

(No Model.)

3 Sheets—Sheet 1.

HENRY H. TURNER, ALBERT TURNER &
ARNOLD TURNER.

MACHINE FOR TRIMMING HAT BRIMS.

No. 562,987.

Patented June 30, 1896.

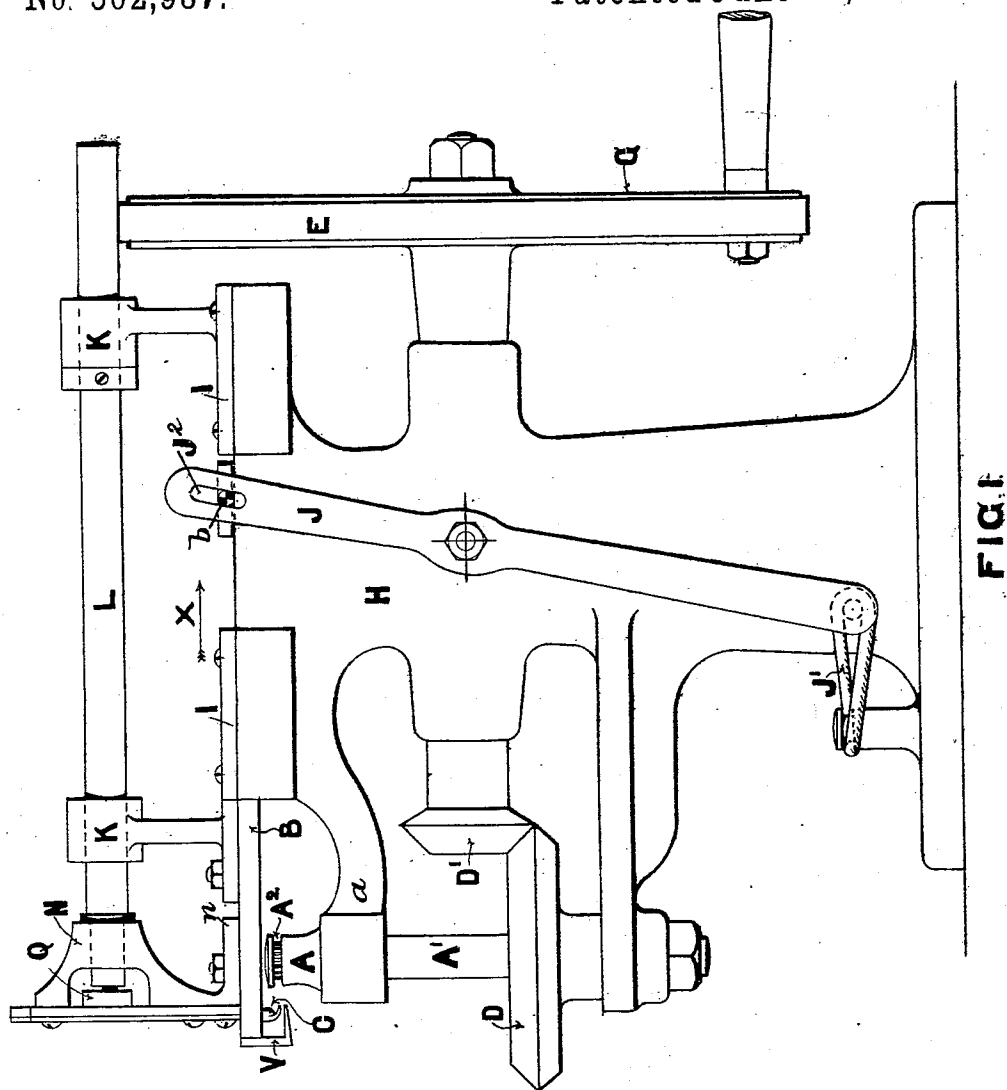


FIG. 1.

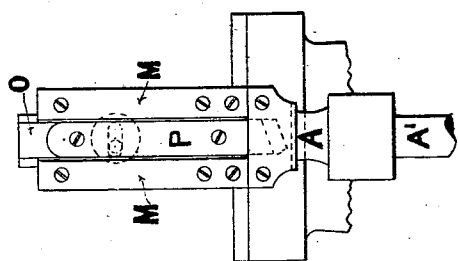


FIG. 3.

