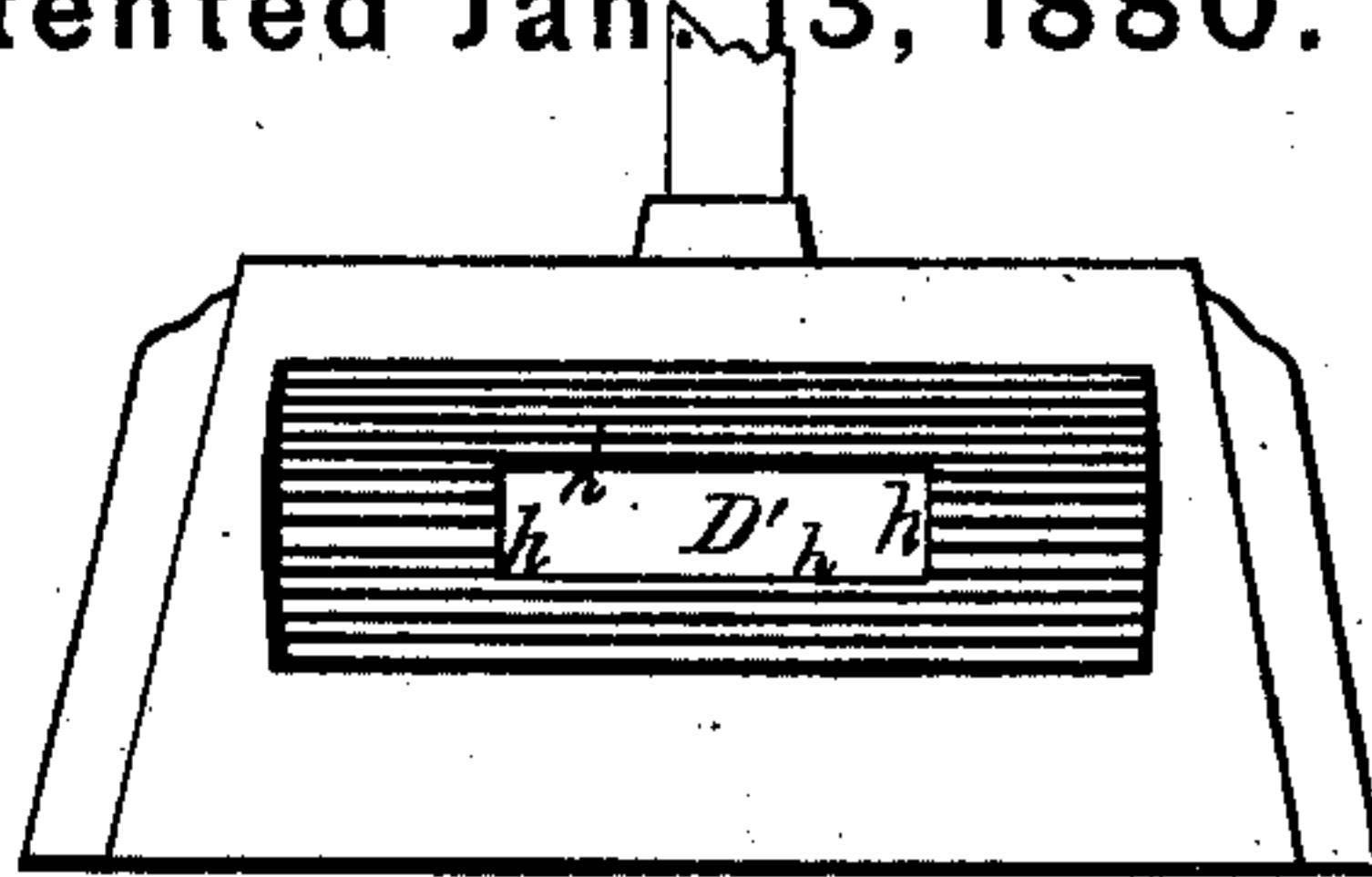


FIG. 8.

