

(No Model.)

4 Sheets—Sheet 1.

E. MESSER.
HAT IRONING MACHINE.

No. 574,070.

Patented Dec. 29, 1896.

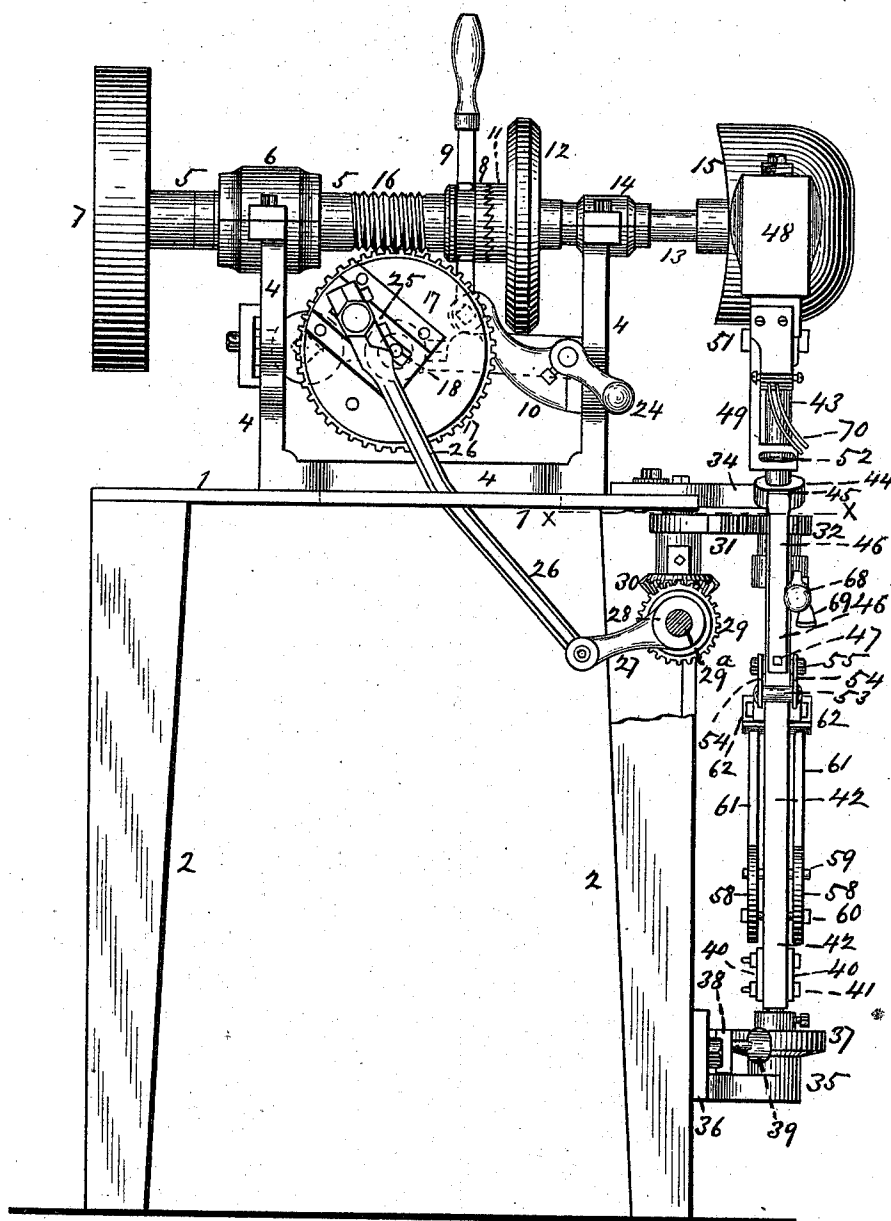


FIG. 1.

