

No. 725,139.

PATENTED APR. 14, 1903.

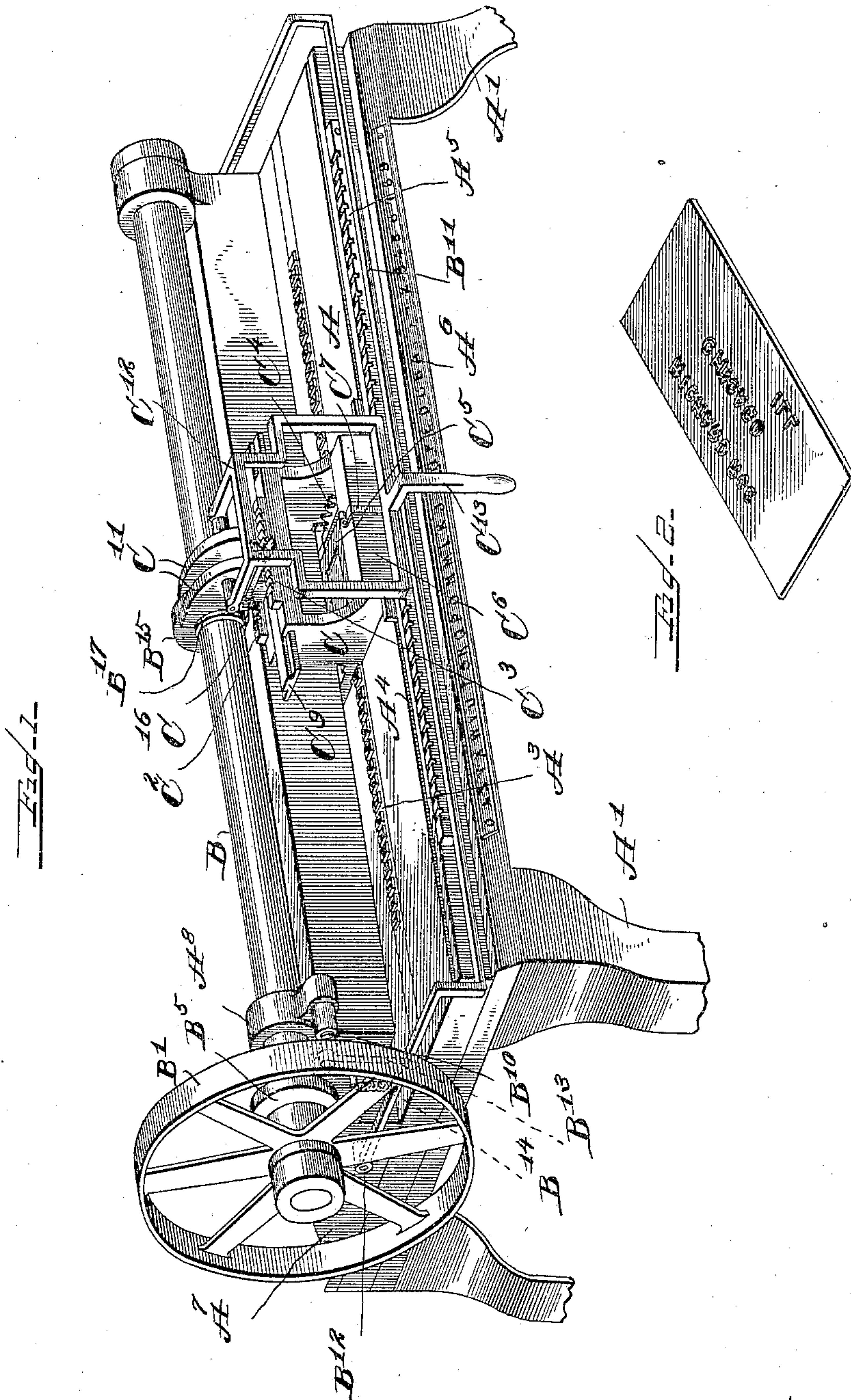
W. G. REYNOLDS & T. D. McCLUSKEY.

LETTER EMBOSSING MACHINE.

APPLICATION FILED APR. 30, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES—

G. A. Pauberschmidt.  
Geo. L. Chindahl

INVENTORS—

William G. Reynolds  
Thomas D. McCluskey  
By Luther L. Miller, Att.



