

**No. 700,371.**

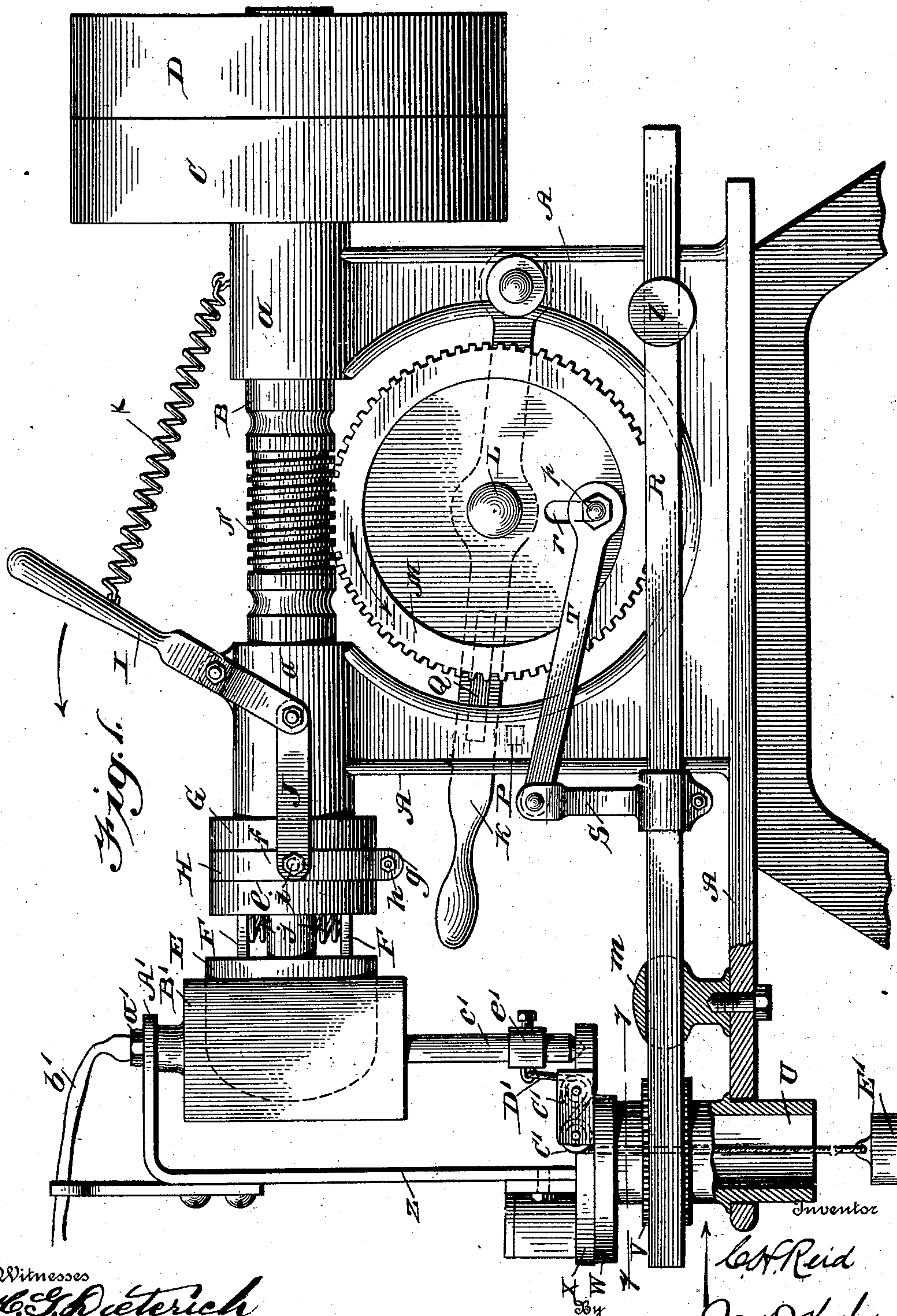
**Patented May 20, 1902.**

**C. H. REID.**  
**HAT MACHINE.**

(Application filed Sept. 9, 1901.)

(No Model.)

**2 Sheets—Sheet 1.**



Witnesses  
H. G. Dietrich  
N. C. Healy

Inventor  
L. A. Reid  
James J. Shuchy  
Attorney

No. 700,371.