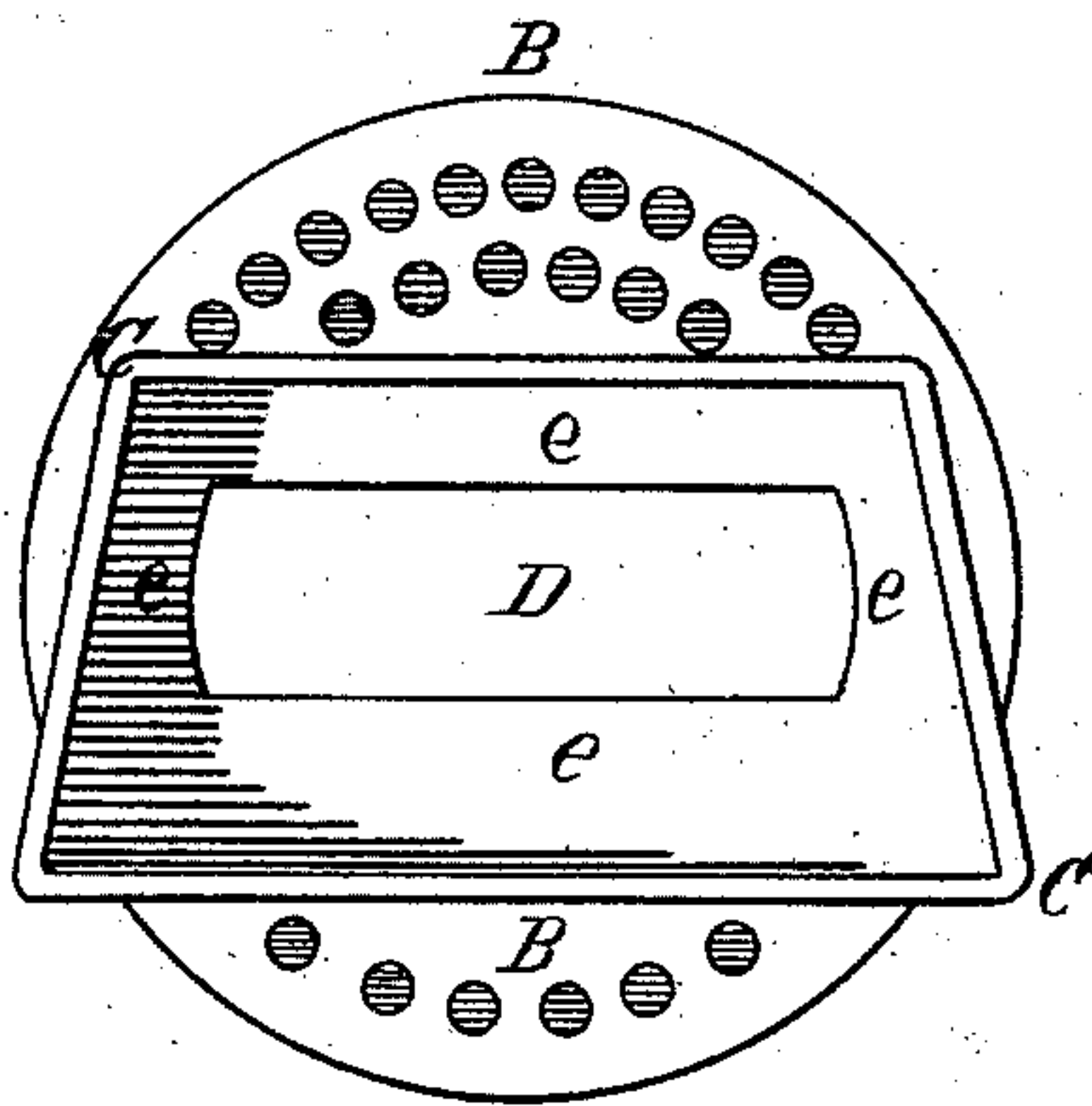


FIG. 7.

