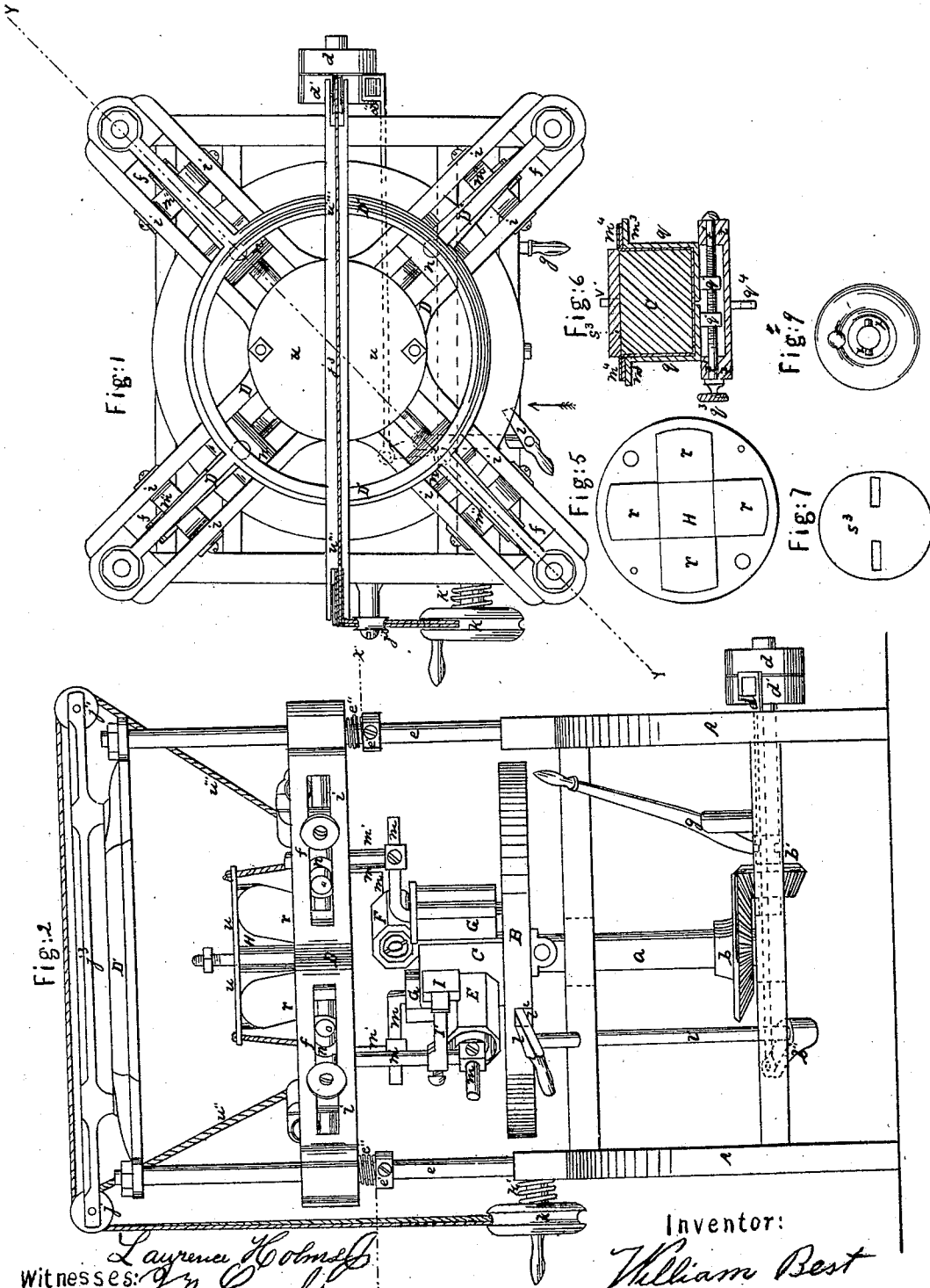


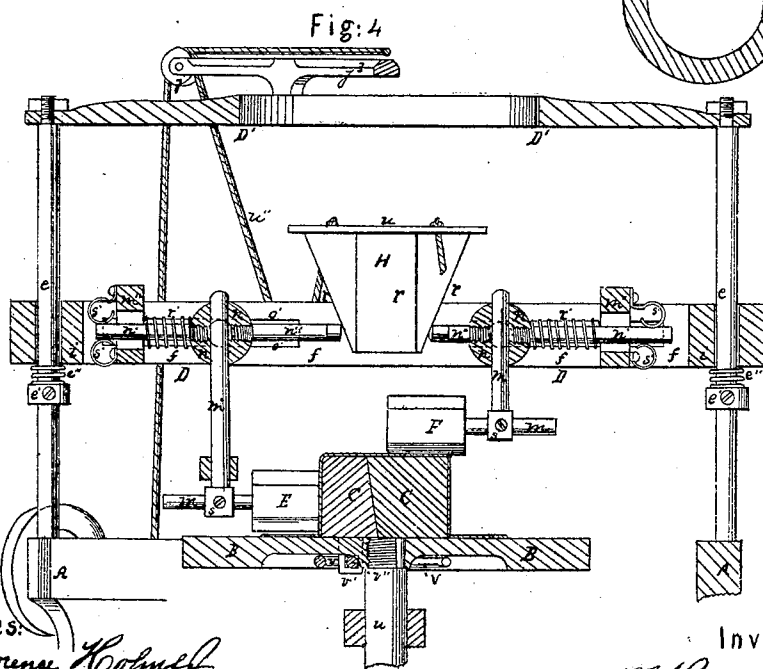
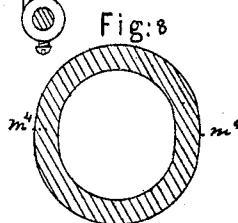
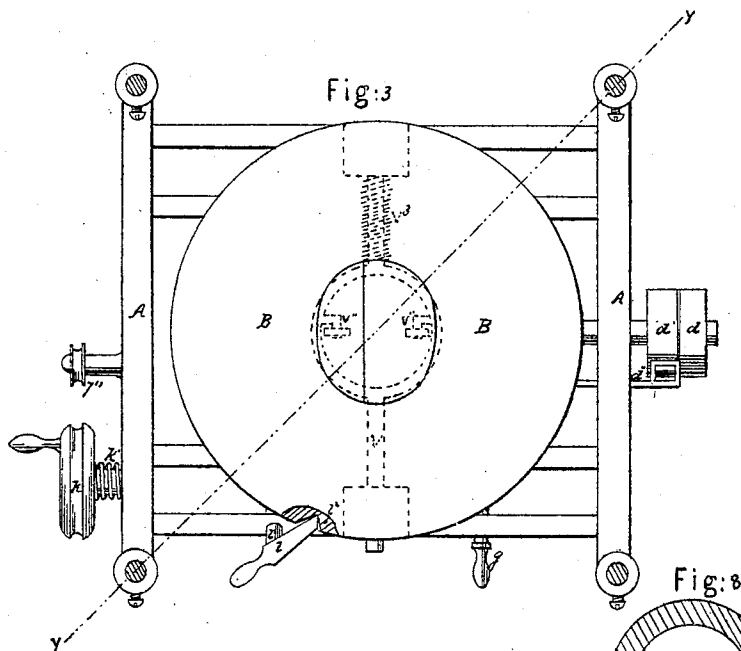
W. Best,
Machine for Ironing Hats,
No 53401. Patented Mar 27 1866.



Witnesses: *Laurence Holmes*
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Inventor:
William Best

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UNITED STATES PATENT OFFICE.

WILLIAM BEST, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN MACHINES FOR IRONING HATS.

Specification forming part of Letters Patent No. 53,401, dated March 27, 1866.

To all whom it may concern:

Be it known that I, WILLIAM BEST, late of the city, county, and State of New York, now of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Ironing Hats; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a plan or top view of a machine illustrating my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a horizontal section taken in the line *xx* of Fig. 2. Fig. 4 is a diagonal vertical section taken in the line *yy* of Figs. 1 and 3. Fig. 5 is a detached inverted plan of a portion of the apparatus employed in elevating and spreading apart the irons previous to removing the hat from the machine. Fig. 6 is a detached vertical section of the hat-block and its appurtenances, showing the hat in the position required in ironing the brim. Fig. 7 is a detached plan of an oval or elliptic guide, which is placed upon the hat-block to secure the proper action of the iron upon the brim of the hat. Fig. 8 is a detached plan of a flat, oval, or elliptic ring, which is placed underneath the hat-brim to prevent it from being marred by the joint in the case that supports it during the process of ironing the same. Fig. 9 is a detached view representing the crank-wheel by means of which the irons are raised from the hat and the mode of locking the said wheel in place in order to hold the irons in an elevated position.

Similar letters of reference indicate corresponding parts in all the figures.

