

(No Model.)

J. R. RUSSELL.  
Forming Naps for Hats.

No. 227,584.

Patented May 11, 1880.

Fig. 1.

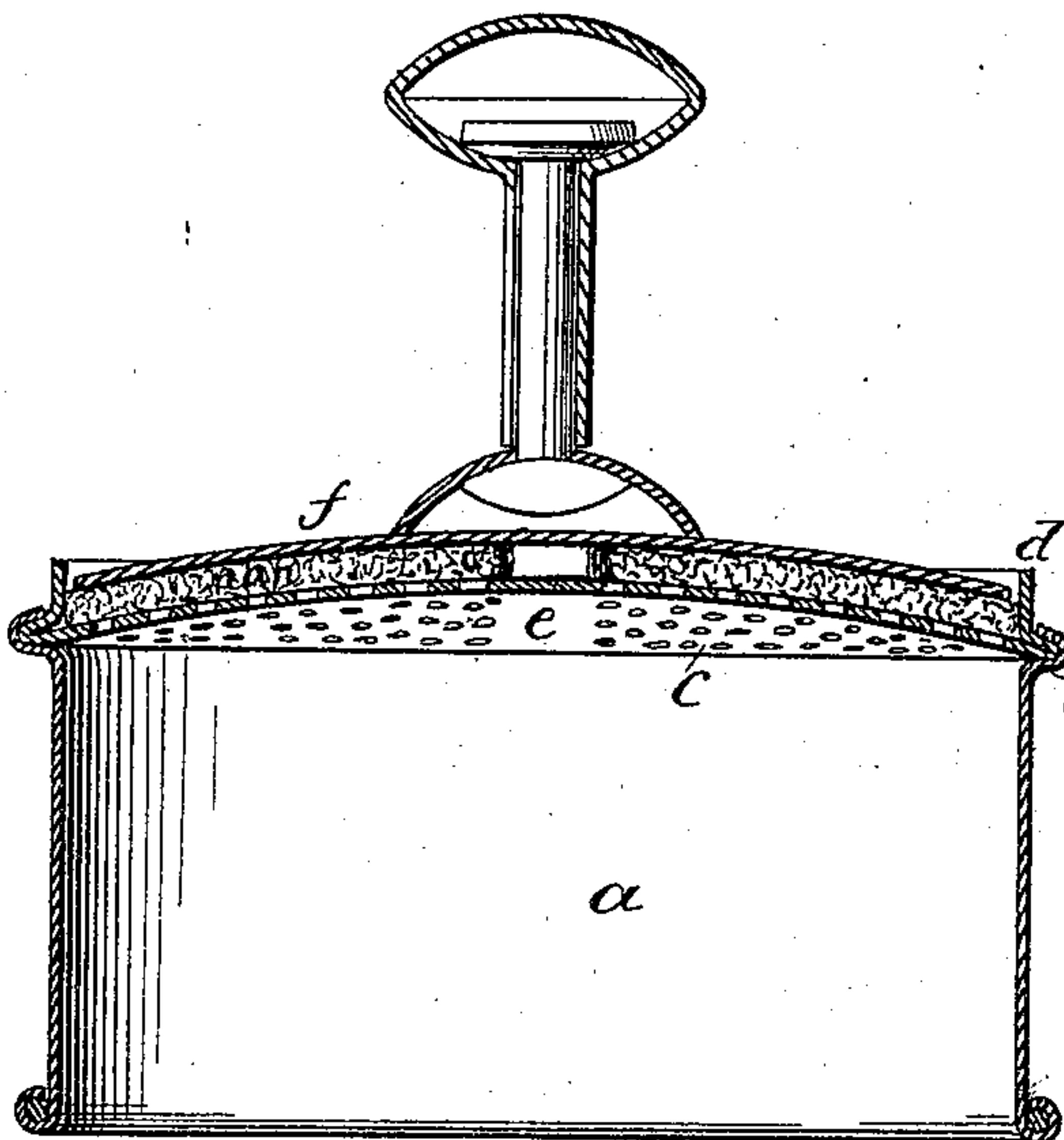


Fig. 4.

