

(No Model.)

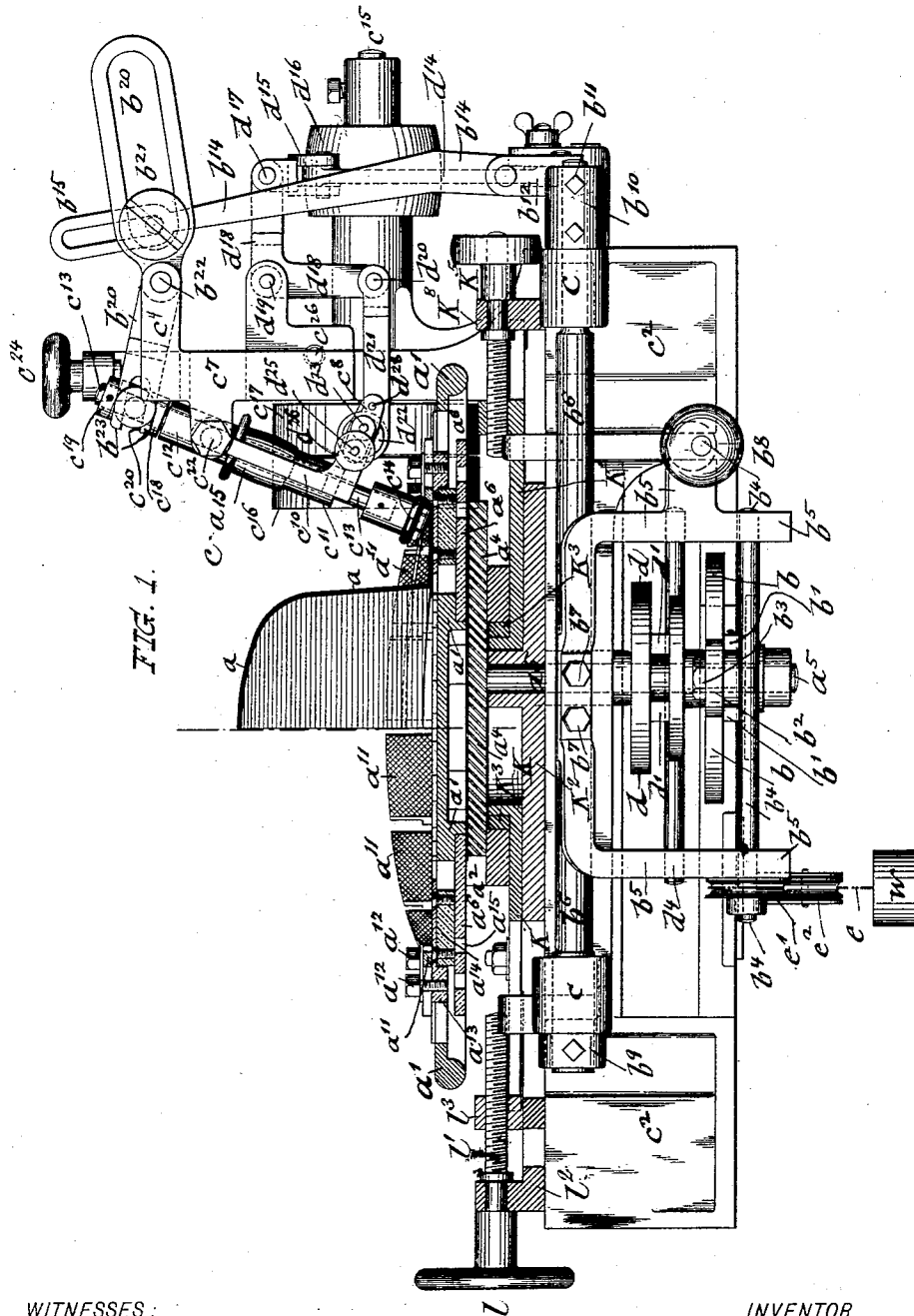
5 Sheets—Sheet 1.

C. EICKEMEYER.

MACHINE FOR PARING CURLED EDGES OF HAT BRIMS.

No. 587,943.

Patented Aug. 10, 1897.



