

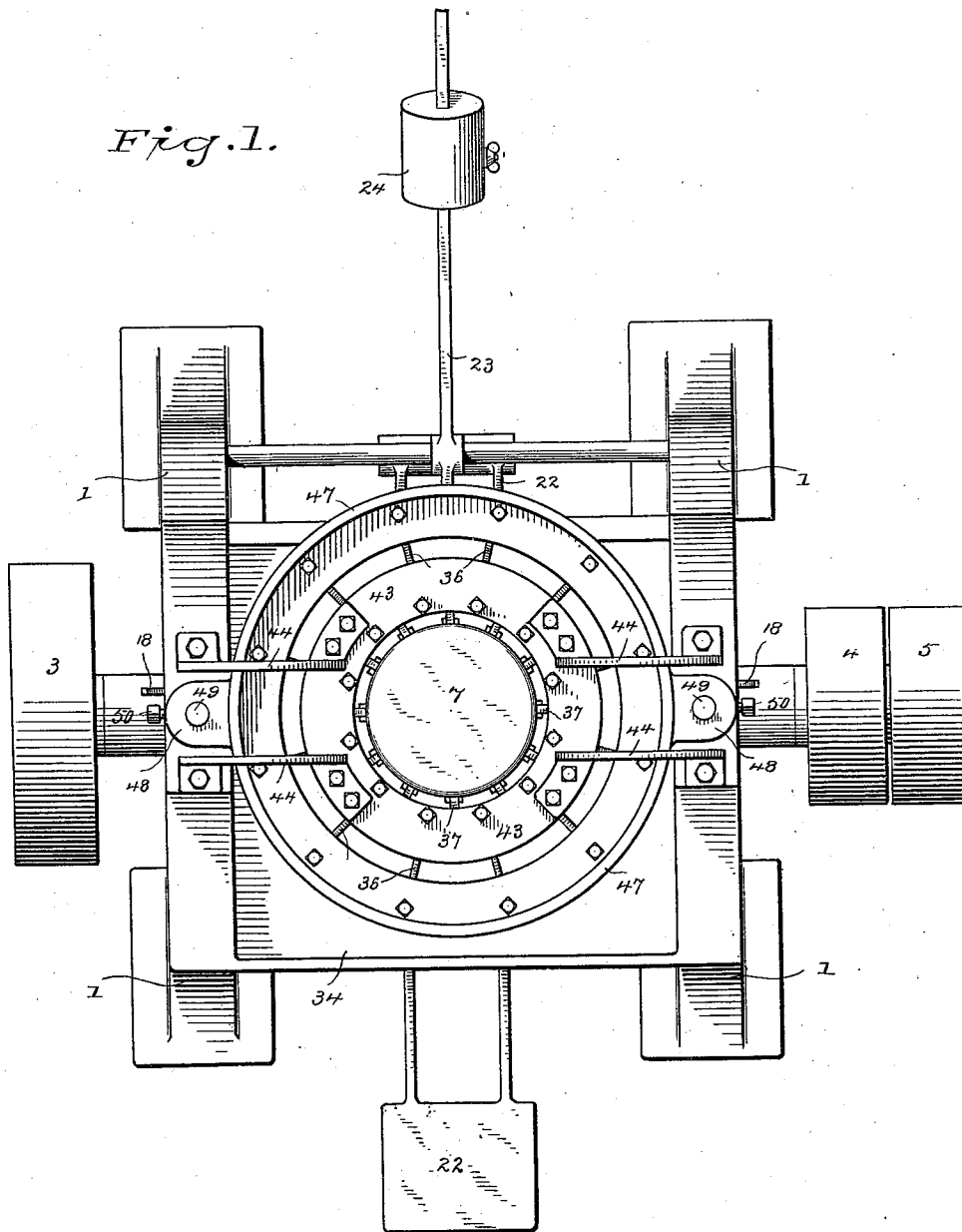
(No Model.)

4 Sheets—Sheet 1.

C. B. SCHUMANN.
MACHINE FOR STRETCHING HAT BRIMS.

No. 547,687.

Patented Oct. 8, 1895.



WITNESSES

H. A. Lamb,
S. W. Richardson.

INVENTOR

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Atty.

