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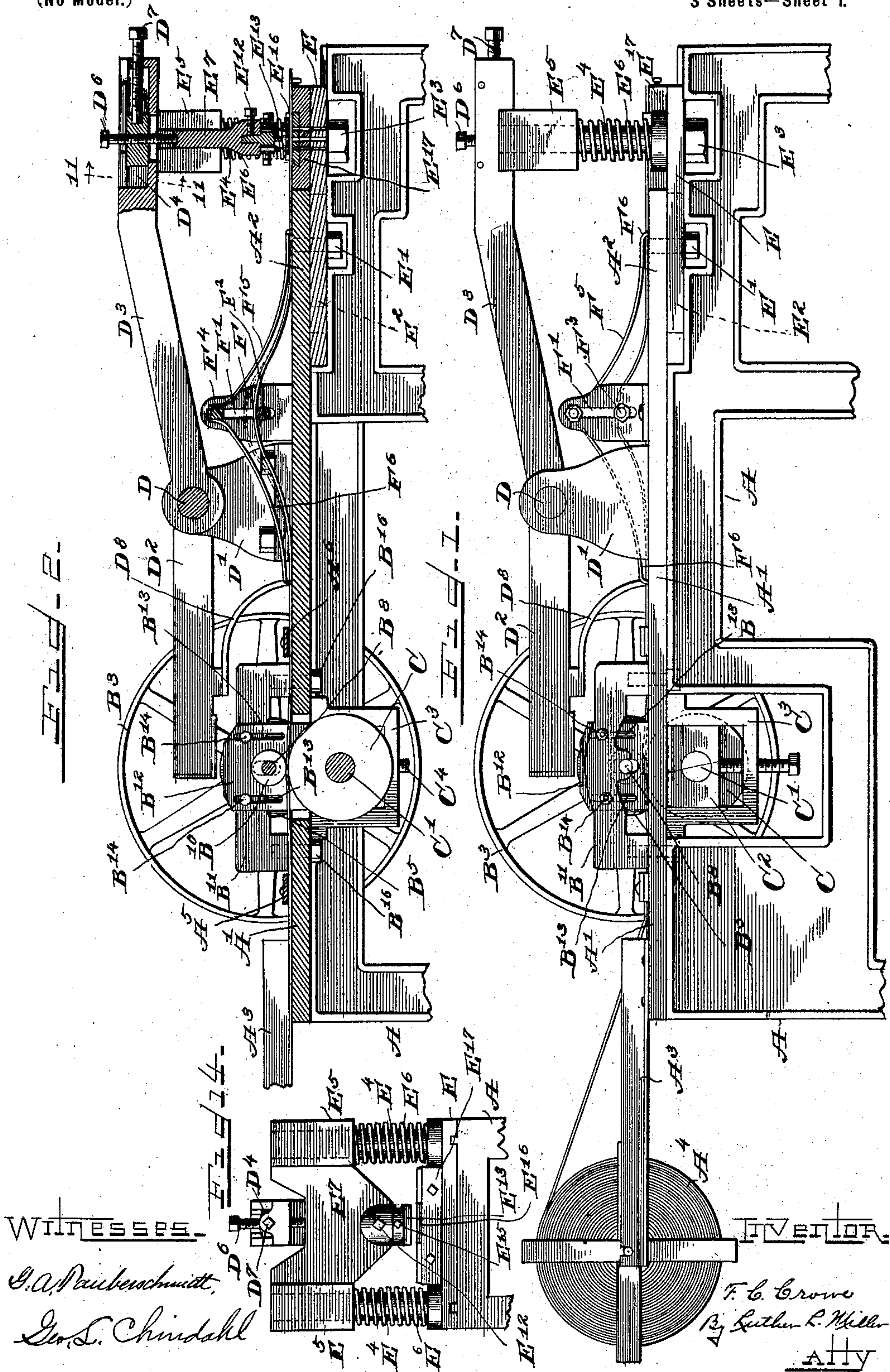
F. C. CROWE.

MACHINE FOR MAKING METAL TAGS.

(Application filed Sept. 23, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES.

