

(No Model.)

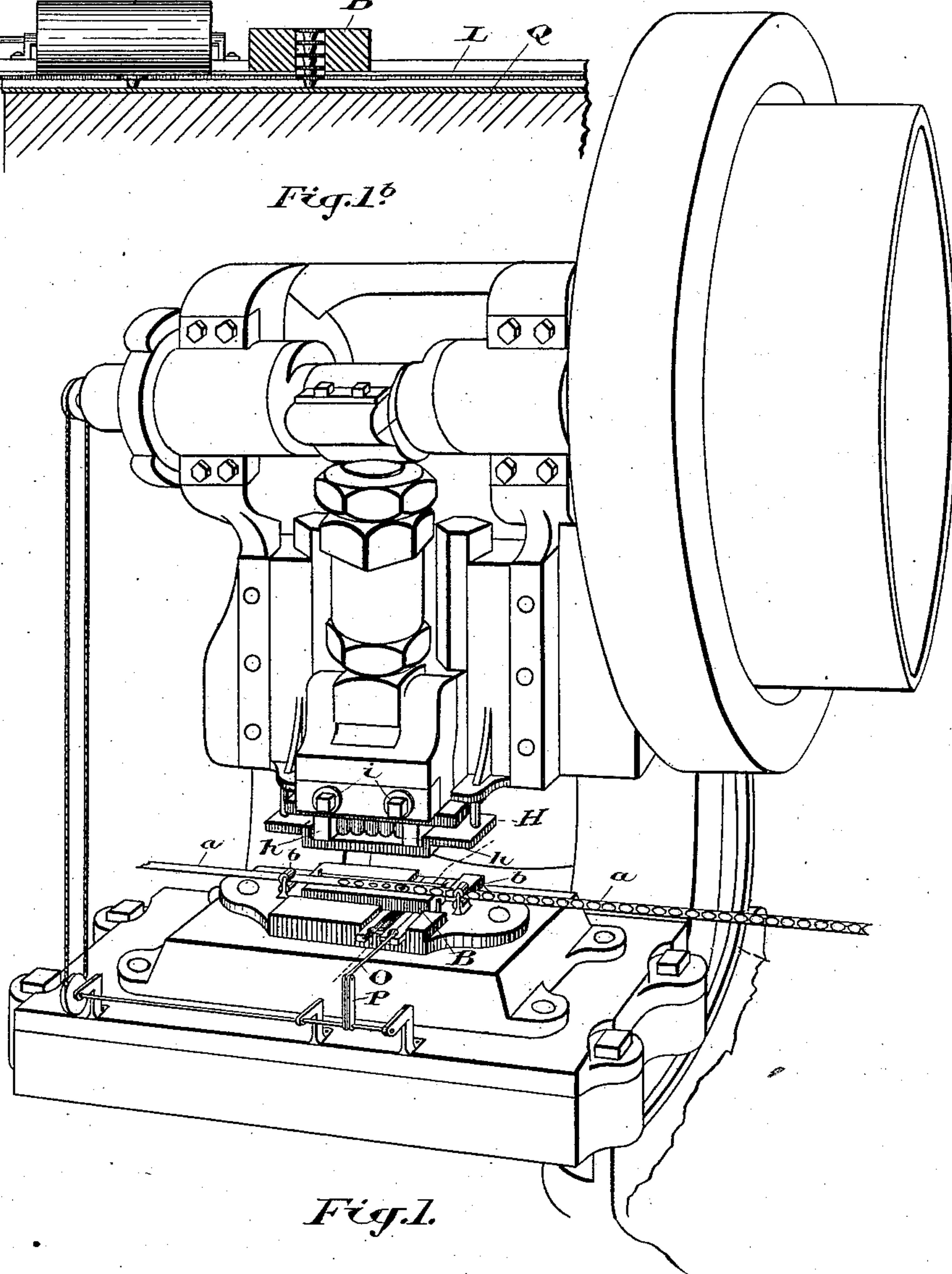
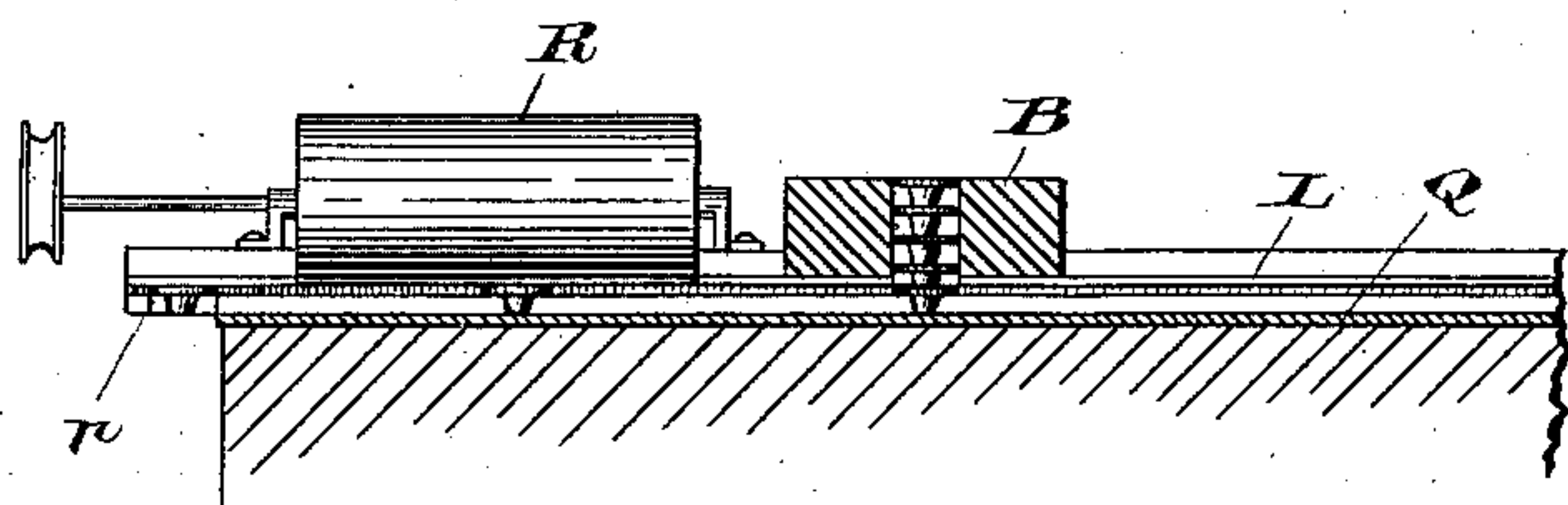
3 Sheets—Sheet 1.

