2 Sheets—Sheet 1.

H. MONK.

Ironing-Machine.

No. 204,594. Patented June 4, 1878.

Fig. 1.

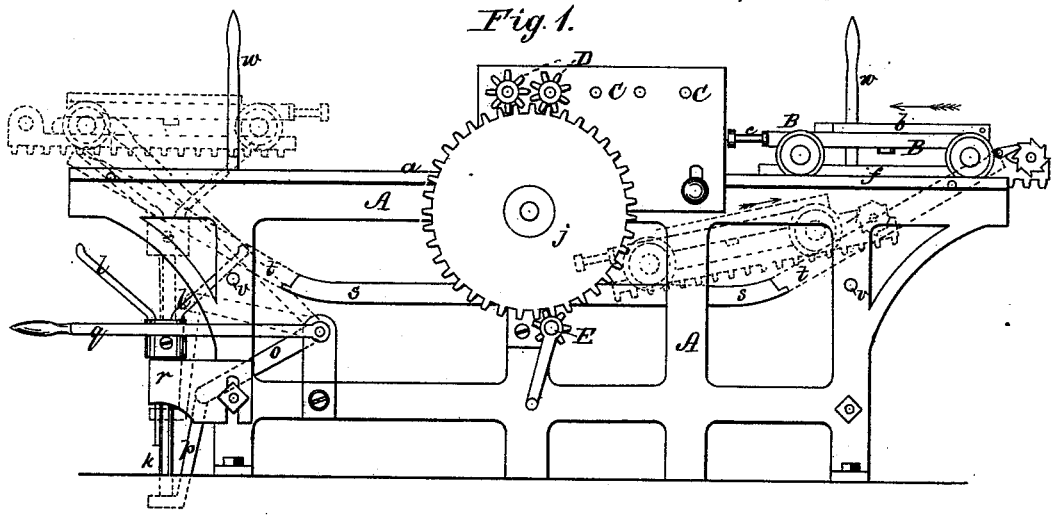


Fig. 2.

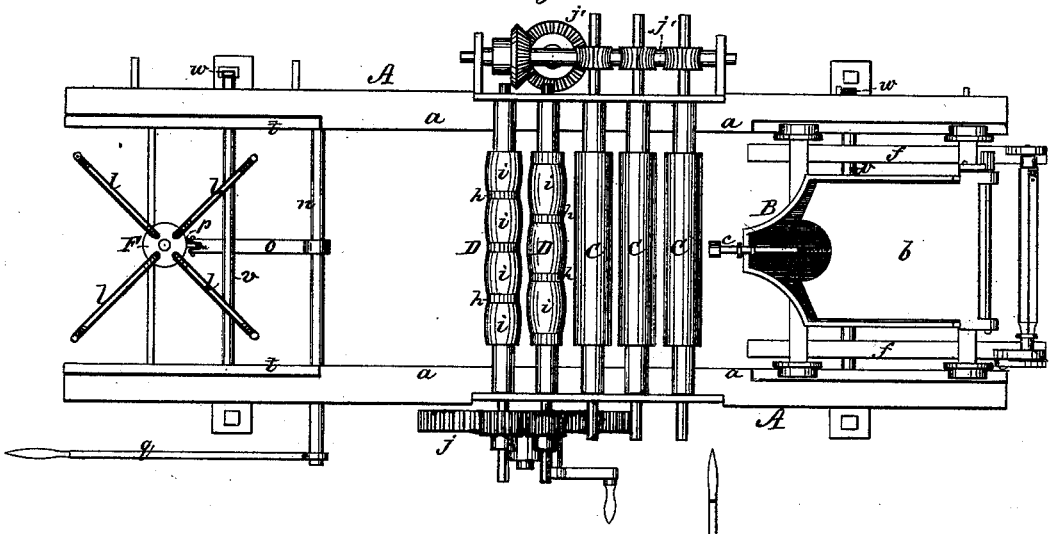
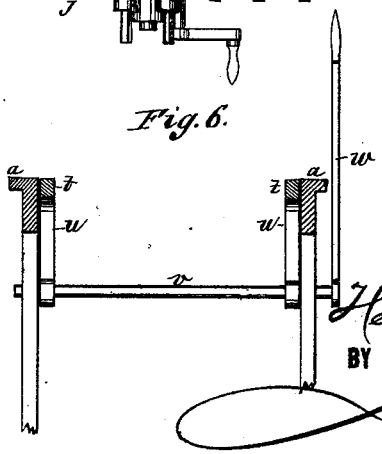


Fig. 6.