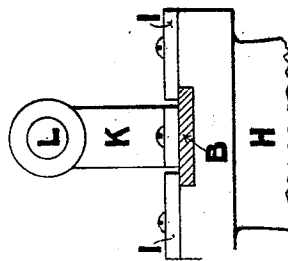


FIG. 4.

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Thos. A. Green
Robert Emmett.

Inventors,
Henry H. Turner
Albert Turner
Arnold Turner.
By James L. Norris, Atty.

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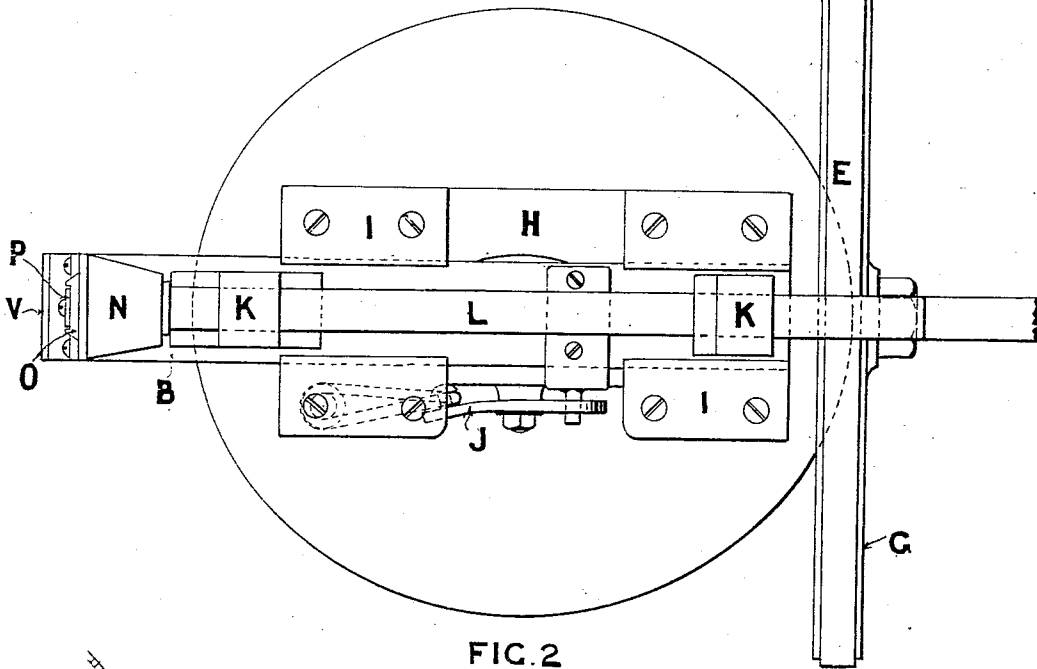


FIG. 2

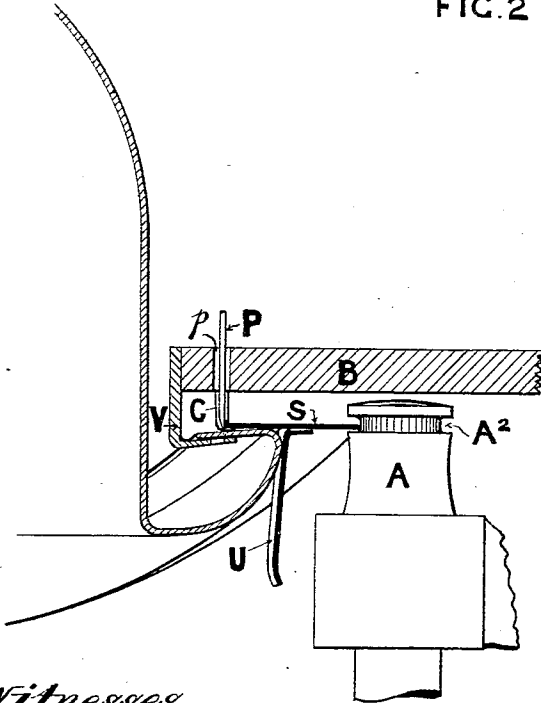


FIG. 5

Witnesses,

Thos. A. Green

Albert Gruett

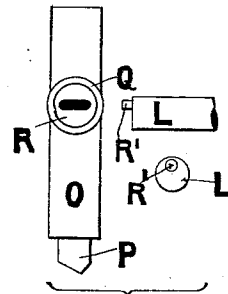


FIG. 6

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(No Model.)