O. W. KETCHUM.

PROCESS OF AND MACHINE FOR MAKING BUTTONS.

No. 367,410.

Patented Aug. 2, 1887.



Witnesses.

H. B. Fetherstonhaugh

J. M. Jackson

Inventor:

O. W. Retchum

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Donald C. Ridout Esq
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Chyo

(No Model.)

3 Sheets—Sheet 2.

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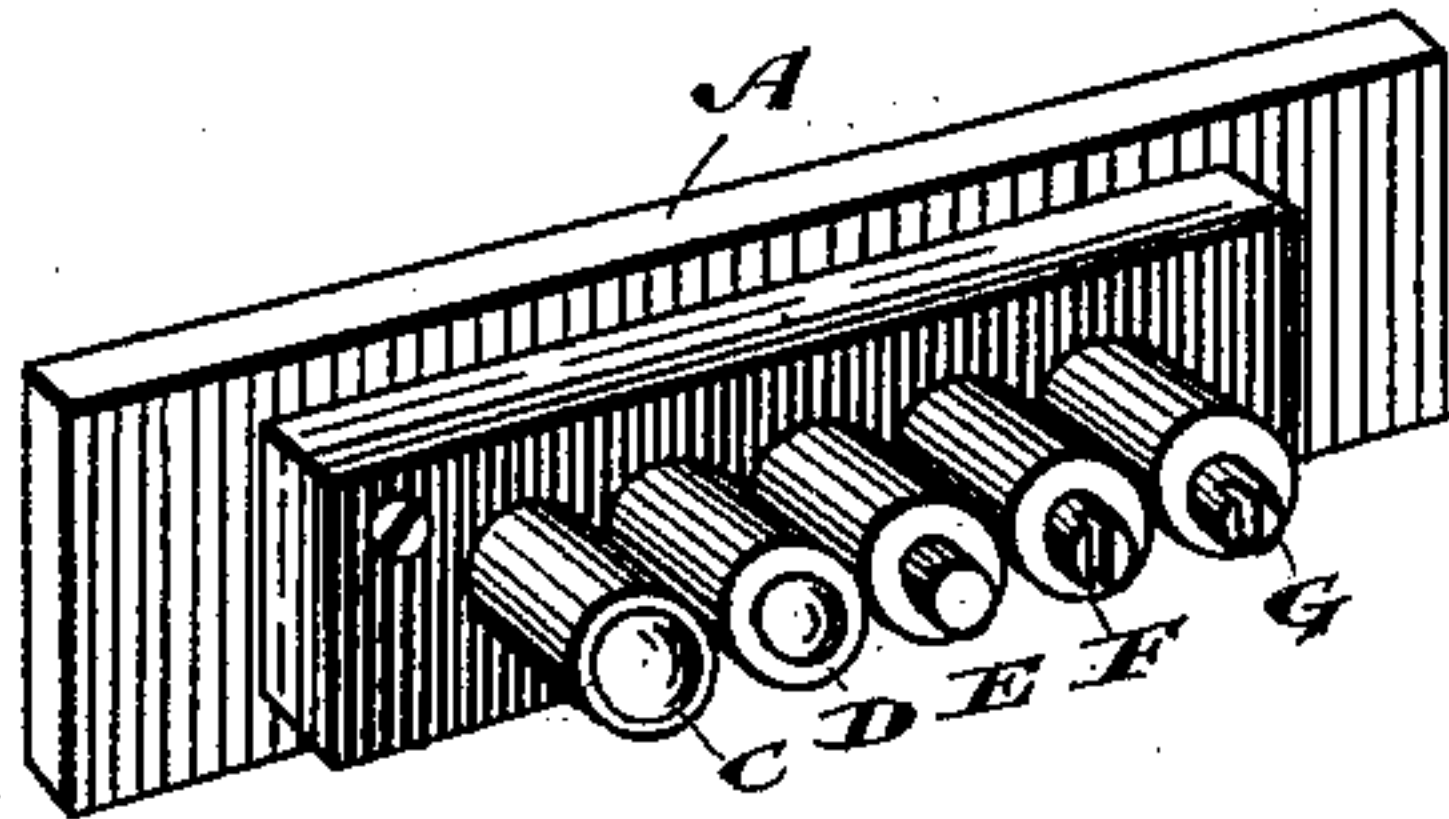


Fig. 3.



