

(No Model.)

2 Sheets—Sheet 1.

E. B. STIMPSON.

MACHINE FOR ORNAMENTING LEATHER AND OTHER MATERIALS.

No. 376,613.

Patented Jan. 17, 1888.

Fig. 1.

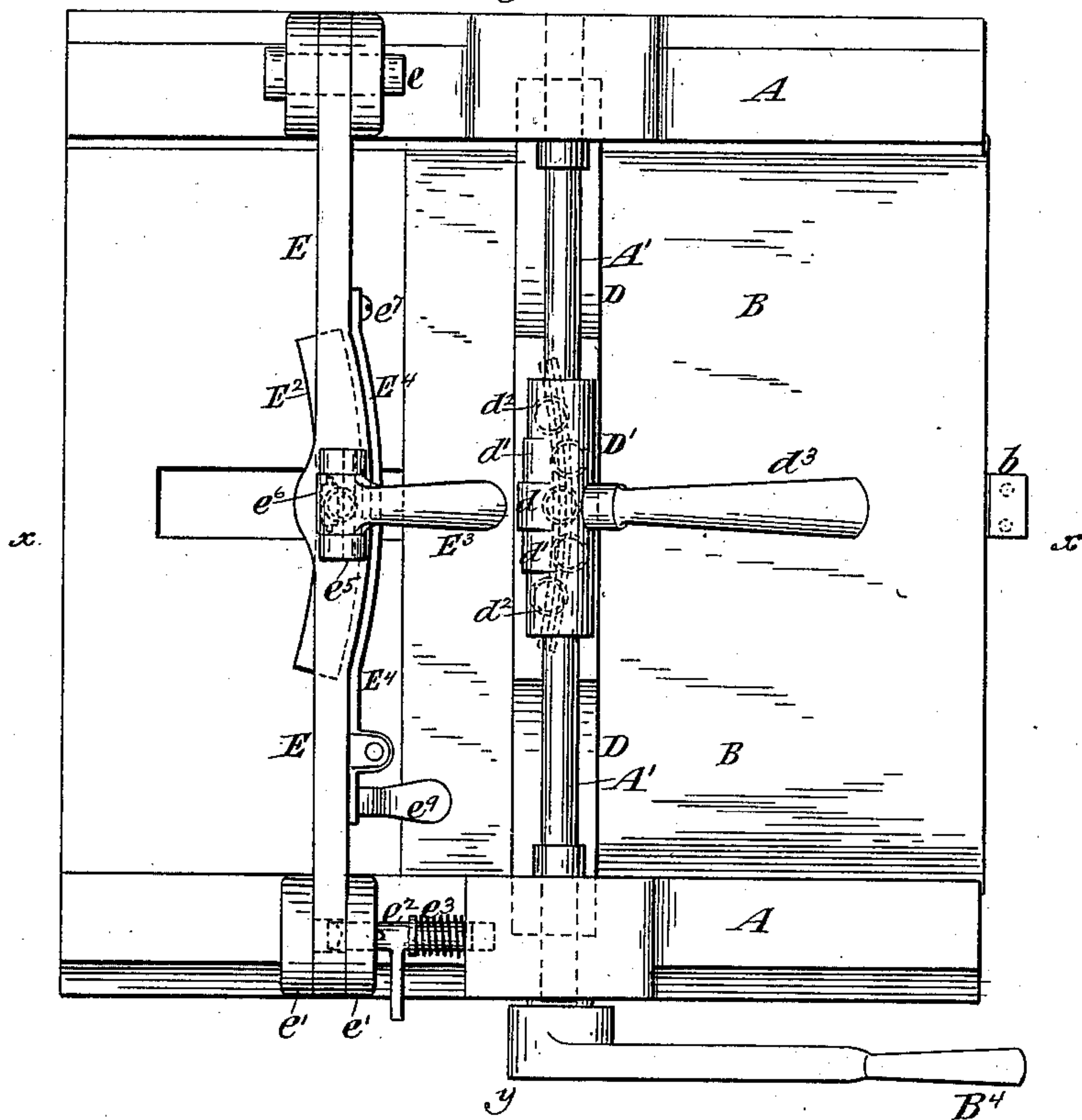
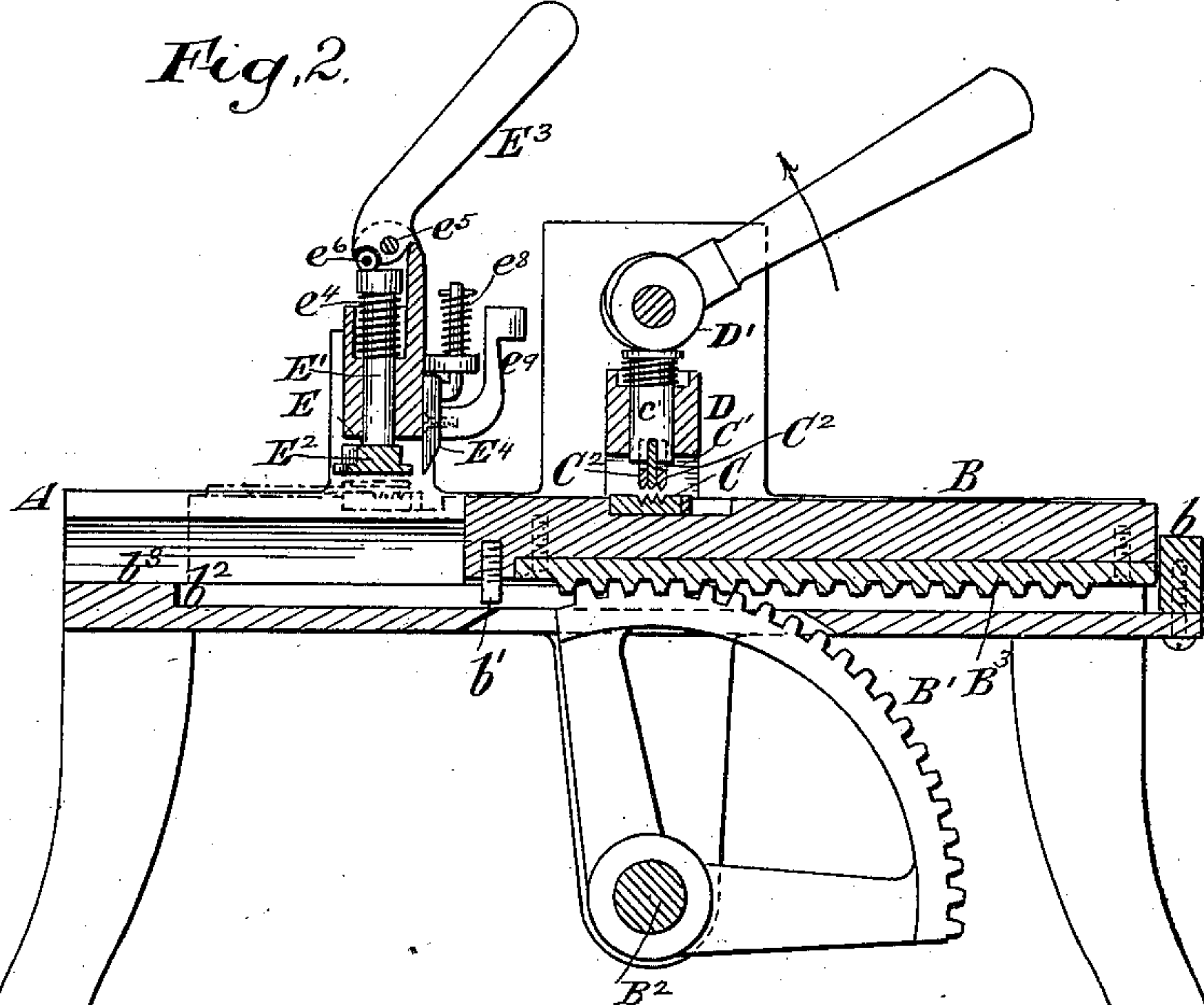


Fig. 2.



