

(No Model.)

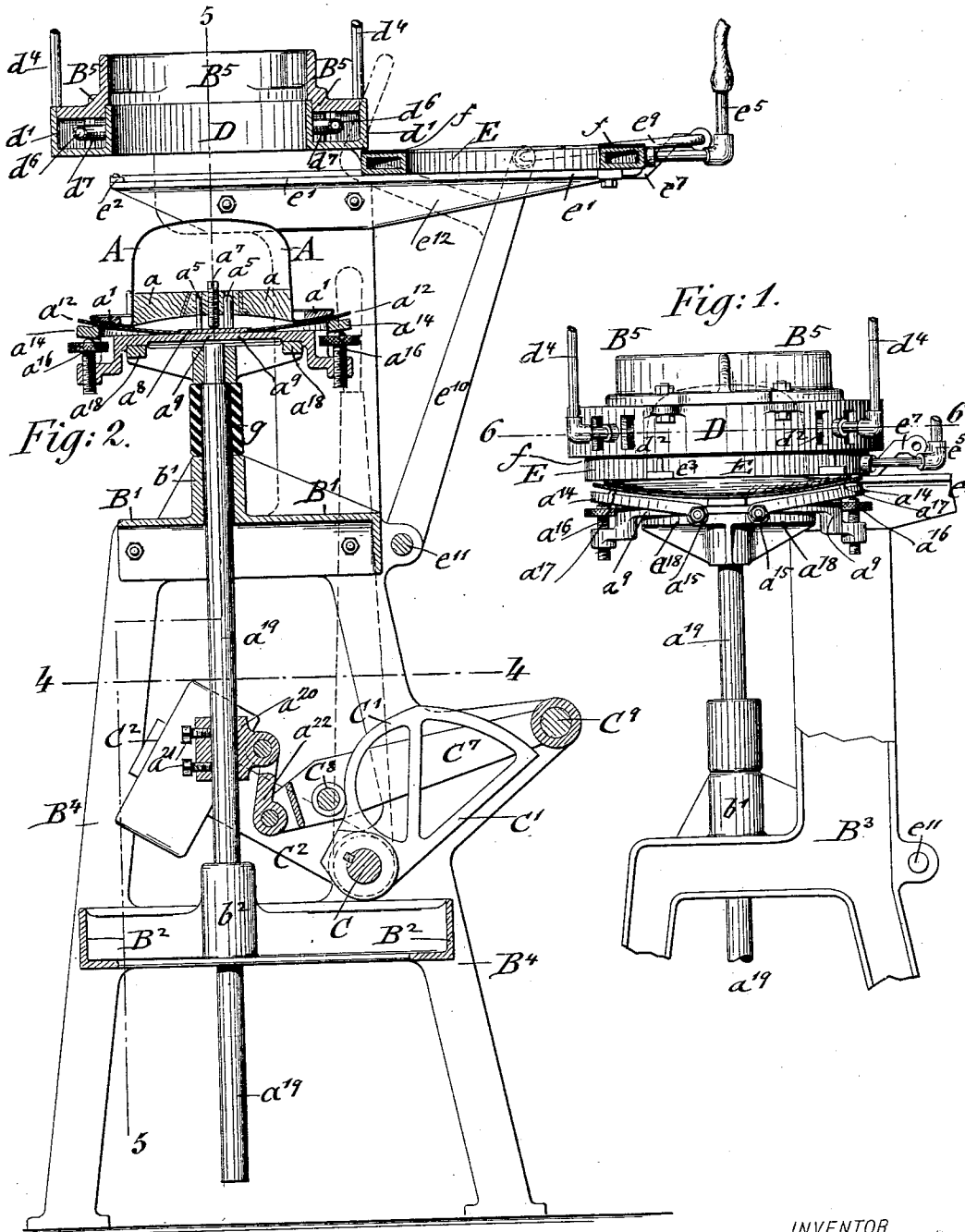
3 Sheets—Sheet 1.

C. EICKEMEYER.

MACHINE FOR SETTING CURLED EDGES OF HAT BRIMS.

No. 587,944.

