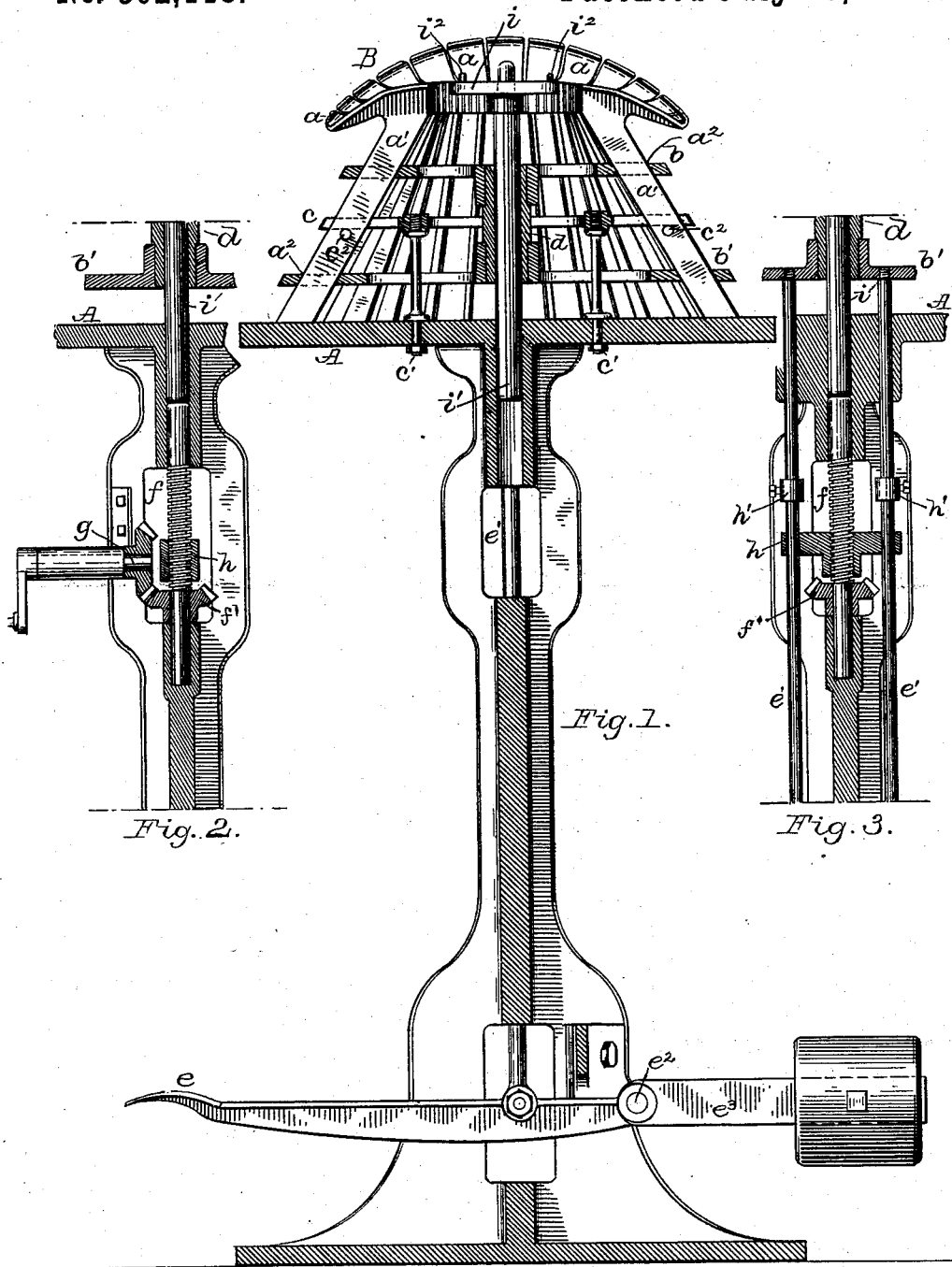


R. EICKEMEYER.

HAT BRIM MOLD.

