

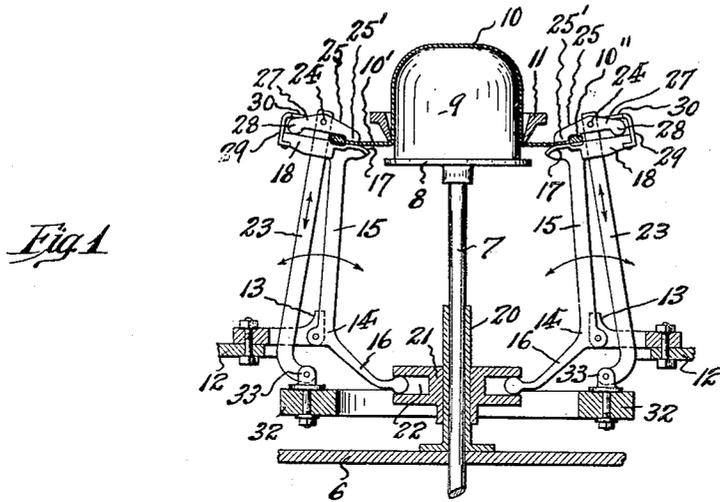
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R. G. MULLER

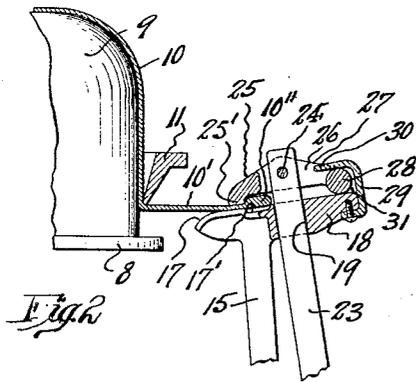
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STRETCHING TONG MECHANISM FOR HAT BLOCKING MACHINES

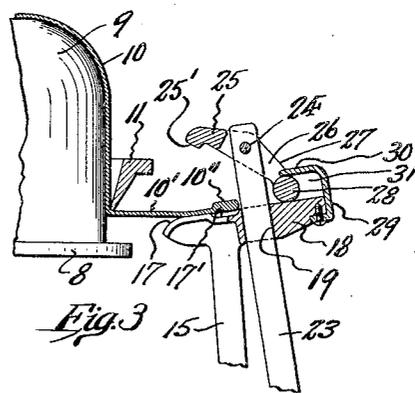
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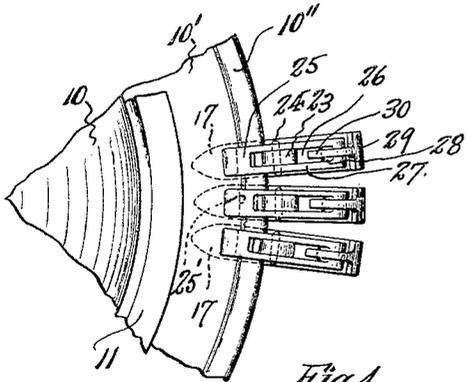
*Fig 1*



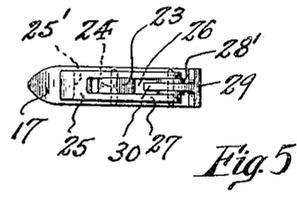
*Fig 2*



*Fig 3*



*Fig 4*



*Fig 5*

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# UNITED STATES PATENT OFFICE

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## STRETCHING TONG MECHANISM FOR HAT BLOCKING MACHINES

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This invention relates, generally, to improvements in brim stretching tongs or clamp mechanism for hat blocking and shaping machinery; and the invention has reference, more particularly, to a novel clamp or stretching tong mechanism especially adapted to grip hat brims having beaded or double felted marginal edges.

This invention has for its principal object to provide a novel clamp or stretching tong mechanism for both wet and finishing blockers, comprising a series of vertically stationary lower jaws to underlie and support the hat brim, in combination with novel movable upper gripping jaws having novel means for actuating the same, whereby a hat brim having a beaded or double felted edge may be gripped thereby at points inwardly of the beaded or doubled edge thereof in such manner as to avoid risk of blemishing or injuring such edge.

This invention has for a further object to provide, in connection with stretching tong mechanism of the kind and for the purposes mentioned, a movable clamp jaw means having a novel relation to the stationary clamp jaw means, whereby a relative opening movement of considerable amplitude is attainable to assure ample clearance when inserting or removing a hat having a beaded or doubled edge.

