(No Model.)

H. GREENFIELD.

HAT FLANGING AND CURLING APPARATUS.

No. 564,193. Patented July 21, 1896.

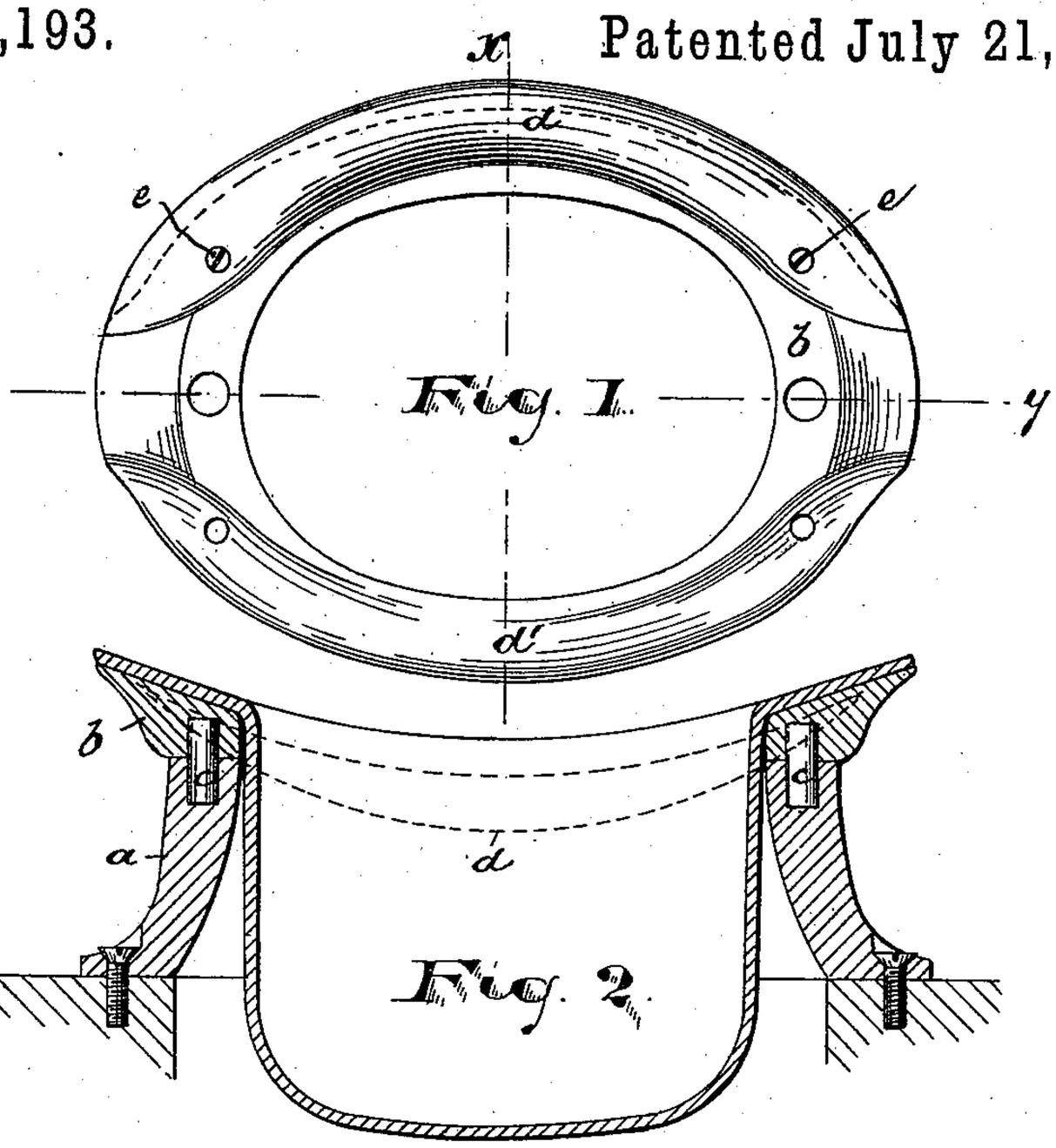


Fig. 1.