No. 302,118.

Patented July 15, 1884.



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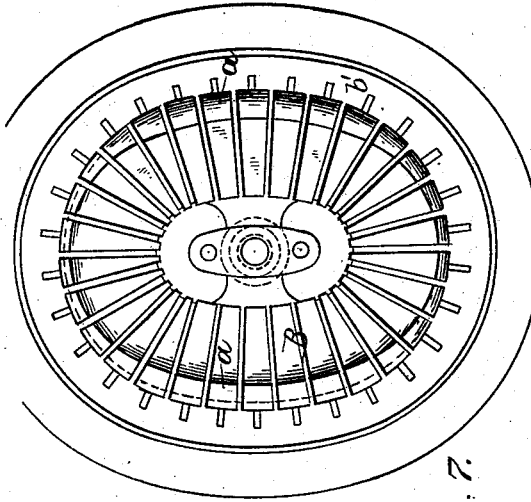


Fig. 7.

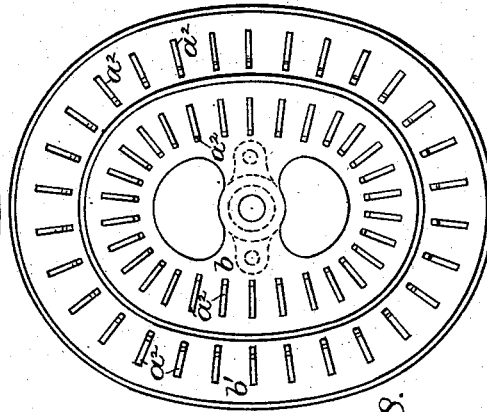


Fig. 8.

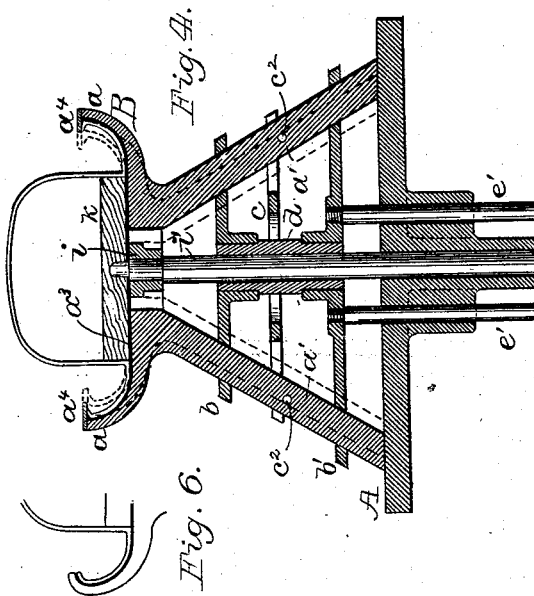


Fig. 6.

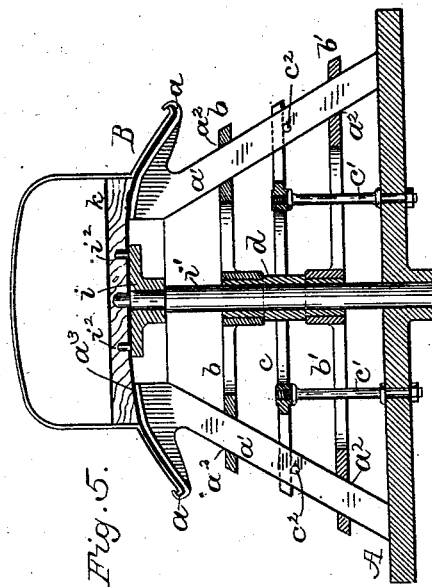


Fig. 5.

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# UNITED STATES PATENT OFFICE.

RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

## HAT-BRIM MOLD.

SPECIFICATION forming part of Letters Patent No. 302,118, dated July 15, 1884.

Application filed November 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLF EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Hat-Brim Molds; and I do hereby declare that the following specification, taken in connection with the drawings furnished, and forming a part of the same, is a clear, true, and complete description of my invention.