Other objects of this invention, not at this time more particularly enumerated, will become apparent from the following detailed description of the same.

An illustrative embodiment of this invention is shown in the accompanying drawing, in which:

Fig. 1 is a fragmentary vertical section through portions of a hat blocking machine as equipped with the novel clamp or stretching tong mechanism according to this invention; Fig. 2 is an enlarged fragmentary sectional view showing the clamp mechanism in hat brim engaging position, and Fig. 3 is a similar view showing the clamp mechanism released.

Fig. 4 is a fragmentary plan view showing the side by side relation of the novel clamp devices (a plurality of which in prac-

tice extend entirely around the hat brim); and Fig. 5 is a detail plan view of somewhat modified form of clamp device.

Similar characters of reference are employed in the above-described views, to indicate corresponding parts.

The novel clamp or stretching tong mechanism of this invention is designed for use in connection with hat blocking machinery of the general type and kind exemplified in United States Letters Patent to Eickmeyer, No. 167,083, dated August 24, 1875, and in the application for United States Letters Patent heretofore filed by me on or about February 27, 1929, Ser. No. 343,049/25.

Referring to the accompanying drawing, the reference character 6 indicates the bed-plate of a hat-blocking machine, through which extends the central post or column 7 to the upper free end of which is fixed a block supporting plate 8 with which is engaged one of a number of different sizes of interchangeable hat blocks, as 9. The interchangeable hat blocks are usually employed in finishing blockers, but in wet blockers it is quite common practice to use any well-known form of expandible block (not here shown).

The hat body 10 to be blocked is engaged over the hat block 9 as shown, whereupon any suitably supported banding-ring 11 is engaged thereover so that the brim 10' of the hat body may be engaged and stretched relative to the banding-ring.

Surrounding the hat-body and its brim, when it is thus mounted on the block, are a plurality of adjustable clamping and stretching tong devices which are radially disposed side by side so as to be capable of gripping the free marginal portions of the brim around the entire periphery thereof. The said clamping and stretching tong devices are usually pivoted so as to be capable of swinging adjustment toward and from the hat-block, to thereby accommodate the same to various widths of hat brims, and each such device is provided with a releasable clamp for releasably gripping the hat brim. Manipulatable means is provided for simultaneously adjusting all the tongs, and also

another manipulatable means is provided for simultaneously engaging or releasing all the clamp jaws. Heretofore, the releasable clamp jaw elements have been so related to stationary jaws as to have but a limited direct vertical play or movement of comparatively small amplitude with respect to hat brim engaging or releasing operation, as the case may be. Such limited vertical play or movement is sufficient where the hat-brims are of uniform thickness throughout and engagement thereof by the clamp means may be effected directly at the margin. It has been found, however, that such arrangement and mode of operation is not practical when the hat brim is provided with a beaded or doubled edge; usually at least twice the thickness of the main part of the brim; first, because clamping directly upon such beaded or doubled edge tends to so deform and blemish the same as to destroy the hat for commercial purposes, and, second, even though the brim were engaged by the clamps inside of such beaded or doubled edge, the extra inward extension of the clamps would obstruct ready insertion and removal of the hat brim, since the amplitude of vertical play attainable within practical limits is not sufficient to permit displacement of the movable clamp elements far enough to provide adequate clearance. Having these factors in mind, this invention seeks to provide an improved construction and arrangement of clamping jaw elements which can be manipulated by the usual means heretofore employed for engaging and releasing the same relative to a hat brim, and which are not only capable of gripping the hat brim at points within the beaded or doubled edge thereof, so as to avoid application of deforming pressure upon the latter, but are also capable of a comparatively wide amplitude of releasing movement whereby, when released, the same are sufficiently displaced relative to the stationary jaws as to provide a degree of clearance that assures a minimum of interference or impedance to the seating or removal of the hat brim relative to the stationary jaws. To these ends the novel clamping and stretching tong mechanism according to this invention comprises the following construction and arrangement of parts:

Secured to the framework of the machine not shown), in spaced relation to and above the bed-plate 6, is a horizontally disposed supporting plate 12 having a central opening through which the clamping and stretching tongs extend. Secured to said supporting plate 12, to extend around the margins of said central opening, are a plurality of bifurcated fulcrum brackets 13. Pivotaly mounted between the arms of each fulcrum bracket 13 is a bell-crank lever 14, having an upwardly extending arm 15 and a downwardly and inwardly extending arm 16. Formed on the up-

per end of each of said arms 15 is an inwardly projecting stationary clamp jaw 17 having an oppositely or outwardly projecting or extending heel portion 18'. Formed in each heel portion 18 is a vertical slideway 19. Fixed on said bed-plate 6, to extend upwardly therefrom and around the post or column 7, is a sleeve 20. Vertically slidable on said sleeve 20 is a movable hub 21, formed to provide an annular peripheral channel or socket 22, in which the free ends of the arms 16 are engaged so as to be oscillated when said hub is moved up and down. Suitable means (such as ordinarily found in hat blocking machines of the kind above referred to but not here shown) is provided for moving the hub 21 up or down to thereby simultaneously turn the bell-crank levers 14 about their fulcrums so as to move the stationary clamp jaws 17 toward or from the hat block to properly dispose the same in such spaced relation thereto as is desirable to accommodate the same to the width of brim of the particular hat body mounted on said hat-block.

Associated with each stationary clamp jaw is a movable or releasable clamp jaw mechanism, the same comprising a vertically movable actuating bar 23, having its upper end slidably projecting through the slideway 19 of the stationary clamp jaw with which it is operatively associated. Pivotaly connected with the upper free end of each actuating bar 23, by means of a fulcrum pin 24 is a movable clamp jaw 25 having a downwardly and inwardly offset toe 25' at its free end, and preferably having a longitudinal opening 26 between its sides through which said free end of the actuating bar 23 projects. Said clamp jaw 25 is provided with an outwardly projecting tail piece 27 terminating in a knuckle 28 which bears at its underside on the top surface of the heel portion 18 of the stationary jaw 17. Secured to said heel portion 18 is a clip-piece 29 having a finger 30 to overlie the top of said knuckle 28. The space 31 provided between said heel portion 18 and said finger 30 forms a socket to embrace said knuckle 28. Arranged beneath said supporting plate 12, concentric to said hub 21, is a lift ring 32. Said lift ring is provided with fulcrum pieces 33, to which are respectively pivoted the lower ends of said actuating bars 23. Suitable means (such as ordinarily found in hat blocking machines of the kind above referred to but not here shown) is provided for raising and lowering said lift ring 32 at will to thereby simultaneously move said actuating bars 23 to release or engage the clamp jaws 25, as the case may be.

In the operation of the novel clamping and stretching tong mechanism, after the hat body 10 has been placed on the hat-block 9 and the banding ring 11 applied thereto,

and the stretching tong mechanism adjusted according to the width of the hat brim 10', the lift ring 32 is raised to slide upwardly the actuating bars 23. Upward movement 5 of said actuating bars 23 lifts the movable clamp jaws 25, but since the knuckles 28 thereof are restrained against upward vertical movement by the fingers 30, said clamp jaws are caused to turn on the fulcrum pins 10 24, whereby the inner gripping ends of the same are swung upwardly and somewhat outwardly away from the stationary jaws 17, as shown in Fig. 3, thus giving ample clearance for pressing the margins of the hat brim 10' past the same and down upon the stationary jaws 17 in seated relation thereto. Said stationary jaws 17 are preferably provided with a transverse countersunk channel 17' over which a beaded or doubled edge 10'' of the hat brim 10' may lie, so that 20 such part of the brim is relieved of any pressure when clamped between said stationary jaws 17 and movable jaws 25. When the hat brim 10' is seated upon the stationary 25 jaws 17, the lift ring 32 is lowered to slide downwardly the actuating bars 23 relative to the stationary jaws. Downward movement of said actuating bars 23 lowers the movable clamp jaws 25, and since the knuckles 28 thereof are restrained against downward vertical movement by the heel portion 18, said movable clamp jaws will swing downward about the knuckles 28 as fulcrums, whereby the downwardly and inwardly offset 30 gripping toes 25' of the jaws 25 will be caused to engage the hat brim 10' inwardly of its beaded or doubled edge 10'' so as to clamp the brim 10' between the so moved movable jaws 25 and the stationary jaws 17, 40 the bodies of the former straddling or bridging over the beaded or doubled edge 10'' without exerting any deforming pressure thereupon (see Figs. 1 and 2). It will thus be obvious that the hat brim 10' is firmly clamped or gripped by the stretching tongs 45 subject to stretching action of the latter when the same are actuated by suitable movement of the hub 21, while, nevertheless, no risk of crushing, deforming or otherwise injuring the beaded or doubled edge 10'' of the hat brim is entailed.