Fig. 2.

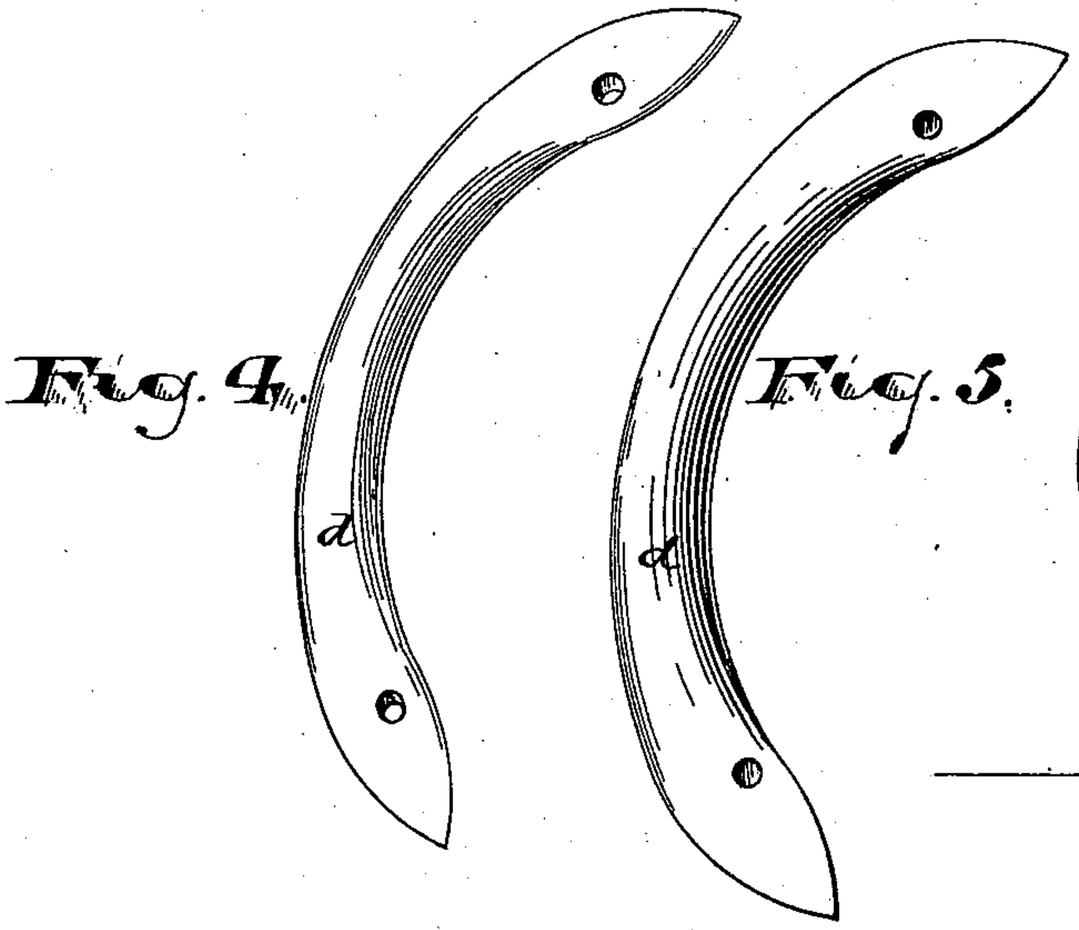
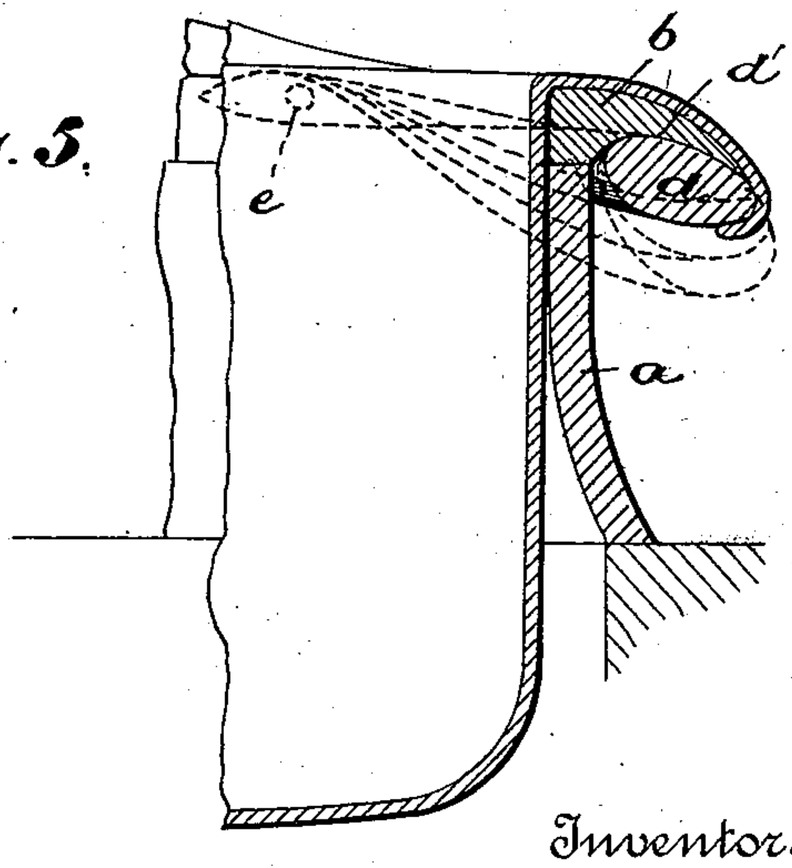


