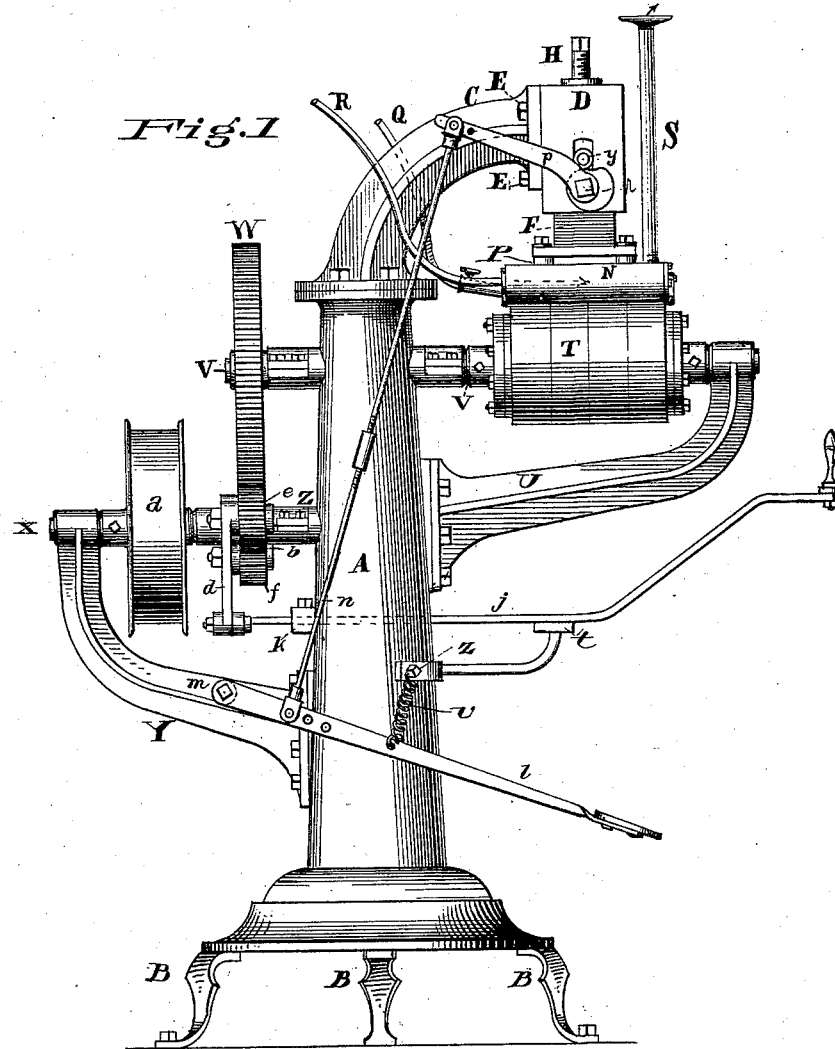


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Ironing-Machine.

No. 215,412.

Patented May 13, 1879.



