

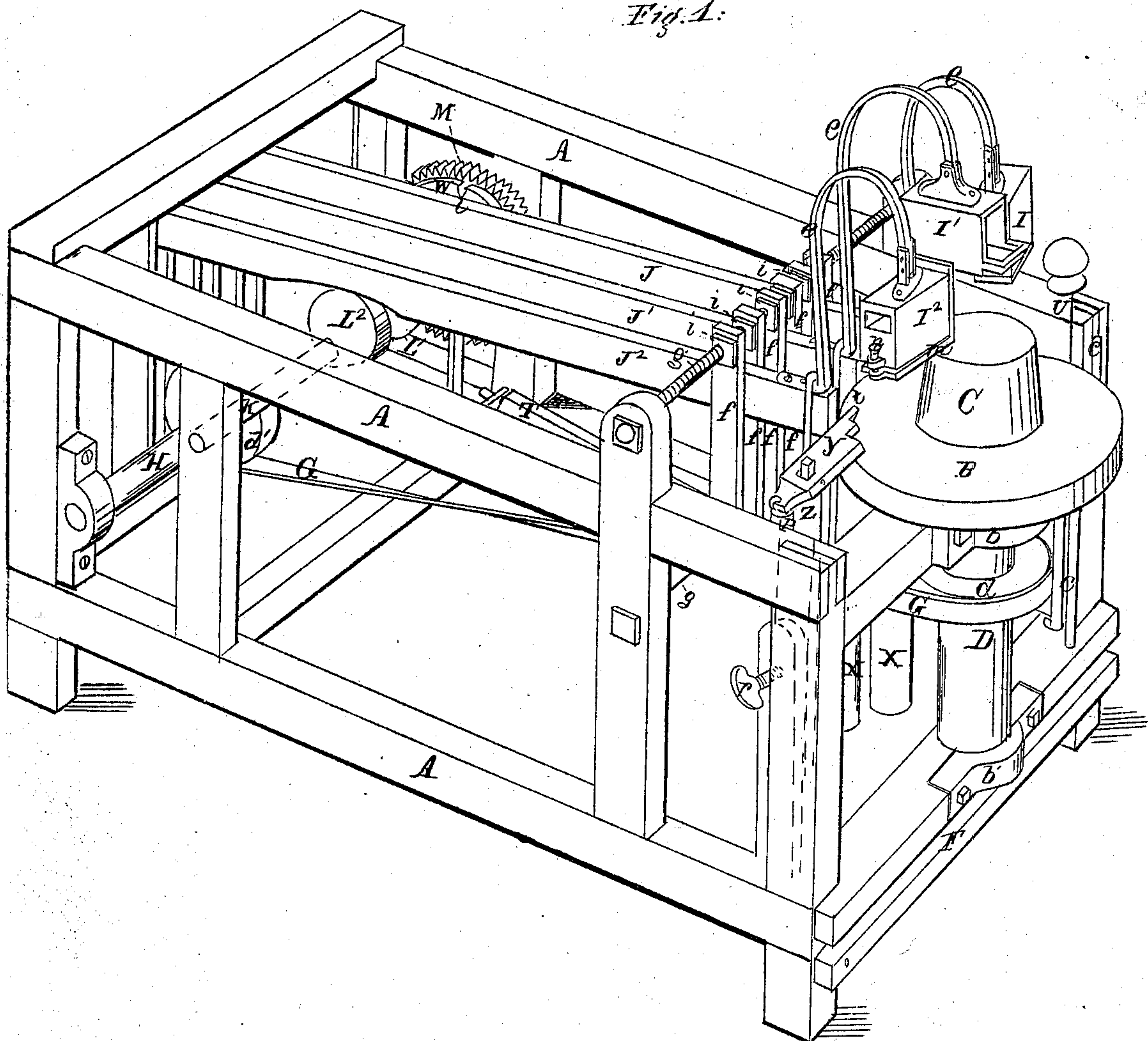
*J. Stearns,  
Ironing Hats.*

*2 Sheets, Sheet 1.*

*No. 8213.*

*Patented July 8. 1851.*

*Fig. 1.*



J. Stearns,  
Ironing Hats.

No. 8213.

Patented. July. 8. 1851.

Fig. 2.