Patented Aug. 10, 1897.



WITNESSES:

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Geo. S. Jaekel

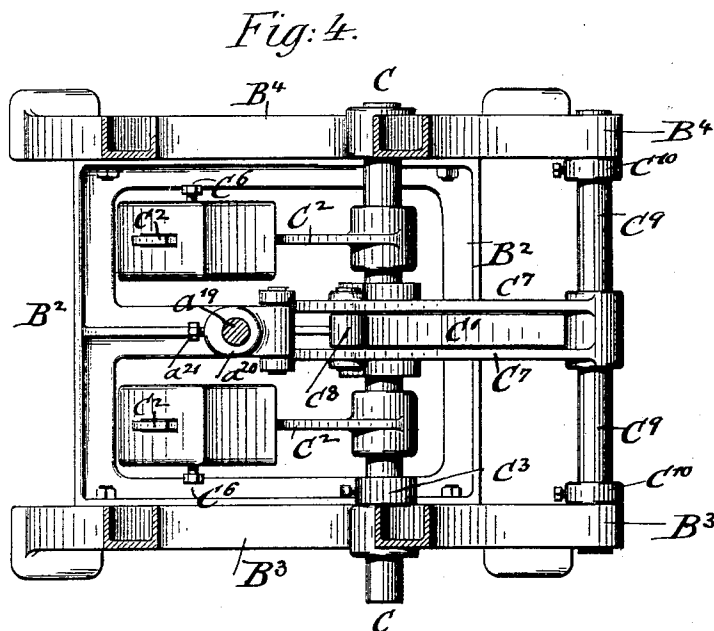
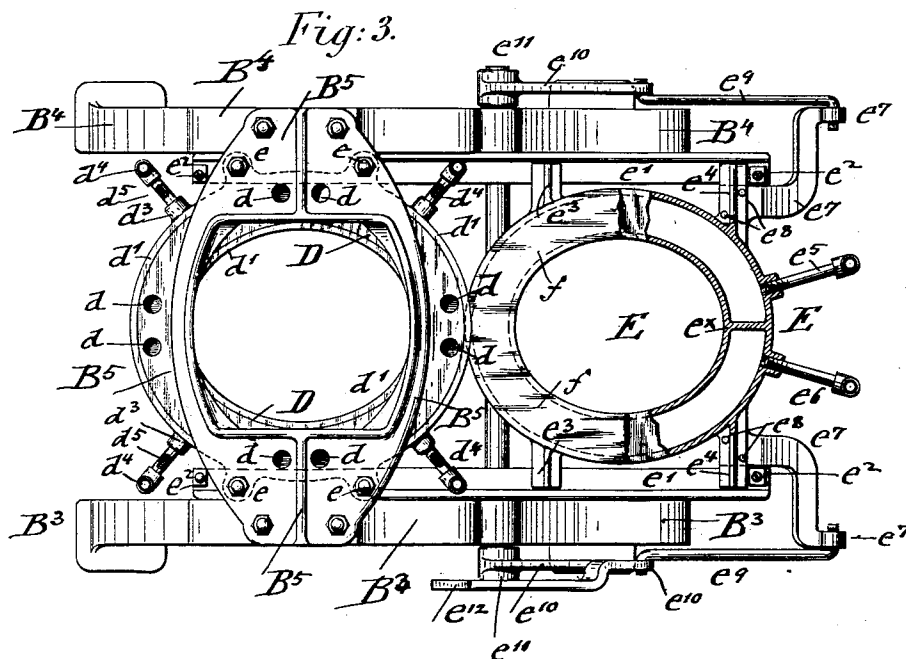
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WITNESSES:

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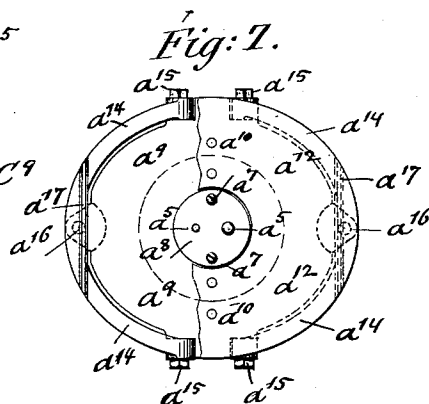
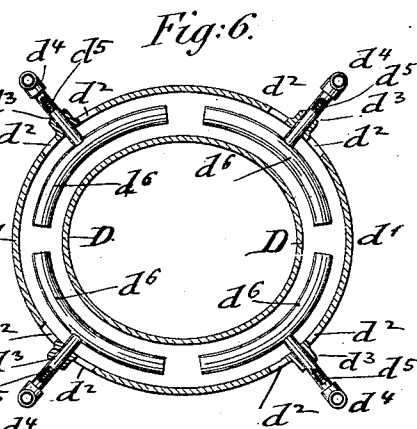
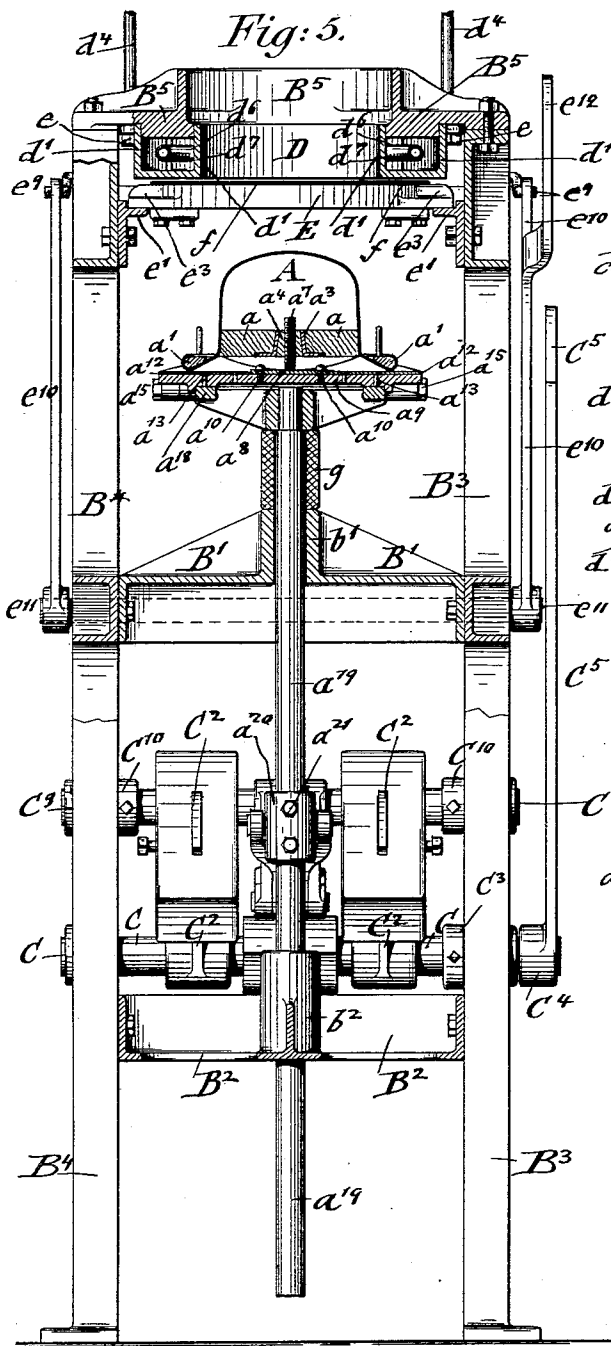
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WITNESSES:

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UNITED STATES PATENT OFFICE.

CARL EICKEMEYER, OF YONKERS, NEW YORK.

MACHINE FOR SETTING CURLED EDGES OF HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 587,944, dated August 10, 1897.

Application filed December 21, 1896. Serial No. 616,483. (No model.)

To all whom it may concern.

Be it known that I, CARL EICKEMEYER, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machines for Setting the Curled Edges of Hat-Brims, of which the following is a specification.

This invention relates to certain improvements in the machine for setting the folded or curled edges of hat-brims for which Letters Patent were issued to Rudolf Eickemeyer, No. 331,286, dated December 1, 1885.

