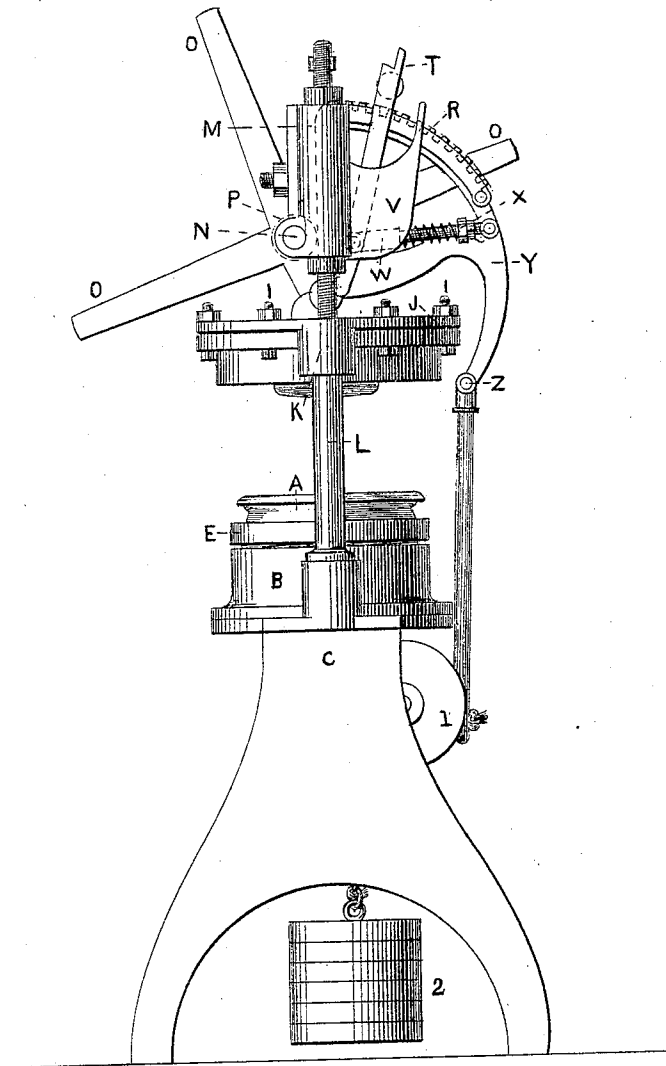


R. EICKEMEYER.
Hat Presses.

No. 138,871.

Patented May 13, 1873.

Fig. 1.



WITNESSES.

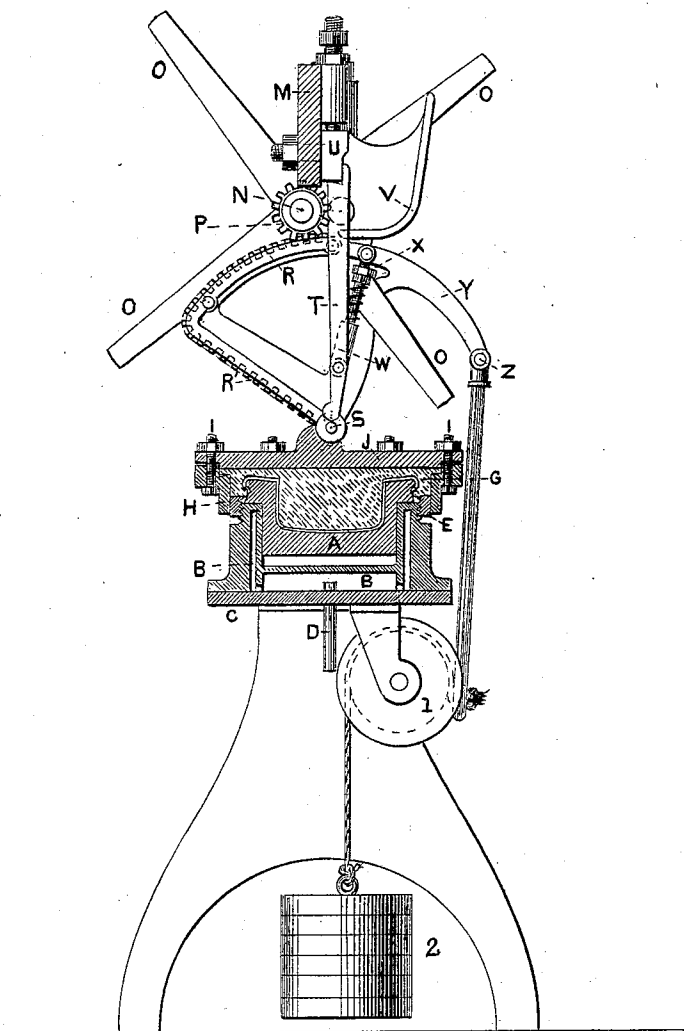
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Fig. 2.