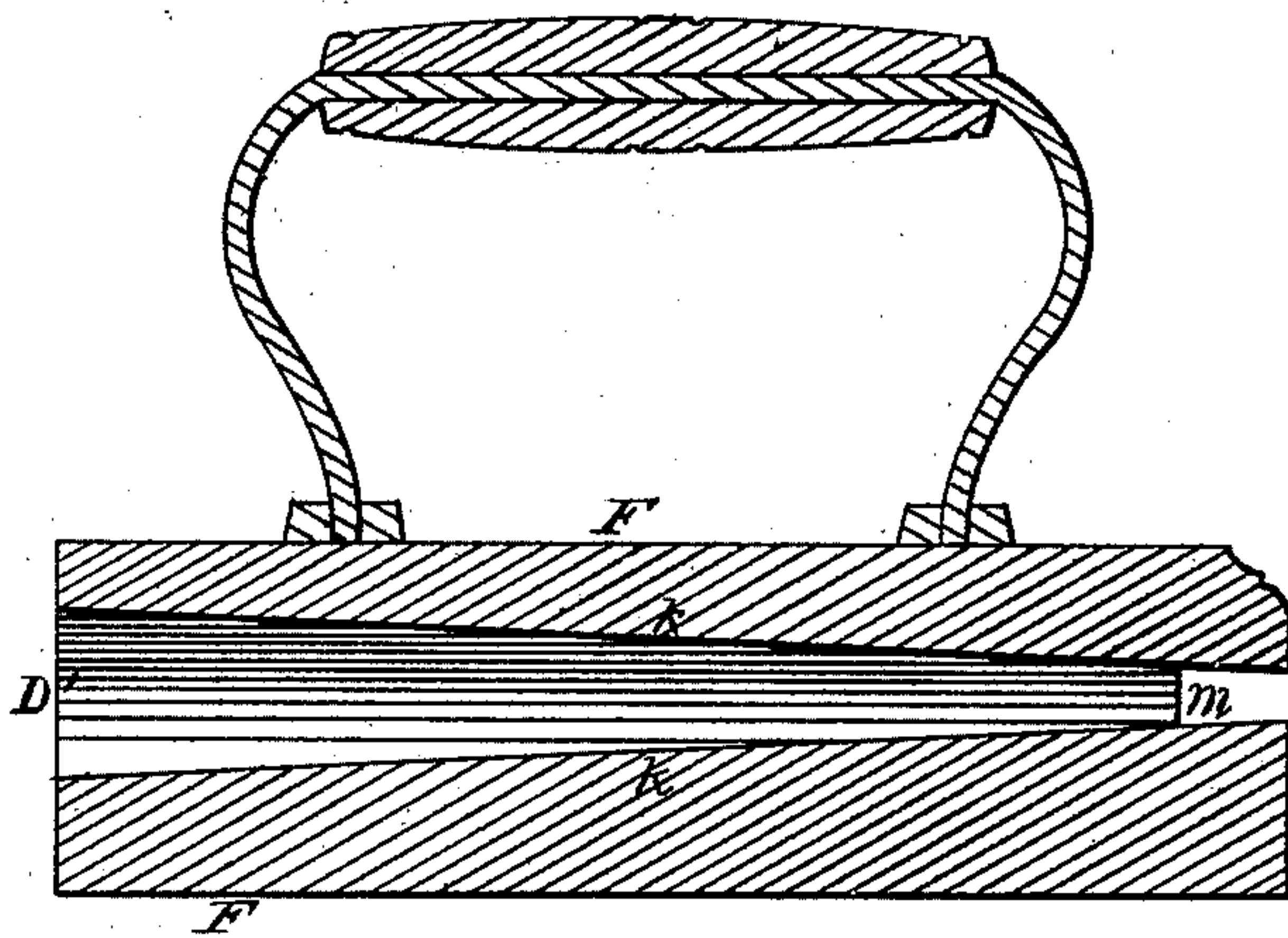


FIG. 6.

