

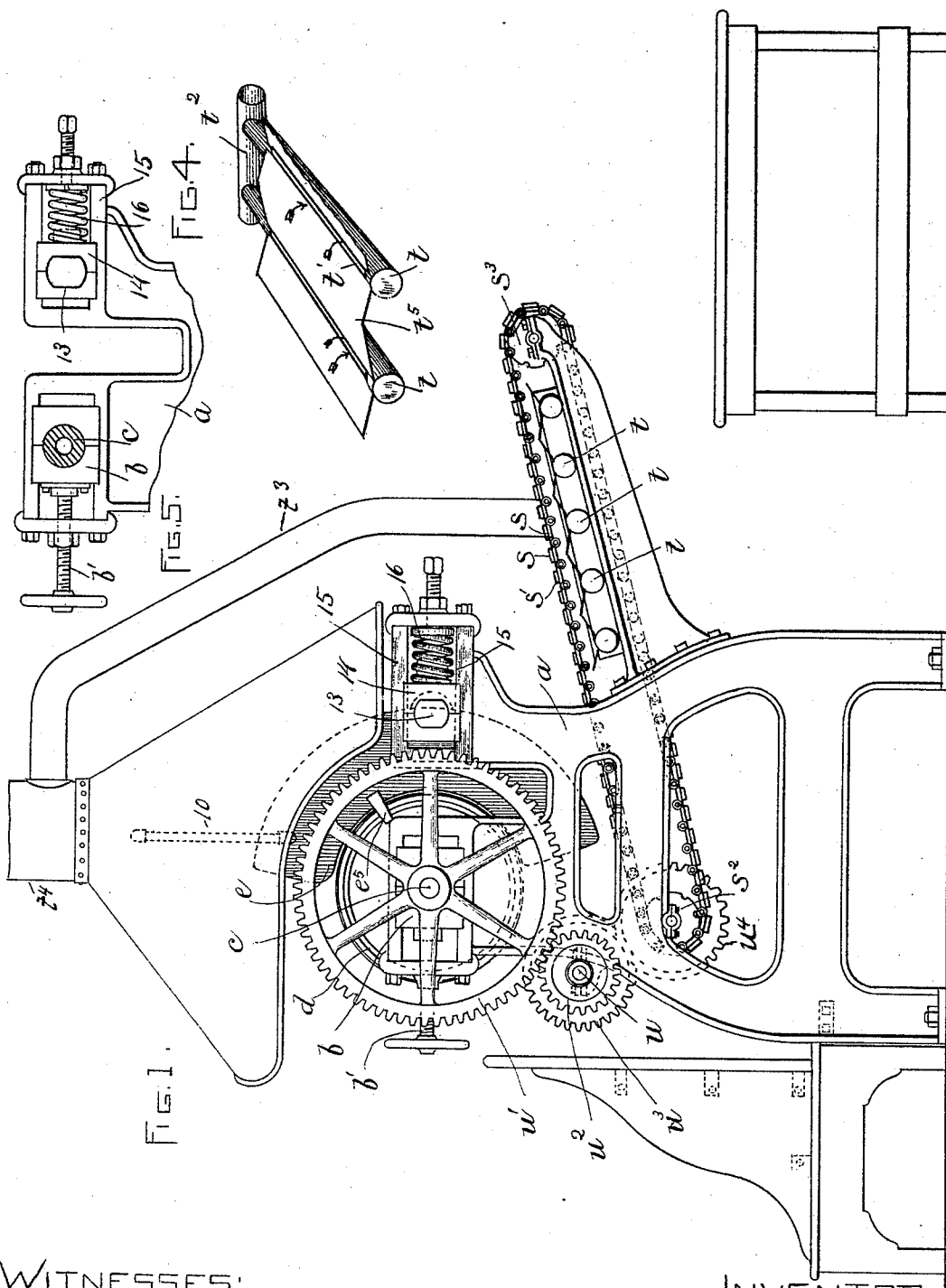
(No Model.)

J. G. CRAWFORD.
IRONING MACHINE.

3 Sheets—Sheet 1.

No. 495,310.