Fig. 6.

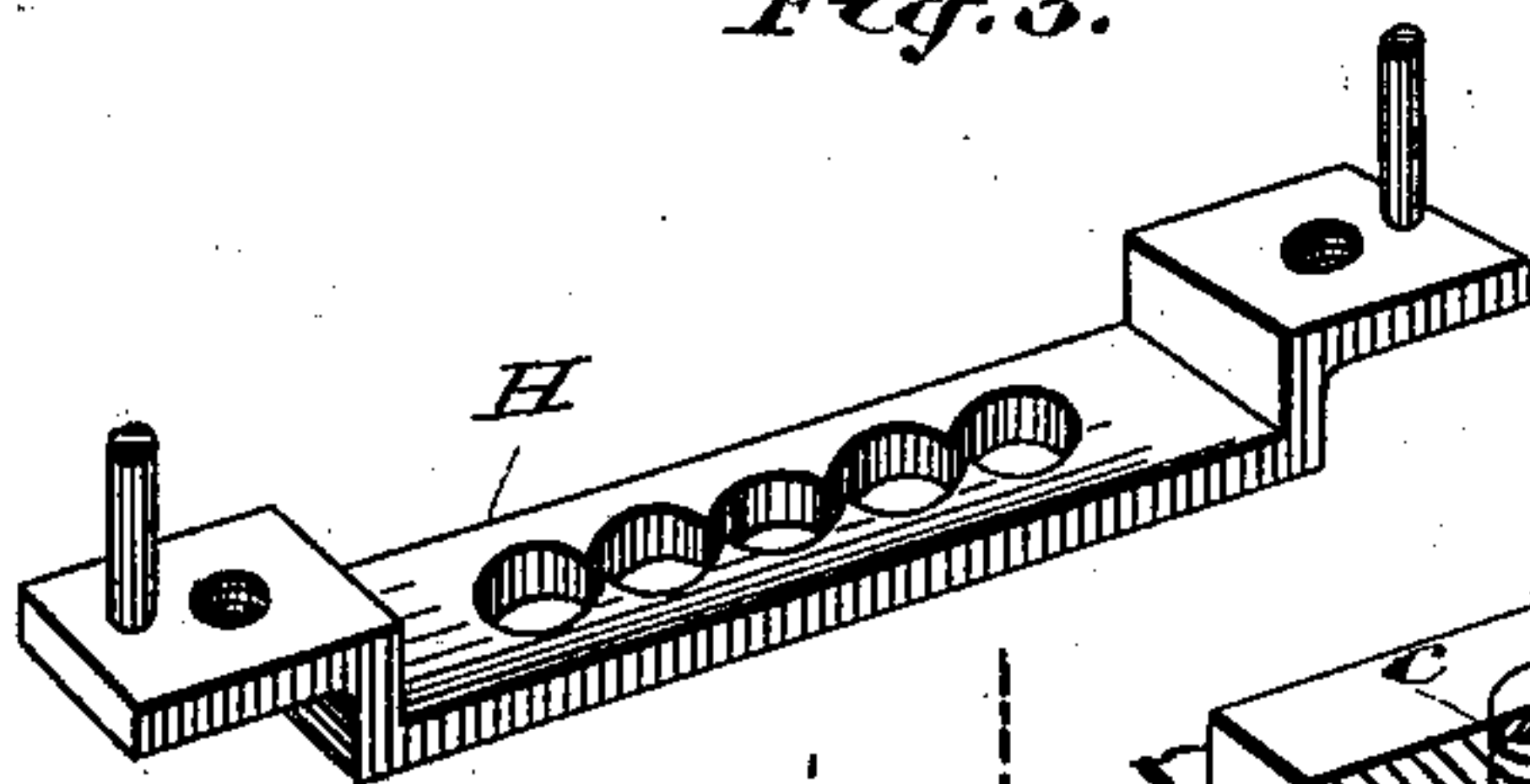


Fig. 4.