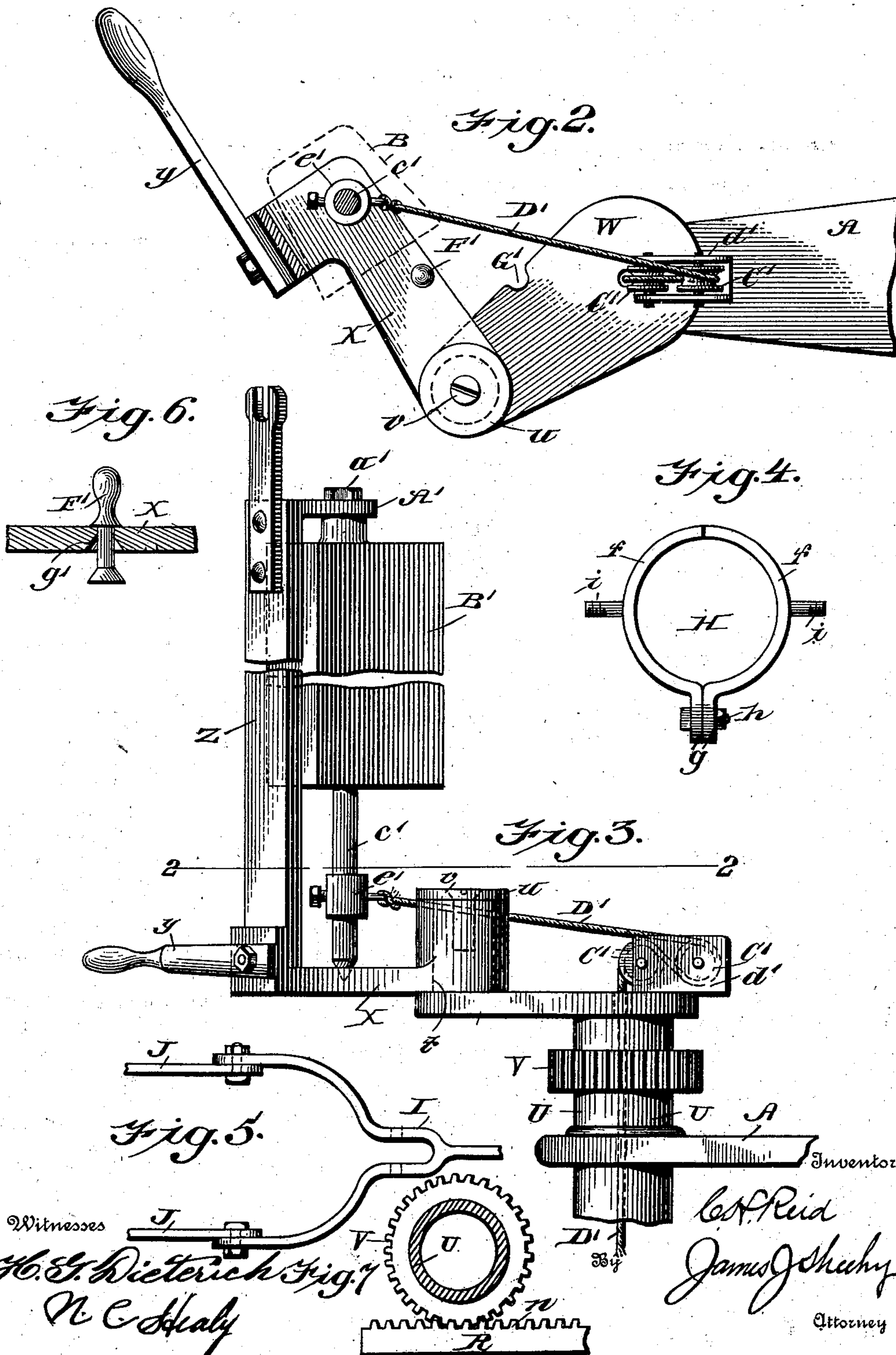
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# UNITED STATES PATENT OFFICE.

CHARLES H. REID, OF DANBURY, CONNECTICUT.

## HAT-MACHINE.

SPECIFICATION forming part of Letters Patent No. 700,371, dated May 20, 1902.

