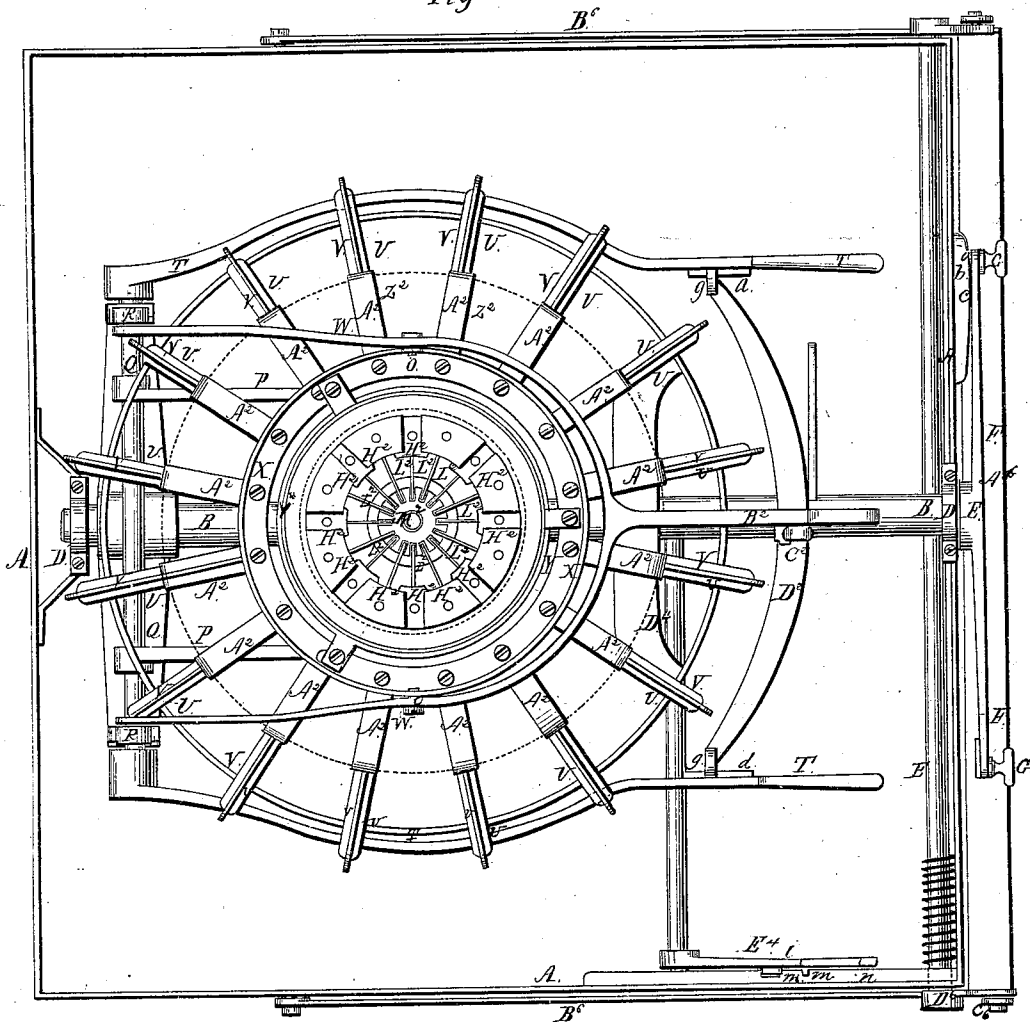


Surerus & Behrens. Sheet 1, 2 Sheets.
Hat Blocking Mach.

N^o 102,613

Patented May 3, 1870.

Fig. 1.