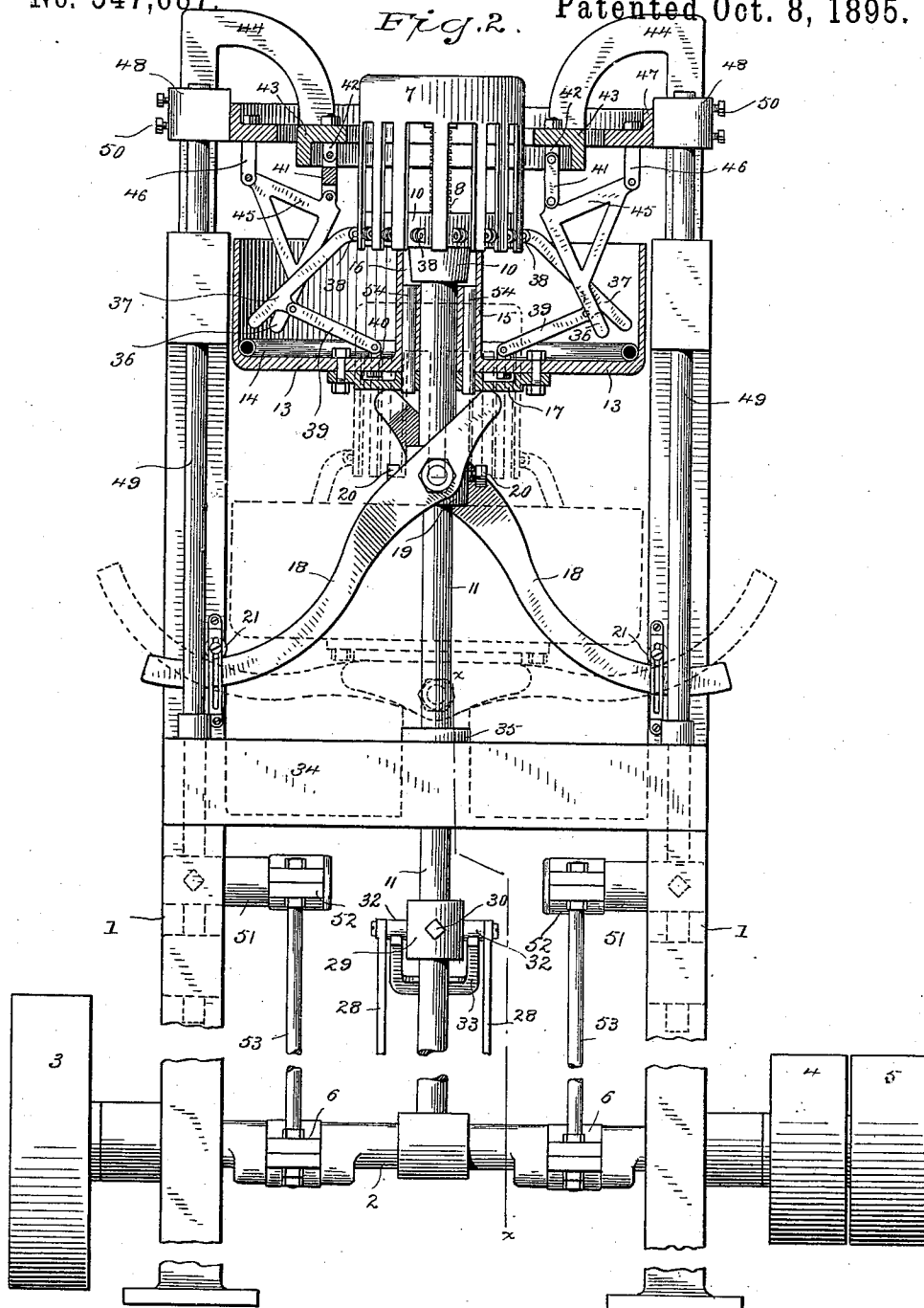
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Fig. 4.