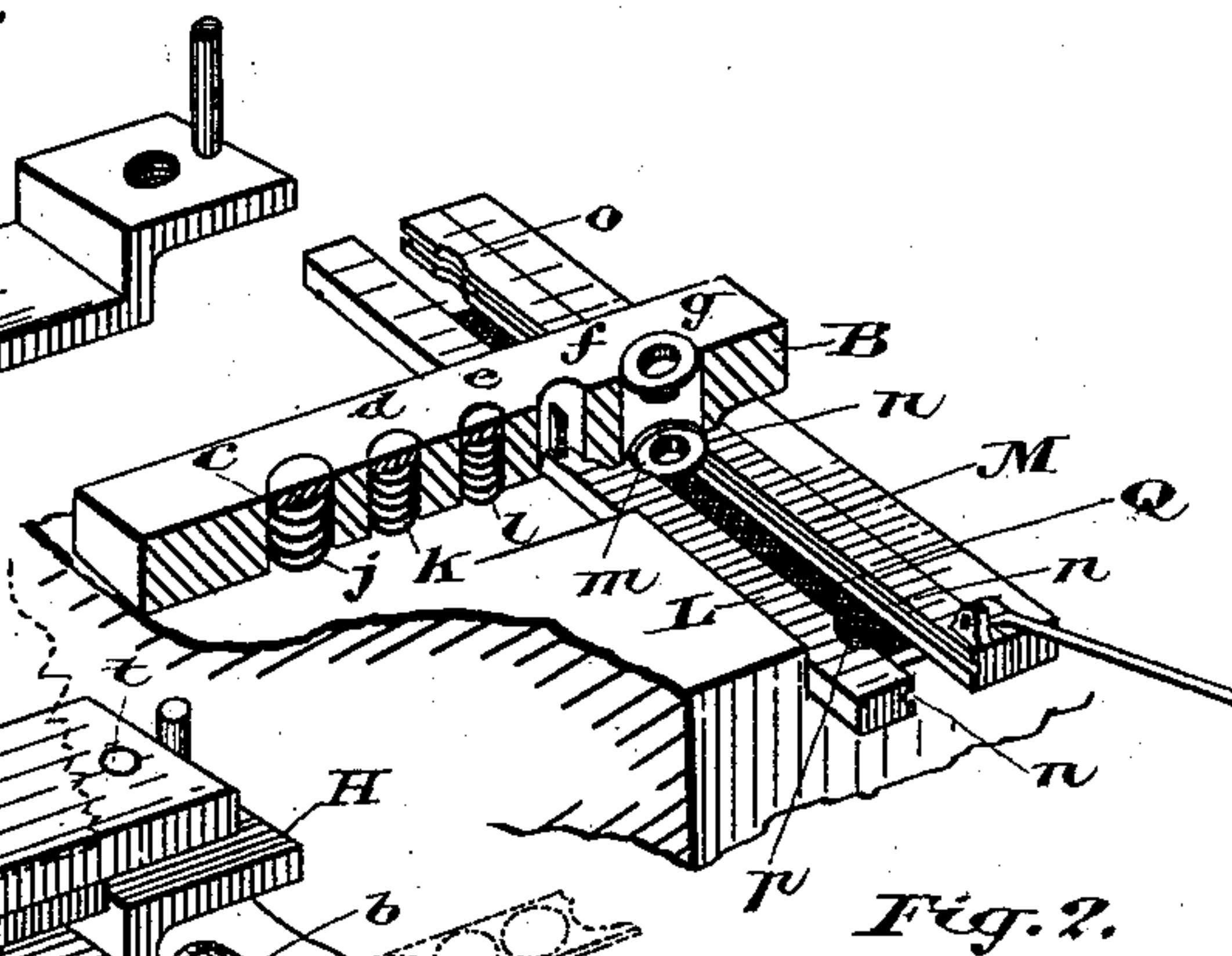


Fig. 2.