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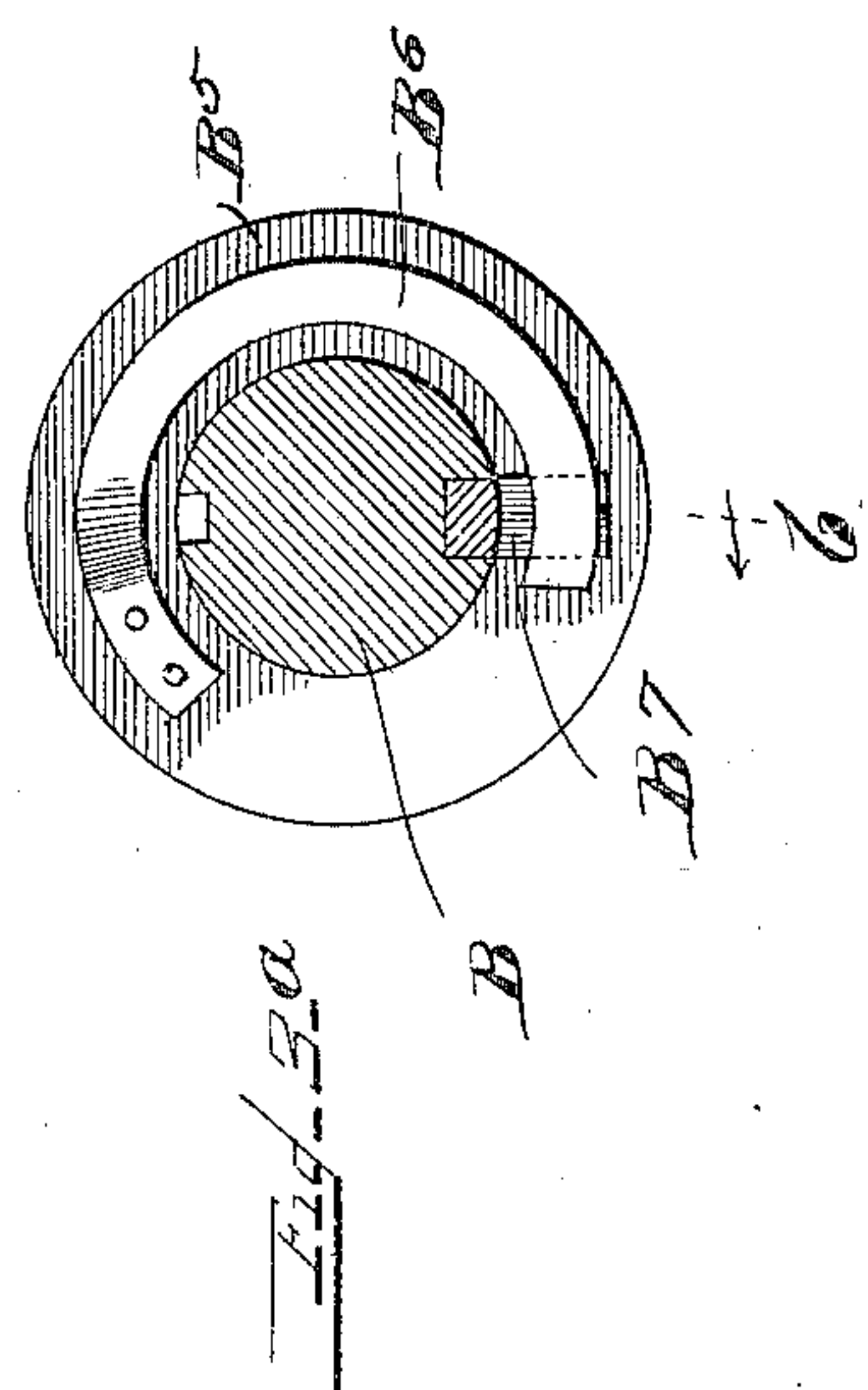
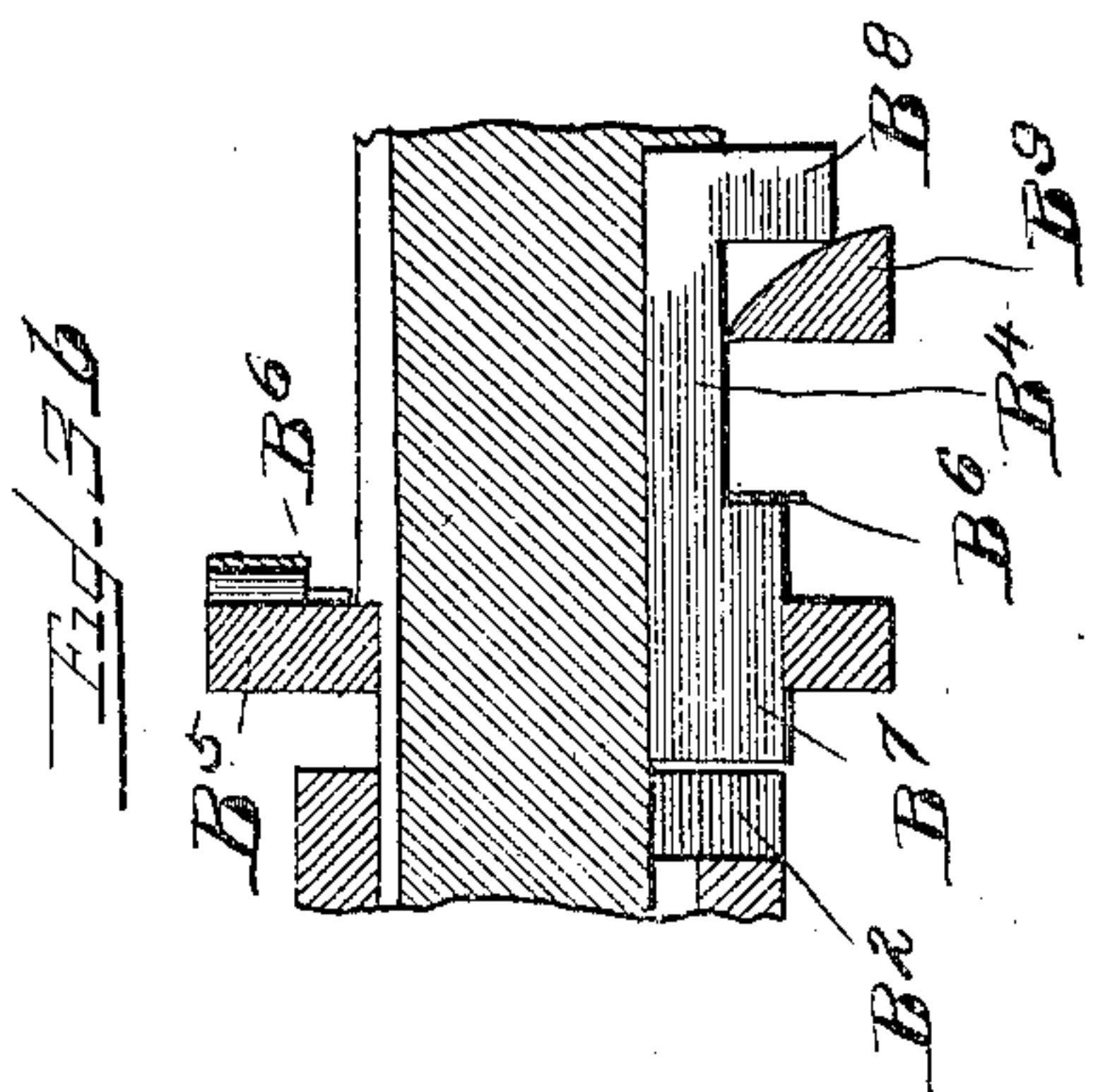