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(No Model.)

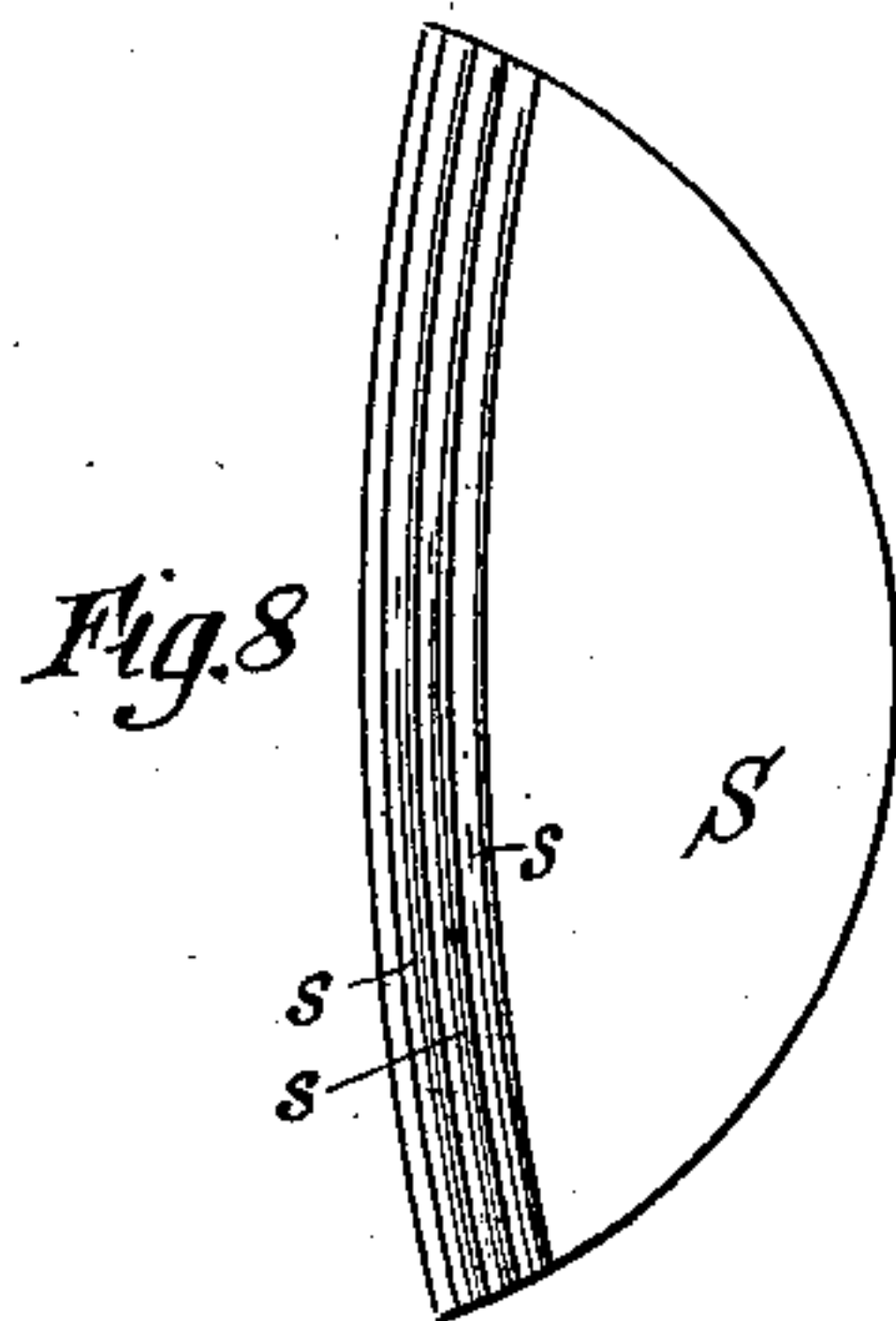