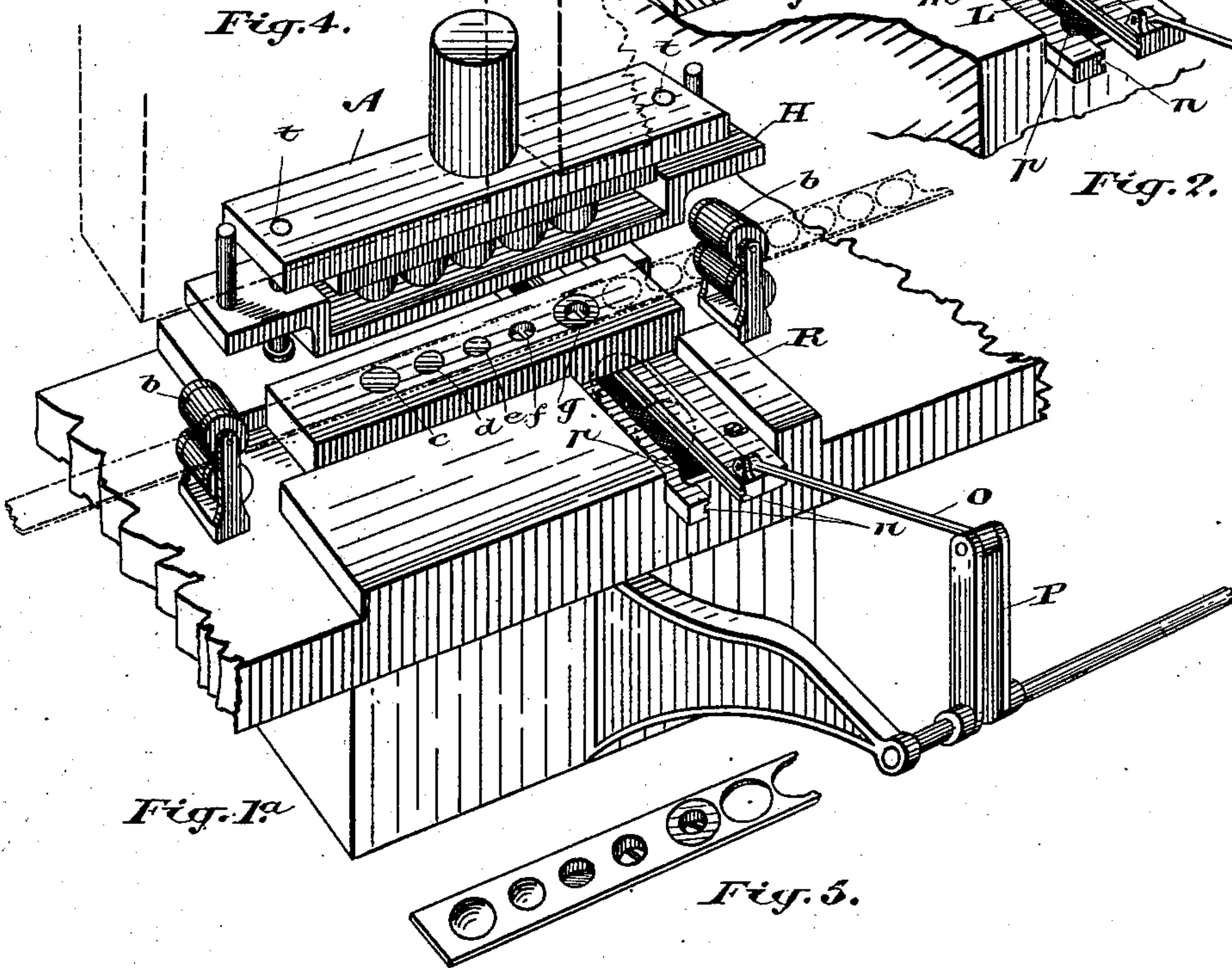


Fig. 1.

Fig. 5.

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O. W. Ketchum
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(No Model.)

3 Sheets—Sheet 3.

O. W. KETCHUM.

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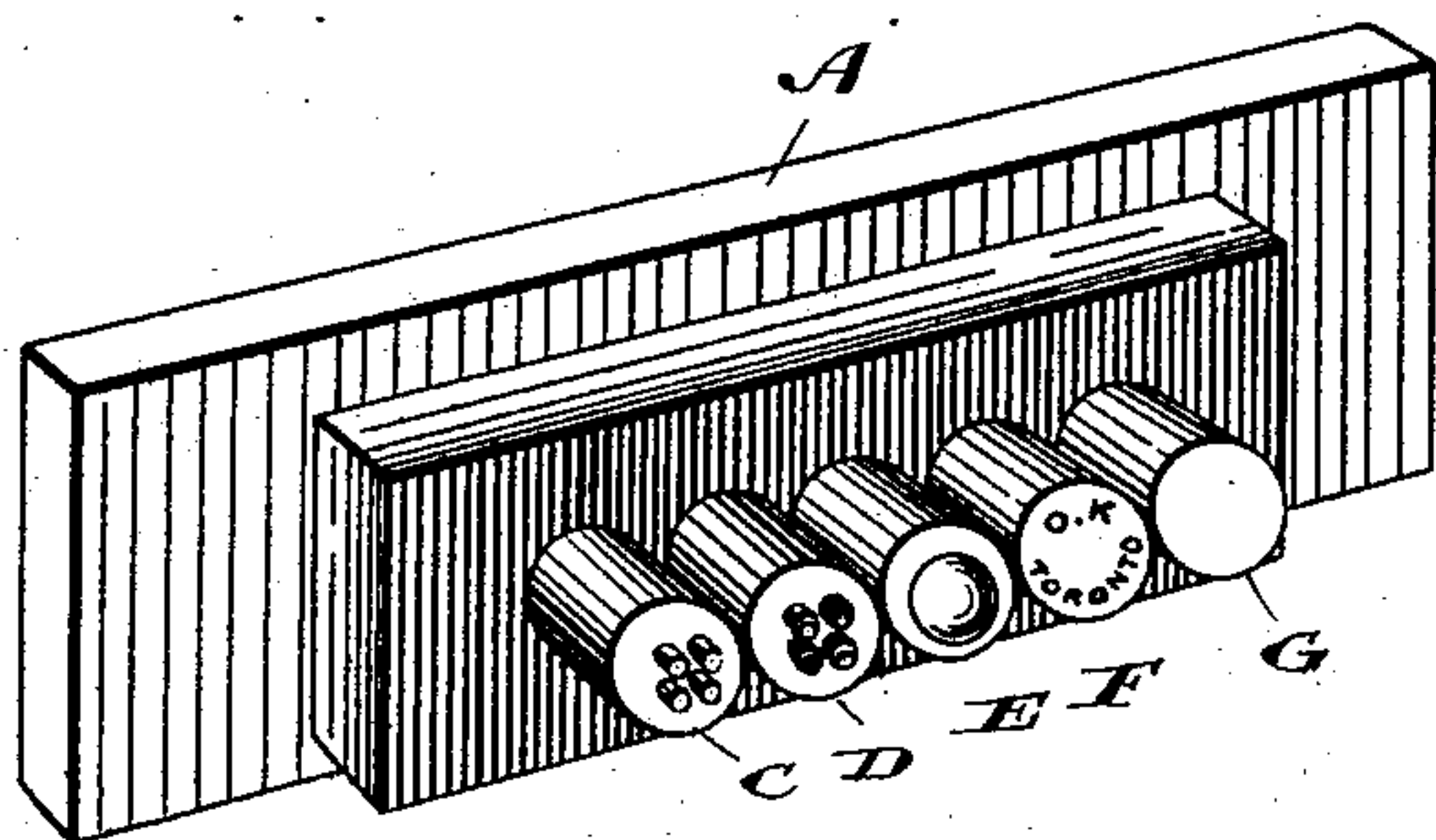


Fig. 7.