Witnesses:

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# UNITED STATES PATENT OFFICE.

EDWARD W. HARMON, OF HAVERHILL, ASSIGNOR OF THREE-FOURTHS OF HIS RIGHT TO FRANCIS AMORY, OF BEVERLY, SAMUEL SNOW, OF CAMBRIDGE, AND O. J. NOBLE, OF BOSTON, MASSACHUSETTS.

## FLAT-IRON HEATER.

SPECIFICATION forming part of Letters Patent No. 223,506, dated January 13, 1880.

Application filed April 24, 1879.

*To all whom it may concern:*

Be it known that I, EDWARD W. HARMON, of Haverhill, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in the Apparatus for Heating Hollow Flat-Irons and other Metal Chimneys, used for smoothing or pressing textile or other similar fabrics, by kerosene-lamps, of which the following is a full, clear, and exact description, reference being had to the drawings accompanying and forming part of this specification.

My invention relates to the several parts of the said apparatus used with any lamp burning kerosene or other mineral oil to heat flat-irons directly by the flame of said lamp, and is an improvement in the construction of the burner, and in the mode of combining the burner with the flat-iron or chimney and with the base-holder or rest, and improvements in the flue of the flat-iron and in the said holder, whereby all the said parts are so formed and so combined with one another that a continuous flue is formed for the air used in combustion from the draft-plate, which is the sole place of entrance, through the interior of the cone and through the flue, to the upper outlet thereof, which is the sole place of exit.

The object of my invention is to produce a more powerful flame for heating the iron than has heretofore been obtained from a kerosene-lamp, to introduce such flame into the cavity of a hollow flat-iron with better effect on the production, accumulation, and retention of the heat, and to construct the said parts to which it relates in such manner and form as to secure strength and durability and prevent the iron chimney from crushing or damaging the burner when the apparatus is in use.

In the drawings, letters of like name and kind refer to like parts in each of the figures.

Figure 1 is a view of my burner aforesaid. Fig. 2 is a view of the holder, in which the heel of the iron stands, and which secures the iron in its proper position, while heating, over and about the flame, showing my improvements therein. Fig. 3 represents the burner and the holder in combination, as I use them. Fig. 4 is a vertical section of the burner and

holder in combination, as aforesaid, at right angles with the slot of the burner. Fig. 5 represents a section of the flat-iron through the middle, the broadest way, in position in the holder for heating, showing my method of closing the flue in the heel of the iron, and fitting it to and around the top of the cone of the burner, and my method of springing the curvature of the end walls of the cavity of the iron. Fig. 6 represents a section of my flat-iron through the middle, the narrowest way, showing the inclination of the side walls of the cavity. Fig. 7 represents a top-plan view of my improved form of the holder, showing the bottom of the box in which the iron stands, and showing my improvements therein, by means of which the shape and dimensions of the said bottom and the position therein of the opening which receives the cone of the burner conform to and are adapted to combine with the heel of the iron in shape and dimensions and position therein of the opening to the flue. Fig. 8 is an end view, and represents the heel of said iron, showing its form and the position therein of the opening which receives the cone of the burner.

My invention consists, as it is represented in said drawings, first, in an improvement in the burner in said apparatus; namely, first, in having no opening in the cone *E* of the burner except the slot for the flame, and none in the gallery *d* around the cone, so that all the air within the cone must find its entrance thereto through the draft-plate *f*, and must pass out through the slot *a*; second, the cone of the burner is contracted in its upper portion, so as to form two parts, viz., the base *g* and the top part, *b*. The base rises from the gallery *d* around the wick-tube *t*, and forms shoulders on each side of the top part, which shoulders *c* make a close joint with and serve as supports for that part *e* of the holder on which the heel of the iron rests, and are below the line of the top of the wick-tube, Fig. 4. The top part of the cone is that part which surrounds the top of the wick-tube *t* above the shoulders of the base, and contains the slot *a*, through which the flame rises. It is contracted in the direction of the sides of the