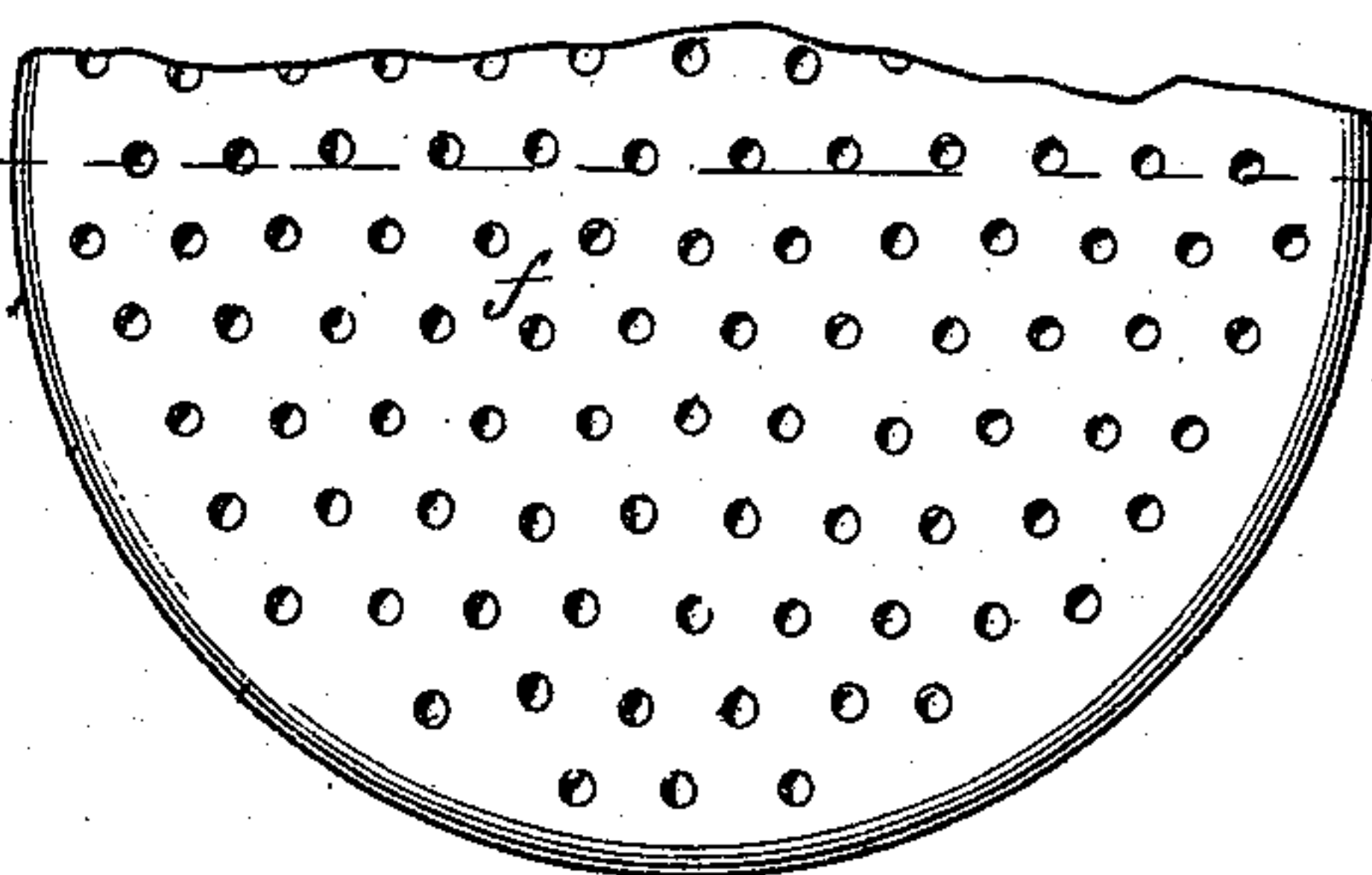