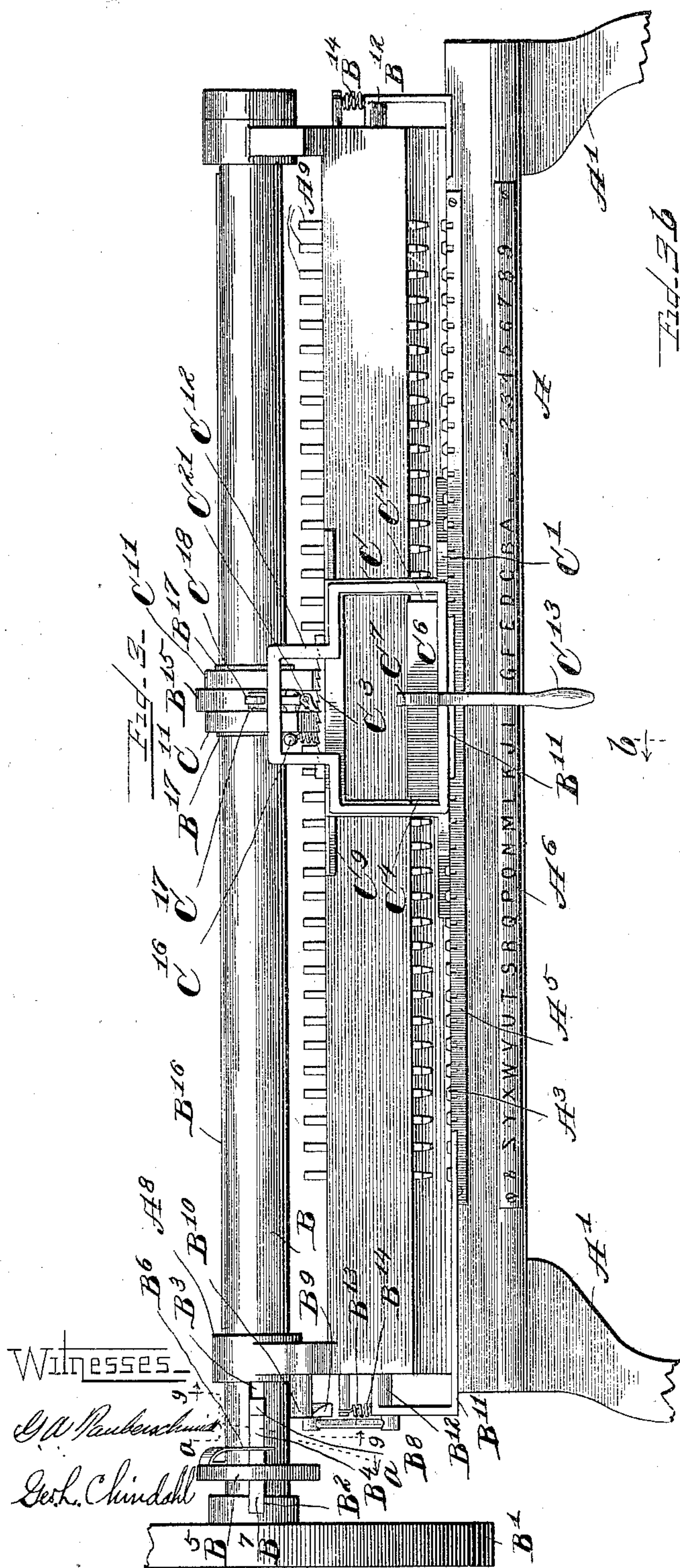
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LETTER EMBOSSED MACHINE.