This invention consists, principally, in a novel construction of the smoothing-irons of a machine for ironing hats, and in a novel mode of applying and controlling the operations of the same, whereby the machine is better adapted to the ironing of hats of different sizes and rendered more effective than those heretofore used.

To enable those skilled in the art to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A represents the frame, which supports the other portions of the machine. *a* is a vertical shaft, which works in suitable bearings in the center of the frame A, and to the upper end

of which is secured the horizontal table B, upon which is situated the hat-block C, on which the hat is placed during the operation of ironing. This hat-block is of the ordinary construction, being divided vertically into two halves in order to facilitate the removal of the hat therefrom. It is secured upon the rotating table B by means of two staples, *v'*, projecting downward, one from each half, and passing through suitable holes in the table. A slide, *v*, (clearly shown in dotted lines in Fig. 3,) works on the under side of the table, and has two spurs or catches, *v''*, which catch into the staples *v'* underneath the table, and thus firmly hold the hat-block thereon. The slide *v* is pushed forward by a spiral spring, *v³*, so that its spurs *v''* are forced into the staples *v'*, as aforesaid, while by pushing the said slide back the said spurs are pushed out of the staples, so that the hat-block may be readily taken from the table. Upon the lower end of the shaft *a* is a beveled cog-wheel, *b*, which meshes into a pinion, *b'*, through which a rotary motion is communicated to the table B from a band-pulley, *d*. From each of the four corners of the frame A there projects upward a vertical guide, *e*. These guides are connected at the top by a four-armed brace or casting, *D'*, which keeps them in proper position with relation to each other.

D is a vertically-sliding frame, which carries the smoothing-irons and their appurtenances, and which consists of four arms, *i*, each arm having a broad vertical slot, *f*, which extends nearly its whole length, all the slots having a common termination in a vertical hole which extends entirely through the center of the frame D.

E F G represent the smoothing-irons, which are placed upon the inner ends of horizontal rods or bars *m*, which are made adjustable in the lower ends of vertical bars *m'* by means of set-screws *s*, in order to enable the irons to be adapted to hats of different sizes. These vertical bars *m'* are passed through and secured in sliding blocks *n*, of which there is one in each of the vertical slots *f* of the arms *i*, the ends *o* of the said blocks *n* being made cylindrical and smaller than the main portion thereof, and projecting laterally through horizontal slots *o'*, of which there is one in each side of each arm *i*. Projecting back from the center of each block *n* is a rod, *n'*, which passes through an oblong vertical hole in a partition,

m'' , which is situated behind the said block transversely in the slot f . This arrangement allows the smoothing-irons to have a limited rocking movement, two springs, s' , one above and the other below the outer end of each bar n' , tending to keep the said bars in a horizontal position. A similar horizontal bar, n'' , projects inward from each sliding block n , the inner ends of these bars n'' being in contact with the sloping or inclined sides of an inverted conical block, H , situated centrally in the sliding frame D , and operating the said bars n'' to spread the smoothing-irons apart, as will be presently explained. A spiral spring, r' , is coiled around the bars n' between the blocks n and the partitions m'' , and forces the said blocks inward with the ends of the bars n'' in contact with the sides r of the conical block H , as just mentioned.

The smoothing-irons EFG are made polygonal in their cross-sections, with the different sides placed at different angles to each other, in order to enable them to be turned and adjusted for ironing hats of different shapes and sizes. The iron E is horizontal, and is situated close to the table B , and smooths the upper surface of the brim of the hat. The irons G G are both nearly or quite vertical, are situated upon opposite sides of the hat, and smooth the sides of the same, while the iron F is horizontal and smooths the crown of the hat, and also the under surface of the brim thereof. These irons, with the rods or bars supporting them, are hollow, and the irons are heated by steam, gas, or any other suitable means.

The inverted conical block H has four sloping or inclined sides, r , which slant inward as they approach the bottom of the block, and which, when the block is moved downward with reference to the frame B , act upon the bars n'' to force the irons apart to allow them to be raised from the hat without injuring the same. Firmly secured upon the upper end of the conical block H is a flat circular plate, u , the edges of which project beyond the sides of the block H , thus forming a flange around its upper end. Two vertical guides, w' , situated on opposite sides of the block H , project upward from the frame D and pass through suitable holes in the flange formed by the plate u , so as to keep the said block in proper position as it moves up and down with reference to the sliding frame D , which up-and-down movement of the block, as well as that of the said frame D , is produced as follows: Two cords or small ropes, w'' and w''' , are attached to opposite sides of the plate u , each rope passing under a small pulley attached to the frame D' , the rope w'' passing up over a pulley, j , upon one end of a cross-bar, j^3 , secured upon the brace or casting D' , thence downward under a pulley, j'' , from which it passes to a crank-wheel, k , situated at one side of the frame A , and has its end secured thereto. In like manner the other cord, w''' , after passing underneath a pulley in the frame D , as just mentioned, passes over a