Fig. 4.

Fig. 5.

Fig. 3.



Witnesses
Robert Sollberger
Beatrice Charles.

Inventor:
Harry Greenfield,
By Drake & Co. Atty's.

UNITED STATES PATENT OFFICE.

HARRY GREENFIELD, OF KEARNEY, NEW JERSEY.

HAT FLANGING AND CURLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 564,193, dated July 21, 1896.

Application filed March 12, 1895. Serial No. 541,395. (No model.)

To all whom it may concern:

Be it known that I, HARRY GREENFIELD, a citizen of the United States, residing at Kearney, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Hat Flanging and Curling Apparatus; 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 of reference marked thereon, which form a part of this specification.

The object of this invention is to reduce the cost of the devices employed in giving shape to the hat-brim; to provide for a speedy exchange of curling-sections without disturbing the flanging parts of the forming or shaping device, so that a full line of variously-curled side edges with uniform flanges may be quickly and inexpensively made; to enable the curling-sections to be easily and quickly removed from the flanging portions without disarranging the set in the flange or curls in the brim edges; to enable a much larger variety of styles to be manufactured within a given limit of cost, and to secure other advantages and results, some of which will be referred to hereinafter in connection with the description of the working parts.

To arrive at a distinct and definite understanding of what I mean by certain terms above employed and to be employed herein, I may state that it has been common in the hat-making art to speak of the whole form over which a hat-brim with its curled edges is shaped as the "flange," and of the outer side edges thereof, where the shaping-surfaces turn upwardly and inwardly toward the crown, as the "curl." In some cases where sectional flanges have been employed the outside sections of the flange or "side-formers" having the curls have been referred to as "curl-molds;" but in such cases the curl-mold portion of the flange provided not only "curling-surfaces," but also what I herein refer to as flanging-surfaces. For the purposes of this case, when I refer herein to the flange of the hat-brim I mean to designate that portion of said brim which extends outwardly from the brim, and which at its outer edge has an upward turn, which is continued in the curl. By the term "curl" I mean the return bend or the continuation of the flange which projects inward toward the brim. Likewise, in connection with the form for shaping the hat-brim, I mean, when mentioning the flanging-surfaces, to specify those portions or surfaces of the form which shape the flange or outwardly-extending part of the brim alone. By the curling portions, surfaces, or sections of the form I mean those portions, surfaces, or sections of the form which shape the upper return or inward extensions at the side edges of the brim. With these definitions in mind, I may state that heretofore it has been a common practice in manufacturing hat-brim forms to construct the curling portions integral with the flanging portions, and thus the side portions of said forms have presented outsides which provided both flanging and curling surfaces.

