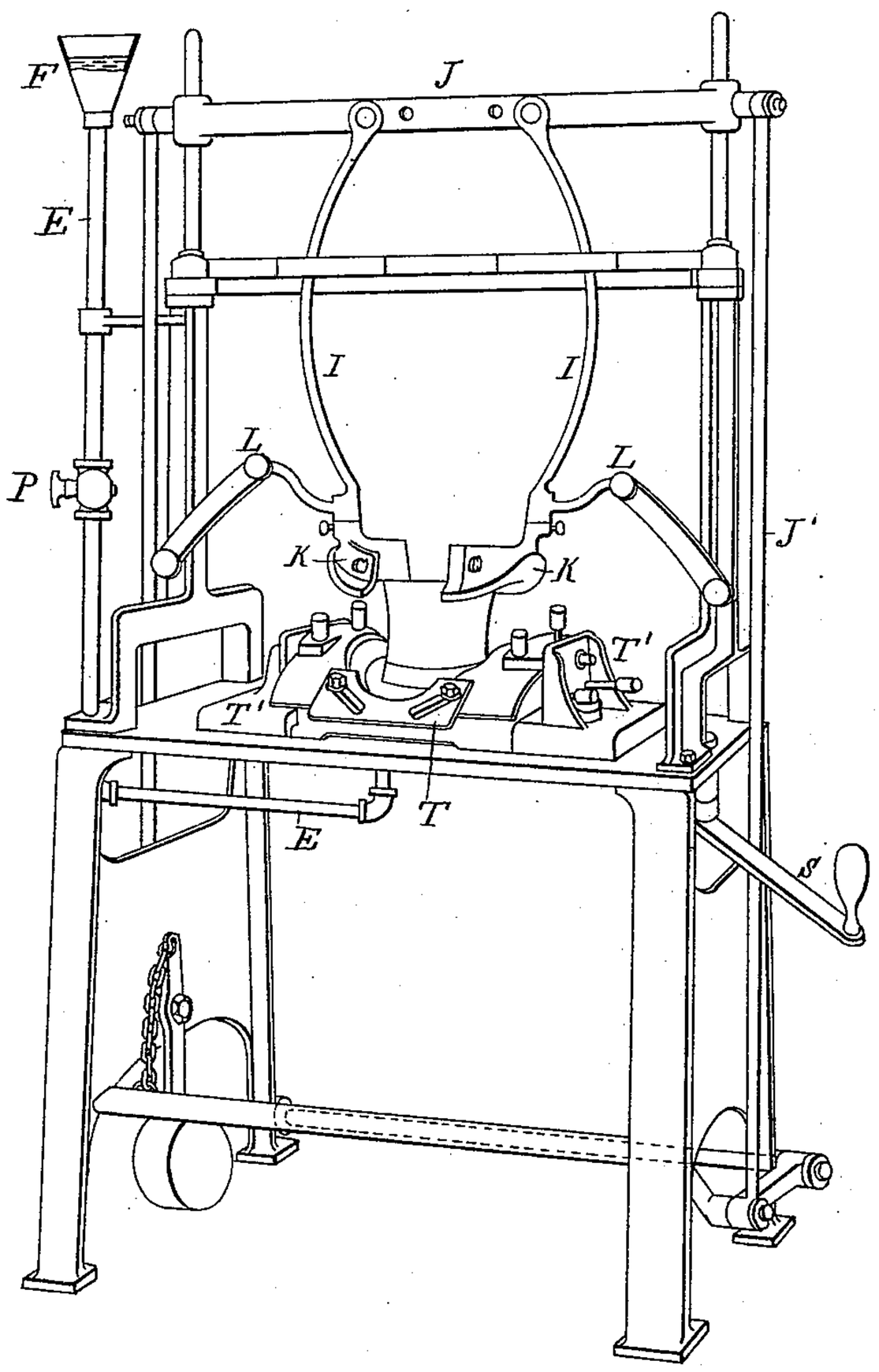
(No Model.) 2 Sheets—Sheet 1.

C. E. KEATOR.

BOTTOM BOARD FOR HATS.

No. 400,773. Patented Apr. 2, 1889.

Fig. 1.



WITNESSES:

E. J. Griswold

Robert F. Sanders

INVENTOR

Charles E. Keator

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his ATTORNEYS

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

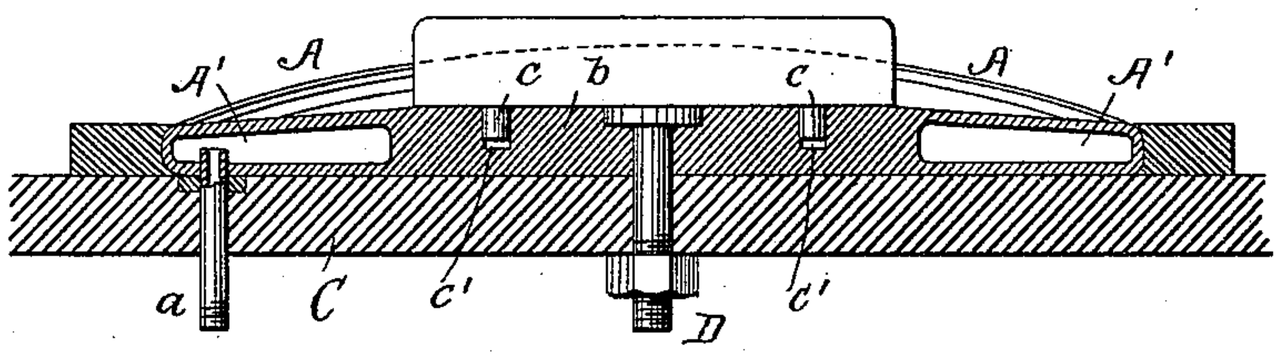


Fig. 3.

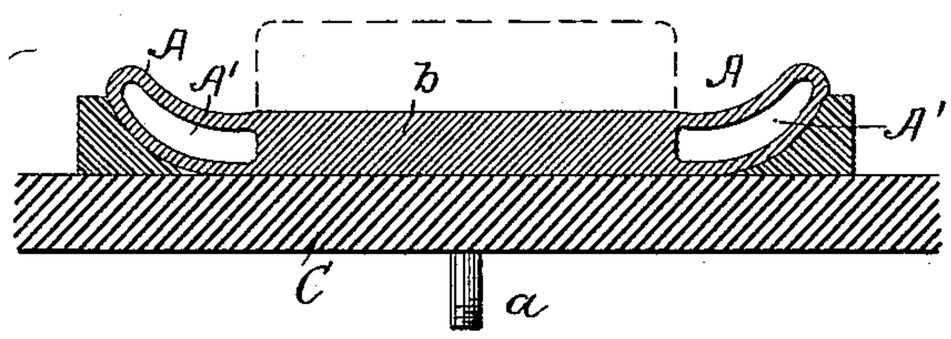
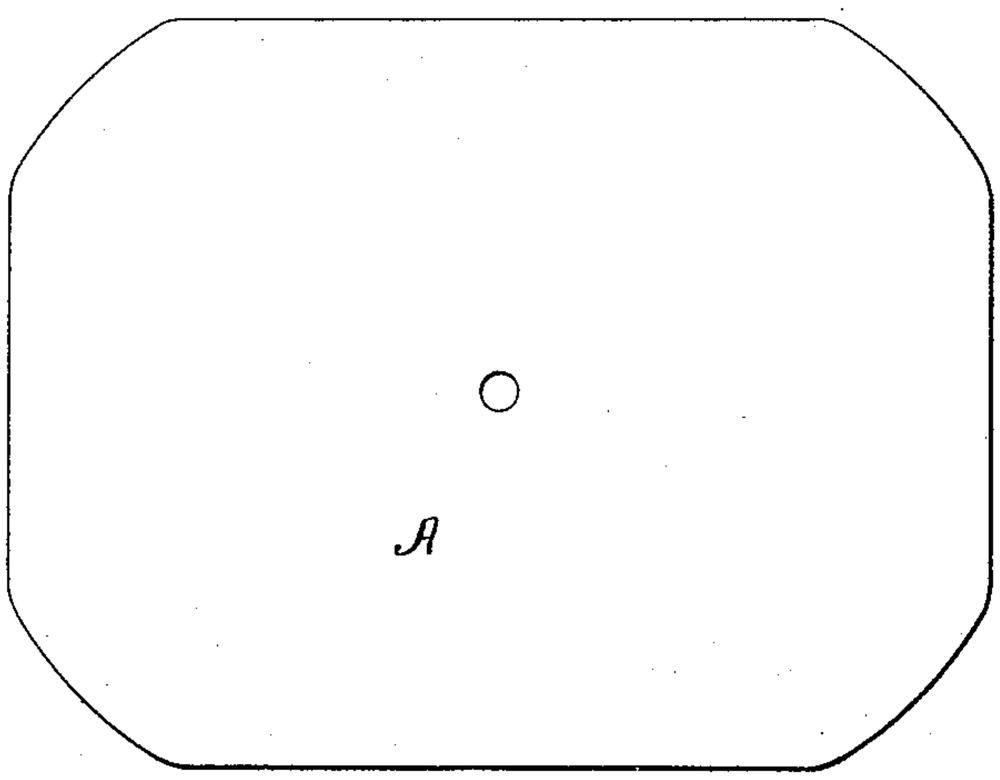


Fig. 4.



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Robert F. Sanders

INVENTOR,

Charles E. Keator

BY

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UNITED STATES PATENT OFFICE.

CHARLES E. KEATOR, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE PALNUD HAT MACHINE COMPANY, OF SAME PLACE.

BOTTOM BOARD FOR HATS.

SPECIFICATION forming part of Letters Patent No. 400,773, dated April 2, 1889.

Application filed February 2, 1887. Serial No. 226,253. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. KEATOR, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Apparatus for Shaping Hat-Brims, of which the following is a specification.

