

(No Model.)

3 Sheets—Sheet 1.

E. TWEEDY.
HAT CURLING MACHINE.

No. 281,321.

Patented July 17, 1883.

Figure 1.

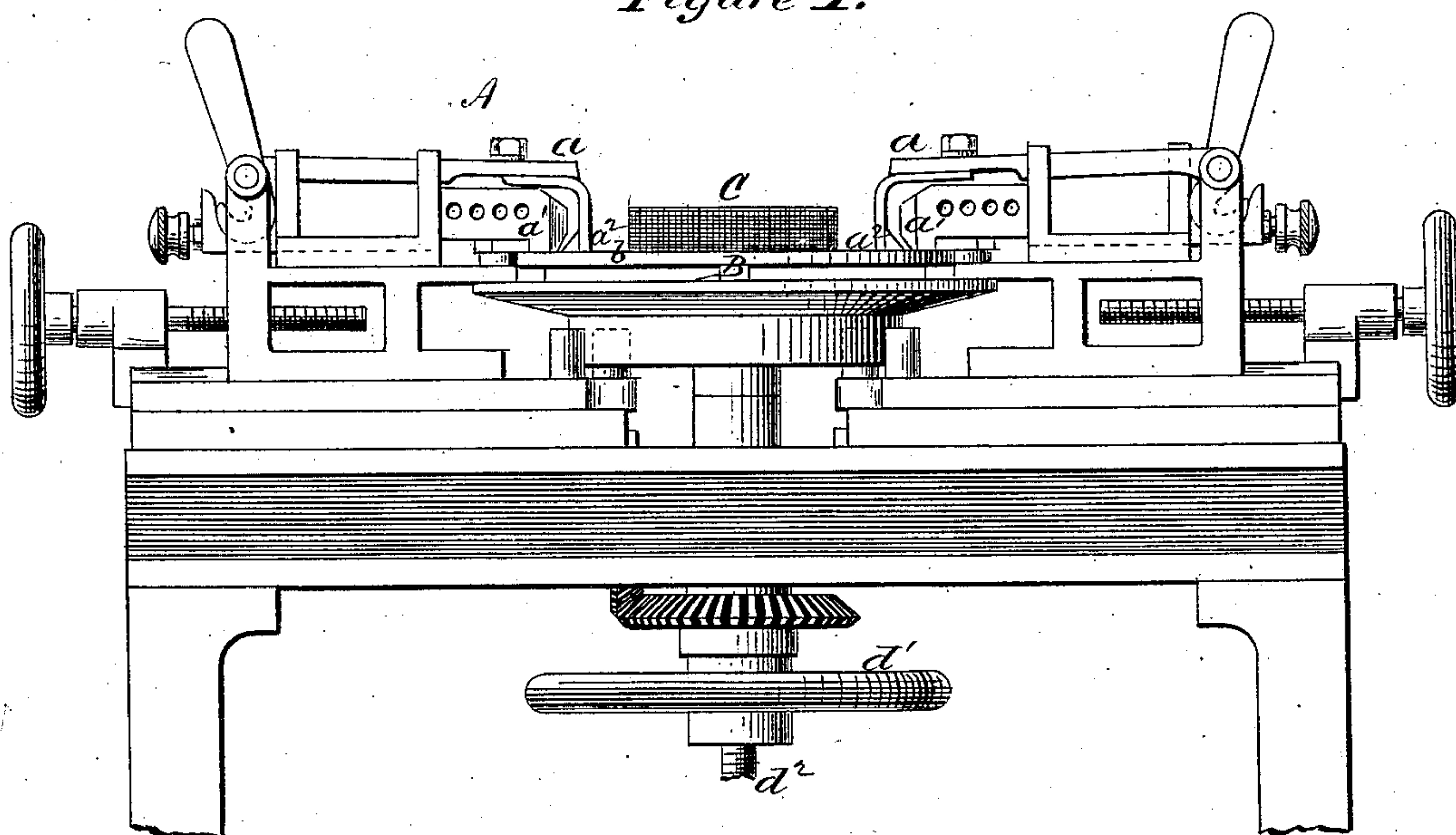
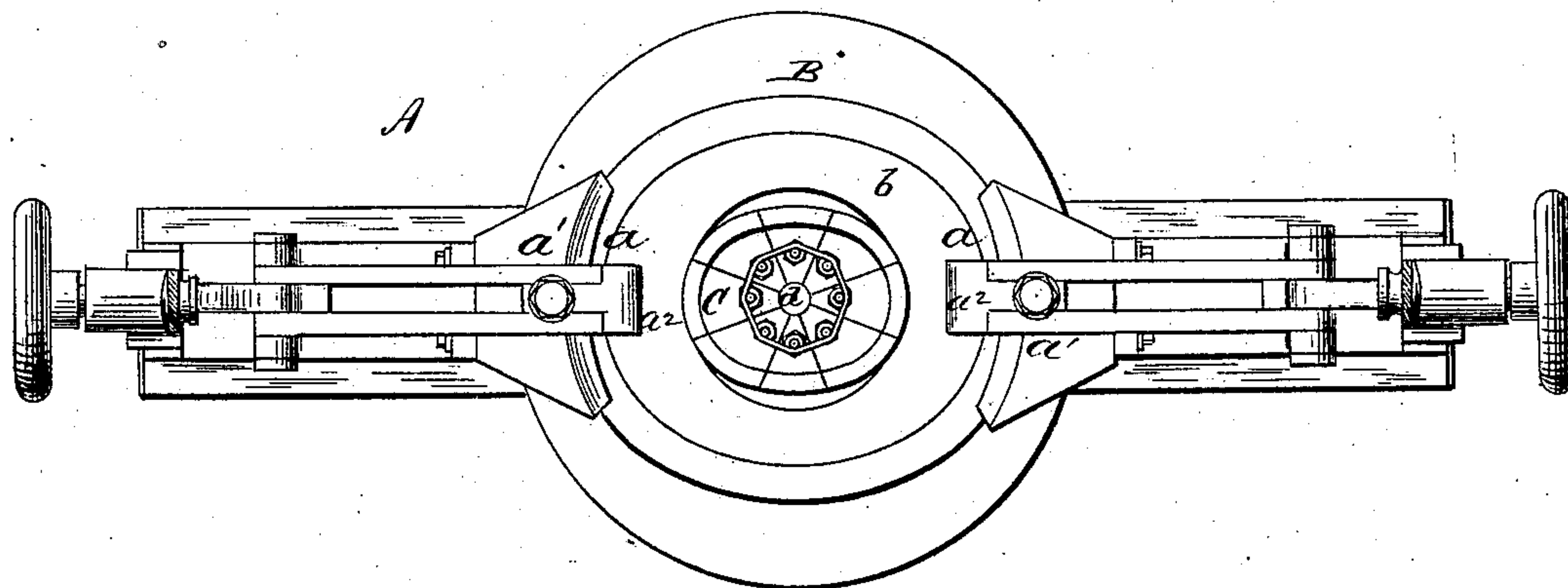