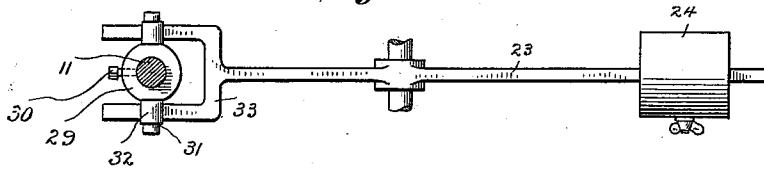
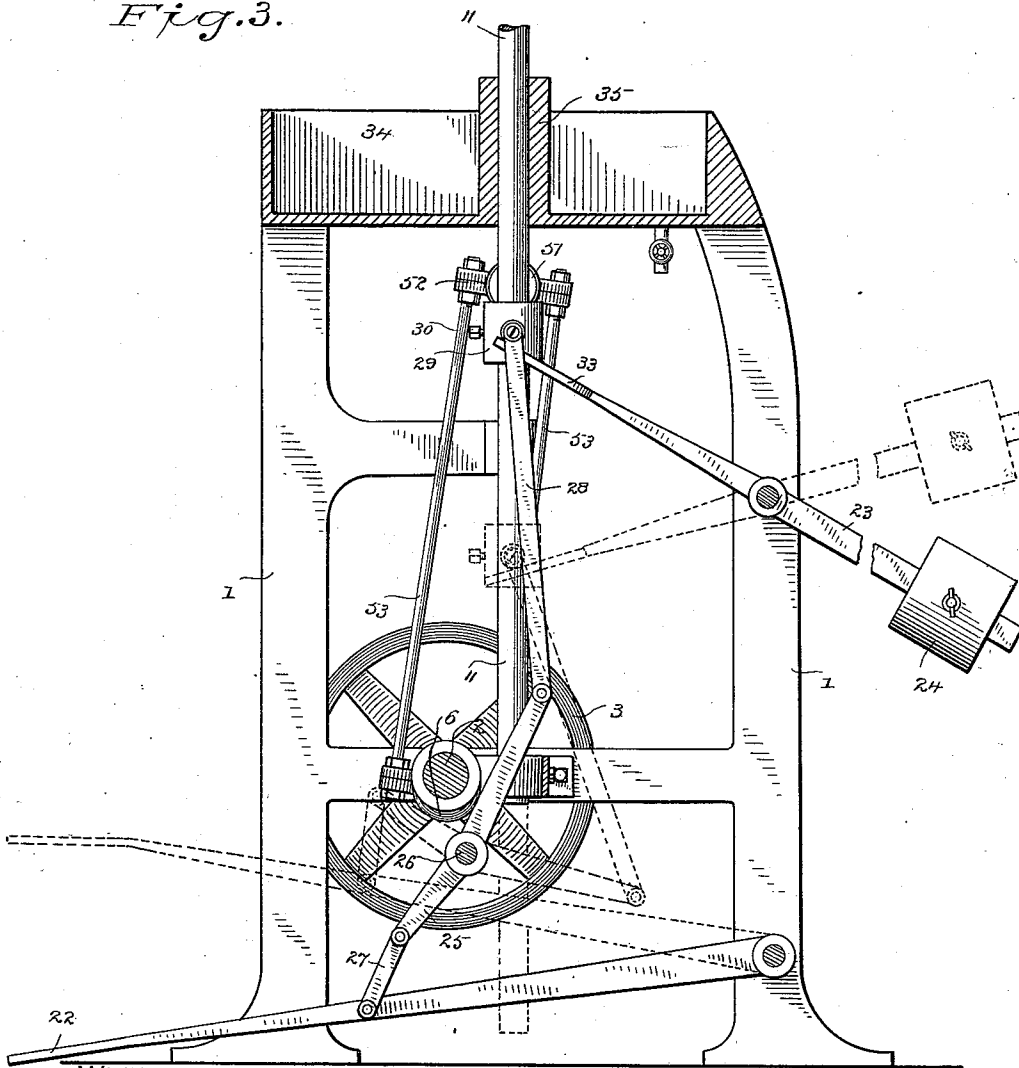


Fig. 3.



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Fig. 5.

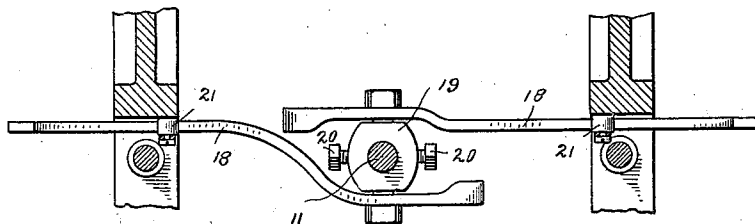


Fig. 7.

