

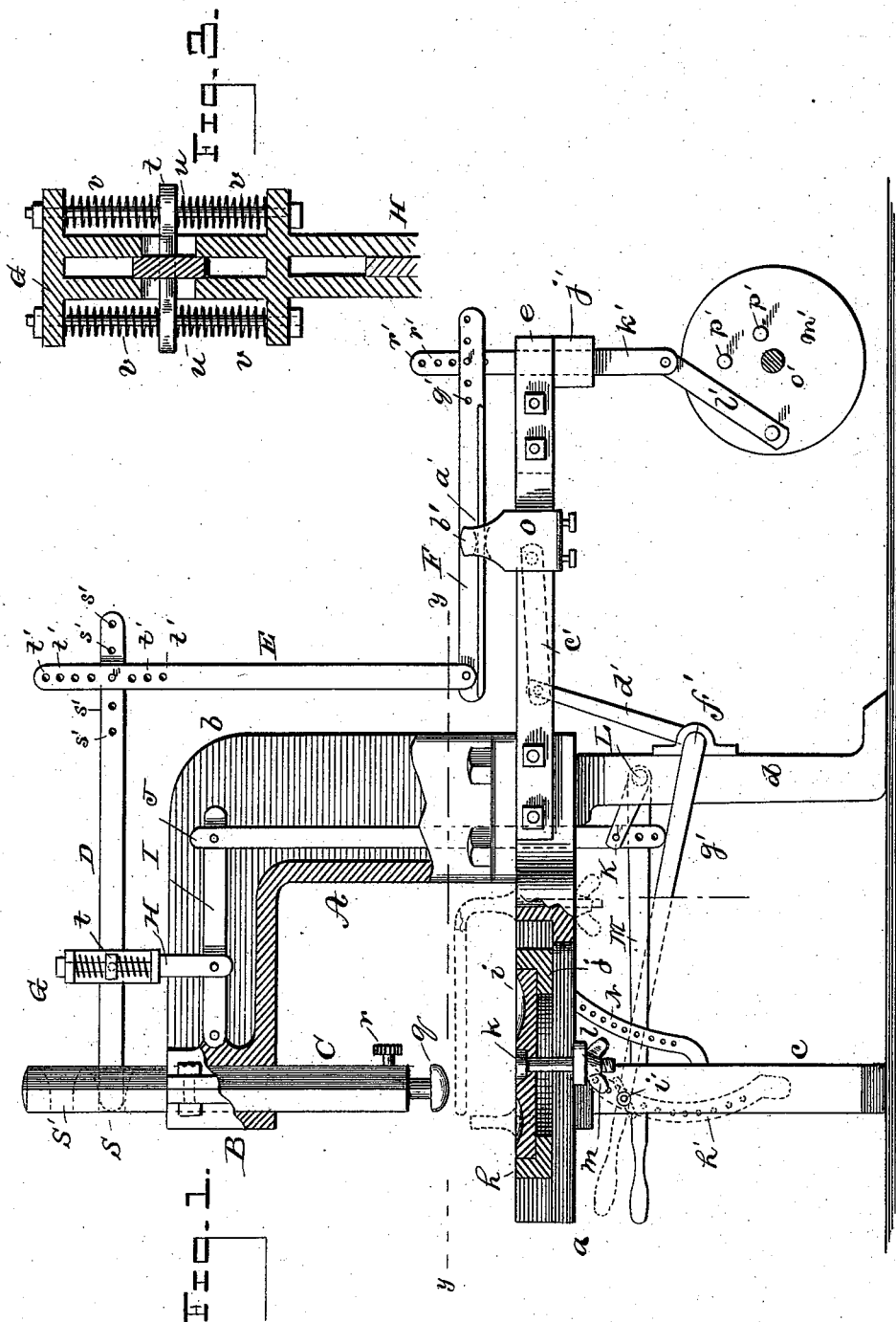
(No Model.)

