

(No Model.)

4 Sheets—Sheet 1.

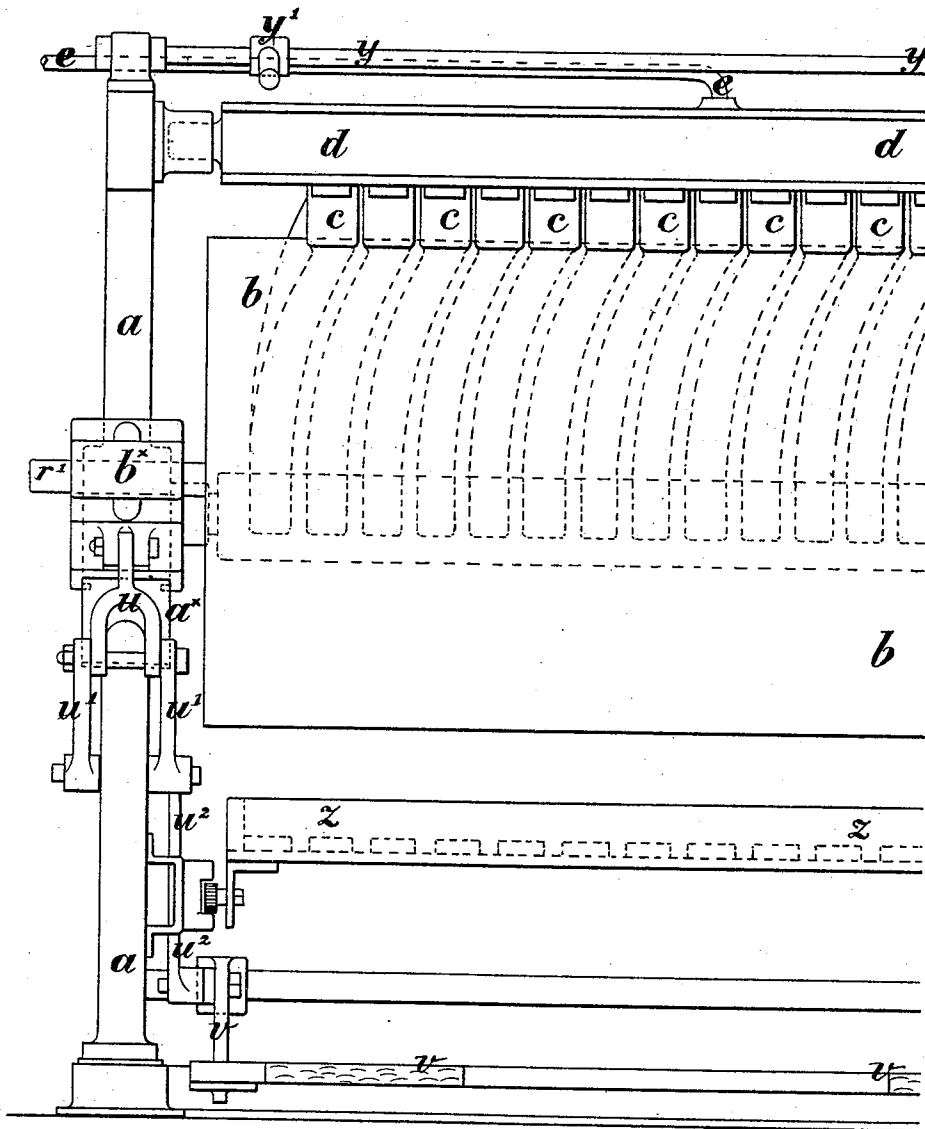
T. BRADFORD.

MACHINE FOR IRONING OR CALENDERING LINEN OR OTHER FABRICS.

No. 372,513.

Patented Nov. 1, 1887.

FIG: 1.



Witnesses:
Alex. Bartoff
William D. Corner

Inventor:
Thomas Bradford
by his Attorneys
Howson & Sons

(No Model.)