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Fig. 3.

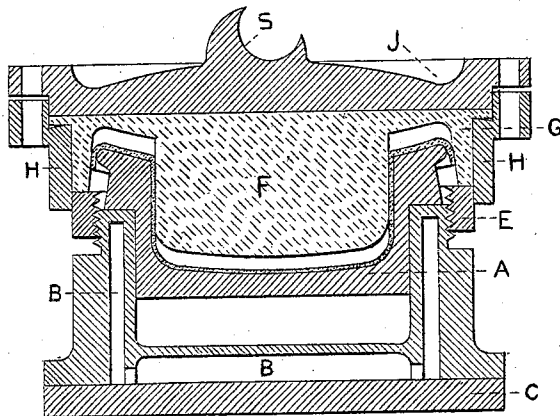


Fig. 4.

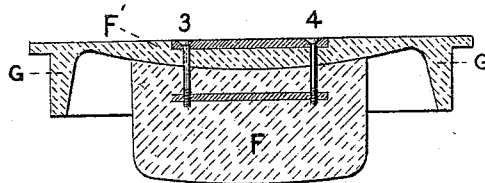
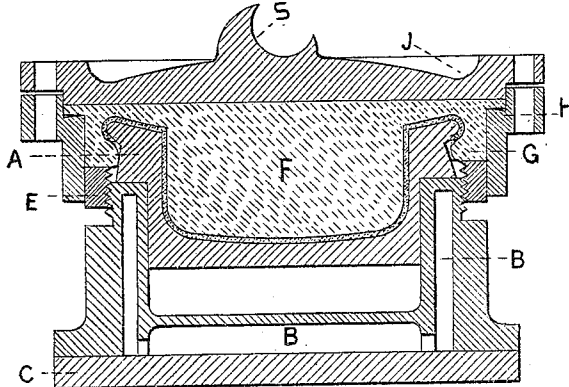


Fig. 5.



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RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

IMPROVEMENT IN HAT-PRESSES.

Specification forming part of Letters Patent No. **138,871**, dated May 13, 1873; application filed March 31, 1873.

To all whom it may concern:

Be it known that I, RUDOLF EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented certain Improvements in Hat-Presses, of which the following is a specification:

Nature and Object.

This invention belongs to that class of machines used for the purpose of pressing hats; and consists, first, in the use of a partially-vulcanized mass of India rubber, conformed to the shape of the interior of the hat, and nearly the size to fill said interior space when not under pressure, and provided with suitable flanges projecting over the under surface of the brim, that when used, in combination with the die and an adjustable chamber, the required pressure may be given to all parts of the hat to complete the operation of pressing it; and, second, the combination of certain mechanical devices in a hat-press, by which the driving power is utilized and adapted to the work both in speed and in degree of pressure, as will be hereinafter explained.

Drawing.