Sometimes the forms have been in three longitudinal sections and the side sections have presented to the brim both flanging and curling surfaces, the parts of the sections having said surfaces being integral with one another, just as they were in cases where the brim-shaping form was not in three sections.

While the hat-brim forms have been in sections heretofore, as above indicated, the idea of interchangeability of varying curling-sections for securing a variety of curls in hats with uniform flanges has not been provided for, the sections heretofore employed serving simply to facilitate the withdrawal of the hat from said form.

In my improvements I have for the first time provided a hat flanging and curling device with interchangeable curling-sections which vary in shape transversely and are separable from the flanging portion of the block, thus enabling the hat manufacturer with a single flange-form of a given style to provide a variety of curled hats. Thus with a few flange-forms a very large variety of hats may be produced. This provision conduces to economy in the manufacture of hats and enables wearers to be very nicely suited because of the greater number of varieties which can be produced within a reasonable limit of expenditure by the manufacturer.

In the prior devices the joints extended

through the flanging-surfaces, where they would produce, if not exactly formed, marks in the flange of the hat such as would be easily discoverable and detract from the proper finish. In my invention the joints are formed at the upward bends, where the vertical pressure is not direct, so that marks will not be so readily and distinctly produced.

The invention consists in the improved hat curling and flanging apparatus or device, and in the arrangements and combinations of parts thereof, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a plan showing the under side of a certain hat flanging and curling plate having interchangeable side sections. Fig. 2 is a sectional view at line *y*, showing the said plate stationed upon a suitable stand or supporting-frame with a hat thereon. Fig. 3 is a sectional detail at line *x*, and Figs. 4 and 5 are detail views of interchangeable sections.

In said drawings, *a* indicates a stand or supporting-frame, of any construction suitable for the purpose.

b is a flanging-form centrally open to receive the crown of the hat, the opening being oval to conform to said crown, and the outline of the flanging-form being correspondingly oval to correspond with the shape of the brim ordinarily required. The upper surface of the flanging-form, when the same is in position on the stand *a*, is shaped concavously, as indicated in Fig. 2, to produce the desired "set" to the brim, and is otherwise shaped to give the desired form to the outwardly-extending portion of the brim, the said flanging-form extending without joints to the oval outline, where it is downwardly curved to produce the bend at the sides of the brim. Said flanging-form *b* is adapted to rest on said stand or frame *a*, and to be removed therefrom, said stand being provided with means—such as dowels *c* or dowel-holes to receive dowels—to admit of an easy and quick adjustment and removal.

At the longitudinal sides of the oval flanging-form, on the under side, and running approximately parallel with the side edges of said form, are shallow grooves *d'*, which are transversely concavous, as indicated in Fig. 3. In said grooves are arranged curved curling-sections *d*, which serve to give shape to the curl or inward extension of the brim. Said sections taper in thickness toward their opposite ends, and are held to the flange by suitable screws *e e*, arranged near the ends of said sections where the curl of the brim will not cover them or be made uneven thereby. Said curling-sections are on one side made convex transversely to correspond with the concave grooves and on the opposite side are given the shape or form suited to the inwardly-extending curl. In a series of such sections one pair will lie quite low in the grooves and present almost a flat under surface, against which the felt is pressed, as indicated by the uppermost of series of broken lines in Fig. 3. Another pair will be more convex and project farther from said grooves, and so on to an extent equal to the desired extension of the line of varieties. These various pairs of curling-sections are interchangeable, that is to say, when sufficient hats have been formed with one form of curl the curling-sections may be removed and sections of another form are applied to the under face of the flange.