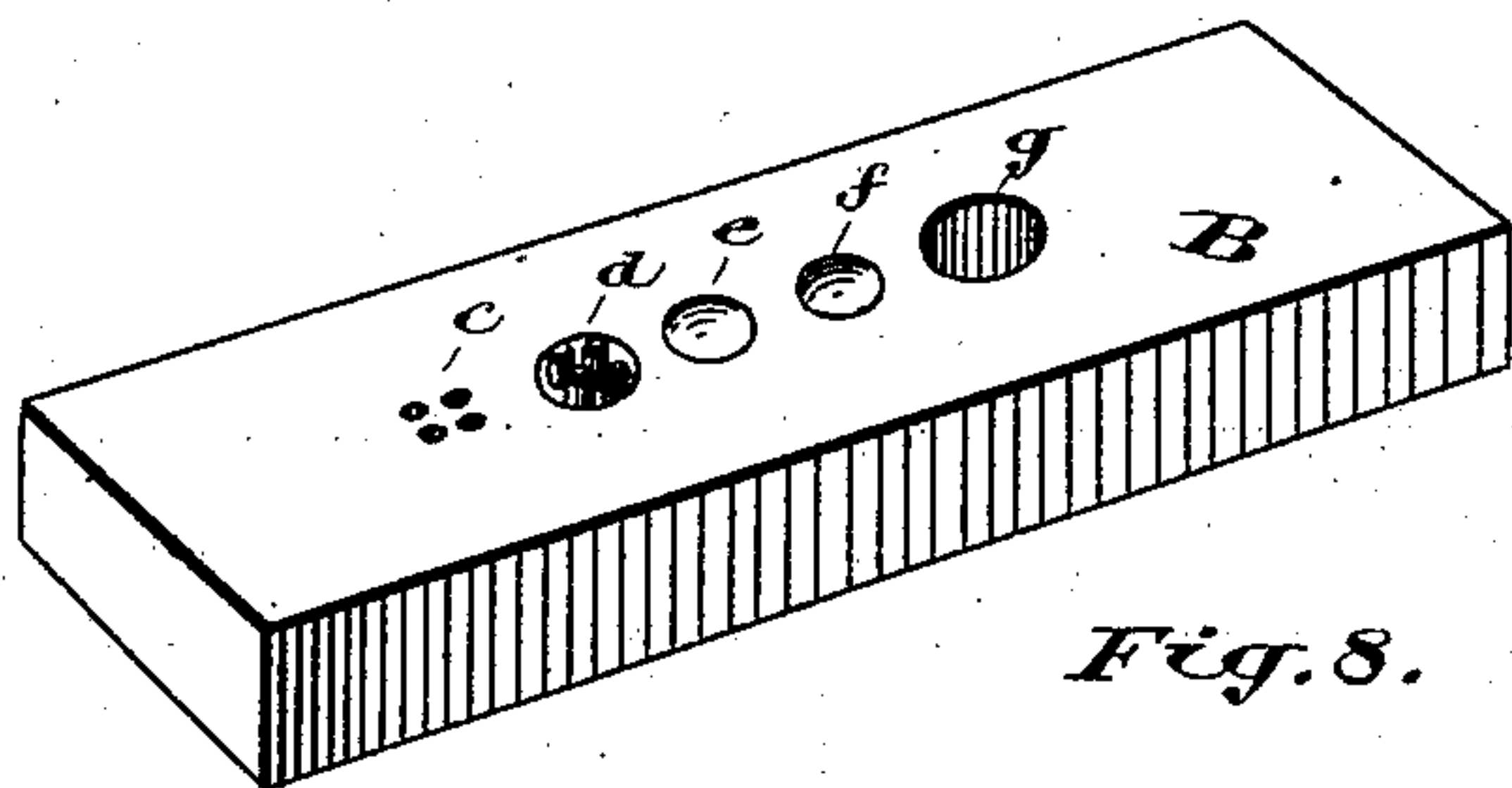


Fig. 8.

