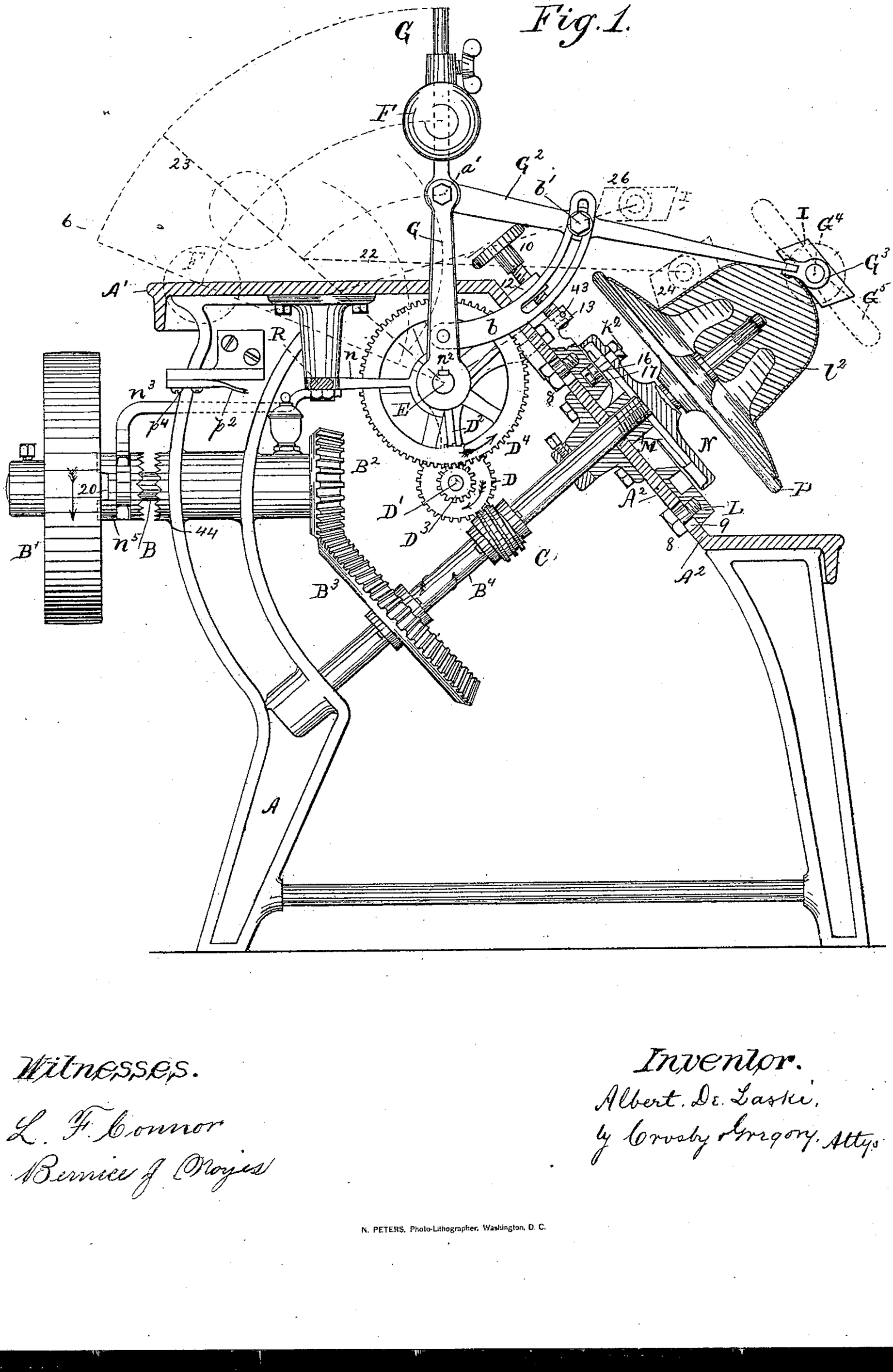
(No Model.) 3 Sheets—Sheet 1.

A. DE LASKI.

HAT IRONING MACHINE.

No. 246,297. Patented Aug. 30, 1881.

Fig. 1.



Witnesses.

L. F. Connor

Bernice J. Noyes

Inventor.

Albert. De. Laski.

by Crosby Gregory. Attys.

(No Model.) 3 Sheets—Sheet 2.

A. DE LASKI.

HAT IRONING MACHINE.

No. 246,297. Patented Aug. 30, 1881.

Fig. 2a.