2 Sheets—Sheet 1.

M. T. DURKIN.
EMBOSSING MACHINE.

No. 382,801.

Patented May 15, 1888.



WITNESSES:

O. D. Mott.
C. Sedgwick.

INVENTOR:

M. J. Durkin.

BY Muri H.

ATTORNEYS.

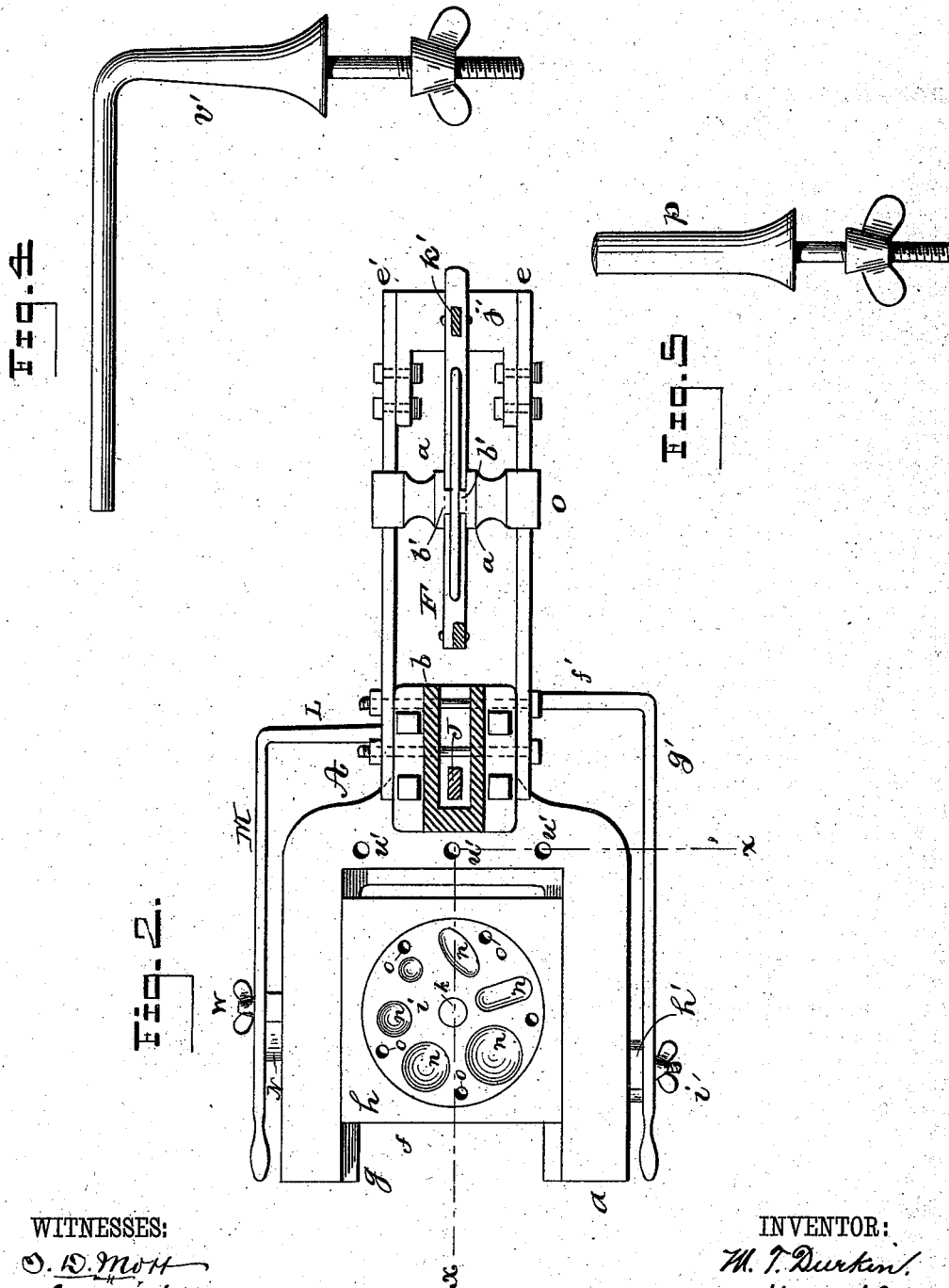
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UNITED STATES PATENT OFFICE.