My invention relates to improvements in apparatus for shaping hat-brims, and more particularly has reference, first, to an improved construction of flexible bottom board or die adapted for use in such machines, and, secondly, to the combination, with such a bottom board or die, of devices whereby the bottom board or die may be the better adapted for all sizes and varieties of curls to be produced in hat-brims.

The bottom board or die of my present invention is designed as an improvement upon the hat-die described in the Bigelow patent, No. 395,118, dated December 25, 1888. It is constructed of flexible and elastic material—such as rubber—which is made hollow and filled with a fluid, such as water or air under pressure.

In the accompanying drawings, Figure 1 represents a perspective view of a hat-shaping machine of ordinary construction and known as the "Kelsey" machine. (See Patents No. 260,298 and No. 295,650.) Fig. 2 is a longitudinal section, on a larger scale, of the flexible bottom board. Fig. 3 is a transverse section of the same, showing the application of my present invention thereto; and Fig. 4 is a plan view, detached, of the flexible bottom board.

The bottom board, A, is constructed of a flexible and elastic material, such as soft rubber. This bottom board is made hollow with an annular chamber, A′, and fluid can be introduced therein through a pipe, *a*. The central portion, *b*, of the bottom board, or that portion over which the hat is situated when under operation, is made solid and a unitary part of the bottom board, so that it cannot rise vertically when the bottom board is inflated, and thereby disturb the position of the hat.

The bottom board is so shaped that its upper surface approximates to some extent to the general shape of a hat-brim, and to give the necessary upward curve to the sides and to support the hollow edges of the bottom board at those points I provide movable wedge-pieces G G. These wedge-pieces, as shown in Fig. 3, enter under those edges of the bottom board which give the shape to the sides of the hat-brim, and the positions of these wedge-pieces and the consequent curve imparted to the flexible sides of the bottom board are determined for different sizes of hat-brims by the extent of the inward movement of the side-edge curlers, hereinafter referred to. That extent of movement varies with different sizes of hats. The front and rear edges of the flexible bottom board are supported laterally by pieces *g*.

To curl over the edges of the front, rear, and sides of the brim, front and rear edge curlers—such as T T—and side-edge curlers—such as T′ T′, Fig. 1—are employed. The inward and outward movements of these curlers are controlled, as usual, by a lever, S, which operates them simultaneously, and when they are moved inward they press a portion of the brim inward over the pressers K K, which act upon the upper side of the hat-brim in the usual manner.

The pressers in the Kelsey machine, as illustrated, are carried by arms I I, suspended from a vertically-moving cross-head, J, at the upper part of the machine. When these arms are moved downward by the descent of the cross-head, the connecting links L, pivoted to the side frames of the machine, cause the pressers to move inward at the same time and to close in upon the body of the hat. The pressers are actuated by a treadle or other means connected by rods J′ with the cross-head J.

The fluid employed to inflate or fill the interior of the bottom board may be air or gas; but for all practical purposes water is preferable, and to obtain a steady pressure within the bottom board and to allow the material of the same to yield readily and conform to the shape of the pressers K the bottom board is first placed under hydrostatic pressure. As shown in Fig. 1, the interior of the hollow bottom board is connected by a vertical tube, E, with a funnel, F, that is located above the level of the bottom board. Water being in-

troduced into the bottom board by means of a funnel, a pressure corresponding to the level of the liquid in the tube E is exerted on all the hollow parts of the board, and it is thereby inflated.

Instead of using water, the bottom board could be inflated with air and the compression of the same would cause sufficient pressure and still allow the bottom board to conform to the shape of the "pressers."

I claim as my invention—

1. A hollow bottom board of elastic material having as a unitary part a solid central portion, substantially as described.

2. A hollow bottom board having as a unitary part a solid central portion and an outlet or inlet for a fluid, substantially as described.

3. The within-described bottom board for a hat-brim-curling machine, said bottom board having as a unitary part a solid central portion, and around it a surface flexible throughout and conforming to the general shape of the brim with its dip and roll, said flexible surface being such as to act on the underside of the brim only in pressing, all substantially as specified.

4. The within-described bottom board for a hat-brim-curling machine, said bottom board constituting a self-contained structure independent of and detachable from the machine, and having as a unitary part a solid central portion and around this a flexible upper surface conforming to the general shape of the brim of the hat, all substantially as specified.

5. The combination of the flexible bottom board of a hat-brim-curling machine with wedge-pieces to support and give shape to the side edges of the bottom board, substantially as described.

6. The combination of the flexible bottom board of a hat-brim-curling machine with movable wedge-pieces to support and give shape to the side edges of the bottom board, all substantially as described.

7. The combination of the bottom board having a solid center, and a hollow rim with movable wedge-pieces to support and give shape to the flexible side edges of the bottom board, substantially as described.

8. The combination of the flexible bottom board of a hat-brim-curling machine with pressers and side-edge curlers and movable wedge-pieces to support and give shape to the flexible side edges of the bottom board, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

CHARLES E. KEATOR. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.