WITNESSES

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INVENTOR

Elbridge Messer,
By his Atty.
Henry Williams

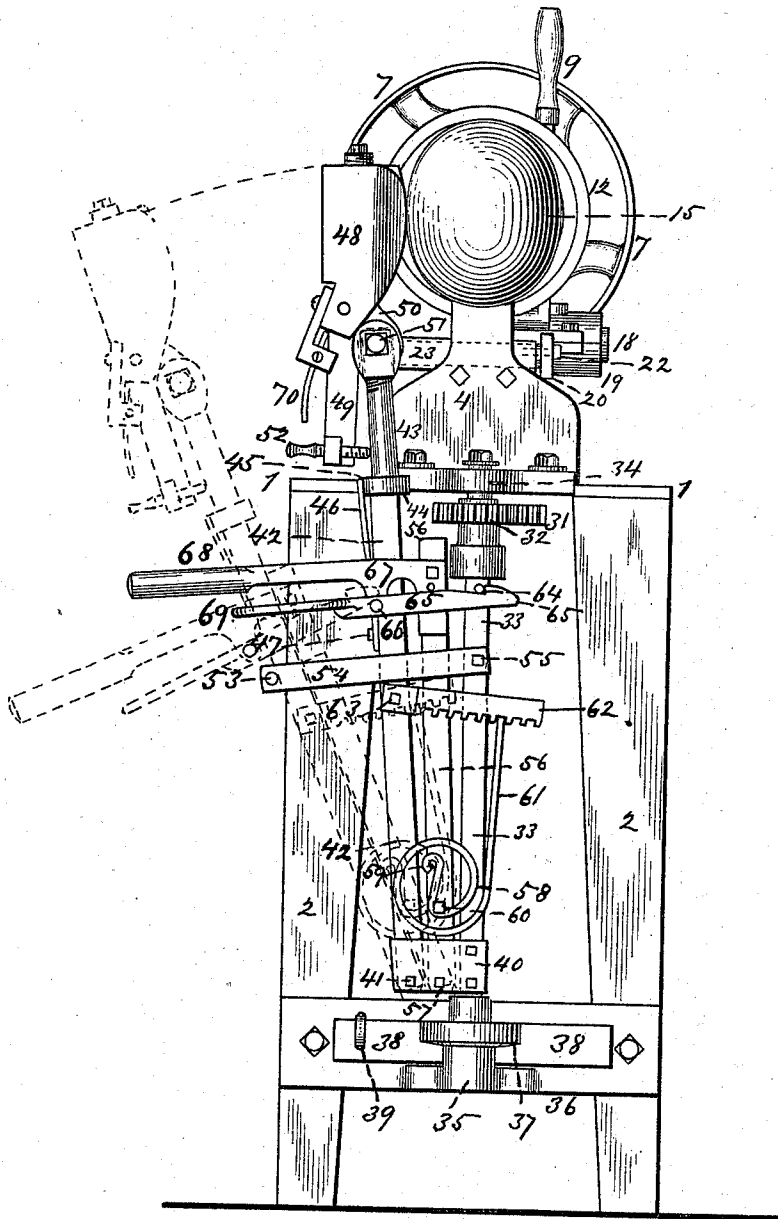
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WITNESSES