Figure 2.



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By his Atty.
Henry L. Brewster

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Figure 3.

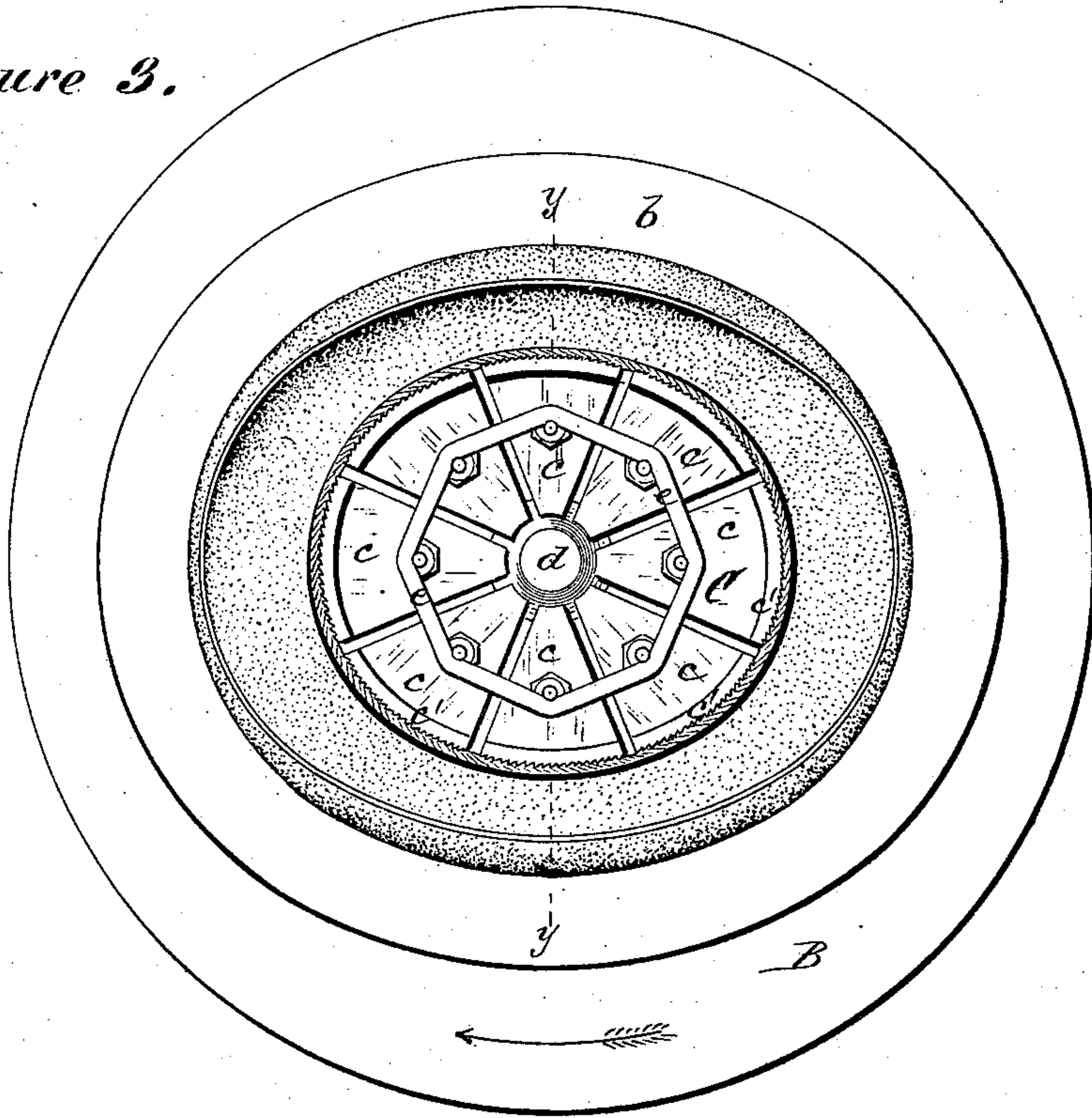
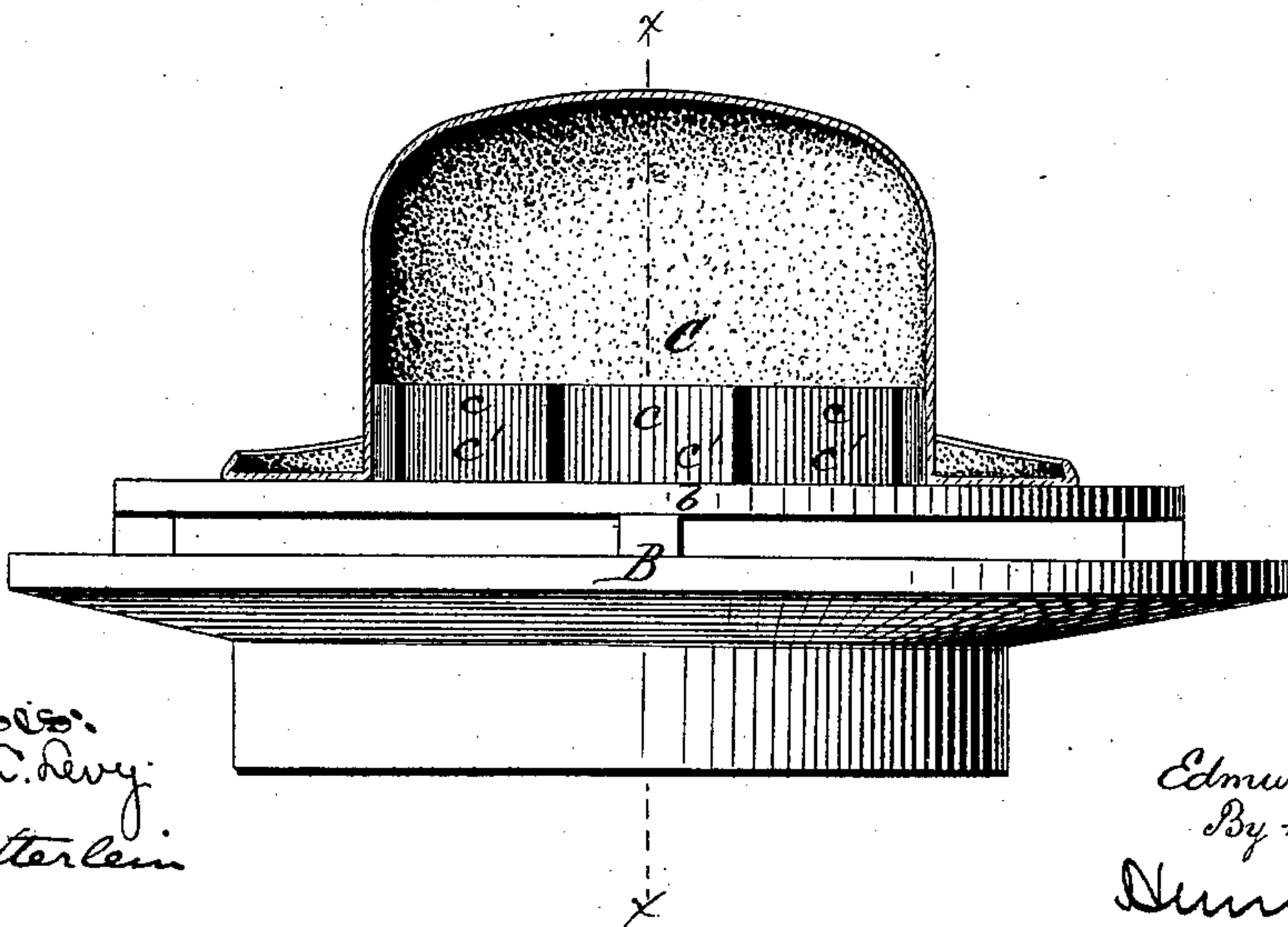