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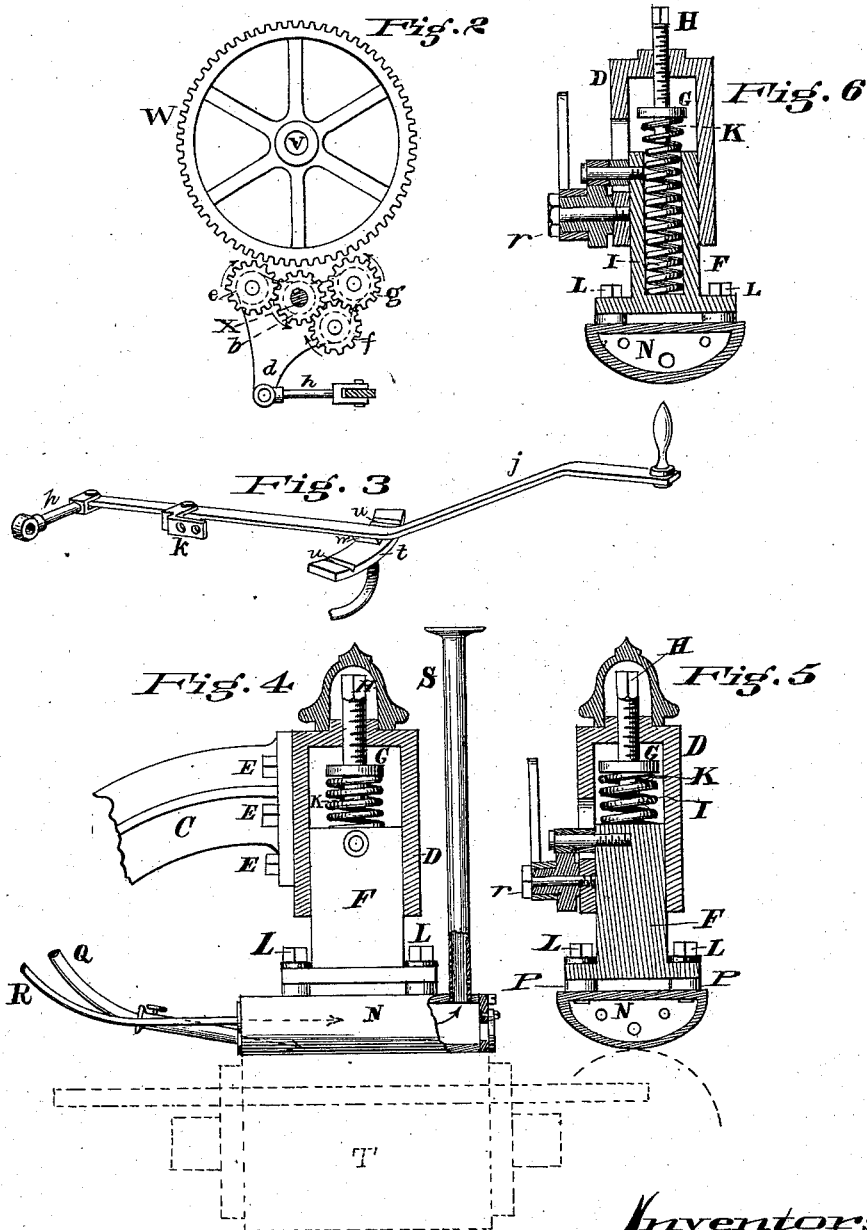
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UNITED STATES PATENT OFFICE.

FRANK THOMAS AND JOSEPH SMITH, OF CINCINNATI, OHIO; SAID THOMAS
ASSIGNOR TO SAID SMITH.

IMPROVEMENT IN IRONING-MACHINES.

Specification forming part of Letters Patent No. **215,412**, dated May 13, 1879; application filed
May 13, 1878.

To all whom it may concern:

Be it known that we, FRANK THOMAS and JOSEPH SMITH, of the city of Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Ironing and Polishing Machines, of which the following is a specification.

Our invention relates to that class of machines which iron and polish collars, cuffs, shirt-bosoms, &c.

The object of our invention is to provide means whereby the ironing and polishing of collars, cuffs, shirt-bosoms, and the like, can be accomplished at one operation by means of machinery with economy, expedition, and with little effort or trouble to the operator.

The first feature consists in an arrangement of means, in connection with the smoothing-iron, whereby the latter is caused to press the article to be ironed and polished with sufficient force to properly iron and polish the same; and consists, further, in devices whereby this pressure is at all times subject to the will of the operator.

The second feature of our invention consists of the convenient and novel arrangement of mechanism whereby the rotation of the table may be reversed or controlled at will.

The remaining features of our invention consist in a novel construction of the devices for supporting the operating mechanism, and also in the arrangement of the parts so that the machine can, when desired, be operated by power.

