(No Model.) 2 Sheets—Sheet 1.

A. DE LASKI & E. SHAW.

HAT IRONING MACHINE.

No. 273,670. Patented Mar. 6, 1883.

Fig. 2.

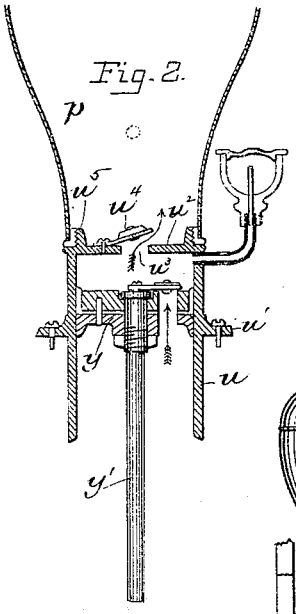


Fig. 3.

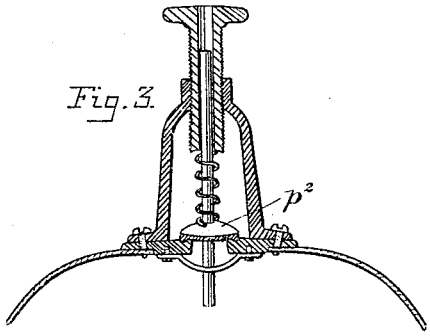


Fig. 4.

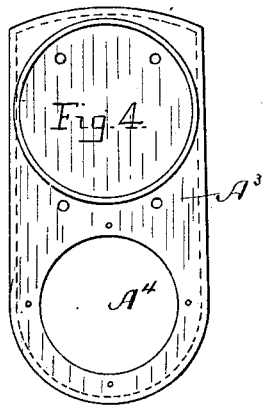


Fig. 1.

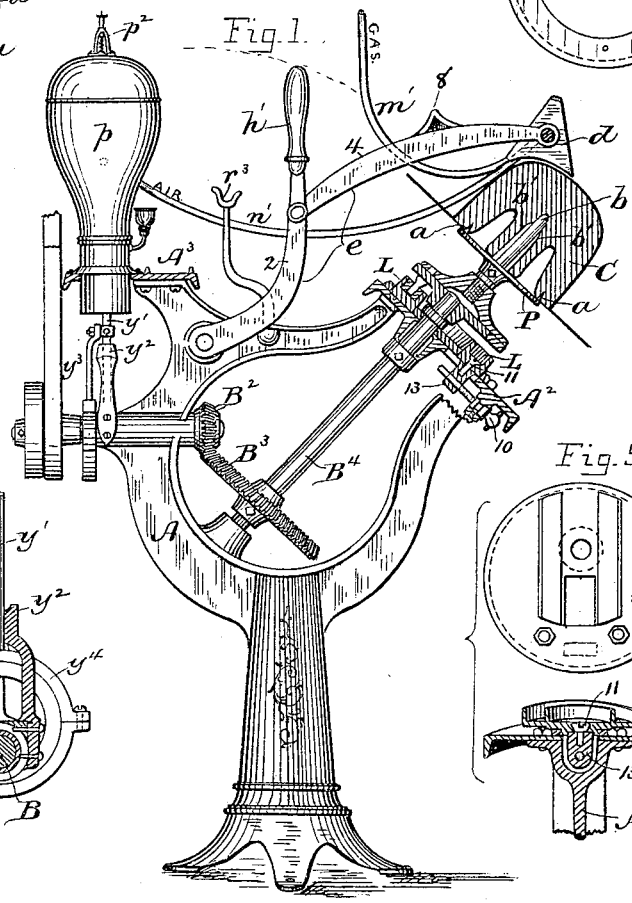
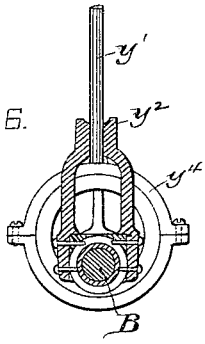


Fig. 5.