G. A. Pauberschmitt,

Geo. S. Chindahl

INVENTOR.

F. C. Crowe

By Luther L. Miller

ATTY







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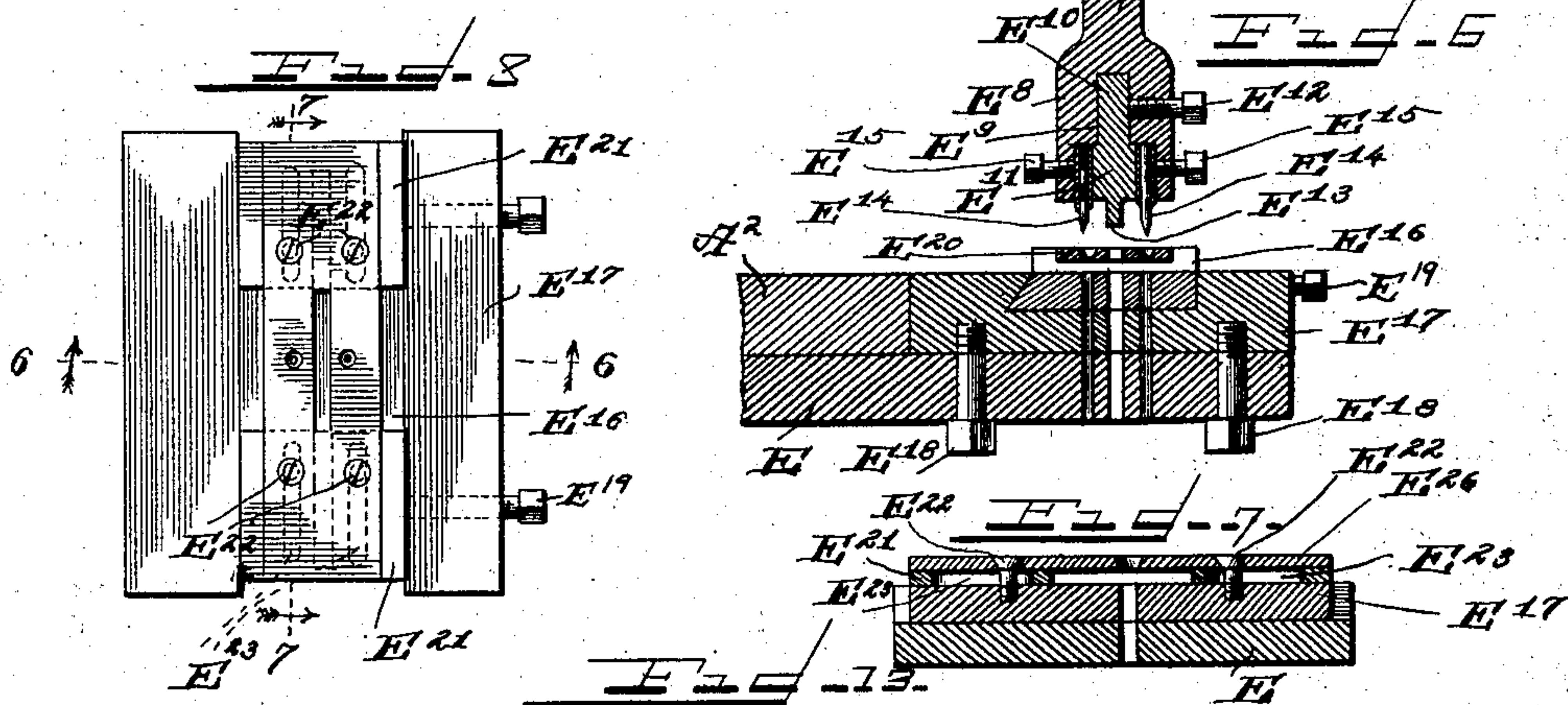
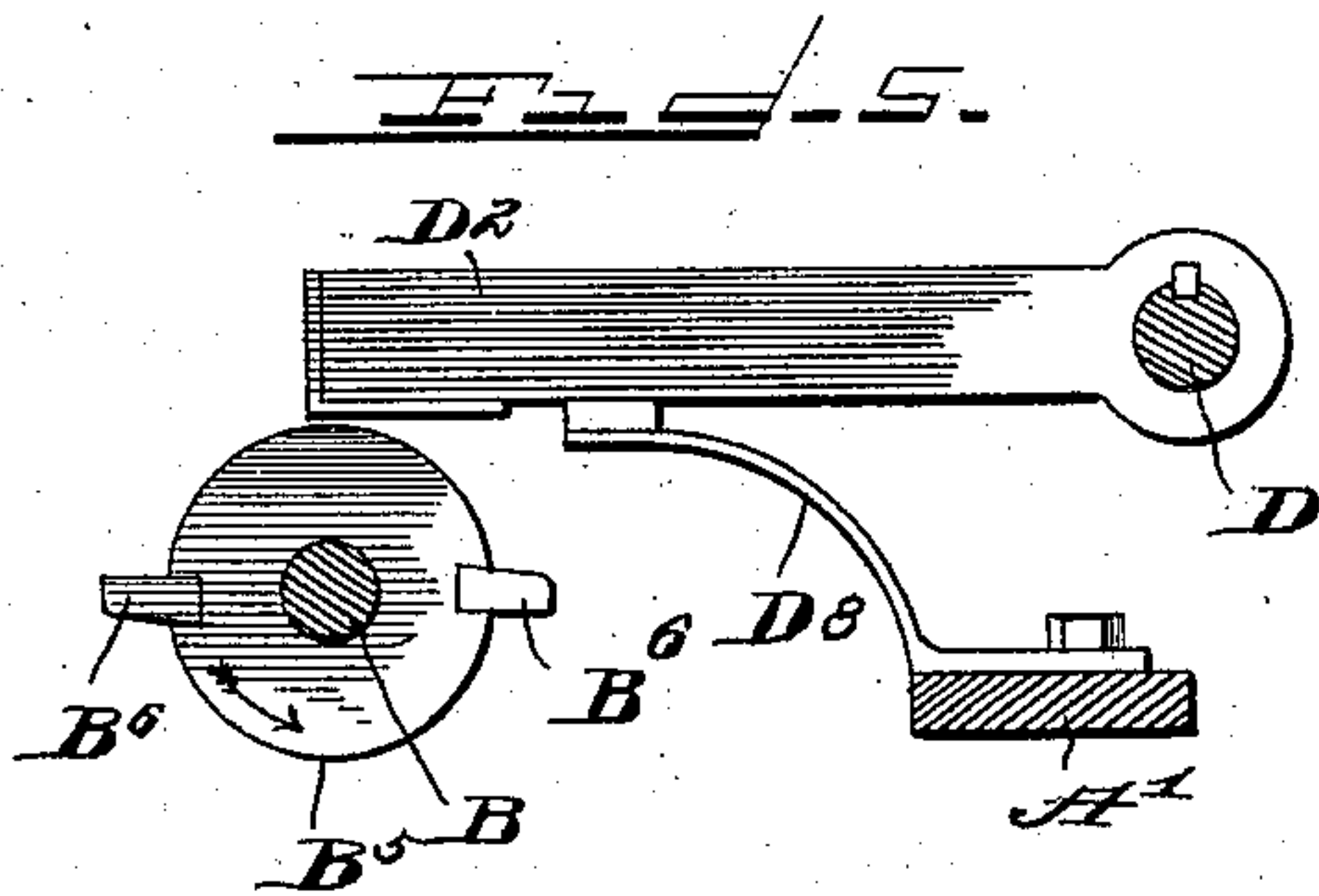
