

**HAT-MAKING MACHINES.** *Stretching and Blocking.*—In the preceding volume of this work (Figs. 2301 to 2315) will be found illustrations of hat-stretching and blocking-machines which are operated by hand, and on which the work is manipulated by the operator. These machines have been materially improved, so that they are now automatic in their action.

*The Tip-Stretcher* has a ribbed and recessed former mounted on a vertical spindle and raised or lowered by a cam mounted on a shaft, which is revolved once only while a hat-body is stretched. This cam is so shaped that it will raise the spindle rapidly until the former and stretching fingers come into working relation. It is then gradually raised higher as the stretching progresses. When the stretching is completed the frame is lowered, and remains stationary long enough to remove the stretched hat-body and put another on over the former. In addition to this motion mechanism is provided which rotates the hat-body while the stretching is going on, and an absolutely uniform shaping of the crown is thus assured—a result not easily obtained in machines of the old type. The machine is capable of stretching from 20 to 30 dozen hats per hour.

*The Automatic Brim-Stretcher* operates in the same manner as the tip-stretcher. A hat-body, which has its tip already stretched, is placed upon the crown-block. The hat-body is raised to the stretching-fingers, and slowly rotated by mechanism similar to that employed in the tip-stretcher while the brim is developed. The machine is capable of stretching twice more hats than a hand-machine, and its work is much more uniform.

*Blocking-Machine.*—When a hat-body, which has been stretched on tip and brim, is blocked on a hand-machine, the operator has first to put it in the machine, and then clamp it at the edge of the brim. The band-ring has now to be brought and locked and the hat-block and brim-tongs simultaneously expanded, the one by a hand-lever and the other by a treadle. And, finally, when stiff hats are blocked, cold water is poured on to set the stiffening and thus fix the shape. All these operations are performed automatically in the machine shown in Fig. 1. When the hat-body is placed over the block, and in reach of the tongs, the ma-

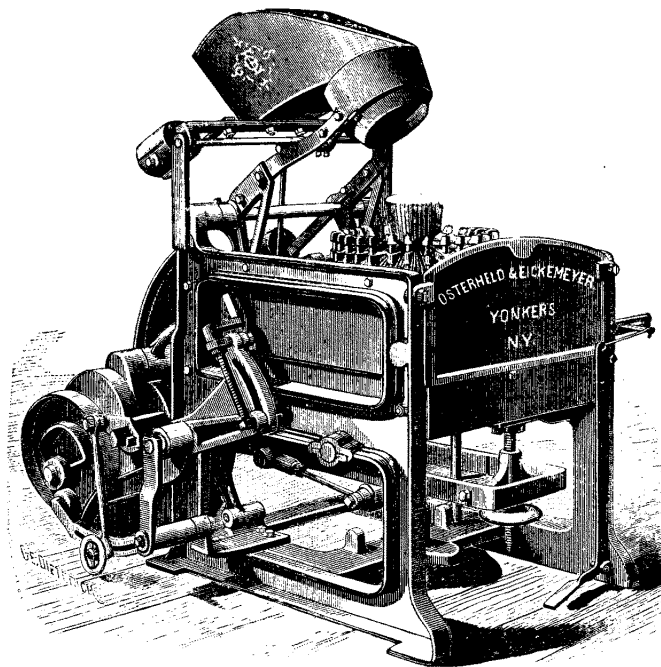


FIG. 1.—Blocking-machine.

chine is started by means of a foot-lever shown on the right and inside of the frame, and all the above-described operations are made automatically; and when the hat-body is blocked and cooled off, the machine stops and the hat-body is removed. It is evident that these machines do not require skilled operators. When once properly adjusted for a certain size of hat-body each performs its work upon the hat-body placed upon it.

*Pouncing-Machines.*—In former machines the hat-body, operated on by the pouncing material, has been exposed more or less to the danger of being wrinkled, and, consequently, injured in its passage through the machine. The apparatus has been improved so that the hat-body, which is fed by two small conical rollers, is always perfectly smooth, and the strain upon it while being pounced is reduced to a minimum. The wool-hat pouncing-machine differs from the fur-hat machine in the size of its pouncing-roller, which is 6 in., while the pouncing-roller of the fur-hat machine is only 3 in. in diameter. In both machines the hat