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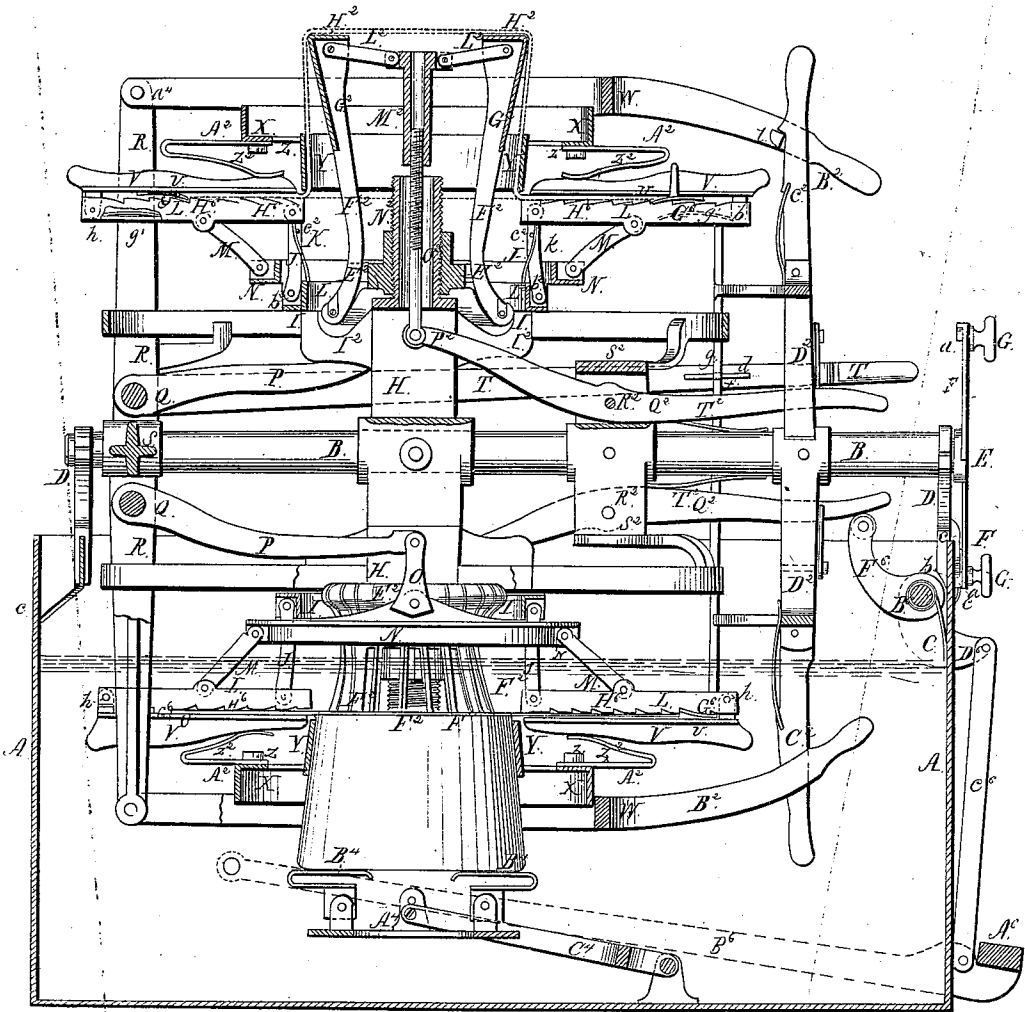
Surerus & Behrens. Sheets, 2 Sheets.

Hat Blocking Mach.

N^o 102,613

Patented May 3, 1870.

Fig. 2.



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United States Patent Office.

JACOB SURERUS AND WILLIAM H. BEHRENS, OF NEWARK, NEW JERSEY,
ASSIGNORS TO ARCHIBALD T. FINN, OF SAME PLACE.

Letters Patent No. 102,613, dated May 3, 1870.

IMPROVEMENT IN HAT-BLOCKING MACHINES.

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, JACOB SURERUS and WILLIAM H. BEHRENS, of the city of Newark, county of Essex, and State of New Jersey, have invented new and useful Improvements in Machinery for Blocking Hats, of which the following is a specification.

Nature and Object of the Invention.

Our inventions herein set forth relate to machinery for blocking hats, in which we provide a frame for the cone or hat-body to be placed upon while being blocked, and so constructed that it can be closed to receive the cone, and be expanded to stretch or draw the body into the desired shape, and at the same time hold and stretch it at the precise points desired, and so hold or compress it that it will not be stretched at any other points, and so arranged that it can be operated easily and with desirable rapidity; and

The invention consists—

First, in constructing said frame, and providing it with shields or plates to protect the hat-body from corrugations and abrasions during the process of stretching the top portion of the cone at the corner of the hat, as it is termed, and also with plates or pads to hold and press the tip into shape.

Second, providing suitable clamps or brim-holders, which seize and hold the brim on all sides simultaneously, which clamps hold and stretch the brim radially, being provided with suitable means for being moved outward from the center, for the purpose of stretching the cone as desired, and also providing a ring or circular frame, against which the cone is held at the band whilst being so stretched.