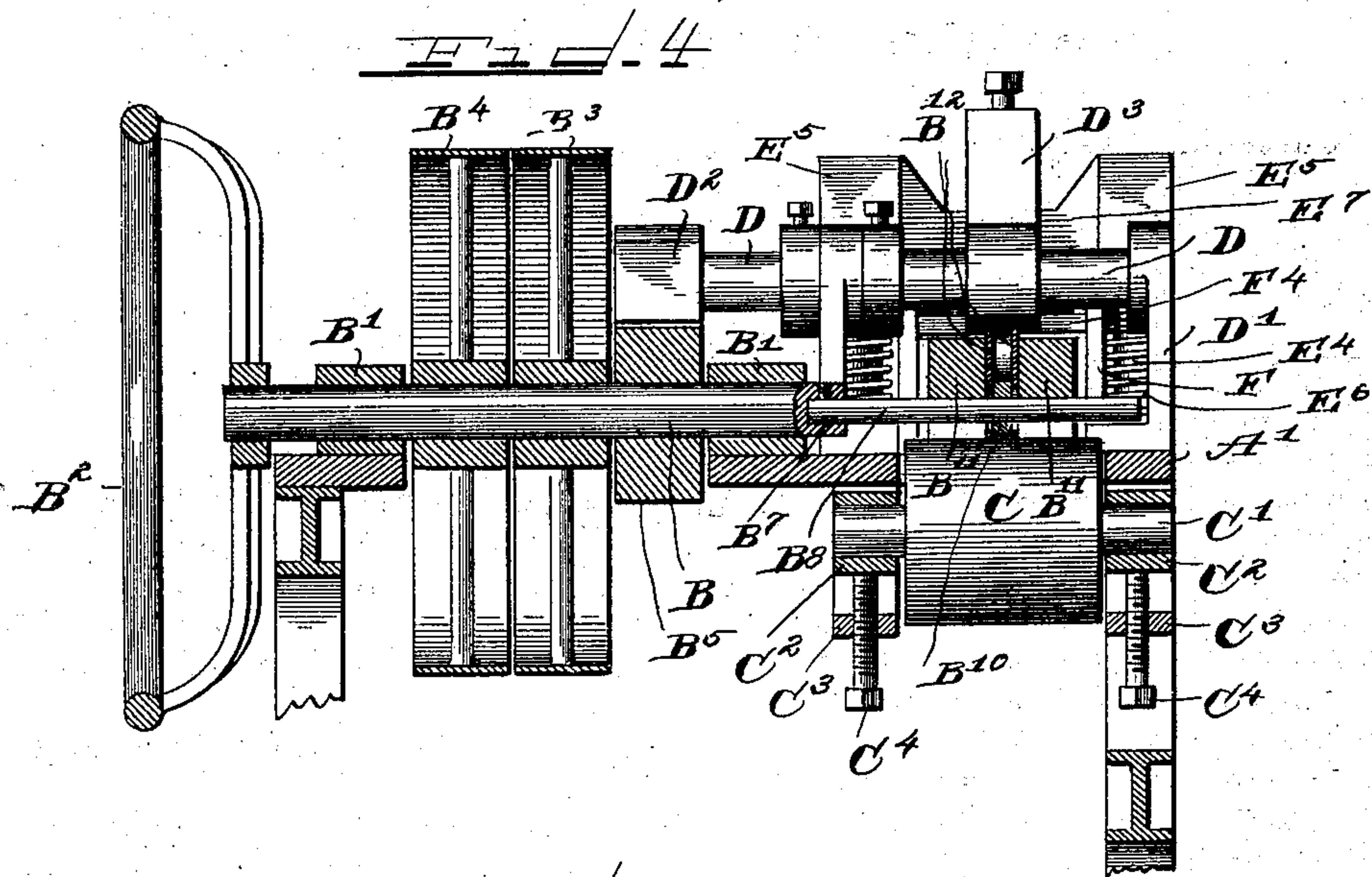
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WITNESSES.