It is well known that after hats having stiff or half-stiff curled brims are otherwise finished it is always requisite that said brims receive more or less attention and labor for developing their proper curves and outlines, and that sometimes the edges of the brims are squarely turned inward, sometimes rounded, and sometimes folded flatly inward and upon the upper surface of the brim. This molding operation is performed while the hat or brim is well heated and softened, so that when cooled the form of brim attained in each case will be well set or fixed.

Heretofore, as a rule, brim-molds have been employed having a surface contour and dimension properly suited for the largest size contained in each assorted dozen of hats, and the several smaller sizes in each dozen, varying one-eighth of an inch in diameter from size to size, are operated upon in the same mold, which necessarily involves much labor and a high degree of skill in molding the brims of all such hats which are smaller than those to which the mold is exactly adapted, and with such prior molds but few workmen are sufficiently skilled to turn out a dozen hats of assorted sizes having brims which are approximately uniform in form or contour.

The objects of my invention are to enable the brim-molding operation to be more rapidly performed by comparatively unskilled workmen and with less labor than heretofore required, and also to enable the work to be performed in a better manner, and so that brims of all widths and upon hats of all sizes may be properly molded with absolute uniformity and with equal symmetry of contour. These results are due mainly to the fact that I employ a novel brim-mold devised by me, which broadly differs from all others of which

I have knowledge, in that it has a practically continuous outline and molding-surface, although it is sectional in construction; and, also, in that it is capable of expansion from one size to another without breaking the continuity of its outline or its molding-surface; and, still further, in that its molding-surface is one to which the under side of a hat-brim is made to conform, as distinguished from certain prior brim-molds constructed in two separable parts, and having a molding-surface to which the upper side of a brim is made to conform. In its best form my mold is capable of expansion from the smallest dimensions required to the greatest; and I have provided means whereby necessary variations in its adjustment may be promptly and accurately made, so that said mold may be readily set for properly molding the brim of any hat, and as readily changed for a hat of the next larger or next smaller or any other size, thus enabling a workman of ordinary skill to operate in brim-molding with equal facility upon hats of all sizes, with the expenditure of but little more time than is requisite for the cooling of the brims to such a degree as will warrant their removal from the mold. My brim-molds are variably so constructed as to properly engage with the edges of brims which have been turned squarely inward or curled, and thereby to cause the brims to readily conform to the contour of the mold with but little manipulation or hand-pressure.

I have illustrated in my drawings, and hereinafter particularly describe, the construction of an expansible brim-mold, from which it will be readily suggested to skilled persons in the art that many variations in construction may be made for producing a brim-mold capable of use with novel results approximating more or less closely to those obtained by me with the one described, and it is to be understood that I do not preclude myself from employing other substantially similar constructions. In developing the said expansible brim-mold into its best form, I have embodied therein some of the principles which are involved in the expansible hat-block shown and described in my Letters Patent No. 141,338, dated July 20, 1873. It should be understood, however, that

all expansible hat-blocks actively operate within a hat for forcing the crown into a certain form, and the expanding devices employed therewith are the means by which the requisite forcing-power is transmitted to the block; but, on the contrary, my novel expansible brim-mold serves merely as a variable matrix or mold for presenting suitable surfaces, against which the brims are pressed for securing their desired form or contour, and the expanding and contracting devices used upon the hat, but only enable the size of the brim-mold to be readily varied.

To more particularly describe my invention, I will refer to the accompanying two sheets of drawings, in which—

Figure 1, Sheet 1, illustrates one of my brim-molds in central vertical section as mounted for use. Figs. 2 and 3 are respectively vertical central sectional views of a portion of a brim-mold table and the means whereby the size adjustment of the brim-mold may be readily and accurately effected. Figs. 4 and 5 are vertical sectional views of the brim-mold detached, each being on a line at right angles to the other, and showing a hat in central section thereon crosswise and also lengthwise. Fig. 6 is a sectional view of one side of a brim-mold as constructed for operating on a hat with a rounded edge brim. Fig. 7 is a top view of the brim-mold. Fig. 8 is a top view of certain radially-slotted plates which are embodied in the brim-mold.

