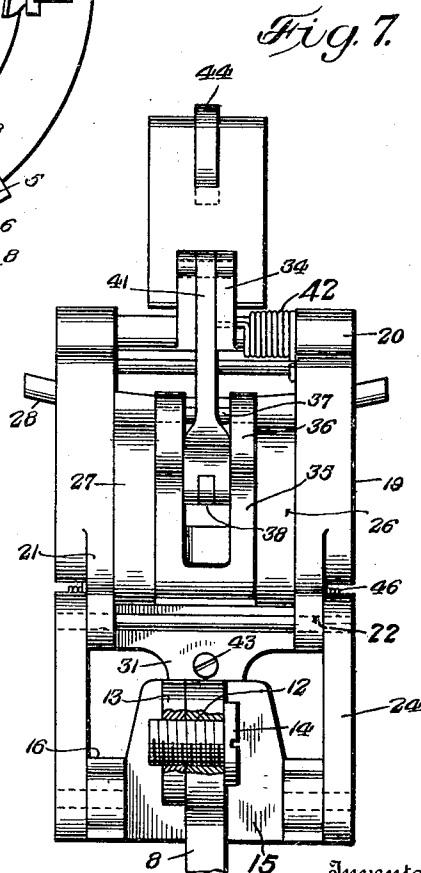
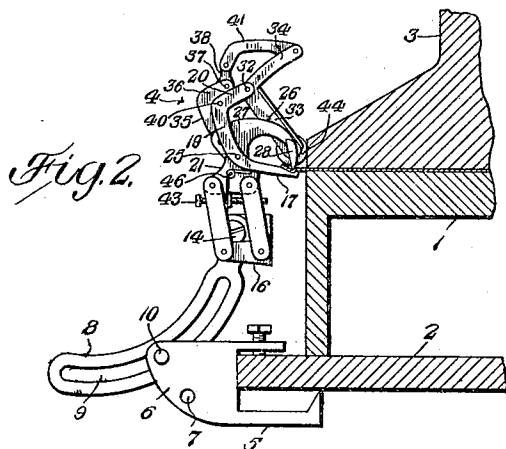
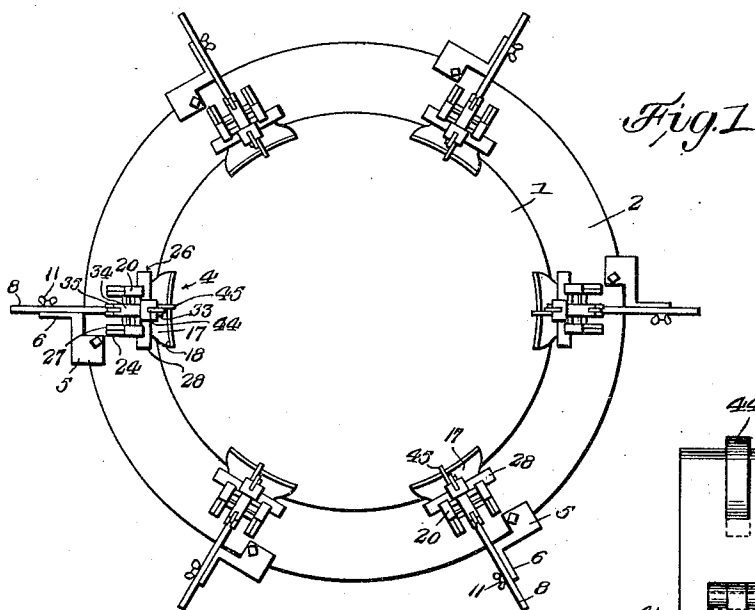


G. W. CHAMBERLAIN.
STRETCHING DEVICE.
APPLICATION FILED FEB. 11, 1916.

1,222,602.

Patented Apr. 17, 1917.
2 SHEETS—SHEET 1.



