

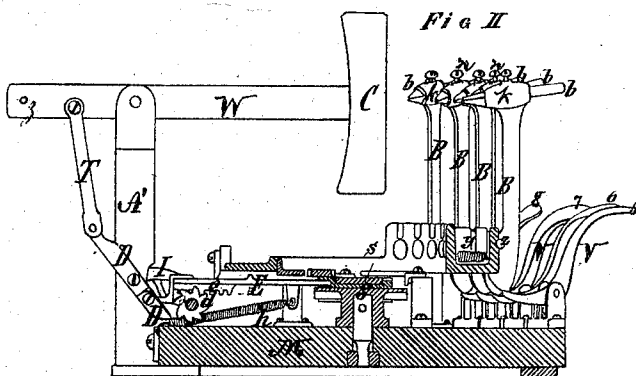
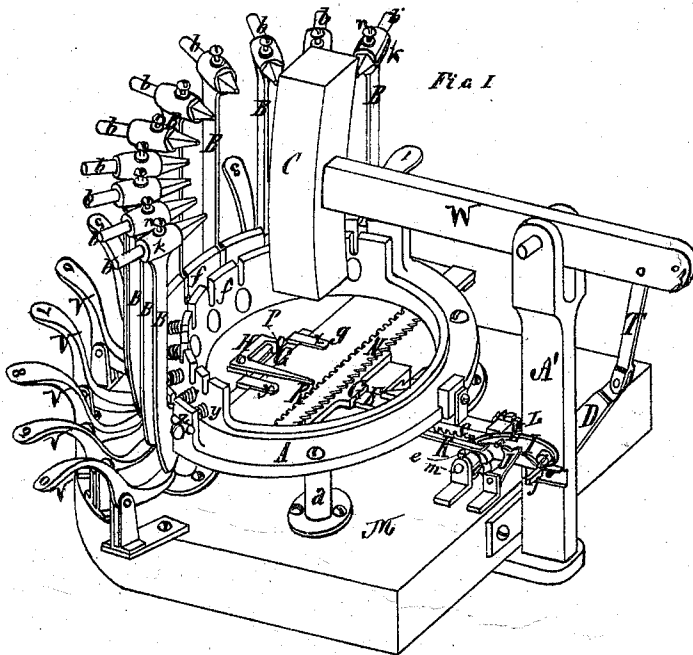
2 Sheets--Sheet 1.

R. A. HILL.

Machines for Making Stereotype Molds.

No. 140,921.

Patented July 15, 1873.

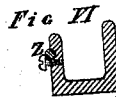
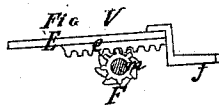
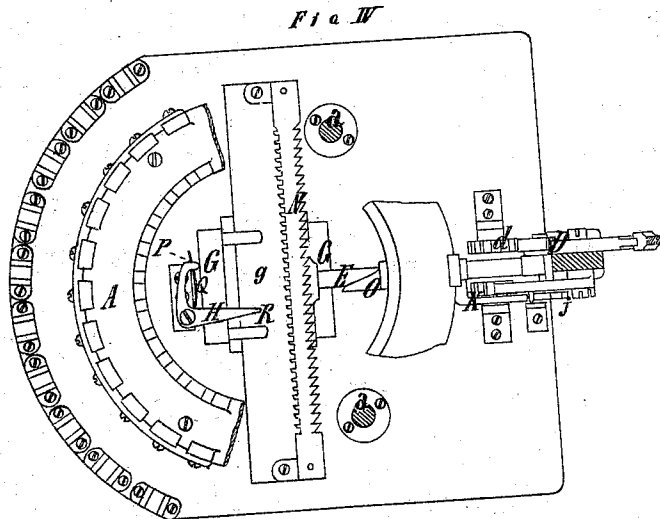
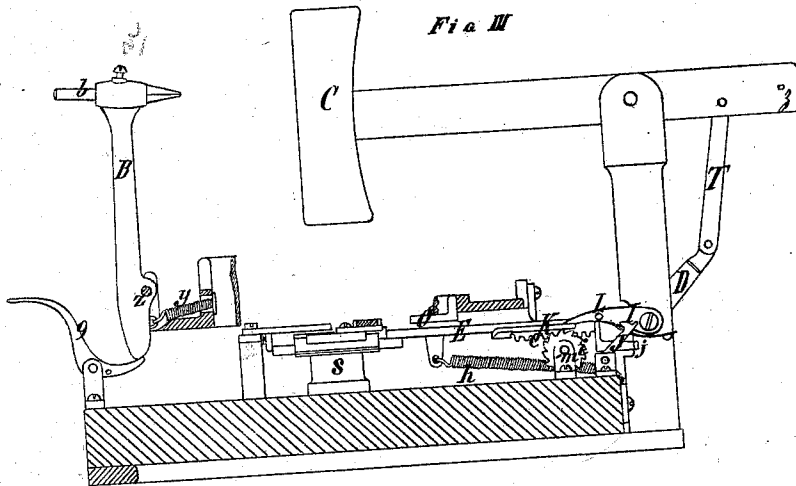