In the machine referred to it required some time for setting the curled edges of hat-brims, for the reason that it is necessary to change the temperature of the ring to which the curled edges are subjected by first cutting off the steam supplied to the ring for heating the brims and then admitting cold water to the same, so as to set the curled edge. When two or three machines are employed for this purpose, in which one is used as a heating and the others as cold-setting presses, it is necessary to transfer the hat from one machine to the other. This is connected with many disadvantages, as the curled edges of the hats when transferred from the heating-press to the cold press would be liable to lose some of their regular contours, especially when they leave the heating-press and are still in a hot and soft condition. The hat which has been curled over a matrix in the curling-machine could not be lifted from one machine to the other without having the regularity of its curled edge disturbed by the weight of the matrix, so that when the hat was centered on the cooling-press the curled edge was not uniform in shape.

When a heating-press with a ring heated by gas-jets is employed, the same operations were necessary, and consequently the same difficulties were encountered. Brims which were once heated and transferred to a cold press lost some of their regular shape as soon as they were disturbed on the bed-plate upon which they rested when in a heated and soft condition. As the stiffening is softened when heated, a machine is required by which the curled edges of the hat-brim can be heated, or, more properly, ironed, which distinction is to be kept clearly in view. In one case the

heat of the steam was insufficient to properly harden the stiffening in the edge of the brim and impart to it the same hard and rigid condition which is characteristic of a hat the brim of which had been top-ironed after curling or ironed by an ironing-machine devised for the purpose of ironing the hat-brim before the edge is curled. After the brim edge has been curled on a matrix, such as is commonly used in curling-machines, or curled by hand the edge is in such shape that it has to be pared by hand—that is to say, trimmed or evened at its edge by means of a hand-knife.

My improved machine is designed to overcome the difficulties referred to and to shorten the time of the operations required in setting and ironing the curled edges of hat-brims.

My improved machine is used in connection with a curling-machine, but it can also be used for hats curled by hand. The hat, after being first curled or folded over a matrix in the curling-machine while in a cool and set condition, so as to be ready to be transferred without injury to the curl, is placed upon a brim-plate, which has to be adjusted to the exact size of the curl, the curl being then top-ironed and set perfectly symmetrical and rigid, so that it is then in a condition in which it can be easily pared by a machine devised for this purpose.

Above the brim bed-plate of the machine is arranged a hollow iron heating-ring which is of cylindrical form on the outside and oval on the inside, so as to permit the hat-body to enter easily into it, so that the heating-iron acts only on the edge of the brim. The heating-iron is heated by means of gas-jet burners, by means of which the heat can be easily regulated to any desired temperature. Below the heating-iron is arranged a hollow cooling-ring, through which a continuous flow of cold water is kept up, said cooling-ring being moved on suitable guides either into position below the heating-iron or into a position outside of the same when the heating-iron is to be applied to the curled edge of the hat-brim. On the top of the cooling-ring is arranged a layer of suitable insulating material, so as to prevent the heating-iron from heating the top part of the cooling-ring when the latter is placed in position below the heating-ring for cooling and setting the curled