WITNESSES:

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Amos H. Hart

INVENTOR:

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Munn & Co

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2 Sheets—Sheet 2.

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No. 204,594. **Patented June 4, 1878.**

Fig. 3.

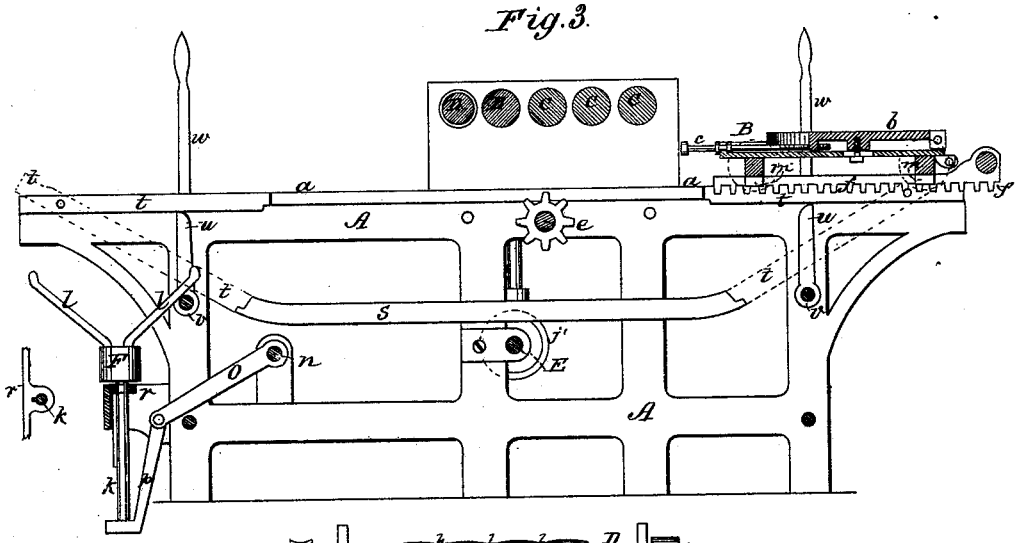


Fig. 4.

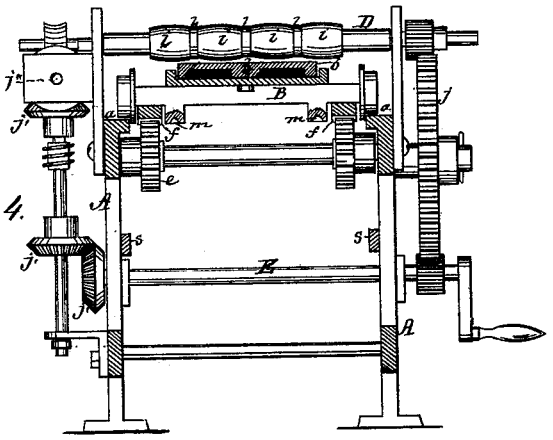
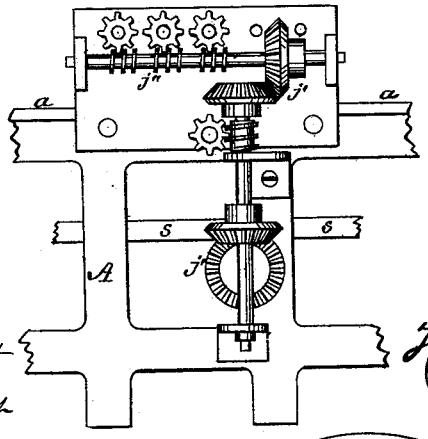


Fig. 5



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UNITED STATES PATENT OFFICE.

HENRY MONK, OF TROY, NEW YORK.