MICHAEL T. DURKIN, OF BROOKLYN, NEW YORK.

EMBOSSING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,801, dated May 15, 1888.

Application filed February 14, 1888. Serial No. 263,988. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL T. DURKIN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Embossing-Machine, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation, partly in section, of my improved embossing-machine, the section being taken on line *xx* in Fig. 2. Fig. 2 is a horizontal section taken on line *yy* in Fig. 1. Fig. 3 is a detail sectional view of the elastic lever-connection, and Figs. 4 and 5 represent different forms of stakes used in connection with my improved machine.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct a machine for embossing sheet metal and forming in the sheets various designs without the employment of special dies or molds.

My invention consists in a lever-press having a follower with a variable stroke operated by a lever working on a yielding fulcrum; also, in an arrangement of movable dies adapted to be readily adjusted for different kinds of work, all as hereinafter more fully described.

The main frame A of the machine consists of a bed-plate, *a*, and a right-angled arm, *b*, rising from the bed-plate and projecting over the center thereof. The bed-plate *a* is supported upon legs *c d*. To the bed-plate *a* are attached two bars, *e e'*, forming guides for the operating mechanism, as will presently be described. In the bed-plate *a* is formed a right-angled notch, *f*, with a ledge, *g*, at the lower side thereof for supporting the frame *h* of the die *i*. The die *i* consists of a disk of iron or steel fitted to a circular opening in the frame *h* and resting upon an internal flange, *j*. A bolt, *k*, passes through the center of the die *i* and through a cross-bar, *l*, extending across the notch *f* and bearing upon the sides of the plate *a*. The bolt *k* is provided with a wing-nut, *m*, by means of which the bar *l*, the die *i*, and the frame *h* may be clamped in the position of use by a single operation. The die *i* is provided with a series of cavities, *n*, of different shapes and depths, and with a series of holes, *o*, for receiving the stake *p*. (Shown in Fig. 5.)

In guides B in the extremity of the arm *b* is placed a follower, C, which is bored axially to receive the upper die, *q*, which is held in place upon the follower by the set-screw *r*. The upper end of the follower C is provided with two mortises, *s s'*, for receiving one end of the lever D, the opposite end being pivotally connected with the rod E, which in turn is pivoted to the lever F. The fulcrum *t* of the lever D is prolonged in opposite directions from the lever and apertured to receive the guide-rods *u*, supported by the frame G, and between the fulcrum *t* of the said lever and the ends of the frame are placed spiral springs *v*.

The frame G is pivotally connected by a bar, H, with a lever, I, which is pivoted at one end in the forward end of the arm *b*, and is connected at the opposite end with a rod, J, extending downward through the bed-plate *a* and pivoted to the arm K, carried by the shaft L. The shaft L is provided with a hand-lever, M, which swings in front of a curved perforated bar, N, attached to the side of the bed-plate and to the leg *c*. The lever M is held in any desired position by a bolt, *w*, which passes through the said lever and through one of the perforations in the curved bar N. By means of this arrangement the fulcrum *t* of the lever D may be raised or lowered at pleasure, thus varying the height of the upper die, *q*, from the lower die, *i*, and also varying the strength of the blow upon the work between the dies *q i*.