As shown in Fig. 1, I provide a suitable table, A, having a foot-plate and a suitable standard or standards. The expansible brim-mold B is mounted upon said table, the top of which is usually oval in outline, and has a smooth-planed surface. Said mold, as here shown, is composed of thirty sections, *a*; but the number thereof may be obviously varied without materially affecting the results desired. Each section is widest at its outer end, and has a top or bearing surface, which in form or surface contour corresponds with the desired shape of a hat-brim at the corresponding portion thereof—as, for instance, the sections at the side of the mold have bearing-surfaces which curve upwardly, and those at the ends of the mold curve downwardly, as clearly indicated in Figs. 4 and 5. Each mold-section *a* has a flat angular shank, *a'*, and said shanks are of the same length, and so finished at their lower ends that each rests squarely upon the smooth flat surface of the table A. Each section-shank *a'* occupies coincident radial slots *a''* in the two upper and lower cone-plates, *b* and *b'*, said slots having inclined ends, which conform to the inclination of the edges of said shanks, so that when said cone-plates are raised or lowered the several sections are simultaneously moved outwardly or inwardly; and to secure a proper radial movement of the sections I employ between the cone-plates a guide-plate, *c*, which has long radial slots occupied by the section-shanks, and it is rigidly

confined in place by standard-bolts *c'*, which project upward from the table A, as clearly indicated. As a rule, the weight of each section is sufficient to cause it to always remain in supporting contact with the top of the table; but to prevent its vertical movement, if desired, each shank *a'* may be provided with a lateral pin just below the guide-plate *c*, as is indicated at *c''* in Figs. 1, 4, and 5.

As seen in Fig. 4, the brim-mold is shown in solid lines, as when adjusted for a large-sized hat, and in dotted lines as when adjusted for a smaller size. When adjusted for the smallest-sized hat, the edges of the several sections are nearly in contact with the edges of the next adjacent sections; but when the mold is expanded intervening spaces occur between said sections; but I find that said spaces when widest do not result in causing a hat-brim to have a marked or uneven surface when ordinary care is exercised in molding; but in order to obviate all possibility of so marking or ridging the brims, especially on fine half-stiff hats, I sometimes provide for an absolutely smooth and unbroken surface of the matrix or mold by clothing it with a sheet of elastic material—such as vulcanized rubber—of suitable thickness, and such a sheet is indicated at *d*, Figs. 4 and 5. If the edge of a brim has been bent squarely inwardly, the outer end of each section *a* is either turned abruptly inward or provided with a flat plate, as at *a'*, Fig. 4, which so overhangs the bearing-surface of the section as to afford an angle into which the edge of a brim is pressed for causing the brim to properly conform to the mold. If a rounded-edge brim is to be molded, the sections at their outer ends are so curved as to afford the desired contour, as illustrated in Fig. 6. It is to be understood that this feature of providing a brim-mold with an inwardly-turned surface at its edge is, broadly, new, regardless of the construction of the mold in other respects; and while said edge-confining surface would have less value in a solid mold than in my sectional mold it can be therewith profitably employed, especially if said inwardly-turned surface be afforded by plates which are movable, so that a hat, when its brim has been molded and cooled, can be readily withdrawn from the mold; and I am well aware that if the molds with said inwardly-turned surfaces be arranged for working upon hats of one size only, or upon not more than two or three sizes, they can be profitably employed when considered with reference to the solid molds heretofore used; and so, also, am I aware that the novel sectional brim-mold, however it may be enlarged or contracted, has practical value even when not provided with said edge-confining surfaces. In this connection I will again refer to the prior two-part brim-mold, having a molding-surface to which the upper side of a brim is made to conform, and further explain that such molds, when expanded, afford only a molding-surface for the front and rear portions

of a brim, the crown of the hat in a pendent position occupying a recess between the two separated parts of the mold, and therefore such molds cannot be relied upon either for shaping the sides of brims or for shaping their curled edges, whereas in my mold the crown of a hat being on a centering-block and in an upright position at the center of the mold, and the molding-surface being in contact with the entire under side of the brim, (or, in other words, the side opposite to the crown of the hat,) not only can the entire brim be molded therein, but the mold when next expanded is retired wholly from the periphery of the brim and enables the hat to be removed from the mold without in any manner deranging the form imparted to its brim.

