

No. 692,537.

Patented Feb. 4, 1902.

W. J. McGALL.
HAT CURLING MACHINE.
(Application filed Oct. 8, 1901.)

(No Model.)

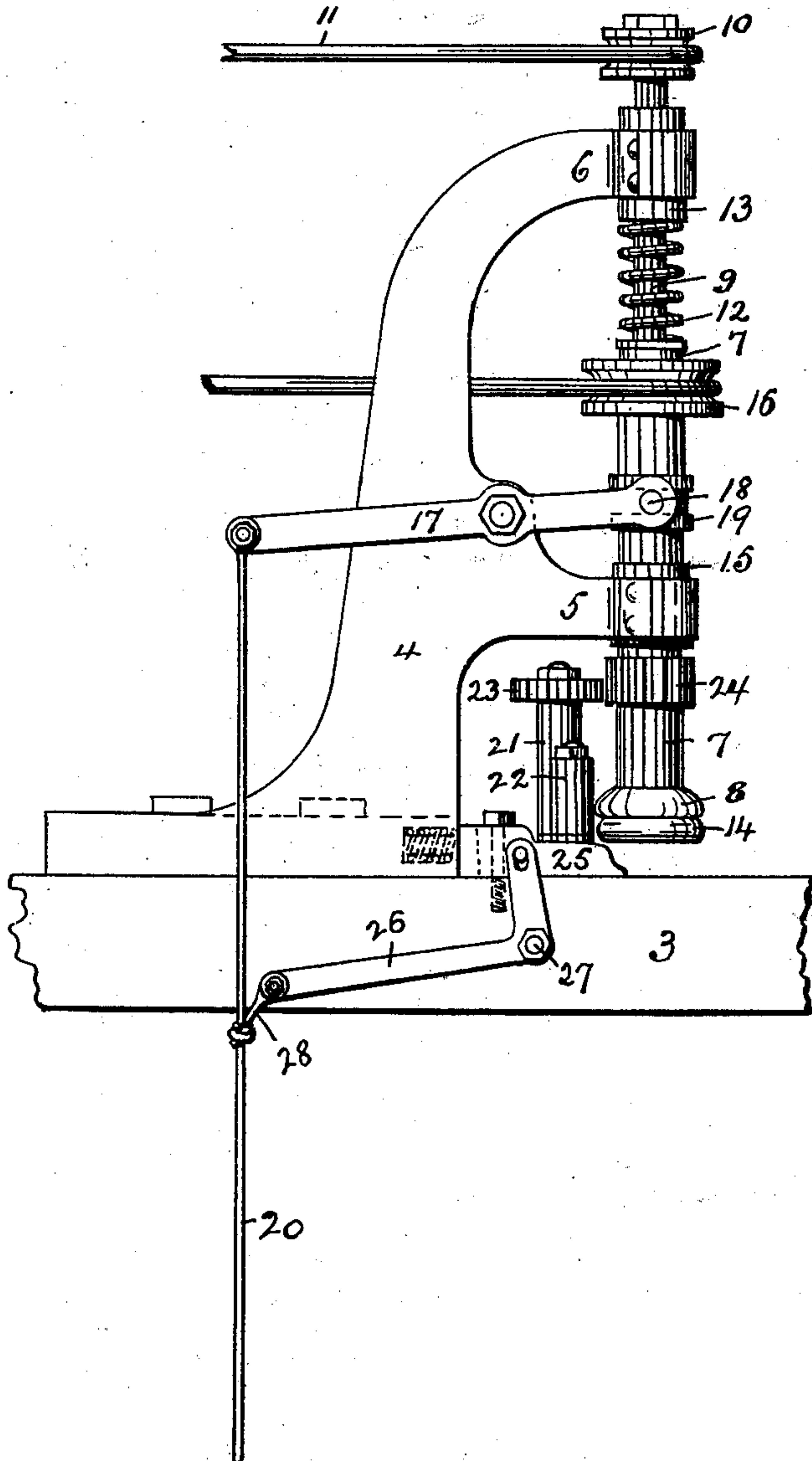


Fig. 1.

