

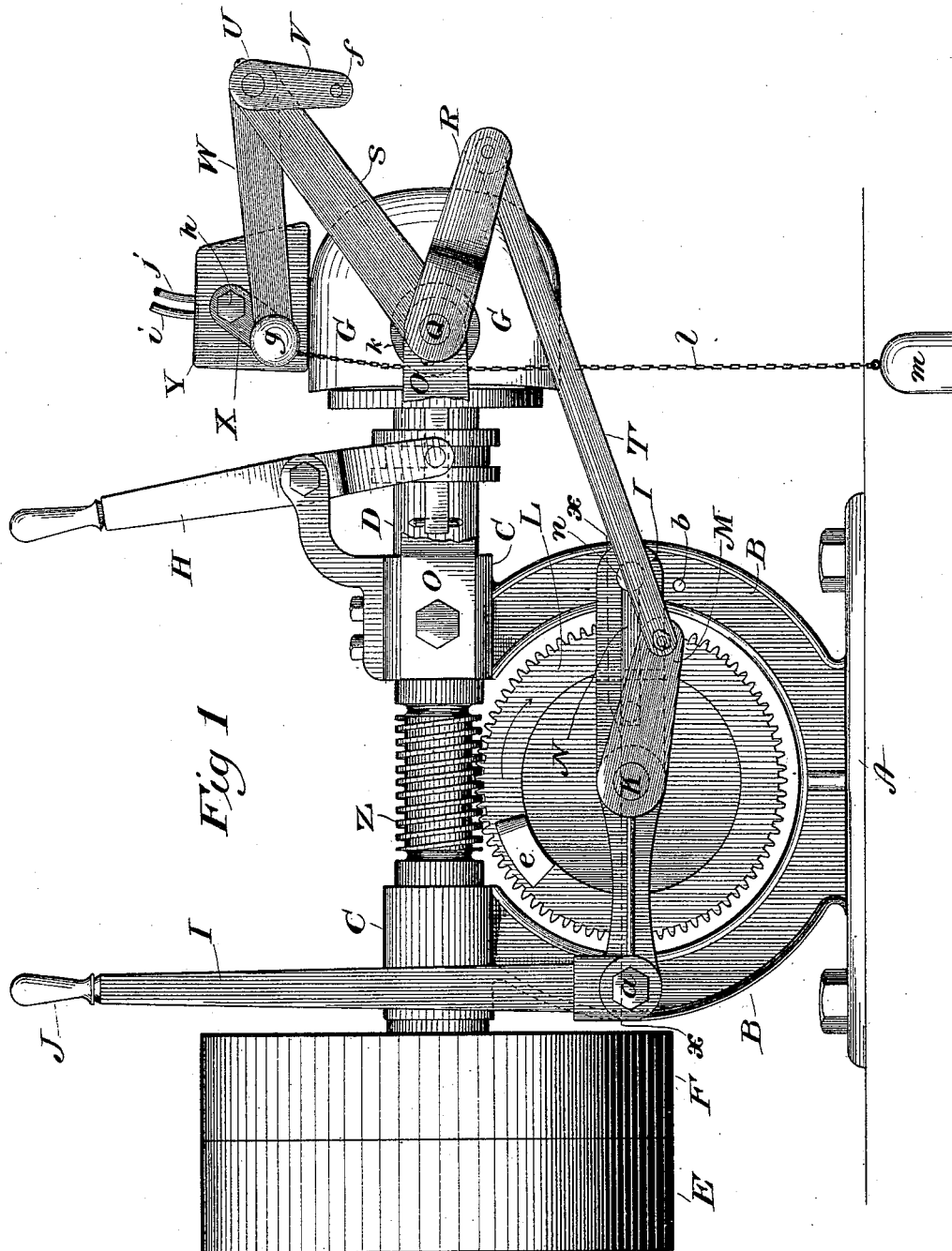
(No Model.)

3 Sheets—Sheet 1.

C. H. REID.
HAT IRONING MACHINE.

No. 420,961.

Patented Feb. 11, 1890.