From the above description it will be apparent that a very practical and easily manipulated clamping mechanism is provided 55 which is of especial advantage when operating upon hats having brims with beaded or doubled felted marginal edge portions, although equally capable of use for engaging and manipulating hat bodies having plain 60 brims of uniform thickness.

In Figs. 1 to 4 inclusive the movable clamp jaws 25 are shown provided with knuckles 28 integrally formed with the tail end of the same, if desired, however, this knuckle may 65 be provided in the form of a suitably jour-

naled anti-friction roller, as indicated at 28' in Fig. 5.

I am aware that various changes could be made in the above described constructions and many apparently widely different embodiments of this invention could be made 70 without departing from the scope thereof. It is therefore intended that all matter contained in the above description and shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting 75 sense.

Having described my invention, I claim:

1. Clamping and stretching tongs for hat blocking machinery, comprising a plurality 80 of brim supporting jaws spaced circumferentially around a hat supporting means, movable clamp jaws to cooperate with said supporting jaws, said clamp jaws having downwardly offset gripping toes at their inner 85 ends and fulcruming knuckles at their outer ends, said supporting jaws having socket means to engage said fulcruming knuckles, actuating bars vertically slidable relative to said supporting jaws and to which said clamp 90 jaws are pivotally connected, and means to simultaneously actuate said clamp jaws through said actuating bars.

2. Clamping and stretching tongs for a hat blocking machine, comprising a plurality 95 of radially movable brim supporting jaws circumferentially spaced about the hat supporting means of the machine, said jaws having outwardly extending heel portions provided with vertical slideways therethrough, 100 movable clamp jaws to cooperate with said supporting jaws, said clamp jaws having fulcruming knuckles bearing upon said heel portions of said supporting jaws, means to retain said fulcruming knuckles against vertical 105 movement, actuating bars vertically movable through said slideways of said supporting jaws, means to pivotally connect said clamp jaws with said actuating bars, and means to simultaneously actuate said 110 clamp jaws through said actuating bars.

3. Clamping and stretching tongs for a hat blocking machine, comprising a plurality 115 of radially movable brim supporting jaws circumferentially spaced about the hat supporting means of the machine, said jaws having outwardly extending heel portions provided with vertical slideways therethrough, 120 movable clamp jaws to cooperate with said supporting jaws, said clamp jaws having fulcruming knuckles bearing upon said heel portions of said supporting jaws, means to retain said fulcrum knuckles against vertical 125 movement, actuating bars vertically movable through said slideways of said supporting jaws, means to pivotally connect said clamp jaws with said actuating bars, said clamp jaws having downwardly offset gripping toes at their inner ends, and said supporting jaws having transverse countersunk 130

relief channels offset relative to the point of engagement of said gripping toes with said supporting jaws, and means to simultaneously actuate said clamp jaws through  
5 said actuating bars.

4. In a hat blocking machine having means to support a hat body, clamping and stretching tongs engageable with beaded edge brim portions of the supported hat body comprising, a plurality of bell-crank levers pivoted in radial arrangement about said supporting means, brim supporting jaws carried by the upper arms of said levers, said supporting jaws having outwardly extending  
15 heel portions provided with vertical slideways therethrough, movable clamp jaws to cooperate with said supporting jaws, said clamp jaws having fulcruming knuckles bearing upon said heel portions of said supporting jaws, means to retain said knuckles against vertical movement, actuating bars vertically movable through said slideways of said supporting jaws, means to pivotally connect said clamp jaws with said actuating  
20 bars, said clamp jaws having downwardly offset gripping toes at their inner ends whereby when closed upon a hat brim having a beaded edge portion the latter will be cleared, means for simultaneously turning said bell-crank levers on their pivots for adjusting and stretching movements of the tongs, and means to simultaneously move said actuating bars for closing or opening said movable jaws.

5. Devices of the kind described as defined in claim 4, wherein said brim supporting jaws are provided with transverse counter-sunk relief channels to underlie the beaded edge of a hat brim operatively related to said  
40 jaws.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 20th day of August 1931.

45 RUDOLPH G. MULLER.

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