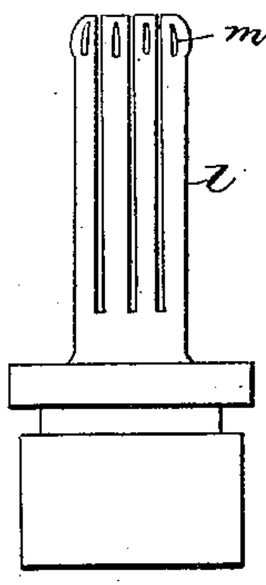


Fig. 2.

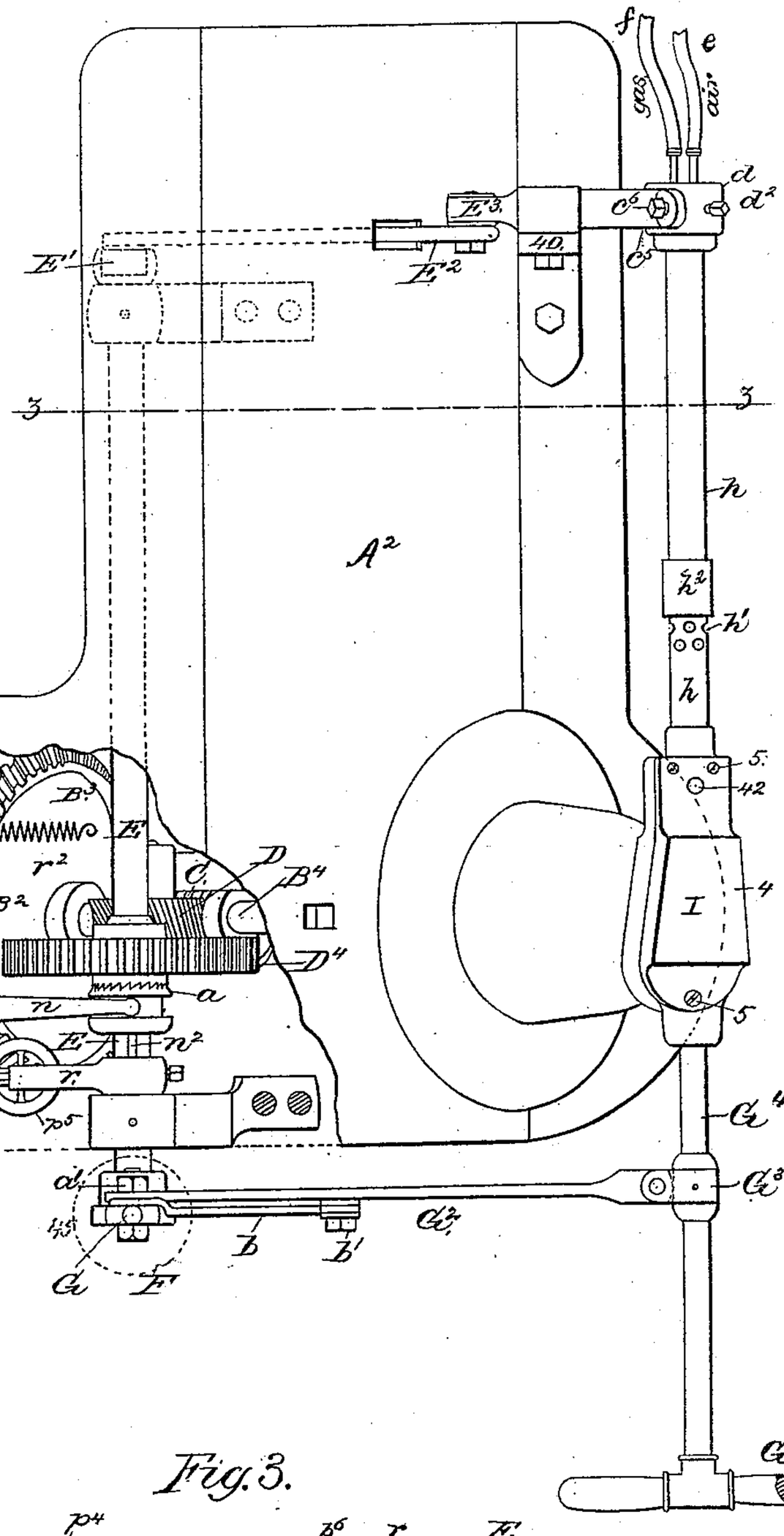
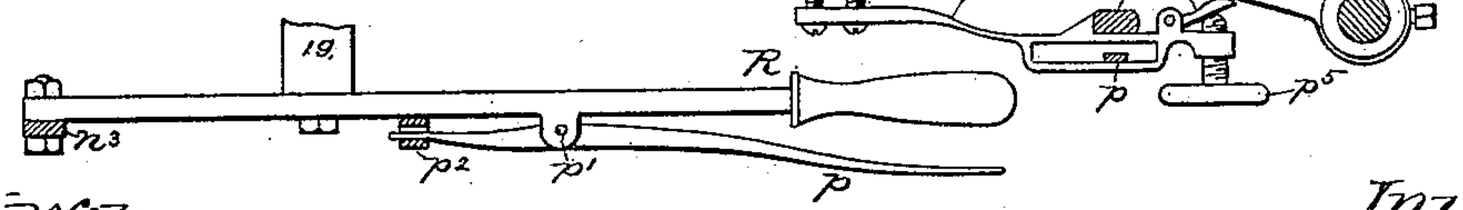