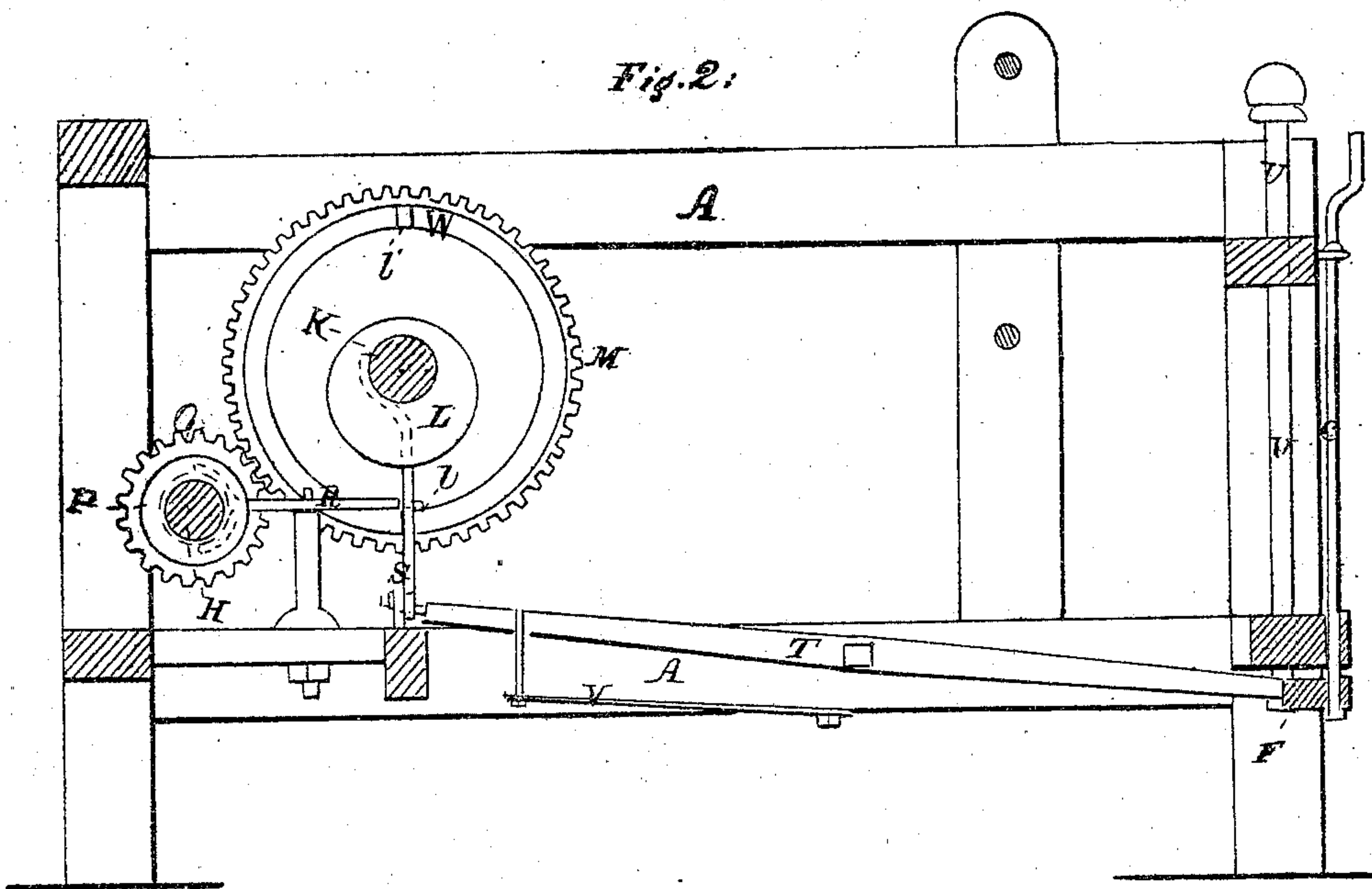


Fig. 3.

