

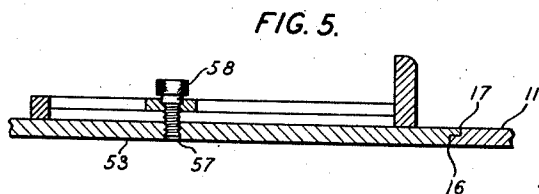
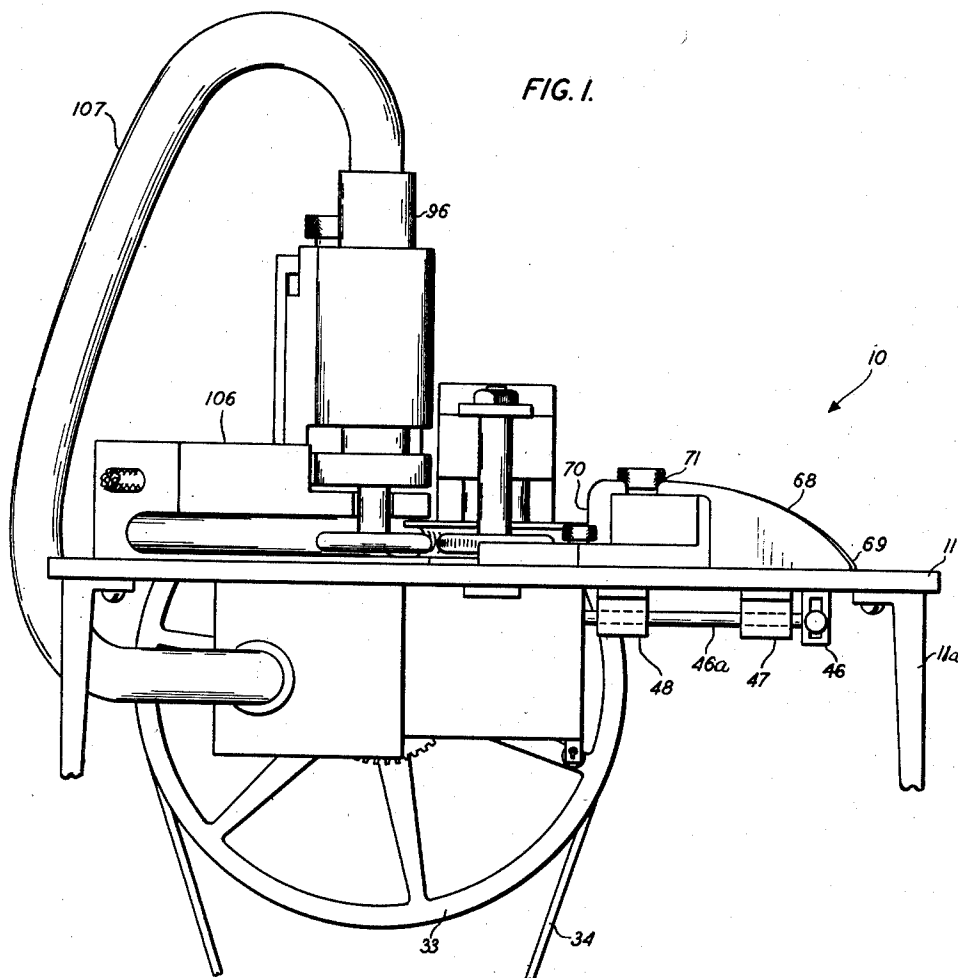
Feb. 20, 1951

