

E. N. CHANDLER.
ELECTRICALLY HEATED PRESS FOR LEATHER WORK.
APPLICATION FILED JUNE 8, 1909.

984,508.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

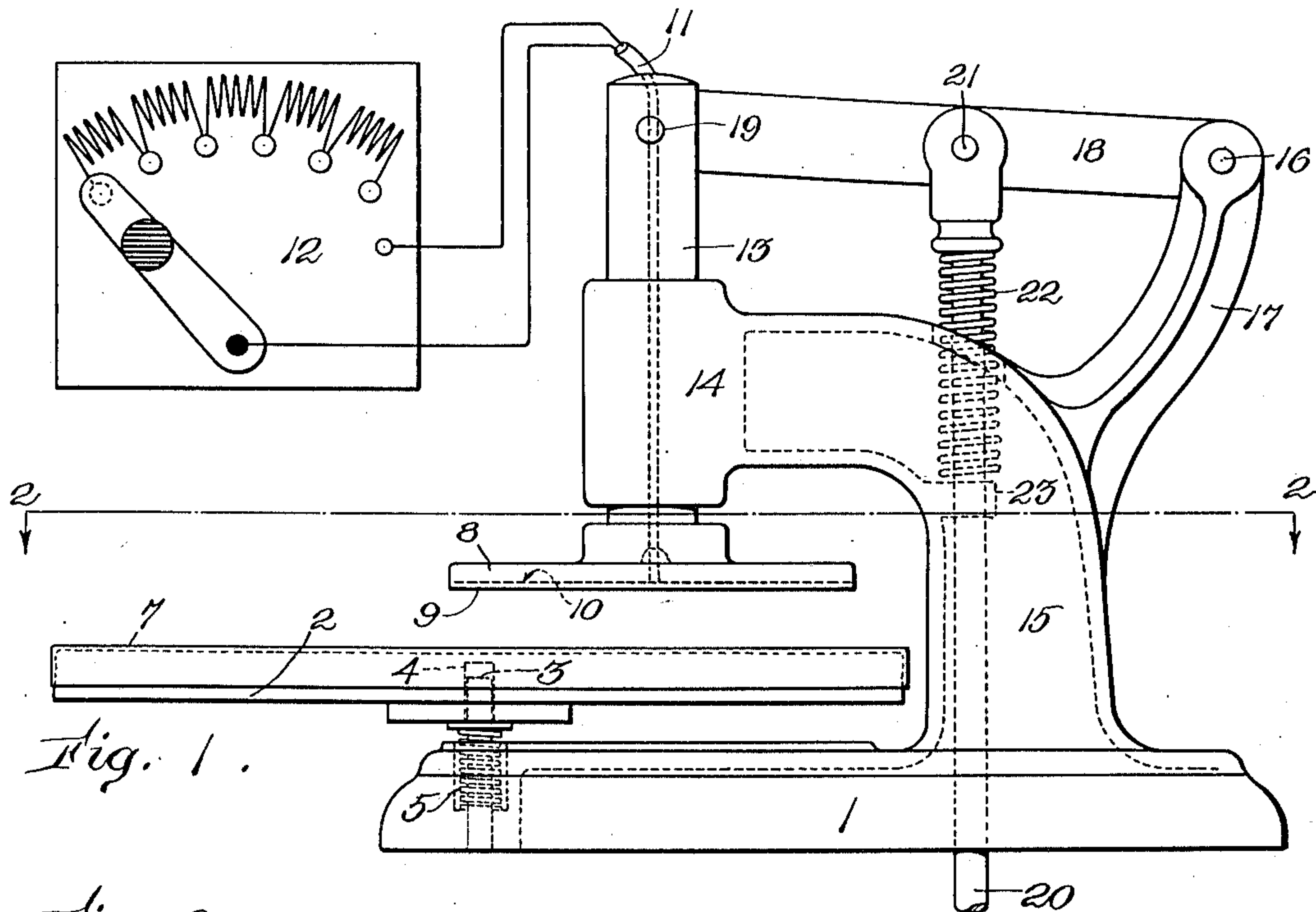
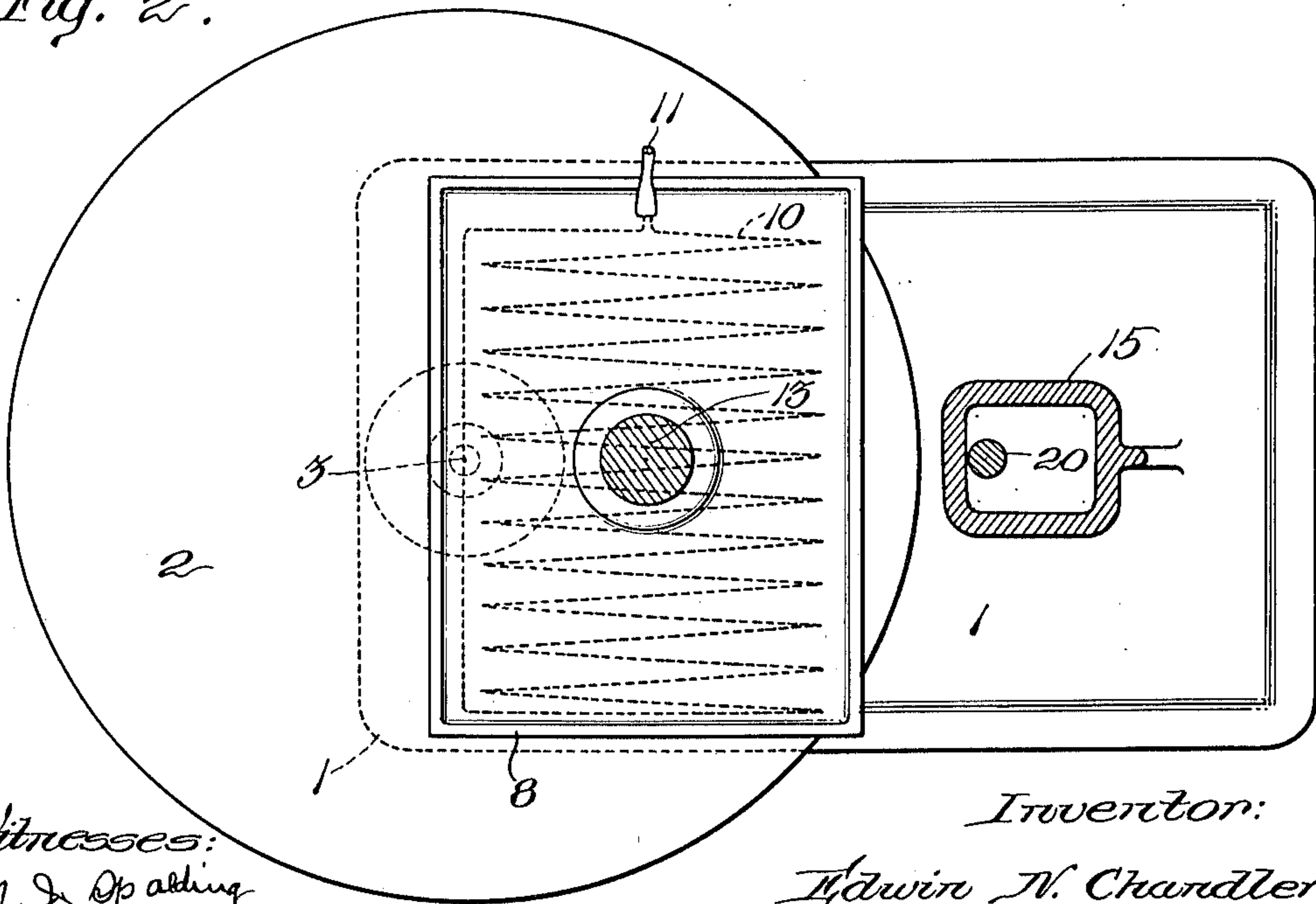