WITNESSES :

Bruno von Pultzing-Hoyer
Georg Fackel

INVENTOR

INVENTOR
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BY
Louis Reger
ATTORNEYS.

(No Model.)

5 Sheets—Sheet 2.

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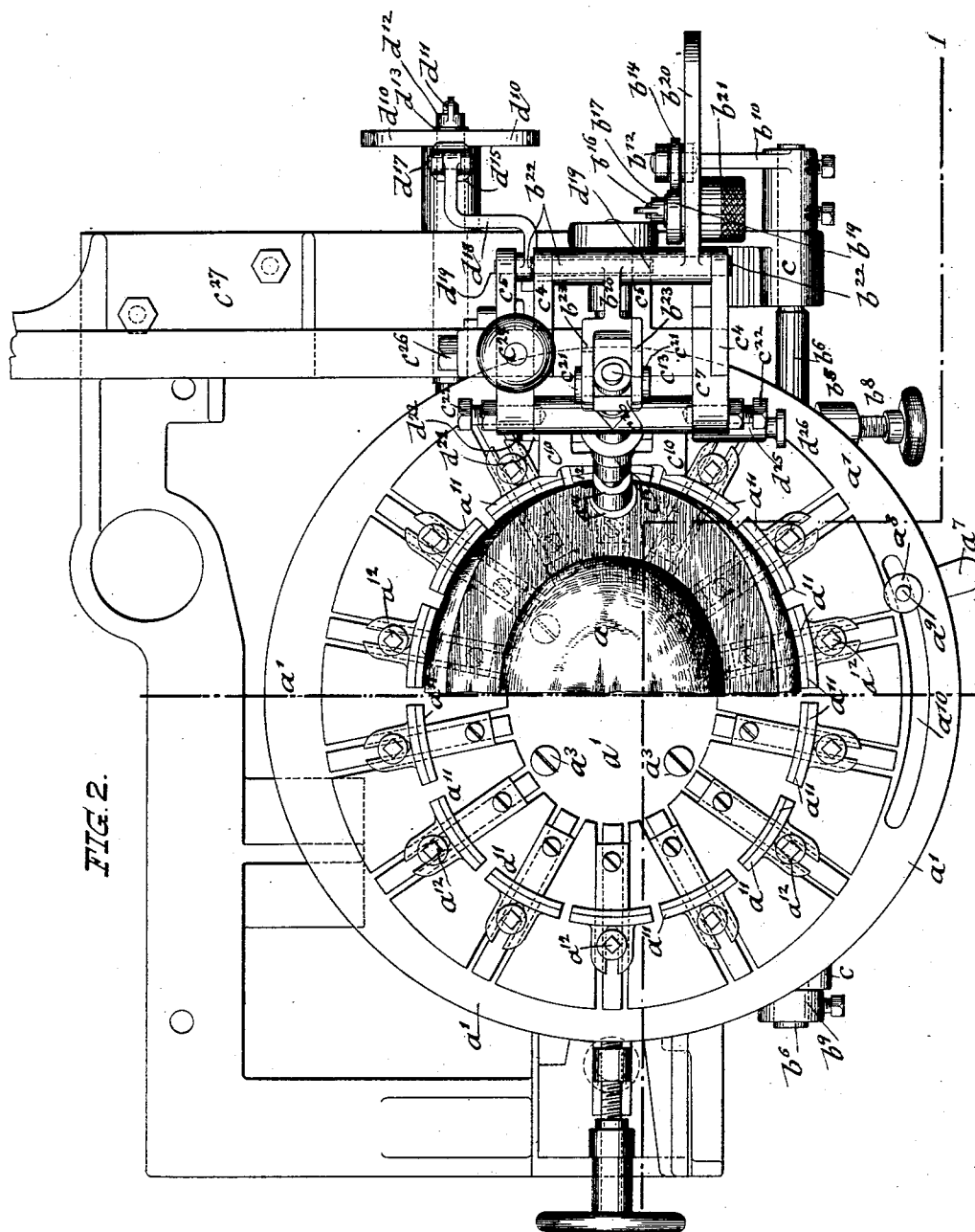


FIG. 2.

WITNESSES:

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INVENTOR

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(No Model.)