Fig. 3.

Fig. 4.



Witnesses.
John F. C. Brinkerd
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Inventor:
Albert De Laski
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(No Model.) 3 Sheets—Sheet 3.

A. DE LASKI.

HAT IRONING MACHINE.

No. 246,297. Patented Aug. 30, 1881.

Fig. 5.

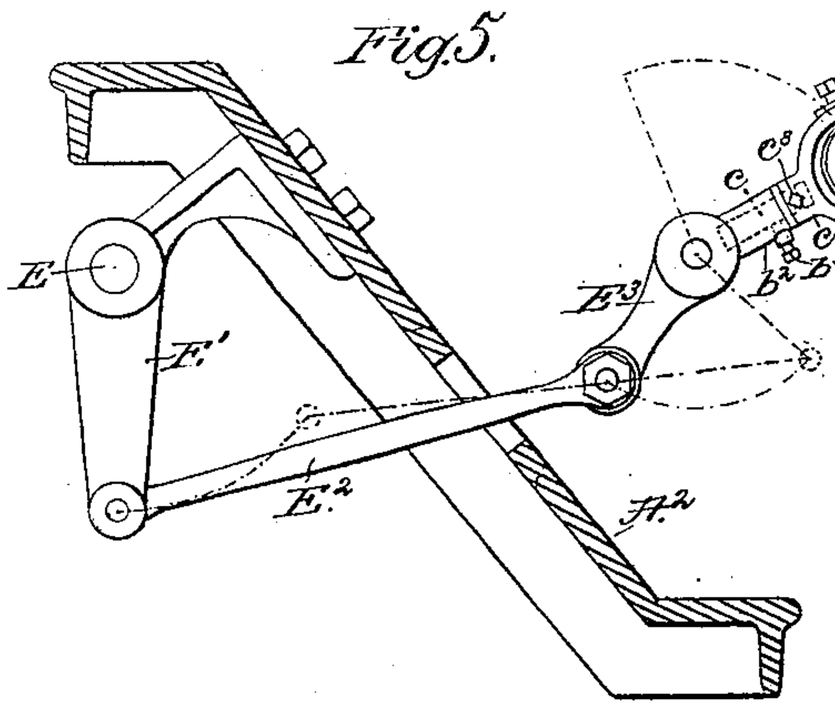


Fig. 6.

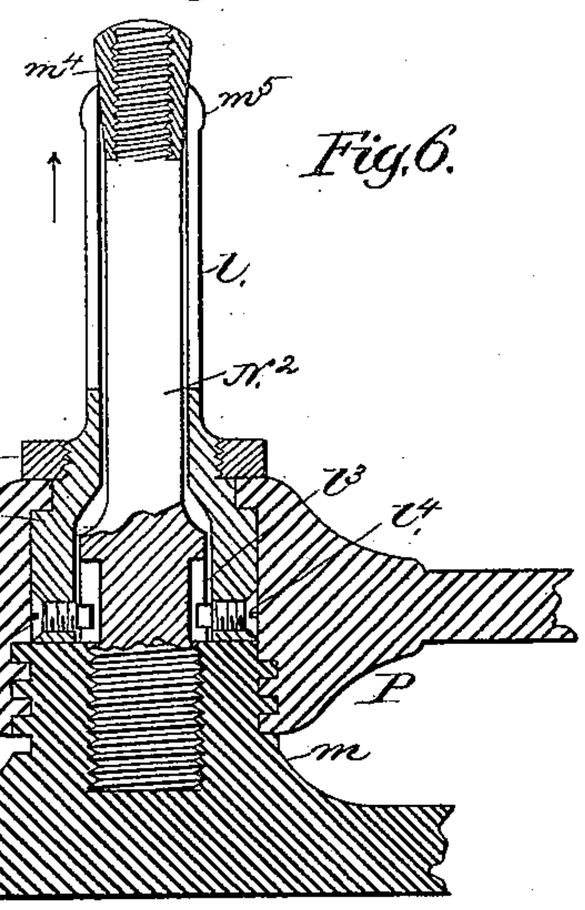


Fig. 7.