W. C. GRIFFING
HAT BRIM CURLING DEVICE

2,542,811

Filed March 29, 1947

4 Sheets-Sheet 1



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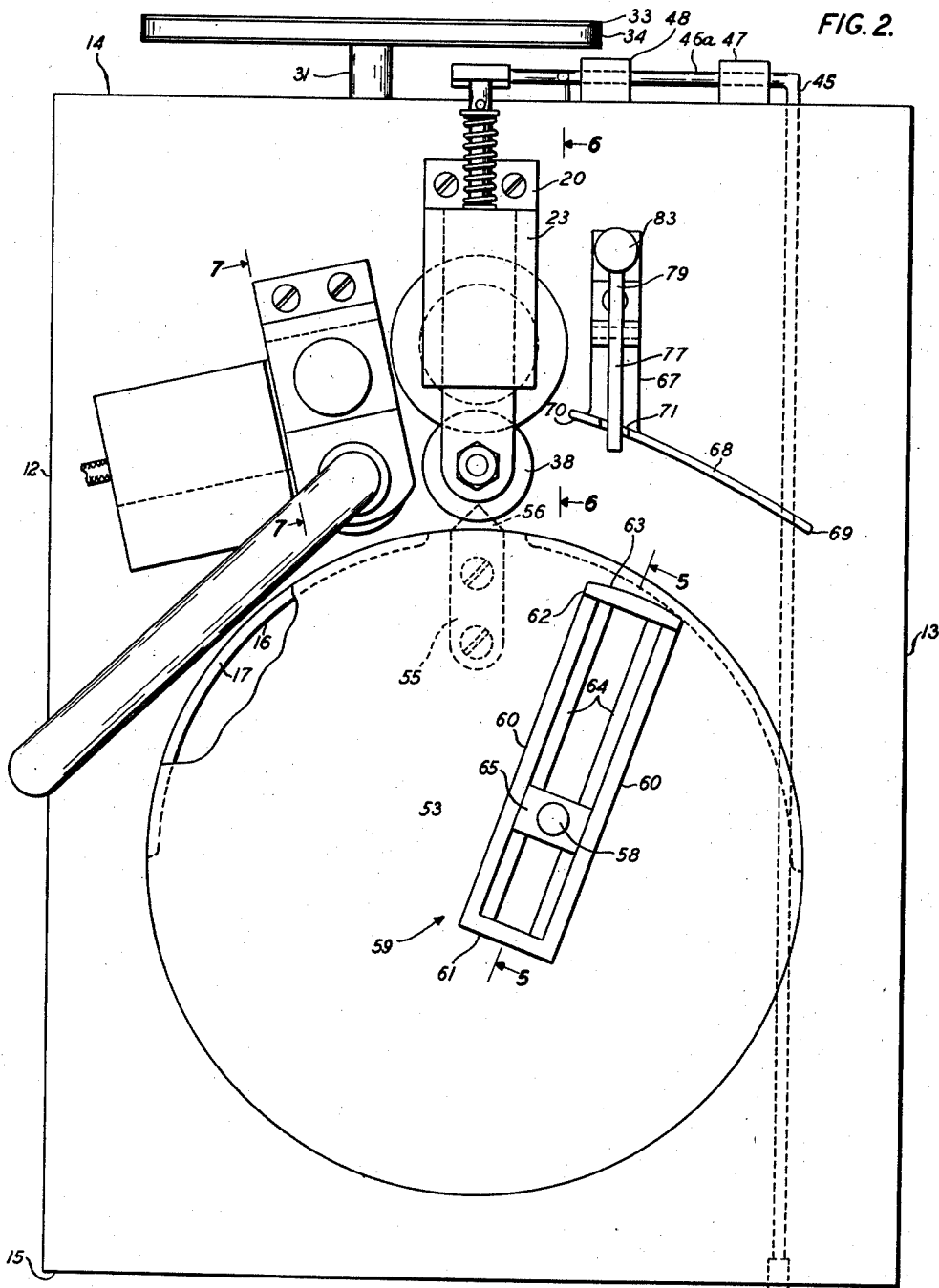
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HAT BRIM CURLING DEVICE