Figure 4.



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Figure 5.

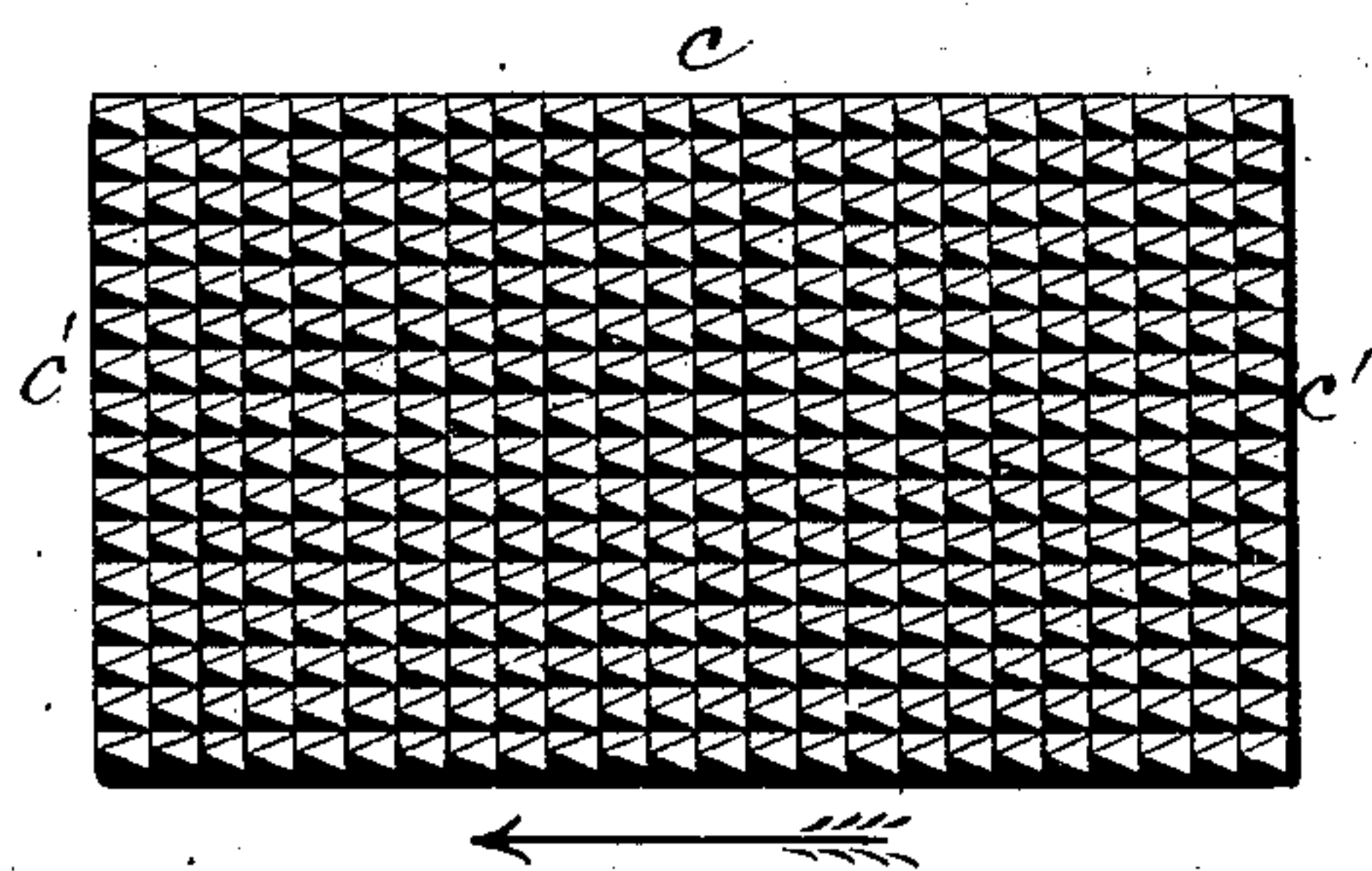


Figure 6.