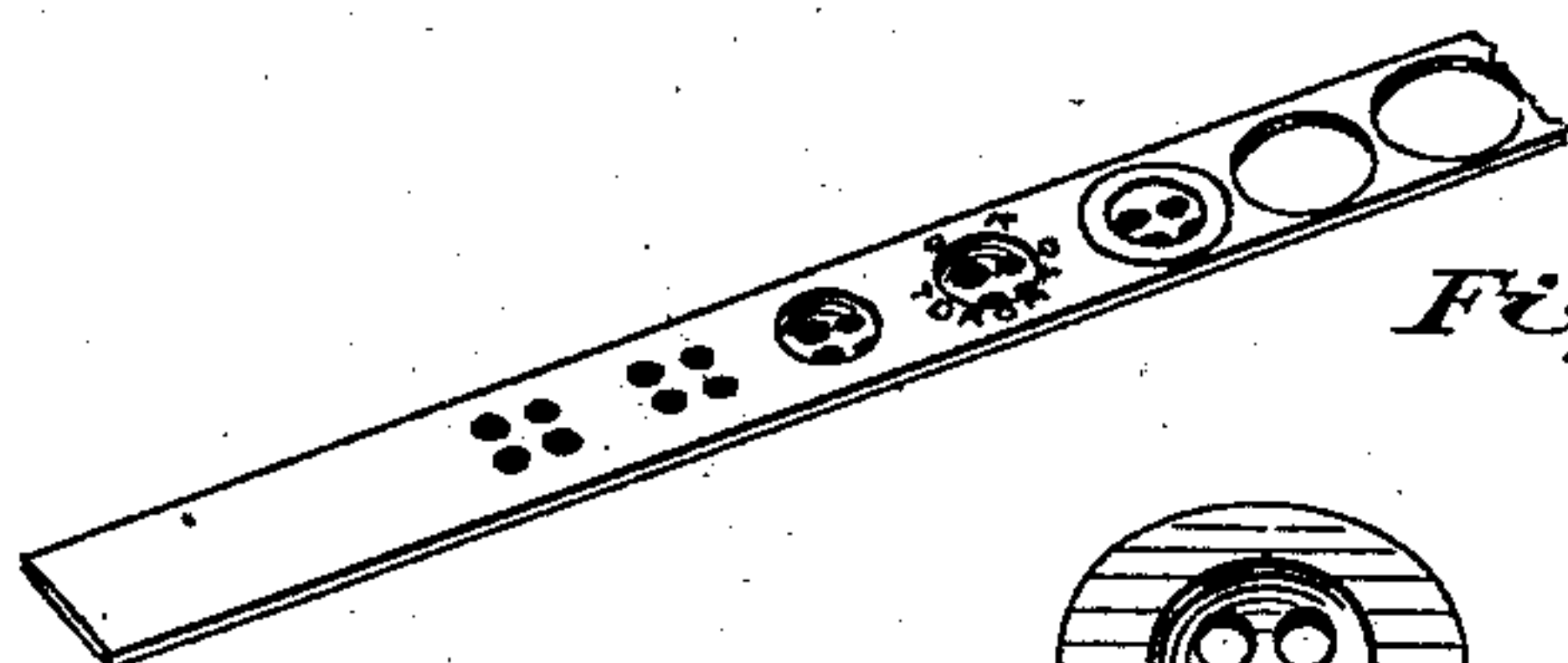


Fig. 9.

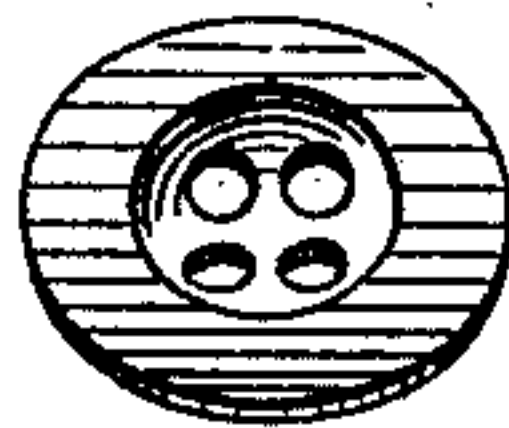


Fig. 10.

Witnesses.

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UNITED STATES PATENT OFFICE.

OLIVER WILLIAM KETCHUM, OF TORONTO, ONTARIO, CANADA.

PROCESS OF AND MACHINE FOR MAKING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 367,410, dated August 2, 1887.

Application filed October 18, 1886. Serial No. 216,523. (No model.)

To all whom it may concern:

Be it known that I, OLIVER WILLIAM KETCHUM, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, manufacturer, have invented certain new and useful Improvements in Button-Making, of which the following is a specification.

The object of the invention is, first, to devise means by which the button may be completely formed before it drops from the sheet of metal from which it is cut; secondly, in providing means by which the button may be edged and, if necessary, polished as it is being thrown out of the machine; and it consists, essentially, first, of a set of punches rigidly attached to a block operated so as to act upon the metal against a series of dies recessed so as to permit the action of the punches, the said punches being provided with a stripper, which relieves them from the metal acted upon; secondly, in locating below the dies a pair of guides grooved to receive the button and round the outside edge, and operated so as to bring it out of the machine, the said guides having situated on the upper side a roller designed to polish the surface of the button, and on the under side a file to smooth the under side, as hereinafter more particularly explained.

Figure 1 is a perspective view of a stamping-machine with my device in position. Fig. 1^a is an enlarged view of that portion of the machine immediately connected with my invention. Fig. 1^b is a cross-section through the frame of the machine, showing the roller employed for polishing the surface of the button. Fig. 2 is a perspective section of the dies. Fig. 3 is a detail of the block with punches. Fig. 4 is a detail of the stripper. Fig. 5 represents a portion of the metal as it appears after having been operated upon by the dies. Fig. 6 shows my form of button complete. Fig. 7 is a detail of the kind of punches used for making ordinary buttons. Fig. 8 is a detail of the dies for the same. Fig. 9 represents a portion of the metal when making ordinary buttons. Fig. 10 shows the ordinary button complete.

