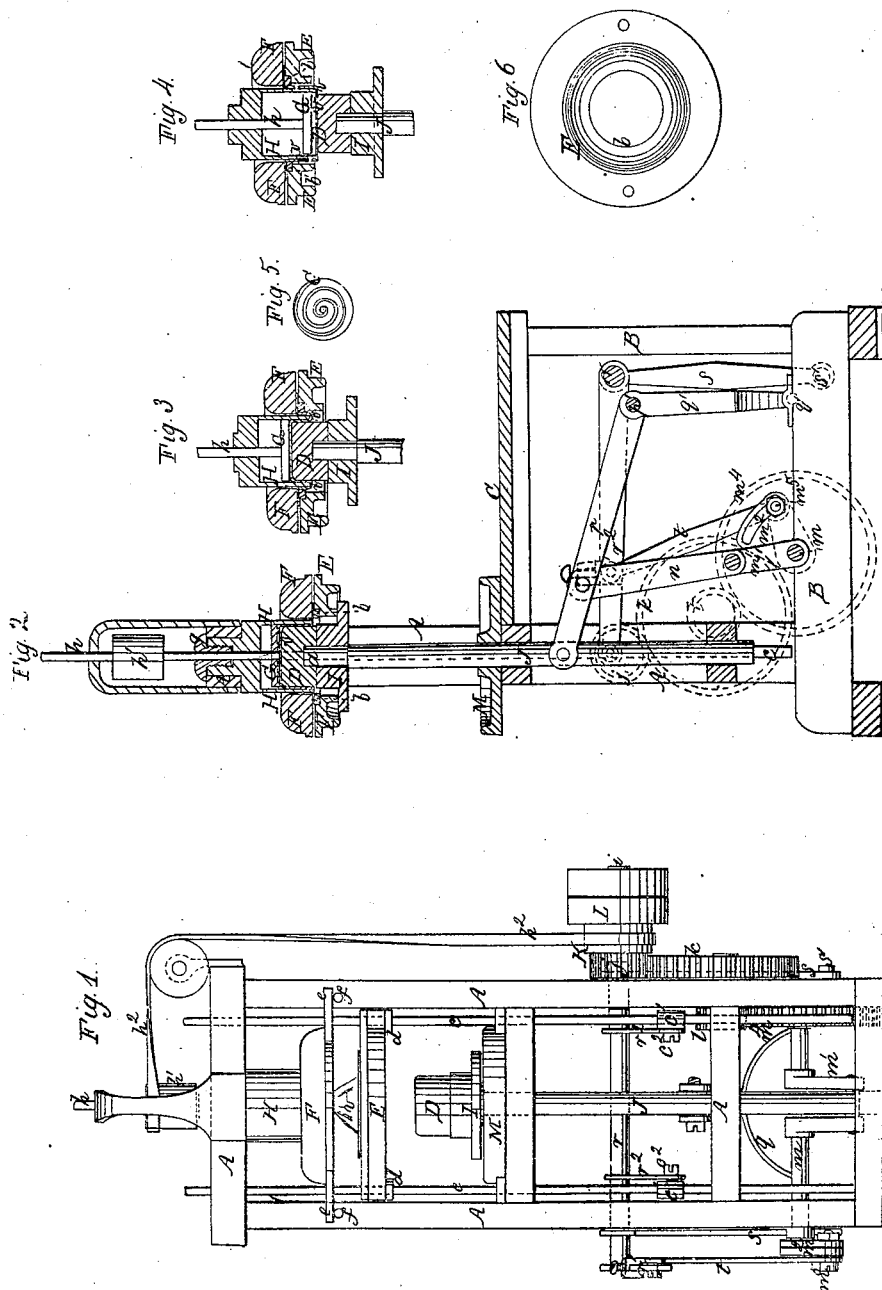


Osterheld & Eickemeyer.
Blocking & Stretching Hats.

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UNITED STATES PATENT OFFICE.

GEORGE OSTERHELD AND RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

IMPROVEMENT IN MACHINES FOR BLOCKING AND SHAPING HATS.

Specification forming part of Letters Patent No. 53,661, dated April 3, 1866.