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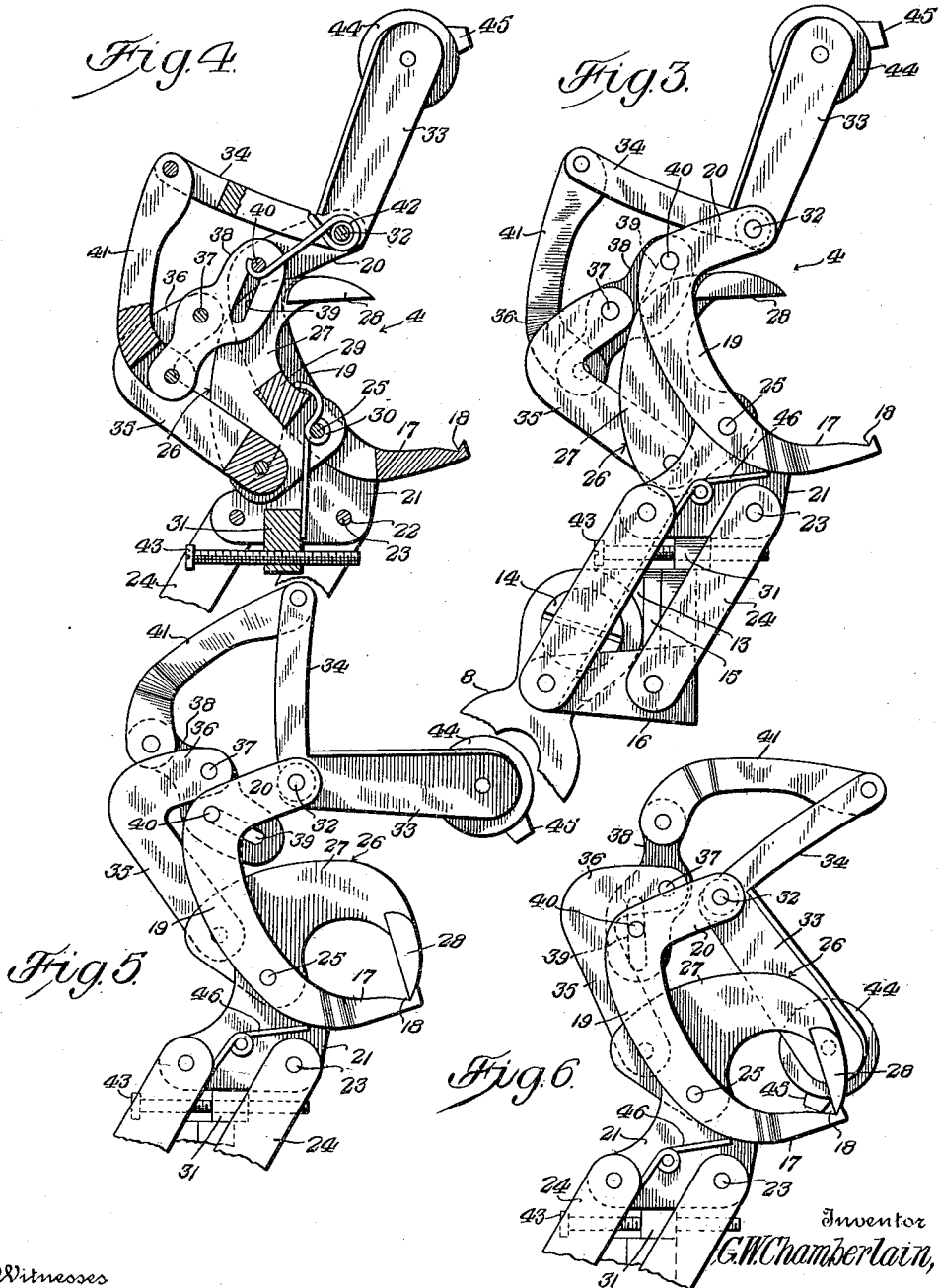
Attorney

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UNITED STATES PATENT OFFICE

GEORGE W. CHAMBERLAIN, OF ATLANTA, GEORGIA.

STRETCHING DEVICE.

1,222,602.

Specification of Letters Patent.

Patented Apr. 17, 1917.

Application filed February 11, 1916. Serial No. 77,759.

To all whom it may concern:

Be it known that I, GEORGE W. CHAMBERLAIN, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Stretching Devices, of which the following is a specification.