IMPROVEMENT IN IRONING-MACHINES.

Specification forming part of Letters Patent No. **201,594**, dated June 4, 1878; application filed April 26, 1878.

To all whom it may concern:

Be it known that I, HENRY MONK, of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Ironing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention consists in providing an ironing-table with a movable bosom-board which may be adjusted longitudinally of the table to adapt it for properly supporting the fronts of shirts of different sizes, so that the upper portion of the fronts may be ironed in the desired manner by the ordinary heated rolls used in ironing-machines, thus avoiding the frequent necessity of finishing them off by hand.

The invention further consists in reducing the diameter of the polishing-rolls at different points or intervals of their length, and in arranging two such rolls side by side in such manner that the swells or enlarged portions or sections of one roll shall be opposite to or alternate with the reduced portions or sections of the other, for the purpose of avoiding undue straining or stretching of the shirt-fronts while being polished, and also imparting a better polish.

The invention further consists in certain means for lifting and turning the ironing-table end for end each time after it has passed under the ironing-rolls, for the purpose of facilitating the removal of the ironed shirt-front, and the application of an unironed shirt-front preparatory to transferring the table to the other side of the rolls for repeating the ironing operation.

The invention further consists in providing the machine with a rail-track, the main or middle sections of which are located below the horizontal ways that support the table during the ironing operation, and the end sections of which are movable, so that they may be tilted, as hereinafter described, for the purpose of facilitating the transfer of the table from one end of the machine to the other, or back to the starting-point.

In the accompanying drawing, forming part of this specification, Figure 1 is a side elevation of my improved ironing-machine. Fig. 2 is a plan view of the machine. Fig. 3 is a vertical sectional elevation, and Fig. 4 a vertical cross-section. Fig. 5 is a detail side elevation of the gearing for operating the ironing-rolls. Fig. 6 is a detail section, showing the arrangement of the arms that support pivoted tilting rails or track-sections.

The frame of the machine consists, essentially, of two side pieces, A A, arranged vertical and parallel, and rigidly connected by cross-bars. The top portions of the side pieces A A form a horizontal track or ways, *a a*, on which the wheeled ironing-table B is mounted, and on which it is supported while passing under the ironing-rolls.

My improvement in the ironing-table consists in making the bosom-board *b* adjustable lengthwise thereof, the object of which is as follows: As usually constructed, ironing-tables are not adapted for different sizes of shirts, so that if a shirt be either above or below a certain medium size, it cannot be clamped or secured to the table in such manner that the upper cut-out portion of the front will coincide in position with the correspondingly-shaped upper end of the bosom-board, and hence said front cannot be properly ironed in the machine, and must be finished off by hand, thus entailing increased labor and expense.

By making the bosom-board *b* adjustable toward or from the free end of the hinged table, it can be easily and quickly changed in position to adapt it for shirts of different sizes, so that the machine will finish all alike.

It will be understood that the head or free end of the table is raised to allow a shirt to be slipped over it, and that the flap or lower end of the shirt is then clamped to a roller located at the foot or hinged end of the table, so that by rotating said roller the shirt will be drawn tightly over the table and its attached bosom-board. In such case the lower edge of the neck-band should coincide with the curved edge of the upper end of the bosom-board. But if the shirt is of large size, the lower portion of the band will be drawn below such curved edge of the bosom-board and rest on the surface of the latter, which will prevent the bosom being ironed and polished by the rolls C D in the desired manner. Contrariwise, if the shirt is of small size, the neck-band cannot be drawn down to the curved edge of the bosom-board; and since the upper

portion of the shirt-bosom will then project beyond or overhang the board, it is equally apparent the bosom cannot be properly ironed and polished. Therefore, if shirts of large size are to be ironed, the board *b* is adjusted with its angular or upper end farther from the free or upper end of the table proper, and for shirts of small size it is adjusted in the opposite direction, or nearer the free end of said table, so that the curved or cut-out portion of the shirt-front will always coincide in position with the correspondingly-shaped end of the board.