5 Sheets—Sheet 3.

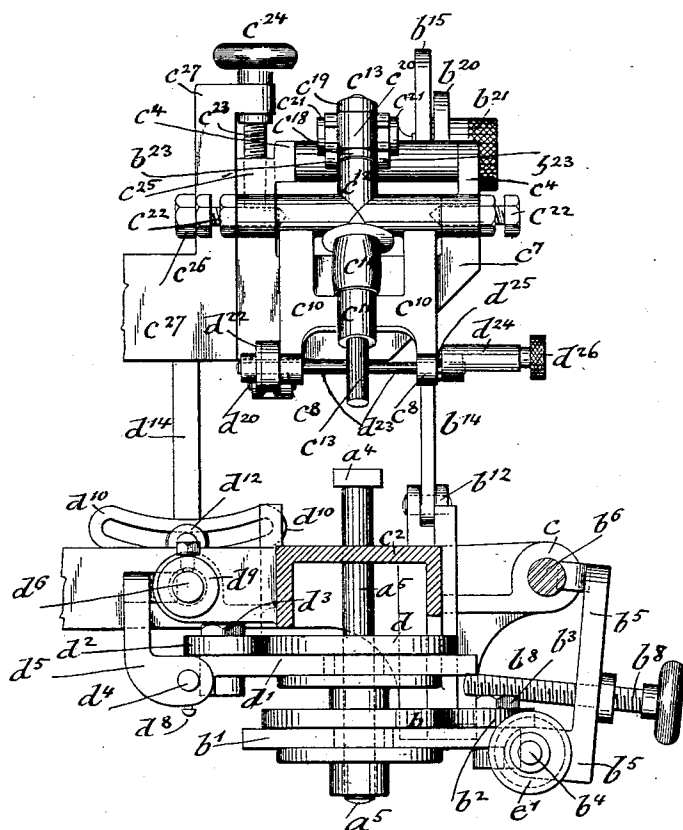
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FIG. 3.



WITNESSES:

Ernst von Pützschewitz
Georg Jäckel

INVENTOR

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(No Model.)

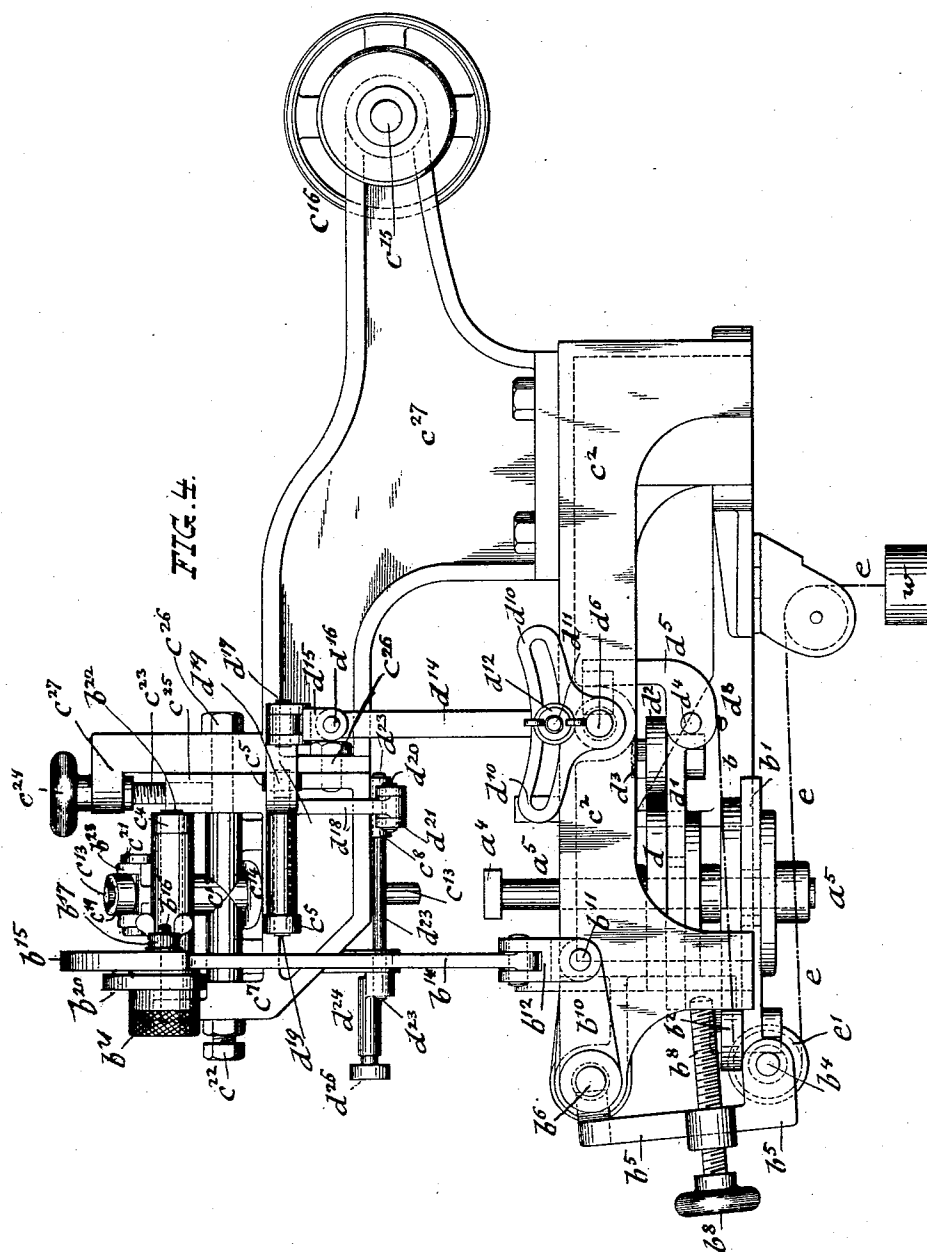
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C. EICKEMEYER.