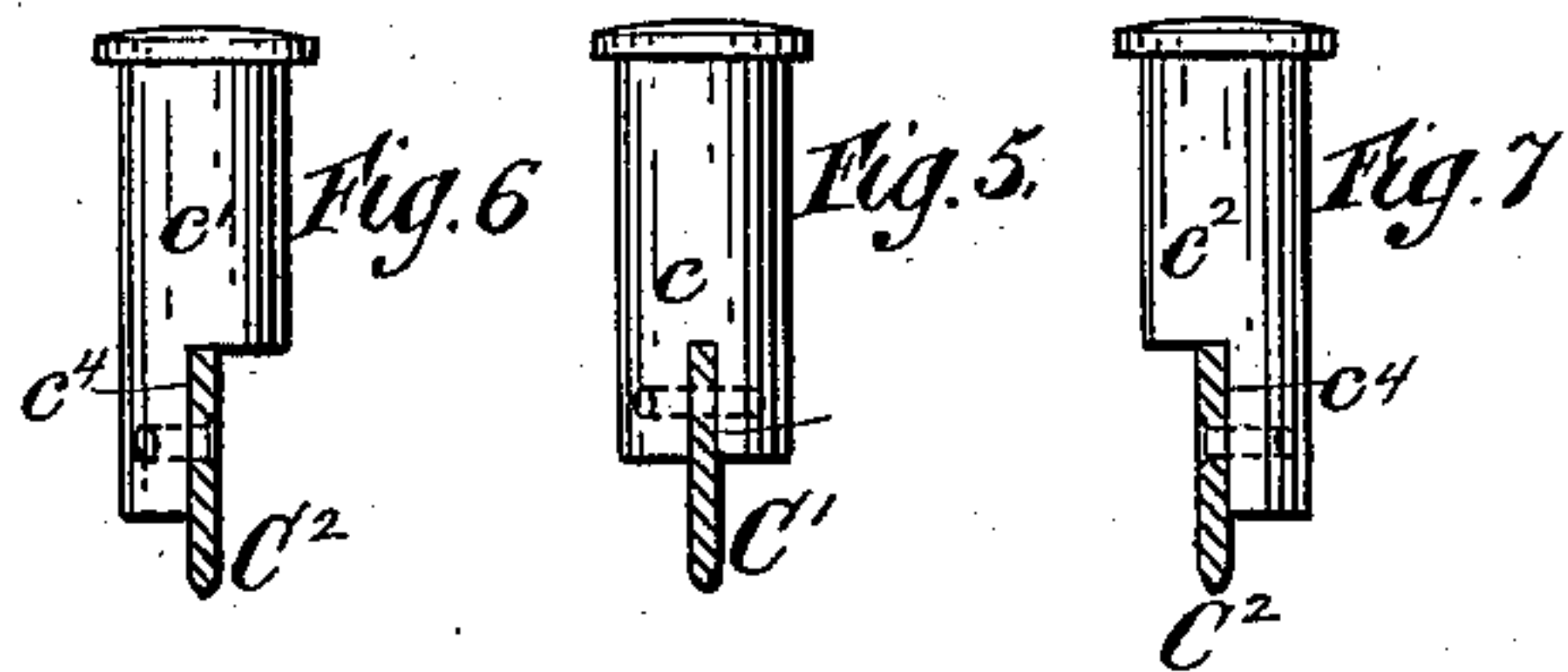
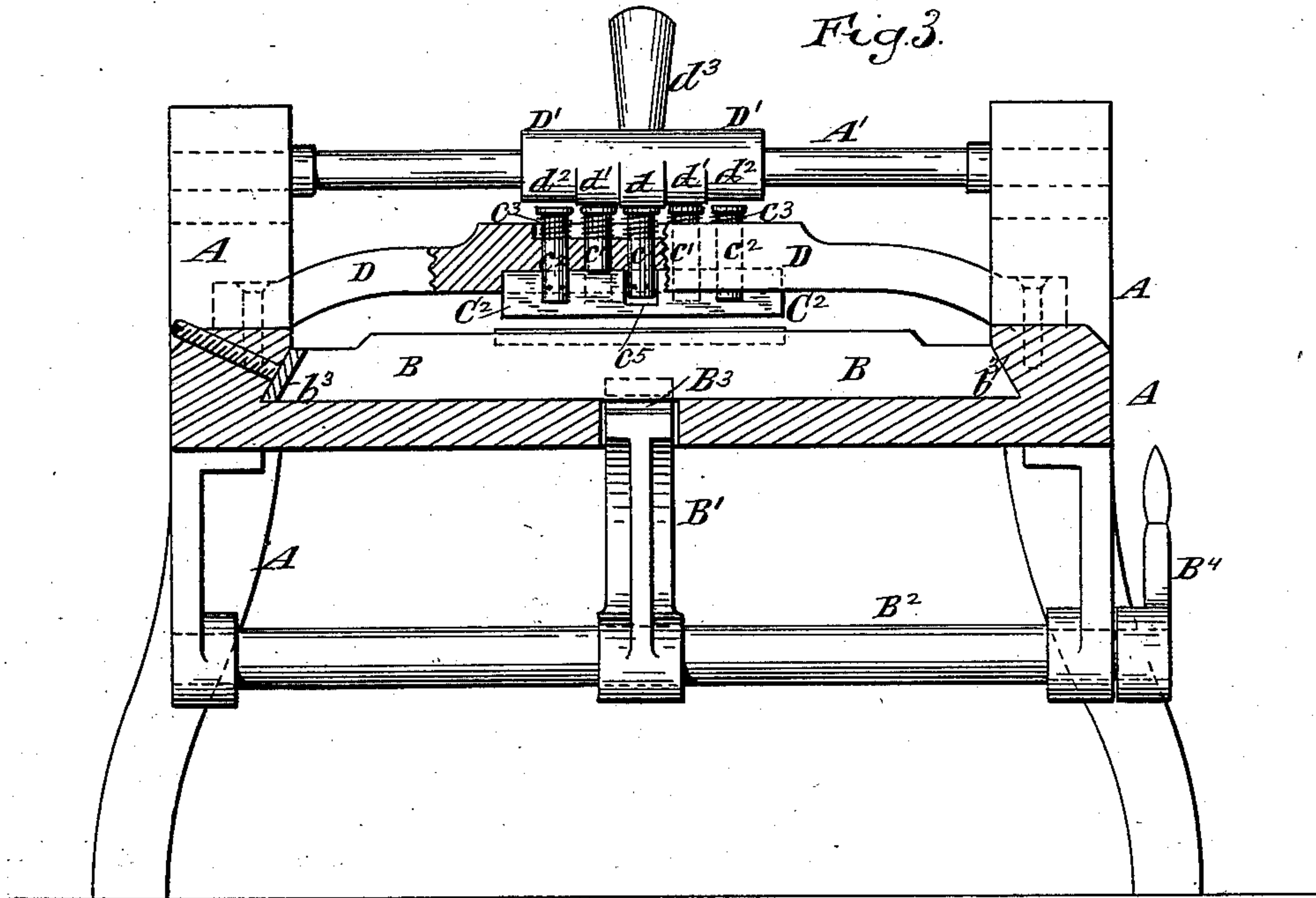
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UNITED STATES PATENT OFFICE.