It is obviously requisite that the head or upper portion of the table shall not only not project above the plane of the bosom-board, but shall rather lie in a lower plane, so that the neck-bands of the shirts will overhang the end of the board, and remain free or unsupported while the shirt-fronts are subjected to the action of the ironing and polishing rolls.

Various means may be employed for adjusting the bosom-board; but I prefer a screw-rod, *c*, which is so attached to the table that it can have no lengthwise movement, but is free to rotate, and the lower or inner of which has a like connection with the board *b*. The latter is guided rectilinearly in its adjustment by side ribs or flanges on the table proper, and is held down on the table by means of a screw (not shown) which works in a lengthwise slot in the table.

A shirt-front having been secured to the bosom-board, the table is passed under the rolls C D by pushing it forward on the ways *a* until the spur-gears *e* engage its racks *f*, when it is slowly propelled under the ironing-rolls C and polishing-rolls D. The latter have a peculiar construction—that is to say, each polishing-roll D is reduced in diameter at equidistant points *h;* but the arrangement is such that the reduced portions *h* of one roll are opposite the enlarged portions *i* of the adjacent roll. In other words, the swells or enlargements of one roll alternate with the reduced portions or sections of the other.

By this construction the shirts are subjected to less strain during the polishing operation, since while the middle or enlarged portion *h* of one roll is in contact with a shirt-front, the opposite reduced portion *i* of the next roll is out of contact with the same. In other words, a longitudinal portion or section of a shirt-front is subjected to the drawing and rubbing action of but one roll at a time, in place of two or more rolls, as in other machines having polishing-rolls of uniform diameter.

Another advantage of such construction is, that shirt-fronts having a less number of thicknesses of cloth down the middle than the sides will be polished more perfectly, since the central swell or enlargement of one of the rolls will act on such middle portion and subject it to the same pressure as the side portions receive.

The rotary motion of the polishing-rolls D is derived from the driving-shaft E through the medium of a large spur-gear, *j*, which meshes with pinions keyed on said rolls and shaft.

The ironing-rolls C derive motion from the shaft E through bevel-gearing *j'* and a horizontal worm-shaft, *j''*, the spur-gearing being located on one side of the machine, and the bevel-gearing on the other.

After the table passes out from under the polishing-rolls it is drawn along by hand to the end of the ways *a*, directly over the lifter F, by which it is to be raised vertically to clear the ways *a* and enable it to be rotated half round, so that the hinged end of the table may be brought into proximity or next to the operator or workman, to enable him to conveniently remove the shirt whose front has just been ironed, and to attach thereto another which is unironed.

Said rotating lifter F consists of a vertical feathered shaft, *k*, having branching arms *l*, which, when the lifter is raised, enter the sockets *m* on the under side of the table, and prevent the latter becoming displaced or detached while being rotated.

The lifter is raised by a rock-shaft, *n*, which is connected therewith by means of a rigid arm, *o*, and link *p*. The rock-shaft may be operated by a hand-lever, *q*, or by a treadle. (Not shown.)

The feather on the shaft of the lifter extends downward but a part of its length, and since but one side of the bearing *r*, in which the shaft slides, is grooved to receive the feather, it follows that when the lifter has been raised to the required height, the lower end of the feather will support the lifter and ironing-table while being rotated, since the feather will then rest on the bearing, and will prevent the lifter-shaft sliding downward again until the lifter has been rotated back to bring the feather and groove into coincidence.

After the unironed shirt-front has been attached to the bosom-board the table is reversed, and the lifter lowered so that the table is again supported on the ways *a* in its former position, the object being to transfer the table to the other end of the ways, to be passed under the ironing-rolls, as before. This transfer is for the purpose of economizing time, so that the ironing-rolls may be kept in nearly constant operation on a shirt-front; and it is effected while the other table (two at least are always employed) is passing under the rolls on ways *a*.