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No. 587,943.

Patented Aug. 10, 1897.



WITNESSES :

Präsident vom Kultusministerium
Geo. W. Fackel

INVENTOR

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(No Model.)

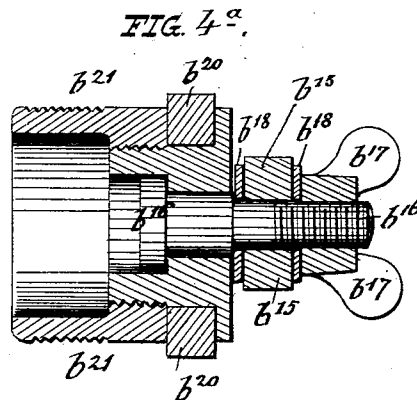
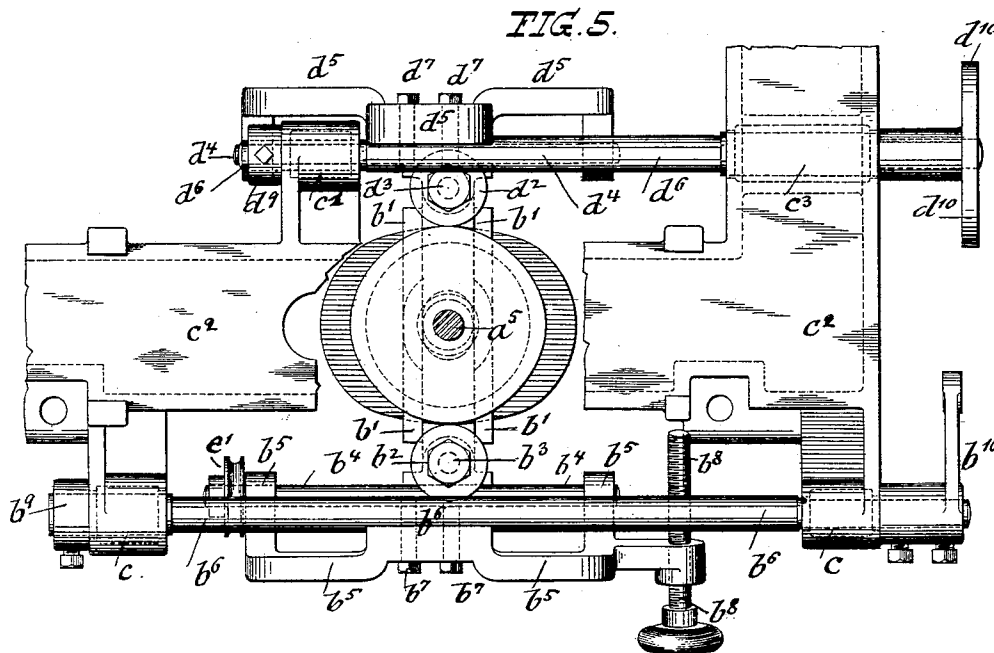
5 Sheets—Sheet 5.