Patented Apr. 11, 1893.



WITNESSES:
A. D. Harmon.
P. A. McShane.

INVENTOR:
J. G. Crawford by
Knight, Brown & Co.
Attys.

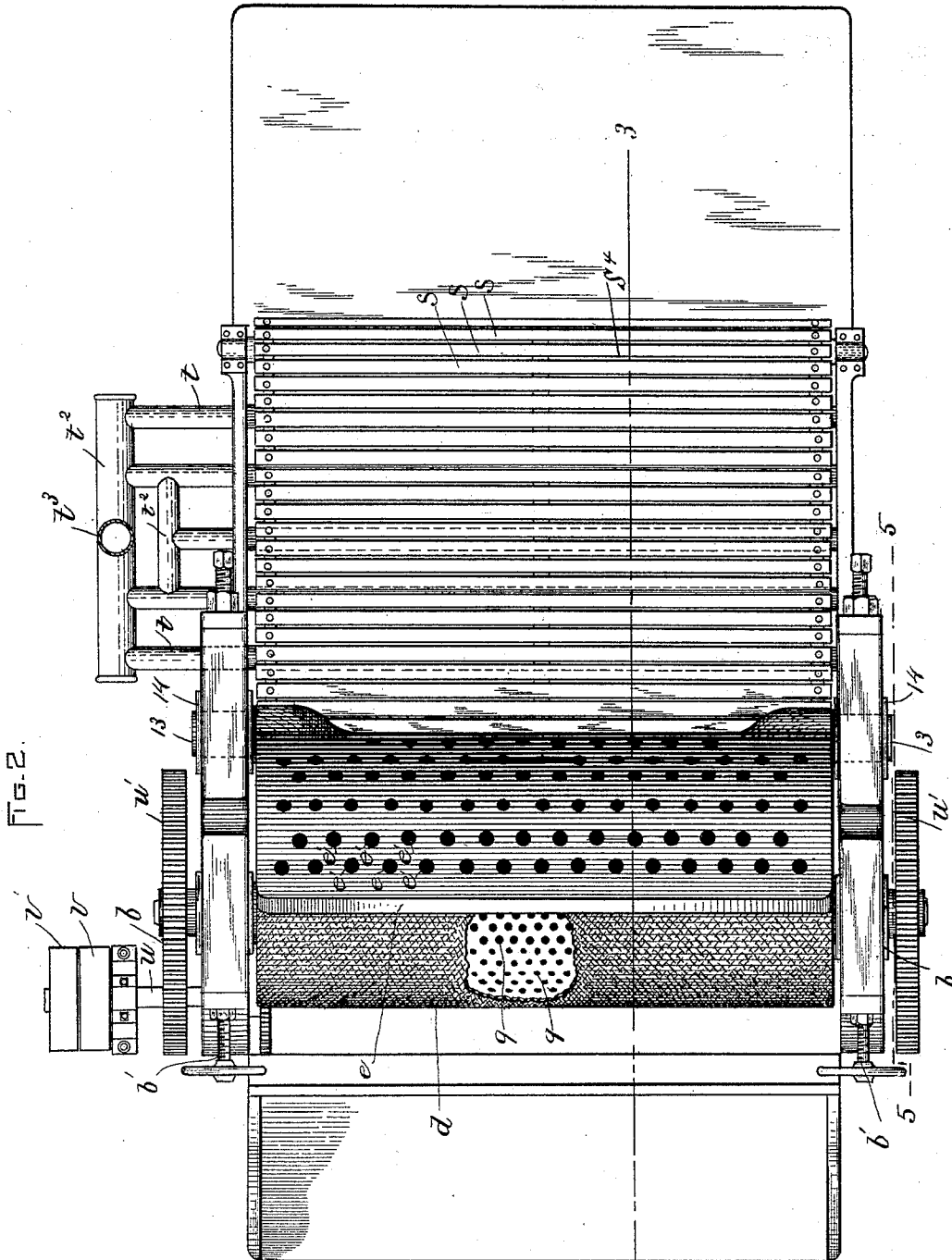
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3 Sheets—Sheet 2.