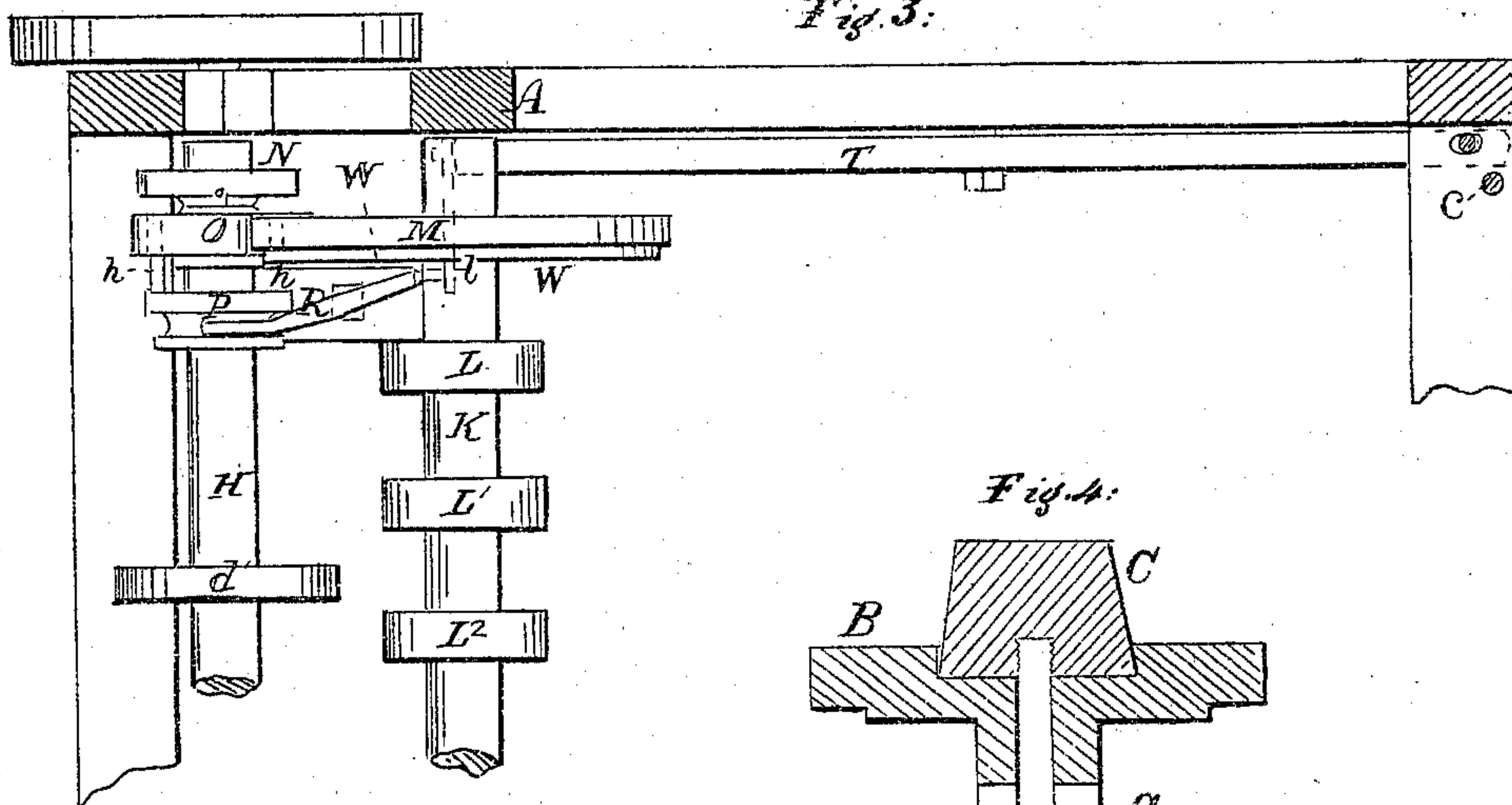