Referring to the accompanying drawings, Figure 1, Sheet 1, is a side elevation of a machine embodying our invention. Fig. 2, Sheet 2, is a top view of the gear for controlling and reversing the rotation of the table. Fig. 3, Sheet 2, represents a view of the lever for accomplishing the purposes mentioned in the description of the preceding figure. Fig. 4, Sheet 2, is a view of the table, smoothing-iron, the devices for heating the iron, and the spring for pressing the iron against the table, and the arrangement of the iron with reference to the head, whereby the head may be lifted from the table or brought against the

same, and the pressure of the spring may be permanently regulated. Figs. 5 and 6, Sheet 2, are central sectional front views of the head containing the said spring, &c., (the spring being in perspective,) and showing the connection between the cam and the sliding piston.

A suitable column, A, resting upon feet B, or otherwise properly supported, is provided with an arm, C, properly bolted to the said column, and terminating in flanges, to which a box, D, is secured by suitable bolts E. In box D slides a close-fitting piston, F, preferably square, between whose upper end and an annular flange, G, upon a rod, H, is a spring, I. Rod H screws through the top of box D and terminates in an end (here square) so shaped as to afford a purchase for a wrench, whereby it (the rod) may be turned.

Below the flange G is an enlarged extension, K, of the rod H, and which enters the upper coils of the spring to hold the latter in position.

The lower end of the piston F terminates in flanges, to which are secured by bolts L, as shown, the smoothing and polishing iron N, the latter being kept at a short distance from the piston by means of washers P around the bolts, between the piston and the iron N. This separation of the piston and iron prevents the iron from communicating its heat to the piston.

The smoothing-iron N is curved or bowed on its under side, as shown in Fig. 6, and is hollow. Two pipes, Q R, open into it. Pipe Q supplies a stream or jet of gas; and for the more perfect combustion of the latter the pipe R supplies a stream of air forced through it by a blower or other suitable means, the stream of air and the jet of gas being caused to commingle.

A pipe, S, at the front of the iron N conveys away from the interior of the latter the products of combustion.

When preferred, any other of the common means for heating, smoothing, or polishing or fluting irons may be employed.

The table T is cylindrical, and at its front end has a journal capable of rotation in a journal-bearing in the extremity of the arm U.

The other end of the table is securely attached to shaft V, which is journaled in the column A, and terminates in a gear-wheel, W.

A shaft, X, at one end journaled in arm Y and at the other end in a bearing, Z, carries a pulley, *a*, and a pinion-wheel, *b*.

A plate, *d*, is swung upon the shaft X, and contains the additional pinion-wheels *e f g*, free to rotate upon bearings bolted to said plate *d*. All of these pinions and gear-wheel W are in the same vertical plane. The pinions *e* and *f* mesh with pinion *b*, and pinion *g* meshes with pinion *f*.

Pinions *e* and *g* are advanced, as shown, so that as the plate is swung back or forth one or the other can be made to engage the gear-wheel W.

Motion is communicated to the plate *d* by means of a link, *h*, pivoted at one end to the end of the plate *d*, and pivoted at its other end to the rod *j*, fulcrumed at *k* to a fixed fulcrum attached to the column A, and terminating at the front of the machine in a handle within easy reach of the operator. The forward portion of this rod *j* rests upon a supporting-guide, *t*, which allows the rod to be moved laterally. Flanges at either end of the guide prevent the rod from slipping off from the guide, and a depression, *u*, near each end of the guide, of a size proper to receive corresponding nib *w* on the under side of the rod when said nib is placed in said depression, prevents the rod from moving laterally until operated by the operator.

The mechanism for raising the smoothing-iron is as follows: A lever, *l*, (here shown as a treadle,) is fulcrumed at *m*. A rod, *n*, is fastened at one end to lever *l*, between the fulcrum *m* and treadle *l*, and at the other end fastened to the outer end of a lever, *p*.

The other end of the last-named lever terminates in a cam, *q*, the lever being fulcrumed at *r* on a bolt secured to the box by a screw-connection.