Attest
Charles Carpenter
Peter Logie

Inventor
Robert A. Hill.

2 Sheets--Sheet 2.

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Attcol
Charles Carpenter
Peter Seigl

Inventor
Robert A. Hill.

UNITED STATES PATENT OFFICE.

ROBERT A. HILL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MACHINES FOR MAKING STEREOTYPE-MOLDS.

Specification forming part of Letters Patent No. **140,921**, dated July 15, 1873; application filed March 6, 1873.

To all whom it may concern:

Be it known that I, ROBERT A. HILL, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making Stereotype-Molds; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in the construction and arrangement of a machine for making molds from which to cast stereotyped plates for printing, and for making stereotyped plates, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation referring to the annexed drawings which form a part of this specification, and in which—

Figure 1 is a perspective view of my invention. Figs. 2 and 3 are longitudinal vertical sections of the same, and Fig. 4 is a plan view thereof with a part of the frame, the hammer, and the hinged levers removed. Figs. 5 and 6 show detached parts of the machine.

M represents the bed of the machine, upon which is supported an annular frame, A, by means of posts *a a*, which elevate said frame a suitable distance above the bed-plate. This frame and posts should be substantially constructed, so as to resist the vibrations of the operating-parts. Around one-half, more or less, of both the inner and outer edges of the annular frame is an upward-projecting flange, *f*, which two flanges are slotted vertically at suitable intervals to receive levers B B, when the same are thrown down in a horizontal position. These levers are hinged on the outside of the outer flange *f* by suitable hinges *z z*, and are held in a vertical position by means of springs *y y* arranged between the two flanges *f f*, as shown in the drawings. The lower ends of the levers B B are operated upon by keys V V arranged in circular form around or on the bed-plate M and pivoted, as shown. At the upper end of each lever B is formed a socket or head, *k*, in which is inserted the shank or stem of a die or stamp,

b, and held by a set-screw, *n*. The levers B are so arranged that by pressing down upon the outer end of one key, V, the lever which it actuates will be thrown down horizontally and the die or stamp *b* stand vertically in the center of the annular frame A. C represents a hammer attached to a lever, W, which is pivoted in the upper forked end of a standard, A', attached to the side of the bed-plate M. This hammer and lever are so arranged that, after the hammer has been raised and one of the levers B thrown down by its key, as above described, and the hammer then let down, it will strike upon the upper end of the die or stamp in the lever B. Upon the bed-plate M, in the center of the annular frame A, is secured an anvil, S, upon which is placed a plate, G, attached to a bar, E. This bar extends in the direction of and beyond the standard A', and has upon its under side cogs *e e*, which gear with a pinion, F, on a short shaft, *m*. I is a pawl pivoted to the side of the standard A' and engaging with a ratchet-wheel, *i*, on the shaft *m* at the side of the pinion F. J is a pawl-lifter, raised by means of a hook, *j*, on the outer end of the bar E to operate against a pin, L, on the side of the pawl, so as to lift said pawl at the proper time out of the ratchet-wheel *i*. On the side of the bar E is a push-bar, K, to force the pawl-lifter J away from the pin L and allow the pawl to engage again with the ratchet-wheel *i*. *h* is a spring connected to the under side of the bar E, as shown in Figs. 2 and 3. On the shaft *m* is secured another ratchet-wheel, *d*, operated by a crow-lever, D, which is pivoted on the side of the standard A' and connected by a bar, T, with the outer end of the hammer-lever W. At the opposite side of the anvil S, on a suitable support, is pivoted an elbow-lever, H; one arm, R, extends directly above the anvil, and the other end has a downward-projecting point, P, as shown. To the support of the lever H is also secured a spring, Q. *g* represents the plate upon which the impressions are to be made. This plate is attached to a bar, N, which has cogs along the inner edge, and teeth along the outer edge, as shown in Figs. 1 and 4. It is then placed upon the plate G, on the anvil S, and guided upon said plate G by