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4 Sheets-Sheet 2



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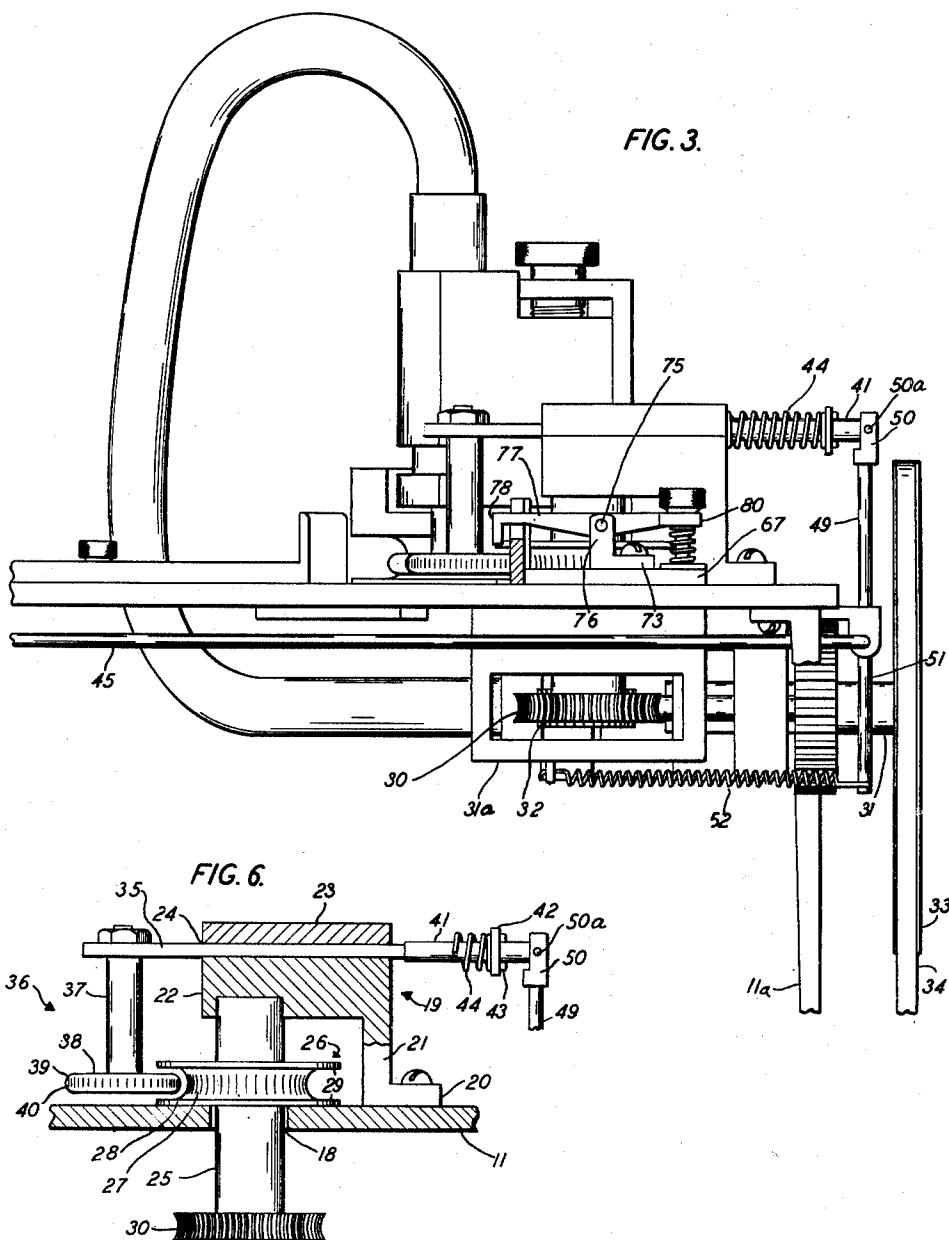
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