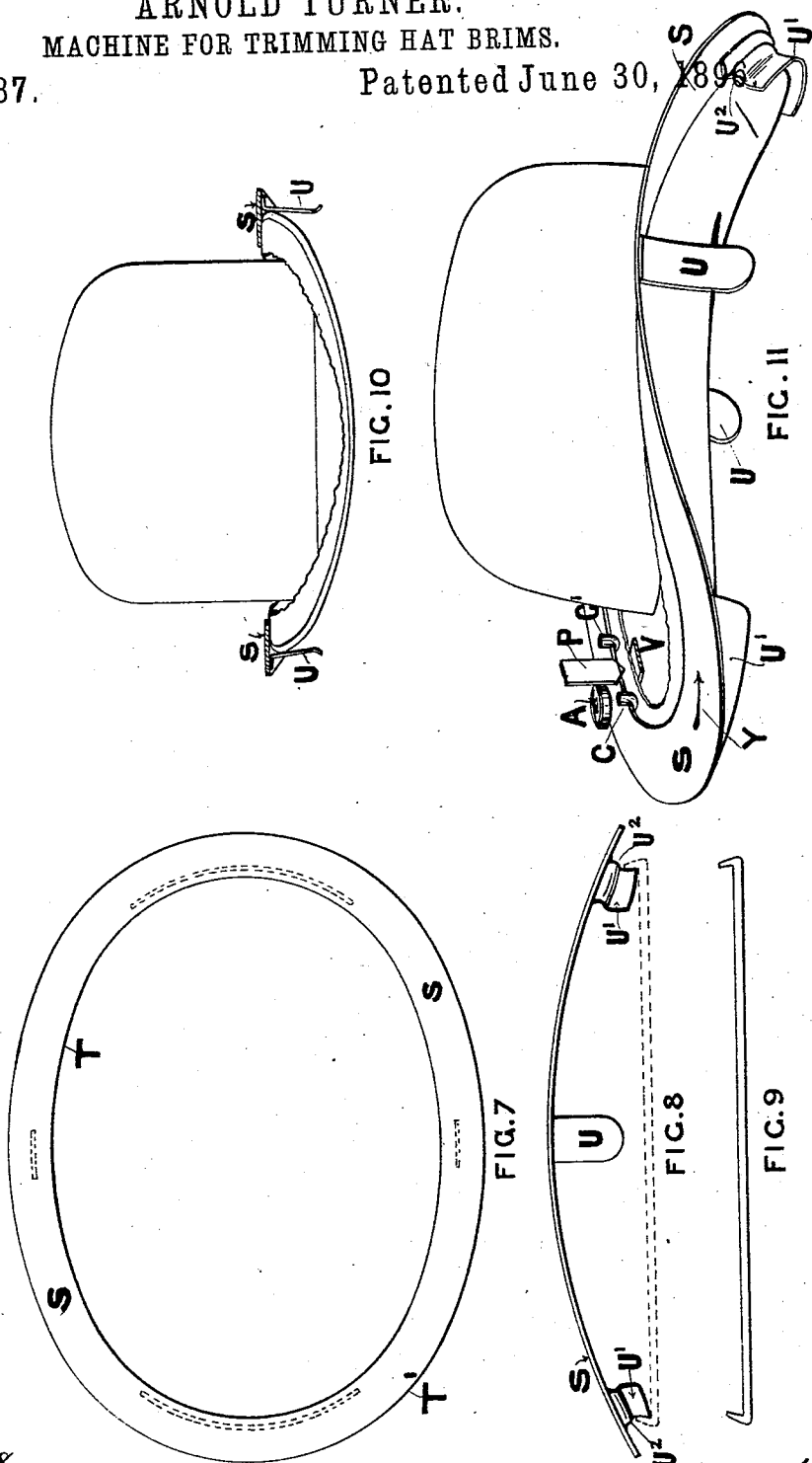
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Witnesses:

Thos. A. Green

Robert Emmett

Inventors
Henry H. Turner.
Albert Turner.
Arnold Turner.
By James L. Norris, Atty.

UNITED STATES PATENT OFFICE.

HENRY HERBERT TURNER, ALBERT TURNER, AND ARNOLD TURNER, OF
DENTON, ENGLAND.

MACHINE FOR TRIMMING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 562,987, dated June 30, 1896.