APPLICATION FILED APR. 30, 1902.

NO MODEL.

4 SHEETS—SHEET 2.



Witnesses:

*W. A. Paulsen*  
*Geo. L. Chindahl*

INVENTORS

*William S. Reynolds*  
*Thomas D. McCluskey*  
By *Luther L. Miller*  
ATTY



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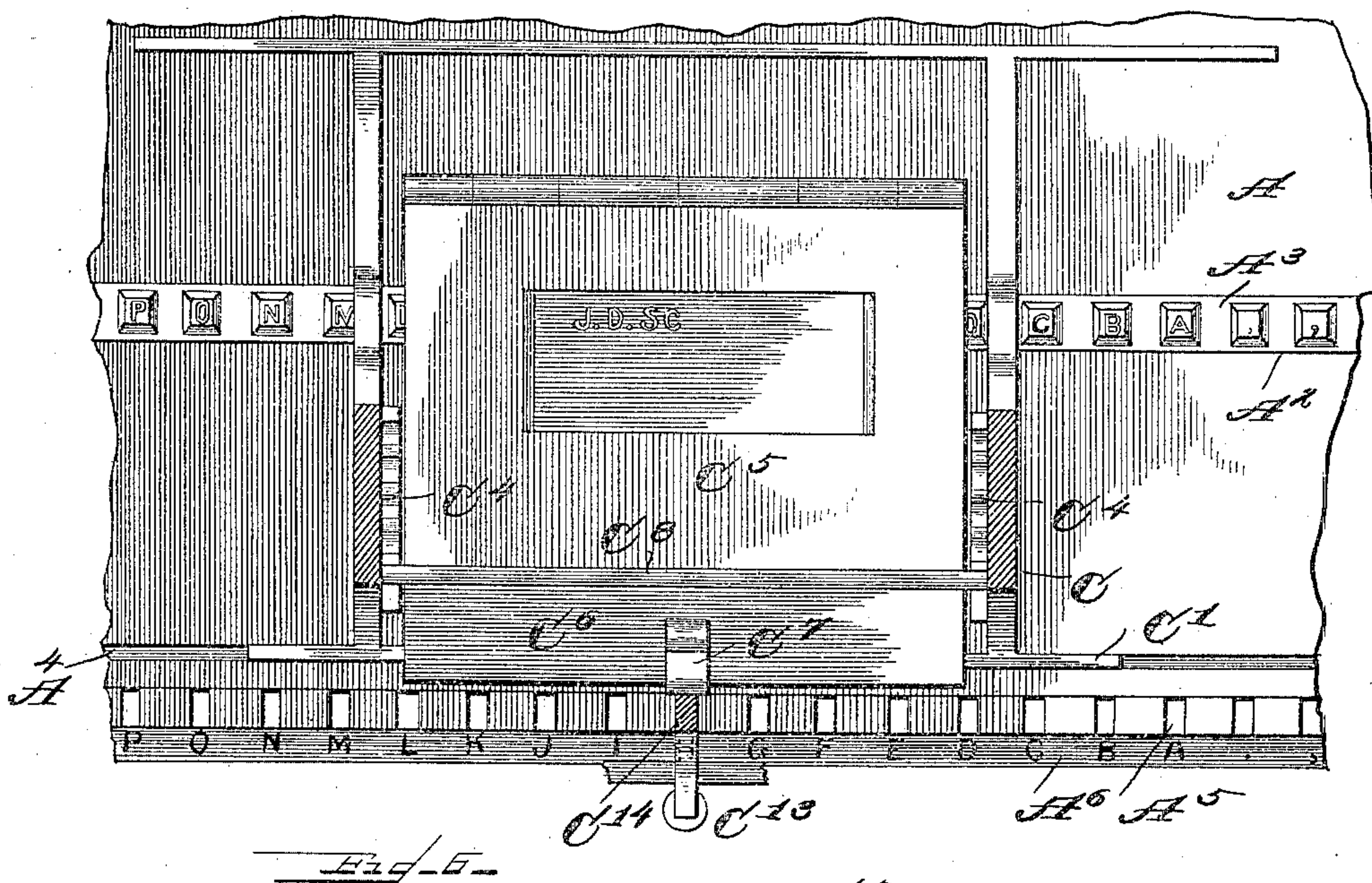
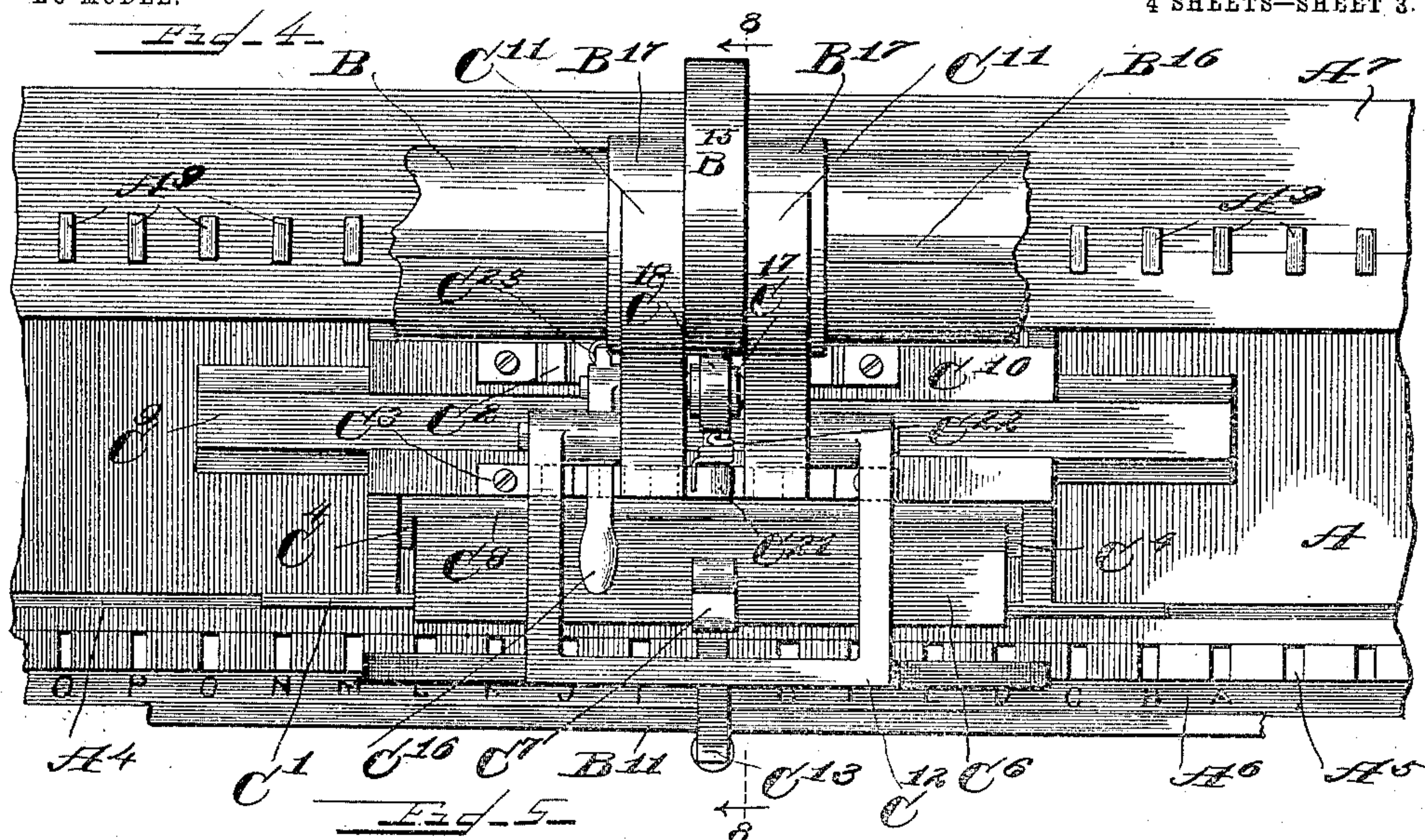
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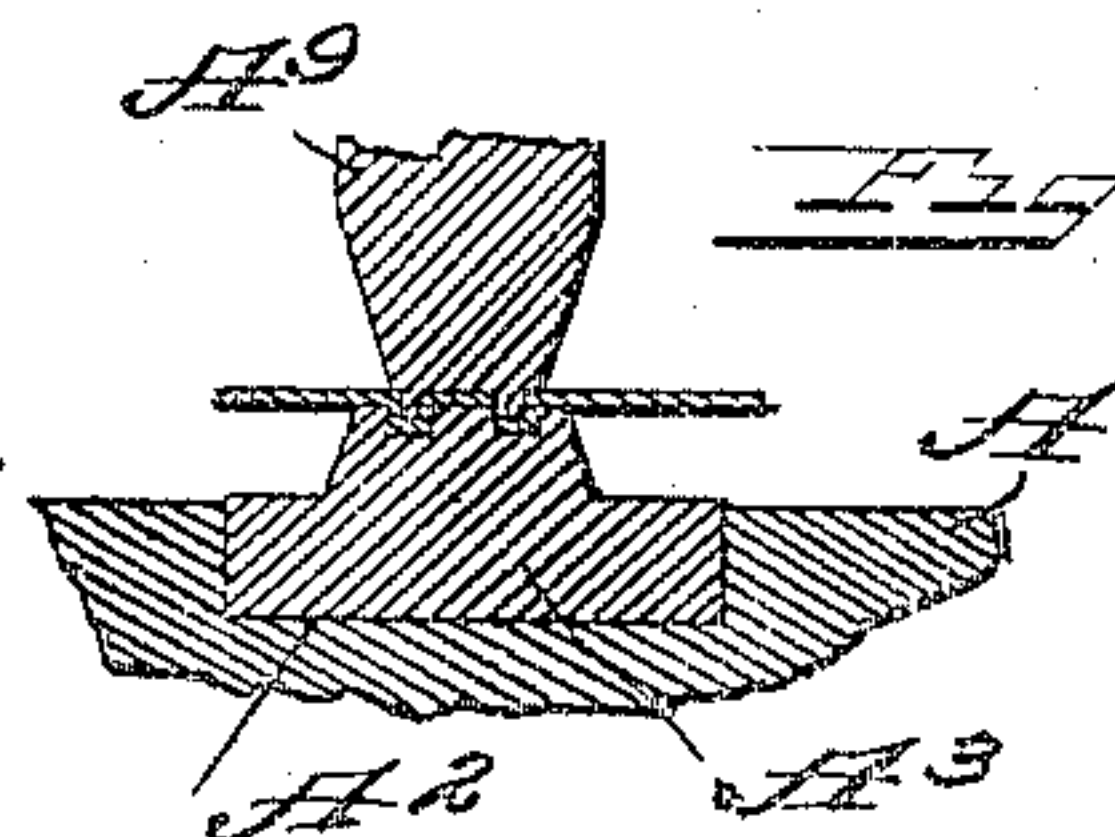
NO MODEL.