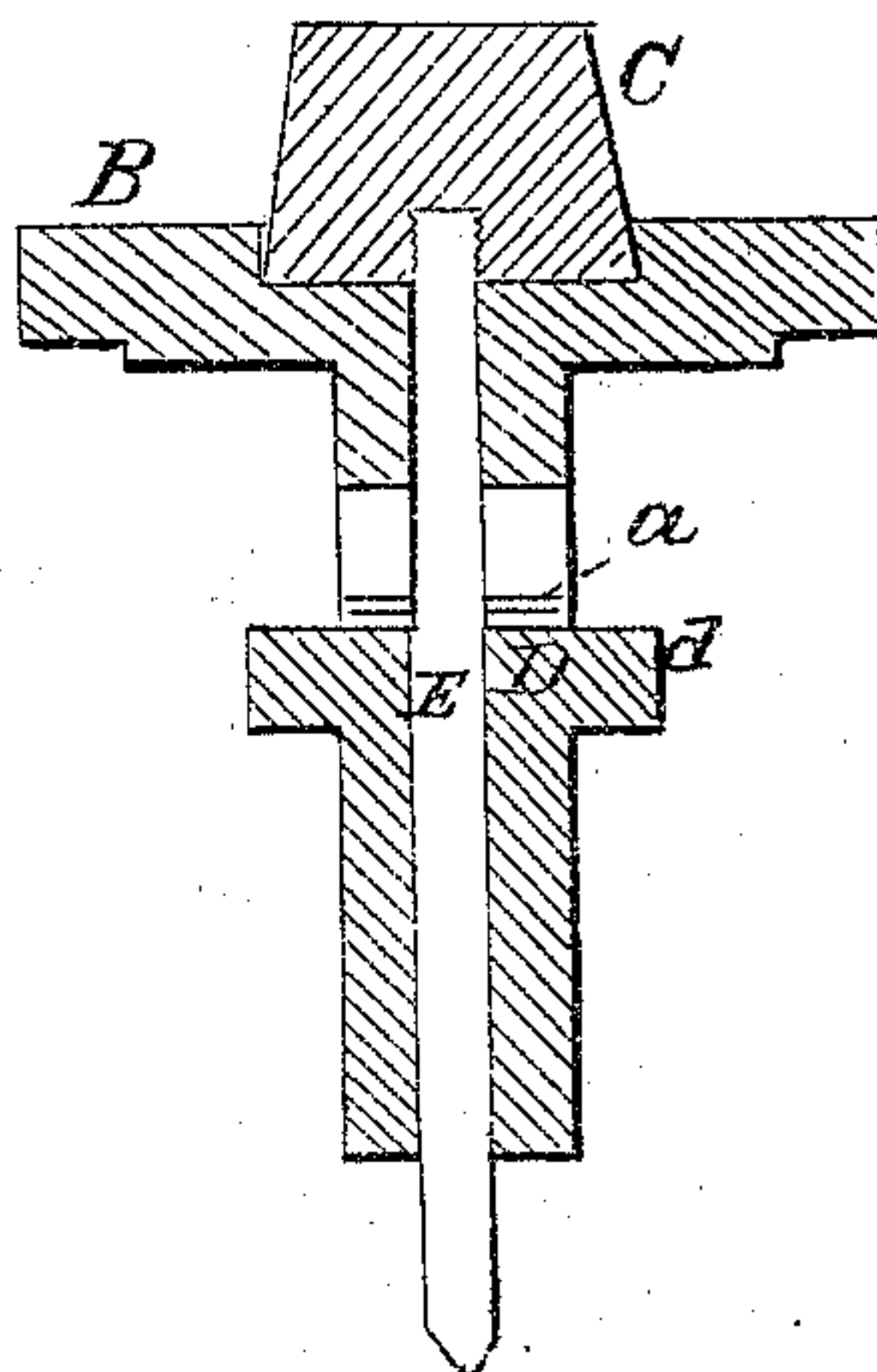