C. EICKEMEYER.

MACHINE FOR PARING CURLED EDGES OF HAT BRIMS.

No. 587,943.

Patented Aug. 10, 1897.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

CARL EICKEMEYER, OF YONKERS, NEW YORK.

MACHINE FOR PARING CURLED EDGES OF HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 587,943, dated August 10, 1897.

Application filed December 21, 1896. Serial No. 616,484. (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 Paring the Edges of Hat-Brims, of which the following is a specification.

This invention relates to improvements in the machines for paring the edges of hat-brims for which Letters Patent were granted to Rudolf Eickemeyer, No. 317,324, dated May 5, 1885, and No. 386,457, dated July 24, 1888. The machines described in these patents, while answering to some extent the purposes for which they were designed, did not meet, without complicated changes, the requirements in paring the edges of hat-brims of various styles of curl. Hats whose curls are the same at the front and sides, so-called "flat" curls, could be clamped and pared by the machine shown in the later patent, but where the curl is heavy or thick on the sides not only the clamps were, but also the rotary cutter was, of little use. Unless the brim was wedged up in the front and rear of the hat-brim, so as to make the path of the edge of the curl lie in a horizontal plane, the cutter would not work properly. My improved machine is designed to obviate this difficulty, as it permits the paring of the edge of the hat-brim without requiring the edge to be leveled by wedges by the use of a clamp by which the hat can be centered without the aid of the central chuck heretofore used. The inside faces of the clamps are knurled, so as to hold the outside edge of the curl rigidly in position, while the rotary cutter follows the edge of the brim and is adjustable to curls of any size from a flat curl to the largest curl required. The mechanism for lifting the rotary cutter is operated automatically with the rotation of the hat bed-plate, on which the hat is pressed while being clamped. The slight pressure enables the hat to be clamped with its curl perfectly symmetrical on all sides. The path of the rotary paring-knives can be changed in one adjustment by the use of a main cam and suitable levers to full quarters, regular oval, or cut-out quarters on the hat-brim edge. By throwing the cutter out of cutting position when placing a hat on the bed-plate and

clamping it thereto an eccentric operated by a crank is employed, said crank carrying in its interior a locking-pin which locks the cutters either in their outward or in their cutting position.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved machine for paring the edges of hat-brims, in which one-half of the hat is shown in clamped position, with the rotary cutting-knives in position for operation, while the knurled faces of the clamps are shown on the other side of the elevation. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a side elevation of the cutter-supporting spindle and cross-head, partly in section and with bed-plate, oval cam-plates, and cutting-knives removed. Fig. 4 is an end elevation of my improved machine, taken from the opposite side to that shown in Fig. 3; Fig. 4^a, a sectional detail of parts of Fig. 4. Fig. 5 is a plan view, with parts broken away, showing the cams, cam-holders, and forked cam-roller carriers and other accessories.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* represents a hat after the brim edge of the same has been curled over a matrix in the curling-machine and the top of the edge ironed and set on a top-ironing and brim-edge-setting machine. After the matrix has been removed from the curl the hat *a* is placed on a clamping-plate *a'*, which is fastened to a circular plate *a²* by means of screws *a³*. The circular plate *a²* is slotted to carry a cross-head *a⁴*, which in turn is supported on a vertical shaft *a⁵*. Between the clamping-plate *a'* and circular plate *a²* is interposed a circular cam-plate *a⁶*, which is operated by a handle-lever *a⁷* and clamped by a thumb-nut *a⁸* in connection with a bolt *a⁹* and arc-shaped guide-slot *a¹⁰* in clamping-plate *a'*. The circular cam-plate *a⁶* operates the clamping-fingers *a¹¹*, which are so improved that in connection with the paring-knives the hat is properly centered without the use of a central chuck or curl-supporting wedges. The clamping-fingers *a¹¹* increase gradually in height from the plate *a'* as the curl of the brim becomes larger or thicker toward the sides of the curl and decrease gradually from the sides toward the opposite end

of the curl. The clamping-fingers are knurled on their inner faces and clamp the brim on the outer side. They are adjustable to any oval by set-screws a^{13} , which are carried by supports a^{13} , that are in turn attached to cross-heads a^{14} , guided in radial slots a^{15} of the circular cam-plate a^6 .