Fig. 1.

Fig. 2.



Witnesses:
M. J. Spalding
Wm. J. Pike.

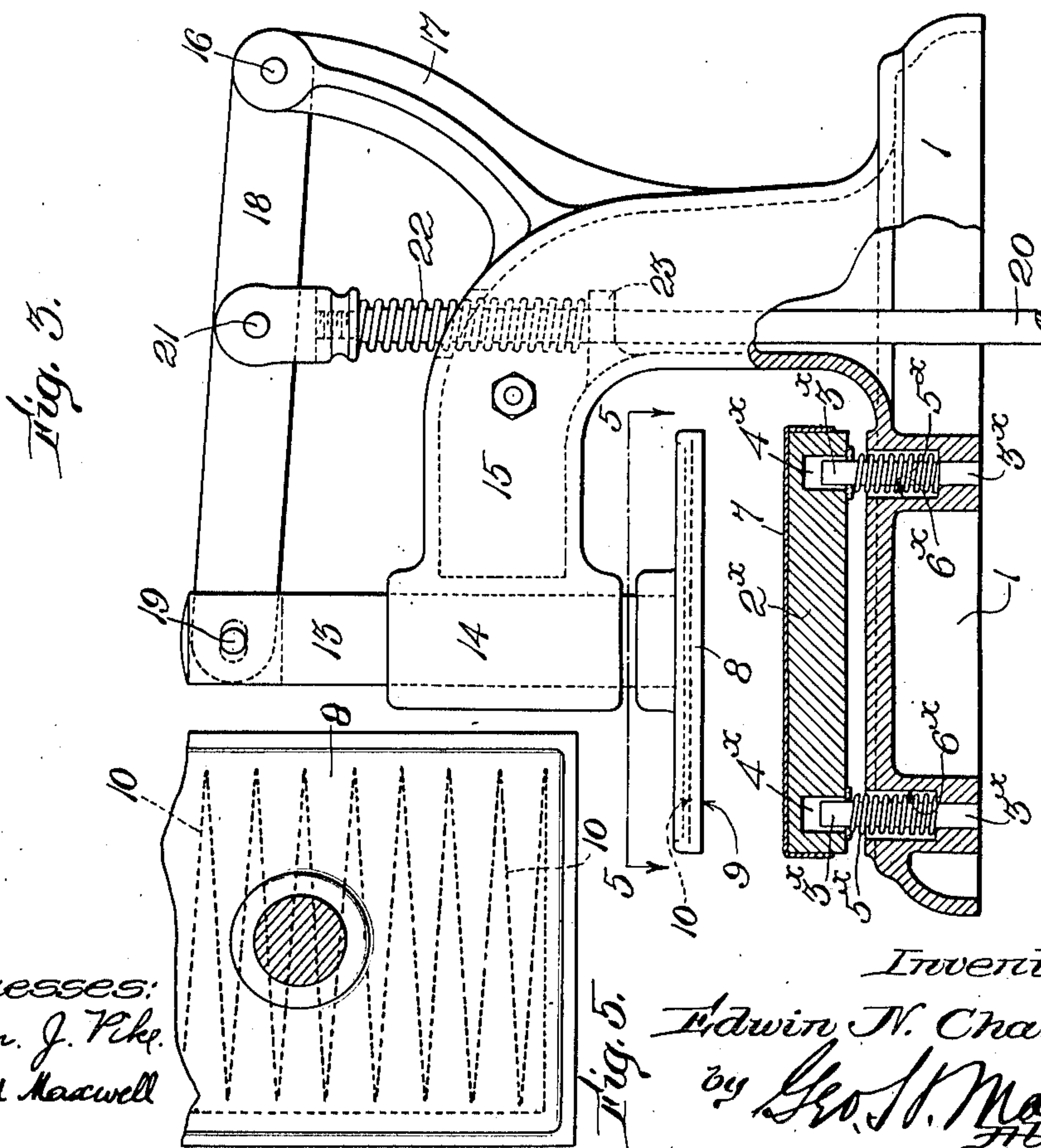