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FIG 2

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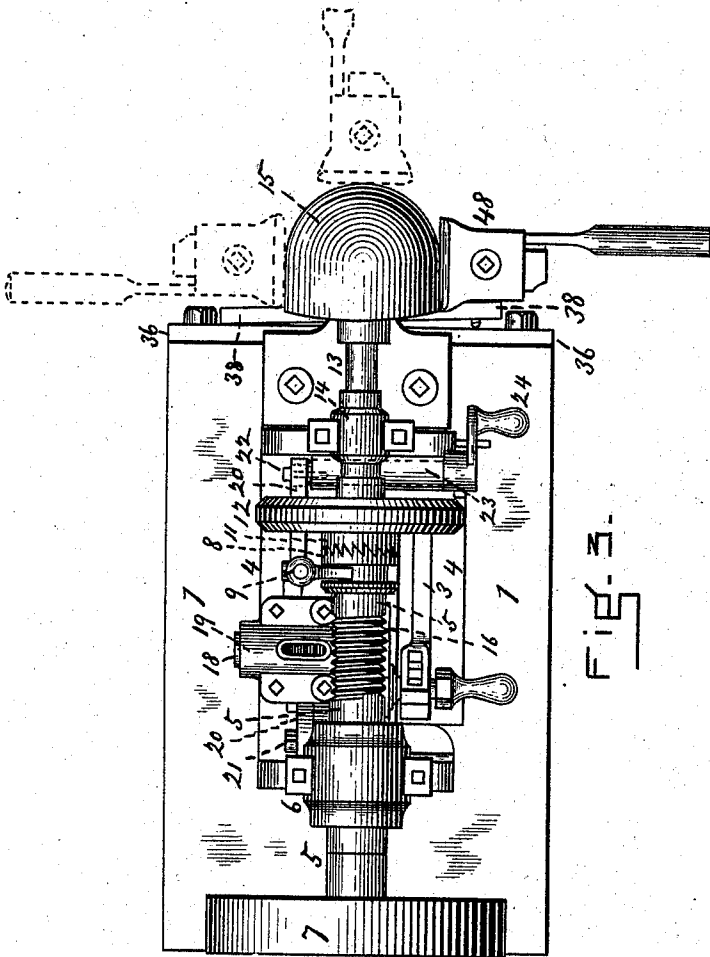


FIG. 3.

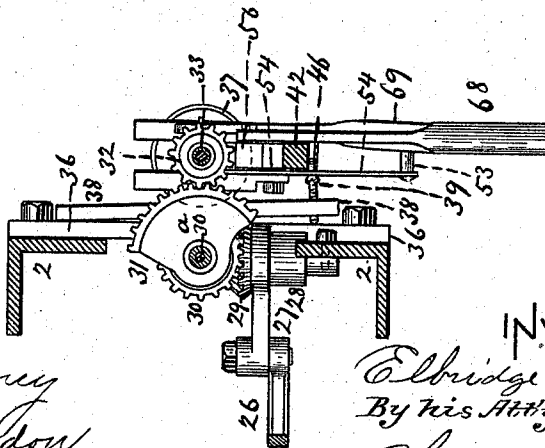


FIG. 4.

WITNESSES

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(No Model.)

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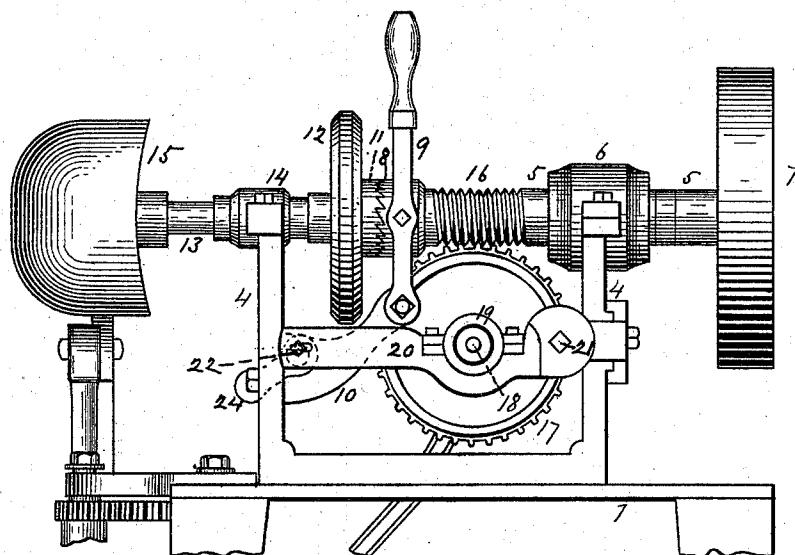


Fig. 5.