The transferring operation is effected chiefly by means of the track, composed of fixed rails *s* and pivoted movable rails *t*. The rails *s* are attached to the inner sides of the frame A at a sufficient distance below the ways *a a* to allow the table to pass clear of shaft. The movable sections *t* are pivoted to the ways *a a* near the ends thereof, the inner sides of the latter being cut away to receive them, so that when the rails *t* are in horizontal position they constitute a necessary part

of the ways *a*. They are supported in such position by the arms *u* of a horizontal rock-shaft, *v*, to whose projecting end a hand-lever, *w*, is attached. When said lever *w* is vertical the arms *u* are in a corresponding position, and the inner ends of rails *t* rest thereon, Figs. 1, 2, 3. When the lever *w* is thrown down the arms are also, and the rails *t* tilt into the inclined position shown in dotted lines, Figs. 1, 3.

From this construction and arrangement of parts it will be seen that, to transfer the carriage or table from the rear to the front end of the machine, I proceed as follows:

The table being at the end of the ways *a a*, and consequently supported on rails *t* thereto, the arms *u* are thrown down, and, the rails *t* instantly tilting, the table runs rapidly down the incline thus formed, and, by acquired momentum, traverses the fixed track sections or rails *s*, and runs part way up the pivoted rails *t* at the other end of the machine, (said rails having been previously tilted,) and is drawn up the remaining distance by the operator, and the rails *t* simultaneously tilted back into horizontal position and held locked by the arms *u*, as will be readily understood.

The operation of the machine may be epitomized as follows:

First. The table, having an unironed shirt-front attached, is passed under the rolls C D.

Second. The table is then raised and revolved on the lifter F, the ironed shirt detached, and an unironed one attached. The table is then rotated onto the ways *a*.

Third. The rails *t*, on which the table rests, are then tilted, and the table passes down under the rolls, and is drawn up and raised on the tilting rails *t* at the other end of the machine, when it is at once pushed forward again under the rolls, and the same operation is repeated.

Fourth. So soon as one table passes under the rolls another is moved forward to pass under them, and thus two or more tables may be used on one machine.

What I claim is—

1. The combination, with the ironing-table, suitably constructed to permit a shirt to be drawn over it, of the bosom-board, made adjustable toward and from the fixed head of said ironing-table, and its upper surface lying in a plane above the head, as shown and described, whereby said bosom-board may be adjusted to bring its upper end into coincidence with the correspondingly-shaped end of different-sized shirt-fronts, leaving the neck-bands thereof free or unsupported, as specified.

2. The combination, substantially as described, of the parallel polishing-rolls, having their respective reduced and enlarged portions or sections arranged in the alternation specified, for the purpose set forth.

3. The combination, with the driving-shaft E and polishing-rolls D, of the large spur-gear *j* and the pinions meshing with it, the bevel-gearing *j'*, the worm-shaft *j''*, and the ironing-rolls C, having worm-pinions, all constructed and arranged as shown and described.

4. The combination, with an ironing-table and ways *a*, substantially as described, of a vertically-adjustable device adapted to support said table, raise it the distance required to free the ways, and capable of rotation for turning the table end for end, for the purpose of facilitating the removal and attachment of shirts, as specified.

5. The combination, substantially as described, with the table-lifter shaft and its grooved bearing, of a feather fixed or attached on the upper portion of the shaft, for the purpose of preventing rotation of the lifter while being adjusted vertically, and then supporting it while being rotated, as specified.

6. The combination of the rock-shaft, arm, link, lifter, and guides or bearings for the lifter, as shown and described, for the purpose specified.

7. In combination with the ways *a* and ironing-rolls, a supplementary track arranged below said ways, substantially as described, for use in transferring the ironing-table from one end of the machine to the other.

8. In combination with the horizontal ways and ironing-rolls of an ironing-machine, a supplementary table-transfer track arranged below the rolls, and having tilting end rails or sections to allow the table to descend from and ascend to the said ways, substantially as shown and described.

9. The combination of the fixed rails or track-sections *s*, the rails *t*, the ways *a*, and means for holding said rails in horizontal position and suddenly allowing them to tilt, substantially as and for the purpose specified.

10. The combination, with the tilting rails, substantially as described, of vibrating arms, rock-shaft, and lever attached thereto, for the purpose of supporting the rails in horizontal position and allowing them to tilt at the required moment, as specified.

HENRY MONK.

Witnesses:
J. G. HAWLEY,
L. L. AVERY.