edge. The hat is placed on an adjustable spring-plate, which can be set exactly to the curve of the brim by means of semicircular supports which are placed below the spring-plate, so that the latter can be raised or lowered at its front and back, said support bearing across the plate a portion which forms a rigid support at the quarters for the front and rear of the hat-brim, while the horizontal center line of the plate forms a rigid support for the middle portion of the matrix. This device allows the matrix of the hats to be supported in every desired position, forming a curved cylindrical surface instead of a convex or concave surface when it is supported at one point at each end or at two points at one end, as the case may be. The adjustable bed-plate is raised by a cam on a shaft, to which a hand-lever for the operator is applied. Counterbalancing-weights applied to the cam-shaft facilitate the raising and final action of the bed-plate in connection with the shape of the cam, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 represents a side elevation of my improved machine for setting the folded edges of hat-brims, showing the bed-plate raised and the hat in position in the cooling-ring. Fig. 2 is a vertical central section of the machine, showing the hat lowered below the heating-iron and the cooling-ring moved into its outward position. Fig. 3 is a plan view of Fig. 2, partly in section, through the cooling-ring. Fig. 4 is a horizontal section of the lower part of the machine on line 4 4, Fig. 2, showing the cam mechanism for operating the main spindle and bed-plate. Fig. 5 is a vertical transverse section of the machine on line 5 5, Fig. 2. Fig. 6 is a detail horizontal section of the heating-iron with its gas-burners on line 6 6, Fig. 1. Fig. 7 is a top view with a part broken away of the bed-plate for the hat.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a hat which is placed on the centering-block a , and a' a matrix which is made in three pieces, so as to permit it to be taken out of the curl without injuring the same. The brim a^2 of the hat A is curled or folded around the matrix a' on the curling-machine before the hat is transferred to the curl-setting machine. The block a is provided with a socket a^3 , into which is fitted an adjustable chuck a^4 , that is held by dowel-pins a^5 , upon which the chuck a^4 slides, its height from the plate being governed by set-screws a^7 , according to the size or thickness of the matrix or the curl of the brim. The dowel-pins a^5 are carried by a plate a^8 , which is fastened to the plate-support a^9 by means of set-screws a^{10} , as shown clearly in Fig. 5. On the plate-support a^9 is placed a spring-plate a^{12} , which is held in position by screws a^{13} . The spring-plate a^{12} rests at its front and rear ends on semicircular supports a^{14} , which are pivoted

at their inner ends to bolts a^{15} , applied to the plate-support a^9 . The semicircular supports a^{14} are raised to any desired position by means of set-screws a^{16} , having milled heads, said set-screws acting on the under side of the semicircular supports a^{14} . The supports a^{14} have straight ribs a^{17} , that extend across their outer portions, on which the spring-plate a^{12} rests when its ends are placed in raised position. The plate-support a^9 is held in a central position by means of a ring-shaped carrier a^{18} , to which its under side is fitted, as shown in Fig. 5. This carrier a^{18} is applied to the upper end of a spindle a^{19} , which is guided in a hub b' of the top plate B' of the main frame of the machine. The spindle a^{19} is further guided in a hub b^2 , which is carried by the lower plate B^2 of the main frame. The plates B' and B^2 are supported by upright side frames B^3 and B^4 , to which they are attached, said frames carrying the bearings for the cam-shaft C, to which the cam C' is applied. The cam-shaft C has two weighted arms C^2 and a collar C^3 , which, together with the hub C^4 of a hand-lever C^5 , control the movement of the cam and prevent the laterally-shifting motion of the cam-shaft C. The counterbalancing-weights are adjustable on the arms C^2 and set to any desired position thereon by means of set-screws C^6 .

To the vertically-guided spindle a^{19} is clamped a sleeve a^{20} by means of set-screws a^{21} , said sleeve being connected by an intermediate pivot-link a^{22} with the lower end of a cam-lever C^7 . The cam-lever C^7 carries an antifriction-roller C^8 , that moves over the surface of the cam C' . The cam-lever C^7 is pivoted to a shaft C^9 , which is supported in bearings of bracket-arms of the side frames B^3 B^4 and held in position by collars C^{10} , clamped to the shaft C^9 by suitable set-screws. The side frames B^3 B^4 are extended in upward direction at both sides of the hat bed-plate and connected at their upper ends by a transverse top plate B^5 , the lower ring-shaped part of which serves also as the top for the ring-shaped heating-iron D. The top plate B^5 is provided with holes d , which serve as exits for the products of combustion from the interior of the heating-iron D. The lower part of the heating-iron D is formed of a hollow U-shaped box d' , which is attached to the top plate B^5 by bolts e , and which has holes d^2 in its side wall that serve for the ingress of air necessary for combustion to the interior of the heating-iron. On the outside of the heating-iron are arranged bosses d^3 , which form supports for the gas-supply pipes d^4 , that have small openings d^5 , through which a certain quantity of air is drawn in and mixed with the gas on its way to the burners d^6 . The burners d^6 are made arc-shaped and provided at their under sides with transverse slits d^7 , through which the gas-and-air mixture is emitted, so that the jets of flame play in downward direction on the bottom portion of the heating-iron.