Fig. 4.





# UNITED STATES PATENT OFFICE.

JOHN STEARNS, OF TEMPLETON, MASSACHUSETTS.

## MACHINE FOR PRESSING HATS.

Specification of Letters Patent No. 8,213, dated July 8, 1851.

*To all whom it may concern:*

Be it known that I, JOHN STEARNS, of Templeton, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Machines for Pressing Palm-Leaf Hats, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my machine complete, Fig. 2 represents a vertical longitudinal section of the same, Fig. 3 is a plan of a portion of the same and Fig. 4 is a vertical section through the pressing block and its shaft.

My invention consists in a series of mechanical devices by which the several flats or smoothing irons of a palm-leaf hat press are supported and actuated, and which, while admitting of variation almost without limit, are constructed, arranged, and combined in such manner that they are under the control of the operator, who by a momentary movement can cause the mechanism to lower the whole set of flats upon the hat block, and by a like movement can cause the mechanism to raise the whole set from the hat block; the flats remaining in either position without requiring any exertion of force on the part of the operator who directs their movement.

The several parts of the machine as represented in the accompanying drawing are secured to a strong frame A. At the front extremity of this frame is the hat block; which consists of two portions, the table B and the crown block C; the table consists of a round disk and is mounted upon the upper extremity of an upright tubular shaft D which is traversed by an inner solid shaft E, to whose upper extremity the crown block C is secured; this inner shaft is connected with the tubular shaft by a pin *a*, passing through slots in the latter (as shown at Fig. 4), so that the inner shaft can be raised or depressed within the tubular shaft but is forced to turn with it. The shafts thus connected are supported in boxes *b*, *b*<sup>1</sup>, attached to the front rails of the frame. The upper box (*b*) steadies the upper extremities of the tubular shaft, the lower box (*b*<sup>1</sup>) encircles the lower extremity of the inner solid shaft which projects beyond the tubular and is stepped upon an adjustable bridgetree F, beneath. The latter is pivoted at one extremity to one side of the frame and is suspended at its

other extremity by an adjustable screw *c* by turning which, the inner shaft can be raised or lowered in the outer or tubular shaft. The upper face of the table B has a socket formed in it of sufficient diameter to admit the lower extremity of the largest crown block which may be required, and of sufficient depth to allow it to be depressed in the socket the requisite distance to suit the lowest crowned hat. The tubular shaft D is fitted with a belt pulley *d* to which a belt G is applied which encircles a corresponding pulley *d*<sup>1</sup> on a driving shaft H at the hinder extremity of the main frame.

The flats or heated boxes by means of which the hats are pressed, are three in number I, I<sup>1</sup>, I<sup>2</sup>. Each of them is connected by a curved stem *e* with a particular lever J, J<sup>1</sup>, J<sup>2</sup>, which is pivoted at its hinder extremity to the hinder end of the frame, and is guarded at its front extremity by a pair of adjustable guides *f* *f*. The latter are hung upon a pair of screw rods *g*, *g*, and are fixed in their proper positions by nuts *i* which can be turned to move the guides for the purpose of adjusting the flats to suit the different sized hats. These levers pass over a cam shaft K which extends across the machine parallel with the driving shaft H and is fitted with three eccentric cams L, L<sup>1</sup>, L<sup>2</sup>, which correspond in position with the three levers J, J<sup>1</sup>, J<sup>2</sup>, above. These cams are of such shape that when the shaft is in the position in which it is represented at Fig. 2 the cams do not touch the lower faces of the levers, and hence the flats will then press upon the hat block with their full force; while if the cam shaft be turned half around the projecting portions of the cams acting upon the lower faces of their appropriate levers will raise the latter and the flats secured thereto a sufficient distance above the hat block (as shown at Fig. 1) to admit of the removal or application of a hat thereupon.

The cam shaft is fitted with a cog-wheel M whose teeth engage with those of a corresponding pinion O secured to a loose sleeve on the driving shaft H. This shaft has a disk N secured to it, from which two snugs *o* are projected toward the adjacent face of the pinion. The latter is perforated to admit the two pins *h* *h* of a sliding clutch block P, whose periphery is grooved to receive the forked extremity of a clutch lever R by moving which the pins can be pushed far enough



through the pinion O to be within the range of the snugs *o* on the disk N. When therefore the pins are in this position, the pinion (O) the wheel (M) driven thereby, and the cam shaft (K) with its cams, will be forced to revolve with the driving shaft H; and when the pins *h h* are not in gear with the snugs *o*, the pinion (O), wheel (M), cam shaft (K), and cams *L L<sup>1</sup> L<sup>2</sup>*, will remain at rest. The clutch lever R is connected by means of a bell crank S with the hinder extremity of a secondary lever T, whose front extremity extends to the front rails of the frame and is there fitted with a rod U, by depressing which the clutch block P is moved to throw the pins *h h* in gear with the snugs *o*; the hinder extremity of the lever T is acted upon by a spring V whose tendency is to throw the clutch block and its pins out of gear.

The inner face of the cog wheel M is fitted with a ring flange W which projects sufficiently to hold the upright arm of the bell crank S in the position in which it is placed by the movement of the lever T when the pins of the clutch block are in gear; and two slots *l l'*, of sufficient size and depth to admit the upright arm of the bell crank when the clutch pins are out of gear, are formed in the opposite sides of this ring flange; one of the slots *l'* being in such a position with respect to the cams *L, L<sup>1</sup>, L<sup>2</sup>*, and bell crank S that the latter is received into it when the cams have raised the levers to their highest positions; while the other slot *l* is in such a position that it will receive the arm of the bell crank when the cams have allowed the levers to sink to their lowest positions.