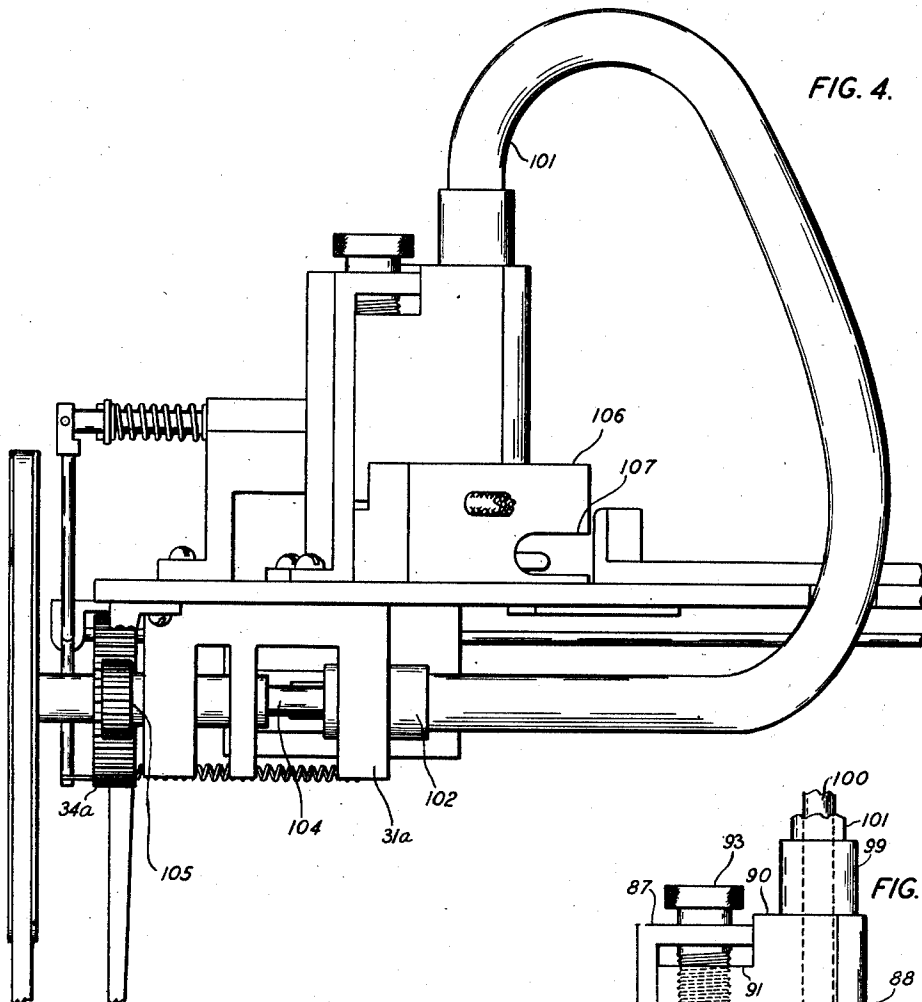


FIG. 4.

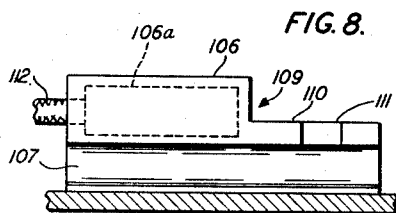


FIG. 8.

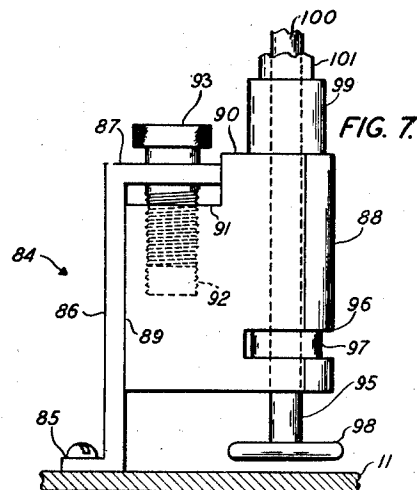


FIG. 7.

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HAT BRIM CURLING DEVICE

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Application March 29, 1947, Serial No. 738,113

14 Claims. (Cl. 223-14)

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This invention relates to a device for curling the edges of a soft felt hat brim.

An object of this invention is to provide a device for curling the edge of a soft felt hat brim wherein means is provided for simultaneously feeding the brim portion of a hat and imparting a predetermined amount of curl thereto.

Another object of this invention is to provide in a device of the character described, adjustable means for positioning a hat on the device, means for feeding an edge portion of the brim of said hat, said feeding means simultaneously curling a predetermined portion of said brim edge, and means for heating the curled brim edge while it is moving through the device to fix the curl therein.

Yet another object of this invention is to provide in a hat brim curling device, adjustable means for determining the extent of the curl to be imparted to the brim edge, means for disengageably engaging the edge of said hat brim for curling and frictionally feeding said edge, means for heating and fixing the curl in said brim edge and adjustable rotatable means for pressing the curled edge portion against said heating means.

Still another object of this invention is to provide in a hat brim edge curling device, means for simultaneously feeding and curling said hat brim edge, and means for pressing the curled brim portion into contact with a heated member, wherein said feeding means and said pressing means are connected to a single driving means.

Yet a further object of this invention is to provide in a hat brim edge curling device, means for permitting the presentation of the hat brim to the edge curling portion of the device in a manner to produce either a downward or upward curl in the brim edge.

Another object of this invention is to provide a strong, compact durable hat brim edge curling device of the character described, which shall be relatively inexpensive to manufacture, easy to manipulate and yet is practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown various possible illustrative embodiments of this invention,

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Fig. 1 is an end elevational view of the device embodying the invention;

Fig. 2 is a top plan view of the device shown in Fig. 1;

Fig. 3 is a front elevational view of the device shown in Fig. 1;

Fig. 4 is a rear elevational view of the device shown in Fig. 1;

Fig. 5 is a cross sectional view taken on the line 5-5 of Fig. 2;

Fig. 6 is a cross sectional view taken on the line 6-6 of Fig. 2;

Fig. 7 is a cross sectional view taken on the line 7-7 of Fig. 2; and

Fig. 8 is an elevational view of the heater portion of the device embodying the invention.