Fig. 6.



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(No Model.) 2 Sheets—Sheet 2.

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HAT IRONING MACHINE.

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Fig. 7.

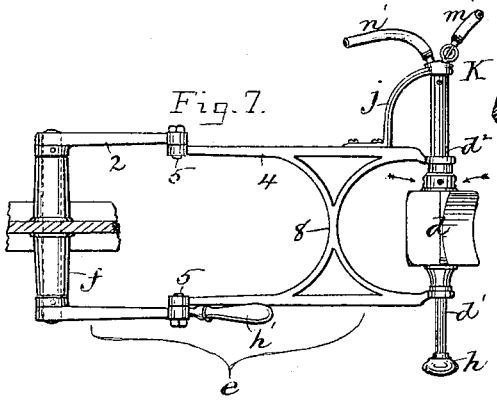


Fig. 8.

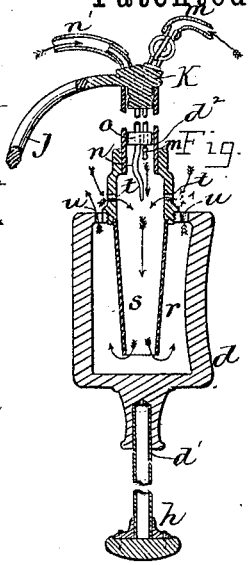


Fig. 9.

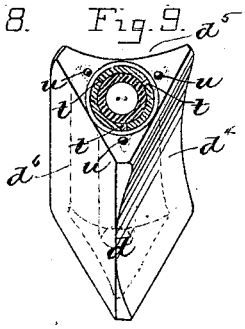


Fig. 10.

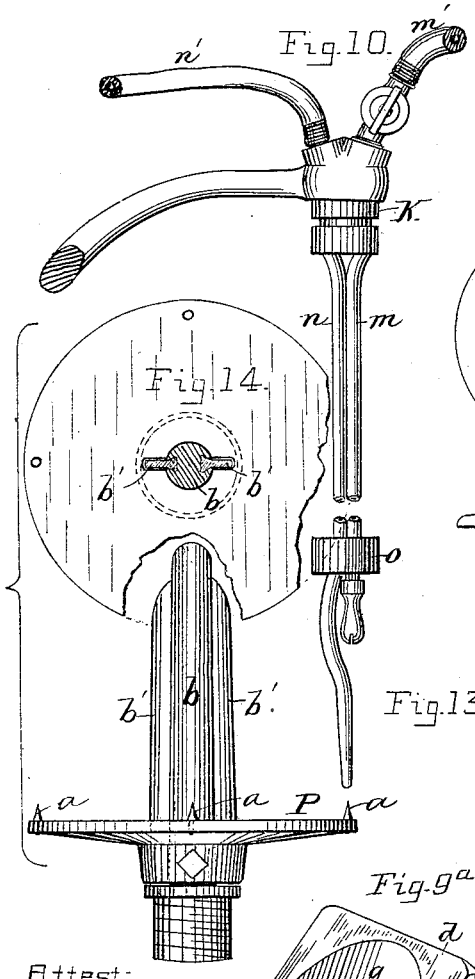


Fig. 11.

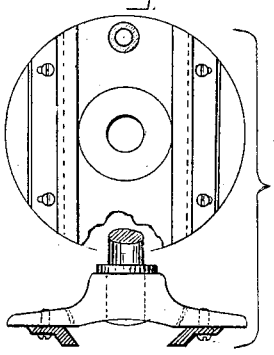


Fig. 12.