A pin or stub, *y*, attached to the piston, and projecting through a vertical slot in the side of the box, is so located that the treadle being depressed by the foot the cam shall elevate the stub, and with it the piston and iron.

To more expeditiously raise the lever *p* after it has been depressed by the foot, and thus allow the spring to more promptly depress the smoothing-iron upon the table, a small spring, *v*, strained between the lever *l* and point *z*, is preferably employed.

The table T is surrounded with a covering of canton-flannel or other fabric suitable for ironing upon. The ends of this canton-flannel are joined together with elastic cords or springs to keep the flannel taut, and thereby present a smooth surface for the reception of the article to be ironed.

A preferred arrangement of the spring I with reference to the box is shown in Fig. 6. Here the piston F is hollow or recessed, and the spring fills this recess. A longer spring can thus be employed, greater vertical motion of

the iron N be secured, and usually a better pressure of the said iron on table be obtained.

My invention operates as follows: The smoothing-iron is first heated by lighting the gas-jet or by other appropriate means. The exact amount desired of pressure of the iron upon the table is first obtained by screwing rod H up or down. The pulley *a* is set in motion by suitable power. The collars, cuffs, &c., to be iron and polished are prepared as usual for ironing. The article to be ironed is then placed on the table and run through between the iron and the table. This operation irons the article. The iron is then elevated, and kept elevated by depressing the treadle with the foot. The article is then placed upon the table, the center of said article being placed under the iron and the treadle released. The iron is now against the face of the goods. The operator grasps the handle of rod *j*, and, moving the latter laterally back and forth over guide *t*, causes the table to partially rotate back and forth, and thus causes the article on the table to be moved back and forth upon the iron. This is the polishing movement, and is similar to that imparted to a common hand-iron in polishing goods by hand. The iron, pressing upon the said article, imparts a beautiful bright polish to the goods.

The rotation of the table may be at any time stopped by moving rod *j* to the middle of guide *t*, in which position neither of the pinions *e* or *g* will mesh with gear W.

Where it is desired to round or curve the article, as is the case with collars and cuffs, the article, after being polished, is withdrawn from the table and run through once between the iron and the table, that side of the article which is to be on the inside when the article has been given the proper curve being placed next the iron. The heat of the iron causes the collar or cuff to curl toward the iron.

As the article leaves the machine it is allowed to drop into a basket or other suitable receptacle.

In Fig. 4 parallel dotted horizontal lines show the edge of the top of a table placed at the right-hand side of the machine, to receive the articles as they drop from the table T.

Stand-up collars provided with turn-down corners are usually ironed by first passing one corner and then the other corner through the machine, keeping the side to be polished next to the iron. Then the outside of the collar is ironed and polished; and, lastly, the collar is turned over and run through the machine to impart the necessary curve thereto.

Five quick motions thus suffice to iron, polish, and curve such collars, while in the case of ordinary cuffs or the lay-down collar only three movements are required.

What we claim as new and of our invention is—

1. The combination of table T and iron N, sliding piston F, spring I, and rod H and box D, substantially as and for the purposes specified.

2. In combination with piston F, attached to the smoothing-iron N, the box D, pin *y*, lever *p*, rod *n*, and lever *l*, substantially as and for the purposes mentioned.

3. In combination with table T, the devices for reversing and controlling its rotation of the same, and consisting of gear-wheel W, pinions *e b f g*, plate *d*, link *h*, rod *j*, and support *t*, substantially as and for the purposes set forth.

4. The combination of table T, the shaft V, properly-supported gear-wheel W, pinions *e b f g*, plate *d*, shaft X, properly-supported pul-

ley *a*, link *h*, rod *j*, and support *t*, substantially as and for the purposes set forth.

5. Column A, provided with arm C, and box D, containing spring I and rod H, and piston F, sustaining iron N, in combination with arm U and shaft V, carrying the rotating table T, substantially as and for the purposes set forth.

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Attest:

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