Application filed November 17, 1894. Serial No. 529,210. (No model.) Patented in England April 23, 1894, No. 8,024; in Germany July 11, 1894, No. 81,180; in France July 16, 1894, No. 240,066; in Belgium July 17, 1894, No. 110,895; in Victoria September 11, 1894, No. 11,672; in Italy September 30, 1894, No. 36,845; in Spain October 10, 1894, No. 16,064, and in Austria October 24, 1894, No. 5,622.

To all whom it may concern:

Be it known that we, HENRY HERBERT TURNER, ALBERT TURNER, and ARNOLD TURNER, subjects of the Queen of Great Britain and Ireland, and residents of Denton, in the county of Lancaster, England, have invented new and useful Improvements in Machinery for Trimming or Paring the Curls of Felt, Silk, and other Hat-Brims, (for which we have obtained Letters Patent in Great Britain and Ireland, No. 8,024, dated April 23, 1894; in France, No. 240,066, dated July 16, 1894; in Belgium, No. 110,895, dated July 17, 1894; in Germany, No. 81,180, dated July 11, 1894; in Colony of Victoria, No. 11,672, dated September 11, 1894; in Spain, No. 16,064, dated October 10, 1894; in Austria, No. 5,622, dated October 24, 1894, and in Italy, No. 36,845/236, dated September 30, 1894,) of which the following is a specification.

Our invention relates to machines for paring or trimming the curls of felt hat-brims, our object being to provide a simple and efficient apparatus by which hats of varying shapes and sizes may be automatically and accurately fed to a paring or trimming knife which is mechanically operated in such manner as to rapidly and smoothly remove the superfluous edge of the brim-curl.

It is our further purpose to simplify and improve the construction and operation of machines of this type; to provide simple interchangeable means whereby the mechanism may be used upon hats varying in form or contour, and to make provision of novel and simple means for trimming hats of different sizes.

It is one purpose of our invention also to improve the automatic action of the parts by which the brim-curl is fed to the knife or cutter and provide means having an improved and simplified construction and operation by which the same cutting mechanism may be used, without change or adjustment, to trim hats having any variation in outline. Our invention also contemplates other features of novel improvement, which will be explained in their order in the following description.

Our invention consists, to these ends, in the several novel features of construction and in the parts and new combinations of parts hereinafter described, and then more particularly pointed out and defined in the claims which conclude this specification.

To enable those skilled in the art to which our invention pertains to fully understand and to make, construct, and use our invention, we will describe the same in detail, reference being had for this purpose to the accompanying drawings, in which—

Figure 1 is a side elevation of a machine in which our invention is incorporated. Fig. 2 is a plan view of the parts shown in Fig. 1; Fig. 3, an end elevation taken from the left hand of the machine in Fig. 1, the stand and driving mechanism being omitted. Fig. 4 is an end elevation taken from the other end of the machine. Fig. 5 is a vertical section taken longitudinally through a part of the slide in Fig. 2 and showing a hat in position to be operated upon. Fig. 6 is a detail view showing the cutter-head as it would appear in rear elevation and illustrating part of the shaft and the wrist upon its end by which the knife or cutter is operated. Fig. 7 is a plan view showing one form of guide-plate for the hat-brim. Fig. 8 is a side elevation of the guide-plate shown in Fig. 7. Fig. 9 is a detail view showing the hooked binding-rod for securely holding the guide-plate to the hat-brim. Fig. 10 is an end elevation showing a hat having the guide-plate secured to its brim. Fig. 11 is a perspective view more fully illustrating the construction of the guide-plate and the manner of its attachment to the hat-brim.

The reference-letter A in said drawings indicates the rotating head, which is mounted on a vertical shaft A', having a beveled gear D, which is driven by a similar gear D', which is carried by a horizontal shaft supported in a main casting or stand H, rising from any suitable form of bed-plate or base. The horizontal shaft is provided with a driving-wheel G, adapted to be turned by any suitable means.