Application filed September 9, 1901. Serial No. 74,842. (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 new and useful Improvements in Hat-Machines, of which the following is a specification.

My invention relates to improvements in hat-machines, particularly that class of hat-ironing machines which comprise a rotary hat-block and means for automatically moving an iron over a hat on the block; and it contemplates the provision in such a machine of simple and reliable mechanism calculated to automatically move an iron in a horizontal plane around a hat—i. e., forwardly on the side of the hat at one side of the hat-block, across the tip of the hat, and rearwardly on the side of the hat at the opposite side of the hat-block in the order named and then back to the point of starting—the iron being at all times yieldingly held against the hat and susceptible of manipulation by hand either to increase or diminish the pressure or to entirely disengage the iron from the hat. The movement of the iron in a horizontal plane to and fro around the hat may by reason of my improvements be accomplished with but a minimum amount of power, and such movement of the iron is also advantageous, since in addition to thoroughly ironing the hat the iron is enabled to materially improve the felting of the same.

The invention also contemplates the provision in a hat-machine of improved means whereby the hat-block may be very quickly and securely fixed on the rotary shaft with but a minimum amount of effort on the part of the attendant and as readily released and removed from said shaft when desired.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a side elevation of my improved machine with some of the parts in section. Fig. 2 is a detail horizontal section taken in the plane indicated by the line 2 2 of Fig. 3. Fig. 3 is a broken perspective view illustrative of the levers for moving the iron horizontally around a hat, the iron being shown in its proper operative position on the upper-

most lever. Fig. 4 is a detail elevation of the sectional yoke comprised in the improved means for fixing the hat-block on the shaft. Fig. 5 is a detail view illustrating a portion of the forked lever and portions of the links also forming part of said means. Fig. 6 is a detail section illustrating the stop-pin for limiting the inward movement of the iron-carrying lever, and Fig. 7 is a detail horizontal section taken in the plane indicated by the line 7 7 of Fig. 1 and illustrating the intermeshed rack and pinion.

In the said drawings similar letters of reference designate corresponding parts in all of the several views, referring to which—

A is a main frame having boxes *a*, in which is journaled a primary shaft B.

C D are the usual fast and loose pulleys on the rear end of the shaft, and E is the usual hat-block at the forward end of the shaft. The said block has a central hub in which is a socket receiving a centering-pin on the shaft, as disclosed in my Letters Patent No. 421,513, of February 18, 1890, but not herein shown, and it is removably secured on the shaft through the medium of certain improved mechanism, which will now be described.

F F are chuck-jaws which rest in longitudinal grooves in shaft B and are held against endwise movement or creeping thereon after the manner fully disclosed in my aforesaid Letters Patent.

G is a collar surrounding and movable on the jaws F and provided with a circumferential groove *e*.

H is a yoke surrounding the collar G and seated in the groove thereof.

I is a forked operating-lever fulcrumed on one of the boxes *a* of the frame, and J J are links disposed at opposite sides of the box and interposed between and connecting the forks of the lever and the yoke H. The yoke, as shown in Fig. 4, is composed of two sections *f*, which abut against each other at their upper ends, have parallel depending portions *g* at their lower ends connected by a bolt *h*, and also have lateral threaded studs midway their height, the latter to receive the links J and the nuts which secure the same on the yoke. From this it follows that the yoke may be quickly and easily secured on the collar G and connected to the links J,



and it will also be observed that when the forked lever is rocked the thrust or pull exerted on the yoke and collar by the links J is in the direction of the length of shaft B, and consequently the collar may be quickly moved through the medium of the lever and the jaws F caused to tightly clutch the block-hub, and this with but a minimum amount of effort on the part of the operator. The forked lever is normally held in the position shown in Fig. 1 by a spring *k*, interposed between its upper arm and the rear box *a* of the frame, this to retain the collar G in the position shown, and thereby bind the chuck-jaws F against the before-mentioned hub of the block and cause said block to turn with the shaft when the latter is rotated. When the forked lever is rocked in the direction indicated by arrow in Fig. 1 and the collar G is drawn rearwardly, a spring *j*, interposed between the chuck-jaws F, will force said jaws out of engagement with the hub of the hat-block, and the said block may then be readily removed from the shaft. In order to fasten a hat-block on the shaft, the attendant has but to rock the lever I in the direction indicated by arrow, adjust the block on the shaft, and then release the lever, when the spring *k* will return the lever to the position shown, and the jaws F, engaging the hub of the block, will securely fix the same on the shaft.