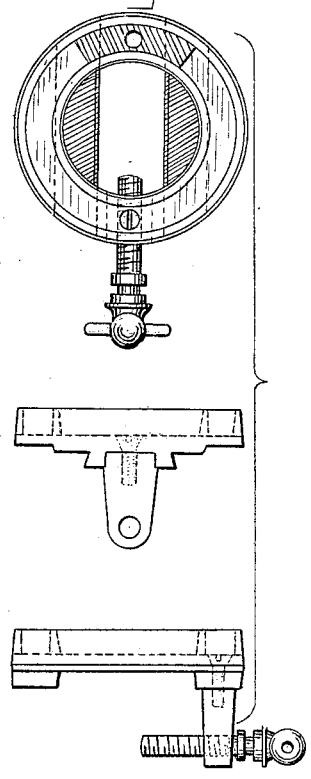


Fig. 13.

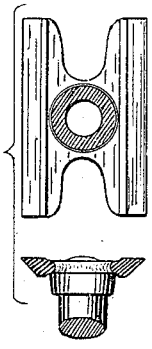


Fig. 14.

Fig. 9a

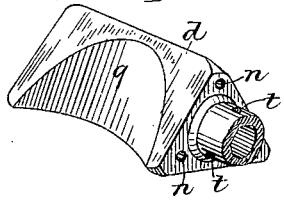
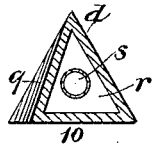


Fig. 9b



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UNITED STATES PATENT OFFICE.

ALBERT DE LASKI AND EDGAR SHAW, OF LYNN, MASSACHUSETTS, ASSIGNORS TO SAID SHAW, TRUSTEE.

HAT-IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,670, dated March 6, 1883.

Application filed December 13, 1882. (No model.)

To all whom it may concern:

Be it known that we, ALBERT DE LASKI and EDGAR SHAW, both of Lynn, in the county of Essex and State of Massachusetts, have invented certain Improvements in Hat-Ironing Machines, of which the following is a specification.

This invention is an improvement on that described in Letters Patent of the United States, No. 246,297, granted August 30, 1881, to A. De Laski, and involves the employment of an oval lathe to support the hat-block and an iron heated by gas and air under pressure, said iron being movable, so as to act on any part of the hat-body.

The present invention has for its object to enable the iron to be controlled by the operator instead of being automatically operated, as in said patented invention, and to provide certain improvements relating to the means for supporting and operating the iron, to the construction of the iron, and to the means for supplying air, under pressure, to the iron.

To these ends our invention consists in the improvements hereinafter described and claimed.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation, partly in section, of a hat-ironing machine embodying our invention. Figs. 2 to 14, inclusive, represent views of details.

The same letters of reference indicate the same parts in all the figures.

In the drawings, A represents the frame of the machine, supporting the operating portions hereinafter described.

B represents the driving-shaft, which is rotated by a belt, and has at its inner end a bevel-pinion, B^2, meshing with a bevel-wheel, B^3, on the inclined shaft B^4, said shaft giving motion to the oval lathe, on which the hat-block C is supported. The oval lathe is constructed, excepting as to certain minor details, in the manner described and shown in the above-named Letters Patent, the top plate, P, of said lathe, on which the hat-block rests, being rotated in an oval path, which is adjustable to adapt it to conform in shape to the crown of the hat to be ironed. The novelty in the oval lathe consists in locating the adjusting-screw 10, which adjusts the position of the grooved guide-plate L of said lathe below the inclined portion A^2 of the frame A instead of above the same, as described in the former patent, so that said screw can by no possibility interfere with the cord encircling the hat-body and depending therefrom. The ear 13 of the ring L, that receives the screw 10, is detachably secured to said ring by means of a screw, 11, and projects through a slot in the inclined portion A^2. The top plate, P, has a series of spurs, *a*, adapted to enter the base of the hat-block, and a central chuck or spindle, *b*, having longitudinal wings or flanges *b' b'*. The hat-block has a corresponding socket adapted to fit said chuck and its flanges, the latter preventing the block from rotating on the chuck.