pulley, j' , situated upon the opposite end of the cross-bar j^3 , and thence over the pulley j , after which it follows the same course as the other rope, w'' , underneath the pulley j'' to the crank-wheel k , to which, like it, it is secured. This crank-wheel is placed loosely upon a stationary shaft, and has a groove, z , cut across the outer surface of its hub, as shown in Fig. 9. A transverse pin in the end of the stationary shaft on which the crank-wheel is placed fits into this groove, and prevents the said wheel from turning when the wheel is forced outward by the spiral spring k' placed behind it upon its shaft.

In order to spread the smoothing-irons apart and to elevate them with the frame D which supports them, the crank-wheel k is pushed inward so that the groove z in its hub will be brought clear from the pin in the end of its shaft. The said crank-wheel is thus rotated so as to wind the rope upon it, which first draws the conical block H downward until the flange formed by the plate u strikes the upper surface of the frame D . The inclined sides of the said conical block, acting upon the inner ends of the rods n'' , forces the smoothing-irons outward from the hat. The winding of the cords upon the crank-wheel being continued, the said cords lift the frame, with the smoothing-irons and the appurtenances thereof, to any desired height, the frame D sliding upon the vertical guides e . The frame is retained in an elevated position by means of the groove in the hub of the hand-wheel catching upon the transverse pin in the end of the shaft thereof, as hereinbefore mentioned, the spiral spring k' pressing the wheel outward against the said pin. When it is desired to lower the irons the crank-wheel is again pushed inward so as to clear the groove in its hub from the transverse pin in its shaft, and is allowed to rotate in an opposite direction so as to unwind the cords therefrom, on which the frame D will descend by its own weight, and the conical block H be forced up to its first position by the action upon its inclined sides of the bars n'' , which are forced inward by the spiral springs r' upon the bars n' .

In order to prevent the frame D from jarring the machine as it comes down, a short spiral spring, e'' , supported by a collar, e' , is placed upon each of the vertical guides e , and act as cushions underneath the frame when it has nearly finished its descent.

Inasmuch as it is necessary to stop the rotation of the table B previous to securing the hat thereon or removing it therefrom, provision is made to effect this object by means of a catch, l , secured to the upper end of a shaft, l' . A notch, l^2 , is formed in the periphery of the table B , and by pressing the inner end of the catch l inward against the said periphery it catches in the said notch l^2 and stops the motion of the table at the proper part of its revolution. An elbow or crank, l^3 , is formed upon the lower end of the shaft l' , and a belt-slipper, d'' , is pivoted thereto, by means of

which the belt is shifted from the fast pulley d to the loose pulley d' at the same moment that the rotation of the table is stopped.

g is a shipping-lever, by which the pinion b' may be moved out of gear with the wheel b , if desired.

The operation of the invention is as follows: The frame D , which carries the smoothing-irons E F G and their appurtenances, is first elevated by turning the crank-wheel k and winding the lifting-cords thereon, the said frame being kept in an elevated position by allowing the groove in the hub of the crank-wheel to catch upon the transverse pin in the end of the stationary shaft thereof, all as hereinbefore set forth.

The hat to be smoothed or ironed is placed upon the hat-block G , which is then secured to the table B by means of the staples v' and the spurs v'' of the slide v , as hereinbefore explained. The crank-wheel k is pushed inward upon its shaft, out of contact with the transverse pin in the end thereof, and allowed to turn and unwind the lifting-cords from its periphery, which allows the frame D to descend by its own weight, the irons E F G being spread apart during their descent. When the frame has descended to the springs e'' , supported by the collar e' , the downward movement thereof is stopped, and the continued unwinding or relaxation of the lifting-cords allows the conical block H to be forced upward by the pressure upon its inclined sides of the bars n'' , which are forced inward by the spiral springs r' , the said spiral springs keeping the smoothing-irons in contact with the various surfaces of the hat, as shown in Figs. 2 and 4. The catch l is then turned out of the notch l^2 in the periphery of the table B , this movement of the catch l operating the shipping-bar d'' to move the belt from the loose pulley d' to the fast or driving pulley d , thus causing the table B to revolve through the agency of the cog-wheel b and pinion b' . The hat is thus revolved in contact with the heated surfaces of the irons, by which means the desired smoothness is produced thereon. The springs r' allow the irons to accommodate themselves to the oval circumference of the sides of the hat, while the slight rocking motion allowed to the said irons adapts them to any variation of the said sides from a perpendicular position.