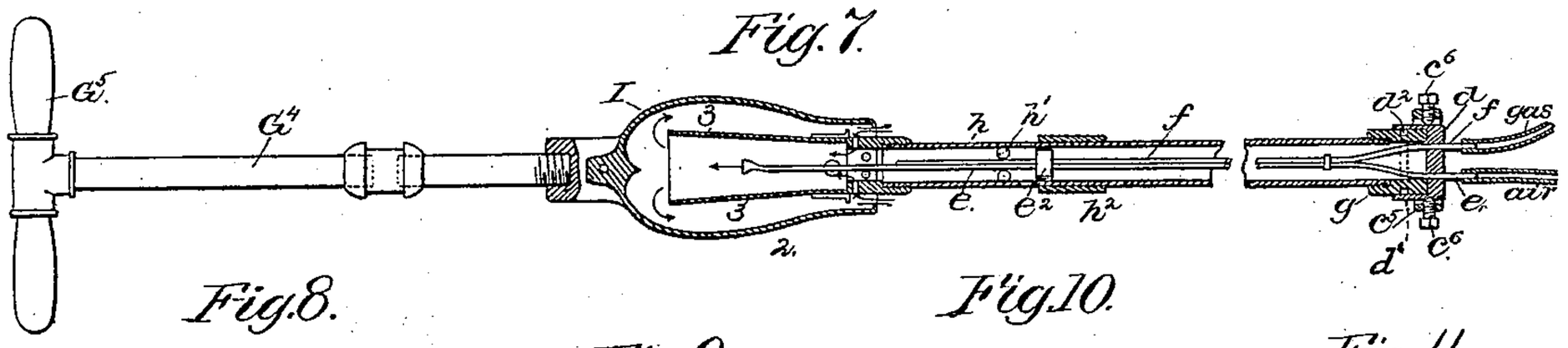


Fig. 8.

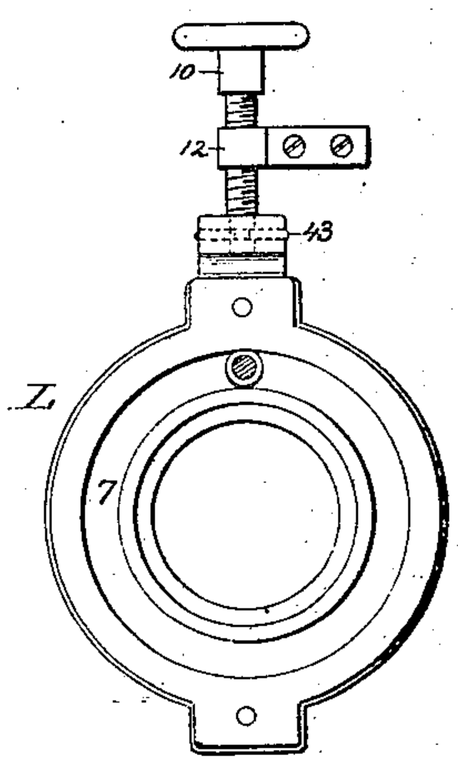


Fig. 9.

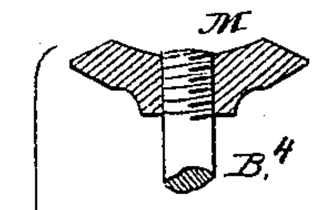
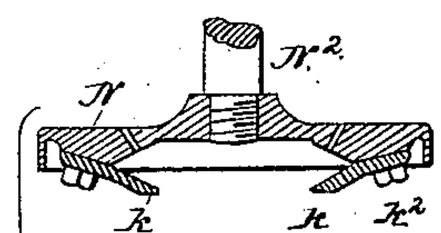
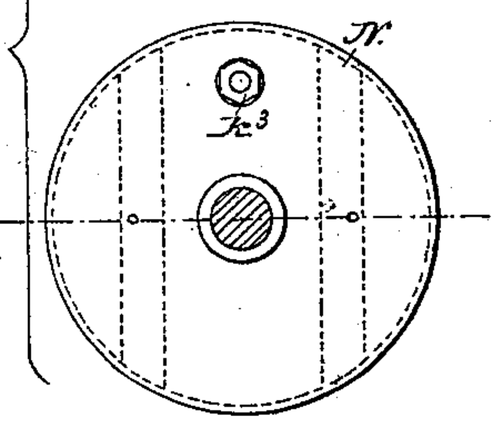


Fig. 10.