In the upper part of the stand H is formed a guideway, (shown in Fig. 4 of the drawings,)

and in said guideway is arranged a horizontal slide B, the forward end of which projects over the upper extremity of the rotating head A, the latter having support in a bracket-bearing a , which projects from the stand H. The slide is confined in its guideway, with freedom to move therein longitudinally, by plates I, which extend over the top of the slide and stand and are secured to the latter by screws. Said slide B is normally projected or moved toward the front end of the machine, or in the direction indicated by the arrow x in Fig. 1, by means of a spring-actuated lever J, having its fulcrum upon the stand H, its lower end being pressed by a spring J' , of any suitable form, in such manner as to move the slide B in the direction denoted by the arrow x in Fig. 1. The upper end of said lever is provided with a slot J^2 , which receives a pin b , rigidly mounted on the slide B. By means of this connection and by the spring-tension exerted upon the lever J the slide is constantly driven in the direction described.

Upon the slide B are arranged uprights which support bearings K, in which is mounted a horizontal shaft L. This shaft is driven from the power-shaft by any suitable gearing, such as a frictional gear formed by covering the periphery of the driving-wheel G with a surfacing E, of rubber or other suitable material, which bears directly upon the shaft L. Upon the forward end of the slide B vertical guides M M are provided. These guides are preferably formed in a bracket N, which is rigidly mounted by its foot-piece n upon the slide, said bracket also serving as a support for the end of the shaft L. In the vertical guides M M is placed a slide or cutter bar O, upon which is formed or attached a knife P, having an edge which is beveled or inclined, preferably, in two directions to the vertical line of movement of the cutter-bar O. Upon the end of the shaft L is an eccentric wrist R' , which engages a slotted bush R, projecting from the rearward face of the cutter-bar. The rotation of the shaft L will produce a reciprocation of the cutter-bar O and knife P, which will be slow or rapid in accordance with the speed of the shaft. The knife P lies in a slot or opening p , formed in the forward end of the slide B, Fig. 5, below which its cutting edge operates.

The reference-letter S in the drawings indicates an annular guide-plate formed of thin sheet metal, its inner and outer edges T T' being so formed as to coincide substantially with the contour or configuration to be given to the brim of the hat by means of the knife P. As hats vary considerably in shape and style, as well as in size, it is essential that the guides be readily attachable to and detachable from the hats and that a series of guides be provided, differing one from another, as may be required, in order to conform to the different patterns or configurations of hats. They are continuous throughout, and each guide is provided with spring projections U

U', arranged at the sides and ends of the annular guides, as seen in Fig. 11. To more securely attach the guide to the hat-brim, the projections U' at the ends of the brim are provided with grooves U^2 , which are adapted to receive the front and rear portions of the hat-brim. When placed thereon, a binding-rod U^4 (shown in Fig. 9) is connected by means of its hooked ends to the edges of the spring projections U', as shown in Fig. 8 by dotted lines. This rod serves to maintain the proper curvature of the brim, and thus secures a uniform result in operating upon a number of hats of the same pattern or form.

The guide-plate being attached to the hat with its edge projecting somewhat beyond the margin of the brim, it is placed in the machine, the edge of the guide-plate lying in a circumferential channel A^2 in the rotary head A, the latter being milled or roughened at the bottom of the channel to afford a frictional contact with the outer edge of the guide-plate. The inner edge engages presser-pins C C', which are supported by the slide B and notched to receive the edge. At the same time the edge of the brim-curl which is to be removed is drawn over a horizontal portion of a plate V, which hangs from the end of the slide. The edges of the guide-plate being held between the pins C C' and the channeled rotary head A, the driving-wheel G is set in motion and revolution is communicated to the gearing D D' and rotary head A, and by the latter the guide-plate S is caused to move, thereby carrying the brim-curl beneath the knife P, which is rapidly reciprocated by the eccentric wrist R' , its edge cutting at each downward stroke through the brim-curl along a line parallel to the line of movement, and therefore to the edges of the guide-plate. The surface movement of the hat-brim being slower than the reciprocation of the knife, a continuous cut and complete separation of the felt is produced, the felt being supported at each cutting movement by the plate V, which is provided with a small slot or opening to permit the passage of the knife.

It will be understood by all who are familiar with the art that when the guide-plate is attached to the hat in the manner described said guide-plate forms a support for said hat which is capable of holding the latter in proper position for the action of the knife. The guide-plate with the hat supported thereon is itself sustained by the rotating head A, as shown in Fig. 5, a channel or groove A^2 being formed in the rotating head to receive the edge of the guide-plate, while the presser-pins C, carried by the slide B, press against the other edge of the guide-plate and constantly retain its outer edge in the channel or groove A^2 . By referring to Fig. 1 of the drawings it will be seen that the lower ends of these presser-pins are curved toward the rotating head, so that they are adapted to sustain the downward pressure of the guide-plate, caused by gravity, while the channel or groove

A² prevents the upward movement of the outer edge of the said guide-plate. As the spring-pressed lever J constantly draws the slide B in the direction of the arrow *x* in Fig. 1, the presser-pins C will constantly press the guide-plate toward the rotary head and hold its outer edge in the channel A².