In the drawings, A represents the punch-block. B is the die-block for the reception of the metal upon which the punches are to act. Upon the upper block, A, I rigidly secure a set of punches, C, D, E, F, and G.

These punches are designed to act upon the metal *a*, placed on the lower block, B, which has recesses *c d e f* and hole *g* in it to correspond with the outward projections formed on the punches.

H is a stripper, through which the punches pass and is connected to the block A by the set-screws *t*.

The punches C, D, E, F, and G pass through the stripper H. Between the stripper H and the block A, I place rubbers *h*, designed to spring the stripper H to the outer end of the punches C, D, E, F, and G, and thus relieve them from the strip of metal acted upon by them.

b are pairs of rollers placed at each end of the block for the purpose of feeding forward the metal *a*.

It will be noticed in Fig. 1 that the block A is securely fastened to the plunger of the machine by set-screws *i*. When the punches are first brought down upon the block and the sheet of metal fed in as far as the first recess, a depression is formed corresponding with the punch C. The sheet is then fed along and the first depression deepened into the form of the punch D, and a second impression similar to C is made. Then the metal is fed to the next recess and a depression corresponding to the punch E is formed, instead of the shape of the die D. The first impression is formed at the same time similar to the punch C, and the second impression is made similar to the punch D. Upon feeding the strip along to the next die, F, the third recess is cut in the shape of the die F, and the other recesses corresponding to the shape of the dies C D E are formed. Upon the metal being moved along once again, the punch G cuts around the depression formed and completes the button, while the other four impressions assume the form of dies C, D, E, and F. It will now be seen that upon every downward movement of the die-block A a button is formed and recesses are stamped or holes punched in the sheet of metal to prepare them for each succeeding die.

On reference to Fig. 2 the peculiar form of each recess will be easily understood. In the first three recesses I place disks, which are supported by the springs *j*, *k*, and *l*, flush with the top of the block B. By this means I am able to eject the sheet metal *a* from the recesses *c*, *d*,

and *e*, so as to permit the said metal to be fed along in its course. It will be seen that the hole *g* extends completely through the block D, and as each button is cut out it drops through the notches *m* into the grooves *n*, formed the entire length of the guide-bars L and M. At the inner end of the guide-bar M, I form the notch *o*. The guide-bar M is connected by the rod O to the crank P, which is driven, as indicated in Fig. 1, from the main driving-shaft of the machine. Upon the button being formed and dropped through the hole *m*, the button is rolled along the grooves *n*, formed in the guides L and M, till the notch *o* is brought opposite to the notch *p* at the outer end of the guide L by the connection of the crank P to the guide M. When the notches *o* and *p* come together, the button drops out of the machine, having removed from it the rough edges caused by the action of the punch G. Beneath the guides L and M, I place a file, Q, which is designed to smooth the lower edge of the button.

With a view to polishing the button when formed, on its way down the machine, I provide a roller, R, which is suitably connected to the driving-power of the machine. This roller R is covered with leather or other suitable material, and as the button passes along in its course through the groove *n* its top surface is polished as it revolves by the roller R and the bottom edges smoothed by the file Q, and the button, when it reaches the outer end of the machine, is completely finished and ready for use.

By the device thus described it will be seen that the buttons are gradually formed before they are struck out of the sheet of metal, and when they have run through the edger are formed complete.

Formerly it required two or more machines and operators; but by my device the button is completely formed by one continuous operation upon the metal, and thereby saves a great deal of manual work.

What I claim as my invention is—

1. A set of punches, C, D, E, F, and G, attached to the block A, and provided with a stripper, H, in combination with a block, B, to hold the dies, and recessed at the points *e*,

d, *e*, *f*, and *g*, substantially as and for the purpose specified.

2. A block, B, in which the first three recessed dies, *e d e*, have disks held flush with the surface of the dies by the springs *j k l*, substantially as and for the purpose specified.

3. A block, B, having the hole *g*, in which the button is cut out of the strip extending through the block, in combination with the guides L and M, having recesses *m*, to receive the button, and grooves *n*, along which the button rolls till the recess *o* reaches the recess *p*, the guide M deriving a reciprocating motion from the crank P, which is suitably connected to the main driving-power, substantially as shown, and for the purpose specified.

4. Guides L and M, operating on the button as described, in combination with the file Q, situated underneath the guides L and M, substantially as and for the purpose specified.

5. Guides L and M, operating on the button as described, in combination with the roller R, situated on a level with the top of the groove *n*, substantially as and for the purpose specified.

6. The improved process of making metal buttons, which consists in passing the sheet of metal between a series of punches and dies arranged in pairs, which first partially form the button, and each successive die performs its share without separating the metal till the button is completed, and then submitting the same to the action of an edger, substantially as described.

7. The combination, with a series of punches and dies arranged in pairs, said dies being formed substantially as described, whereby the first die shall partially form the button and each successive die perform its share without separating the metal till the last die is reached and the button completed, of an edger arranged to trim the edge of the button thus formed, substantially as described.

Signed at Toronto this 2d day of September, 1886.

OLIVER WILLIAM KETCHUM.

In presence of—

CHARLES C. BALDWIN,
J. W. JACKSON.