Referring now in detail to the drawing, 10 designates a hat brim edge curling device embodying the invention. The same comprises a base plate 11 having side edges 12, 13 and end edges 14, 15 and having legs 11a bolted to the corners thereof for supporting the plate in spaced relation to a base surface. The base plate 11 is formed with a centrally located large circular opening 16, the peripheral edge of the opening being formed with circumferentially spaced shoulder portions 17, for the purpose hereinafter appearing. The plate 11 is further formed with a through opening 18 disposed between the opening 16 and the end edge 14.

Spaced inwardly from the end edge 14 of the plate 11 and disposed intermediate the side edges 12 and 13 is an offset bracket 19. The bracket 19 comprises a leg portion 20 suitably screwed to the plate 11. A vertical wall portion 21 extends upwardly from the leg 19 and a horizontal wall portion 22 extends from vertical wall portion 21, parallel to the plate 11 and in offset relation to the leg 20 and disposed over the opening 18. A plate 23 is removably secured to the upper surface of the horizontal wall 22. The plate 23 is formed with a longitudinal slot 24 on its under surface, for the purpose hereinafter appearing. A vertically extending shaft 25 is disposed in the opening 18 in the plate 11. One end of the shaft 25 is suitably journaled in the under portion of the horizontal wall 22 of the bracket 19. Secured on the shaft 25 and disposed between the horizontal wall 22 and the plate 11, is a forming member 26. The forming member, which lies adjacent the plate 11, comprises a hub portion 27 having a curved concave periphery which is formed with vertically extending corrugated portions 28 and parallel rim portions 29.

Means is provided for rotating the member 26.

To this end the other end portion of the shaft 25 which projects through the opening 18 in the plate 11, has secured thereto a gear 30. A shaft 31 extending longitudinally of the plate 11 towards the end edge 14 thereof, is suitably journaled in a bracket 31a secured to the under surface of the plate 11. A worm gear 32, which meshes with the gear 30, is secured at one end of the shaft 31. The other end of the shaft 31, which projects beyond the edge 14 of the plate 11, has secured thereto a pulley 33 which may be connected by belting 34 to a motor, not shown. A gear 34a is mounted on the shaft 31, adjacent the pulley 33, for the purpose hereinafter appearing.

Mounted in the slot 24 of the plate 23 for slidable movement, is a rod 35. Secured to one end of the rod 35 is a member 36 which coacts with the forming member 26. The member 36 comprises a vertically extending shaft 37 rotatably mounted on the end of rod 35. Secured to the other end of shaft 37 is a circular disc 38 which is adapted to interfit between the rim portions of the forming member 26. The disc 38 comprises a convex peripheral edge portion 39 complementary to the curved portion of the hub 27 and is formed with vertically extending indentations 40.

The other end of the slidable rod 35 has secured thereto an extension 41 which extends slightly beyond the edge 14 of the plate 11. A collar 42 is mounted on the extension 41 and is positioned by means of a cotter pin 43 passing through the extension. A coiled spring 44 mounted on the extension 41 is disposed between the collar 42 and the end of the plate 23.

Means is provided to actuate the slidable rod 35. To this end, a control arm 45 which extends the length of the plate 11 and projects beyond either end thereof, is mounted in spaced relation to the undersurface of the plate by means of a bracket 46 adjacent the edge 15 of the plate. The bracket 46 supports the forward end of control arm 45. The other end of the control arm 45, projecting beyond edge 14 of plate 11 comprises a horizontal portion 46a extending at right angles thereto and supported in spaced brackets 47, 48, secured to the under side of the plate 11 adjacent the edge 14. The arm portion 46a extends towards the shaft 31 and has extending from the end thereof an upwardly extending portion 49. The arm portion 49 has secured thereto a member 50. The extension 41 on the slidable rod 35 is pivotally secured to the member 50 by a pivot pin 50a whereby pivoted movement of the arm 45 will impart slidable movement to the rod 35 through arm portions 46a and 49. Extending downwardly from arm portion 46a is an arm 51. The lower end of arm 51 is interconnected to a portion of bracket 31a by a coiled spring 52.