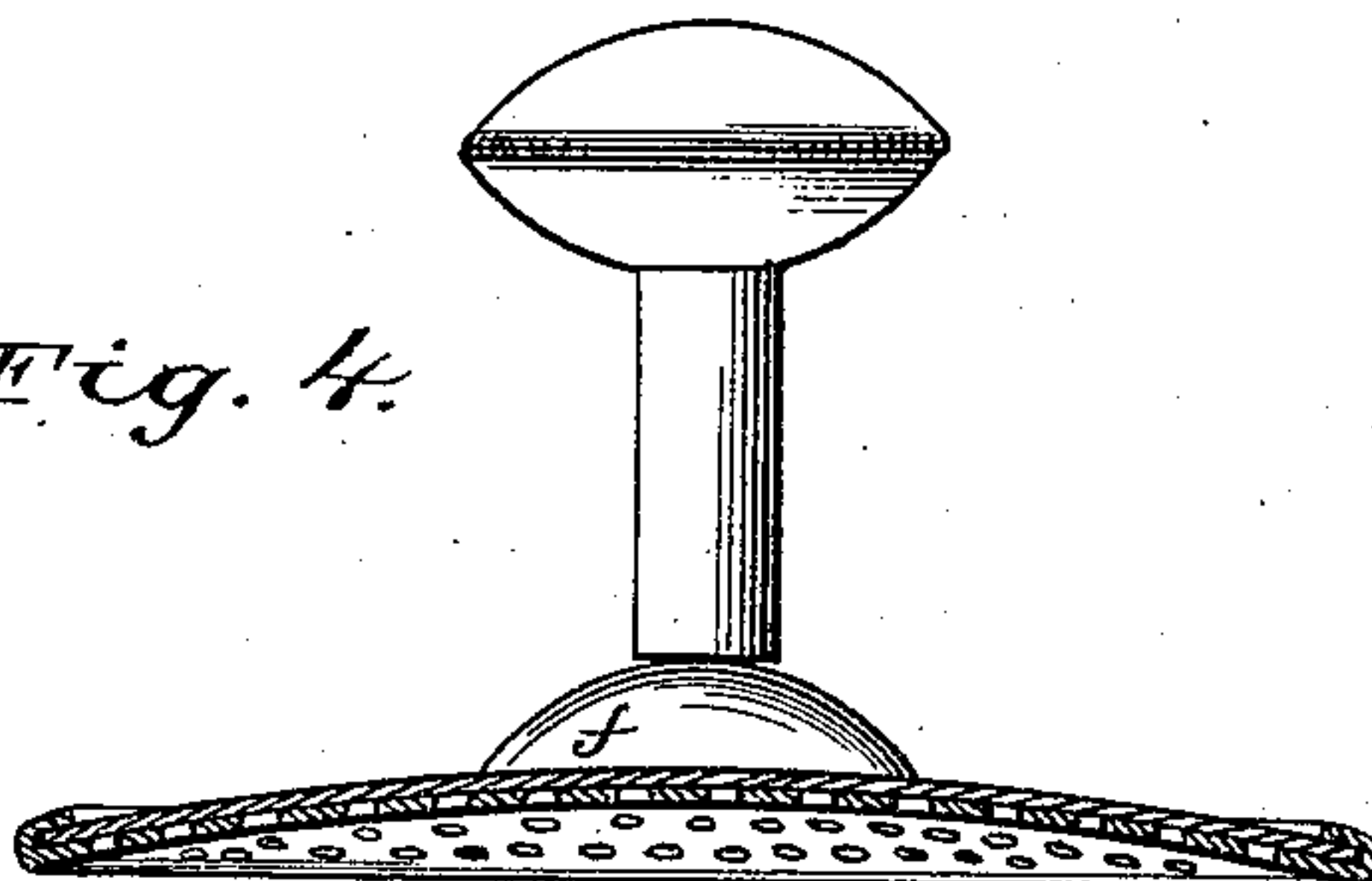