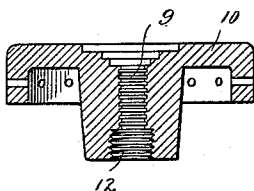
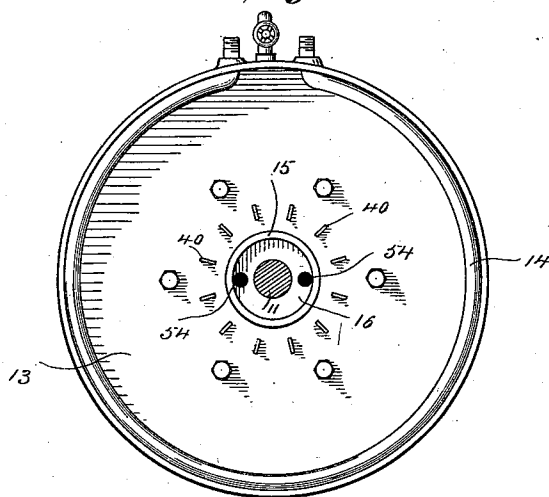


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES B. SCHUMANN, OF NORWALK, CONNECTICUT.

MACHINE FOR STRETCHING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 547,687, dated October 8, 1895.

Application filed July 30, 1894. Serial No. 519,033. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. SCHUMANN, a citizen of the United States, residing at Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Stretching Hat-Brims; 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.

My invention has for its object to provide a machine for stretching the brims of all classes of fur hats, either flexible or stiff, and so constructed that the stretching operation shall be performed while the brims are submerged in water, thereby greatly increasing the capacity of the machine, as the time required for stretching each brim is much less than with other machines of the class, and increasing the efficiency of the machine, as loss from tearing and breaking the brims is almost entirely avoided. Heretofore it has been the practice to dip the brims in hot water and then stretch them in the air, it being necessary, of course, to shift each body two or three times upon the holding-block during the operation, which has caused so much loss of time that the brims got cold and stiff and large numbers of hats were seriously damaged and not infrequently ruined by the breaking of the brims during the operation.

In order to accomplish the desired results, I have devised the novel machine of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to designate the several parts.

Figure 1 is a plan view of the machine complete; Fig. 2, an elevation, the lower portion of the machine being shortened up by breaking away and the upper portion thereof being partly in central section; Fig. 3, a section of the lower portion of the machine on the line *xx* in Fig. 2; Fig. 4, a detail view showing the counterweight-lever in plan; Fig. 5, a detail sectional view showing in plan the arrangement of the levers which raise and lower the tank; Fig. 6, a plan view of the tank detached; and Fig. 7 is a section of the head to which the lower stretching-arms are pivoted.

1 denotes the framework, which may be of

any ordinary or preferred construction, although in practice I preferably construct the framework substantially as shown in the 55 drawings.

2 denotes the shaft, which is suitably journaled in the frame and is shown as provided with a fly-wheel 3, with fast and loose pulleys 4 and 5, and with eccentrics and eccentric- 60 straps 6, the eccentrics themselves not being shown in the drawings.

7 denotes a block by which the hat-bodies to be operated upon are held. This block is carried by a screw 8, (see Fig. 2,) which en- 65 gages a threaded opening 9 in a head 10, carried by a central rod 11. The upper end of this rod is threaded and engages a threaded opening 12 in the hub. The holding-block is made adjustable toward or from the head for 70 high and low crowned hats through the engagement of screw 8 with opening 9.

13 denotes a tank for water, which is heated by a steam-pipe 14 within the tank. At the center of this tank is a hub 15, through which 75 the central rod passes, the upper end of the hub having a recess 16 to receive the lower end of hub 10, as clearly shown in Fig. 2.

17 denotes a bearing-plate, which is bolted to the under side of the tank. The tank is 80 supported and moved vertically by the short arms of two levers 18, which are pivoted to a block 19, itself adjustably secured to the central rod by set-screws 20. The lower ends of these levers—*i. e.*, the long arms thereof— 85 extend outward and their upper edges rest against bearings 21, preferably rollers, which are adjustably secured to the framework, (see Fig. 5 in connection with Fig. 2,) so that the tank is moved slightly faster, and of course 90 moves a greater distance, than the holding-block, as will be more fully explained. The holding-block and the tank are raised simultaneously by means of a foot-lever 22, assisted by a lever 23, carrying a counterweight 24. 95 (See Fig. 3.) The foot-lever is pivoted to the frame, its normal position, corresponding to the lowered position of the tank and holding-block, being shown in dotted lines and its operative position being shown in full lines. 100

25 denotes levers, one only being shown, (see Fig. 3,) which are pivoted on a cross-rod 26, extending between suitable parts of the framework and showing only in Fig. 3.