The vertical spindle a^5 carries at its lower end a cam b , below which and forming a part of the same are horizontal rails which form guides for a cam-roller fork b' , that carries at its outer end a roller b^2 , which turns on a bolt b^3 , that is carried by a hub at the outer end of the fork b' . On the hub of the fork presses a rod b^4 , which is carried by a double bracket b^5 , said bracket being rigidly fastened to a shaft b^6 by means of clamping-screws b^7 . The shaft b^6 forms the fulcrum for the double bracket b^5 , which carries at one end a screw b^8 , by which the cam-roller b^2 can be released from the cam b , if desired. The shaft b^6 is supported in bearings of the brackets c , which extend laterally from the main frame c' . The longitudinally-shifting motion of the shaft b^6 in its bearings c is prevented by a collar b^9 , applied by a set-screw to one end of the shaft, adjacent to one of the brackets c , and by the hub of a lever b^{10} , that is attached by set-screws to the opposite end of the shaft b^6 , adjacent to the other bracket c' , as shown in Fig. 5. The outer end of the lever b^{10} carries a pivot-pin b^{11} , which forms the bearing for the lower end of a knuckle-joint b^{12} , to the upper end of which is pivoted a link b^{14} , that is slotted at its upper end b^{15} . To the slotted upper end b^{15} of the link b^{14} is clamped a pin b^{16} by means of a thumb-nut b^{17} and washers b^{18} , that are interposed between the slotted end b^{15} and the thumb-nut b^{17} and between said slotted end and a shoulder on the threaded pin b^{16} , as shown in detail in Fig. 4^a. The pin b^{16} furnishes a bearing for a clamp b^{19} , the flange of which laps over the slotted end of a lever b^{20} and is pressed against the same by a sleeve b^{21} , which is knurled at the outside, that it can be readily taken hold of in screwing the interiorly-threaded sleeve on the threaded shank of the clamp b^{19} , which carries the head of the pin b^{16} . The lever b^{20} turns on a pin b^{22} , which is supported by brackets c^4 , projecting from an upright frame c^7 , as shown in Fig. 1. The forward end of the lever b^{20} is provided with a double fork b^{23} . (Shown in Figs. 1 and 2.)

The vertical spindle a^5 , located below the clamp-plates, carries above the cam b a second cam d , below which, similar to cam b , are horizontal surfaces which form guides for a second cam-roller fork d' , that carries at its outer end a roller d^2 , that turns on a bolt d^3 , carried by a hub on the end of the fork d' . Against the end of the hub of the fork presses a rod d^4 , which is supported by a double bracket d^5 , said bracket being rigidly attached to a shaft d^6 by means of bolts d^7 . The shaft d^6 forms the fulcrum or rock-shaft for the bracket d^5 , which carries a set-screw d^8 , to

which a wire or cord e is attached that passes around a grooved pulley e' on the rod b^4 and over a grooved pulley e^2 , carried by the frame c^2 . To the end of the cord e below the pulley e^2 is attached a weight w , as shown in Fig. 4. The weight w exerts pressure on both double brackets b^5 and d^5 , so that the cam-rollers b^2 and d^2 are constantly kept in contact with the faces of the cams b and d , except when the screw b^8 is used in cases in which the brim edges of flat or nearly flat curls have to be pared.