*L. A. Paulschmidt,*  
*Geo. S. Chindahl*

John Jones

INVENTOR

*Frederick C. Crowe*  
*By Luther L. Miller*  
ATTY



# UNITED STATES PATENT OFFICE.

FREDERICK C. CROWE, OF CHICAGO, ILLINOIS.

## MACHINE FOR MAKING METAL TAGS.

SPECIFICATION forming part of Letters Patent No. 693,241, dated February 11, 1902.

Application filed September 23, 1901. Serial No. 76,317. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK C. CROWE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making Metal Tags, of which the following is a specification.

The object of this invention is the production of a mechanism for automatically impressing and cutting metal tags from a ribbon of sheet metal fed continuously to the mechanism.

In the accompanying drawings, Figure 1 is a side elevation of a tag-making machine embodying the features of my invention. Fig. 2 is a longitudinal vertical section on dotted line 2 2 of Fig. 3. Fig. 3 is a plan view of the machine. Fig. 4 is a transverse vertical section on dotted line 4 4 of Fig. 3. Fig. 5 is a detail showing the wing-cams on the drive-shaft for actuating the cutting-dies. Fig. 6 is a longitudinal section through the cutting-die similar to that of Fig. 2, but on a larger scale than in said figure. Fig. 7 is a transverse section through the lower cutting-die on dotted line 7 7 of Fig. 6. Fig. 8 is a plan view of the lower cutting-die shown in Fig. 7. Fig. 9 is a sectional view through the forward adjustable guide on dotted line 9 9 of Fig. 3. Fig. 10 is a vertical section on dotted line 10 10 of Fig. 3. Fig. 11 is a transverse vertical section through the shear-actuating arm on dotted line 11 11 of Fig. 2. Fig. 12 is an extended view of the periphery of the design-roll. Fig. 13 is a view of a finished tag. Fig. 14 is an end elevation of the machine, showing the shearing and punching mechanism.

Like letters of reference indicate corresponding parts throughout the several views.

In the embodiment herein shown of this invention I provide a supporting-framework A, having the bed A'. At one side this bed has a rearward extension A<sup>2</sup>, upon which the shearing and punching dies are mounted, and at the forward side, opposite said rearward extension, is provided with the two forwardly-projecting arms A<sup>3</sup>, rigidly fixed to said bed, between the forward ends of which arms is rotatably mounted a spool A<sup>4</sup> for carrying a ribbon of sheet metal of a width suitable for the tags to be made upon the machine.

Guides A<sup>5</sup> and A<sup>6</sup> have slotted pieces A<sup>7</sup>, held in position by the screws A<sup>8</sup>, which slotted pieces are adjustable to accommodate ribbons of any width.

Extending transversely across the bed A', about midway of the body portion thereof, is a rotatable shaft B, mounted in the journal-bearings B' upon said bed. At the outer end the shaft B carries the hand-wheel B<sup>2</sup>, provided for turning the shaft by hand when that is desirable. Within the bed the shaft B carries a tight and a loose pulley B<sup>3</sup> and B<sup>4</sup>, respectively, also a cam B<sup>5</sup>, having two wing projections B<sup>6</sup> thereon, one of which projections is removable for a purpose to appear later herein. The inner end of the shaft B is provided with the axial opening B<sup>7</sup> for receiving the shaft B<sup>8</sup> of a smaller diameter, which latter is held in position in said axial opening by the set-screw B<sup>9</sup>, passing through a suitable threaded opening in the shaft B. The smaller shaft B<sup>8</sup> carries the impressing-roll B<sup>10</sup>, having the design to be impressed in the face of the tag raised upon its periphery. At each side of said roll the yokes B<sup>11</sup> bear upon the upper side of the shaft B<sup>8</sup> to hold it downward. Guides B<sup>12</sup>, vertically adjustable by means of the slotted openings B<sup>13</sup> therein, and the bolts B<sup>14</sup>, extending through suitable openings in said yokes, are adapted to prevent the strip of metal passing under the design-roll from lateral displacement. The lower edges of these guides B<sup>12</sup> are cut away on the arc of a circle having the same diameter as the lower or anvil roll, to be later described. The yokes B<sup>11</sup> are themselves adjustable laterally to accommodate design-rolls of different widths. This adjustment of said yokes is obtained by means of the transversely-elongated openings B<sup>15</sup> in the bed-plate A', through which openings the securing machine-bolts B<sup>16</sup> for the yokes B<sup>11</sup> extend, as will more clearly appear by reference to Fig. 10.