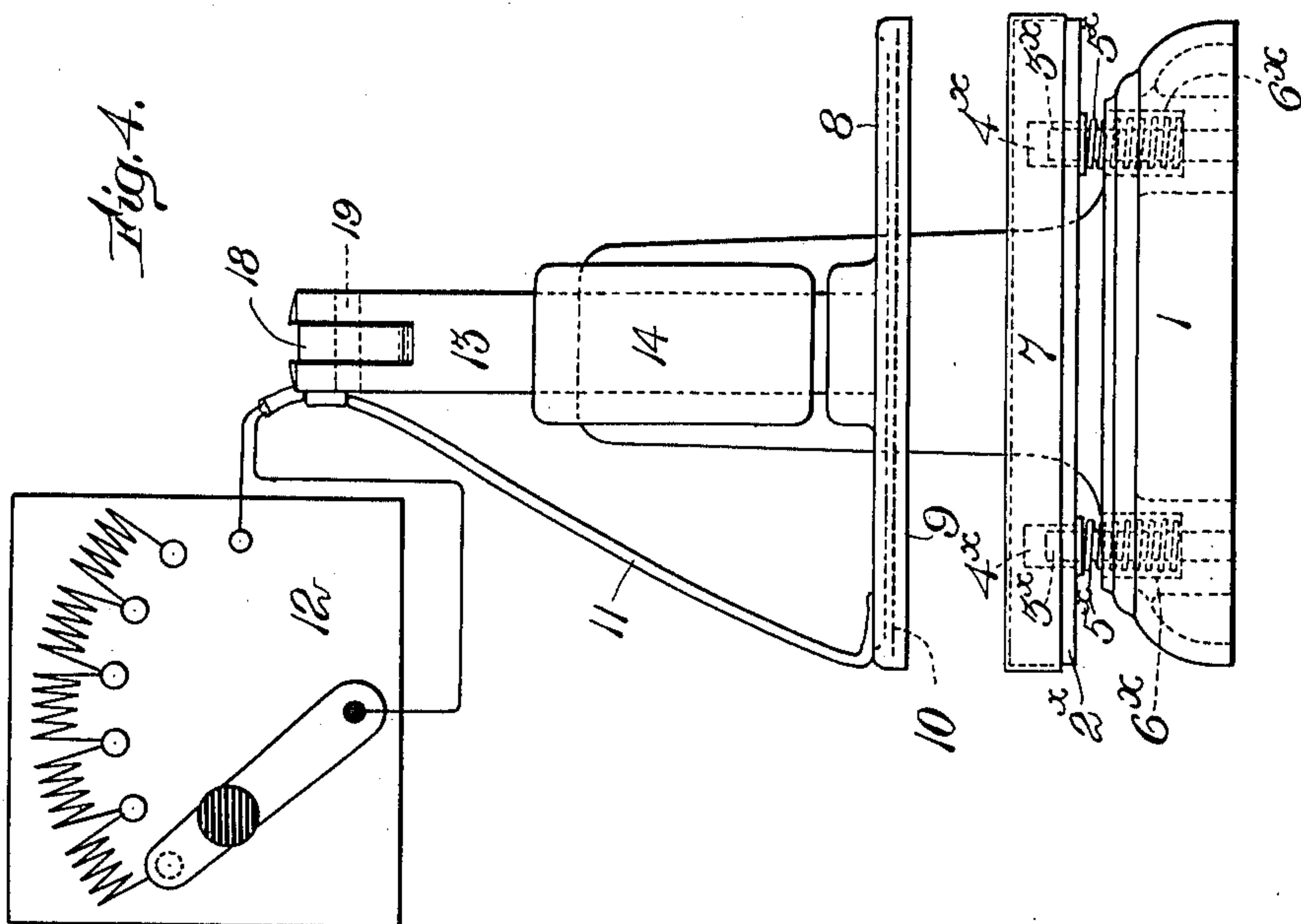
Inventor:
Edwin N. Chandler,
by Geo. H. Maxwell,
Attorney.