4 SHEETS—SHEET 3.



WITNESSES.

J. A. Paulschmitt.  
Geo. Chindahl



INVENTORS.

William S. Reynolds  
Thomas D. McCluskey  
By Luther L. Miller

ATTY.



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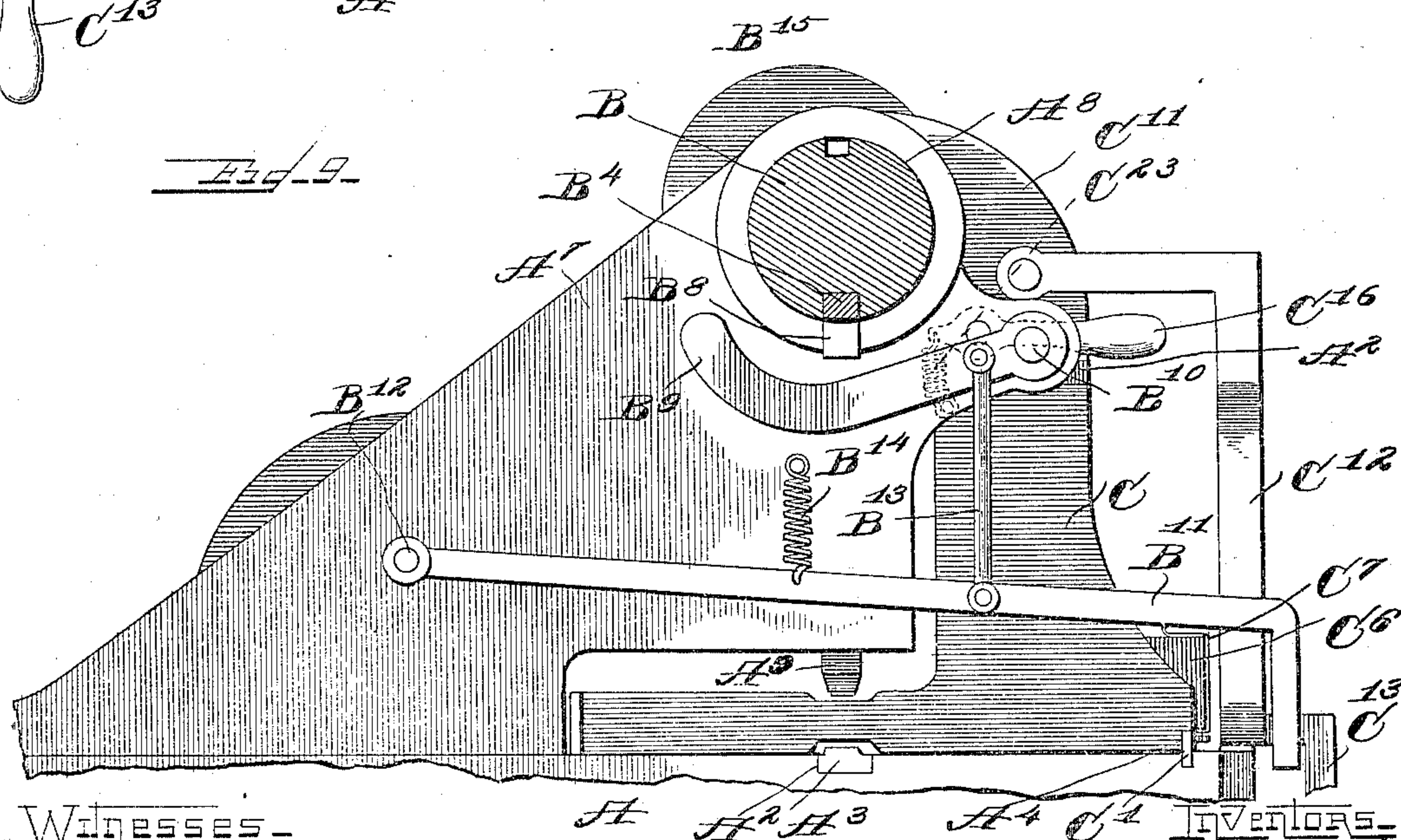
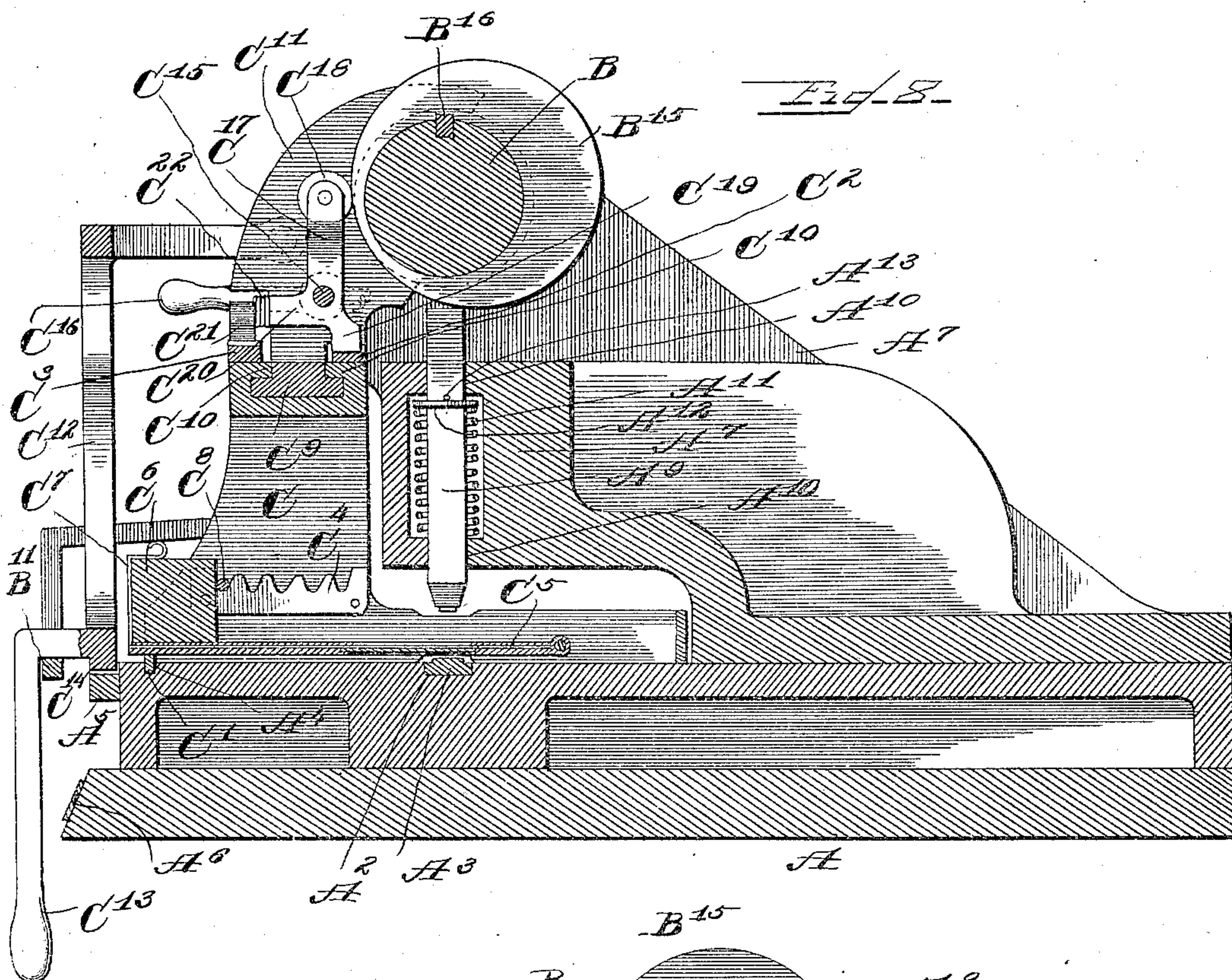
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W. G. REYNOLDS & T. D. McCLUSKEY.  
LETTER EMBOSSEING MACHINE.