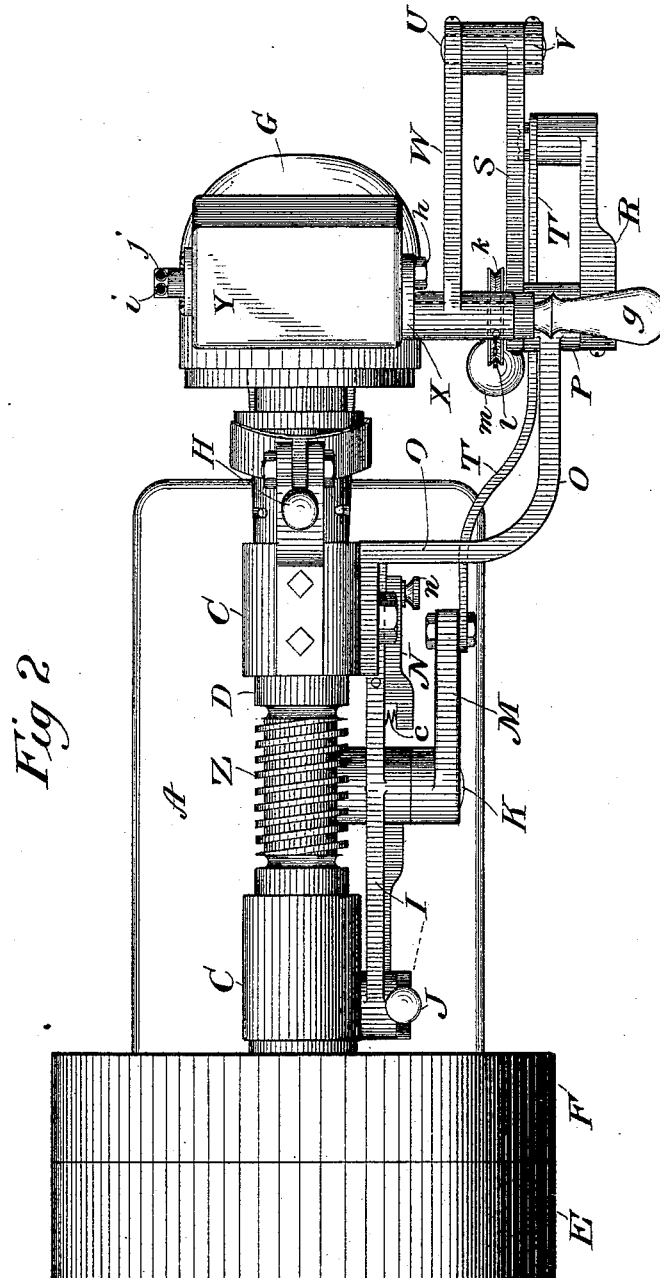
Witnesses
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F. W. Gilhuley.

Inventor
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3 Sheets—Sheet 2.

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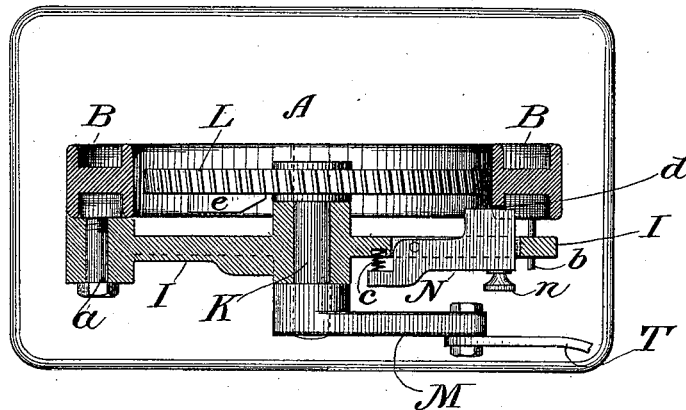
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Fig 3



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UNITED STATES PATENT OFFICE.

CHARLES H. REID, OF DANBURY, CONNECTICUT.

HAT-IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,961, dated February 11, 1890.

Application filed April 29, 1889. Serial No. 308,917. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. REID, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat - Ironing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for ironing hats, and has for its object to iron a hat-body automatically and evenly.

Another object of my invention is to regulate the pressure of the iron so that the extended contact and pressure against the tip will not cause the latter to be burned.

My invention also renders the ironing of the hat automatic in every particular, a positive trip being provided whereby the operation of ironing is limited, as may be desired, so that a single operator may attend to several machines; also, the movement and operation of the iron is so contrived and regulated that a hat may be ironed once or twice in a single automatic movement of said iron, while the iron drops away from the hat the moment that the ironing of the latter is completed.

With these ends in view my invention consists in certain details of construction and combination of elements, such as will be hereinafter fully set forth, and then specifically designated by the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improvement; Fig. 2, a plan view; and Fig. 3, a detail section taken at the line *xx* of Fig. 1, the gear-wheel, its shaft, and the crank carried thereby being shown in plan view.