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MACHINE FOR ORNAMENTING LEATHER AND OTHER MATERIALS.

SPECIFICATION forming part of Letters Patent No. 376,613, dated January 17, 1888.

Application filed June 8, 1887. Serial No. 240,574. (No model.)

To all whom it may concern:

Be it known that I, EDWIN B. STIMPSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement in Machines for Ornamenting Leather and other Materials, of which the following is a specification.

As a method of ornamenting leather, it is common to form thereon substantially parallel
10 ribs or ridges which are in close proximity and are raised in the leather by the action of dies and strong pressure, and to afterward fill the recesses or grooves on the side of the leather opposite the ribs or ridges with cords
15 or other filling material in order to preserve the projection of the ribs or ridges. Where a number of such ribs or ridges are formed simultaneously by subjecting the leather to the action of a die and punch or presser, the leather
20 is subjected to great stretch between and in the ribs or ridges, and such stretching renders it more difficult to retain the ribs or ridges with their normal and first projection, and in operating upon other materials having less
25 tenacity than leather might break or tear the material.

The object of my invention is to provide a machine whereby the leather or other material may be ornamented as above described,
30 and whereby the series of ribs or ridges will be formed in succession, or one after another, and the normal and full projection of each rib or ridge be maintained while forming another or others.

35 The machine forming the subject of my invention comprises a die and a series of substantially parallel punches or pressers arranged and supported in close proximity, and a series of cams arranged to operate successively upon
40 the punches or pressers and to maintain each punch or presser in action upon the material while producing the action of another or others. The punches or pressers may be secured to spring-supported plungers which are
45 rabbeted or cut away at the side for the attachment of said punches or pressers, and so that each plunger may be operated without interfering with the other punches or pressers, and a cam-shaft having cams or steps which
50 are arranged to operate on the plungers in succession and to hold each plunger depressed

during the action of the next succeeding plunger.

I also employ in the machine, and in combination with a movable bed supporting a die, 55
a punch or series of punches arranged for rectilineal movement toward and from the bed and an operating-lever therefor, a plain presser, and operating-lever arranged in advance of or behind the punch or series of punches, 6c
whereby the bed may be moved to first bring the die below the punch or punches and afterward to bring the impressed leather below the presser for applying a covering to the back thereof. The aforesaid presser, where- 65
by the covering is applied to the back of the leather, may be supported in a cross-bar, which may be hinged at one end at one side of the machine and detachably locked at the other end on the other side of the machine, so that 7c
after the leather has been impressed to form the ribs or ridges it may, by the sliding of the bed and the cross-bar being raised, be exposed, so that cords or other filling material may be applied in the recesses or depressions. Af- 75
ter impressing the leather, the sliding bed is brought forward on a line with the cross-bar, so that the cords or other filling material may be inserted in the recesses or depressions, and a piece of woven fabric or paper laid over to 8c
cover the cords or filling material. The cross-bar can then be lowered and secured, and by bringing the lever on the cross-bar forward the filling material and the covering are pressed tightly upon the leather, which finishes the 85
operation.

The invention consists in the novel features of construction and combinations of parts hereinabove referred to as embodied in the machine, and hereinafter particularly described, 9c
and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of a machine embodying my invention. Fig. 2 is a sectional elevation thereof upon about the plane indicated by the dotted line 95
 xx , Fig. 1. Fig. 3 is a vertical section upon about the plane indicated by the dotted line y , Fig. 1. Fig. 4 is an inverted plan of the several punches and the cross-bar to which they are attached, portions of the punches being broken away to better illustrate the in- 100
vention. Figs. 5, 6, and 7 are elevations of

the spring-supported plungers to which the punches are secured, and Figs. 8 and 9 are respectively a plan and a sectional view of a piece of leather ornamented according to my invention.

Similar letters of reference designate corresponding parts in all the figures.

A designates a frame having suitable ways or guides, b^3 , wherein is fitted a sliding carriage or bed, B, and this sliding carriage or bed may have motion imparted to it by any suitable mechanism. It may, for example, be operated by a sector or segment of a gear-wheel, B^1 , which is secured upon a shaft, B^2 , in the frame A, and has a handle or lever, B^4 , for operating it, and which engages with a rack, B^3 , on the under side of the bed B, as shown in Fig. 2. The sliding movement of the bed B in a direction toward the right hand of Fig. 2 is limited by a stop projection, b , attached to the frame A, and its movement toward the left hand of Fig. 2 is limited by a suitable stop, which may consist of a pin, b^1 , arranged to strike against a shoulder, b^2 . The bed B serves as a movable support for a die, C.

Above the bed I have represented a cross-bar, D, as fixed upon the frame A at opposite sides of the bed, serving to support a series of punches which extend approximately parallel with each other and which are in close proximity. These punches are arranged for rectilinear movement toward and from the bed. As here shown, a series of three punches is employed, and the punch which is central in the series is designated by the letter C^1 , and the two side punches by the letter C^2 . In the present example of my invention the several punches C^1 C^2 are formed in the arc of a circle, and are intended to produce ribs or ridges s upon a piece of leather or other material, S, such as shown in Figs. 8 and 9, such ribs or ridges s being in close proximity and parallel or substantially parallel with each other.