C refers to said anvil-roll, which roll has a smooth periphery and is rigidly mounted upon the idle running-shaft C', journaled in the vertically-adjustable bearing-blocks C<sup>2</sup>. These blocks are guided in the brackets C<sup>3</sup>, fixed to the under side of the bed A', and are susceptible of a vertical adjustment in said brackets by means of the set-screw C<sup>4</sup>, passing through a threaded opening in the lower side



of said bracket and bearing against the lower face of said bearing-blocks. By means of this vertical adjustment the distance between the design-roll B<sup>10</sup> and the anvil-roll C may be altered to produce any desired pressure upon the metal ribbon passing between said rolls.

A rock-shaft D is mounted in the bearing-brackets D', rigidly fixed to the upper face of the bed A, and at its inner end carries the arm D<sup>2</sup>, extending forwardly into a position to be engaged by the wings B<sup>6</sup> of the cam B<sup>5</sup> as said cam is rotated by the shaft B. A curved spring D<sup>3</sup>, extending upwardly from the bed A', tends to hold the arm D<sup>2</sup> in an elevated position and raise the end of the arm from contact with the arm B<sup>5</sup>, excepting when the wings B<sup>6</sup> thereof engage said arm. A second arm D<sup>3</sup>, also fixed rigidly to the rock-shaft D, extends rearwardly over the rear extension A<sup>2</sup> of the bed A', and at its rear end is located a punching and shearing apparatus for automatically cutting the succession of tag-designs formed upon the face of the metal ribbon into individual tags; also, for punching holes in said tags, whereby they may be affixed to the structure for which they are intended. The rear end of the arm D<sup>3</sup> is provided with an undercut recess D<sup>4</sup>, extending vertically through said arm and has in said recess a block D<sup>5</sup>, suitably perforated and screw-threaded near its middle to receive a vertically-extending bearing set-screw D<sup>6</sup>. The arm D<sup>3</sup> is also perforated and screw-threaded at its rear end to receive the adjusting set-screw D<sup>7</sup> for moving the block D<sup>5</sup> in the recess D<sup>4</sup>.

At the rear end of the rear extension A<sup>2</sup> of the bed A', I provide a base-block E for supporting the shearing and punching dies, by means of which the metallic ribbon, upon the upper surface of which designs for tags have been impressed by the design-roll B<sup>10</sup>, is severed into individual tags. This base-block is made adjustable forward and back by means of two machine-bolts E<sup>1</sup>, one on each side of the extension A<sup>2</sup>, projecting through elongated openings E<sup>2</sup> in said base-block E and entering screw-threaded openings in the under side of the bed A'. By means of machine-bolts E<sup>3</sup> two upright posts E<sup>4</sup> are rigidly secured to the base-block E, at opposite sides thereof, and guided upon these posts and free to slide up and down thereon is the head-block E<sup>5</sup>, cushioned in its downward movement by means of the two coil-springs E<sup>6</sup>, surrounding the posts E<sup>4</sup>. The central integral web portion E<sup>7</sup> of the head-block E<sup>5</sup> is provided at its lower middle portion with a boss E<sup>8</sup>, having a central recess E<sup>9</sup> for receiving the stem E<sup>10</sup> of the upper shearing and punching die. E<sup>11</sup> is said upper shearing and punching die, held in position in the recess E<sup>9</sup> of the boss E<sup>8</sup> by means of the set-screw E<sup>12</sup>. The upper shearing and punching die E<sup>11</sup> is provided with the shearing edge E<sup>13</sup>, formed integral with said die, and the punches E<sup>14</sup>, set in suitable sock-

ets in the die and secured therein by means of the set-screws E<sup>15</sup>. E<sup>16</sup> is the lower shearing and punching die, and E<sup>17</sup> is the seat therefor, secured to the base-block E between the upright guide-posts E<sup>1</sup> by means of the two machine-bolts E<sup>18</sup> and held in place in an opening therein by means of the set-screws E<sup>19</sup>. A stripping-plate E<sup>20</sup> for the shear E<sup>13</sup> and punches E<sup>14</sup> is raised slightly above the lower die, it being held in position upon the slotted guide-blocks E<sup>21</sup> by means of the machine-screws E<sup>22</sup>. The guide-blocks E<sup>21</sup> are made adjustable by means of their slotted openings E<sup>23</sup>, so that they may be set to accommodate different widths of ribbon.