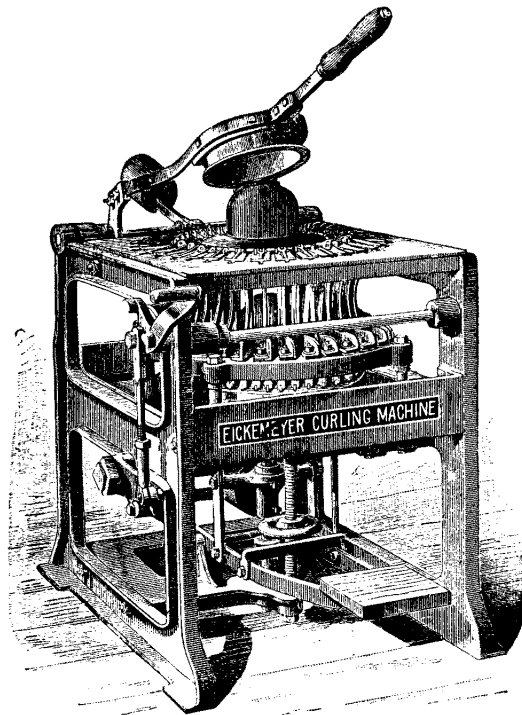


FIG. 2.—Curling-machine.

shape is secured. This pattern is made in three sections of trim metal, and is held in place by springs which center it accurately over the hat-brim. After the pattern has been placed on the band-ring of the hand-lever the lever is lowered upon the table, and two adjustable fingers set within an eighth of an inch of the edge of the pattern, and confined in that position by means of the wheel-nut shown above the cross-bar on the treadle-lever. The hat, properly heated, is now placed on the machine, the hand-block accurately centered upon the chuck-block, and the edge of the brim resting upon the edge of the folding-fingers. The hand-lever is rapidly brought down, forcing the edge of the brim between the folding-fingers and the pattern, when, by the motion of the treadle, the former are made to move rapidly toward the center, folding the edge smoothly and evenly upon the pattern, when, by a turn of the hand-lever on the left of the machine, the folding-fingers are forced firmly upon the edge of the brim and thus complete the operation. The hat is now ready to have its inner edge trimmed. In order to insure accuracy the outer edge of the hat-brim is clamped upon a hat-supporting table (Fig. 3), and, to prevent any strain upon the brim, a rotary cutter is used to trim the edge of the curl. In the center of the revolving hat-supporter, which is mounted upon an adjustable oval chuck, a chuck-block of the same size and shape as those on the heater and curler is firmly fixed. Upon this the hat is placed. Twelve sections located upon radial sliding pieces are now closed around the edge of the brim by means of a hand-lever, and clamp the edge firmly. The rotary cutter shown in Fig. 3, on an inclined spin-

is supported on a metal button, held up by the operator with his right foot, while the feeding-apparatus is operated with the left foot. To cause the hat to run in or out it is only necessary to depress the foot-lever, which will operate the feed-rollers to a greater or less extent while the hat is being pounced. The facility with which a hat can be pounced is superior to anything heretofore attained. The fur-hat machine saves all blocking and handling of the hat. The hat is simply put in the machine, is pounced on the brim, and gradually run into the tip. During this time it remains smooth, and, moving slowly, is not pulled out of shape; nor is the stiffening taken out of it.

*Curling-Machines.*—The operation of curling hat-brims has been greatly simplified by the introduction of automatic machines. The process, after the brim has been heated is as follows: Upon the horizontal table of the curling-machine (Fig. 2) are mounted 36 folding-fingers, which form a continuous ring around the edge of the hat. These fingers are movable toward the center by means of 10 treadle-levers, and are adjustable to any size or oval of the hat-brim to be curled. The hand-lever above the hat is pivoted in the rear of the machine, and on the band-ring a trim sheet-metal pattern of suitable size and

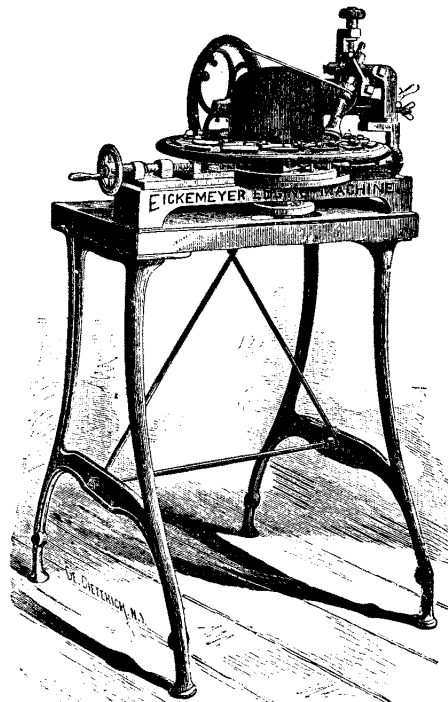


FIG. 3.—Edging-machine.

dle, is now lowered in place, and one or two revolutions of the hat-supporting plate is sufficient accurately to trim the edge. The machine is adjustable, and easily arranged for any oval that may be desired, trimming the curl to any width or shape.