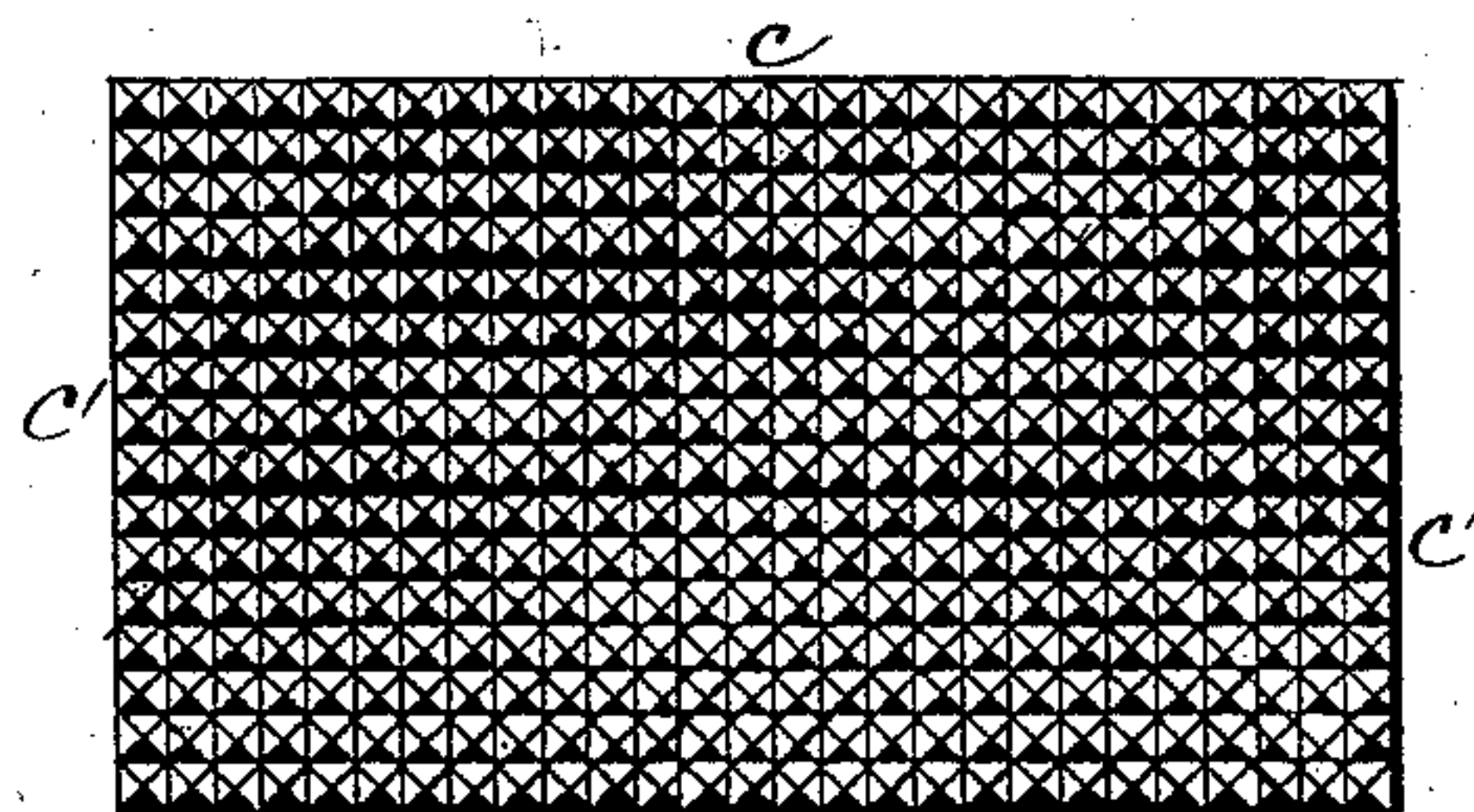