Fig. 11.





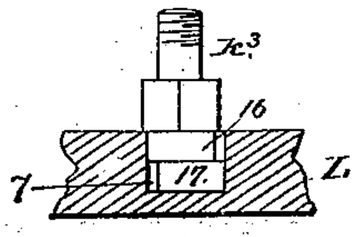


Fig. 12.

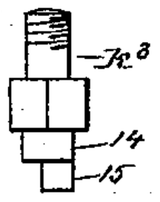


Fig. 13.

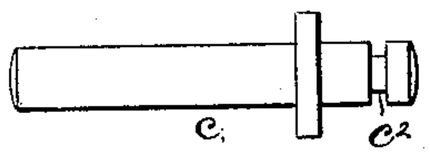
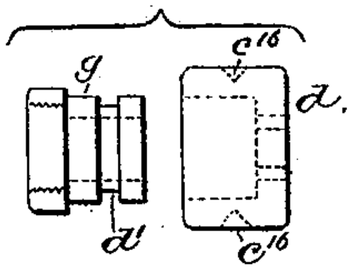


Fig. 14.



Witnesses.
John P.C. Brinkerhoff
L. F. Connor

Inventor.
Albert De Laski.
by Crosby & Gregory, Attys

UNITED STATES PATENT OFFICE.

ALBERT DE LASKI, OF CONCORD, MASSACHUSETTS, ASSIGNOR TO ARTHUR B. WARING, OF SAME PLACE, AND EDGAR SHAW, OF LYNN, MASSACHUSETTS.

HAT-IRONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 246,297, dated August 30, 1881.

Application filed July 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALBERT DE LASKI, of Concord, county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in Hat-Ironing Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention has for its object the production of a hat-ironing machine in which the iron may be efficiently and rapidly heated by a combined gas and air flame, the iron being mounted so as to be universally movable, to thus adapt the iron to the shape of the crown of the hat to be operated upon, the hat-block being mounted upon what is known as an "oval lathe," to thus enable the crown, more or less oval or round in shape, to be ironed.

My invention consists in the combination and arrangement of mechanism for effecting this object, as hereinafter specified and claimed.

Figure 1 is a front elevation, partially in section, showing a hat-ironing machine containing my invention, a hat being placed upon the hat-block, the full lines showing the iron just applied to the hat preparatory to starting the machine in operation, the dotted lines showing the iron as it arrives at the junction of the crown and brim, and also the position which the iron is thereafter made to assume automatically while the ironed hat is being removed from the hat-block. Fig. 2 is a plan or top view of Fig. 1, the oval-lathe part of the mechanism being removed and the frame-work being partially broken out to show the operative parts below it. Fig. 2^a is an elevation of the chuck which holds the hat-block. Fig. 3 is a detail showing the holding device for the shipper-lever and the finger for operating it at the proper time. Fig. 4 is a side elevation of the shipper-lever with the unlocking device thereon shown as engaged with the holding device of Fig. 3, the latter being shown in section. Fig. 5 is a section of Fig. 2 on the dotted line *z z*, showing only the parts for operating the universal-joint contrivance which supports the rear end of the iron. Fig. 6 is a sectional detail of the chuck and the devices co-operating therewith to confine the hat-block upon the spindle of the oval lathe, the said chuck being shown in elevation in Figs. 1 and 2^a. Fig. 7 is a longitudinal horizontal section of the iron and its tubular extension, through which are passed the gas and air supplying pipes. Fig. 8 is an under-side view of the adjustable guide-plate which controls the movements of the oval lathe. Fig. 9 represents a top view and section of the ways attached to the spindle which rotates the hat-block. Fig. 10 is a top view and section of the disk composing the top plate of the oval lathe. Fig. 11 represents in detail the stud carried by the said disk or top plate and its anti-friction rollers extended within the groove of the guide-plate. Fig. 12 is a detail of the said stud, showing its eccentric portions on which the anti-friction rollers revolve; and Figs. 13 and 14, details of the support for the rear end of the iron.