The rock-shaft d^6 turns in bearings of a bracket c^4 and a boss c^3 on the main frame c^2 . The shaft d^6 is prevented from shifting in longitudinal direction by a collar d^9 , applied by a set-screw to one end of the shaft, and by the hub of a slotted lever d^{10} , applied by set-screws to the opposite end of the shaft, as shown in Fig. 5. To the slotted lever d^{10} is clamped a pin d^{11} , which is provided with a collar that is shiftable in the slot of said lever and that can be clamped in any desired position in the same by a thumb-screw d^{12} and washer d^{13} . The opposite end of the pin d^{11} forms the bearing for the end of a link d^{14} , which is shown in Figs. 3 and 4 in its middle or vertical position, in which position the slotted lever d^{10} , although constantly in vibratory motion, does not affect the movement of the rotary cutter, so that consequently the brim edge is pared to a regular oval. Should the quarters require cutting or be left full, the lower end of the lever d^{14} is swung to one side or the other in the slot of the lever d^{10} and clamped at the desired point, according to the amount to be taken off or according to the amount to be left on the quarters of the hat-brim edge.

At the upper end of link d^{14} is a knuckle-joint d^{15} , the lower pin d^{16} of which serves as a pivot for the link d^{14} . The upper pin d^{17} of the knuckle-joint d^{15} forms the pivot for the arm of a cranked lever d^{18} , which is fulcrumed to a transverse pin d^{19} , supported by brackets c^5 , said brackets forming a part of the vertically-movable frame c^7 . The cranked lever d^{18} has a downwardly-extending arm which is connected by a pivot-pin d^{20} with a link d^{21} , which is strapped to an eccentric d^{22} on a shaft d^{23} , that is supported in bearings of rearwardly-extending brackets c^8 of a lever-frame c^{10} , which is provided with bearings c^{11} and c^{12} for an inclined spindle c^{13} , to the lower end of which the cutter-head c^{14} is applied. To the opposite end of the shaft d^{23} is applied a crank-handle d^{24} , which carries a spring-pressed locking-pin d^{25} , to the end of which is applied a knurled wheel d^{26} . The locking-pin d^{25} is pressed into either one of two holes d^{28} , arranged at opposite sides of the shaft d^{23} . The head of the rotary cutting-knife is shown in the drawings in position for using, in which case the locking-pin d^{25} engages the front hole d^{28} ; but when it is desired to swing it out of the way in order to remove the hat the crank-handle d^{24} has

to be turned through an angle of one hundred and eighty degrees until the locking-pin d^{25} engages in the rear hole d^{28} .

To the inclined spindle c^{13} is splined a pulley ca^{15} in the usual manner, which enables the spindle to have a slight longitudinal movement independently of the rotary motion transmitted to it by a cam-belt from a counter-shaft c^{15} and fast and loose pulleys c^{16} and c^{17} . The inclined spindle c^{13} carries the collars c^{18} and c^{19} at its upper end, between which is located a cross-head c^{20} , which in turn carries the guides c^{21} , that prevent both the rotary movement and the longitudinally-shifting motion of the same independently of the guides or the double fork of the lever b^{20} .

The lever c^{10} is fulcrumed by suitable bearings to the conical ends of screws c^{22} , about which it can be turned independently of the cross-head c^{20} and the double fork b^{23} of the lever b^{20} , the guides c^{21} of which are so constructed as to allow of a sliding movement radially with respect to the axis of the screws c^{22} . The frame c^7 is vertically adjustable for the purpose of permitting the changing of the initial position of the cutter-head. The adjustment of frame c^7 is accomplished by a screw c^{23} , having a hand-wheel c^{24} in the upper part of the upright frame c^7 . The frame c^7 is firmly clamped after adjustment by means of bolts c^{25} , which engage slots of the bracket-frame c^{27} , that carries the counter-shaft c^{15} .