4 Sheets—Sheet 2.

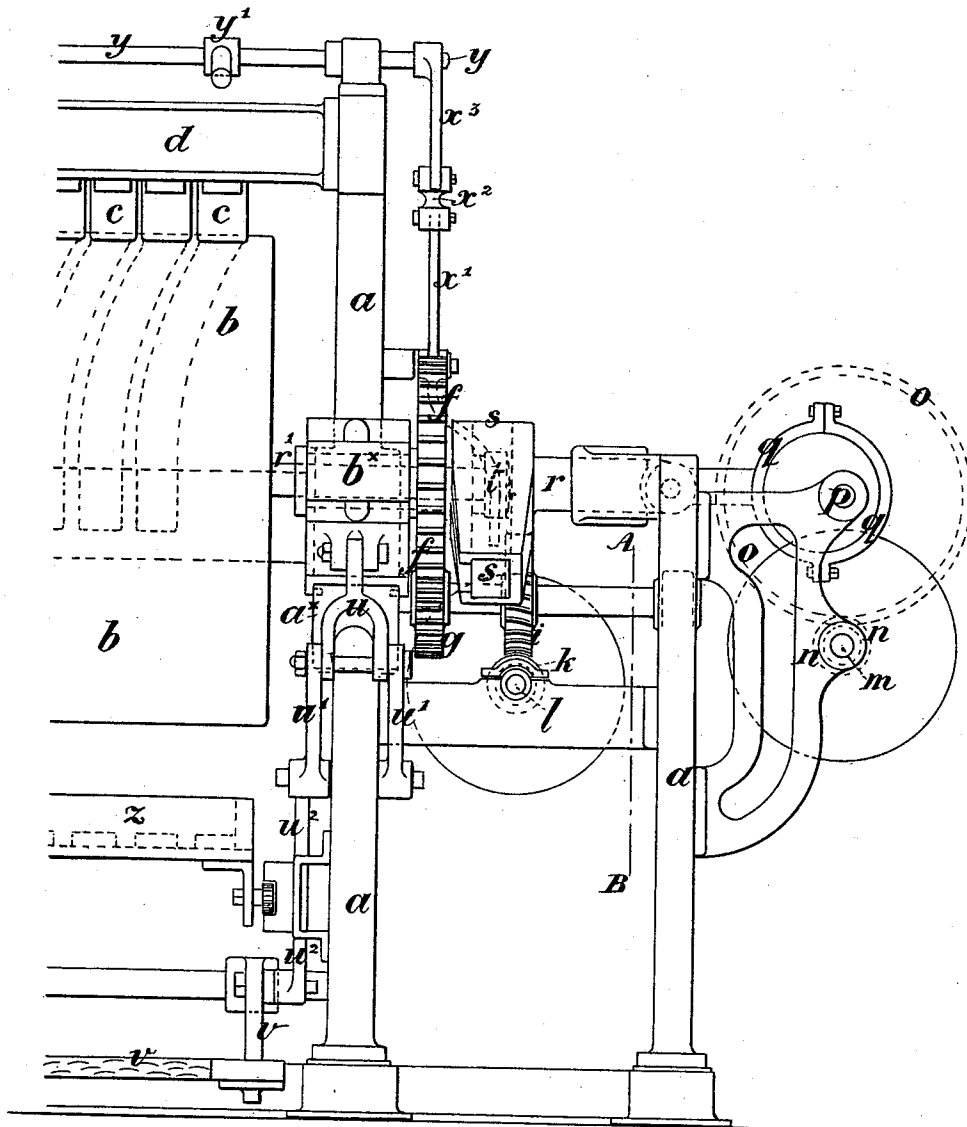
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MACHINE FOR IRONING OR CALENDERING LINEN OR OTHER FABRICS.

No. 372,513.

Patented Nov. 1, 1887.

FIG: 1a.



Witnesses:
Wm. Barkoff
William D. Bonner.

Inventor:
Thomas Bradford
by his Attorneys
Howson & Sons

(No Model.)