Removably mounted in the opening 16 in plate 11, is a circular plate 53 formed with shoulder portions 54 which are complementary to the shoulders 17 extending from the opening. The circular plate 53 has an upper surface which is flush with the upper surface of the plate 11. A projecting member 55 is screwed to the undersurface of the circular plate 53. The member 55 comprises an end portion 56 which extends beyond the periphery of the plate 53 and is disposed in contact with an adjacent portion of the undersurface of the plate 11 and serves to keep the plate in its seated position.

The plate 53 is formed with a threaded opening 57 which is adapted to receive a headed screw

58. A slidable crown guide member 59 is mounted on the plate 53 by means of the screw 58. The guide member 59 comprises a pair of similar, parallel members 60 interconnected at their outer ends by a member 61 and at their inner ends by an upstanding head 62 having an arcuate outer surface 63. The members 60 are formed on their inner edges with longitudinally extending grooves 64. A collar member 65 spans the members 60, being slidably mounted in the grooves 64 thereof. The collar 65 is formed with a through opening 66 through which the screw 58 passes to be screwed into the threaded opening 57 in plate 53. It is apparent from a consideration of Fig. 2, the guide member 59 may be moved into any desired position and fixed there by means of the screw 58.

Guide means is provided for positioning the brim edge of a hat in advance of the feeding and curling operations. To this end there is provided a rectangular shaped bracket 67 which is screwed to the top of the plate 11 and is disposed between the bracket 20 and the edge 13 of the plate 11. An upstanding triangular shaped wall member 68 extends from one end of the bracket 67 and is disposed angularly with respect to the inner end of the bracket. The wall member 68 is curved, with the apex portion 69 thereof extending towards the edge 13 of plate 11. The vertically extending side 70 of the member 68, opposite the apex portion 69, is disposed adjacent the pulley forming member 26. The member 68 is formed with a vertically extending, open ended slot 71 in axial alignment with the bracket 67. An L-shaped bracket 72 has a leg 73 thereof screwed to a central portion of the bracket 67. The upstanding portion of the bracket 72 comprises a pair of spaced lugs 74 on which is mounted a pivot pin 75. A lever 76 is mounted on the pivot pin 75 with one arm 77 thereof projecting through the slot 71 in wall 68. The arm 77 of the lever 76 terminates in a downwardly extending finger 78 which is disposed adjacent the inner surface of the wall member 68. The other arm 79 of the lever 76 has a thickened end portion 80 which is formed with a through opening through which passes the upper end of an upstanding threaded stud 81, secured to a rear portion of the bracket 67. A coiled spring 82 is mounted on the stud 81 and is disposed between the bracket 67 and the thickened portion 80 of the arm 79. A knurled nut 83 screwed onto the upper projecting portion of the stud 81 and bearing against the upper surface of the thickened portion 80 of the arm 79, is adapted, upon rotation in either direction, to pivot the lever 76 about the pin 75, thereby determining the position of the finger 78 relative to the base plate 11.

Means is provided for heating and pressing the curled edge of the brim as it advanced from the curling means. To this end an offset bracket 84 is disposed between the forming member 26 and the plate edge 12. The bracket 84 comprises a leg 85 screwed to the plate 11. Extending upwardly from leg 85, is a member 86, from which extends a horizontal member 87 which is offset with respect to leg 85. A vertically slidable block 88 is mounted on the bracket 84 for movement forward and away from the plate 11. The block 88 comprises a vertical edge portion 89 which is in slidable contact with the member 86 and an upper edge 90 including a notched portion 91 which is complementary to the horizontal member 87 of the bracket 84. The block 88 is formed with a vertically extending threaded recess 92

which extends from the notched portion 91. The member 87 has mounted thereon for rotatable movement only, a knurl headed screw 93 which engages the threaded recess 92 in the block 88. The block 88 is further formed with a vertically extending bore 94 in which is mounted a rotatable, non-slidable shaft 95. The lower portion of the block 88 is further formed with a recessed portion 96 which receives a rotatable collar 97 fixed to a portion of the shaft 95. A circular pressing disc 98, having a convex circumferential portion is fixed to the lower end of the shaft 95. The upper end of the shaft 95 extends upwardly through a collar 99 on the upper edge 90 of the block 88 and is inter-connected to a rotatable flexible shaft 100 which is protected by a covering 101. The shaft 100 extends upwardly and then in a curved path towards the edge 12 of the plate 11 and further extends beneath the plate 11. The end of the shaft 100 passes through a collar 102 mounted on the bracket 31a. Also mounted on the bracket 31a is a shaft 104 interconnected at one end to the flexible shaft 100. The other end of the shaft 104 has secured thereto a gear 105 which meshes with the gear 34a on shaft 31. It will be apparent that rotatable motion is imparted to the pressing disc 98 by means of the flexible shaft 100 inter-connecting the disc and the gear 105 which is driven by the gear 34a mounted on the main drive shaft 31.