On referring to Figs. 7 and 8 it will be obvious that the sections move in lines radiating from several central points, and that therefore every portion of the molding-surface always maintains its proper relations with those on either side; and hence the mold can be uniformly expanded and contracted, whereas in a two-part mold as heretofore constructed there is and can be no uniform expansion of the molding-surface, but only a longitudinal enlargement thereof on a central line, and such molds are concave on said line, while mine are and must be arched or convex on that line, as clearly indicated in Figs. 1 and 5; but cross-wise of the mold it is more or less concave, according to the character of the upward curl to be molded at the sides of the brim, as clearly indicated in Fig. 6; and if brims should be desired having little or no arch from front to rear, but having an upwardly-turned edge, it will obviously involve only a corresponding change in the surface contour of the sections.

It will be seen, regardless of the particular construction of the sections and the manner in which they are expanded and the means employed for expanding them, that said sections as a whole serve as a variable matrix or mold within which hat-brims of all the usual widths may be molded, and therefore I broadly claim as the main feature of my invention a sectional mold, substantially as described, regardless of the particular construction thereof, provided it be capable of receiving a hat in an upright position and of molding its brim by the contact of its under side with the molding-surface of the mold. It is, however, important for obtaining the best results in the matter of economic operation to provide for readily changing the adjustment of the brim-mold, and also for some convenient means by which changes from any one adjustment to another can be promptly and accurately made.

The lifting and lowering of the cone-plates can be accomplished, or equivalent devices may be moved to and fro for expanding and contracting the brim-mold, by means of levers of various kinds or by cams, without departure from certain portions of my invention; but in order that the workman may have his hands free for handling hats I have provided

a treadle by means of which the brim-mold is expanded and contracted, and I have also provided graduating devices by which the size of the brim-mold may be accurately varied. It will be seen that the two cone-plates *b* and *b'* are coupled together by means of a sleeve, *d*, and that a treadle, *e*, is connected to the lower plate, *b'*, by a pair of rods, *e'*. The treadle *e* has for its fulcrum a rock-shaft, *e''*, to which a weighted arm, *e'''*, is connected, so that the treadle is normally elevated, thus normally maintaining the cone-plates *b* and *b'* in an elevated position and the brim-mold in an expanded condition, ready to receive a hat-brim, whereupon the treadle, on being depressed, contracts the mold to the proper size for molding said brim, and it is so held while the brim is properly pressed or worked, and thereby made to fully conform to the surface of the mold. If it be desired to leave the foot of the workman free while molding a brim, a catch may be employed for holding the treadle down until the hat is ready for removal, which of course must be preceded by a release of the treadle and an expansion of the mold for releasing the brim; or the treadle and weight may obviously be so mounted as to normally maintain the brim-mold in a contracted condition, so that on depressing the treadle the mold will be expanded to receive a hat-brim, and by then permitting the treadle to rise to the required point the proper size of the mold can be obtained, in which case an adjustable treadle-stop can be employed for holding it in position while the hat-brim is molded. It will be seen that it is the inwardly-turned surface on each mold-section which prevents a hat from being removed from the mold, except after expansion; but said edge-confining surfaces may obviously be afforded by means of plates movable independently of the sections, so that a hat could then be released, if desired, without the expansion of the mold itself.