The frame-work A of the machine, having a horizontal top plate, A′, and inclined portions A^2, has bearings to properly support the working parts. The main shaft B, having fixed on it a pulley, B′, driven by a belt in any usual way, has at its other end a bevel-pinion, B^2, which engages a bevel-pinion, B^3, on and rotates the inclined shaft B^4, which gives motion to the oval-lathe mechanism and hat-block carried by it, as will be described. The shaft B^4 has a worm, C, which engages a worm-gear, D, supported by a stud, D′, of a depending bracket, D^2. This worm-gear D at one side has connected with it the smaller pinion D^3, which engages and drives a gear, D^4, of about five times its diameter, placed loosely upon the shaft E, which is instrumental in giving to the iron I its movements to follow the hat from the top of the crown to the rim. This loose gear D^4 has at its side (see Fig. 2) a series of teeth suitable to co-operate with the toothed clutch part *a*, held upon shaft E by the spline n^2.

The shaft E, at its front end, has connected with it the crank G, attached to which by the bolt *a′* is a lever, G^2, having at its outer end a bearing, G^3, that receives the rod G^4, connected with the front end of the iron I, the said rod having a hand-piece, G^5, by which to rotate or rock the iron, as may be desired. This arm G has pivoted to it a sector, *b*, provided with a curved slot, which receives a pin, *b′*,

projected from one side of the lever G^2. The crank-arm G is provided with an adjustable weight or counter-balance, F. (Shown in full lines, Fig. 1, and in dotted lines, Fig. 2.)

The shaft E, at its rear end, (see Fig. 5,) has a crank or arm, E', connected by a link, E^2, with the lower end of an elbow-lever, E^3, pivoted upon a suitable bracket, 40, of the frame-work. (See Fig. 2.) The upper end, b^2, of this elbow-lever is bored to receive the long end of a pin or bolt, *c*, (shown separately in Fig. 13 and in dotted lines, Fig. 5,) and held therein adjustably, as shown, by a set-screw, b^3. This bolt has a groove, c^2, to receive a pin, c^3, inserted through the neck c^4 of a forked bearing, c^5, so that the said forked bearing, if desired, may be rotated on the said pin at any time during the vibration of the elbow-lever E^3, the extent of its movement being shown by dotted lines, Fig. 5. The fork c^5 has pointed screws c^6, which enter conical cavities c^{16} (see Fig. 14) in a hub, *d*, through which are passed the air-supplying pipe *e* and the gas-supplying pipe *f*. This hub receives within it a collar or foot-piece, *g*, which may be rotated freely therein.

The iron I is composed of a metal shell having longitudinal division-plates 3, the said shell being covered at one side (see Fig. 2) with a removable concaved plate, 4, attached by screws 5, and at its opposite or under side, as viewed in Fig. 1, the face of the iron may be either flat or convexed, according to the work to be done. The rear end of the iron is provided with small holes for the passage outward of the heated products resulting from combustion of the gas and air, and with a hole, 42, through which to ignite the gas. The iron I, at its rear end, has a threaded socket to receive the pipe *h*, which, at its other end, is screwed into the part *g*, before referred to, the said pipe *h* forming the rear extension of the iron. This pipe *h* is provided with a series of small holes, *h'*, which may or may not be covered by the movable sleeve h^2, according to whether more or less atmospheric air is to be introduced at that point. The gas supplied from any suitable reservoir is conducted along the pipe *f*, which terminates some distance short of the air-pipe *e*, which latter is extended into the iron, as shown in Fig. 7, and in practice is supplied by atmospheric air from a suitable blower or air-pump or other source for supplying air under pressure. These pipes *f e* are extended through a loose disk, e^2, (see Fig. 7,) which nearly fills the interior of the pipe *h*, the said disk so supporting the pipes *e f* as to permit the pipe *h* and the iron connected therewith to be revolved axially without disturbing the position of the pipes *f e*, the part *g* supporting the rear end of the pipe *h* then turning, as before described, freely.

In practice the shaft E will receive but part of a rotation, sufficient to cause the elbow-lever E^3 to move from the full to the dotted line position in Fig. 5 and the arm G to move from the full to the dotted line position 6. (See Fig. 1.)