E. N. CHANDLER.
ELECTRICALLY HEATED PRESS FOR LEATHER WORK.
APPLICATION FILED JUNE 8, 1909.

984,508.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 2.



Witnesses:
Wm. J. Pike
Edward Maxwell

Fig. 5.

Inventor:
Edwin N. Chandler,
by Geo. S. Maxwell,
Attorney.

UNITED STATES PATENT OFFICE.

EDWIN N. CHANDLER, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO SIMPLEX ELECTRIC HEATING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

ELECTRICALLY-HEATED PRESS FOR LEATHER-WORK.

984,508.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed June 8, 1909. Serial No. 500,799.

To all whom it may concern:

Be it known that I, EDWIN N. CHANDLER, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented an Improvement in Electrically-Heated Presses for Leather-Work, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the shoe and leather industry many leather articles, such as in-soles, shoe tops, stays, etc., are reinforced by the application of canvas lining or other textile fabrics to the leather. This has heretofore been accomplished by coating either the leather or fabric, and usually both, with rubber cement or the like and after it has set then passing them between heated rollers or passing over them a heated ironing tool. In this ironing operation however it is impossible to avoid stretching one surface more than the other and otherwise distorting the product so that the reinforced leather is uneven and imperfect. In my experience in shoe factory work I have found that I can secure superior results by providing uniform vertical pressure simultaneously throughout the entire area of the article. Accordingly my present invention is a machine for accomplishing this uniform pressure under the most favorable conditions. I secure uniform pressure by providing a press with a self-aligning bottom portion or plate on which the leather is placed and I secure uniform accurate heating by providing the top plate with electric resistance heating means next to the plate surface which engages the reinforcing fabric on the leather. Preferably the self-aligning of the bottom is secured by providing the lower plate with one or more spiral supporting springs so that the plate automatically adjusts itself to the thickness of the leather and its reinforcing layer, so that the fabric is not drawn or pulled at any point and the two layers of leather and fabric are not unequally compressed or heated at any point. If the material has a thicker portion, it is not crushed nor are the other portions not well set together, but the press automatically aligns itself so as to apply uniform pressure at all points and also uni-

form heat at all points. The spring supported base also prevents excessive pressure.

The constructional details and further advantages of my invention will be pointed out more at length in the course of the following description taken with reference to the accompanying drawings, in which I have shown a preferred embodiment of the invention.

In the drawings, Figure 1 represents the apparatus in side elevation; Fig. 2 is a cross-sectional view on the line 2—2, Fig. 1; Fig. 3 shows in side elevation a modified construction, the lower portion being broken away and sectioned for clearness of illustration; Fig. 4 is a front elevation thereof; and Fig. 5 is a sectional view on the line 5—5 Fig. 2.

The general construction of the press may be greatly varied inasmuch as my invention relates primarily to the provision for combining uniform pressure and heat to the leather and fabric being united, so that no portion thereof will be crushed or squeezed and stretched in order to unite the remaining portions, but the machine itself automatically applies the right pressure and uniform pressure and heat equally to all parts of the work.

Mounted on a base 1 is a bottom plate or table 2 guided and preferably pivoted on a post 3 and a socket 4 and surrounded by a spring 5. The post extends up above the base and yieldingly supports the weight of the bottom plate 2, said spring being retained in a housing or recess 6 formed around the post 3 in the base 1. Preferably a cloth or other covering 7 is provided on the top surface of the bottom plate 2. Above the bottom plate 2 is a top plate 8 which may be thick or thin, being herein shown as thin, for best carrying out the object of the invention. In this plate, preferably as close as practicable to the bottom plane surface or pressing face 9 thereof, I provide resistance wires 10 as best shown in Fig. 2, whose circuit wires connect by a conductor 11 to a rheostat or other controlling apparatus 12 so as to maintain the top plate 8 properly and uniformly heated. This plate is secured to a post or plunger 13 mounted to slide in the outer end 14 of a supporting bracket 15 which extends up

integrally from the base 1. Pivoted at 16 on an arm 17 extending upwardly from said bracket is a lever 18 loosely pivoted at 19 to the upper end of said post or plunger 13 and operated by a treadle rod 20 pivoted thereto at 21 and normally held up by a spring 22 surrounding said rod and supported at its lower end on a lug 23 in the hollow standard or bracket 15 through which the treadle rod passes (treadle not shown).

In Figs. 3-5, instead of having a pivoted or centrally supported bottom plate or table with the top plate eccentric thereof, I have shown a bottom plate 2* supported at its corners on posts 3* held in housings 4* yieldingly by springs 5* in housings 6*. This construction secures substantially the same automatic alinement of the bed or table by which it yields so as to conform accurately to the varying thickness of the work, but the preferred construction has the added advantage of facilitating the progress of the work inasmuch as a fresh piece of work is being laid on the projecting portion of the table while a previous piece is being heated and pressed on the rear part of the table, and as soon as the two pieces are ready the treadle is raised so as to free the table and the latter is turned around bringing the new piece beneath the top plate and the pressed piece toward the front in position for removal. By having the top plate or pressing plate arranged to extend beyond the centrally yielding support of the rotary table the pressure on the bottom plate or table 2 tends to exert only vertical movement of the latter, so that all the tilting or alining movement or tendency is due merely to the unevenness of the material which is placed between the two plates.