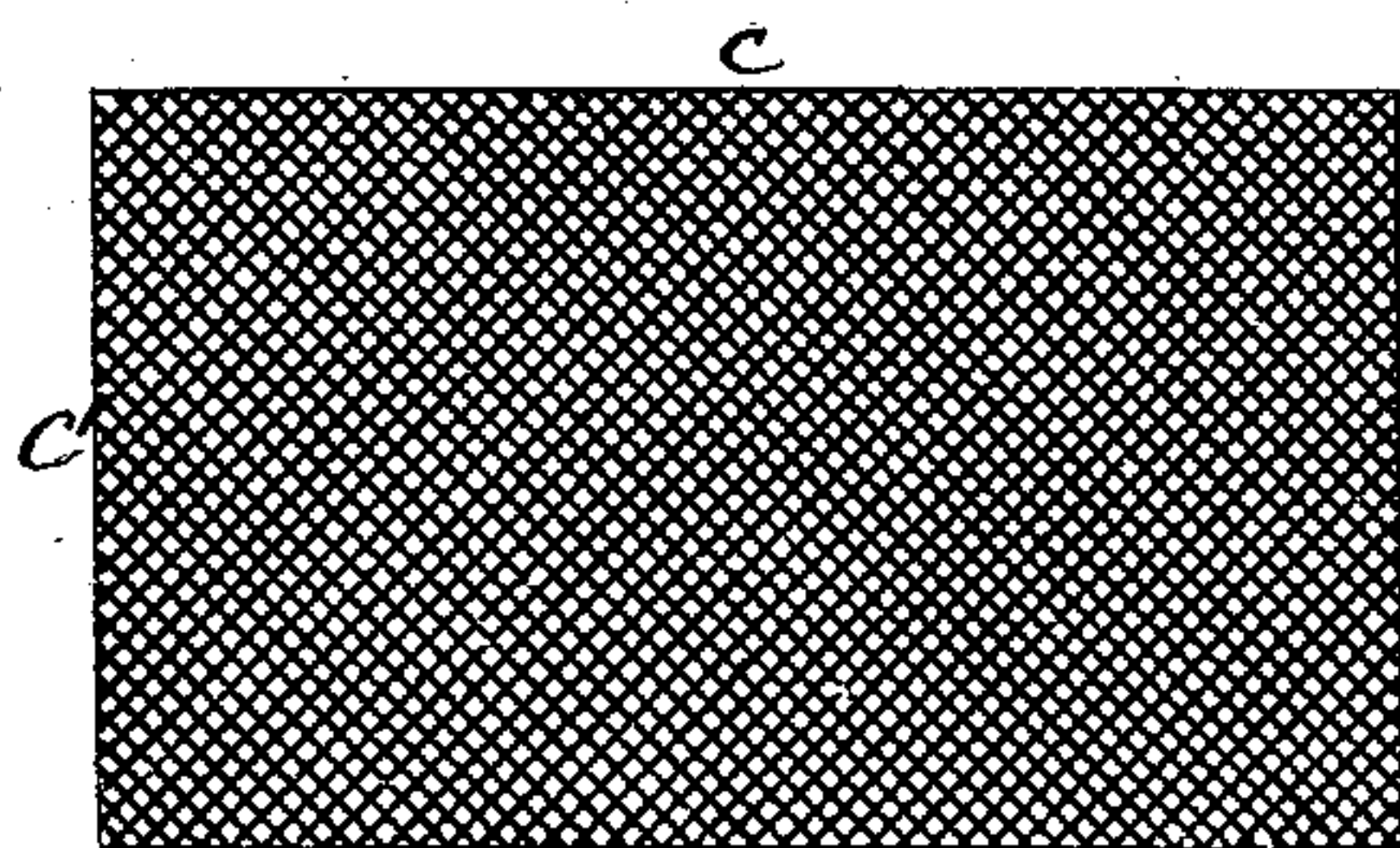