Below the ring-shaped top plate B^3 are supported on the upright side frames $B^3 B^4$ horizontal guide-rails e' , which are provided at their ends with stops e^2 . The guide-rails e' serve for guiding the cooling-ring E, which is provided at opposite sides with laterally-extending projections e^3 and e^4 , that rest on the guide-rails e' . The cooling-ring E is made hollow and provided at one end with water inlet and outlet pipes $e^5 e^6$, which are located at opposite sides of a central partition e^x . The top of the cooling-ring E is provided with a layer f of asbestos or other suitable insulating material, so that the heating of the top of the cooling-ring E by the heating-iron D is prevented. The lateral projections e^4 of the cooling-ring E are provided with outwardly-bent brackets e^7 , which are attached to said projections by bolts e^8 . The outer ends of the brackets e^7 are provided with eyes which are connected by pivot-links e^9 with the upper ends of the levers e^{10} , which are applied at their lower ends to a transverse shaft e^{11} , supported in bearings of the side frames $B^3 B^4$ of the main frame. One of the levers e^{10} is provided with a bracket-shaped arm e^{12} , which extends upward alongside of the guides e' , and which serves for moving the cooling-ring E into its position below the heating-iron or in a position outside of the same. To prevent violent shocks or concussions when the spindle a^{10} arrives in its lowermost position, it is provided below the hub of its ring-shaped support a with a cushioning-sleeve g , of wood, rubber, or other suitable material. The cam C' is shaped with an abrupt cam-face C^0 at the inner part, the action of which on the lever C^7 is effected by the hand-lever C^5 . At the end of the lifting motion of the bed-plate the pressure on the hat is not exerted by the operating hand-lever, but automatically by the action of the weighted arms through the gradual and less abrupt cam-face C^x , so that the final pressure on the curled edge in ironing as well as setting it is given by the pressure of the weighted arms.

The operation of my improved machine for setting the curled or folded edges of hat-brims is as follows: The hat is transferred from the curling-machine onto the bed-plate of the curl-setting machine after the spring-plate has been adjusted to the desired curvature. The hat is then raised by the hand-lever and cam mechanism described into the heating-iron, so that the latter presses on the curl and heats and sets the same. The hat is then lowered by means of the hand-lever and cam mechanism, and the cooling-ring, which has

during the top-ironing of the curl been in outward position, moved inwardly by its operating-handle until it is in a position below the heating-iron. The hat is then again raised by the hand-lever, so that the curl is brought in contact with the cooling-ring and set by the cooling action of the same. After the folded or curled edge of the hat-brims is thus set the hat is removed from the bed-plate for further treatment.

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

1. The combination, with a hat-brim bed-plate and means for reciprocating the same, of a hat-brim-heating iron above said bed-plate, a cooling-ring, and means for moving said cooling-ring in a position below the heating-iron or in outward position so that the curled edge of the hat-brim can be first placed in contact with the heating-iron and then in contact with the cooling-ring, substantially as set forth.

2. The combination, with a reciprocating hat-brim bed-plate, a heating-iron above the same, a cooling-ring below the heating-iron, guides for said cooling-ring, and means whereby the cooling-ring can be placed in position below the heating-iron or outside of same without interfering with the bed-plate, substantially as set forth.

3. The combination, with a vertically-movable hat-brim bed-plate, of a heating-iron above the same, a horizontally-movable cooling-ring provided with a top layer of insulating material, and means for moving said cooling-ring into position below the heating-iron or outside of the same, said insulating layer protecting the cooling-ring against the heat of the heating-iron when in position below the same, substantially as set forth.

4. The combination with a vertically-movable hat-brim bed-plate, provided with a spring-plate on which the hat rests, of means for adjusting the edge or curl of the hat-brim to any size of curl through the medium of said spring-plate, said means consisting of pivoted supports arranged under and in contact with the outer portion of said spring-plate, and devices for operating said supports, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CARL EICKEMEYER.

Witnesses:

HENRY OSTERHELD,
O. B. WARING.