To all whom it may concern:

Be it known that we, GEORGE OSTERHELD and RUDOLF EICKEMEYER, both of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machinery for Blocking and Shaping Hats; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of the machine. Fig. 2 is a vertical section of the same at right angles to Fig. 1. Figs. 3 and 4 are vertical sections of principal operating parts of the machine, representing them in different positions. Fig. 5 is an inverted plan of what we term the "tip-flattener." Fig. 6 is a plan of the lower holding-plate.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in certain novel devices, and in novel arrangements of known devices operating in combination therewith, forming a hat-blocking machine, whereby the shaping of felt hats is performed in a better and more expeditious manner and with a great saving of labor, and the hats are made to retain their shape better than when blocked by the machinery heretofore used.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A is a stationary upright frame, arranged in front of and attached to a table or bench, B C, and containing the principal operating parts of the machine by which the shaping of the hat is performed. These principal operating parts, situated above the table B C, consist of the hat-block D, a pair of annular holding-plates, E F, the tip-flattener G, what we call the "banding-shell" H, and what we call the "banding-ring" b.

The hat-block D is of wood or other material, of a size and form corresponding with that of the hat to be blocked, and is removable that it may be changed for blocks of different sizes and shapes desired. It is supported upon a horizontal disk or plate, I, secured upon the upper part of an upright spindle, J, which is fitted to slide up and down in suitable guides in the framing A. The upper end of this spindle projects above the disk I, as shown at a in Figs. 2, 3, and 4, that it may en-

ter a hole in the center of the bottom of the hat-block and keep it concentric with the said spindle.

The annular holding-plates E and F, between which the brim of the hat is held in the forming and blocking operation, are arranged with their circular openings concentric with the hat-block, and have holes provided in them for the passage through them of two vertical rods, c c, Fig. 1, which work through guides in the frame A. The lower plate, E, has a flat upper surface, and its central opening is larger than the exterior of the stretching-shell H, which will be presently described, and into this opening is tightly fitted what we term the "banding-ring" b, for forming what is termed by hatters the "band" of the hat—viz., the angle between the brim and the side crown. The upper surface of this ring projects slightly above the upper surface of the plate E. Below this plate E there are provided, on the rods c c, two collars, d d, for lifting the said plate.

Banding-rings of different internal diameters should be provided for hats of different sizes, and that which is used must correspond in its internal diameter to the required size of the exterior of the lower part of the side crown. When different-sized hats are to be made the rings must be changed.

The upper plate F, also has its central opening somewhat larger than the exterior of the stretching-shell, and it is made heavy enough to produce the requisite pressure on the banding-ring to hold the hat in the forming and blocking process. It is provided with projecting lugs e e, Fig. 1, to rest upon stationary pins or projections f f, secured or provided in or upon the frame A, for preventing it from descending below a certain position.

The banding-shell consists of a thin, hollow, upright, open-bottomed cylinder of metal, the interior diameter of which is so much larger than the exterior diameter of the hat-body between them. It is secured firmly to the upper part of the frame A by a hollow screw, g, Fig. 2, in a position above and concentric with the hat-block and with the openings in the holding-plates E F.

The tip-flattener G consists of a circular flat plate of metal of a diameter corresponding, or nearly corresponding, with that of the hat-block, and is arranged within the

banding-shell H. Its face may be either smooth, to press evenly all over the tip of the hat, or it may have a convolute-formed groove or flat ridge, as shown in Fig. 5, so that by its revolution it may spread the felt outward from the center toward the sides of the hat. It is attached firmly to the lower end of central spindle, h , which passes freely through the head of the banding-shell and through the hollow screw g , or any other suitable fixed guide in the top of the frame, and through a fixed guide, i , above. When the face is smooth the tip-flattener may have a simple upward and downward motion with the hat on the block; but when it is formed as shown in Fig. 5 it should have a rotary motion, and for this purpose is represented as furnished above the frame A with a pulley, h' , receiving a driving-band, h^2 , which runs on a pulley, K, attached to the driving-wheel or driving-pulley L of the machine. The pulley h' also serves as a stop to prevent the tip-flattener from descending below the banding-shell, or lower than is necessary, the spindle h requiring some stop for that purpose.

On the top of the table B C, and surrounding the spindle J of the hat-block supporter I, there is an annular trough, M, for the reception of any water that may be squeezed from the hat-body in the shaping and blocking operation, which is generally performed while the body is in a wet or moist state.