Adjacent the slidable block 88 is a heater member 106 removably secured to the plate 11. The member 106 comprises a substantially rectangular shaped block having its lower forward edge formed with a longitudinally extending concave groove 107. The inner end of the block is formed with a rectangular recessed portion 109 which accommodates the lower edge of the slidable block 88. The horizontal wall 110 of the recess 109 is formed with a through opening 111 to accommodate the shaft 95. It is apparent that the pressing disc 98 on the lower end of the shaft 95 will extend into the concave groove 107. The block 106 further comprises an electrical heating element 106a disposed interiorly thereof and having a connecting cable 112 extending outwardly thereof.

In the operation of the device a hat A, comprising a crown B, a brim C and a brim edge D, which is to have its brim edge curled, is positioned on the plate 11 with its crown portion B over the guide member 59. The lower inner portions of the crown B are in contact with the curved head 62 of the guide, the guide having been previously fixed in terms of the width of the brim of the hat being processed. The other edge D of the brim contacts the guide wall 68. The lever 76 is adjusted so that the finger 78 will determine the vertical extent of curl of the brim edge D. When the guide members have been properly set, the operator pivots the arm 45 in a counter-clockwise direction. This will move the slide bar 35 outwardly, which in turn will move the disc 38 away from the forming member 26. The edge portion D of the hat brim is received between the disc 38 and the forming member 26. The arm 45 is then moved in a clockwise direction which moves the disc 38 towards the forming member 26, the corrugated portions on the disc and forming member frictionally holding the brim edge therebetween. The rotating forming member 26 will feed the brim edge D and the inter-fitting portions of the disc and the forming member will curl the brim edge. As the curled brim edge advances through the curling means, it is

immediately received in the grooved portion of the heater block 106. The disc 98 is positioned by suitable adjustment of the knurl headed screw 93 so as to press the curled portion of the brim into the groove 107 of the heater block. The heater elements 106a within the block, which may be thermostatically controlled, heat the block sufficiently to fix the curled edge of the brim.

In order to facilitate the manipulation of the hat body by the operator during the processing thereof, the control arm 45 may be connected by appropriate linkage means to a treadle means. This permits the operator to control the movement of the disc 38 with respect to the forming member 26 with his feet, thereby leaving his hands free to manipulate the hat body.

In the event that it is desired to impart a downward curl to the brim edge rather than an upward curl, the circular plate 53 is removed, leaving the opening 16 in the plate 11 to receive the crown portion B of the hat body, which is presented to the curling means in an inverted position, the brim portion C resting on the plate. The curling and fixing operations are the same as previously described.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

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

1. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, said feeding and curling means comprising a member having a curved groove to receive said peripheral portion of the brim, and a member having a curved edge complementary to said groove and projecting into said groove and adapted to press said peripheral portion against the surface of said groove, means for rotating one of said members, and heated means to receive said curled peripheral portion as said brim is fed, to fix the curl, said heating means comprising a member having a groove to receive said curled portion moving within said groove during the curling operation.

2. A device for curling the brim of a hat body, having a crown and brim, comprising a base plate on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, said feeding and curling means comprising a member having a curved groove to receive said peripheral portion of the brim, and a member having a curved edge complementary to said groove and projecting into said groove and adapted to press said peripheral portion against the surface of said groove, means for rotating one of said members, manual means for causing movement of one of said members toward and away from the other, a heating member on said plate, said heating member comprising a grooved portion for receiving the curled edge of said brim and adapted to fix said curl in said brim, and means for pressing said brim while advancing through said grooved portion.