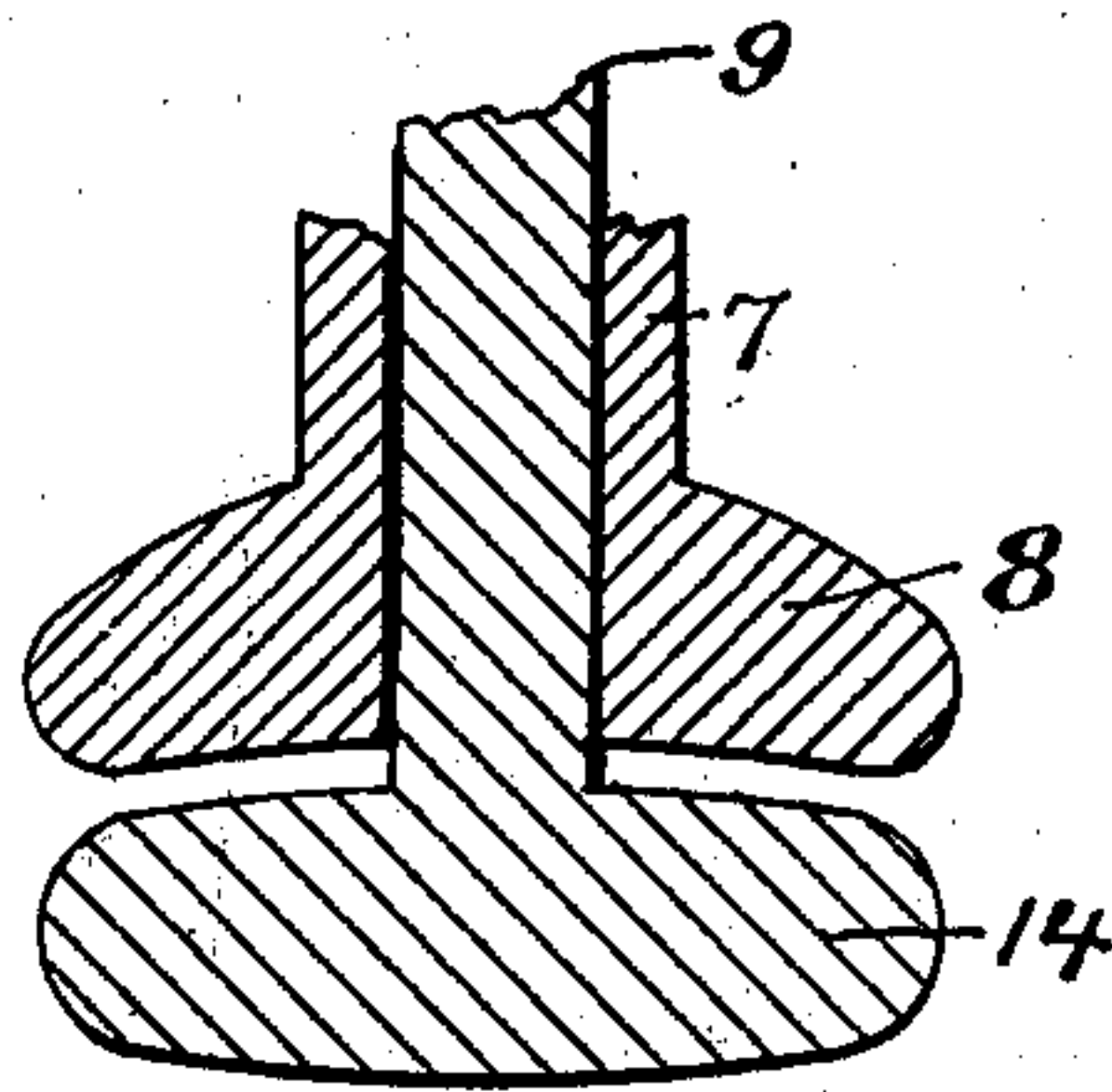


Fig. 2.

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WILLIAM J. MCGALL, OF WEST ORANGE, NEW JERSEY.

HAT-CURLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,537, dated February 4, 1902.

Application filed October 8, 1901. Serial No. 77,940. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. MCGALL, a citizen of the United States, residing at West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hat-Curling Machines; 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 the numerals of reference marked thereon, which form a part of this specification.