4 Sheets—Sheet 3.

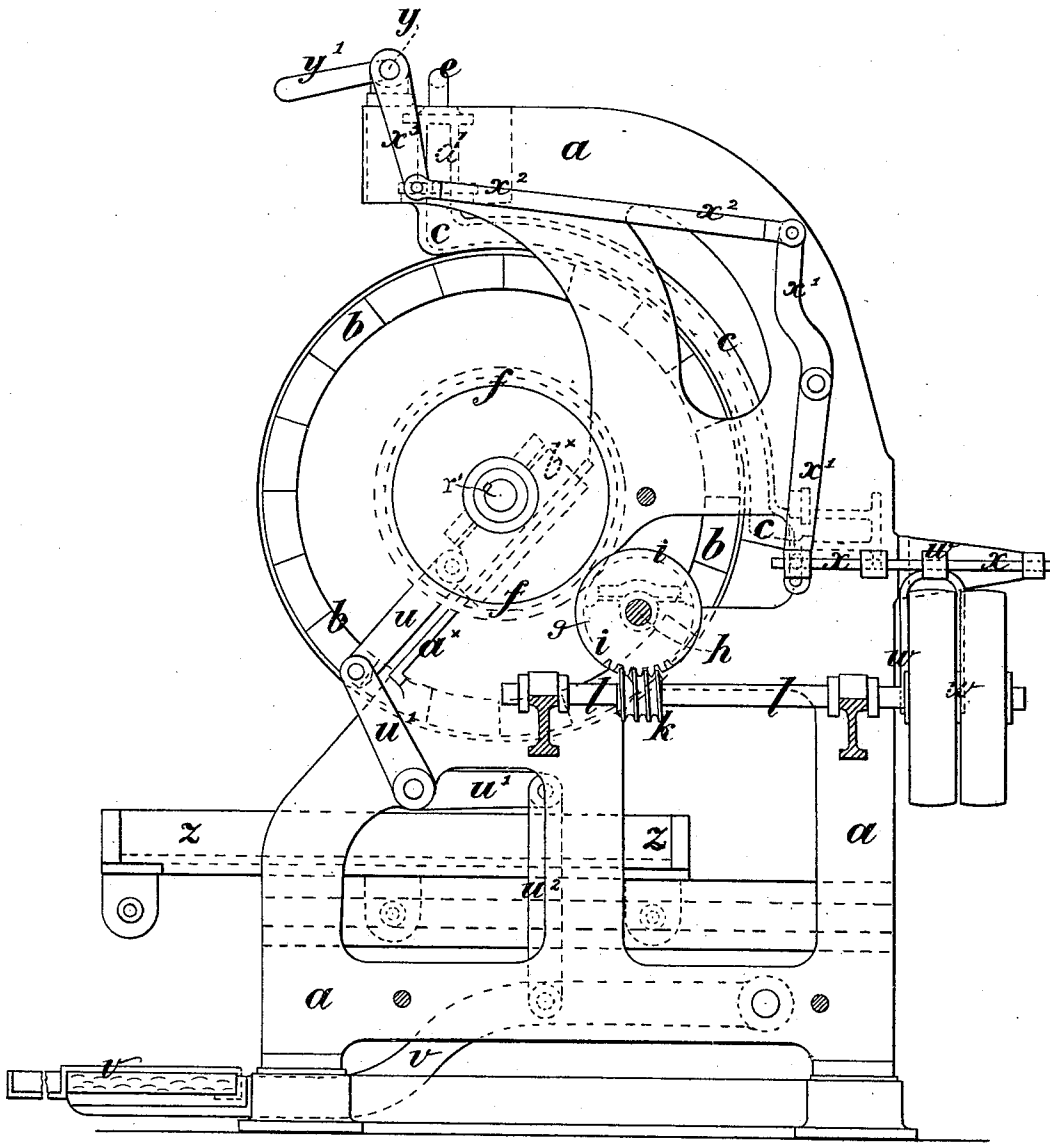
T. BRADFORD.

MACHINE FOR IRONING OR CALENDERING LINEN OR OTHER FABRICS.

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FIG. 2.



Witnesses:
Alv. Barkoff
William D. Souner.

Inventor:
Thomas Bradford
by his Attorneys
Howson & Sons

(No Model.)