The oval lathe is composed of a grooved guide-plate, L, (an under-side view of which is shown in Fig. 8, 7 being the groove therein,) of a guiding-head, M, Fig. 9, secured to the upper end of the spindle B^4, and of a disk or top plate, N, adapted to fit and slide on the said head, the plate being provided with a stud and rollers to enter the groove of the said guide-plate. The guide-plate L is adjustably secured to the inclined part A^2 of the frame-work by means of bolts 8, (see Fig. 1,) inserted through slots 9 in the frame part, and is made adjustable on the said part by means of the adjusting device 10, (shown as a thumb-screw,) held in a suitable standard, 12, and connected by means of an annular groove and pin, 43, with an ear, 13, of the said ring. By means of this adjusting device 10 the plate L may be placed in a position more or less eccentric with relation to the center of the shaft B^4, thus making the groove 7 of the ring more or less eccentric with relation to the center of said shaft. The upper end of the shaft B^4 has fixed to it the guide-head M, the edges of which are beveled to receive the lips *k*, screwed to the under side of the disk or top plate, N, by screws k^2. This disk or top plate has a stud, k^3, fixed thereto by a suitable nut, so that the stud cannot rotate. The lower end of the stud is made of two diameters, as at 14 15, (see Fig. 12,) to receive two rollers, 16 17, Fig. 11, which are fitted into the groove 7 of the plate L, as shown in Figs. 1 and 11, one roller always acting upon one wall of the groove in the said guide-plate and the other roller on the other or opposite wall thereof, thus lessening to the minimum the friction of the parts and avoiding noise.

The plate N has a spindle, N^2, (shown more fully in Fig. 6,) which receives and carries the chuck *l*, (shown separably in Fig. 2^a,) which locks the hat-block l^2, Fig. 1, in position with relation to the said spindle so as to be rotated with the top plate or disk, N. This spindle N^2, at or near its lower end, is provided with short slots or grooves l^3, (see Fig. 6,) to receive the points of screws l^4, inserted therein after passing through the lower end or hub of the chuck *l*, said screws preventing the chuck from rotating when the spindle is at rest, yet permitting the chuck to be moved longitudinally by the large nut P, (see Figs. 1 and 6,) the hub of which is provided with an internal screw-thread to fit the screw-thread upon a projection, *m*, of the top plate or disk, N, such screw-threaded connection being shown in Fig. 6.

The chuck has secured upon it the nut m^2, which fits a flanged part of the hand-nut P, thus holding the said flanged part between the said nut m^2 and the shoulder l^{20} upon the lower end of the chuck, so that the rotation of the nut P upon the screw-threaded part *m* of the plate N enables the chuck *l* to be moved longitudinally on the spindle N^2, such movement of the chuck in the direction of the arrow near

it, Fig. 6, causing the upper end of the chuck, which is slotted from its upper end nearly to the nut m^2, to expand as it is moved along over the inclined nut m^4, the small knobs or projections m^5 at the upper ends of each of the separate fingers or pieces of the clutch being thereby pressed firmly into engagement with the hat-block l^2, into a hole in which the said chuck is inserted. Rotation of the shaft B^4 and guide-way M thereon causes the top plate, N, to rotate with it, and the rollers 16 17 on the stud k^3 of the said top plate, N, traveling in the groove 7 of the plate L, cause the said top plate, as the shaft B^4 rotates, to revolve in an oval path, which may be readily adapted to conform in shape to the shape of the crown of the hat to be ironed.

The shipper-lever R, pivoted at 19, has an arm, n, which moves the clutch part a, connected by spline n^2 with the shaft E, and the said shipper-lever, at its other end, has a link, n^3, suitably supported by a guide, n^4. The outer end of this link n^3 is engaged with the clutch part n^5, held on the shaft B by a spline, the said clutch part n^5 having at its right-hand side suitable teeth to engage teeth 44 on the fixed part of the frame, and at its left-hand side suitable notches to engage projections 20 at the side of the driving-wheel B′.

At the under side of the shipper-lever R is a detaching-lever, p, pivoted at p', the short end of the said lever entering a notch or slot in a holding-lever, p^2, (shown most clearly in Fig. 3,) which is secured to the under side of the frame-plate A′ by screws p^4, and is provided with a notch, as shown in Fig. 3, to receive the shipper-lever R and hold the latter in the position Fig. 1 when it is desired to start the machine in operation. This holding-lever (mostly broken away in Fig. 1) has an adjusting device, p^5, (shown as a screw,) that operates upon a short latch, p^6, which, when it is desired to stop the motion of the machine to release the shipper-lever automatically, is struck by the finger r, which is connected with the rocking shaft E, the shipper-lever, when the holding-lever p^2 is so depressed, being moved by the spiral spring r^2, Fig. 2, so as to complete the disengagement of the clutch part n^5 from driving-wheel B′ and the clutch part a from gear D^4, thus leaving the latter loose on the shaft E. The shaft E, during the partial revolution given to it by the worm C, worm-gear D, pinions D^3, and gear D^4, then in engagement with the clutch part a, causes the arm G to travel gradually toward the left, (see Fig. 1,) during which movement the lever G^2 is gradually lowered into the position indicated by dotted lines 22, so that when the arm G reaches the dotted-line position 23 the hat-iron I will be brought into the dotted-line position 24. Just as the arm G arrives in the dotted-line position 23 the finger r depresses the holding device p^2 and releases the shipper. When the shipper has been so released the weight F on the arm G moves the said arm into the dotted-line position 6; but just before the arm G reaches such position the pin b' of the lever G^2 meets the lower end of the curved slot in the link b and throws the lever G up into such position as to leave the iron I in the dotted-line position 26, Fig. 1.

