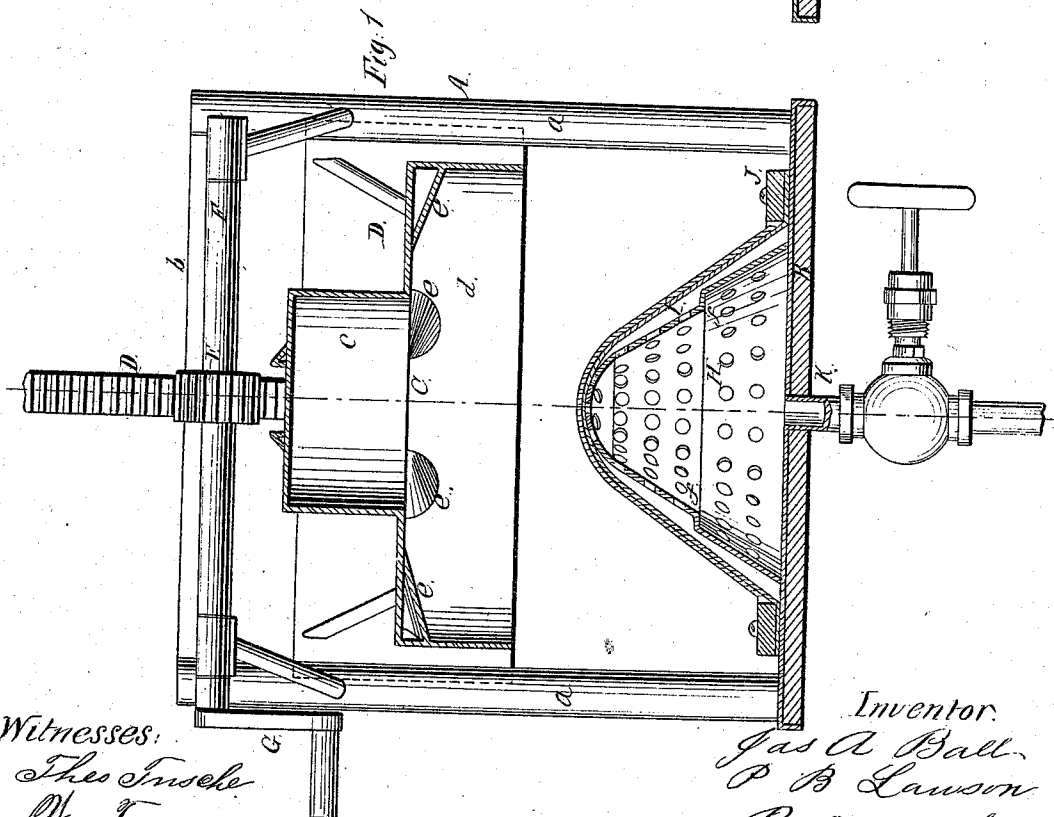
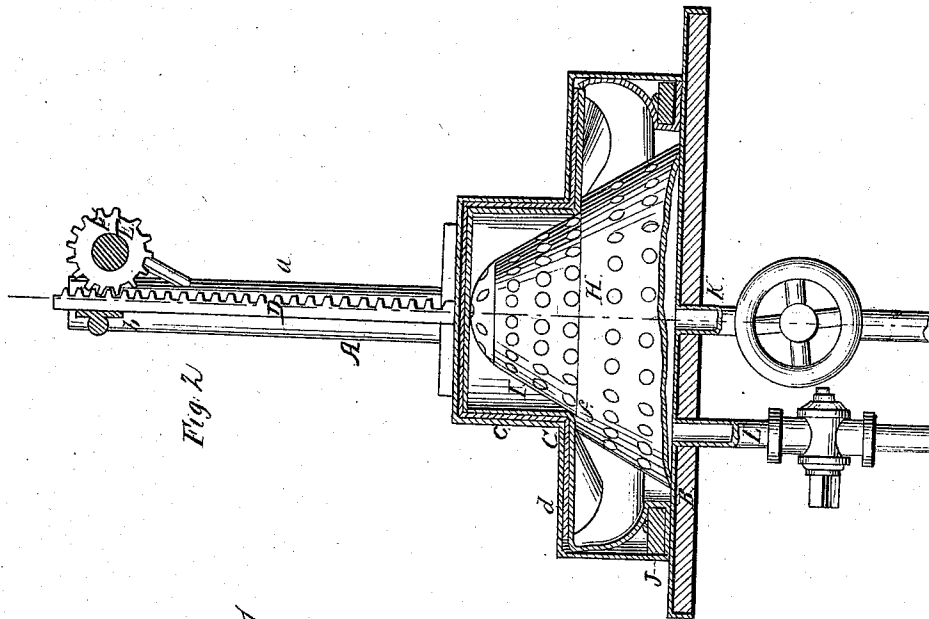


Ball & Lawson.
Hat Blocking Mach.
N^o 83,590. Patented Nov. 3, 1868.