27 denotes links the ends of which are pivoted, respectively, to the foot-lever and to the lower arms of levers 25, and 28 other links the ends of which are pivoted, respectively, to the upper arms of levers 25 and to a block 29, which is secured to the central rod by a set-screw 30. The pivots 31, by which links 28 are connected to the block, carry rollers 32, upon which arms 33 at the inner end of lever 23 bear, as clearly shown in Fig. 4.

It will of course be apparent that the weight of the tank filled with water is too great to be conveniently handled by the foot-lever. The counterweight is therefore provided, which is made sufficiently heavy to nearly counterbalance the weight of the holding-block and tank, so that said parts may be conveniently manipulated by the foot-lever.

34 denotes a drip-tank, which I preferably make part of the framework and which is provided with a central hub 35, through which the central shaft passes and by which the latter is supported.

The stretching operation is performed by means of two sets of fingers, designated, respectively, as 36 and 37. The upper ends of fingers 37 are pivoted to yokes 38, which are themselves secured to head 10. In practice the shanks of the yokes are passed through holes in the flange of the head (see Fig. 7) and are locked in position by nuts or in any suitable manner.

39 denotes links the ends of which are pivoted, respectively, to fingers 37 and to yokes 40, secured in the bottom of the tank. Fingers 36 are pivoted to links 41, themselves pivoted to yokes 42, the latter being secured to a ring 43, which is supported by brackets 44, extending from the framework. Fingers 36 are provided with angle-arms 45, which are pivoted to yokes 46, the latter being secured to a ring 47, carried by collars 48, secured to side rods 49 by set-screws 50. These side rods extend down through the framework of the machine, in which they are suitably supported and are provided near their lower ends with hubs 51, which carry straps 52. These straps are connected by rods 53 with eccentric-straps 6 upon shaft 2, two rods in the present instance being shown on each side of the machine. (See Fig. 3.) It will be seen, therefore, that rotation of the shaft through the connections just described must produce reciprocatory motion of the side rods carrying ring 47, thereby producing oscillatory movement of fingers 36. As these fingers alternate with fingers 37 on the opposite side of the brim, it is obvious that the action of the two sets of fingers must be to stretch the portions of the brim between them.

54 denotes holes through hub 15, which permit the air in the hat-body to pass out instantly when the brim is submerged in the tank. Tubes, as indicated in Fig. 2, may or may not be placed in these holes.

The operation is as follows: Suppose the

parts to be in their normal position—that is, the position indicated by dotted lines in Figs. 2 and 3—the operator places a hat-body upon the holding-block, then places his foot upon the foot-lever and raises the holding-block with the hat-body thereon, and also the tank, from the position shown in dotted lines to the position shown in full lines. It will be noticed that in the normal position (see dotted lines, Fig. 2) the block is entirely above the tank, so that when the hat-body is placed thereon the operator does not need to put his fingers into the hot water in the tank. When the upward movement is made, however, the short arms of levers 18 will act to raise the tank slightly faster than the holding-block is raised by the direct action of the foot-lever, so that at the raised position the tank will have moved upward far enough to wholly submerge the brim, and the entire stretching operation will take place while the brim is subjected to the softening effect of the hot water in the tank. This movement will be clearly understood from Fig. 2, in which the lowered position of the holding-block and tank is clearly shown in dotted lines. As the central rod moves downward, it of course carries the holding-block with it and also carries downward the pivotal point of levers 18. This allows the short arms of the levers to spread, causing the tank to move downward slightly faster than the holding-block and permitting it to move a greater distance, so that at the extreme lowered position the tank will rest upon block 19. The action is the same in raising the tank. As soon as the central rod begins to move upward, the short arms of levers 18 will raise the tank from block 19 and carry it upward slightly faster than said block, the central rod, and holding-block are moved. After the block with a hat-body thereon and the tank have been moved to the raised position and the brim of the body upon the block has been subjected for a brief period of time to the stretching action of the fingers, the operator lowers the tank and block for an instant and shifts the body upon the block, after which it is again subjected to the action of the fingers. This operation may be repeated two, three, or more times, as may be required. In practice the operator may or may not shift the belts on pulleys 4 and 5 when removing a body from the block and putting a new one thereon. Ordinarily the shaft, side rods, upper fingers, &c., are kept continually in operation while the machine is in use, the operator simply lowering the holding-block and tank and changing the hat-bodies without stopping the machine.