APPLICATION FILED APR. 30, 1902.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses.

*J. A. Pauerschmitt.*  
*Geo. L. Chindahl*

*St St<sup>2</sup> St<sup>3</sup> St<sup>4</sup> C<sup>4</sup> INVENTORS.*

William S. Reynolds  
Thomas W. McCluskey  
By Luther L. Miller Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM G. REYNOLDS, OF CHICAGO, AND THOMAS D. MCCLUSKEY, OF HARVEY, ILLINOIS.

## LETTER-EMBOSSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 725,139, dated April 14, 1903.

Application filed April 30, 1902. Serial No. 105,302. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM G. REYNOLDS, residing at Chicago, and THOMAS D. MCCLUSKEY, residing at Harvey, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Letter-Embossing Machines, of which the following is a specification.

The object of this invention is the production of a mechanism for forming letters in sheet material—as, for instance, sheet metal—for making name-plates and printing-plates, and for other purposes. The embodiment herein shown and described is designed particularly to emboss address-printing plates for printing the mailing-list of a newspaper or other publication, though it is susceptible of other uses. These plates when embossed, each with the name and address of a subscriber, are set in galleys of suitable construction, the galleys placed in a printing-press, and the entire mailing-list printed. The printing-plates are easily removable from the galleys for changes in the addresses, for cancellations, and for rearrangement.

In the accompanying drawings, Figure 1 is a perspective view of an embossing-machine embodying the features of our invention. Fig. 2 represents in perspective a finished printing-plate. Fig. 3 is a front elevation of said machine. Fig. 3<sup>a</sup> is a transverse section on dotted line *a a* of Fig. 3 to illustrate the clutch mechanism. Fig. 3<sup>b</sup> is a section on dotted line *b b* of Fig. 3<sup>a</sup>. Fig. 4 is a top plan view of the plate-carriage, showing the surrounding parts of the mechanism. Fig. 5 is a similar view with the embossing-head removed. Fig. 6 is a transverse vertical section through the plate-holder. Fig. 7 is a detail showing the embossing-dies. Fig. 8 is a transverse vertical section on dotted line 8 8 of Fig. 4. Fig. 9 is a transverse vertical section on dotted line 9 9 of Fig. 3.

In the construction of this embossing-machine we provide a bed-plate A, having suitable supporting-legs A'. Near the longitudinal center of the bed-plate A we have formed a groove A<sup>2</sup> in the face of the bed-plate for receiving the female die A<sup>3</sup>, bearing in integral projections above its face the embossing characters to be used in the operation of the machine. Near the forward edge of the bed-

plate is a groove A<sup>4</sup>, extending parallel with the groove A<sup>2</sup> for guiding the carriage, as will more fully appear hereinafter. On the forward edge of the bed-plate we have secured a notched setting-bar A<sup>5</sup>, and directly below said setting-bar an index-plate A<sup>6</sup>, upon which plate are indicated the letters and characters to be used in the machine, placing them in proper position with respect to the notches in the setting-bar A<sup>5</sup> and the embossing-dies on the machine. A punch-head A<sup>7</sup> is secured at the rear side of the bed-plate A and overhangs the female die A<sup>3</sup>. This punch-head is provided with bearings A<sup>8</sup> for the cam-shaft, to be hereinafter described. Male punches A<sup>9</sup>, capable of a vertically-reciprocatory movement in the vertically-alined openings A<sup>10</sup> in the punch-head A<sup>7</sup>, are held elevated by means of coil-springs A<sup>11</sup>, one spring surrounding each punch and bearing against a washer A<sup>12</sup>, underlying the pin A<sup>13</sup>, extending through an opening in said punch. The punches are provided with letters and characters corresponding, respectively, with the letters and characters formed in the female die A<sup>3</sup> with which said punches are adapted to engage.