Witnesses:
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JAMES A. BALL AND PETER B. LAWSON, OF COLD SPRING, NEW YORK.

Letters Patent No. 83,590, dated November 3, 1868.

IMPROVEMENT IN MACHINES FOR BLOCKING HATS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, JAMES A. BALL and PETER B. LAWSON, of Cold Spring, Putnam county, New York, have invented a new and improved Machine for Stretching and Blocking Hats; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved machine for stretching and blocking hats, in which the expansive force and the heat of steam are made to act directly upon the hat-body, accomplishing the work of stretching and blocking the same in a perfect, expeditious, and economical manner.

In the accompanying sheet of drawings—

Figure 1 is a front sectional view of our invention, taken in the line *x x*, fig. 2.

Figure 2, a vertical section of the same, taken in the line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts.

A represents an upright frame, composed of two uprights *a a*, connected at their upper ends by a cross-bar, *b*, and attached at their lower ends to a suitable base, B.

C represents a chamber, which answers the purpose of a mould or former, to give the proper shape or form to the hat.

This chamber is composed of two cylindrical portions, *c d*, the upper one, *c*, being of less diameter than the lower one, *d*, but of rather greater depth, as shown clearly in both figures, and to the under surface of the top of the lower portion, *d*, there are attached radial ribs *e*, which may be described as the longitudinal halves of cones, having a horizontal position, as shown clearly in fig. 1.

This chamber C has a vertical plate, D, attached centrally to it, or cast with it, and the ends of this plate are fitted in grooves in the inner sides of the uprights, to insure a vertical rising and falling movement of the chamber, which is given by means of a vertical rack, D', attached to C, and a pinion, E, gearing in D, the pinion being on a horizontal shaft, F, at the upper part of the frame A, which has a crank, G, at one end.

Although we have described minutely the part of our machine employed for raising, lowering, and holding firmly down the mould or chamber C, we do not claim any novelty in that part of the machine, nor do we wish to be understood as restricting ourselves to the use of this arrangement of mechanical devices, as any arrangement which will hold down firmly the mould C when it is down, as in fig. 2, and will answer to raise the said mould C, as shown in fig. 1, will be equally adapted to our machine, and may be used instead of the above-described device.

H represents a perforated cone, attached to the base, B, and over this cone a covering, I, of India rubber, or other suitable elastic material is placed, and secured at its bottom by an annular clamp, J, which is screwed to the base, B.

This cone H has a brake or horizontal surface, *f*, which serves as a bearing for the lower edge of the upper portion *c* of the chamber C, when the latter is lowered or let fully down, as shown in fig. 2.

K represents a steam-induction pipe, through which steam may be let into the cone H, and

L is an eduction-pipe, through which the steam is let out or exhausted from the cone.

These pipes are provided with suitable cocks.

The operation is as follows:

The chamber C is raised, and the hat-body M placed over the covering I on the cone H. The chamber C is then lowered, so that the lower edge of the upper part *c*, of the chamber C, will press the hat-body and covering on the horizontal surface *f* on the cone. Steam is then admitted through the pipe K, into cone H and the covering I, and the hat-body will, under the pressure of the steam, be forced outward, and made to conform to the interior of the part *c* of the chamber, and will be pressed upward against the under surface of the lower part *d* of the chamber; the crown of the hat being formed in *c*, and the brim against the under surface of the upper part of *d*, the brim-portion of the hat being stretched by the radial semicircular ribs *e*.

The heat of the steam penetrating through the flexible covering I, greatly facilitates the operation of stretching the hat-body, by opening the texture of the fabric, and thus we derive both the advantage of the heat and expansive force of steam, to assist and perform the operation of stretching and blocking, and giving to the hat its proper shape or form.

The steam is now exhausted through pipe L, the chamber C raised, and the hat removed. Another hat-body is then placed over the covering I, and the operation repeated.

Having thus described our improved machine for stretching and blocking hats, and indicated its mode of operation, we do not claim, as our invention, overstretching the brim of the hat, by corrugating or fluting the same; but

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

1. The perforated cone H, having a recessed surface, *f*, in combination with the hollow-chamber mould or former C, arranged so as to pinch and hold fast the hat-body, substantially in the manner set forth.

2. In combination therewith, the conical ribs *e e e*, applied to and forming part of the horizontal upper surface of the chamber *d* of the box-mould or former C, substantially in the manner and for the purpose specified.

3. The combination of the recessed perforated cone H, flexible covering I, plate B, and steam-pipes K and L, with the box-mould C, arranged and operating substantially as specified, so as to force a felt-hat body into the said mould C, by applying the pressure of steam internally.

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