Fig. 2.

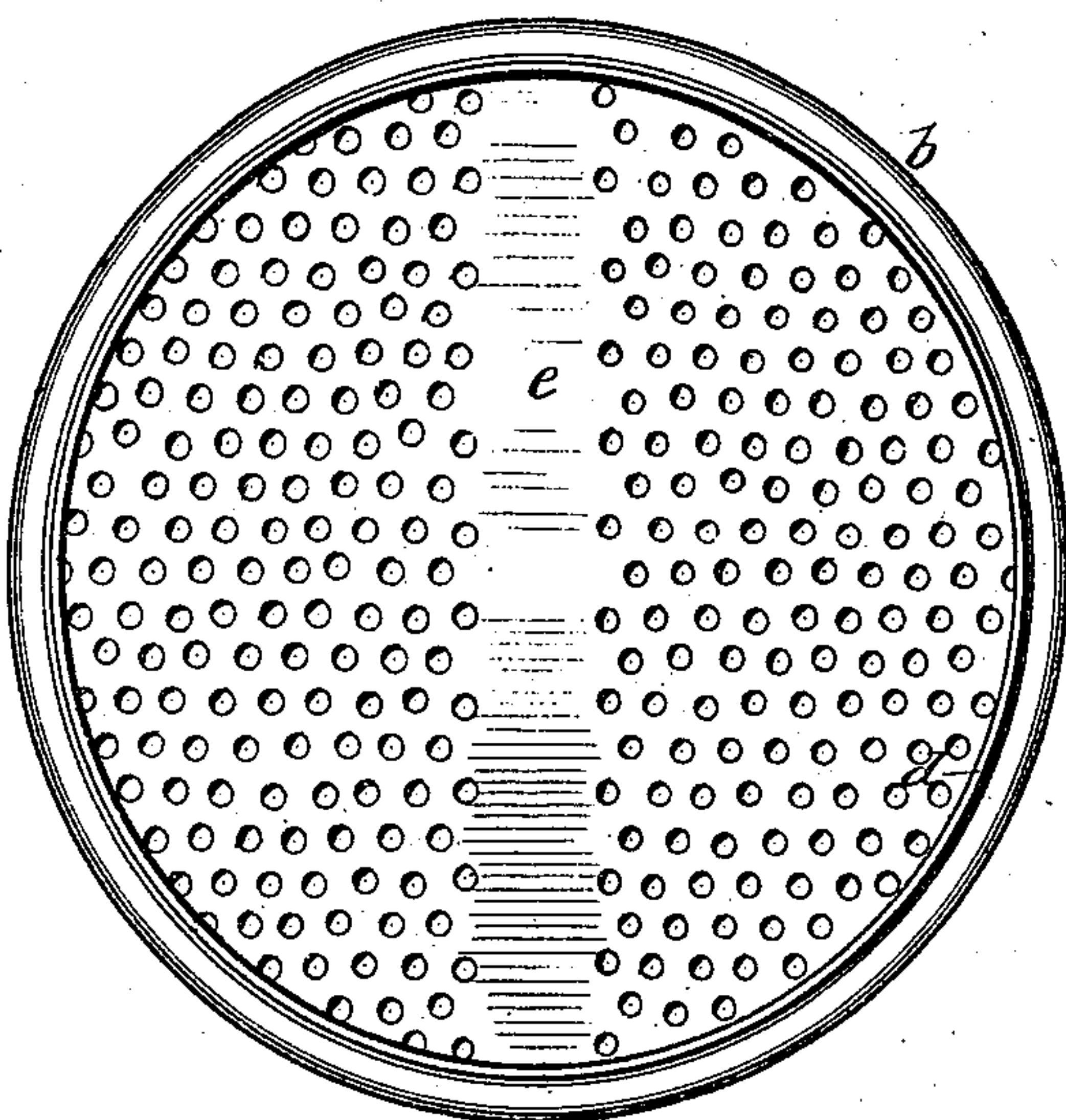
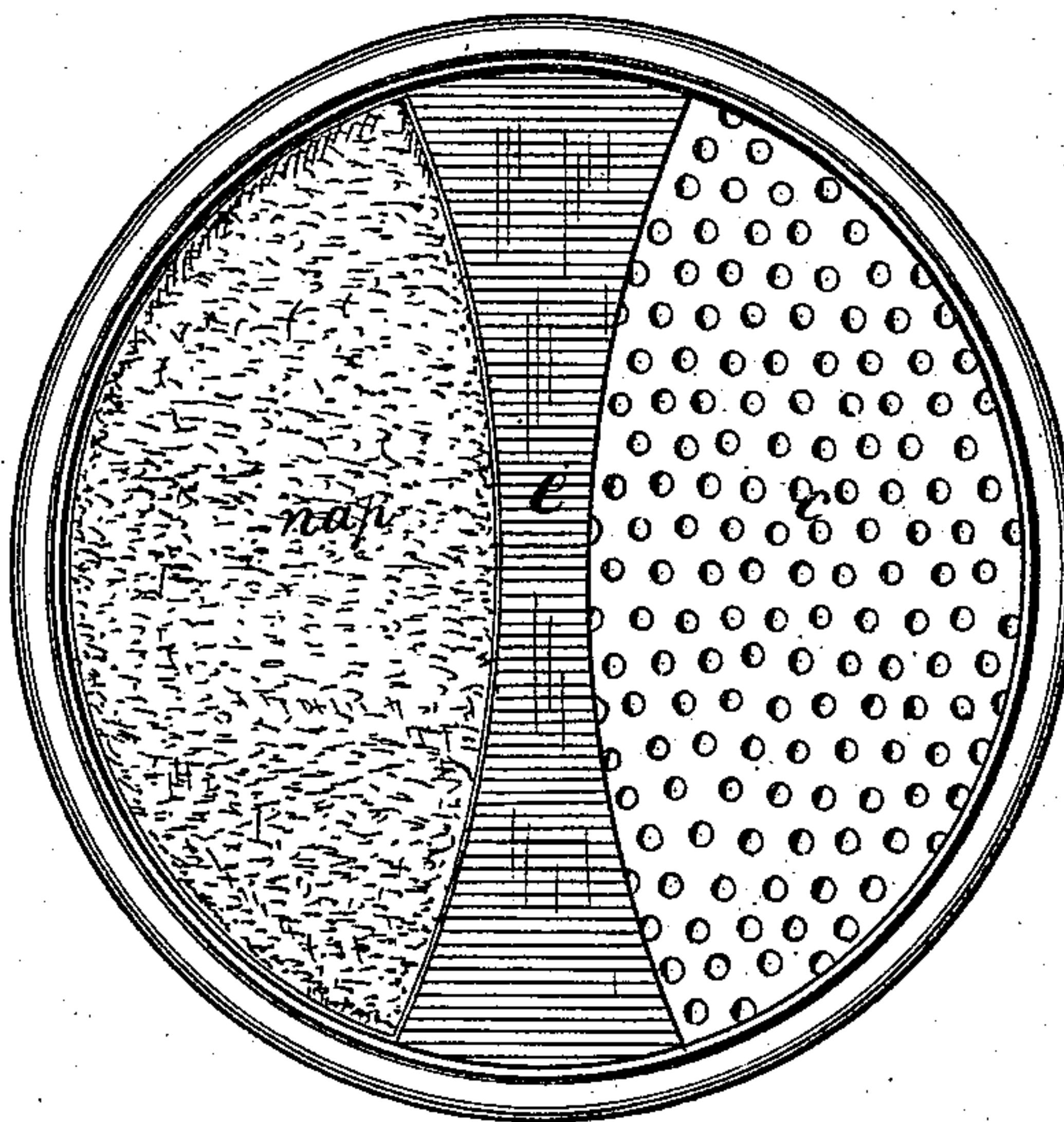