Similar letters denote like parts in the several figures.

A is a bed, and B a frame-work projecting upward therefrom. C are boxes at the top of said frame, within which is journaled the shaft D. On the outer end of this shaft are the usual tight and loose pulleys E F. G is the hat-block, which is secured to the inner end of said shaft. This block is secured in position on the shaft by means of a certain chuck operated by a hand-lever H; but I will not herein enter into any description of said

chuck, as the same will form the subject-matter of a separate application for Letters Patent, and has no pertinence to the operation or understanding of my present improvement. It will be sufficient, for the purposes of explaining the present invention, to state that the hat-block is secured to the inner end of the shaft so as to revolve therewith.

I is an L-lever pivoted at the heel to the frame, as seen at *a*, the upper end of said lever being provided with any suitable handle J. K is a short shaft journaled within the lower arm of said lever.

L is a worm-wheel tightly mounted on the inner end of the shaft K, and M is a crank rigid with the outer end of this shaft.

b is a small pin extending from the frame, and which acts as a support for the lower arm of the lever I when the latter is dropped.

N is a dog pivoted within the lower arm of the lever I, and *c* a coil-spring between the tail of said dog and the said arm, whereby the nose of the dog is normally depressed. When the lever I is operated to lift the lower arm thereof, the said dog will, when said arm is in its highest position, spring into a recess or notch *d* (see Fig. 3) after the manner of an ordinary spring-catch. *e* is a beveled trip secured on the side of the wheel L, and adapted, when said wheel revolves, to lift said dog out of the notch *d*, thereby causing the arm to drop and rest against the pin *b*.

O is a bracket, extending from the frame B, and having on its extremity a box P, within which latter is journaled a rock-shaft Q. Rigidly secured to this rock-shaft are levers R S, said levers being in such relative planes as to constitute a bell-crank. The crank M and the lever R are connected by a rod T, loosely pivoted thereto.

U is a rock-shaft, around which is freely pivoted the upper extremity of the lever S. Rigidly secured to this shaft U are the crank V and lever W.

f is a pin extending from the lower extremity of the crank V, and adapted, when the latter is swung upwardly, to strike against the lever S, for the purpose presently explained.

X is a plate rigidly secured to the iron Y by a bolt *h*, and from the outer end of this plate projects a suitable handle *g*. The inner

end of the lever W is loosely pivoted around the spindle of the handle *g*. The shaft Q is the main pivotal point of the series of levers, it being of course stationary.

5 The hat-iron Y rests by gravity upon the block G, and has a free working movement, owing to the pivotal connection between the handle *g* and the lever W.

i j are pipes through which the heating elements are introduced within the iron, which latter is of course hollow. The heating agents which I shall probably utilize are hydrogen and oxygen, or perhaps any inflammable gas, the principle involved being that of the blow-
15 pipe.

k is a pulley loose on the rock-shaft Q, and *l* is a chain attached at the upper extremity to the inner end of the lever W, thence passing over said pulley and having suspended therefrom a weight *m*. The function of this weight is to preserve a firm pressure of the iron Y against the body of the hat and to overcome any tendency of the iron to fall away from the hat when operating against the tip of the latter, while at the same time said weight causes the iron to exert a limited pressure against the tip.

It will be readily understood that when the iron is in the position shown at Fig. 1 the pressure brought to bear on the hat is that of the iron itself plus the weight *m*; but when the tip is being ironed, and the position of the iron is therefore substantially at right angles to that shown at Fig. 1, the hat will be
35 entirely relieved of the gravity of the iron, and the pressure of the iron against said tip will be effected by the side draft of the iron caused by the gravity of the weight *m*; also, when operating against the tip the iron has
40 longer contact therewith than it has with the body of the hat, and if the pressure of the iron were the same in all instances the hat would undoubtedly be burned on the tip. Therefore by relieving the tip of the weight
45 of the iron and effecting the contact of the iron with the tip by means of the weight *m*, I materially decrease the pressure of the iron against the tip and obtain the best results. Z is a worm on the shaft D and meshing with
50 the wheel L, whereby motion is imparted to the latter.