Figure 1, Sheet 1, is an exterior view of the press taken from the right-hand side and given in elevation, and showing the press open. Fig. 2, Sheet 2, is a partial section and elevation taken from the same position as Fig. 1, but showing the press closed. Fig. 3, Sheet 3, is an enlarged sectional view of the head and die when brought nearly together, but before the pressure is applied. Fig. 4, same sheet, is a sectional view of the rubber head, and showing how it may be composed of two or more parts according to the work to be performed. Fig. 5, Sheet 3, is the same sectional view as Fig. 3, but showing the parts under pressure to press the hat complete.

Description.

The die or shell, as at A, with its heating-chamber B, are mounted upon any suitable frame or support, as at C, and are constructed in the usual manner. The bed or chamber for the die is provided with spaces, shown in the sections, Figs. 2, 3, and 5, for steam to be introduced through a pipe, as at D, Fig. 2, to

keep the die sufficiently warm when desired. At E, surrounding the upper portion of said chamber or bed B, is a ring of metal fitted with screw-threads, so that it may be raised and lowered by simply turning it as a nut, and said ring serves as the bottom of a chamber for compressing the rubber "shape" or backing to press and curl the brim of the hat. Said rubber shape or backing is formed of the well-known substance, India rubber, and then partially vulcanized, and it may be made in two or more parts, as shown at F and F' in Fig. 4, where the portion F is made of the size and shape to nearly fill the crown of the hat, and the part F' is a disk-shaped piece of rubber, the under face of which is made to conform nearly to the brim portion of the die, and said disk is provided with a flange, as at G, on its circumference, which is incased within a ring of metal, H, which surrounds the rubber disk, and which is attached by screw-bolts I, shown in Figs. 1 and 2, to the disk of metal J, which forms the head of the press. Said press-head is provided with guides, as at K, which work on the guide-rods, as at L, the lower ends of which are attached to the die bed or chamber or frame for supporting the die, and the upper ends are connected to the cross-head M, where are provided adjusting-nuts, by which the said cross-head may be raised and lowered, as desired, and as is commonly done in presses. Upon said cross-head is mounted in suitable bearings the driving-shaft N, upon one end of which are fastened driving-levers, as at O, to operate the press by hand; or a pulley or a gear-wheel may be used instead of other power that is to be applied in working the press. Upon said shaft N, and over the center of the press-head, is mounted a pinion, as at P, Fig. 2, which gears into a quadrant-shaped rack, R, the apex of which quadrant is firmly connected with a roller, S, formed to work in a seat in the upper portion of the press-head, plainly shown at Figs. 3 and 5. Said roller S constitutes a long bearing for the quadrant-shaped rack to work upon the press-head, and at each end it is held in position upon the press-head by caps as boxes or center pins, as desired, and by which, when the rack is lifted, the head J is lifted with it; and this is accomplished by continuing the

rack-teeth upon the quadrant R down along one of its sides, as at R', so that as the pinion P is rotated it will engage with the teeth upon the straight part of the rack at R', and thereby lift the rack and press-head to the position shown at Fig. 1; and when rotated in the reverse direction will lower them toward the position shown at Fig. 2, or bring the dies into position, shown at Fig. 3, which is the proper position for pressure to begin, as the rubber flange G has touched the ring E, which forms the bottom of the chamber in which the rubber is confined when under pressure. To produce the pressure two locking-studs, as at T, are attached at their lower ends in circular recesses formed upon the roller S, and in such a position relatively to the quadrant-rack R that as it is revolved the recesses in the roller will be raised from near the press-head to a point over the axis of the roller, and thereby act as a knuckle-joint upon the studs T; but said studs are so constructed that as the press-head is lowered their upper ends are carried in toward the cross-head M and directly underneath the adjustable brackets U, which are mounted on the cross-head, and held in position thereon by bolts and set-screws so firmly as to resist the entire thrust of the studs T, and take the pressure reacting against the press-head, and which is produced by the rolling and lifting action of the recesses in the roller S, which raise and draw into line the lower ends of the studs T until their upper ends abut against the brackets U, and then the press-head is forced down by the still further rotation of the roller S until the bearings and recesses are brought into the same line, the parts co-operating substantially as in a toggle-lever. To bring the upper ends of said studs quickly to their bearings under the brackets U guides, as at V, may be attached to the cross-head, and provided with flanges, which receive friction-rollers upon and near the upper ends of the studs, so that as they are carried down with the press-head their upper ends are forced in by the guides V toward the brackets U in order that the locking may be accomplished as quickly as possible, and that the driving mechanism may not cease, or even be retarded, until pressure is produced upon the hat by the partial rotation of the rack R and its roller S. To insure additional speed in carrying the studs T to their proper bearings U each stud may be provided with a spring-stud, as at W, one end of which is pivoted to the locking-stud T at some distance above its lower end, and the other end is permitted to work through an eye attached to the side of the quadrant-rack R, as at X, Fig. 2; and around the shank of the stud W is attached a spiral spring, which is contracted by the movement of the rack R, so that said springs react to force the locking-studs T to their bearings against the side of the cross-head or under the brackets U.