The driving-wheel or driving-pulley L of the machine and the pulley K are fitted to turn loosely on a fixed stud or axle, i , secured to one side of the framing of the machine, and they have firmly secured to them a spur-gear, j , which, by means of suitable spur-gearing, $k l m^4$, gives rotary motion to a shaft, m , working in bearings in the base of the table and framing of the machine. This rotating shaft m has a crank, m' , at the middle of its length, which is connected by a rod, n , with two levers, $p p$, the fulcrum p' of which is supported in a rocking-frame, q , which rocks in bearings q' on the base of the machine, and the revolution of the crank produces, through the said rod and levers, a vertical reciprocating motion of the spindle J, the supporter I, and the hat-block.

The said rotating shaft m has at one end another crank, m^2 , which is connected by a rod, t , with the arm r' of a rock-shaft, r , which works in bearings in the upper ends of two rocking pillars, $s s$, the lower ends of which are attached by fixed pins $s' s'$ to the base of the machine; and the said rock-shaft has rigidly attached to it two other arms, $r^2 r^2$, which are pivoted to adjustable collars $c' c'$, secured by set-screws $c^2 c^2$ to the vertical rods $c c$.

The rotary motion of the crank m^2 produces, through the agency of the rod t , arm r' , rock-shaft r , and arms $r^2 r^2$, a vertical reciprocating motion of the rods $c c$, by which the upward movements of the clamping-plates E F are obtained. The wrist m^3 of the crank

m^2 is adjustable backward or forward relatively to the wrist of the crank m^2 , to properly time the relative movements of the holding-plates relatively to the movements of the hat-block; and the connection of the rod t with the arm r' is adjustable higher or lower to regulate the distance which the holding-plates E F are moved upward, and thereby regulate the distance which the said plates move upward over the banding-shell, according to the desired height of the crown of the hat.

The operation of forming and blocking the hat in this machine is as follows: The hat-body v having been prepared for blocking by being stretched by hand in the usual manner or by a machine, and wetted or moistened by hot water or steam, is placed crown upward on the lower plate, E, while the hat-block is in the lowest position, (represented in Fig. 1,) the said plate being then supported by the collars $d d$ of the rods $c c$, with its upper surface nearly on a level with the top of the block, and the upper plate, F, then resting on the pins or projections $f f$, with its lower surface a little below the lower edges of the banding-shell H. The upward movement of the rods $c c$ then carries up the plate E and the hat-body and brings the brim into contact with the lower surface of the plate F, between which and the banding-ring b the brim is then held by the weight of the latter plate, while the two plates E F pass up over the exterior of the banding-shell, turning the crown inside out and stretching it over the shell, as shown in Fig. 4, at the same time forming the band over the upper inner edge of the banding-ring b . The two plates move upward high enough to overstretch the crown—that is, to stretch it to a greater height or depth than it is desired to have when blocked. This overstretching is desirable on account of the tendency of the hat-body to shrink as soon as it is relieved of tension, and it is in effecting this preparatory to the introduction of the block that the operation of this machine differs essentially in one respect from that of other forming and blocking machines. As the upward movement of the holding-plates and the hat-body proceeds the spindle J and supporting-plate move upward with the hat-body, and as these have a greater movement than the plate E the top of the block comes in contact with the tip of the crown of the hat before the descent of the holding-plate commences, and the continued upward movement of the hat-block, while the rods $c c$ descend and permit the descent of the said plates by their own weight, draws the crown of the hat off from the exterior of the banding-shell and turns its right side out over the block which enters the shell, as illustrated in Figs. 2 and 3, the latter of which figures represents this reversal of the crown as partly effected, and the former represents it as completed. While the block is thus passing into and remains in the hat the tip of the latter is pressed by the flattener G. The crown of the hat having been drawn tightly over the block, the latter de-

scends with the plates E F, the former of which stops when it reaches the stops *ff*, while the plate F and the hat-block continue their descent, the block moving faster, and so withdrawing itself from the hat, which remains upon the plate E, from which it is now removed to give place for a new body.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The banding-shell H, applied and operating in combination with the hat-block D, and with suitable means of holding the brim of the hat, substantially as and for the purpose herein described.

2. So applying the holding-plates for clamping the brim of a hat in a hat shaping and blocking machine that they are opened and closed automatically by the operation of the machine, substantially as herein described.

3. So applying and operating the banding-

shell and the holding-plates as to produce the overstretching of the hat-body in height or depth preparatory to the entrance of the block, substantially as herein specified.

4. The banding-ring *b*, applied within the holding-plate and operating in combination with the banding-shell H, substantially as herein described.

5. The tip-flattener, applied and operating in combination with the hat-block, substantially as herein specified.

6. Making the tip-flattener with a convolute face, substantially as and for the purpose herein set forth.

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