guides *x x*. The hammer C being raised, and one of the levers B thrown down by its key, the hammer is let down to strike the die or stamp *b*, driving the same into the plate *g* and making the desired impression. When the hammer is then raised again the lever B, which was down, is raised up by its spring *y*, and another is brought down to have its die or stamp acted upon by the hammer as it is let down again. As the hammer C is raised the bar T is pushed downward, turning the crow-lever D so that its lower end will catch a tooth of the ratchet-wheel *d* and by means of the pinion F and cogs *e* move the bar E one space, thereby moving the plate G and material *g* on the same one space, and measures the space between the letters or characters of a line, moving in line of the bar E from the point where the last impression was made to the point where the next impression is to be made. The pawl I drops into the ratchet-wheel *i* to prevent the spring *h* from drawing the bar E back after it has been moved, as just described.

This operation is continued until the line is completed, when the plate or material *g* is to be drawn back and moved endwise so as to commence a new line. This is accomplished by the following means: As the bar E advances with the sliding plate G and material *g* over the anvil S one space at a time the pawl-lifter J is gradually raised by the hook *j*. Then as the plate G reaches the elbow-lever H and presses against the point P of the same, and the spring Q is pressed back, the point R of the elbow-lever will also thereby be moved backward the space of one cog on the bar N and enter into the same. At the time when the hammer C is raised, after having made the last impression in the line, the pawl-lifter J reaches the pin L and lifts the pawl I out of the ratchet-wheel *i* so that the spring *h* can throw the bar E back again, drawing with it the plate G and material *g*. The spring Q operates upon the point P of the elbow-lever H, moving the point R of the same the space of one cog of the bar N, so that at the same time as the material is drawn back, as above described, it is also by said point R moved endwise the space of one line, and the new line to be impressed will be parallel with the first. When the bar N has been drawn back by the action

of the spring *h* on the bar E a beveled tooth or check, O, shown in Fig. 4, will enter the proper ratchet on the outer edge of said bar N and secure more accurate spacing between the lines of impressions. The hammer C is to be worked by a treadle connected with the hammer-lever W at its outer end, so that the hammer may be raised and lowered at pleasure. The number of keys, levers, and dies or stamps may be increased indefinitely.

By this machine characters may be impressed so as to form a mold for casting stereotyped plates for printing, or the dies or stamps may make the stereotype-plates themselves, if so desired.

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

1. The combination of the hinged-lever B with holder K and set-screw *n*, the die or stamp *b*, spring *y*, and key V, constructed and arranged to operate substantially as and for the purposes herein set forth.
2. The combination, with the hammer-lever W and connecting-bar, T of the crow-lever D, ratchet-wheel *d*, cog-wheel F, and cogs *e* on the bar E, for the purposes herein set forth.
3. The spring-pawl I, engaging with the ratchet-wheel *i*, and provided with the pin L, in combination with the pawl-lifter J, for the purposes herein set forth.
4. The hook *j* attached to the bar E and operating on the pawl-lifter J, for the purposes herein set forth.
5. The push-bar K attached to the bar E and operating on the pawl-lifter J, for the purposes herein set forth.
6. The combination of the cogged and toothed bar N, plate G with guides *x x*, and bar E, as and for the purposes herein set forth.
7. The elbow-lever H with points P and R, and the spring Q, operating in combination with the plate G, as and for the purposes herein set forth.
8. The beveled tooth O operating in combination with the bar N, as and for the purposes herein set forth.

ROBERT A. HILL.

Witnesses:

CHARLES CARPENTER,
PETER SEYL.