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Patented Apr. 11, 1893.



WITNESSES:
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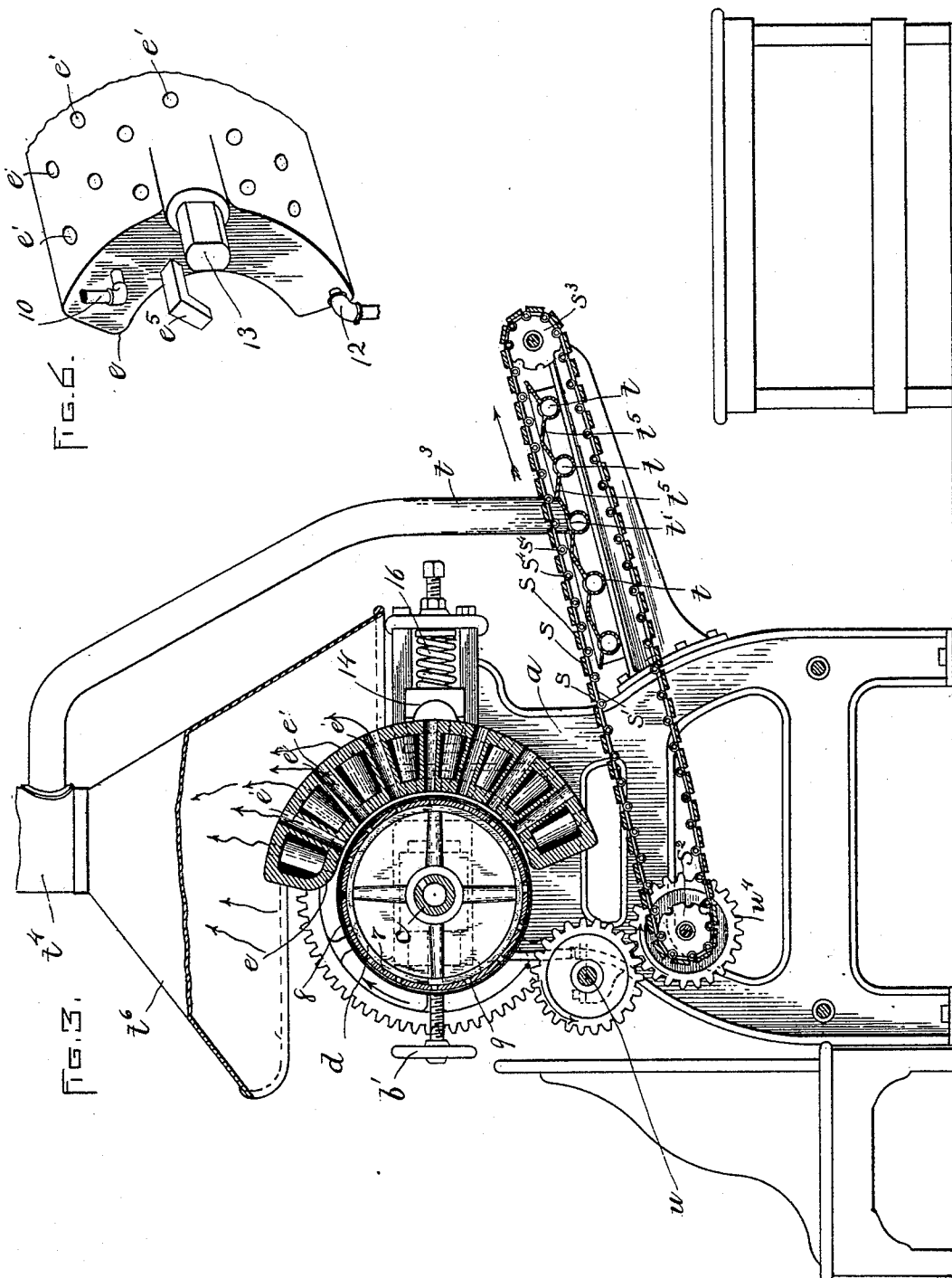
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3 Sheets—Sheet 3.