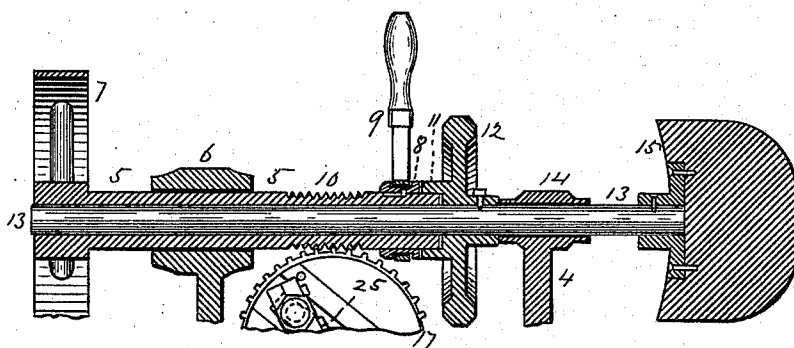


Fig. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

ELBRIDGE MESSER, OF HAVERHILL, MASSACHUSETTS.

HAT-IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 574,070, dated December 29, 1896.

Application filed January 24, 1896. Serial No. 576,884. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE MESSER, a citizen of the United States, residing in Haverhill, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Hat-Ironing Machines, of which the following is a specification.

This invention relates to machines for ironing hats; and it has for its object to produce a machine in which the movement of the iron upon the hat is not only automatic, but lingers on the sides of the hats and passes more quickly over the tip, and in which in various particulars the machine is rendered more efficient, thorough, and under the complete control of the operator than has heretofore been the case.

My invention consists in the novel combinations and arrangements of parts set forth in the claims making a part of this specification and comprised and embodied in the machine fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view. Fig. 4 is a horizontal section taken on line *x*, Fig. 1. Fig. 5 is a rear elevation of the upper portion of the machine. Fig. 6 is a central longitudinal vertical section taken through the portion of the machine above the table.

Similar letters of reference indicate corresponding parts.

1 represents a suitable table supported on legs 2 and provided with the opening 3. Mounted on this table is a frame 4, in which the driving-shaft 5 has its bearings at 6, said shaft having fast upon it the driving-wheel 7. This shaft has splined upon it the clutch-sleeve 8, which is adapted, by means of the shipper 9, extending upward from a bracket 10, secured to the frame 4, to be engaged with and disengaged from the other half 11 of the clutch, said portion 11 constituting the hub of the hand-wheel 12 and being fast on the shaft 13, which has its bearings at 14 in the frame 4 and has fast upon its outer end the hat-block 15.

The shaft 5 has a worm 16 cut upon it, which is adapted to be engaged by the gear-wheel 17 on the shaft 18, supported in a box 19 on a vertical swinging arm or carriage 20,

said arm or carriage being pivoted at 21 to the frame 4. The outer end of this arm is engaged by a lifting-crank or eccentric 22 on the end of the horizontal shaft in the housing 23, said shaft being actuated by a crank 24. By means of this crank the gear 17 is lifted into or lowered out of engagement with the worm 16.

Adjustably secured in the ordinary manner by means of the slot 25 to the side of the gear-wheel 17 is the arm or rod 26, which extends down through the opening 3 in the table and is pivotally connected at its lower end with the lever or crank 27, rigid with and extending from the hub 28 of the bevel-gear 29, supported by a suitable rock-shaft 29^a, sustained by one of the legs 2. This gear 29 engages with the bevel-gear 30, which is fast on the vertical shaft 30^a, which extends downward from the table 1, and fast on the same shaft is the segment-gear 31, which meshes into the gear-wheel 32, which is fast on the vertical shaft or rod 33. This vertical shaft has its bearings at its upper end in the bracket 34, extending from the table, and at its lower end in the bracket 35, extending from the cross-piece 36, which is rigidly secured to the legs 2. Fast on this vertical shaft 33 is a brake-wheel 37, which bears against the brake-bar 38, which lies between said wheel and the cross-piece 36. This brake-bar is provided with a screw 39, which extends through it and sets against the cross-piece 36, thus regulating the amount of friction applied to the brake-wheel. The object of the brake is described below.

A pair of vertically-set horizontal plates 40 extends outward from opposite sides of the lower portion of the shaft 33, and pivoted to and between said plates at 41 is the arm or bar 42, into whose upper end extends the iron-holder 43. This is a round rod which extends loosely into the upper end of the bar 42, and is hence adapted to be rotated therein. This holder 43 is provided with a flange 44, which rests on the upper end of the bar 42, and one side of this flange is flattened at 45 to receive the pressure of the flat spring 46, pivoted at 47 to the outer side of the bar 42.