The lever F is a T-shaped cross-section, and the flanges of the lever are received in grooves *a'*, formed in the ears *b'*, projecting upward from the block O, adapted to slide upon the bars *e e'*. The bearing-surfaces of the block O are rounded, as indicated in dotted lines in Fig. 1, to permit of the required movements of the lever F. The block O is connected by the rod *e'* with an arm, *d'*, carried by the rock-shaft *f'*. To the rock-shaft *f'* is attached a hand-lever, *g'*, which extends forward to the front of the machine, and is arranged to move along a curved apertured bar, *h'*, attached to the side of the machine. The lever *g'* is held in any desired position by a bolt, *i'*, passing through the lever and through one of the apertures of the curved bar *h'*. By raising or lowering the lever *g'* the block O is moved along the bars *e*

e', thus shifting the fulcrum of the lever F, so that more or less motion is given to the follower C through the mechanism intermediate between the said lever F and the follower C.

5 In a guide formed in the cross-bar *j'*, attached to the rear ends of the bars *e e'*, is placed a reciprocating bar, *k'*, which is pivotally connected with the lever F and receives its motion through a connecting-rod, *l'*, from
10 the crank-wheel *m'* upon the shaft *o'*. The crank-wheel *m'* is provided with holes *p'*, varying in distance from the shaft *o'*, to provide for a longer or shorter stroke of the follower C, according to the requirements of the work to be
15 done, and to afford latitude for the adjustment of the lever F the said lever is provided with a series of apertures, *q'*, and the reciprocating bar *k'* is provided with series of apertures *r'* to permit of the shifting of the pivotal pin connecting the lever and the sliding bar *k'*. In
20 like manner the lever D is provided with series of apertures *s'* and the connecting-rod E is provided with series of apertures *t'*.

In the bed-plate *a* are formed apertures *u'*,
25 for receiving the shank of the right-angled stake *v'*. (Shown in Fig. 4 and in dotted lines in Fig. 1.) The stake *v'* is designed for supporting tubular work to be operated upon by the die *q*. The stake *p* (shown in Fig. 5) is designed
30 for supporting the bottom of deep vessels while being embossed, and for similar work.

The operation of my improved machine is as follows: The sheet of metal to be operated upon is held over the die *i* and the follower
35 C is reciprocated by means of the crank-wheel *m'*, through the connections already described, and brings the die into contact with the work with more or less force, according to the adjustment of the lever M and the frame G. The
40 die may be turned around or be moved in or out to adapt it to the kind of work being done. The stroke of the follower C is varied by moving the lever *g'*. When it is desired to work upon stamped work, the lever D is inserted in

the lower mortise, *s*; but when it is desired to
45 bring the die *q* into contact with work lying directly upon the lower die, *i*, the lever D is inserted in the mortise *s'*.

My improved machine is designed for producing various kinds of embossed metal work,
50 such as cornices, brackets, finials, &c.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the frame A, provided with the bed-plate *a* and right-angled
55 arm *b*, of the follower C, the lever D, provided with an adjustable yielding fulcrum, and means for oscillating the lever D, substantially as described.

2. In an embossing-press, the combination
60 of the frame A, provided with the notched bed-plate *a*, the adjustable frame *h*, the circular die *i*, fitted to the frame *h*, the bolt *k*, the cross bar *l*, and the reciprocating follower C, carrying the die *q*, substantially as described. 65

3. The combination of the follower C, the lever D, having a yielding fulcrum, the connecting-rod E, the lever F, the sliding block O, provided with convex surfaces *a' b'*, the reciprocating bar *k'*, pivoted to the lever F, and the
70 crank-wheel *m'*, substantially as described.

4. The combination, with the follower C and lever D, of the frame G, provided with the rods *u*, the spiral springs *v*, the movable fulcrum *t*, the lever I, connecting-rod J, the shaft
75 L, the arm K, and the hand-lever M, substantially as described.

5. The combination, with the circular die *i*, of the stake *p*, substantially as described.

6. The combination, with the frame A and
80 reciprocating follower C, carrying the die *q*, of the right-angled stake *v'*, substantially as described.

MICHAEL T. DURKIN.

Witnesses:

E. M. CLARK,
EDGAR TATE.