The operation of my improvement is as follows: It is not deemed necessary to show a hat on the block, since the superficial contour of the latter will answer the purposes of a hat-body in this connection. The lever I having been operated to raise the wheel into engagement with the worm Z and cause the dog N to latch within the frame, said wheel will
60 revolve in the direction indicated thereon by the arrow. The crank M, revolving with said wheel, will, through the medium of the connecting-rod T, draw the bell-crank RS downward, thereby causing the iron Y to travel up
65 the body of the hat toward the tip, the iron meanwhile rocking on its pivot so as to preserve a constant tangential position with re-

spect to the contour of the hat. During these operations the crank V will have approached the lever S, and when the bell-crank R S has
70 been drawn down so that the iron occupies a position substantially at right angles to that shown at Fig. 1, the further downward movement of said bell-crank will throw the lever W outward, so that the iron will topple
75 backward until the movement of said lever W is arrested by the abutment of the pin *f* against the lever S. Synchronously with the abutment of said pin and lever, the trip *e* will in its circuit lift the dog N, as
80 hereinbefore set forth, and the lower arm of the lever I will drop and rest against the stop *b*, thus disengaging the wheel L from the worm Z. When the iron has reached its lowest position, as above set forth, it will
85 have overcome the gravity of the weight *m*, and there will accordingly be no pressure exerted against the hat-tip after the parts actuated by the wheel L have ceased to operate. Ordinarily in ironing a hat the initial
90 position of the iron and the operative parts of the machine are as is shown at Fig. 1; but should it become necessary to iron twice over a hat I iron from the tip upward over the body and thence down over the tip again. 95

It will be readily understood that in ironing a hat twice, as above set forth, the initial position of the crank M will beat the side of the wheel L substantially opposite to that shown at Fig. 1, while the trip *e* will
100 be a slight distance below the dog N, so that said trip will complete nearly an entire circuit before operating to cast off the iron. A knob *n* is secured to the dog, whereby the operator may disengage the wheel L and
105 worm Z at will in case of accident or for any obvious reasons.

By means of the handle *g* the iron may be manipulated at all times by hand either to alter the pressure or to cast off said iron from
110 the hat.

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

1. In a hat-ironing machine, the combination of the primary shaft having mounted thereon the hat-block, and the power-transmitting wheel adapted to receive motion from said shaft and carried by a lever having a vertical swing, whereby said wheel may be
120 engaged with and disengaged from the shaft, substantially as set forth.

2. In a hat-ironing machine, the combination of the primary shaft having mounted thereon the hat-block, the power-transmitting
125 wheel adapted to receive motion from said shaft, a swinging lever within which said wheel is journaled, a crank rigid with the shaft of said wheel, a series of levers connected with and actuated by said crank, and
130 the hat-iron pivoted to the last of said levers, substantially as set forth.

3. In a hat-ironing machine, the combination, with a series of levers supported by and

having a main pivot on the frame of the machine, of a rotatory crank pivotally connected to one end of said series and the hat-iron pivoted at the other end, substantially as shown and set forth.

4. In a hat-ironing machine, the combination of the primary shaft having thereon a worm and supporting at the inner end the hat-block, the worm-wheel, the crank rigid with said wheel, the bell-crank R S, pivoted to the frame of the machine, the bell-crank V W, pivoted to the lever S, the hat-iron pivotally attached to the lever W, and the connecting-rod pivotally attached to the crank and lever R, substantially as and for the purposes set forth.

5. In a hat-ironing machine, two bell-cranks having a single main pivotal support, in combination with the hat-iron pivoted to one of said cranks, and means whereby said cranks are swung around said pivotal support, substantially as shown and described.

6. In a hat-ironing machine, the combination, with the hat-block mounted on the end of a horizontal revoluble shaft, and the hat-iron operated in a plane coincident with the plane of said shaft, of a weight suspended from the heel of said iron and guided over a stationary pulley in the rear of the tip of said block, whereby said iron will be automatically drawn against the tip of the block, substantially as set forth.

7. The combination, with a series of levers having the hat-iron pivoted thereto, of an auxiliary weight constantly applied to said iron during its operation and adapted to draw the iron against the tip of the hat, substantially as shown and described.

8. In a hat-ironing machine, the hat-iron, and mechanism for operating the latter at right angles to the rotatory movement of the hat-block, in combination with means, as a weight and chain, for effecting a decreased pressure of the iron against the tip of the hat, substantially as set forth.

9. The lever carrying the power-transmitting wheel and having the spring-catch adapted to engage with a notch in the frame, in combination with the trip carried by said wheel and operating to disengage said catch and notch, substantially as shown and described.

10. The shaft carrying the worm and hat-block, in combination with the worm-wheel, the crank rigid therewith, and means operated by said crank for effecting the movements of the hat-iron, substantially as shown and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. REID.

Witnesses:

WILLIAM A. LEONARD,
JOHN GRAY.