48 is the iron, rigid with the shank 49, from which extends a rigid arm 50, which is pivoted at 51 to the upper end of the iron-holder

43. By means of the adjusting-screw 52, which extends through the shank 49 and sets against the rod or holder 43, the iron is adjustably held by gravity at the desired angle with relation to the block 15. The outward swing of the bar 42 is limited by the cross-pin 53, which connects the outer ends of the parallel bars 54, rigidly secured at 55 to opposite sides of the shaft 33. 56 is a swinging bar pivoted at 57 to and between the plates 40 and set between the shaft 33 and bar 42.

A pair of coiled springs 58 are caught upon pins 59, secured to the swinging bar 56, one pin and spring being located on each of the outer sides of the said bar and being exactly similar. Each of said springs extends from the pin 59 down under a pin or bolt 60, is then formed into one or more coils, as shown, and thence extends up at 61 and catches in one of the teeth in the under side of the toothed bar 62, rigidly secured at 63 to the bar 42. There are two of these bars 62, extending substantially horizontally from the opposite sides of the bar 42 and engaging the upper ends of the two springs aforesaid. A pin 64 extends horizontally from the shaft 33, and a latch 65 is pivoted at 66 to the shank 67 at such a point that said latch swings up by gravity and catches over the pin 64. The shank or plate 67 is rigidly secured to the swinging intermediate bar 56 and extends into a handle 68, by the assistance of which the handle 69 of the latch 65 is lifted.

The operation of the machine is as follows, it being understood that the two parts 8 11 of the clutch are in engagement and that the gear-wheel 17 is in engagement with the worm 16: Motion having been imparted to the driving-wheel 7, the hat-block 15 rotates on a vertical plane, the parts being in the position indicated by full lines in the drawings, and particularly in Fig. 2, that is to say, the latch 65 being caught upon the pin 64, the iron 48 held against the rotating hat-block 15 by the bar 42, which is held up to its work by the springs 58 61, whose tension is regulated by the notches in the bars 62, into which their upper ends extend. Hence as the block 15 (which of course is not perfectly round) rotates the iron is pressed against it, while the said springs allow the bar 42 to yield to the non-circular shape of the block. While this block is rotating in a vertical plane against the iron, the iron is not stationary, but moves on a horizontal plane to the extent of more than half a circle, so that the iron moves from the band of the hat, which is supposed to be on the block, that is, the portion next the rim, to the tip and over it to the opposite band or next the opposite rim. In other words, while the block and hat are being rotated the iron moves across the block from band to band. This is accomplished by means of the gear 17, which is engaged by the worm 16 and the crank-rod 26, crank 27, bevel-gears 29 and 30, segment-gear 31, and gear-wheel 32, by means of which the vertical shaft 33

is rotated reciprocatingly. As the bar 42 is connected by the plates 40 with said shaft 33, the iron 48, supported by this bar, is moved horizontally over the hat-block 15 from the position indicated by full lines in Fig. 3 to the position indicated by broken lines in said figure, thus ironing the hat from one band over the rim to the other band.