It should be mentioned that the "luring-cloth" I is placed upon the end of an elastic bar or spring, I' , secured to the vertical bar m' of the iron E in such a way as to be kept in contact with the sides of the hat during the revolutions of the same.

It now remains to explain the manner of ironing the under side of the brim, which is done by inverting the hat and subjecting the said under side to the action of the same iron F that smooths the crown of the hat. The hat, with the hat-block inside of it, is placed in an inverted position in an iron clamp, (represented in Fig. 6,) and which has a cavity cor-

responding in shape to the exterior of the hat, and is furnished around its upper edge with a horizontal flange or rim, m^3 , which supports the brim during the operation of ironing the same. This clamp is divided vertically into two halves, q , which have a sliding movement to and from each other in a base-plate, t . A spur, q' , projects downward from the lower side of each half q , and a screw, t' , passes entirely through a suitable hole in each spur q' , the thread of the said screw winding in opposite directions from the center thereof in such a way that by turning the screw by means of its knob q^3 the two halves of the clamp may be brought together or moved apart as the screw is turned one way or the other. Two staples, q^4 , project downward from the bottom of the base-plate t . These staples fit into holes in the table B and are held by the spurs v'' of the slide v in the same manner that the staples of the hat-block are held by the said spurs. In order that the hat-brim may not be marred by the break in the flange occasioned by any space that may exist between the halves thereof when they are placed around the hat, an annular plate, m^4 , is laid upon the flange m^3 , so that the brim rests upon a perfectly smooth and continuous surface. As the hat-block is inverted when in this position the staples v' project upward. A flat elliptical plate, s^3 , is provided with slots, through which the said staples are passed, the plate s^3 being secured upon the hat-block by pins or keys passing through the said staples above the plate. This plate s^3 acts as a guide to move the iron F as required to make it follow the elliptic shape of the brim, the periphery of the said plate acting upon the outer end of the iron F . The hat being thus secured upon the table B in an inverted position, the iron F is brought down upon it. The table B being allowed to rotate and the said iron properly guided by the plate s^3 , as aforesaid, smooths this surface of the brim in the same manner as it smooths the other surfaces thereof.

What I claim as new, and desire to secure by Letters Patent, is—

1. The vertically-sliding frame D , carrying the smoothing-irons E F G , the said smoothing-irons having a sliding movement with regard to the said frame and being arranged with reference to a rotary hat-block, substantially as herein set forth, for the purpose specified.

2. The many-sided smoothing-irons, arranged in relation with a rotating hat-block, substantially as set forth, for the purpose specified.

3. The inverted conical or taper block H , acting upon the bars n'' and sliding blocks n to spread apart the smoothing-irons, substantially as herein set forth.

4. The sliding blocks n and the bars n' , arranged with reference to the partitions m'' , with their oblong vertical holes, in such a way

as to allow the smoothing-irons a limited rocking movement, substantially as herein set forth, for the purpose specified.

5. The arrangement of the staples v' and slide v , for securing the hat-block upon the table, substantially as herein set forth.

6. The catch b , belt-slipper d'' , and table B, arranged with reference to each other and to the hat-block and smoothing-irons substantially as set forth, for the purpose specified.

7. The clamp composed of two halves, g , sliding in the base t and operated by a screw, t' , when provided with a flange, m^3 ; and used in connection with a rotating table and suitable smoothing-irons, substantially as herein set forth, for the purpose specified.

8. The annular plate m^4 , placed upon the flange m^3 of the clamp underneath the hat-brim, when used in connection with suitable smoothing-irons, substantially as herein set forth, for the purpose specified.

9. The elliptical plate or guide s^3 , secured upon the hat-block and guiding the iron F when smoothing the under side of the brim, substantially as herein set forth.

10. The horizontal bars m , adjustable in the lower ends of the vertical bars m' , arranged in relation to the smoothing-irons substantially as herein set forth, for the purpose specified.

11. The arrangement of the luring-cloth on the end of an elastic bar or spring attached to the same shaft as one of the smoothing-irons, substantially as set forth, for the purpose specified.

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Witnesses:

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