wick-tube as much as is compatible with good combustion, in order that the cavity of the iron, which closes about it, may be as narrow as is practicable. By this contraction the sides *b b* are formed, which incline toward each other as they approach said slot, the lips of which are formed by the edges of said sides, and regulate the spread of the flame. This construction permits the cone of the burner to project into the flue of the iron, thereby throwing the flame nearer the center of the iron, and permits the flue in the heel of the iron to be closed around the top of the cone, so that, in connection with the flue or chimney, a broad heavy flame is produced and the process of combustion is so regulated and equalized that there is none of that undue consumption of the wick which has practically destroyed the efficiency of every apparatus for heating irons directly by flame heretofore in use.

Second. My said invention, as it relates to and affects the holder or rest, which is intended to receive and secure and sustain the iron or other flue in its proper position over and about the flame of the lamp, consists in making and adapting the height of the holder above the gallery on which it stands around the cone of the burner, so that the top part of said cone may project through the opening *D* in the bottom of the box part of the holder *A C*, on which the heel of the iron sets, into the flue, as hereinbefore described, and so that the said bottom may rest on and be sustained by the shoulders of the said cone; and it further consists in fitting the said bottom to and upon the said shoulders, and the said opening in said bottom to and around the top of said cone by a close joint, so as to substantially prevent any air from passing through said opening to and around the flame or into the chimney above, except through the slot of the cone. That part of the holder which projects beyond the shoulders of the cone, around the base of the cone, is perforated to admit of free circulation of the air through the chamber around the outside of the base of the cone; and it further consists in making the sides of said holder of unequal length, and in placing the opening *D* nearer to the short side, conforming the shape and dimensions (Fig. 7) of the bottom of the box and the position of the said opening with the shape and dimensions of the heel of the iron and the position of the opening of the flue therein, so that the iron can be set into the box in only one way, thus obviating the danger of crushing the cone with the heel of the iron when the walls of the flue are of unequal thickness at the heel.

Third. My invention, as it relates to the flat-iron used in said apparatus, consists in closing the flue within or at the heel of the iron around the cone of the burner, below the slot of the cone, as shown at *h h*, Fig. 5, so that in connection with the heel of the iron, as it rests and fits upon the bottom of the box of the

holder, a close joint is made around the cone, and all air is excluded and prevented from entering the flue of the iron from the direction of the burner, except through said slot.

It consists, further, in springing the curvature of the end walls of the flue of the iron from immediately below the opening of the slot and within the iron, as shown in the drawings, *ii*, Fig. 5, thus enabling the flame to spread to a great width entirely within the cavity of the iron without coming in contact with the walls. Above the flame said end walls curve toward each other, and are cut off at *l l*, forming there, with the side walls, the upper outlet of the flue *m*, which has about one-half the area of the opening at the heel. The side walls of the flue are plane surfaces, which incline toward each other at equal angles as they rise from the heel. The wall next the smoothing-face is much thicker than the side next the handle. I make the outer edge of the side wall next the handle shorter at the heel than the corresponding edge of the other side, giving a trapezoidal shape to the heel of the iron.

By this construction of the flue the cavity of the iron is limited to the least capacity compatible with combustion, radiation is restricted, there is practically no space within the cavity to receive or retain any air, which, not required to support combustion, would retard the heating of the iron, and the opening in the heel of the iron is farther from the smoothing-surface than from the other side of the iron.

I am aware of Letters Patent Nos. 211,517, January 21, 1879, and 212,247, February 11, 1879, to Wm. McCarty, and the Letters Patent therein referred to, and I disclaim all that is shown and described in either of those Letters Patent.