This invention relates to improvements in stretching devices and has particular application to a stretching device for use in connection with hat forming dies.

In carrying out the present invention, it is my purpose to provide a stretching device for use in connection with hat forming dies which will be entirely automatic in operation and which will automatically grip the material of the hat in the downward movement of the movable die and then swing outwardly from the dies under the action of the movable die to stretch the hat and then automatically release the material of the hat when the movable die ascends.

It is also my purpose to provide an automatic stretching device for use in connection with hat forming dies which will be constructed in such manner that any necessary or desired number of the devices may be attached to the forming machine quickly and conveniently and spaced apart about the dies to grip the material of the hat to stretch such material evenly and uniformly in all directions so as to facilitate the forming of the hat.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claims.

In the accompanying drawings;

Figure 1 is a top plan view of a hat former showing a number of my improved stretching devices applied thereto.

Fig. 2 is a cross sectional view through the same with the upper die in place.

Fig. 3 is an enlarged side elevation of one of the stretching devices removed from the former.

Fig. 4 is a vertical sectional view through the stretching device.

Fig. 5 is a fragmentary side elevation of one of the stretching devices, showing the parts in a different position from that illustrated in Fig. 3.

Fig. 6 is a similar view, showing the parts in another position.

Fig. 7 is a view taken at right angles to Fig. 3.

Referring now to the drawings in detail, 1 designates the lower hat forming die mounted upon a base 2, while 3 indicates the upper die capable of movement toward and away from the lower die to form the felt or other material between the dies. These dies may be constructed in any suitable manner and operated by any appropriate mechanism.

Arranged around the lower die 1 are my improved stretching devices 4 suitably spaced apart. The devices 4 are identical in construction and each embodies a supporting clamp 5 of any suitable construction adapted to grip the base 2 and formed with an outwardly projecting lug 6 provided with bolt holes 7 arranged one above the other. 8 designates an arm curved longitudinally and formed with a longitudinal slot 9 adapted to aline with the bolt holes 7 and through these holes and the slot are passed securing bolts 10 provided with thumb nuts 11 whereby the arm may be held in adjusted position upon the lug. The upper end of the arm 8 is formed with an opening 12 and placed in face to face contact with one side of the arm at the upper end thereof is a lug 13 formed with a bolt hole alining with the opening 12 in the upper end of the arm and passed through the opening and the bolt hole and threaded into the latter is a securing screw 14. Formed on the lug 13 and arranged at right angles thereto is a head piece 15 and formed integral with the ends of the head piece 15 and projecting rearwardly and downwardly therefrom are arms 16. This arm and head constitute the support for the jaws of the stretcher and the mechanism for operating the jaws and it is conceivable that the structure of the arm and the head, as well as the connection between the head and the arm may be varied and such is contemplated.

Mounted upon the head piece 15 is a gripping device comprising, in the present instance, a lower jaw 17 having one edge formed with an upwardly extending flange 18 and the other edge formed with rearwardly and upwardly projecting arms 19 having the upper ends thereof bent toward the jaw as at 20. Depending from the arms 19 contiguous to the jaw are lugs 21 formed with alining openings 22. The lugs 21 are