K is a lever fulcrumed adjacent to one of its ends on the frame A and movable in a vertical plane, and L is a short shaft journaled in the lever and bearing a worm-wheel M. The wheel M is preferably fixed to the short shaft and is designed to be intermeshed with a worm N, fixed on the shaft B, for a purpose presently described.

P is a pin extending laterally from the frame and having for its purpose to support the lever K when the latter is dropped.

Q is a spring-pressed dog pivoted in the lever K and adapted when the lever is raised to its uppermost position to spring into a depression in the frame A, and thereby secure the lever in such position.

R is a rectilinearly-movable bar, which is mounted in guides *l m* on the frame and is provided on its forward portion with a rack *n*.

S is an upright arm fixed on the bar R, and T is a link pivotally connected to the arm S and adjustably connected to the worm-wheel M through the medium of a wrist-pin *p*, adjustably secured in a radially-extending slot *r* of said wheel. By virtue of this construction it will be observed that incident to each complete revolution of the worm-wheel M the rack-bar will be moved rearwardly and forwardly, or, in other words, will be reciprocated; also, that when the wrist-pin is adjustably fixed in a position nearer the center of the wheel M than that shown the throw of the bar R will be diminished to an extent corresponding to the degree of adjustment, as will also its speed.

Journaled in the forward portion of the frame A is a short vertically-disposed shaft U, and on this shaft are fixed a pinion V, intermeshed with the rack *n* of the reciprocatory bar R, and a lever W, which latter is adapted when the shaft is rotated through the rack and pinion to swing in a horizontal plane. Adjacent to its free end the lever W is provided with a post *t*, on which is pivotally mounted an outer horizontal lever X, which is preferably secured in position by a disk *u*, disposed on the post, and a screw *v*, the latter extending through the disk and into a threaded socket in the post, as shown. The said outer lever X is the iron-carrier of my improvements, and in addition to a handle Y it is provided with an upright Z, which terminates at its upper end in a lateral arm A'. Between this arm A' and the horizontal portion of the lever X is interposed the iron B', it being provided at its upper end with a hollow trunnion *a'*, journaled in the arm A' and designed for the connection of the usual gas-hose *b'*, and at its lower end with a pointed spindle stepped in the horizontal portion of the lever. By reason of this construction the iron is free to turn on its axis and accommodate itself to the configuration of a hat on the block E when it is moved over the same in the manner hereinafter described.

C' C' are sheaves mounted in short standards *d'* on the inner portion of the lever W.

D' is a cord connected to a collar *e'*, fixed on the iron-spindle *c'* and passed over the sheaves C' and thence downwardly through the tubular shaft U, and E' is a weight connected to the lower end of the cord. Said weight, connected with the iron-carrying lever X in the manner described, is calculated to yieldingly hold the iron against the hat on the block E throughout the movement of the iron over the hat, and it assists materially in enabling the iron to thoroughly iron, as well as improve, the felting of the hat.

With a view of limiting the inward movement of the lever X, I provide the same with the normally-depending stop-pin F', adapted to seat in the notch G' in the edge of the lever W when the lever X swings inwardly toward the same. The lower end of the said stop-pin is headed or upset, as shown, and the lever X is provided in its under side with a countersink *g'*, up into which the headed lower end of the pin may be drawn when it is desired to have the lever X lap or rest over the lever W.

The operation of my improved machine is as follows: The shaft B being rotated to revolve the block E and the hat (not shown) placed thereon and the lever K having been raised to place the worm-wheel M in engagement with the worm N and cause the dog Q to take into its complementary seat in the frame A, said worm-wheel will revolve in the direction indicated by arrow. (See Fig. 1.) The link T, moving with the worm-wheel, will move the rack-bar R rearwardly, and