The devices described in said patents, so far as they relate to the use of kerosene or oil lamps as parts of said apparatus, make use of the burner in ordinary use for illuminating purposes, having a dome-shaped cone which is not and cannot practically be inserted or projected into the flue of a flat-iron, and is not and cannot be practically joined to or closely fitted into such flue, and having air-openings in the lower part of the cone, or in the gallery, which admit air to the chimney which has not passed through or been in contact with the flame, with the result of cooling or tending to cool the chimney rather than to heat it. Moreover, the said burner in ordinary use, when used with a flat-iron for a chimney, consumes the wick with great rapidity, evaporation of the oil apparently proceeding faster than the wick can draft a supply from the body of the lamp.

My said improvements remedy both these difficulties, and are essential in the accomplishment of such result. By means of them I produce a stronger and steadier flame than can be produced by any other device known to me, and utilize the flame more effectively.

I claim as my invention, in an apparatus for



heating hollow flat-irons or other metal chimneys used for smoothing or pressing textile or other similar fabrics by the flame of a kerosene-lamp—

5 1. The combination, as described, of a burner, in which the cone E consists of a base part, *g*, with shoulders *c c*, and the top part, *b b*, with the holder and rest A C B B, and a hollow iron used, or adapted to be used, for smoothing  
10 or pressing textile or other similar fabrics, as and for the purposes set forth.

2. The combination of the hollow flat-iron or other metal chimney, adapted for use in smoothing, polishing, or pressing, and the box  
15 part A C of the holder and rest, with a burner having the upper end of its wick-tube *t* extended up through the opening D in said holder into the lower part of the flue in said iron or metal chimney, and having that part  
20 of its cone which surrounds the upper end of the wick-tube and contains the slot *a* inserted or projected into the lower part of said flue, for the purposes described.

3. A hollow flat-iron or other metal chimney,  
25 adapted for use in smoothing, pressing, or polishing, in combination with the holder and rest A C B B, and a burner having the top part, *b b*, of the cone, including the slot *a* and the upper end of the wick-tube *t*, projected  
30 into the lower part of the flue of said iron or metal chimney, for the purpose set forth.

4. A hollow flat-iron or other metal chimney, adapted for use in smoothing, pressing, or polishing, in combination with a burner having  
35 the upper end of its wick-tube *t*, from which the flame rises, projected into the lower part of the flue of said iron or other metal chimney, for the purpose set forth.

5. The combination of a hollow flat-iron or  
40 other metal chimney, adapted to be used for smoothing, pressing, or polishing purposes, with a burner having that part of its cone

which surrounds the upper flame end of the wick-tube projected or inserted into the flue or cavity of said iron or metal chimney in the  
45 manner described, so as to substantially exclude and prevent all air from entering said flue or cavity from the direction of said burner, except through the slot in said cone.

6. A hollow flat-iron or other metal chimney,  
50 adapted to be used for smoothing, pressing, or polishing purposes, and adapted to stand upon its heel around a flame, to be heated thereby, having the side walls of its flue or cavity of unequal thickness and of unequal width at  
55 the heel, in combination with the box part A C of a rest or holder, in or on which said iron or the metal chimney stands, having the shape and dimensions of its bottom *e e* conformed to the shape and dimensions of the heel of  
60 said iron or other metal chimney, as and for the purpose set forth.

7. In combination with a hollow flat-iron, the base-holder A C B B, having the sides of the box A C conform in shape and dimensions  
65 to the shape and size of the heel of the flat-iron, and having the opening D conformed and adapted, as to size and position, to the opening D, in the heel of the flat-iron, as and for the  
70 purposes set forth.

8. In combination with the cone E and the hollow flat-iron F, having the side walls to its flue of unequal thickness and unequal width at the heel, a holder or rest, having the shape and dimensions of its bottom *e e*, and the  
75 position of the opening in said bottom conformed to the shape and dimensions of the heel of the iron and to the position of the opening of the flue therein, as and for the purposes set forth.

EDWARD W. HARMON.

Witnesses:

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