d represents the hat-iron, which has two or more operating or ironing sides, as hereinafter described, and is provided at one end with a closed trunnion, *d'*, and at its opposite end with an open or tubular trunnion, d^2. Said trunnions are adapted to rotate freely in bearings formed at the outer end of a jointed supporting-frame, *e*, composed of a primary frame, 2, journaled in an elongated bearing, *f*, on the frame A, and a secondary frame, 4, pivoted to the primary frame at 5 5, and having bearings 6 6 for the trunnions of the iron. The primary frame is composed of the transverse arbor or rock-shaft journaled in the bearing *f*, and two arms rigidly attached to said arbor, one of said arms being extended to form a handle, *h'*, and the secondary frame is composed of two side pieces rigidly connected by transverse braces 8, as shown in Fig. 7. It will be observed that the described construction of the supporting-frame *e* enables the iron to have what may be termed a "parallel" movement—that is to say, it is free to move laterally in any desired direction—so as to move progressively from the top of the crown to the base of the body of the hat; but its axis is always parallel with a given line, and cannot be inclined or tipped longitudinally from such parallelism, the supporting-frame being so constructed and supported as to be incapable of any torsional movement at its outer end. This manner of supporting the iron enables the operator to control it perfectly and present it to the best advantage to the hat. The closed trunnion *d'* of the iron has a knob or

handle, h, and the frame e has a handle, h' previously described, said handles h and h' being grasped by the hands of the operator during the ironing operation.

j represents an arm rigidly attached to the outer part, 4, of the frame, and supporting at its outer end a block or boss, K, projecting into the outer end of the tubular trunnion d^2, said boss fitting loosely in said trunnion, so that the latter can rotate freely on the boss.

m n represent respectively gas and air pipes passing through and secured rigidly to the boss K and projecting into the tubular trunnion d^2. The gas-pipe m terminates in a burner at its inner end, and the air-pipe n is extended farther inwardly than the gas-pipe, and is offset at its end so that its discharge-orifice is directly in line with the burner.

o represents a collar connecting the pipes m n near their inner ends, said collar fitting loosely in the trunnion d^2. The pipes m n are connected respectively by flexible tubes m' n' to a source of gas-supply and to the chamber p of an air-pump supported by the frame A and operated by a connection with the driving-shaft B, as hereinafter described. The iron d has an internal chamber, r, corresponding to the external form of the iron, and into said chamber projects a tubular flue, s, forming a continuation of the trunnion d^2. Said flue is centrally located in the chamber r, and is entirely surrounded by said chamber, so that an intervening space exists between the flue and each of the operating sides of the iron, said space preventing the flame projected by the gas and air pipes into the flue s from coming in contact with the walls of the chamber r and overheating the operating sides of the iron. The inner end of the flue s opens into the chamber r, as seen in Fig. 8. In the trunnion d^2, and close to the end of the iron, are orifices t for the admission of atmospheric air into the flue s in advance of the gas-burner.

n n represent orifices or vents in the end of the iron for the escape of the heated air and products of combustion from the iron. Said vents are arranged in close proximity to the orifices t, so that a portion of the hot air escaping from the iron will re-enter the iron through the orifices t, as indicated by the arrows in Fig. 8.

The iron d is preferably triangular in cross-section, having therefore three operating sides. One of said sides, d^4, is concaved longitudinally of the iron, as shown in the Figs. 7, 8, and 9, and is thereby adapted to fit the curvature of the sides or body of the hat. Another side, d^5, is concaved laterally, as shown in Figs. 1 and 9, so as to fit the curve of the crown where the latter joins the body of the hat, as clearly shown in Fig. 1. The third side, d^6, is flat laterally and longitudinally, and is used or not, as the operator may desire.