By means of the concave form of the grooves transversely and the corresponding convexity of the curling-sections, the latter may be quickly removed from the under or back of the curls, without disturbing the shapes thereof, after unfastening the sections, by simply turning said sections in the grooves, as will be understood after referring to Fig. 3. Thus the outer edges and under faces of the curved and convexed sections are drawn away from the shaped felt without dragging longitudinally thereon.

The operation of shaping the hat-brim in connection with the improved devices is similar to that ordinarily employed, with the exception that after the brim is once shaped the curl is not disturbed in removing the forming devices therefrom, and hand manipulation after removal is not required or is greatly reduced. Sand bags or hydraulic pressure may be employed in any ordinary manner to press the felt down to the forms. After the shaping operation is completed, the flange and its sections are removed together from the stand *a*, turned upside down, the screws *e* are removed, and finally the freed curling-sections *d* are turned in their grooves toward the crown, and thus removed from the curl of the brim without any disturbance in the position of the latter.

Having thus described the invention, what I claim as new is—

1. In a hat flanging and curling apparatus, the combination with the oval flange *b*, centrally open to receive the hat-crown, and providing a form on which to shape the flange of the hat-brim, of interchangeable curling-sections of varying shapes applicable to said flange, whereby a variety of forms may be given to the curls of the hats, substantially as set forth.

2. In a hat flanging and curling apparatus, the combination with the oval flange, which is centrally open to receive the hat-body, and around said opening on the upper side is formed to receive and shape the brim, and underneath said brim-forming part provides bearings for curling-sections, of said curling-sections which are interchangeable and are fixedly seated beneath said brim-forming part at the lateral and longitudinal edges thereof, and are adapted to be turned from beneath the curl of the brim before the hat is changed

in its relation to the flanging-form, substantially as set forth.

3. The improved hat flanging and curling apparatus herein described, in which is combined with an oval flange having outline surfaces which give shape to the outward extension of the hat-brim and which is centrally open to receive the crown of the hat and at the longitudinal sides, on the under side, having longitudinal concavous grooves, curling-sections removably fixed in said grooves and made convex to correspond with the grooves and shaped to give form to the curl of the hat-brim, substantially as set forth.

4. In a hat flanging and curling apparatus, the combination with the oval flange, which is centrally open to receive the hat-body, and around said opening on the upper side has the flanging-forms to give shape to the flange of the hat, of curved curling-sections, extending under the said flange at opposite sides thereof, and interchangeably secured thereto, the said sections being removable from beneath the hat-brim and from the flange without disturbing said hat on said flange, substantially as set forth.

5. The improved hat flanging and curling apparatus, in which is combined the stand or frame, *a*, having dowels, an oval flange held by said dowels, open centrally to receive the hat-body on the upper side having shaping or molding surfaces to give shape to the flange of the hat, and on the under side having concavous grooves extending lengthwise of the flange, curling-sections convexed to correspond with the concavities of the grooves and, on the sides opposite the convexities, shaped to give form to the curl of the brims, and screws for fixing the sections in place, substantially as set forth.

6. The improved hat flanging and curling apparatus in which is combined a stand, *a*, a removable flange having the hat-body opening on the upper side having shaping or molding surfaces upon which the flange of the hat-brim is shaped and on the under side having the concavous grooves, curved curling-sections removably fixed to the under sides of the flange at their ends and each having on one side a convexity corresponding with the concavity of the grooves and on the opposite side shaped to give form to the curl of the brim, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of March, 1895.

HARRY GREENFIELD.

Witnesses:

CHARLES H. PELL,

BEATRICE CHARLES.