In use, the leather and reinforcing fabric are coated in usual manner with rubber cement, which is then allowed to dry or set. The electric current is then turned on by means of the rheostat so as to bring the under surface 9 of the top plate into the required gently heated condition, and the two layers are then placed in proper position with relation to each other between the top and bottom plates of the press, the leather being usually placed on the bottom plate 2 with the reinforcing fabric on top so that it will receive the top plate 8 in direct contact therewith. The treadle is then depressed, operating through the rod 20, lever 18, and plunger 13 to depress the top plate 8 forcibly against the reinforcing fabric side of the work, and as said plate presses firmly against the work the bottom plate 2 yields and rocks or tilts automatically, by reason of its spring support or supports, to conform to the requirements of whatever inequality may exist in the work, so that the

pressure on the work is thereby rendered uniform. Not only is the pressure vertical or perpendicular to the leather and the fabric as distinguished from the usual ironing and stretching operation, but because of the resilient bottom plate excessive pressure is prevented and the pressure is firm and even at all points. I have found it practicable to produce a perfectly uniform product with this press and in much less time than required by the old method. The work remains but an instant under the heating pressure inasmuch as the heat is applied uniformly and simultaneously at all points and passes instantly through the fabric to the cemented surfaces so as to convert the latter instantly into the required condition for uniting permanently and perfectly the two layers under the uniform pressure of the unyielding plate 8 and the yielding self-alining plate 2.

While I have described my invention in connection with its primary object, I wish it understood that its use is not restricted to the shoe and leather industry and that its constructional features may be varied to a limited extent within the spirit and scope of the claims as hereinafter set forth.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A heated press for preparing reinforced products, comprising a bottom plate, means for mounting the same to be bodily yieldable, said means being constructed to permit universal tipping of said plate so as to be self-alining with reference to a top plate, a top plate with provision for heating the same, normally parallel to the bottom plate, and means for moving one of said plates forcibly toward the other for equally compressing and heating the material being reinforced.

2. A heated press for preparing reinforced products, comprising a bottom plate, means for mounting the same to be bodily yieldable, said means being constructed to permit universal tipping of said plate so as to be self-alining with reference to a top plate, an electrically heated top plate normally parallel to the bottom plate, a vertically movable plunger carrying said top plate, means normally holding said top plate and plunger raised, and means for depressing them toward the bottom plate for equally compressing and heating the material being reinforced.

3. A heated press for preparing reinforced products, comprising a work-receiving plate and an opposite electrically heated plate, normally parallel to each other for receiving a piece of work between them, supporting means for one of said plates comprising a supporting post and spring constructed to permit its plate to yield bodily

and also to tip out of parallelism to said other plate in any direction to maintain uniform contact and pressure against said piece when the sides of the latter are not parallel, and means for moving one of said plates forcibly toward the other.

4. A heated press for preparing reinforced products, comprising a vertically movable pressure-applying plate, a work-receiving plate, pivotally mounted and having provision for yielding vertically out of parallelism with the other plate to aline itself with a piece of work whose opposite sides are not parallel, when said piece of work is pressed hard by the pressure-applying plate, and means for heating one of said plates.

5. A heated press for preparing reinforced products, comprising a work-receiving plate mounted to turn horizontally on a vertical pivot and having provision for yielding tipping on said pivot, an opposite vertically movable pressure-applying plate, mounted eccentrically above said piv-

oted work-receiving plate to apply pressure to work when placed at one side of the latter, and means for heating one of said plates.

6. A heated press for preparing reinforced products, comprising a work-receiving plate mounted to turn horizontally on a vertical pivot and having provision for yielding tipping on said pivot, an opposite vertically movable pressure-applying plate, mounted eccentrically above said pivoted work-receiving plate to apply pressure to work when placed at one side of the latter, said pressure-applying plate overlapping the work-receiving plate slightly beyond the pivot thereof, and means for heating one of said plates.

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

EDWIN N. CHANDLER.

Witnesses:

EDWARD MAXWELL,
M. J. SPALDING.