The air-pump that supplies the air under pressure to the chamber p, and from the latter to the iron d, is composed of a cylinder, u, having a flange, v, that is bolted to a horizontal plate, A^3, rigidly affixed to the frame A, said plate having an orifice, A^4, (see Fig. 4,) receiving the cylinder u. The lower end of the cylinder u is open, and the upper end has a head, u^2, having an opening, n^3, and a downwardly-closing valve, u^4, secured to the upper side of said head.

u^5 represents a threaded flange on the upper side of the head u^2. To said flange the chamber p is screwed, the latter being internally threaded at its lower end or mouth. The chamber p is thus made easily removable, so that the valve n^4 can be conveniently reached for repairs, &c.

y represents the valved piston of the air-pump. The rod y' of said piston is guided at its lower end in a yoke, y^2, rigidly attached to the frame A, and to said rod is pivoted a short rod, y^3, attached to an eccentric, y^4, on the driving-shaft B. The rotation of the driving-shaft causes the eccentric to reciprocate the piston, and thus force air into the chamber p. It will be seen, therefore, that one and the same driving-shaft rotates the hat-block and operates the air-pump. The chamber p is provided with a spring safety-valve, p^2. (Shown in section in Fig. 3.)

We do not limit ourselves to the improvements in the iron—viz., the arrangement of the flue s and the concave sides d^4 and d^5, in an iron adapted for use only in an ironing-machine—for it is obvious that said improvements may be applied to a hand-operated iron.

r^3 represents a forked standard, attached to the frame A and adapted to support the cross-bar or brace 8 of the frame e, and thus support the iron in a raised position away from the hat-block. The standard r^3 has a backward curvature, as shown, which makes it somewhat yielding or springy, so that when the cross-bar 8 is dropped suddenly upon the standard the shock or jar caused thereby will be somewhat relieved and breakage will be avoided.

We have shown in Figs. 9^a and 9^b a triangular iron having in one of its sides a concavity, 9, including only a part of the length and width of the side in which it is formed, and having a different angle in the cross-section of the iron from the other portion of the side of the iron in which the concavity is formed. The adjoining side, 10, of the iron is flat and partly cut away by the concavity 9, so that the intersection of said concaved and flat sides forms a longitudinally-concave angle which is acute at all points. The flat side 10 is thus adapted to press the brim of a hat, the concave acute angle being adapted to fit closely against the hat-body under the incircling cord. When the flat side 10 rests on the brim of a hat the concave side 9, being at an acute angle with said flat side, affords a space between the side of the hat-body and the side of the iron adjacent thereto, so that the operator can observe the concave edge of the operating side 10. This feature—viz., a flat side having a concave acute-angled edge formed by the intersection with said flat side of a concave side at an acute

angle with the flat side—may be used in a hand-operated iron. The axis of the oval lathe is inclined, as shown in Fig. 1, so that the crown and sides of the hat-body are both about equally inclined from a vertical line, and will therefore both receive about the same degree of pressure from the iron. It will be seen that the jointed frame *e* permits the entire weight of the iron to bear upon the inclined sides and crown of the hat, so that the iron requires no pressure against the hat by the operator, who simply has to move the iron back and forth by means of the handle *h'* on the jointed frame.

We are aware that an iron having a flat and a concave side forming an acute angle has been before used. Hence we do not claim the same, broadly.

We claim—

1. In a hat-ironing machine, a rotatable hat-support having its axis inclined, as described, to enable the crown and the sides of the body to receive alike the downward pressure of the hat-iron, combined with the pivoted iron adapted to be heated by gas and air, and the jointed frame *e*, connecting the iron to a fixed support, said frame adapting the iron to be moved by the operator with a parallel motion over the crown and body of the hat, and enabling the entire weight of the iron to bear upon the hat, as set forth.

2. In a hat-ironing machine, a rotatable hat-support having its axis inclined, as described, combined with an iron adapted to be heated by gas and air, and a jointed frame, *e*, to which the iron is pivoted, said frame being constructed, substantially as described, to permit the iron to bear downwardly on the hat with its entire weight and to enable the operator to move the iron back and forth, while bearing by its own weight on the hat, as set forth.