I have here represented the punches C^1 C^2 as secured upon plungers which are guided in the cross-bar D, and in the present example of my invention the central punch, C^1 , is secured to a plunger, c , which is central in the series. The punch C^2 upon one side of C^1 is secured to two plungers, c^1 , which lie on opposite sides of the plunger c , and the punch C^2 on the opposite side of the punch C^1 is secured to the plungers c^2 , which are outermost at opposite ends of the series of plungers. Springs c^3 may be applied to these plungers for holding them in elevated position and for returning them to such position after depression. As here represented, the several plungers c c^1 c^2 are operated by a single cam-shaft, which comprises steps d d^1 d^2 . The step or cam d is for operating the plunger c and the central punch, C^1 . The steps or cams d^1 are for operating the plungers c^1 , which carry the punch C^2 upon one side of the central punch, and the cams or steps d^2 are for operating the plungers c^2 , which carry the punch C^2 on the opposite side of the central punch, C^1 . The

steps or cams d d^1 d^2 do not have their points of greater and less projection on the same lines lengthwise of the cam-shaft D' on which they are formed, but are arranged so as to act in succession upon the plungers—that is to say, when the cam-shaft D' is turned by its handle d^3 , and in the direction of the arrow shown in Fig. 2, the cam or step d first acts upon the plunger c to depress the central punch, C^1 , and by further turning the cams or steps d^1 act upon the plungers c^1 to depress one of said punches C^2 , and by still further turning the steps or cams d^2 act upon the plungers c^2 , which serve to depress the punch C^2 on the opposite side of the central punch, C^1 .

During the entire turning of the cam-shaft those steps or cams which have before operated serve to hold down their plungers and the punches carried by them, and thus not only are the several ribs or ridges formed in succession, or one after another, by the punches, but each punch is held down after the operation, in order to maintain the normal and full projection of the rib or ridge which it has formed while forming another rib or ridge. Thus the central punch, C^1 , is held pressed downward upon the leather, while the punch C^2 on one side thereof is operated, and both these punches are held down upon the leather while the punch C^2 upon the opposite side of the central punch is operated. As here represented, the cam shaft D' is upon a bar or stretcher, A', which extends crosswise of the machine, and both the bar or stretcher A' and the cam-shaft D' may be turned together, or the cam-shaft D' may be turned upon a fixed bar or stretcher. I have shown the central punch as fitting in a notch or slot in its plunger c , and secured therein by cross-pins, as shown in Fig. 6, and the plungers c^1 c^2 , which serve, respectively, to operate the said punches C^2 , are rabbeted or cut away at c^4 , so that the punches will not interfere with the depression of these plungers. The said punches C^2 are notched at c^5 , as shown in Fig. 3, and the said punches C^2 are secured by pins against the back of the rabbets or cut-away portions c^4 in the plungers c^1 c^2 .

At the side of the cross bar D, I have shown a second cross-bar, E, which is permanently hinged at e , and at its one end on one side of the machine and at its opposite end fits between lugs or projections e^1 , through one of which works a locking-pin, e^2 , thrown into engagement with the free end of the cross-bar E by a spring, e^3 . By this lock or catch the free end of the cross-bar is detachably secured at one side of the machine. In this cross-bar I have represented a plunger, E', supported by a spring, e^4 , and having at its bottom a plain-surfaced presser, E², and by means of a lever, E³, fulcrumed at e^5 on the cross-bar E, and, as here represented, provided with a roller, e^6 , for bearing on the plunger E', said plunger and the flat-surfaced presser E² may be forced downward. The leather or other material having been first placed upon the die C, the

sliding or movable bed B is adjusted to the position shown in Fig. 2, and after the punches C' C² have been operated to impress in the leather the ribs or ridges the said bed B is moved toward the left hand of Fig. 2 and into such position that the die C and the impressed leather upon it will be directly under the flat-surfaced presser E². The cross-bar E is then lifted to expose the leather with its grooves or depressions uppermost, and cords or other material are placed in the grooves or depressions, and a piece of cloth or other fabric is placed over the cords or other filling material, and the presser E² is then forced downward to press such cloth or other fabric and cement it firmly upon the leather.