What we claim is—

1. The combination with a guide-plate having projections to engage a hat-brim, of a rotating head having a channel to receive the outer edge of the guide-plate, a spring-pressed slide having presser-pins which support the other edge and hold the outer edge in said channel, a reciprocating knife, and means for imparting revolution to said rotary head and reciprocation to the knife, substantially as described.

2. The combination with a guide-plate having projections to engage a hat-rim, of a rotary head having a channel to receive one edge of the guide-plate, a movable spring-pressed slide having depending presser-pins on its end which are normally pressed toward the rotary head, their ends being adapted to support the inner edge of the guide-plate, a reciprocating knife mounted on the slide, and means for imparting movement to said parts, substantially as described.

3. The combination with a guide-plate having devices to engage a hat-rim of a rotary head channeled to receive one edge of the guide-plate, a movable, spring-pressed slide having presser-pins which are curved at their lower ends to support the other edge of said guide-plate, a knife carried by said slide, a plate mounted thereon and having a horizontal portion to support the brim-curl, and means for rotating the head and reciprocating the knife, substantially as described.

4. The combination with a guide-plate having projections to engage a hat-brim at its sides and ends of a rotary head channeled to receive the outer edge of the guide-plate, a movable spring-pressed slide having notched presser-pins, adapted to support the other edge of said guide-plate, a reciprocating knife carried by the slide, a spring-pressed lever to move the slide in such direction that the presser-pins will press the outer edge of the guide-plate into the channel in the rotary head, and means for imparting revolution to the rotary head and reciprocation to the knife, substantially as described.

5. The combination with the rotary head having a channel provided with a milled, or roughened bottom, of a movable slide having presser-pins which are bent at their ends toward the rotary head, a guide-plate having projections to engage a hat-rim and having one of its edges lying in said channel and the other edge sustained by the bent ends of the

presser-pins, a cutter carried by the slide and means for pressing the latter in such direction that the presser-pins will keep the outer edge of the guide-plate in the channel in the rotary head, a plate mounted on the slide and having its end brought beneath the presser-pins to support the brim-curl, and means for revolving the rotary head and reciprocating the knife, substantially as described.

6. The combination with a movable slide of a lever having one end engaging the same, a rotary head having a channel beneath said slide, the forward end of the latter being provided with presser-pins which hang downward, their ends being curved, or bent toward said rotary head, a guide-plate having projections to receive and retain the brim of a hat, one edge of said guide-plate being adapted to lie in the channel in the rotary head and the other edge being supported by the curved ends of the presser-pins, a binding-rod connected to spring projections on the guide-plate, means for imparting a constant force to the lever connected to the slide to cause the presser-pins to hold the outer edge of the guide-plate in the channel in the rotary head and against its milled or, roughened bottom, and means for rotating the head and reciprocating the knife, substantially as described.

7. The combination with a rotary head having a channel of a guide-plate having projections to engage a hat-brim and to support both hat and brim, a reciprocating knife, and means for rotating the head, reciprocating the knife and for supporting and guiding the inner edge of said plate and pressing the outer edge into the channel in the rotary head, substantially as described.

8. An annular guide-plate for the brims and brim-curls of felt hats, while being trimmed, the same consisting of a flexible, oval annulus, the space inclosed thereby being larger than the hat-crown, and the exterior edge of the annulus of greater measurement than the brim, to project beyond and conform substantially to the shape of said brim, said annulus being provided with spring projections to engage the front and rear portions of the brim, substantially as described.

In testimony whereof we have hereunto set our hands to the foregoing specification.

HENRY HERBERT TURNER.

ALBERT TURNER.

ARNOLD TURNER.

Witnesses to the signature of Henry Herbert Turner:

J. BLISS HOWE,

CHARLES LORD.

Witnesses to the signatures of Albert Turner and Arnold Turner:

WALTER GUNN,

EDWIN SETTLE.