

ROBERT E. DRAPER.

Improvement in Machines for Producing Stereotype Matrices.

No. 115,287.

Fig. 1

Patented May 30, 1871.

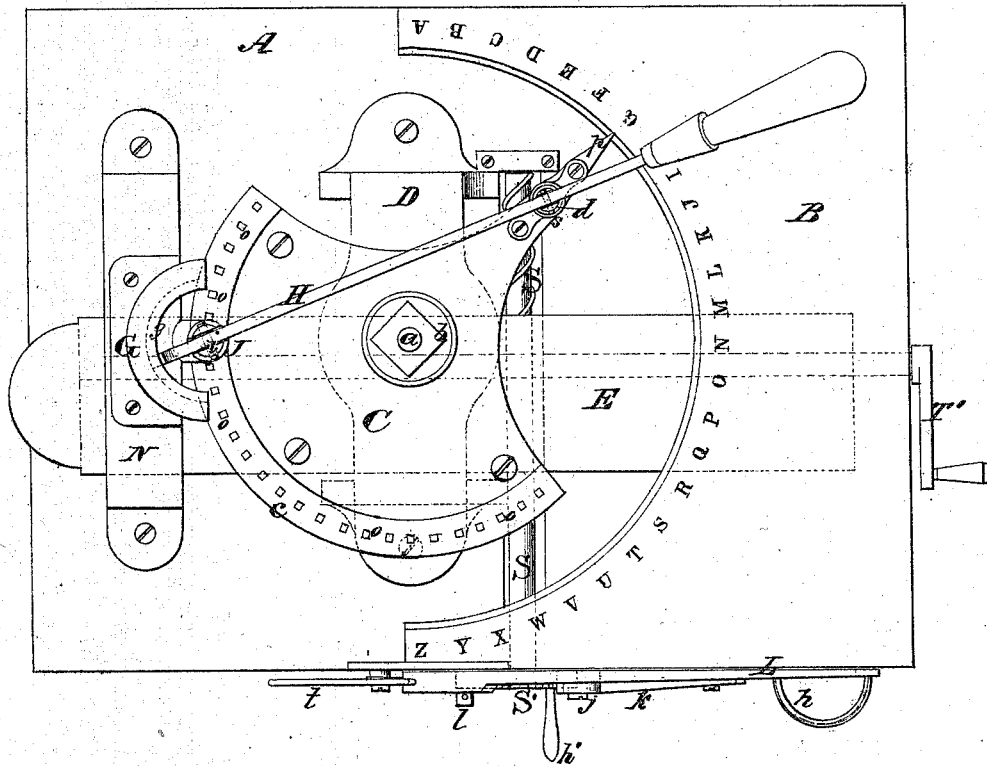
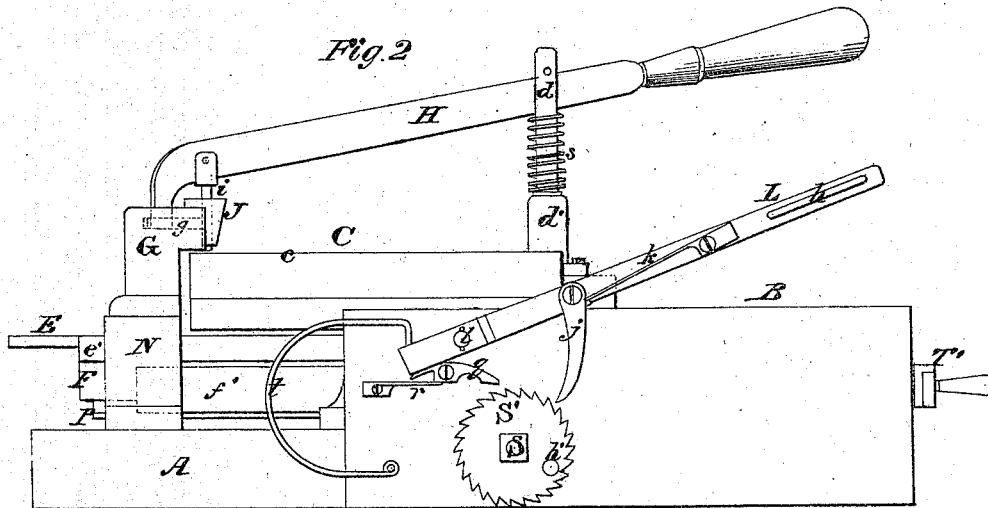