The adjustment of the oval mechanism so that the rotary cutter with relation to the hat-brim edge describes the desired oval is accomplished by changing the relation of the axis of the vertical shaft a^5 , which has its vertical bearing in a hub carried by a plate K^2 , to that of the center of the circular guide K on plate K^1 . Said circular guide K forms a bearing for a curved cross-head K^3 , the concentric surfaces of which engage in corresponding slots of the circular plate a^2 . The plate a^2 is also slotted to form guides for the cross-head, to which motion is given by the curved cross-head, which is tangential. The said resultant motion, which is transmitted to the circular plate a^2 by means of the two cross-heads K^3 , produces the desired ovals, the eccentricities of which are proportional to the distance between the axis of the vertical shaft a^5 and the axis of the circular guide K , which, when these two axes coincide, reduces the oval to a circle. The bed-plate a' being carried rigidly with the circular plate a^2 , the desired oval motion is therefore transmitted to the same. The proper adjustments are effected by means of a knurled hand-wheel K^4 on a screw K^5 , having bearing in lug K^6 , which is carried by the plate K^2 . The screw K^5 engages with the threads in lug K^8 , carried by plate K^1 , and the axial motion of said screw is prevented by collar K^7 and the wheel-hub. The position of the described oval is adjustable by means of a hand-wheel l ,

mounted on shaft l' , which has a bearing in the lug l^2 , carried by plate K^2 . Axial movement of shaft l' , which carries screw-threads on its end, is prevented by a collar on the one side and the wheel-hub on the other. The screw-threaded portion of shaft l' engages with the threads in the lug l^3 , carried on the end of a bolt which is rigidly fastened to the main frame of the machine.

The machine being adjusted for the required oval the lever b^{15} is clamped in the required position with regard to the lever b^{20} so as to lift the rotary cutter to correspond to the thickness of the curl to be pared. The desired style of quarters is produced by swinging the lever d^{14} to its required position and clamping it at the same time by means of thumb-screw d^{12} . The proper adjustment being made and the rotary cutter being in its released position the hat to be pared is clamped by turning the lever a^7 and is held in the clamped position by thumb-wheel a^8 . The rotary cutter is then swung into its acting position by removing the locking-pin d^{25} from the hole d^{28} (shown in Fig. 1) and replacing the locking-pin in a corresponding hole arranged at an angle of one hundred and eighty degrees from the same, thereby placing the cutter in the position shown in Fig. 1. By moving the plate K^2 by means of the hand-wheel l the hat-brim edge is moved to the cutting position. Further operation of the machine is merely the quick movement of the bed-plate a' by hand through one revolution, during which revolution the hat-brim edge has been automatically and at the same time symmetrically pared, as desired. The cutter is then shifted to its released position, and by a simple reverse operation to that of clamping the hat is unclamped and the machine is ready to receive the next hat of the same style without any further adjustment.

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

1. In a machine for paring the edges of hat-brims, the combination of a rotating hat-bed, adjustable clamping-fingers arranged thereon, an axially-movable spindle provided with a rotary cutter, and means for imparting a longitudinally-shifting movement to the cutter, independently of the rotary motion, substantially as set forth.

2. In a machine for paring the edges of hat-brims, the combination of a rotating hat-bed, a rotary cutter, a cam moving automatically with said hat-bed, and mechanism whereby a longitudinally-shifting movement is imparted to the cutter-spindle, substantially as set forth.

3. In a machine for paring the edges of hat-brims, the combination of a rotary cutter, means whereby longitudinally-shifting motion is imparted to the cutter, a rotating hat-bed moving in unison with said cutter, and adjustable curl-supporting fingers having

knurled faces for clamping and centering the hat, substantially as set forth.

4. In a machine for paring the edges of hat-brims, the combination of a rotating hat-bed, 5 curl-clamping fingers supported on said bed, a rotary cutter, means for longitudinally shifting the spindle thereof, and means for imparting a radial movement to said cutter independently of its longitudinally-shifting 10 and rotary movements, whereby the cutter may be moved away from or toward the edge of the hat-brim, substantially as set forth.

5. In a hat-brim-paring machine, the combination of a rotary cutter, a rotating hat-bed, 15 a cam moving in unison with the hat-bed, mechanism for imparting a radial movement to the cutter from said cam, and a crank and eccentric whereby said cutter is moved to and

locked in either the outward position or the cutting position, substantially as set forth. 20

6. In a machine for paring the edges of hat-brims, the combination of a rotary cutter, a rotating hat-bed, cams moving in unison therewith, and cam-levers, said cam-levers 25 being kept in contact with their respective cams by means of guide-pulleys and a weighted cord until disengaged from said cams, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in pres- 30
ence of two subscribing witnesses.

CARL EICKEMEYER.

Witnesses:

HENRY OSTERHELD,
O. B. WARING.