Fig. 3.



Attest:

H. C. Perrine  
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# UNITED STATES PATENT OFFICE.

JAMES R. RUSSELL, OF BOSTON, MASSACHUSETTS.

## FORMING NAPS FOR HATS.

SPECIFICATION forming part of Letters Patent No. 227,584, dated May 11, 1880.

Application filed April 8, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES R. RUSSELL, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Forming Naps for Hats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention is in the nature of improvements upon the method and machinery for forming naps or nap-bats for fur hats specified in my application for a patent therefor filed January 9, 1880.

The invention consists in forming the naps or nap-bats for two hats at a single operation upon a perforated or other foraminous or reticulated plate or former, the product being two complete, distinct, separated naps or nap-bats, requiring no subsequent division when removed from the plate or former for application to two hats. To this end I break the continuity of the perforated portion of the plate or former, upon which the fur or mixed fur and cotton will be deposited, by making a diametrical imperforate portion in said plate or former, upon which no fiber will be deposited by reason of the suction of the air being cut off because of such solidity or imperforateness. The same result may be obtained by laying across the perforated plate an imperforate piece of skin, oil-cloth, or other material. To make narrow-brimmed hats, this piece of skin, or the imperforate part of the plate, is of a double-concave or hour-glass outline, or the shape of two Y's joined by their vertical stems, so as to produce properly-shaped nap-bats.

My invention will be better understood by reference to what has been heretofore done in the art of napping hats. The oldest method of napping hats consists in forming the naps from fur by means of the hatter's bow, basket, and other implements, as is well understood. This method involves skilled labor and a laborious, tedious, expensive, and wasteful process, the nap so formed being in many pieces, (sometimes eight, more or less,) and shows

thin spots, which must be "stopped" or patched in order to evenly nap a hat. It has also been attempted to form naps in sheets by blowing the fur upon a horizontal rotary reticulated cylinder, from which the nap is passed (if this be possible) between rollers onto a packing or hardening table. The ordinary cone of a Wells or Burr hat-forming machine has been also employed as a means for forming hat nap-bats, the fur being blown upon said cone and removed therefrom by splitting to form a nap for a hat; but this mode is somewhat wasteful, as the bats are uneven and too large, and have to be cropped, and hence it is scarcely more economical than bowing.

In my machine, heretofore referred to, I form a continuous circular nap-bat, and harden it upon the perforated plate or former, from which it is removed and cut across to form two naps.

In the machine herein described I produce two separated or independent naps at once without waste and the necessity of division or cropping, ready to be applied to the hat.