For obtaining ready and accurate adjustment of the brim-mold, it is necessary to provide a readily-varied stop, which shall limit the downward movement of the treadle, and thereby limit the inward movement of the expansible brim-mold. In Figs. 2 and 3 I show a revolving vertical graduating-screw, *f*, having bearings at top and bottom within the standard of the table, and to said shaft a bevel-pinion, *f'*, is keyed, which meshes with a similar pinion on the hand-crank shaft *g*. Tapped upon the graduating-screw is a cross-head, *h*, having at its ends holes for loosely receiving the treadle-rods *e'*, each of which is provided with a collar, *h'*, having a set-screw. It will be readily obvious that if the cross-head, serving with the collars *h'* as a variable stop, be raised or lowered that the treadle will be correspondingly limited in its downward movement, and the brim-mold will consequently be limited to a certain degree of contraction; or, in other words, the mold will be exactly adjusted for molding a hat-brim of a certain size, at the same time permitting the mold to ex-

expand for releasing the hat as soon as the treadle is allowed to rise.

It will be obvious that if a treadle should be employed which would on rising contract the brim-mold the collars *h'* would be located below the cross-head instead of above it.

As each size of hat varies from those next larger and next smaller just one-eighth of an inch in diameter, I use a graduating-screw of such a pitch that with one turn of the crank it will so move the stop as to vary the contraction of the mold one-eighth of an inch, so that the workman, knowing of the last adjustment employed, can readily change to a larger or smaller mold with absolute accuracy by giving the proper number of turns to the hand-crank, and a consequent proportioned rotation of the graduating-screw, which might obviously be provided with a hand-wheel in lieu of the crank.

I have thus far described the brim-mold without any means for enabling the brim of a hat to be promptly and accurately adjusted concentrically within the mold, it being obviously practicable to obtain desirable results without such means, although they contribute greatly to economy in matter of time in the molding of brims. I have therefore provided a hat-block plate, *i*, on top of a spindle, *i'*, which has its step within the standard of the frame, and said spindle serves also a good purpose as a guide-bearing for the cone-plate sleeve *d*, before described, although if the treadle-rods *c'* be properly supplied with guide-bearings, no other would be absolutely needed. The hat-block plate has on its upper surface a central pin, (the top of spindle *i'*), and also two additional pins, *i''*, with which corresponding holes in a hat-block, *k*, register, as indicated in Fig. 5, so that a hat on such a block placed within the mold will be always readily and accurately centered.

In lieu of the ordinary hat-block, it is obvious that I can employ an expansible hat-block without departing from the main features of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A sectional hat-brim mold, substantially as described, and capable of receiving a hat in its upright position, and of molding its brim by the contact of its under side with the molding-surface of the mold, as set forth.

2. An expansible brim-mold composed of

radially-movable sections having a practically-continuous outline and molding-surfaces which impart shape to the downwardly-curved ends of a hat-brim, and also to its upwardly-curved sides, substantially as described.

3. An expansible brim-mold composed of radially-movable sections, and provided with a sheet of elastic material overlying said sections, substantially as described, whereby an unbroken surface is afforded within the mold, whether it be in a contracted or expanded condition, as set forth.

4. A brim-mold provided at its outer edge with an inwardly-turned surface, substantially as described, for enabling the edge of a hat-brim to be properly confined, as set forth.

5. An expansible brim-mold provided at its outer edge with an inwardly-turned surface, substantially as described, for enabling the edges of brims of various sizes to be properly confined, as set forth.

6. The combination, substantially as hereinafore described, of an expansible brim-mold and an adjustable stop for variably limiting the contractile capacity of said mold, and thereby accurately adjusting it for molding brims of various sizes.

7. The combination, substantially as hereinafore described, of an expansible brim-mold and mechanism for radially expanding and contracting said mold, embodying a series of radially-movable sections.

8. The combination, substantially as hereinafore described, of the sectional brim-mold, its expanding and contracting mechanism, a stop for limiting the movement of the brim-mold sections, and a graduating-screw for adjusting said stop, whereby changes in adjustment may be readily effected and variations in the mold from size to size are accurately determined, as set forth.

9. The combination of the radially-expansible brim-mold and the treadle-lever connected therewith, substantially as described, for expanding and contracting said mold.

10. The combination, with a sectional brim-mold, of a centering-block, substantially as described.

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Witnesses:

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