4 Sheets—Sheet 4.

T. BRADFORD.

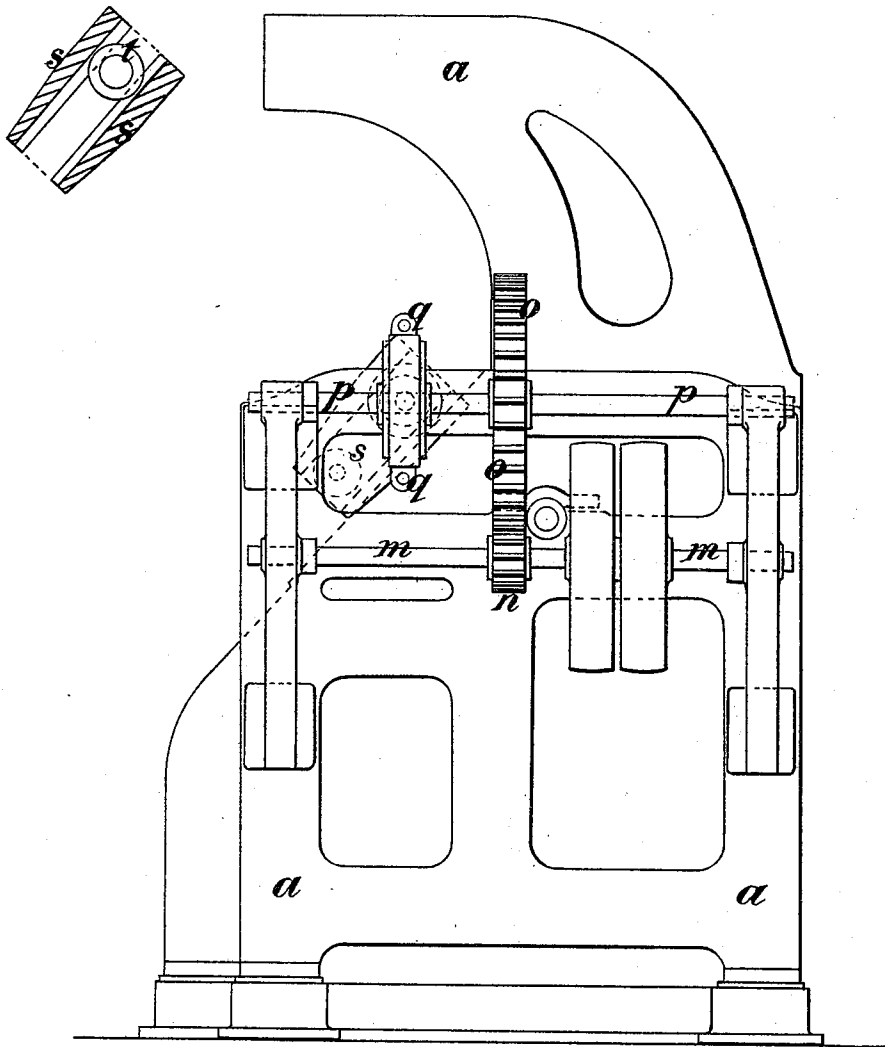
MACHINE FOR IRONING OR CALENDERING LINEN OR OTHER FABRICS.

No. 372,513.

Patented Nov. 1, 1887.

FIG:4.

FIG:3.



Witnesses:
Ally. Barkoff
William D. Bonner

Inventor:
Thomas Bradford
by his Attorneys
Howson & Sons

UNITED STATES PATENT OFFICE.

THOMAS BRADFORD, OF SALFORD, COUNTY OF LANCASTER, ENGLAND.

MACHINE FOR IRONING OR CALENDERING LINEN OR OTHER FABRICS.

SPECIFICATION forming part of Letters Patent No. 372,513, dated November 1, 1887.

Application filed December 30, 1886. Serial No. 222,962. (No model.) Patented in England June 2, 1886, No. 7,366; in Germany December 17, 1886, No. 40,422; in France December 21, 1886, No. 14,047; in Belgium December 22, 1886, No. 75,684, and in Italy January 13, 1887, No. 21,066.

To all whom it may concern:

Be it known that I, THOMAS BRADFORD, a resident of Salford, in the county of Lancaster, England, and a subject of the Queen of Great Britain and Ireland, have invented an Improved Machine for Ironing or Calendering Linen or other Fabrics, (for which I have obtained English Patent No. 7,366, dated June 2, 1886; French Patent No. 14,047, dated December 21, 1886; Belgian Patent No. 75,684, dated December 22, 1886; Italian Patent No. 21,086, dated January 13, 1887, and German Patent No. 40,422, dated December 17, 1886,) of which the following is a specification.

The object of this invention is to construct an improved machine for use in steam-laundries and elsewhere for ironing or calendering table or other linen or fabrics by steam or other power.

The nature of my said invention and the manner in which the same is to be carried into practical effect will be readily understood on reference to the four sheets of drawings hereunto annexed and to the following explanation thereof.

On Sheets 1 and 2 of the drawings, Figures 1 and 1^a are two partial views forming together an entire front elevation of an ironing-machine constructed according to my invention. On Sheet 3 of the drawings, Fig. 2 is a vertical section of the same, taken through about the line A B in Fig. 1^a. On Sheet 4, Fig. 3 is an end view showing a portion of the gearing which is removed in Fig. 2; and Fig. 4 is a detached sectional view of the box *s s*, hereinafter referred to.

I mount a roller, *b b*, of suitable length and diameter, in bearings, as hereinafter described, upon the frame *a a*. This roller *b b* is made of wood, metal, or other suitable material, and covered with flannel-ironing-blanket or ironing-cloth. Immediately over this roller *b b*, I fix in the frame-work *a a* a series of curved hollow irons, *c c*, corresponding in the form of their lower side with the curve of the roller *b b* and covering about one-third of the circumference of the same. These hollow irons *c c* are placed diagonally to the axis of the roller *b b*, so that they assume a spiral form, like the threads of a screw, as shown at Figs.