A cam-shaft B is rotatably mounted in the bearings A<sup>8</sup> in the punch-head A<sup>7</sup> and carries at its forward end the drive-pulley B', loosely mounted on the shaft B, but adapted to be placed in clutch with said shaft by a mechanism to be next described. The hub of the pulley B' is provided with a notch B<sup>2</sup> and the cam-shaft B with a coinciding key-seat B<sup>3</sup>, in which key-seat a locking-bolt B<sup>4</sup> is free to slide lengthwise of the shaft and to enter the notch B<sup>2</sup>, thus locking the drive-pulley B' to said shaft. A collar B<sup>5</sup>, pinned to the cam-shaft B, carries a curved flat spring B<sup>6</sup>, fixed at one of its ends to the side of the collar and at its other end engaging the shoulder B<sup>7</sup>, formed on the locking-bolt B<sup>4</sup>. The tendency of the spring B<sup>6</sup> is to slide the locking-bolt toward the hub of the drive-pulley B'. The rear end of the locking-bolt has an integral stud B<sup>8</sup>, adapted to be engaged by the cam-lever B<sup>9</sup> to withdraw the bolt from the notch B<sup>2</sup> and to hold it from entering said notch. The cam-lever B<sup>9</sup> is pivotally mounted on the stud B<sup>10</sup> and is oscillated on said stud by means of the presser-bar B<sup>11</sup>, extending along the forward edge of the bed-plate A and



pivotally mounted at each end of the machine on the studs  $B^{12}$ , with which presser-bar the cam-lever is connected by means of the pivotal link  $B^{13}$ . The presser-bar is held  
 5 elevated by means of two coil-springs  $B^{14}$ , one at each end of the machine. Intermediate its bearings  $A^8$  the cam-shaft  $B$  is provided with a cam  $B^{15}$ , slidably mounted on said shaft, but rotatably connected therewith by means  
 10 of the feather  $B^{16}$ . The cam  $B^{15}$  has a hub  $B^{17}$  on each of its sides to provide a firm bearing for the cam upon the shaft  $B$ .

A carriage  $C$  is mounted upon the bed-plate  $A$  and is slidably movable lengthwise thereof.  
 15 of. This carriage comprises two parts—to wit, a plate holding and feeding mechanism and a part relatively stationary when the carriage is fed forward for spacing the letters. The plate holding and feeding mechanism will  
 20 first be described. A guide-runner  $C'$ , secured to the forward edge of said carriage, lies within the groove  $A^4$  and tends to give steadiness to the movement of the carriage. On the upper part of the carriage are mount-  
 25 ed a locking-bar  $C^2$ , having notches cut in its face, and a feed-bar  $C^3$ , having inclined teeth upon its upper side. In the lower part of the carriage  $C$ , at each side thereof, are provided two notched supporting-bars  $C^4$  for holding  
 30 the forward end of the plate-holder  $C^5$ . This plate-holder comprises two hinged members each cut away at its middle and adapted to fold together to hold between them a plate to be embossed. The upper hinged member is  
 35 provided with a weight-block  $C^6$  at its forward edge and the other member with a spring  $C^7$  for embracing said block and locking said plate together. Just rearward of the weight-block  $C^6$  is a pin  $C^8$ , fixed to said block in a  
 40 proper position to enter the notches in the supporting-bars  $C^4$  within the carriage  $C$  and support said plate-holder therein.

The relatively stationary part of the carriage  $C$  will now be described.

45 Intermediate the locking-bar  $C^2$  and the feed-bar  $C^3$  is a plate  $C^9$ , with which plate the carriage is slidably connected by means of the guides  $C^{10}$ . The plate  $C^9$  is provided with two ears  $C^{11}$ , extending upwardly there-  
 50 from and adapted to lie upon opposite sides of and embrace the cam  $B^{15}$ , bearing against the hub of said cam. A setting-yoke  $C^{12}$  is pivotally mounted upon the ears  $C^{11}$  and extends downwardly from its supporting-pivots,  
 55 terminating in a handle  $C^{13}$ , offset in its shank to embrace the presser-bar  $B^{11}$  and having near its lower edge a tooth  $C^{14}$  to enter the notches of the setting-bar  $A^5$ . A three-arm lever is fixed on the shaft  $C^{15}$ , rotatably mount-  
 60 ed in suitable openings in the ears  $C^{11}$ , and having an operating hand-lever  $C^{16}$ , fixed to said shaft outside of said ears. One arm,  $C^{17}$ , of this three-arm lever extends upwardly and bears at its upper end a roller  $C^{18}$ , adapted  
 65 to bear upon the periphery of the cam  $B^{15}$ . A second arm,  $C^{19}$ , of the three-arm lever extends downwardly to enter the notches of

the locking-bar  $C^2$ , while the third arm,  $C^{20}$ , of said lever carries an oscillatory pawl  $C^{21}$ , nor-  
 70 mally depressed by the coil-spring  $C^{22}$ , mounted upon said arm. The rotation of the cam  $B^{15}$  oscillates the three-arm lever and raises the arm  $C^{19}$  from the notches in the locking-  
 75 bar, depressing the third arm,  $C^{20}$ , of said lever with its spring-actuated pawl  $C^{21}$  to feed the carriage laterally with reference to the slide-plate  $C^9$ . The handle  $C^{16}$ , fixed to the  
 80 shaft  $C^{15}$  of said three-arm lever, is provided so that the spacing-feed mechanism of the carriage may be actuated manually independ-  
 85 ently of the rotation of the cam  $B^{15}$ , and a coil-spring  $C^{23}$  holds the arm  $C^{19}$  of the three-arm lever normally in engagement with the notches of the locking-bar  $C^2$ .