thereby rotate the shaft U in the direction indicated by arrow and through the medium of said shaft cause the series of levers W X to swing in the same direction and move the iron B' forwardly along the side of the hat at one side of the block, across the tip of the hat, and rearwardly along the side of the hat at the opposite side of the block in the order named, the weight E' meanwhile operating to yieldingly hold the iron against the hat, so as to enable it to iron the hat in a thorough manner, as well as improve the felting of the same. Coincident with the completion of the described movement of the iron around the hat and when said iron is adjacent to the base or brim of the hat at the side of the block opposite to that from which it started the wrist-pin *p* passes the horizontal center of the wheel M, when the direction of movement of the bar R will be reversed and the iron will be moved forwardly on the hat at the side of the block last mentioned, across the tip of the hat, and rearwardly on the hat at the first-mentioned side of the block to the point of commencement. If the dog Q on lever K be now disengaged from its complementary seat in the frame A and the lever permitted to drop, the bar R, shaft U, and levers W X will be rendered idle and the ironing operation stopped; but if the said dog Q is let remain in engagement with the seat in the frame the operation described will be repeated—*i. e.*, the iron will again be moved to and fro around the hat.

By reason of the adjustable connection described between the link T and worm-wheel M the throw and speed of the bar R and the extent of the movements imparted to the levers W and X may be readily regulated to suit the block employed on the shaft B.

At all times during the operation of the machine the iron may be manipulated by hand through the medium of the handle Y, either to alter the pressure or entirely disengage the iron from the hat.

It is obvious that the hat-block chuck and many other parts of the hat-ironing machine described may be used to advantage in hat-machines of other descriptions, and I therefore do not desire to be understood as confining myself to the employment of my improvements in a hat-ironing machine.

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

1. In a hat-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame, whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and means for swinging the levers on the vertical pivot on the frame.

2. In a hat-machine, the combination of a

frame, a hat-support, means for rotating the support, an inner horizontal lever supported by and having a vertical pivot on the frame whereby it is enabled to swing in a horizontal plane, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, means for causing said device to press against work on the support, and means for swinging the levers on the vertical pivot on the frame.

3. In a hat-machine, the combination of a frame, a hat-support, means for rotating the support, an inner horizontal lever, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, an upright, tubular shaft journaled in the frame and fixed to the inner lever, means for turning said shaft, one or more sheaves on the inner lever, a cord passed around the sheave or sheaves and down through the tubular shaft, a weight on said cord, and a connection between the cord and the device on the outer lever.

4. In a hat-machine, the combination of a frame, a primary shaft having thereon a hat-support, an inner horizontal lever supported by and having a vertical pivot on the frame, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, a device carried by the outer of said levers for operating on work on the support, and mechanism intermediate of the primary shaft and the inner lever for swinging the levers to and fro in a horizontal plane on the vertical pivot on the frame.

5. In a hat-ironing machine, the combination of a frame, a primary shaft having a hat-block thereon, an inner horizontal lever, an outer horizontal lever connected by a vertical pivot to the inner lever so as to swing horizontally thereon, an upright rising from the outer of said levers and having a lateral branch at its upper end, an iron interposed between said branch and the outer lever and having a trunnion journaled in the former and a pointed spindle stepped in the latter, an upright tubular shaft journaled in the frame and fixed to the inner lever, one or more sheaves on said inner lever, a cord connected to the iron-spindle and passed around the sheave or sheaves and down the tubular shaft, a weight on said cord, and mechanism intermediate of the primary shaft for swinging the levers to and fro in a horizontal plane.

6. In a hat-machine, the combination of a frame, a spindle, chuck-jaws movable in and out on the spindle and held against endwise movement with respect thereto, the sliding, circumferentially-grooved collar surrounding said jaws, the sectional yoke surrounding said collar and arranged in the groove thereof, the forked operating-lever fulcrumed on the frame, and the links disposed at oppo-



site sides of and extending in the same direction as the spindle, and connecting the forks of the lever and opposite sides of the yoke.

7. In a hat-machine, the combination of a  
5 frame, a primary shaft having a hat-support thereon, and also having a worm, a worm-wheel adapted to receive motion from said worm, and having a radial slot, and a wrist-pin adjustably secured therein, a reciprocatory  
10 bar, a link interposed between and pivotally connected to the bar and the wrist-pin, and adjustable toward and from the center of the

worm-wheel, a device for operating on work on the support, and means carrying said device and adapted to receive motion from the 15 reciprocatory bar.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES H. REID.

Witnesses:

JOHN C. DORAN,  
EUGENE C. DEMPSEY.