Fig. 2



Witnesses.
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by
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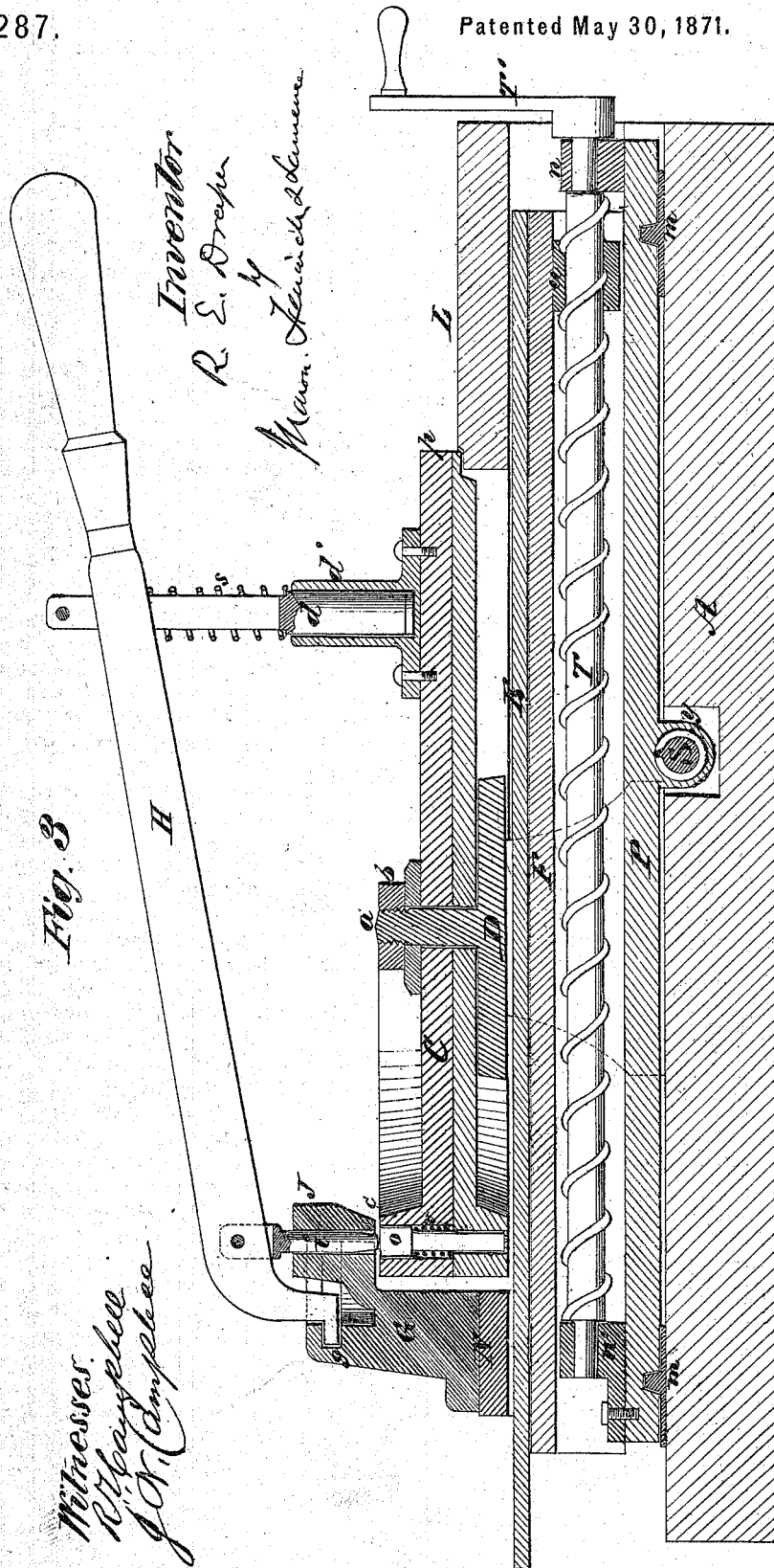
ROBERT E. DRAPER.

2 Sheets--Sheet 2.

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UNITED STATES PATENT OFFICE.

ROBERT E. DRAPER, OF SACRAMENTO, CALIFORNIA.

IMPROVEMENT IN MACHINES FOR PRODUCING STEREOTYPE-MATRICES.