Inasmuch as it is desirable that the sides should be ironed more than the tip the mechanism is so arranged that the iron will linger or move more slowly as it passes over the side and more rapidly as it passes over the tip. This is accomplished by arranging and starting the mechanism at such a point that the crank mechanism 27 26 17 will be near the dead-point when the iron is at the sides, so that it necessarily moves more slowly at those points, while at the tip it will necessarily move at its highest speed. Thus the hand-wheel 12 is rotated until the worm 16 has rotated the gear-wheel 17 until the crank is near the dead-point, that is to say, until the crank-rod 26 and crank 27 are nearly on a line, when the iron is next the band. The machine having been thus set, motion is imparted thereto with the effect of moving the outer end of the crank 27 at first slowly, such movement, however, being accelerated as the rotation of the gear-wheel 17 causes the angle formed by the crank-rod 26 and crank 27 to become greater, thus accelerating the movement of the gears 29 and 30, the segment-gear 31, and gear-wheel 32, by means of which the vertical shaft 33 is rotated, as above described. Thus through the connection of the plates 40 with the bar 42 accelerated horizontal motion is imparted to the iron-holder 43, causing the iron to move from the band toward the tip with first accelerating and then diminishing speed until the tip is reached, when the crank will have reached and be passing the dead-point, and the crank-rod 26 and crank 27 being then in line, the horizontal movement of the iron will be very slow and then become accelerated as the iron leaves the tip and moves toward the center of the side. The adjustment of the gear-wheel 17 and worm 16 may be changed by swinging said wheel out of or into engagement by means of the swinging arm 20.

The arrangement of the spring 46 on the flattened surface of the flange or disk 44 allows the iron a sufficient degree of rotation on the axis of the rod 43 to accommodate itself to the block, the spring 46 yielding sufficiently for that purpose, but bringing the iron back to its normal position, which is of course with the spring 46 and the surface 45 parallel.

The brake 38 against the wheel 37 is to prevent the iron from jumping ahead in going around the corners, as would otherwise be likely to be the effect produced by the backlash. The amount of pressure of the iron on the block is regulated by the notches in the bar 62, into which the portions 61 of the springs extend.

To remove the hat from the block, drop the gear 17 out of engagement with the worm 16 by lifting the crank 24 and lift the outer end 69 of the latch 65, thus allowing the arm 42 and iron 48 to swing down by gravity into the position indicated by broken lines in Fig. 2. In this position the intermediate swinging bar 56 is forced by the springs against the bar 42, said springs being of course entirely neutral as soon as the bar 42 is relieved from its connection with the bar 33.

The connection of the crank-rod 26 with the face of the gear-wheel 17 is of the ordinary adjustable character, and by changing the adjustment the stroke can be of course shortened as desired, so that the iron can pass from the band to the tip and back again instead of crossing the entire surface of the hat.

Heat may be applied to the iron by pipes 70 in the ordinary manner.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for ironing hats, a hat-block rotated on a vertical plane by the driving-shaft supported by the frame; the vertical shaft 33 located beneath the hat-block and supported by the frame; mechanism intermediate of said vertical shaft and the driving-shaft for reciprocatingly rotating the former; the bar 42 supporting the iron and pivotally connected at its lower end with the lower portion of said vertical shaft whereby said bar is adapted to swing in a vertical plane; the swinging bar 56 between said vertical shaft and bar 42 and pivotally connected with the lower ends of both; a spring connecting said intermediate bar 56 and the bar

42 and with its free end in adjustable engagement with a bar extending from the said bar 42; and a latch connected with the bar 56 and adapted to engage the vertical shaft 33, whereby the intermediate bar is drawn out of contact with the iron-supporting bar 42, and the iron thereon held yieldingly against the hat-block, substantially as set forth.

2. In a machine for ironing hats, the hat-block supported upon the frame and rotated by the driving-shaft; the vertical shaft 33 located beneath the hat-block and supported by the frame; a crank mechanism intermediate of the driving-shaft and said vertical shaft, whereby reciprocatingly rotative movement is imparted to the latter, the plates or supports 40 rigid with and extending from said shaft near its lower end; the iron-supporting swinging bar 42 pivotally connected at its lower end with said plates; the swinging bar 56 pivotally connected at its lower end with said plates and adapted to swing between the vertical shaft and the iron-supporting bar; the toothed bars 62 extending from the bar 42; the springs 58 extending from the intermediate bar 56 and with their outer ends adjustably in engagement with said toothed bars; the latch 65 pivoted to the shank of the handle 68 which extends from the intermediate bar 56, said latch being adapted to engage with the said vertical shaft, and a suitable support extending from the vertical shaft for sustaining the iron-supporting bar 42 when it is swung down, substantially as described.

ELBRIDGE MESSER.

Witnesses:

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