(No Model.)

C. A. LIEB.

IRONING MACHINE.

No. 304,533. Patented Sept. 2, 1884.

Fig. 5.

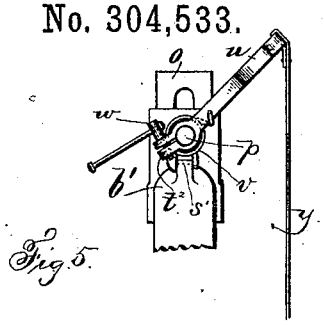


Fig. 1.

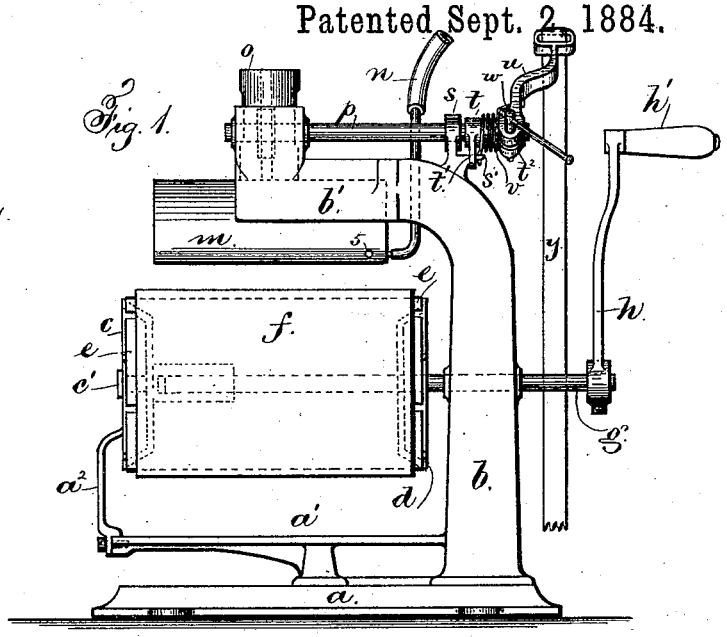


Fig. 3.

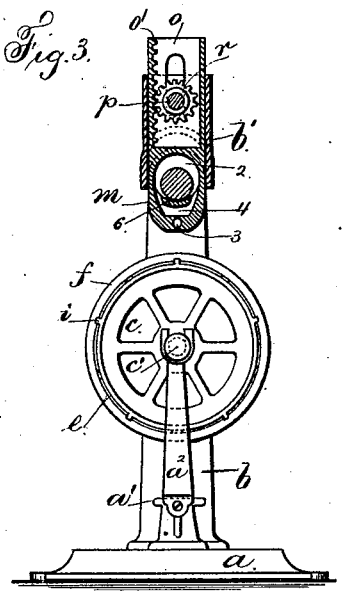


Fig. 2.

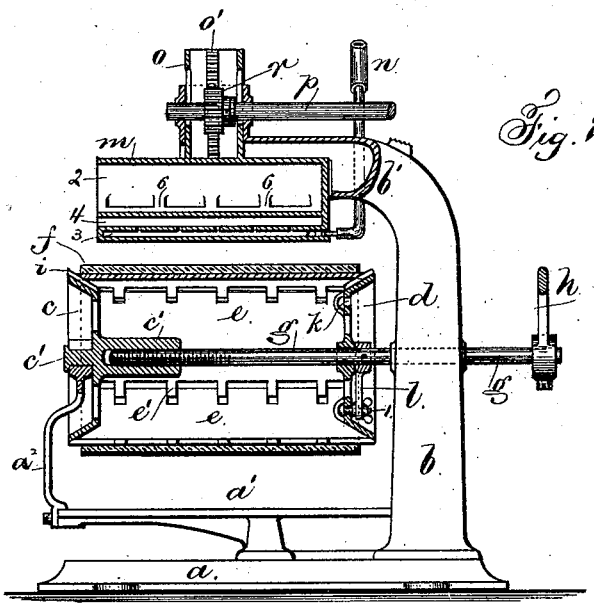
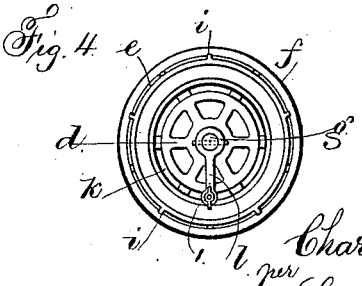


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES A. LIEB, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES L. HEINS, OF SAME PLACE, AND JOHN H. LEE, OF NORWALK, CONNECTICUT.

IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 304,533, dated September 2, 1884.

Application filed March 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. LIEB, of the city, county, and State of New York, have invented a new and useful Improvement in Ironing-Machines, and the following is declared to be a description of the same.

This invention is designed as an improvement upon the device described and claimed in an application for Letters Patent filed December 28, 1883, Serial No. 115,808.

My invention relates to an ironing-machine in which the ironing-cylinder is made of sections and provided with coniform heads, the outer surface of the cylinder being covered with felt or a wrapping of cloth. The coniform heads are upon an extensible axle carried in suitable bearings, one head being fast with part of the axle, while the other head is loose upon the other part of the axle. An arm fastened to the axle is employed in connection with the loose head, and means for connecting and clamping the loose head and arm together, so that the cylinder and shaft can be revolved together. This extensible axle is employed to set up the coniform heads and expand the sections and stretch the covering tightly thereon.

My invention also relates to an iron supported upon an arm of the frame of the machine and employed in connection with the cylinder. Said iron is constructed as a hollow shell for the reception of a heating-slug, and is provided with a combustion and gas chamber and a pipe for the supply of gas. The upper part of the iron is made with a tubular standard which contains a toothed rack, and I employ a pinion upon a shaft in the upper part of the machine, and said shaft and pinion, when turned, operate upon the rack and lower the iron to its work, and apply a pressure to the same, the iron being raised by said shaft and pinion and a spiral spring.

In the drawings, Figure 1 is an elevation of the ironing-machine complete. Fig. 2 is a vertical longitudinal section of the ironing-machine. Fig. 3 is an end elevation of the ironing-cylinder and a vertical section of the iron. Fig. 4 is an elevation of the opposite cylinder-head from that shown in Fig. 3, and Fig. 5 is an end view of the shaft and mechanism for operating the iron.

The frame of the ironing-machine is composed of the bed *a*, standard *b*, and arm *b'*, which forms a part of the standard. The bracket-arm *a'* is secured to the bed *a*, and provided with the upright a^2, that supports one end of the axle of the ironing-cylinder.

The ironing-cylinder is composed of the coniform heads *c d* and cylinder-sections *e*, a covering of felt or cloth, *f*, being placed around the sections *e*. The coniform head *c* is made in one piece with the portion *c'* of the extensible axle *g*. The coniform head *d* is loose upon the axle *g*. The axle *g* has a bearing in the standard *b*, its inner end being screw-threaded and passing into the axle *c'*, and its outer end being provided with an arm, *h*, and handle *h'*, to turn the axle and the ironing-cylinder. The coniform heads *c d* are provided with ribs *i* at equal distances apart, and there are notches in the end of the cylinder-sections *e*, fitting the ribs upon the coniform heads. The parallel opposing edges of the cylinder-sections are interlocked by the projections *e'* and notches, as in aforesaid application. The coniform head *d* is made with an annular opening at *k*, and the radial arms that connect the outer and inner portions of the head together are here made curved, as shown in Fig. 2, and there is an arm, *l*, upon and pinned to the axle *g*, and a bolt, 1, passes through the end of the arm *l* and through the opening at *k*, the head of the bolt being on the inner side of the head *d;* and there is a butterfly-nut upon the bolt 1, the tightening of which clamps the head *d* and arm *l* together, and thereby connects the said head *d* rigidly to the axle *g*, and when the axle *g* is revolved the head *d* is also revolved, and with it the head *c* and cylinder-sections *e*, because of the ribs *i* upon the coniform heads engaging the notches in the sections.