Having thus described my invention, I claim—

1. In a machine of the character described, the combination with a vertically movable holding block, an independently vertically movable tank and suitable means for raising said tank high enough so that the brim of a

hat body on the holding block will be submerged, of series of stretching fingers which act upon the brim while submerged in the tank.

2. The combination with a holding block and a tank, of suitable mechanism for raising the holding block, and mechanism for raising the tank slightly faster and a greater distance than the holding block so that in the raised position the brim of a hat body on the block will be submerged in the tank.

3. The combination with central rod 11 and a holding block carried thereby, of a tank through which said rod passes, levers pivoted to said rod the short arms of which bear upon the underside of the tank and bearings against which the long arms of the levers slide so that the short arms of said levers will move the tank a greater distance than the block is moved.

4. The combination with central rod 11 and a hat block carried thereby, of a tank having a central hub through which said rod passes freely, levers pivoted to said rod the short arms of which bear upon the under side of the tank and suitable bearings for the long arms of said levers whereby the tank is raised and lowered slightly faster and a greater distance than the holding block so that in the lowered position a hat body upon the block will be wholly above the tank and in the raised position the brim of said body will be submerged.

5. The combination with central rod 11 and a holding block carried thereby, of a tank having a central hub through which said rod passes freely, and holes 54 extending through said hub, levers pivoted to said rod the short arms of which bear upon the under side of the tank and suitable bearings for the long arms of said levers so that in the raised position the brim of a hat body on the block will be submerged in the tank and air within the body will pass out through the holes.

6. The combination with a holding block and a central rod by which it is carried, of a tank through which the central rod passes, levers pivoted to said rod the short arms of which bear upon the under side of the tank, bearings against which the long arms of said levers rest, a foot lever and intermediate connections by which the central rod is raised, and a lever 23 and counter weight by which the weight of the tank and holding block are counterbalanced.

7. The combination with a holding block, a

central rod by which it is carried and blocks 19 and 29 secured to said rod, of a tank through which the central rod passes, levers 18 pivoted to block 19, the short arms of which bear upon the under side of the tank, bearings against which the long arms of said levers rest, a foot lever, intermediate connections between said lever and block 29 by which the central rod is raised, lever 23 having arms which bear upon block 29 and a weight on said lever by which the weight of the tank and holding block is counterbalanced.

8. The combination with a central rod having a head 10, a vertically movable holding block secured thereto, a tank and mechanism for raising said tank independently of the holding block high enough so that the brim of a hat body on the block will be submerged in the tank, of fingers 37 pivoted to the head, links 39 pivoted to said fingers and to the tank, fixed ring 43, vertically reciprocating ring 47, fingers 36 having angle arms pivoted to said rings so that when ring 47 is reciprocated the brim of the hat upon the block will be stretched between the sets of fingers while submerged.

9. The combination with a vertically movable holding block, a tank, mechanism for raising said tank independently of the holding block high enough so that the brim of a hat body on the block will be submerged therein, and a head 10 to which the block is secured, of fingers 37, links pivoted to said fingers and to the bottom of the tank, fixed ring 43, vertically reciprocating ring 47 and oscillating fingers 36 which act in connection with fingers 37 to stretch the brim of a hat upon the block while submerged in the tank.

10. The combination with head 10 having an opening 9, and a holding block having a screw 8 engaging said opening by which the block is adjustably secured to the head, of a tank, mechanism for raising said tank independently of the holding block high enough so that the brim of a hat body on the block will be submerged in the tank, upper and lower stretching fingers and suitable connections by which said fingers are operated to stretch a hat brim while the latter is submerged.

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

CHARLES B. SCHUMANN.

Witnesses:

A. M. WOOSTER,
S. V. RICHARDSON.