Specification forming part of Letters Patent No. 115,287, dated May 30, 1871.

To all whom it may concern:

Be it known that I, ROBERT E. DRAPER, of Sacramento city, in the county of Sacramento and State of California, have invented a new and Improved Machine for Making Stereotype-Matrices; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, Plate 1, is a top view of the machine. Fig. 2, Plate 1, is an elevation of one side of the machine. Fig. 3, Plate 2, is a section taken longitudinally and vertically through the machine.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements in the art of producing matrices in paper or other suitable substance from which to mold stereotype-plates for printing.

Under the process usually adopted for the production of stereotype-plates the type is composed, locked in a form, and adjusted upon a sheet of paper properly prepared; then with a brush or mallet the letters are impressed into the surface of the paper, thus producing a mold or matrix from which the metal casting is obtained. The printing is then done from the plates, while the type is distributed.

By my invention and improvement I greatly facilitate the work of the typographer by rendering it more easily done and more rapidly performed, while, at the same time, the work of distribution, under the present system of movable type, will be entirely dispensed with.

In carrying into effect my invention I employ, first, an oscillating type-carrying segment provided with die-letters, arranged in the arc of a circle concentric to the axis of motion of the segment and perpendicular to the surface of a laterally and longitudinally adjustable bed, which is adapted for receiving the paper in which the impression is made; second, a fixed arrangement of letters or characters applied in the arc of a circle upon the top of the frame of the machine, corresponding to and arranged in such relation to the die letters or characters in the movable segment, and to a pointer on this segment, and also to a vertical plunger, that when the said pointer is made to register with a letter or character on the frame

of the machine a die on the segment having a letter corresponding thereto will be brought directly beneath the said plunger and an impression of it made into the material on the adjustable bed below; third, a horizontally and vertically movable lever, which has the plunger aforesaid applied to it, and which is guided at one end by a horizontally-grooved fixed segment and attached near the other end to a vertical and oscillating guide-post rising from the pointer-extension of the type-carrying segment, said lever being employed for moving the type-carrying segment, and also for depressing the plunger which acts upon the die-type; fourth, a spring hand-lever having a feeding-pawl and a recoil-pawl applied to it, in combination with a ratchet-wheel, which is keyed on one end of a screw-shaft that is tapped through a nut on the under side of the laterally-movable bed, said lever and its attachments being adapted for allowing said bed to be moved laterally a greater or lesser distance as each successive letter is produced; fifth, a crank-handle and screw-shaft, applied to the bed, carrying the material into which the matrix is produced, and adapted for allowing the same to be moved longitudinally or in the direction of the length of the column which is being formed; sixth, a removable column-plate, applied on the laterally and longitudinally adjustable bed, and adapted to receive the material into which the matrix is produced and to afford a level and solid surface therefor, all of which will be more particularly described hereinafter.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawing, A represents the foundation of the machine, a portion, B, of which is elevated to form a table, on which are arranged in a semicircular manner the letters or characters which it is desired to employ in the production of the matrices. From said letters lines converge to the axis of a vertical post, *a*, about which oscillates a type-carrying segment, C. The post *a* rises perpendicularly from a bridge, D, on which the segment C is supported in a horizontal manner, and beneath which is an adjustable bed for receiving the material from which the matrices are made. The segment C is held down in place on the bridge D by means of a nut and