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IRONING MACHINE.

No. 495,310.

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WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES G. CRAWFORD, OF BOSTON, MASSACHUSETTS.

IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 495,310, dated April 11, 1893.

Application filed November 20, 1891. Serial No. 412,523. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. CRAWFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Ironing-Machines, of which the following is a specification.

This invention relates to that class of ironing machines in which the fabrics to be ironed are passed between a concave bed having a polishing surface, and a rotating roll covered with felt, or other yielding material.

The invention has for its chief object to facilitate the removal from fabrics of the steam or vapor which is generated by the action of the concave ironing surface, the latter being heated.

The invention also has for its object to provide certain improvements in the general construction of a machine organized to iron fabrics by passing them between a rotating roll and a heated ironing surface.

To these ends the invention consists in the construction and combination of parts as hereinafter described and claimed.

Of the accompanying drawings, forming a part of this specification, Figure 1—represents a side elevation of an ironing machine embodying my improvements. Fig. 2—represents a top plan view of the same, with parts broken away. Fig. 3—represents a section on line 3—3 of Fig. 2. Fig. 4—represents a perspective view of portions of the air exhausting apparatus located within the space surrounded by the endless conveyer. Fig. 5, represents a section on line 5—5 of Fig. 2. Fig. 6, represents a perspective view of a portion of the ironing bed.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, "a" represents the supporting frame of the machine, which may be of any suitable construction, and is provided with bearings in which are mounted boxes "b b" which support the journals of the shaft "c," on which is mounted the roll "d," which carries the fabrics to the ironing bed "e."

The roll "d" is hollow and is provided with a perforated or open periphery "7" supporting yielding covering "8" of felt or other suitable material. The open periphery "7" is

preferably of sheet metal provided with numerous perforations "9," although it may be made of slats separated by parallel slots, the object being to provide openings in the portion of the roll that supports the yielding covering, for the passage into the interior of the roll of such vapor or moisture as may pass through or into the felt covering "8." In practice, I connect with the shaft "c," which is tubular, a suitable air exhausting apparatus which causes an outward draft from the interior of the cylinder and removes the moisture from the felt covering "8."

There is nothing new in the construction of the roll "d" or in the provision of means for exhausting air from the interior of said roll, an equivalent construction and arrangement being shown in Letters Patent No. 447,559, granted to me March 3, 1891.

The ironing bed "e" is a metallic chamber of concavo-convex form in cross section, and is adapted to receive steam through an inlet pipe "10," and to discharge steam and the water of condensation through an outlet pipe "12," (see Fig. 6.) The bed "e" is provided at its end with trunnions "13" which are journaled in bearings formed in blocks "14" which are fitted to slide horizontally in guides or ways 15—15 on the supporting frame, said blocks being normally pressed toward the axis of the roll "d" by means of springs "16." The blocks 14, as shown in Fig. 1, are divided vertically, and each half has a recess which, instead of being semi-circular, has a flat bottom. The trunnions 13 have two flattened sides which bear against the flat bottoms of the bearing block recesses, under the stress of springs 16. This construction preserves the normal position of the bed with its concave face concentric with the axis of the roll "d," and yet permits the said bed to rock or tilt for the purpose hereinafter described. The concave side of the bed "e" is presented to the roll "d," its curvature being such as to cause it to conform to the periphery of said roll.

"e' e'" represent air passages or ducts passing through the ironing bed "e," the inner ends of said passages extending through the concave inner surface of the bed, while their outer ends extend through the convex outer side of said bed. The object of said passages

is to permit the free escape of the vapor which is formed by the action of the heated surface of the ironing bed on the fabrics passing between said bed, and the roll "d."

5 It will be seen that by providing the ironing bed with air passages, as described, I make ample provision for the removal of the moisture from the exterior of the felt covering and from the goods passing between said cover-
10 ing and the ironing bed, the moisture being in fact removed in two directions, or from both surfaces of the goods, namely, in an outward direction through the air passages "e'," and in an inward direction through the open-
15 ings in the periphery of the roll "d." The drying of the fabrics is thus greatly facilitated, so that by a single passage between the roll and the ironing bed, they are suitably dried and finished.