In order to cause the shear E<sup>13</sup> to descend upon the ribbon and sever it at a point midway between any two of the tag-designs impressed thereon, I provide a compensating device in the path of the ribbon between the impressing-roll and said shear. This mechanism consists of two upright brackets F, secured to the bed A', one on either side of the path traversed by the ribbon. Each of these brackets is provided in its upright portion with a vertical slot F', through which slots extends a compensating rod F<sup>2</sup>, provided with a nut F<sup>3</sup> outside the bracket, at either end of said brackets F. The upper ends of the brackets are held apart by means of the square rod F<sup>4</sup>, having cylindrical screw-threaded shanks where said rod extends through the upper part of the vertical slot F' and provided with suitable nuts for said screw-threads. This square rod carries the double-ended flat spring F<sup>5</sup>, having bifurcated ends F<sup>6</sup>, between the bifurcations of which the ribbon passes and by which said ribbon is guided and held downward. By setting the compensating rod F<sup>2</sup> higher or lower in the vertical slot F' the length of ribbon extending between the impressing-roll and the shear is made greater or less. The impressing-rolls rotate continuously, and when the shear descends upon the ribbon the advance of the rear end of the latter is stopped. The ribbon, however, buckles upward in the compensating device until the die rises to free the rear end of the ribbon, when it assumes its normal position. The movement of the die is very quick, so that the movement of the ribbon is checked at the rear end of the machine only for an instant.

In operation a spool of metallic ribbon, of aluminium, brass, or other suitable material is placed upon the arms A<sup>3</sup> at the forward end of the machine. A design-roll bearing on its surface the raised design desired to be impressed into the surface of the ribbon fixed on the shaft B<sup>8</sup> is placed in the machine, the anvil-roll adjusted to the proper position by means of the adjusting-screws C<sup>1</sup>, and the end of the ribbon fed between the design-roll and the anvil-roll by turning the hand-wheel B<sup>2</sup>. The design-roll B<sup>10</sup> may bear on its periphery the design for two tags or if the design be a large one for only one tag. If the impressing-roll has only one design, one of the wings



B<sup>6</sup> of the wing-cam B<sup>5</sup> must be removed, so that the shearing and punching die will be forced downward with only one-half the frequency that would be necessary if the design for two tags appears upon the face of the design-roll.

The position of the shearing and punching dies is adjusted by means of the machine-bolts E', passing through the slotted openings E<sup>2</sup> in the base-block E, and the position of the bearing-screw D<sup>6</sup> is adjusted by turning the adjusting-screw D<sup>7</sup> to bring the block D<sup>5</sup> into its proper position. The compensating device is regulated to bring the proper point in the ribbon beneath the descending shear edge E<sup>13</sup> at the proper moment by raising or lowering the compensating rod F<sup>2</sup> in the slot F'.

The ribbon is fed continuously through the machine, a succession of tag impressions made upon its upper surface, and at the rear end of the machine severed by the shearing-die into individual tags, and holes formed in the ends of the tags for securing each tag to its object.

It is apparent that the design to be transferred to the tags might be impressed in the peripheral face of the design-roll and that it then would be embossed upon or raised above the surface of the tag instead of being depressed therein, as described in the foregoing specification.

I claim as my invention—

1. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; a shear; a cam on said rotatable shaft; a rock-shaft journaled on said frame intermediate the design-roll and the shear; an arm fixed to said rock-shaft extending into the path of said cam; and a second arm fixed on said rock-shaft adapted to operate said shear.

2. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; and means for actuating said shear by the rotation of said shaft.

3. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; a rock-shaft for operating said shear; and a cam on said rotatable shaft for moving said rock-shaft.

4. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; a cam on said rotatable shaft; a rock-shaft; an arm fixed to said rock-shaft extending into the path of said cam; and a second arm fixed on said rock-shaft adapted to operate said shear.

5. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a shear; means for rotating the design-roll and for actuating the shear; and a compensating device for the metallic ribbon from which the tags are made, located in the path of said ribbon between the design-roll and the shear, which compensating device comprises an upright bracket and a vertically-adjustable rod over which the metallic ribbon runs.

6. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; means for adjusting the anvil-roll toward and from said design-roll; a spool for carrying the metallic ribbon from which the tags are to be made; a guide for directing said ribbon between said design-roll and said anvil-roll; a shear for cutting said ribbon into tag lengths; and a compensating device for controlling the presentation of the metallic ribbon to the shear.

7. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a cam fixed on said shaft; a design-roll adapted to be rotated by said shaft; an anvil-roll; two bearing-yokes for holding said design-roll from upward movement; means for adjusting said anvil-roll toward and from said design-roll; a rock-shaft having an arm extending into the path of said cam; a shear; said rock-shaft also having an arm adapted to operate said shear; and a compensating device for the metallic ribbon from which the tags are to be made, located in the path of said ribbon between the design-roll and the shear.

8. In a machine for making metal tags, in combination, a supporting-frame; a bed; a rotatable shaft journaled on said bed, said shaft having a wing-cam fixed thereon, also having an axial recess in its inner end; a shaft secured in said recess; two yokes secured to the frame for holding said last-mentioned shaft from upward movement; a design-roll fixed on said last-mentioned shaft; an anvil-roll rotatably mounted in the supporting-frame; means for adjusting the anvil-roll toward and from the design-roll; a shear on said supporting-frame; a spring for holding



the upper die elevated; a rock-shaft mounted upon the supporting-frame, said rock-shaft having one arm projecting into the path of said cam, and a second arm for actuating said shear; and a compensating device for the metallic ribbon from which the tags are to be made, which compensating device comprises an upright bracket and a vertically-adjustable rod over which the metallic ribbon runs in its passage from the design-roll to the shear.

9. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; and means for operating said shear and for rotating the design-roll.

10. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; a cam on said rotatable shaft; a rock-shaft; an arm fixed to said rock-shaft extending into the path of said cam; and a second arm fixed on said rock-shaft adapted to operate said shear.

11. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a base-block mounted on the supporting-frame; means for adjusting the base-block longitudinally of said frame; two guide-posts extending upward from said base-block; coil-springs surrounding said upright posts; a head adapted to move vertically upon said guide-posts; a shear-die fixed in said head; a corresponding shear-die supported by said base-block; a rock-shaft adapted to operate said shear; a cam for moving said rock-shaft; and means for rotating the design-roll and said cam.

12. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a shear; means for rotating the design-roll and for actuating the shear; and a compensating device for the metallic

ribbon from which the tags are to be made, which compensating device comprises an upright bracket and a vertically-adjustable compensating rod over which the metallic ribbon runs in its passage from the design-roll to the shear.

13. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a shear; a spring for holding the shear elevated; a rotatable cam; a rock-shaft journaled on said frame intermediate the design-roll and the shear; an arm fixed to said rock-shaft adapted to engage said cam; and a second arm fixed to said rock-shaft adapted to operate said shear.

14. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a guide for passing the metallic ribbon from which the tags are to be made between said rolls; a shaft for rotating the design-roll; a cam fixed on said shaft; a shear; a rock-shaft having an arm adapted to engage said cam and a second arm adapted to operate said shear; a compensating device in the path of said metallic ribbon between the rolls and the shear, which compensating device comprises an upright bracket and a vertically-adjustable rod; and means for rotating said first-mentioned shaft.

15. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; means for adjusting the anvil-roll toward and from said design-roll; two yokes for holding the design-roll from upward movement; means for adjusting said yokes longitudinally of said shaft; a guide on each of said yokes for holding the metallic ribbon from which the tags are to be made between said rolls; a guide on the supporting-frame for directing said ribbon to said rolls; a spool for supporting said ribbon; a shear; a rock-shaft; an arm fixed on said rock-shaft; a rotatable cam for moving said arm; a second arm fixed on said shaft for operating said shear; and a compensating device for the metallic ribbon, located in the path of said ribbon between the design-roll and the shear.

FREDERICK C. CROWE.

Witnesses:

L. L. MILLER,

GEO. L. CHINDAHL.