The object of this invention is to curl the edges of brims in manufacturing felt hats with greater facility, convenience, and ease and with more simple and effective appliances and to secure other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved hat-curling machine and in the arrangements and combinations of parts of the same, 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 numerals of reference indicate corresponding parts in both views, Figure 1 is a side elevation of my improved hat-curling machine; and Fig. 2 is a detail section, on an enlarged scale, showing the construction of certain tools or portions of said machine embodying important elements of novelty.

In said drawings, 3 indicates the table upon which the hat may rest in the curling operation. 4 is a frame or standard secured to said table and provided with arms or bearings 5 and 6, having boxes in which the shafts for operating the curling tools or members have their bearings.

7 indicates an outer shaft, upon which is formed the upper curling member 8, the said upper curling member being secured thereto or formed integral therewith in any suitable manner. The said shaft 7 is hollow or tubular and forms a jacket-bearing for an independent inner shaft 9, which independent shaft neatly fits within the said tubular shaft, so as to work smoothly therein. At its upper

end the said inner shaft projects beyond the extremity of the outer shaft and has a bearing in the box of the upper arm 6. Above said upper arm 6 the said shaft 9 is furnished with a pulley 10, adapted to be rotated by means of a suitable belt 11, and beneath said arm 6 the said shaft 9 receives a spring 12, which at its upper end bears against the box of the arm 6 or a collar 13, fastened upon the shaft 9, and bears downwardly upon the top of the outer tubular shaft 7, so that the said shaft 7 and the curling tool or member 14, carried by the said shaft 9, will be normally held at its lower limit of movement, the downward movement of the said outer tubular shaft being limited by a collar 15, fixed upon the said shaft 7 and engaging the upper side of the arm 5 of the frame. The hollow or tubular shaft 7 is given rotary movement by means of a pulley 16, which is preferably larger than the first pulley 10, above referred to, so that the upper curling member or tool will be given slower movement than the lower curling member. The lower curling member 14 and its shaft 9 are raised to their operative positions against the power of the spring 12 by means of a lever 17, which is preferably forked to extend to the opposite sides of the shaft 7 and provided with pins 18 to enter the groove of a shifting-wheel 19, attached to the outer hollow shaft. Said shifting-wheel and lever are operated by means of a suitable treadle or pedal (not shown) arranged beneath the table and connected to said lever by a rope or connection 20.

To properly hold the curled brim between the curling members or tools 8 14, I prefer to arrange contiguous or adjacent to said tools or members a series or plurality of wheels or rollers 21 22, one of which is geared, by means of cog-wheels 23 24, to the outer hollow shaft 7, the gears being preferably formed and arranged so as to give to the said wheel or roller 21 at its periphery substantially the same rate of movement as the upper curling member. The roller 22, adjacent to the wheel or roller 21, may be an idle wheel and be turned simply by the friction of the brim as the curling brim in contact therewith is fed along, the said roller or wheel 22 simply serving as a keeper or stay for holding the brim in proper

relation to the curling members. Said wheels or rollers are supported upon a slide 25, arranged upon suitable bearings upon the table, said slide being operated by a bell-crank or lever 26, fulcrumed at 27 and operated by a connection 28 with the rope or connection 20, above referred to, so that a single movement of the pedal serves both to operate the lever or bell-crank 26 and the lever 17 to effect a back movement of the rollers away from the curling tools or members when the upper member 8 is raised away from the lower member to permit the easy and convenient withdrawal of the hat-brim.

The curling members may be heated in any suitable manner now common in the art. Said members are of peculiar construction, the upper one being preferably more or less concaved on the lower side and the lower tool or member being preferably convex in correspondence with the concavity of the upper member. I may, however, vary the shape of the two members to suit different grades of styles of work.

The outer or peripheral surfaces of the tools are preferably rounded, so as to present surfaces to the hat which will not cut or otherwise injure it.