20 The pivotal connection of the ironing bed "e" to the supporting boxes "14" enables the bed to rock so that it can conform to irregularities in thicknesses of the fabrics passing between it and the roll "d." The yield-
25 ing movement of the boxes, "14" enables the entire bed to move bodily toward and from the roll "d," so that fabrics of any desired thickness can be passed between the roll and bed.

30 The roll "d" may be adjusted toward and from the bed by means of adjusting screws "b' b'" mounted in sockets in the supporting frame and bearing on the boxes "b" which support the shaft "c."

35 Below the roll "d" and ironing bed "e" is a conveyer for the ironed fabrics that drop from between said roll and bed, said conveyer consisting of a series of slats "s" mounted upon endless sprocket chains "s'" which are
40 supported by sprocket wheels "s² s³" the shafts of which are journaled in bearings on the supporting frame. The slats "s" are separated by spaces "s⁴" which permit the passage of air between the slats into the space
45 surrounded by the series of slats.

"t t" represent air tubes which are located side by side in said space and have openings
50 "f" in their upper sides, which openings are in close proximity to the under sides of the slats. Said tubes are connected by lateral tubes "f²" with a trunk or flue "f³" which communicates with a main trunk "f⁴," the
55 latter being connected with an air forcing apparatus which is adapted to draw currents of air through the tubes "t," "f²" and "f³." Between the tubes "t" are partitions or def-
60 flectors "f⁵" arranged to deflect that air that is drawn down through the spaces "s⁴" into tubes "t." The lower end of the trunk "f⁴" is provided with a hood "f⁶" which is arranged over the ironing bed "e" and roll "d," so that the upward current of air through the trunk "f⁴" draws the moisture and vapor from the ironing bed and roll, as indicated by the ar-

rows in Fig. 3. It will be seen that the cur- 65
rents of air drawn through the tubes "t" cause a downward draft through the spaces between the slats of the conveyer, and thus
70 tend to free the fabrics passing along said conveyer from any moisture that may have remained therein after the fabrics have passed from the ironing bed. The conveyer is moved
75 in the direction indicated by the arrow in Fig. 3 and roll d is rotated by means of a shaft "u" journaled in bearings on the sup-
porting frame, a gear "u'" affixed to the shaft
80 "c" and meshing with a pinion "u²" on the shaft "u," and a gear "u³" affixed to the shaft "u" and meshing with a gear "u⁴" on the shaft of the sprocket wheels "s² s³."

Power is imparted to the shaft "u" by mea- of a belt running on a pulley "v" on
said shaft; a loose pulley "v'" is provided on the shaft "u" beside the pulley "v."

The pivots of the bed are located below 85
the center of gravity, so that the upper end of the bed gravitates toward the roll. To prevent the upper end of the bed from com-
90 ing in contact with the roll, I provide a projection or stop "e'" on the bed arranged to strike the supporting frame and properly
limit the gravitating movement of the upper end of the bed.

I claim—

1. In an ironing machine, the combination 95
with a positively rotated cloth surfaced roll, of an ironing bed, having flattened trunnions and divided spring-pressed boxes mounted in the frame, said boxes having flattened
100 bottoms, substantially as and for the purpose set forth.

2. In an ironing machine, the combination 105
of the cloth covered roll, the ironing bed having air passages, the endless conveyer, the air tubes located in the space surrounded by the conveyer, said tubes having openings
110 arranged to receive air from said space, and means for conducting air from said space and from the vicinity of the ironing bed, as set forth.

3. In an ironing machine, the combination 115
with a rotated roll of an ironing bed having flattened trunnions below its center of gravity whereby its upper end is caused to gravitate toward the roll, sliding spring pressed boxes
120 mounted in the frame and having flattened surfaces to engage the flattened portions of the trunnions, the said bed being provided with a stop to properly limit the gravitating movement of its upper end, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of November, A. D. 1891.

JAMES G. CRAWFORD.

Witnesses:

C. F. BROWN,

A. D. HARRISON.