In order to obtain the requisite pressure each lever is loaded with a weight X; and in order to press the sides of the crown of the hat one of the boxes or flats *I<sup>2</sup>* is fitted with an adjustable face *m* which can be set by means of a screw *n* to fit the taper of the crown. This box is also pressed against the side of the crown by means of a lateral brace bar Y, which is pivoted to the upper extremity of a spring standard Z and is held in the inclined position in which it is represented in Fig. 1 by means of a weight *p*. As the box *I<sup>2</sup>* descends a pin projected from its hinder side strikes a horn *t* on the extremity of the brace bar and forces it to assume a horizontal position; in attaining which, the brace bar forces the box against the side of the crown. The force with which the spring standard acts is adjusted by means of a set screw *r*.

When hats are to be pressed with this machine the several parts of it are set in the positions in which they are represented in Fig. 1 and the driving shaft is caused to revolve by applying power to it from some available prime mover. The pressing boxes are heated by a hot block of iron introduced

within them or in some other convenient manner. The hats to be pressed are then applied successively to the block, the crown block C being adjusted by the screw *c* to the height of the crown. The hand of the operator is then applied to the knob of the rod U and the latter is depressed; this depression of the rod (U) moves the secondary lever T, the bell crank S and the clutch lever R; by this movement the arm of the bell crank is moved out of the slot (*l'*) in the ring flange, while at the same time the clutch pins are thrown into gear by the movement of the clutch lever R. As soon as the snugs *o* in their revolution strike the clutch pins the pinion P begins to turn with the driving shaft; as the pinion turns, its teeth acting upon those of the cog-wheel M turns the latter and also the cam-shaft with its cams. As soon as the cog-wheels begin to turn that slot (*l'*) in the ring flange from which the arm of the bell crank was ejected is moved past the arm, and hence if the hand of the operator be withdrawn from the rod U the bell crank and the clutch connected therewith will be prevented from throwing the clutch pins out of gear by the action of the ring flange against which the arm of the bell crank bears, notwithstanding the action of the spring V which tends to effect this throwing out of the clutch. The cam shaft and cams will therefore continue to revolve and thus lower the flats upon the hat until the next slot (*l*) in the ring flange arrives opposite the arm of the bell crank S which is immediately drawn into the slot by the action of the spring V. As the arm enters the slot *l* the clutch lever R moving with it draws the clutch pins out of gear by which operation the movement of the pinion and consequently that of the cog-wheel and cam shaft with its cams is stopped. This slot *l* is, as before stated, in the proper position to admit the arm of the bell crank when the cams have lowered the levers to their lowest positions, and consequently the flats now bear with their full force upon the hat applied to the revolving hat block and thus press it into shape and smooth it. When the pressing of the hat is completed the operator again applies his hand to the boss or knob of the rod U, to depress the latter a second time; by this movement the arm of the bell crank is thrown out of the slot *l* in the ring flange, the clutch pins are thrown into gear, and the cam shaft will be turned by the action of the pinion and wheel; as the cam shaft turns the cams acting upon the lower faces of the levers *L, L<sup>1</sup>, L<sup>2</sup>*, raise them and also the flats connected therewith from the hat; this upward movement of the flats is continued until the levers and flats regain their highest position as shown at Fig. 1 when the arm of the bell crank again enters the appropriate slot (*l'*) in the ring



flange, and allows the clutch pins to be thrown out of gear by the action of the spring, by which operation the further movement of the cam shaft and cams is stopped. The several parts of the machine now occupy the same positions as they did when the hat was applied to the hat block, and the operator removes the pressed hat and applies an unpressed one to the hat block which is pressed by a repetition of the above described operations.

From the foregoing description it is evident that the whole operation of bringing the flats in contact with the hat and of raising them therefrom is effected by machinery which requires only the momentary pressure of the operator's hand to cause it to operate. The operator can therefore direct his whole attention to the manipulation of

the hats and as the pressure of the foot upon the secondary lever (T) may be substituted for the pressure of the hand, the operator's hands may be used exclusively to apply the hats and remove them when pressed.

What I claim as my invention and desire to secure by Letters Patent is—

The method of alternately lowering the pressing irons upon the hat block and raising them therefrom by mechanism operating substantially as herein described which is readily controlled by the attendant.

In testimony whereof I have hereunto subscribed my name this nineteenth day of February 1851.

JOHN STEARNS.

Witnesses:

ARTEMOS LEE,  
JOSEPH SNOW.