In operation a drive-belt from a source of  
 85 power is placed upon the drive-pulley  $B'$  and a plate of zinc or other suitable metal put into the plate-holder  $C^5$ , which holder is locked together by the spring  $C^7$  and placed  
 90 upon the supporting-bars  $C^4$ . The carriage is then moved to the first letter on the index-plate  $A^6$  that it is desirable to emboss upon the printing-plate. The setting-yoke  $C^{12}$  is  
 95 depressed over said letter, pushing the tooth  $C^{14}$  on said yoke into one of the notches of the setting-bar  $A^5$ . Depressing the setting-yoke also depresses the presser-bar  $B^{11}$ , and this by means of the pivotal link  $B^{13}$  moves  
 100 the cam-lever  $B^9$  out of engagement with the integral stud  $B^8$  at the rear end of the sliding bolt  $B^4$ , permitting the flat spring  $B^6$ , bearing upon the shoulder  $B^7$  of said locking-bolt,  
 105 to press the bolt into engagement with the hub of the drive-pulley  $B'$ , said bolt entering the notch  $B^2$  in said hub when said notch is brought into coincidence with the bolt. When  
 110 the locking-bolt  $B^4$  enters said notch  $B^2$ , the drive-pulley and the cam-shaft are locked together and said cam-shaft and the cam  $B^{15}$  are rotated. The cam  $B^{15}$ , which is moved length-  
 115 wise of the shaft  $B$  with the carriage  $C$ , was brought by the movement just described of the carriage into coincidence with the punch  $A^9$  of the letter indicated upon the index-plate  $A^6$ , and the rotation of said cam  
 120 drives said punch downward against the action of its coil-spring  $A^{11}$  to emboss its letter upon the plate in the plate-holder  $C^5$ . The rotation of the cam also moves the three-  
 125 arm lever, withdrawing the arm  $C^{19}$  thereof from a notch in the locking-bar  $C^2$  and pushing the spring-pawl  $C^{21}$  of the arm  $C^{20}$  of said three-arm lever downward, sliding the carriage with relation to the plate  $C^9$  one space  
 130 to the left, Fig. 1. Different letters are successively embossed upon the plate, the carriage (and cam  $B^{15}$ ) being moved backward and forward lengthwise of the machine into coincidence with any desired letter. When  
 135 two impressions of the same letter are necessary, the hand-lever  $C^{13}$  of the setting-yoke  $C^{12}$  is held depressed, which action withholds the cam-lever  $B^9$  from engagement with the stud  $B^8$  of the bolt  $B^4$ , thus permitting two



downward movements of the punch A<sup>9</sup> and spacing the carriage C by the oscillation of the three-arm feed-lever after each punch movement. Whenever the setting-yoke C<sup>12</sup> is released, the spring B<sup>14</sup> raises the presser-bar B<sup>11</sup> and said yoke and moves the cam-lever B<sup>9</sup> into the path of the bolt B<sup>4</sup>. When one line upon the plate has been completed, the plate may be moved to the second or any succeeding line by pushing the plate-holder rearward in the carriage, so that the pin C<sup>8</sup> lies within other notches of the supporting-bars C<sup>4</sup>.

The letters and characters of the female die are sunk in the faces of the projections extending above the surface of the bar A<sup>3</sup>. The effect of thus raising the bearing-face of the die above the surrounding surface is to obviate crinkling and buckling in the plate. It is apparent that many changes might be made in the form and arrangement of the various parts used in that embodiment of the invention described herein without departing from the spirit and scope of said invention. We therefore desire to have it understood that we do not limit ourselves to the specific construction herein set forth.

We claim as our invention—

1. In a letter-embossing machine, in combination, a series of movable punches; a cam-shaft; a cam slidably mounted thereon but rotatably connected therewith; means for driving said cam-shaft; a carriage slidable lengthwise of said shaft; an engagement between a portion of said carriage and said cam for holding the cam in coincidence with said carriage, said carriage comprising a plate-holding means and a setting means; and a spacing-feed between the setting means and the plate-holding means for spacing letters upon a plate thereon.

2. In a letter-embossing machine, in combination, a series of movable punches; a cam-shaft; a cam slidably mounted thereon but rotatably connected therewith; means for driving said cam-shaft; a carriage slidable lengthwise of said shaft; means on said carriage for engaging said cam to hold the cam in coincidence with the carriage, said carriage comprising a plate-holding means and a setting means, a rack-and-pawl connection between the setting means and the plate-holding means, and an arm for actuating said pawl adapted to be operated by said cam.

3. In a letter-embossing machine, in combination, a series of movable punches; a cam-shaft; a cam slidably mounted thereon but rotatably connected therewith; a carriage comprising a plate-holding means, a setting means, and a feed connection between said plate-holding means and said setting means; a clutch for connecting the driving means with the cam-shaft and for disconnecting it therefrom; and a lever for actuating said clutch adapted to be moved by said setting means.

4. In a letter-embossing machine, in combination, a bed-plate having a die; a punch-head having a series of movable punches; a rotatory shaft; a cam slidably mounted on said shaft but rotatably connected therewith; a carriage slidably mounted over said bed-plate; means for setting said carriage; a connection between the carriage and said cam; a rack and pawl for spacing said carriage; and an arm for said pawl, which arm is adapted to be actuated by said cam.

5. In a letter-embossing machine, in combination, a bed-plate having a die; a punch-head having a series of movable punches; a rotatory shaft; a cam slidably mounted on said shaft but rotatably connected therewith; a carriage slidable lengthwise of said shaft; a setting-arm for said carriage; a spacing-feed connection between the carriage and the setting-arm and a clutch for connecting said shaft with a source of power, adapted to be operated by said setting-arm.

6. In a letter-embossing machine, in combination, a bed-plate having a die; a punch-head having a series of movable punches; a rotatory shaft; a cam slidably mounted on said shaft but rotatably connected therewith; a carriage slidable mounted over said bed-plate; a locking-bar and a feed-bar on said carriage, a portion of said carriage having a sliding connection with the remainder of said carriage, said portion having an engagement with said cam; a setting-arm mounted on said carriage; and a three-arm lever pivotally mounted on said carriage, one of the arms of said lever being adapted to engage said locking-bar, another carrying a pawl adapted to engage said feed-bar, and the third arm being adapted to be moved by said cam.

7. In a letter-embossing machine, in combination, a series of movable punches; a cam-shaft; a cam for operating said punches, slidably mounted on said shaft but rotatably connected therewith; a carriage comprising a plate-holding means and means for feeding said plate-holding means; a lever pivotally mounted on said carriage for setting said carriage with relation to one of said punches; and a clutch for connecting said cam-shaft with a source of power, adapted to be operated by said setting-lever.

8. In a letter-embossing machine, in combination, a carriage comprising notched holding-bars; two members hinged together, each provided with an opening adapted to register with the opening of the other hinged member when said members are folded together; a weight-block fixed to one of said members; a spring-clip for holding said members together; and a rod fixed to said weight-block, the ends of which rod are adapted to lie in the notches of said notched holding-bars.

WILLIAM G. REYNOLDS.

THOS. D. McCLUSKEY.

Witnesses:

G. A. HANCOCK,

GEO. L. CHINDAHL.