These spring-studs may be used in combination with the guides V, but one or the oth-

er may be dispensed with, if great speed is not required.

Upon the rear upper corner of the rack R an arm, as at Y, is formed and projects back and downward in the arc of a circle drawn from the center of the roller S, or nearly so, to a point outside of the press-head and to the extremity of said arm a rod is pivoted, as at Z, and it extends down to a point at or near the lower edge of the bed, and to the lower end of said rod is attached a cord which works over a sheave, as at 1, supported in suitable bearings under the bed, and to the other end of said cord a weight, as at 2, is attached to counterbalance the press-head when it is raised from the die, and said weight also assists in raising the press-head; and after it is carried down to the die, then said weight also assists in moving the rack R through part of its working action, and thus the several parts are so nearly balanced that the power required in working the press is utilized and adapted to the work in a very economic degree, and the variation of the several movements is scarcely discernible until the pressure is applied upon the head.

If it be desired to press only the tip of the hat, the rubber block need not fill the crown, as here shown, but may be attached to a block of wood instead, and made only sufficiently thick to give the proper yielding action to save the fabric; and if only the tip and crown are to be pressed, then the rubber flange may be left off and the rubber may be attached to a supplemental "shape" or backing upon the under face of the press-head, as can be readily seen in Fig. 4, which is easily accomplished by the screw-bolts at 3 and 4. It is also evident that curling the brim may be varied to almost any extent by the simple adjustment of the ring E, as, if said ring be raised, as shown in Fig. 5, the rubber will be compressed so as to curl around the shell or mold and thereby press the brim to any desired degree.

Instead of the rubber shape, an elastic diaphragm may be used with a mobile backing of some kind without departing from the nature of my invention; but

What I claim is—

1. In a hat-pressing machine, a compression-chamber which has a variable and adjustable compressing capacity and incloses a confined elastic India-rubber shape or backing, substantially as described, whereby portions of the latter may be subjected to successively-variable degrees of pressure, as and for the purposes specified.

2. The combination, in the hat-pressing machine, of the elastic brim-curling flange G, the lateral brim-recess in the hat-shell, and the compressing-surface beneath the flange, substantially as described, whereby a lateral pressure is induced into the brim-recess of the hat-shell by the vertical pressure on the elastic flange, as and for the purposes specified.

3. The combination of a press-head with the cross-head of a press by means of a rack and

locking-studs, substantially as described and for the purposes set forth.

4. The combination, with the shell or die of a hat-press, of an adjustable rim by which the brim of a hat may be curled and pressed, substantially as described and for the purposes set forth.

5. The combination with the press-head and rack, substantially as described, of a counter-balance, as described and for the purposes set forth.

6. The combination, with the locking-studs of a hat-press, of the guides or spring-studs for forcing said levers into working position, as described, and for the purposes set forth.

RUDOLF EICKEMEYER.

Witnesses:

EUGENE N. ELIOT,
BOYD ELIOT.