1 and 1^a. They are placed a certain distance apart, so that they overlap each other in a spiral form, as before mentioned, and thus, although having spaces between them, they operate upon every part of the roller *b b*, or of the fabric which is placed upon such roller for the purpose of being carried between the latter and the spiral-shaped irons *c c* above the same. I propose to grind, glaze, or otherwise finish the under surface of these irons *c c*, which comes in contact with the fabric, and I sometimes round off the side edges of the same, so that they may pass more smoothly over the surface of the fabric. The irons *c c* are attached to a steam-box, *d d*, which is supplied with steam from any convenient source by means of a pipe, *e e*. The irons may, however, be heated in any other suitable manner, if preferred.

The roller *b b* may be caused to revolve in any suitable manner, and in order to give a greater effect to the polishing power of the spirally-shaped heated irons *c c*, I propose at the same time to give a lateral to-and-fro motion (endwise of the axis) to the roller *b b* as well as a forward or revolving motion.

In the machine illustrated by the drawings the forward or revolving motion is given to the said roller as follows: Upon or near one end of the axis *r'* of the same is a spur-wheel, *f f*, Figs. 1^a and 2, sliding on a feather or key and gearing into a pinion, *g g*, keyed upon a counter-shaft, *h h*, upon which is also keyed or fixed a worm-wheel, *i i*, in gear with a worm, *k k*, upon the main driving-shaft *l l*. The lateral or endwise motion is given to the roller *b b* in the following manner: Upon a secondary driving-shaft, *m m*, is keyed a spur-pinion, *n n*, gearing with a spur-wheel, *o o*, fixed upon a shaft, *p p*, upon which is also keyed an eccentric, *q q*. The rod attached to the clip of this eccentric is jointed to a bar, *r r*, the other end of which carries a slotted arm or box, *s s*, in which a head or disk, *t t*, at the end of the axis *r'* of the roller *b b* works. This arm or box *s s* (a section of which is shown detached at Fig. 4) is inclined forward at an angle, for a reason hereinafter explained.

The bearings *b^x b^x*, which carry the axis *r'* of the roller *b b*, are each mounted upon an

inclined part, $a^x a^x$, of the framing $a a$, (see Fig. 2,) in such a manner that they can slide upward or downward toward or from the curved irons $c c$, as required, and I propose to exercise upward pressure upon the said roller, when in work, by means of links $u u$ and $u^2 u^2$ and bell-crank levers $u' u'$, which are pivoted to the frame, the links u being connected with a treadle, $v v$, extending from side to side of the machine. The roller $b b$ thus acts as a counterbalance-weight to withdraw itself from the surface of the hot irons $c c$ as soon as the pressure of the operative's foot is withdrawn from the treadle $v v$, either to release the fabric from pressure or to remove the roller sufficiently to allow of wiping or cleaning the under surface of the irons.

The slotted arm or box $s s$ is placed at an inclination corresponding with that of the part $a^x a^x$ of the frame to allow of this movement taking place without withdrawing the head or disk $t t$ of the axis $r' r'$ of the roller $b b$ from its connection with the same.

The strap-fork $w w$ is connected by the rod $x x$, levers $x' x'$ and $x^2 x^2$, and link $x^3 x^3$ to a rod or shaft, $y y$, extending across the machine, so that by means of the hand-levers $y' y'$ the operative can reach from any part of the front to throw the strap off; or, if preferred, the strap-fork may be connected to a treadle, so that the operative can work it by the foot, so as to throw the roller into or out of action without using the hands.

$z z$ is a movable tray fitting in grooves in the framing for receiving the fabric and conveying the same to and from the machine.

I claim—

1. The combination of an ironing or calendering roller and mechanism, substantially as described, for imparting a longitudinal reciprocating and a rotary movement thereto, with a series of curved heated irons arranged spirally to overlap each other, substantially as described. 40

2. The combination of an ironing or calendering roller and mechanism, substantially as described, for imparting a rotary movement and a longitudinal reciprocating movement thereto, with a series of curved heated irons overlapping each other, sliding bearings for the roller-shaft, and devices, substantially as set forth, for moving the bearings and the roller toward or from the irons. 50

3. The combination of a rotary ironing or calendering roller with a series of separate curved heated irons constructed to overlap, substantially as set forth. 55

4. The combination of a rotary ironing or calendering roller with a series of curved and overlapping irons and a steam-box through which the several irons communicate, substantially as specified. 60

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

THOMAS BRADFORD.

Witnesses:

CHARLES A. DAVIES,
JNO. HUGHES.