3. In a hat-ironing machine, the combination, with the iron having trunnions or journals projecting from its ends, of the primary frame composed of a rock-shaft journaled in an elongated bearing, *f*, in the fixed frame of the machine, two arms rigidly attached to the rock-shaft, one of said arms being provided with a handle, *h'*, and the braced secondary frame pivoted at 5 5 to the primary frame, and having bearings for the trunnions of the iron, said primary and secondary frames composing a jointed supporting-frame, whereby the iron is permitted to bear with its entire weight on the hat, and is adapted to be moved back and forth on the hat by the operator, as set forth.

4. The combination, with the iron and its jointed supporting-frame having a cross-bar, of the forked yielding standard r^3, adapted to support said cross-bar and hold the frame and iron in the inoperative position of the latter, as set forth.

5. The combination of the trunnioned iron having a handle, *h*, on one of its trunnions, the jointed frame *e*, pivoted to a fixed support at one end, so as to swing vertically, supporting the trunnions of the iron at its free end, jointed at 5 5 between its pivoted and free ends, and provided with the operating-handle *h'*, as set forth.

6. The iron having the closed trunnion *d'* and the tubular trunnion d^2, combined with the jointed supporting-frame *e*, having the bearings for said trunnions, and a block, K, rigidly connected to the frame *e*, and projecting into the tubular trunnion to support the gas and air pipes entering said trunnion, as set forth.

7. The combination, with the iron having the trunnions *d' d²*, the supporting-frame *e*, having the bearings for said trunnions, and the block K, located at the outer end of the hollow trunnion, and the gas and air pipes passing through the block K, and connected within the hollow trunnion by a collar fitting loosely in said trunnion, as set forth.

8. A journaled iron having two or more operating sides, a central chamber having vents or outlets at one end, and a central flame-receiving flue entering the same end of said chamber, and terminating near the opposite end, said flue being separated by an intervening space from each of the sides of the iron, whereby the flame is prevented from coming in direct contact with either of the sides, the heated products of combustion being conducted along said sides from end to end of the iron, as set forth.

9. A chambered iron having two or more operating sides, a hollow trunnion adapted to receive a gas and an air pipe, perforations in said trunnion to admit atmospheric air to the latter, a central flue extending into the iron from said trunnion, and vents at one end of the iron coinciding with and arranged in close relation to the orifices in the hollow trunnion, whereby a portion of the hot air escaping from the iron is caused to again enter the same, as set forth.

10. In a hat-ironing machine, the combination, with the jointed frame *e*, arranged and operating as described, of a hat-iron journaled in the free end of said frame, and having three operating sides, one being concaved laterally, another concaved longitudinally, and the third flat, as set forth.

11. In a hat-ironing machine, the combination of an oval lathe adapted to rotate a hat-block, a driving-shaft adapted to rotate said lathe, an iron adapted to be heated by gas, and an air-pump operated by a connection with said driving-shaft, and adapted to supply air under pressure to the said iron, as set forth.

12. In a hat-ironing machine, the cylinder *u*, adapted to be secured to the frame of the machine, and provided at its upper end with a valved head having a threaded flange, u^5, combined with the air-chamber threaded at its mouth and screwed upon the flange u^5, whereby said chamber is made removable to expose the head and enable access to be had to the valve thereof, as set forth.

13. In a hat-ironing machine, the chuck having longitudinal flanges, combined with a

hat-block having a corresponding socket, as set forth.

14. In a hat-ironing machine, the top plate having the spurs or points *a*, adapted to enter the base of the hat-block, as set forth.

15. The combination, with the jointed frame *e*, arranged and operating as described, of the triangular iron journaled in the free end of said frame, and having one side flat and another concaved from one edge part way across, whereby a concave surface is provided on one side and a concave acute-angled edge on the adjoining flat side, adapted to fit under the hat-cord when said flat side is used on the brim, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 9th day of December, A. D. 1882.

ALBERT DE LASKI.
EDGAR SHAW.

Witnesses:
C. F. BROWN,
A. L. WHITE.