We also provide springs for holding the clamps firmly together, and so mounting and arranging said springs that they can all be made to operate simultaneously upon the hat-cone, and also operating said springs by a lever so constructed that it presses upon opposite sides of the frame upon which the springs are mounted, that the pressure may be given equally upon all springs simultaneously.

We also provide our frame for holding the hat-body with suitable means for raising or lowering it, to accommodate different heights for crowns, as desired; and we also construct our machine in such manner that two machines may be mounted on a shaft, and arranged to revolve so that the stretching may take place while the hat-body is immersed in hot water, as it stretches more evenly when hot; but a double machine is only calculated for large manufacturers, and not intended for more general use.

In the general description we shall therefore confine ourselves to a single machine, in which the same letters of reference in all the figures indicate corresponding parts of the machine.

Figure 1, plate 1, is a plan or top view.

Figure 2 is a central vertical section, taken in the plane of the line $x x$, fig. 1.

General Description.

A, in the drawing, represents a tank or reservoir for holding water, upon which the machine is placed.

B, a shaft arranged in a horizontal position across the top of the tank A, from one side, C, to the other, turning in bearings D thereof.

E, a handle, applied to shaft B, projecting equally from its center, upon two opposite sides, with the end to each arm F, provided with a knob, G.

The two arms F are made with a spring, so as to be self-fastening by the raised flange or rib a , upon their inner faces, at each end of the arms within the notch b , to the raised flange c , applied to the outside of the tank A, where the handle to the shaft is located.

H, an arm secured to the shaft B, between the two sides of the tank A, from which shaft, upon two sides, it projects in a diametrical line, forming two arms of equal length, that near their outer ends each has a circular or annular frame, I, secured and supported in a position at right angles to the arms H, by means of bracket-arms I' fixed to the said arm H.

These annular frames I are equidistant from the center of the shaft B, and are located in planes parallel to each other, as well as concentric with a common center line through the arm H.

The frames I are also made of a right-angular shape, in transverse sections, and at equal and regular distances apart are provided with a series of similar uprights, J, that are hung at their lower ends upon pivots b' to the frame I in a vertical plane, and in radial lines with the center of arm H.

For each of the uprights J a bent spring, K, is provided, fixed at their lower ends to the frame I, and at their upper ends arranged to bear against a pin, c' , in the uprights J, so as to hold the uprights against the raised portion of the frame I, as shown in the drawings.

L, the lower jaws of clamps for holding the brim portion of the cone during the operation of blocking, one end of which is pivoted to uprights J, from which they project in radial lines around the frame I. These jaws are serrated on their holding-surfaces, and supported by links M, which are pivoted to the under side of clamp-jaws L, at one end, and at the other end to the upper side of an annular ring-frame N, which is concentric with the frame I, and working outside thereof.

To operate frame N, it is connected, through link-pieces O, at points diametrically opposite each other, to arms P, secured to a horizontal shaft, Q, arranged to turn in bearings of the side uprights R, to a cross-arm, S, of the shaft B, herein referred to.

The lever T is hung upon shaft Q, and operates frame N, and, being made with a spring, can be interlocked by rib *d* with notches *f* in the upright side post *g*, either one, according to the height desired for frame N.

U, the upper jaw of clamps, which are hinged at their outer ends to the lower jaw L, at *h*, and are made to correspond with said lower jaw, being strengthened by a flange, V, lengthwise along the center of the upper side, and said clamps are provided with a spring, *g'*, arranged for opening them by throwing up the jaw U.

W, the lever which holds and operates the annular frame X and ring Y, and to which is secured said frame X, and is so constructed that it bears equally upon both sides of the annular frame X, and thereby gives equal pressure all around said frame.

This lever is mounted upon upright R by a hinge or joint, *a'*, so that it can be turned back from the parts, and thereby allowing the cone to be placed in position for blocking.

X, the annular frame attached to lever W, to which flange ring Y is secured, and to which is also secured a series of springs, Z², which are secured to the face Z of said frame X by their arms A², and correspond in number to the number of clamps, and arranged in such position as to bear upon the upper jaw U of the clamps, thereby holding fast the brim part of the cone during the operation of blocking.

For convenience in raising the lever W, it is provided with a handle, B², having a stud or pin, *l*, with which the spring-levers C² are arranged to engage, when the said frames are in the position shown in the drawings, or upon the rib plates, which levers C² are arranged upon D².