Figure 7.



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UNITED STATES PATENT OFFICE.

EDMUND TWEEDY, OF DANBURY, CONNECTICUT.

HAT-CURLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 281,321, dated July 17, 1883.

Application filed June 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDMUND TWEEDY, a citizen of the United States, and a resident of Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat-Curling Machines, of which the following is a specification.

My invention relates to that class of apparatus for automatically curling the brims of felt hats in which the hat-body is secured in position by an expansible "brow-block," or similar internal securing device, which is intended to hold and support it against the resistance afforded by the curling mechanism in operation, the said expansible brow-block being in some machines of this class rotated so as to present the rim of the hat to curling mechanism occupying prescribed positions with relation thereto, while in other machines the hat is held stationary and the curling mechanism traverses around it while curling its brim, the operation and the effect upon the hat, when considered with relation to the object of the present invention, being substantially the same in either case.

In my application for patent dated May 25, 1883, in which the state of the art is mentioned, and to which I desire to refer as applicable to the present case, I describe and claim a positive means of securing the hat-body against the tendency constantly exerted by the curling mechanism to twist or derange it during the operation of curling. While the construction therein described is the most appropriate and effective in connection with the manufacture of a majority of the forms and styles of hats, there are still some cases in which the perforations made by that device in the side crown of the hat would be objectionable, as when no hat band or ribbon is to be used, or where, owing to the comparative thinness and lightness of the hat-body, it might be unsafe to subject one or two points only to the strain necessarily involved in the operation of curling the brim.

My present invention is designed more especially for use in such exceptional cases, although it is equally applicable and advantageous in all cases as compared with the old forms of expansible brow-block heretofore

used. In the latter the radial pressure exerted against the side crown of the hat has invariably been relied upon alone to prevent its turning upon the block. The consequence is that in such devices a very high degree of interior pressure against the side crown of the hat must be resorted to in order to hold the hat in place, and in some cases this requisite degree of radial pressure cannot be attained without danger of unduly stretching and enlarging the size of the hat, or even subjecting it to rupture.

I obviate these difficulties by, and my invention consists in, an expansible brow-block formed with a bearing surface or surfaces, consisting of a series of barbed teeth, dentations, serrations, or other roughened or uneven surfaces or protuberances, to engage with and grasp the fiber composing the inner side crown of the hat, and thereby prevent any movement of the latter upon the said block when it is sufficiently expanded to insure contact with the hat. By this construction a much less degree of radial pressure will be sufficient to hold the hat-body firmly in place against the action of the curling mechanism, since it is only necessary to expand the brow-block into intimate and perfect contact with the side crown of the hat, when the fibrous character of the latter will cause it to adhere more closely to the bearing-surfaces of the block in proportion as the lateral pull or strain is increased.

For the purpose of illustration only, in the accompanying drawings I show my invention as applied to a hat-curling machine of ordinary construction, in which the brow-block is made to revolve during the operation of curling the hat-brim, and thereby present the said brim continuously to curling mechanism arranged in prescribed positions in the machine; but my invention may be employed with equal facility and advantage in machines in which the brow-block or other hat clamping and supporting device remains stationary, while suitable curling mechanism is caused to traverse in the proper course around it, the lateral strain upon the hat created by the curling mechanism being substantially the same in either form of apparatus.