In operating the device having the construction above described the lower tool will rotate at a high rate of speed, and over this lower tool is bent, at first by hand, the edge of the brim, so that the felt enters in between the said tools and rollers and then between the tools. The foot of the operator is then removed from the treadle or pedal, and the upper curling tool or members, forced by the spring 12, press down hard upon the outer and upper side of the curled brim. The heated members are then allowed to act freely upon the felt, the hat being drawn forward by friction, guided by the hand. I may employ, in connection with the tools thus described, means for giving a preliminary curl to the brim and for guiding the hat in its movements; but these do not form a part of my present invention. When the peripheral parts of the brim are finally curled, foot-power is again applied to the pedal and the upper curling member is raised away from the curled brim and at the same time the rollers are forced back and away from the said curled brim, and thus the hat can be easily withdrawn from the machine and another one inserted.

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

1. In a hat-curling machine, the combination with a suitable frame and operating mechanism, of an inner shaft and an outer shaft arranged concentric with said inner shaft, each provided with a curling member, the curling members being adapted to receive the brim therebetween.

2. The combination in a hat-curling machine, with suitable supports and operating means, of a hollow shaft, a smaller shaft ar-

ranged within said hollow shaft and curling members on said hollow and smaller shafts.

3. The combination with the hollow shaft and inner shaft arranged concentrically, and each having a curling member, of large and small pulleys applied to said shafts and adapted to impart differential movements to said curling members.

4. The combination with the frame 4, having the arms 5 and 6, of a tubular shaft 7, an inner shaft 9, arranged within said tubular shaft, said shafts being each provided with curling members, means for moving the curling members, one from the other, and means for rotating said shafts at differential rates of speed.

5. In a curling-machine, the combination with a suitable frame and a shaft carrying a curling tool or member, of a curling member arranged concentrically and movable longitudinally with respect to said shaft and means for moving the said curling member to and from curling relation, substantially as set forth.

6. In a curling-machine, the combination with the shafts movable one within the other and each provided with a curling member, of a spring arranged to press one of said shafts longitudinally with respect to the other and a shifter adapted to move the one said shaft against the power of the spring substantially as set forth.

7. In a curling-machine, the combination with a frame and a shaft 7, carrying at its lower end a curling member 8, and means for rotating said shaft 7, and means for moving said shaft 7, longitudinally in its bearings, of a second shaft arranged concentric with the first said shaft and carrying another curling member adapted to cooperate with the first-mentioned curling member to effect a curling of the hat-brim, and means for rotating the second said shaft.

8. In a hat-curling machine, the combination of two concentric curling members arranged near to one another, to engage the opposite sides of a hat-brim, means for rotating said curling members, and means for moving one of said members in the line of its axis away from the other of said members, substantially as set forth.

9. In a hat-curling machine, the combination of two concentric curling members arranged near to one another to engage the opposite sides of a hat-brim, means for rotating said curling members at differential rates of speed, and means for moving one of said members in the line of its axis, away from the other of said members, substantially as set forth.

10. In a hat-curling machine, the combination of two concentric curling members arranged near to one another to engage the opposite sides of a hat-brim, means for rotating said members having a gear-wheel, 24, in connection therewith, a feed and stay roller 21,

arranged adjacent to said curling member and geared to said wheel 24, and means for moving said roller 21, to and from said curling members, substantially as set forth.

5 11. In a hat-curling machine, the combination with the concentric curling members and means for rotating the same, of wheels or rollers arranged adjacent to said curling members for holding the hat-brim up to said curling members, and means for moving said rollers away from said curling members to permit an easy withdrawal of the hat-brim, substantially as set forth.

10 12. In a hat-curling machine, the combination of two rotary hat-brim-curling members, movable one from the other in the line of their concentric axes, and a roller arranged adjacent to said members and adapted to hold the hat-brim against said members, said roller 15 20 being movable away from said members, and means for moving the curling members away

from one another and the said brim-holding roller away from the curling members simultaneously, substantially as set forth.

13. In a hat-curling machine, the combination with two rotary hat-brim-curling members, one movable from the other in the line of the concentric axes of said members, a roller 21, a slide 25, supporting said roller, a lever 26, adapted to move said slide to and 30 from the curling members, means for moving the movable curling member connected to said lever 26, and operable therewith, substantially as set forth.

In testimony that I claim the foregoing I 35 have hereunto set my hand this 28th day of September, 1901.

WILLIAM J. MCGALL.

Witnesses:

CHARLES H. PELL,
C. B. PITNEY.