To loosen the covering *f* upon the ironing-cylinder by separating the heads, or to tighten the covering by bringing the heads *c d* closer together, it is necessary to loosen the butterfly-nut and bolt 1 and hold the cylinder with one hand, while the axle *g*, through the me-

dium of the handle h' and arm h, is turned by the other hand in one direction or the other to either unscrew the axle g or to screw it up tighter. In doing this the arm l will revolve with the axle g, its bolt 1 moving freely in the annular groove at k. As soon as the parts are adjusted the nut and bolt 1 are tightened again, so that all parts of the cylinder are firmly connected, and may be revolved together during the ironing operation.

The iron m is made hollow, of the shape shown, and provided with openings at 2, 3, and 4. The opening at 2 is preferably round and adapted to receive a heating-slug. The opening at 3 is the gas-chamber, and into it is inserted a small metal tube at the end of the flexible gas-pipe n. The opening at 4 is a combustion-chamber, and between it and the gas-chamber 3 there are small holes. Gas enters the chamber 3 from the pipe n, and air enters said opening by a hole at 5. The two commingle and pass by small holes from 3 into 4, where they are ignited and burn, heating the iron. The heated gases pass up into the opening at 2 through the spaces at the sides of the partition 6. (See Figs. 2 and 3.) The iron can be heated by means of the hot slug alone without the gas, or it may be heated by the gas, in which case the iron can be retained, as it aids in retaining the heat.

Upon the iron m is a tubular standard, o, passing vertically through the upright guide-box at the end of the arm b'. This standard o is slotted for the shaft p, and contains a toothed rack, o', engaging the teeth of the pinion r upon shaft p.

The bracket s, cast upon the arm b', gives a bearing for the outer end of the shaft p, and upon said shaft p there is a sleeve, t, having a projection or stop, t', and an arm, u, and around said sleeve is the spiral spring v. The outer end of the sleeve t at one side is split, and there are lugs t^2 projecting from said sleeve t, and the screw-pin and lever w operate upon the lugs t^2 to draw the parts of the sleeve t together and clamp it to the shaft p. The stop t' bears against one side of the stop s', as shown, and one end of the spring v is against the other side of stop s', while the other end of spring v is against the under side of the arm u, the spring operating to hold the iron up from contact with the ironing-cylinder.

The strap y is connected to the arm u, as shown in Fig. 1, and its lower end is preferably attached to a foot block or treadle (not shown in the drawings) upon the floor, and the iron m is brought down upon the fabric with the desired pressure by said strap and arm, turning the shaft p and pinion r. When the pressure of the foot is relieved, the spring v lifts the iron and returns it to a normal position. The height that the iron is raised can be regulated by adjusting the sleeve and stop t in relation to the pinion and shaft p.

I claim as my invention—

1. The hollow iron m, having a gas-chamber, 3, running along in the bottom part of the metal near the ironing-surface, an opening at 5 to admit air into the gas-chamber, jet-openings above the chamber 3, a combustion-chamber, 4, a partition, 6, above the chamber 4, for supporting a heating-slug within the opening 2, and mechanism, substantially as set forth, for supporting and pressing the iron, substantially as specified.

2. In an ironing-machine, the combination, with the coniform head d, provided with annular opening k, cylinder-sections e, and covering f, of the axle c' and coniform head c, the axle g, the arm l, rigidly mounted upon said axle g, the nut and bolt 1, passing through the arm l, and through the annular opening k in the coniform head d, for clamping the parts together, substantially as set forth.

3. The iron m, having a tubular standard, o, and rack o', within the same, in combination with the supporting-arm b', the pinion r, and shaft p, as and for the purposes set forth.

4. In an ironing-machine, the combination, with the iron m, standard o, and rack o', of the pinion r, shaft p, sleeve t, stop t', arm u, spring v, screw-pin and lever w, and strap y, the parts being operated substantially in the manner and for the purposes set forth.

Signed by me this 27th day of March, A. D. 1884.

CHARLES A. LIEB.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.