In the drawings, in the several figures of which like parts are similarly designated, Figure 1 is a vertical cross-section of my machine. Fig. 2 is a top-plan view of the cylinder and forming-plate, showing the diametrical imperforate portion of the plate. Fig. 3 is a similar view, with the separating-skin applied, and a nap-bat, to the left, produced when the said skin is used; and Fig. 4 illustrates the jigger in sectional elevation and bottom-plan view.

The former is composed of a hoop or cylinder, *a*, of metal, having a flange, *b*, by means of which it is easily handled.

*c* is a perforated plate or other sufficiently stiff foraminous or reticulated device, of convex upper face, resting upon a suitable shoulder, ledge, or flange of the cylinder *a*, and having an upturned circumferential flange, *d*. This foraminous plate is provided with an imperforate or solid portion, *e*, which may be from one-half to three-fourths of an inch wide, and extend diametrically across the plate *c*, as shown in Figs. 1 and 2. This imperforate portion may be of uniform width throughout, or its longitudinal edges may be curved, as in Fig. 3, to form a double-concave outline or an outline resembling two Y's united by their stems; or such curved portion may be a sepa-



rate piece of skin, oil-cloth, or other material, to be placed upon the perforated plate. The object of this imperforate portion is to obtain a portion of the plate upon which no fur will be deposited, and since there can be no suction through the solid portion it follows that the fur will not collect there; hence when my former is placed in a Wells or Burr or like hat-forming machine, and the fur or mixed fur and cotton blown thereupon, the fibers will be separated and collected by suction upon each side of the imperforate portion, but not upon it, so that two separated naps will be formed.

It is premised that it is understood that my former is placed upon the rotary table over the suction-chamber, instead of the cone, which is removed in a Wells and Burr or other hat-forming machine.

If wide-brimmed hats are to be formed, the naps will be blown or formed with a straight edge and upon a plate, like that shown in Fig. 2, with a straight imperforate portion; but if narrow-brimmed hats are to be napped the nap-bats will be made with a curved edge, as seen to the left in Fig. 3, the curved skin or imperforate portion being used. By thus forming the nap-bats I dispense with cutting and cropping, save stock, and render the subsequent napping easier and capable of being performed by ordinary workmen.

It will be understood that the flange *d* prevents the fur from being blown off or over the edge of the plate, and confines it thereupon in the shape in which it is to be used for napping.

It will be further understood that the jigger or device *f* is composed of a loose or rotatable handle and a plate of similar shape to the perforated plate, but about a quarter of an inch, or thereabout, less in diameter all around than the cylinder, said jigger-plate being of a single solid smooth-faced piece, or having a perforated face, and that it is used to harden the naps upon the former to facilitate their removal without spreading or breaking.

In practicing my invention I take the quantity of raw fur for a given number of naps and some well-carded cotton, short cotton being best, the quantity of cotton being less than half the weight of the fur. I mix the fur and cotton well and put them into the blowing appa-

ratus. If very poor fur is had I reserve a part of the fur alone, to be afterward blown by itself, in which case two coats are used. I take, say, an ounce and a quarter of the mixture and spread it on the endless apron of a Wells or Burr machine, and, placing my former on the turn-table, instead of the cone, the fur is passed through the roller and picker, and blown through the chute onto the former. The former accumulates enough fur in about twenty seconds, and said former is then taken from the turn-table, using the flange *b* as a handle, to a bench or table, where the jigger *f* is placed over the naps or collected fur and given two or three shakes, so as to harden the naps, and thus permit of their being safely handled, care being taken not to harden too much, so as to avoid felting.

It will be understood that no fur can be collected on the imperforate portion of the plate, because there can be no suction there, and hence the fur will be collected in two separate bats on either side the imperforate portion, thereby forming two distinct naps. These naps are then stuck to the hat in the usual way. The under brim nap may be cut from the nap by following the circle at its edge.

What I claim is—

1. In a machine for forming the naps for hats, a foraminous former having the continuity of its perforations broken, so as to produce two naps at one operation, substantially as specified.

2. In a machine for forming naps for hats, a perforated forming-plate provided with an imperforate portion of a shape to determine and fix the shape of the nap, substantially as specified.

3. In a machine for forming naps for hats, a forming-plate of foraminous material, constructed to form complete finished nap-bats of different shapes and sizes, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES R. RUSSELL.

Witnesses:

WM. H. FINCKEL,  
GEO. F. GRAHAM.