*The Blanchard Lathe in Hat-Making.*—Many attempts have been made to improve the Blanchard machine so as to enable it to make flanges with scooped faces. It is claimed that the machine illustrated in Fig. 4 is the first in which this object has been successfully accom-

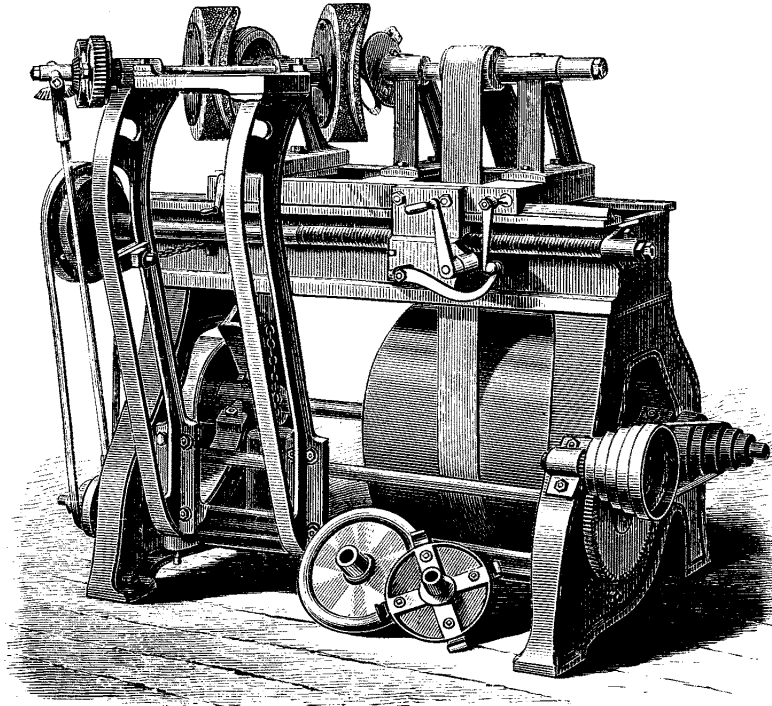


FIG. 4.—Blanchard hat-lathe.

plished. It will finish a hat-block from the edge of the band to the center of the tip, and it will cut out a flange flat or scooped ready to saw out the hole in the center, and will make any size of block or flange from a given pattern. In the machines heretofore used to make blocks, the pattern as well as the wood was held between centers, and it was impossible to work to the tip of the block. This made it necessary to finish every block made on the machine on a wood-lathe or by hand. Another point in the old machine was the adjustment of the machine to vary the sizes and heights of the hat-block to be used. Both of these points have, in this machine, been corrected. The hat-block is worked over by the cutter from the edge of the band to the center of the tips, and is ready for sand-papering when taken out of the machine. Only one adjustment is required to regulate the size and depth of a hat-block. In Fig. 4 the machine is shown as in use making a flange. The flange on the left of the machine represents the pattern, while the other represents the flange as turned by the machine. The pattern is secured upon an oval plate screwed upon the pattern-spindle, and the block of wood on a similar flange on the working-spindle; the saddle upon which the cutting-spindle and pattern-wheel are secured is now shifted to the left until the wheel touches the edge of the pattern. When the machine is started the pattern-wheel will cause the frame upon which the pattern and working spindle are supported to swing to and from the cutters, and an accurate copy of the pattern is made, the size of the copy depending on the adjustment of the pattern-wheel. Any style of flange or block can be made without other change than the substitution of one pattern-wheel or cutter for another. In Fig. 4 the pattern-wheel and cutter intended for such a block are shown as resting on the base of the machine. All the foregoing machines are from designs by and are patented to Mr. Rudolph Eickmeyer, of Yonkers, N. Y.