In the drawings, Figure 1 is a side elevation, and Fig. 2 a plan, of a hat-curling machine to

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which my improvement is applied. Fig. 3 is a plan of the revolving table and expansible brow-block expanded against the side crown of a hat, which latter is shown in section on plane of line $x x$, Fig. 4. Fig. 4 is an elevation of the same, showing the hat in vertical section on plane of line $y y$, Fig. 3. Figs. 5, 6, and 7 are detail views, illustrating the construction of the bearing-surfaces of the expansible brow-block.

In the hat-curling machine (A) shown in the drawings the curling mechanism $a a$ is mounted upon suitable slides and reciprocated by central cam-surfaces in the usual manner. This curling mechanism $a a$ may be of any suitable or well-known construction, that shown consisting of the smoothing-irons $a' a'$ and the heels or "openers" $a^2 a^2$, both said parts acting in conjunction to fold and compress the edge of the hat-brim, and impart to it the required curl. The revolving plate or curling-table B is formed with the oval tablet and hat-rest b , and with an expansible brow-block, C. This expansible brow-block C may be of any desired or well-known construction, that shown in the drawings consisting of segmental pieces $c c c$, sliding in suitable radial ways or grooves, and having their inner ends held against a central vertically-adjustable cone or wedge, d , by an elastic band, e , so that they may be simultaneously advanced or retracted by the elevation or depression of the cone d , which is accomplished through the medium of a hand-nut, d' , engaging with the vertical screw-standard d^2 , upon the upper end of which the cone d is mounted.

The outer bearing-surfaces of the segments $c c c$ are formed with a series of barbs, serrations, or dentations, $c' c'$, or are otherwise roughened to a degree that will enable them to engage intimately with and grasp the fiber upon the inside of a hat-body, while at the same time such projections are insufficient in length to penetrate through or materially disturb the felt composing it. These dentations or serrations are preferably inclined at an angle in the same direction as that of the motion of the revolving table or curling-plate, when the latter is used, or in the direction opposite to that in which the curling mechanism moves in cases where the hat is held stationary during the operation of curling its brim, so that in operation the retarding or twisting action of the curling mechanism upon the hat will tend to press the barbs or serrations more firmly into engagement with the fibers on the inside of the hat.

Where the bearing-surface is furnished by an encircling rubber band, as shown in my application for patent dated May 25, 1883, above referred to, the serrations or other projections are formed directly upon the outer surface of the band. In fact, it is immaterial what form of expansible brow-block is used, since the essential feature of my invention

consists in an expansible brow-block formed with one or more bearing-surfaces provided with a series of dentations, serrations, barbs, or other roughening devices, which enable it to engage intimately with and grasp the fibrous inside of a hat-crown without penetrating the latter.

The operation is as follows: The brow-block C is contracted in the usual manner, (in the machine shown in the drawings by lowering the conical wedge d by means of the hand-nut d' ,) and the hat to be operated upon is passed over it in such position that the brim rests upon the upper surface of the tablet or rest b . The proper alignment of the hat is then accurately attained by bringing the mark upon its brim corresponding to its greatest diameter, and which it has acquired in a previous stage of its manufacture, into coincidence with a register mark or indicator upon the surface of the revolving curling-table, or other portion of the machine, corresponding to the longitudinal diameter of the brow-block. The latter is then expanded by the usual means, (as by elevating the conical wedge d by means of the hand-nut d' ,) causing the barbs or other projections upon the brow-block bearing-surfaces to press against and partially enter the inner side crown of the hat. Thus secured to the brow-block, the hat-body may be held firmly against all disturbing influences by a comparatively small degree of internal pressure, preserving the alignment and symmetry of the hat without subjecting its side crown to penetration or enlargement.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hat-curling machine, the combination, with suitable hat-brim-curling mechanism, of an expansible brow-block formed with a bearing surface or surfaces having a series of barbs, dentations, serrations, or other projections capable of engaging with the fibrous interior of a hat-crown without perforating the latter when the block is expanded, for the purpose described.

2. In a hat-curling machine, the combination, with suitable hat-brim-curling mechanism, of an expansible brow-block formed with a bearing surface or surfaces having a series of barbs, dentations, serrations, or other projections capable of engaging with the fibrous interior of a hat-crown without perforating the latter when the block is expanded, the said barbs, dentations, serrations, or other projections being inclined so that their points or outer edges project forward in the same direction in which the hat-brim is presented to the action of the curling mechanism, for the purpose described.

EDMUND TWEEDY.

Witnesses:

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