In case cords are used to fill the grooves or depressions in the leather, I prefer to apply glue or other cement to the leather before the cords are placed thereon, in order that the piece of covering fabric will not only be cemented upon the leather, but the cords themselves will be cemented in the grooves or depressions. In Fig. 9 I have shown at s² a piece of covering fabric thus applied over the grooves or depressions and cords or other filling material placed therein.

To provide for trimming the leather while under the presser E², I have represented a knife, E⁴, as fitting against the side of the bar E, pivoted at its one end e⁷, and at its other end acted upon by a spring, e⁸, which tends to raise it. By means of a suitable handle, e⁹, applied to the free end of the knife E⁴, it may be depressed to trim off the edge of the leather or material, and when released it will be raised by the action of the spring e⁸.

I have previously obtained a patent, No. 168,804, dated October 11, 1875, on a machine for embossing leather in ribs or ridges, which in some respects resembles my present machine, but is different in that it has, in lieu of the series of punches arranged for rectilinear movement toward and from the bed, a rotary roller-die, which is geared with the mechanism that moves the bed and lower die, so as to be rotated when the bed is moved and to operate on the leather in connection with the lower die. I do not now seek to include in my present invention anything shown in my former patent, but limit my present invention to a punch or series of punches arranged for rectilinear movement toward and from the bed. The use of such punches in place of a roller-die is more desirable, because it provides not only for operating such punches in succession, but because it also provides for beginning the operation with any desired one of the punches, even the central punch of the series, if desired, and also provides for holding down the last punch operated immovably upon the leather while another punch is operated, thereby maintaining each rib in the leather with its full amount of projection while forming another rib or ribs.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In the herein-described machine for forming ribs or ridges upon leather or other material, the combination, with a die and a series of substantially parallel punches or pressers arranged and supported in close proximity, of a series of cams arranged to operate successively upon the punches or pressers and to maintain each punch or presser in action on the material while producing the action of another or others, substantially as herein described.

2. In the herein-described machine for forming ribs or ridges upon leather or other material, the combination, with a die and a series of punches or pressers, as C' C², of the spring-supported plungers c c' c², rabbeted or cut away at the side for the attachment of said punches or pressers, and a cam-shaft, D', having cams or steps which are arranged to operate on the plungers in succession and to hold each plunger depressed during the operation of the next succeeding plunger, substantially as herein described.

3. In the herein-described machine for embossing leather to form ribs or projections thereon, the combination, with the movable bed supporting a die, of a punch or series of punches arranged for rectilinear movement toward and from the bed and a lever for operating the punch or punches, and a plain presser and its operating-lever arranged one in advance of the other above the bed, whereby the bed may be moved to first bring the die and leather below the punch or punches and to then bring the die and leather below the presser for applying a covering to the back thereof, substantially as herein set forth.

4. In the machine herein described for impressing leather to form ribs or projections thereon, the combination, with the movable bed for supporting a die and a punch or series of punches arranged for rectilinear movement toward and from the bed and a lever for operating the punch or punches, of a cross-bar hinged at one end at one side of the machine and adjustably locked at its other end and at the other side of the machine, a presser guided in the cross-bar, and an operating-lever for the presser on the cross-bar, whereby the bed may be moved to first bring the die and material below the punch or punches and then below the presser, substantially as herein described.

5. In the herein-described machine, the combination, with a sliding bed, B, for supporting a die, as C, a series of punches, as C' C², and the plungers and series of cams for acting successively on the plungers, of a cross-bar, E, the presser E² and its operating handle or device, and the knife secured upon the cross-bar for operation relatively thereto, substantially as herein set forth.

EDWIN B. STIMPSON.

Witnesses:

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MAURICE J. ROACH.