washer, *b*; and this segment is constructed with a tapering extension, which terminates in a pointer, *p*, that is used to point at the semicircle of letters or other characters on the surface of the table B, as shown in Fig. 1, Plate 1. The forward edge of the table B is semicircular to allow the segment to play freely. That portion of the segment C which is the thickest is constructed with vertical recesses or chambers adapted to receive shouldered type-dies *O* and springs *v*, which are used to lift these dies after they have been depressed. The types *o* are arranged in the arc of a circle concentric to the axis of the post *a*; and the arrangement of the letters or characters on the bottoms of these dies should correspond to the arrangement of corresponding letters or characters on the table B, as will be hereinafter further explained. A post, *d*, which is slotted vertically to receive and serve as a guide for a lever, H, rises perpendicularly from the type-carrying segment C near its pointed end *p*, and is fitted into a socket, *d'*, so as to oscillate freely about its axis. Through this guide-post *d* a hand-lever, H, passes, and is supported and held up by a helical spring, *s*. The handle portion of the lever H extends over the table B. The opposite end of this lever H is curved and terminated by a lip, which latter is received into a horizontal semicircular groove, *g*, of a segment, G. This segment G is secured upon a bridge, N, and is located at about the middle of the width of the machine. Between the lipped end of the lever H and the oscillating post *d*, and very near to said lipped end, a follower, *i*, is pivoted to this lever H, and guided vertically by the offset J of the grooved segment G. This is clearly shown in Fig. 3, wherein it will be seen that the vertical vibration of lever H will raise and depress the follower *i*. The follower *i* is the axis about which the lever H is horizontally vibrated; and this follower is arranged in such relation to the type-dies *o* that any one of these dies can be brought directly beneath it by adjusting the segment C and causing its pointer *p* to register with a letter or character on table B corresponding to the letter on such type-die. Thus in Fig. 1 the pointer *p* registers with the letter G on table B and the follower *i* is directly over a die-type lettered G. Beneath the bridges D N is a longitudinally-adjustable feed-bed, F, upon which is supported a removable column-plate, E, the side flanges *e'* of which prevent its lateral displacement. On this column-plate, which may be made of metal, hard wood, or other suitable substance, the paper or other material into which the matrix is made is applied, and held in place by some suitable cement, or by any other means. The feed-bed F is moved longitudinally by means of a screw-shaft, T, having its end bearings *a n n'*, and tapped through a nut, *u*, as shown in Fig. 3. The crank-handle T' on screw-shaft T is used to turn this shaft; and, if desirable, an index may be applied so as to indicate the amount of move-

ment given or to be given to the said crank-handle. The feed-bed F is supported and properly guided upon another feed-bed, P, which is sustained and guided upon transverse ways *m m'*, shown in Fig. 3. By means of a transverse screw-shaft, S, which is tapped through a nut, *y*, on the bottom of the bed P, this bed, together with its superimposed feed-bed and column-plate, can be moved laterally. On one end of screw-shaft S a ratchet-wheel, S', is keyed, having a handle, *h'*, applied to it for rapidly running back the feed-beds after the formation of each line. Above the ratchet-wheel P, and pivoted at *l*, is a vertically-vibrating lever, L, having a handle, *h*, applied to its free end. To this lever a pawl, *j*, is pivoted, and held in place by a spring, *k*, and beneath the lever L is a stop-dog, *g*, which is acted upon by this lever, and also by a spring, *r*. The spring *t* is used to lift the long arm of lever L after it has been depressed.

It will be seen that every time the lever L is depressed the pawl *j* will engage with the teeth of ratchet-wheel S', and by turning this wheel part of a revolution give a lateral movement to the feed-beds. The amount of motion necessary to be given to lever L may be determined either by applying a stop to the side of the frame of the machine beneath said lever or by practice and experience.

It will be seen from the above description of my invention that I combine a type-carrying segment, two hand-levers, and an adjustable feed-bed in such a manner that the operator, with one hand grasping the lever H and the other grasping the lever L, can compose line after line with great facility, producing at the same time the matrix directly into the substance on the feed-table.

The hand-lever H is so arranged that it serves two purposes, to wit: It serves as a means by which the operator moves the segment C from letter to letter, and it also affords a means whereby the operator can forcibly depress the die-type and impress the letters or characters into the substance below.

In practice I shall apply a device to the pointer end of the segment, which will be operated by the vertical movements of the lever H for firmly holding the segment to the table B when it is adjusted in proper position for making an impression.

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

1. The oscillating indicating-segment C, shouldered type-chambers *r*, within which shouldered type *o* are set, and springs *v*, in combination with the pressure-lever H, which carries follower *i* and which changes its fulcrum for every new impression with a type, and with a bed, B, having stationary letters upon its top, substantially in the manner and for the purpose described.

2. The vertical shouldered type-chambers formed in the margin of the oscillating seg-

ment C, and furnished with shouldered type *o* and springs *v*, which are arranged substantially in the manner shown and described.

3. The grooved stationary segment-guide G for receiving and guiding one end of lever H, in combination with the oscillating guide-post *d*, follower *i*, and a type-carrying segment, C, substantially as described.

4. The combination and arrangement of the independent vertical type, oscillating and in-

dicating segment C *p*, vertical plunger *i*, post *d*, hand-lever H, grooved guide G, lettered bed B, form-supporting carriages F P, feed-screws S T, and the devices for actuating said screws, all constructed substantially in the manner and for the purpose described.

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Witnesses:

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