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3. A device for curling the peripheral portion of the brim of a hat body having a brim and crown, comprising a pair of annular members having complementary surfaces of curved transverse cross section receiving the said peripheral portion therebetween, said members being rotatable about parallel axes, means to rotate one of said members, for feeding said brim, and heated means to receive said curled periphery portion as said brim is fed to fix the curl, said heating means comprising a member having a groove to receive a said curled portion, and means to keep the curled portion moving within said groove during the curling operation.

4. A device for curling the peripheral portion of the brim of a hat body having a brim and crown, comprising a pair of annular members having complementary surfaces of curved transverse cross section receiving said peripheral portion therebetween, said members being rotatable about parallel axes, means to rotate one of said members for feeding said brim, means to move one of said members toward or away from the other to either frictionally grip said brim portion or release the same, respectively, and heating means to receive said curled peripheral portion as said brim is fed, to fix the curl, said heating means comprising a member having a groove to receive said portion and means to keep the curled portion moving within said groove during the curling operation.

5. In a device for curling the peripheral portion of the brim of a soft hat body comprising complementary concave and convex means to frictionally grip the peripheral portion of the brim therebetween, and feed said brim to curl the same, and heated means to receive said curled peripheral portion as said brim is fed, to fix the curl, said heating means comprising a member having a groove to receive said curled portion, and means to keep the curled portion moving within said groove during the curling operation.

6. A hat body brim edge curling device comprising a base plate on which a hat having a brim may be positioned, means on said plate for frictionally feeding an edge portion of the hat brim, said feeding means being shaped to curl the edge of said brim, a heated member on said plate, said heated member comprising a grooved portion for receiving the curled edge of said brim and adapted to fix said curl in said brim, and means for pressing said brim while advancing through said grooved portion.

7. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, means for fixing the curl in said brim, said fixing means comprising a member formed with a groove so positioned that the curled portion of the brim will pass therethrough upon leaving the feeding and curling means, and means for heating said member.

8. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, means for fixing the curl in said brim, said fixing means comprising a member formed with a groove so positioned that the curled portion of the brim will pass therethrough upon leaving the feeding and curling means, means for heating said member, and means adapted to engage the inner surface of the curled

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portion of the brim and press said curled portion against the groove in said heated member.

9. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, means for fixing the curl in said brim, said fixing means comprising a member formed with a groove so positioned that the curled portion of the brim will pass therethrough upon leaving the feeding and curling means, means for heating said member, means adapted to engage the inner surface of the curled portion of the brim and press said curled portion against the groove in said heated member, said engaging means comprising a rotary disc, and means to rotate said disc.

10. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, means for fixing the curl in said brim, said fixing means comprising a member formed with a groove so positioned that the curled portion of the brim will pass therethrough upon leaving the feeding and curling means, means for heating said member, means adapted to engage the inner surface of the curled portion of the brim and press said curled portion against the groove in said heated member, said engaging means comprising a rotary disc, means to rotate said disc, and means to adjust the position of said disc in the direction of the axis thereof.

11. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, and guide means on the base to engage the inner surface of the crown of the hat in advance of the curling and feeding means, guide means to engage the outer end edge of the brim in advance of the curling and feeding means, and located opposite the first mentioned guide means, and heating means to receive said curled peripheral portion as said brim is fed, to fix the curl, said heating means comprising a member having a groove to receive said curled portion, and means to keep a curled portion moving within said groove during the curling operation.

12. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, guide means on the base to engage the inner surface of the crown of the hat in advance of the curling and feeding means, guide means to engage the outer end edge of the brim in advance of the curling and feeding means, and located opposite the first mentioned guide means, and means to limit the height of the curl of the peripheral portion of the brim.

13. A device for curling the brim of a hat body, having a crown and brim, comprising a base on which the hat body may be mounted, means on the base for feeding and curling the peripheral portion of the brim, guide means on the base to engage the inner surface of the crown of the hat in advance of the curling and feeding means, guide means to engage the outer end edge of the brim in advance of the curling and feeding means, and located opposite the first mentioned guide means, and means to limit the height of the curl of the peripheral portion of the brim

said last means being adjustable as to its spacing from the base.

14. A device for curling the peripheral portion of the brim of a soft hat body having a crown and a brim, comprising a base having an opening adapted to receive the crown, so that the hat body may be mounted thereon with the crown projecting down through said opening and with the brim on said base, a plate to cover said opening whereby the hat may be placed on the base with the crown projecting upwardly, and a single means for curling and feeding the periphery of the brim of the hat, be it placed on the base in either of the above mentioned positions.

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