preferably interconnected by means of a bar 31. Passed through the alining openings 22 are pivot rods 23 having the outer ends thereof projecting beyond the lugs and pivoted upon the outer ends of the rods 23 are the corresponding ends of links 24 and the other ends of the links 24 are pivotally connected to the arms 16 on the head piece 15 and form connections between the head piece and the jaw 17. Formed in the arms 19 and spaced apart from the adjacent edge of the jaw 17 are alining openings and passed through these openings is a pivot rod 25 and mounted upon the pivot rod 25 between the arms 19 is an upper jaw 26 capable of movement toward and away from the lower jaw 17. In the present instance, the upper jaw 26 comprises curved sections 27 having the lower ends thereof pivoted upon the rod 25 and the upper ends formed with forwardly and laterally projecting grippers 28. These sections 27 are interconnected by means of a bar 29 so that both sections will move simultaneously toward and away from the lower jaw. Surrounding the pivot rod 25 is a restoring spring 30 having one end portion engaging the bar 29 and the other end portion in engagement with the bar 31. This spring 30 acts to hold the upper jaw normally out of engagement with the lower jaw and back against the arms 19. Mounted in the upper portions of the bent ends 20 of the arms 19 is a rod 32 and mounted upon the rod 32 between the arms and capable of swinging movement on the rod is an arm 33. Secured to the arm 33 adjacent to the lower end thereof and projecting rearwardly therefrom is a connecting arm 34. Pivotally connected to the lower ends of the sections 27 of the upper jaw below the pivot rod 25 are arms 35 projecting rearwardly from the sections and having the rear ends thereof curved upwardly as at 36. Mounted in the upwardly curved portions 36 of the arms 35 is a transverse pivot pin 37 and pivoted between its ends upon the pin 37 is a lever 38 having the upper end formed with a slot 39 that receives a cross rod 40 carried by the arms 19 adjacent to the bent ends 20 thereof. The lower end of the lever 38 is pivotally connected with one end of a link 41 and the other end of the link 41 is pivotally connected to the connecting arm 34. Surrounding one end portion of the rod 32 is a restoring spring 42 having one end secured to the cross rod 40 and the other end bearing upon the connecting arm 34. The spring 42 acts to restore the connecting arm and its associated parts to normal position and to hold the same in such position and cooperates with the restoring spring 30 of the upper jaw to hold the parts in normal position. Threaded through the cross bar 31 is an adjusting screw 43 whereby the lower

jaw may be moved toward or away from the forming machine securing the adjusting of the arm 8 so that the jaws will be disposed in the most advantageous position to grip the fabric on the lower die.

In practice, the stretching devices 4 are secured to the base 2 by means of the supporting clamps 5 and the flanged edges of the lower jaws lie in juxtaposition to the upper edge of the flange on the lower die 1, the arms 8 being adjusted about the lugs 6 to dispose the jaws in such positions. Journaled in the upper end of the arm 33 of each device is a roller 44 and formed on the upper end of such arm and projecting inwardly toward the dies is a finger 45. In the adjusted position of the jaws as just described, the fingers 45 are disposed in the path of movement of the upper die 3 and in the downward movement of the upper die, the latter engages the finger 45 and swings the arms 33 about the rods 32, thereby elevating the connecting arms 34. In the upward movement of each connecting arm motion is transmitted through the link 41 and lever 38 to the arms 35, thereby swinging the upper jaw downwardly to clamp the edge of the felt between the jaws. Immediately succeeding the clamping of the fabric between the jaws the upper die, in its continued downward movement toward the lower die, bears upon the roller 44 and swings both jaws outwardly away from the dies. As the jaws of all of the devices are thus actuated outwardly from the dies the fabric is stretched evenly and uniformly in all directions. This outward movement of the dies is brought about by means of the links 24 connecting the lower jaw to the head piece and these links are equipped with suitable springs 46 that act to restore the jaws to normal position when the upper die is elevated.

When the upper die is elevated, the stretching devices are relieved of the influence thereof and the springs with which such devices are equipped restore the devices to normal position and the component parts of such devices to such position automatically so that the stretching devices will be in condition to receive other material in the continued operation of the machine.

While I have herein shown and described the preferred form of my invention by way of illustration, I wish it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the claims and without departing from the spirit of the invention.

I claim:

1. The combination with hat forming dies, of stretching devices spaced apart around said dies and including means to

grip the material of the hat and stretch the same, and means disposed in the path of movement of the movable die and adapted to operate said first-named means.

5 2. The combination with hat forming dies, of stretching devices spaced apart around said dies and including means to grip the material of the hat and stretch the same, means disposed in the path of movement of the movable die and adapted to operate said first-named means, and means for restoring the first and second-named means to normal position succeeding the elevation of the movable die.

10 3. The combination with hat forming

dies, of stretching devices disposed about said dies including means adapted to grip the material of the hat automatically in the downward movement of the movable die and stretch such material, means for securing said devices to the base of the lower die, and means for adjusting said devices to proper positions relatively to the dies.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. CHAMBERLAIN.

Witnesses:

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JNO. A. BUCHANAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."