The outward ends of the arms H are provided with a screw-thread, over and outside of which a collar, E², provided with a similar or suitably fitting thread, is screwed.

This collar has attached to it a series of upright arms or levers, F², in radial lines from the center thereof, in equal distances from each other.

These arms, at their upper ends, are provided each with a convex plate or shield, G², and an upper plate or shield, H², fitting alternately within and outside of each other for the whole series, with the outer ones overlapping the inner ones, all forming a complete circle, or nearly so, when said frame is expanded.

L² are connecting-links or levers pivoted at one end to the upper ends of arms F², and at the other end pivoted to a common center tube or sleeve M².

This tube M² is arranged to be moved up and down through the center of N² by means of standard O², to which it is fastened, and which is operated by lever Q², to which it is hinged at P², which lever operates upon a fulcrum at R², upon the arm S².

T² is a spring, arranged to act on lever-arm Q².

By depressing the lever Q², the arms F² will be thrown out or expanded, and are held in that position by means of catch W².

To block a hat-cone upon our machine, we first adjust it to the height of crown desired by screwing the collar E² up or down upon the arm H to the point wished. The lever W is then raised up and back, carrying the frame X and ring Y out of the way. The lever Q² is then raised, which closes the arms F² in position for the cone. The lever T is then moved into position to lower the frame N, and bring the clamps into a vertical inclined position, the upper jaw thrown open by the spring, so as to receive the edge of the cone. The cone is then placed upon the arms F², the edges laying upon the lower jaw of the clamps L, and the upper jaw U closed upon it. The lever W is then brought down, which brings the springs Z² to bear

upon and hold the clamps in place, and thereby holding the cone in its proper place during the blocking, the clamps having been previously brought up into a horizontal position. The arms F² are then thrown out to stretch the body into proper shape, and lever T is then moved to carry the ring-frame N up, which gives the clamps an outward or radial movement, which, carrying the cone, held by them firmly, outward, giving the desired stretch over and against the band-ring Y, which holds it, and thus sufficiently and properly breaking the band of the hat, the shields H² and G² operating against the corner of the hat to prevent the arms from corrugating or tearing the felt.

This stretching may be done upon the cone while it is immersed in the water in tank A, or it may be performed without the immersion by using the cone while hot.

In order to secure the more perfect drawing out of the central portion of the tip of the hat, there is arranged within the tank A, in a proper position, a series of pads, B⁴, which are brought to bear upon the hat at that point by means of a lever operating upon a shaft arranged for that purpose upon tank A.

To operate the lever B², that throws the crown-blocking arms F² out, when the frame is in the tank A, a treadle, A⁶, is arranged outside of the tank, and there hung to the same through arms B⁶, which, by connecting-rods C⁶, are hung to the arms D⁶ of a horizontal shaft E⁶, passing inside of the tank, and provided at the proper point of its length with an arm, F⁶, for abutment against the said lever B², and producing the required movement thereto.

On the clamps L slides G⁶ are arranged, for regulating the desired width of brim, by means of the notches H⁶ upon the lower jaw of the clamps.

Having described our invention,

What we claim, and desire to secure by Letters Patent, is—

1. A frame for stretching the hat-cone, consisting of a series of expansible arms F², provided with shields or plates overlapping one another, to prevent corrugations and abrasions in the square of the hat, substantially as described.

2. The pressure-pads B⁴, operating in combination with the stretching-frame F², substantially as and for the purposes set forth.

3. A hat-blocking mechanism, when applied to a shaft, whereby it can be swung around for operation in and out of a tank, substantially as set forth and shown.

4. Providing the clamps to the blocking-frame with slides G⁶, for regulating the width of brim, substantially as shown.

5. A hat-blocking mechanism, provided with radially arranged clamps for holding the brim, in combination with levers M and ring N, operating together substantially as and for the purposes set forth.

6. A hat-blocking mechanism, provided with a series of clamps capable of a radially-expansive motion, for holding and stretching the brim, in combination with a banding-ring, against which the hat is stretched and the band is broken.

7. In a hat-blocking mechanism, the combination of ring Y, clamps L U, springs Z², ring N, and levers M, all operating together in the manner and for the purposes specified.

The above specification of our invention signed by us this 16th day of December, 1865.

JACOB SURERUS.
W. H. BEHRENS.

Witnesses:

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ALEX. F. ROBERTS.