To stop the machine instantly at any time during its movements, the detaching device p may have its longer end moved toward the main piece of the shipper-lever R, causing the shouldered end of the detaching device p to depress and disengage the holding device p^2 from the shipper-lever. The descent of the arm G is arrested by the weight F striking the stop 45, (shown in dotted lines, Fig. 2.) A hat, having been ironed, is removed and the machine turned back to its initial or starting position.

I do not broadly claim a gas-heated iron in a hat-ironing machine, as I am fully aware of United States Patent No. 69,950, October 15, 1867.

The employment of gas and atmospheric air introduced into and commingled in the iron in quantities controlled by suitable stop-cocks in the pipes f e enables me to heat the iron in a better manner, avoid smoke, and obviate the use of a chimney.

I desire it to be understood that I may employ the iron I in a machine without the oval lathe.

Locating the spindle B^4 at an angle of about forty-five degrees enables the hat-block to be rotated about with the chuck at the same angle, whereby the hat is brought into such position that the part operated upon by the iron may be readily seen.

I claim—

1. In a hat-ironing machine, the hat-iron I, having the partitions 3 to form flues, and the rearward tubular extension h, fitted to turn in the hub d, combined with the said hub, its movable support, and gas and air pipes, the bearing for the said hub, and the lever to support the said bearing, substantially as described.

2. The hat-iron I, provided with a supported handle at one end and the extension h and hub d at the other, the air and gas pipes f e for heating the iron, and the universally-jointed operating connections for the hub d, combined with the lever E^3, to automatically swing the rear support of the iron as the iron is being moved between the tip and the brim of the hat, substantially as described.

3. The hat-iron I, provided with partitions 3 and exit-passages at its end, and the pipe h, combined with the hub d, with which it is loosely connected, as described, and with the gas and air pipes and their support l^2, located in the pipe h, whereby the iron may be rotated more or less without disturbing the relative position of the said gas and air pipes, as set forth.

4. The hat-iron I, its extensions G^2 and h, the shaft E, and its arms G and E′, combined with means, substantially as described, to support the parts G and h and move them in a

line corresponding with the outline of the hat from its tip to its brim.

5. The shaft E, its arm G, link G^2, and bearing G^3 for the hat-iron extension G^4, combined with the hat-iron, the slotted link *b*, and pin *b'*, substantially as described.

6. In a hat-ironing machine, a hat-iron adapted to be heated by gas, as described, combined with a hat-block and oval-lathe support therefor, substantially as and for the purposes set forth.

7. The shaft B^4, its head M, and the top plate, N, and its spindle, combined with the adjustable guide-plate L, to operate substantially as described.

8. The grooved guide-plate L and the top plate, and the stud having two diameters, 14 15, combined with rollers 16 17 thereon, each of which bears firmly against one side or wall of the said groove, as and for the purpose described.

9. In a hat-ironing machine, a hat-iron adapted to be heated by gas and air under pressure, as described, combined with a revolving hat-block, substantially as and for the purpose set forth.

10. The hat-block, the spindle N^2, and its head m^4, combined with the chuck, split, as described, to form separate fingers to engage the interior of the hat-block as the chuck is expanded, substantially as described.

11. The shaft B^4 and oval lathe operated by it to carry the hat-block, the shaft E, means to operate it, and the finger *r* thereon, combined with the hat-iron, means to operate it, as described, and a shipping-lever automatically operated by the said finger to arrest the movement of the machine as the hat-iron reaches the junction of the crown and brim of the hat, as described.

12. In a hat-ironing machine, a hat-iron combined with a hat-block and rotating spindle to actuate the same, the spindle being located in an angular position, as shown, and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT DE LASKI.

Witnesses:

AMOS P. WOOD,

E. S. DARLING.