No. 627,160. Patented June 20, 1899.

E. VAN DER WEE.

MACHINE FOR LOCATING AND STAMPING MATRIX BARS.

(Application filed Sept. 15, 1898.)

(No Model.)

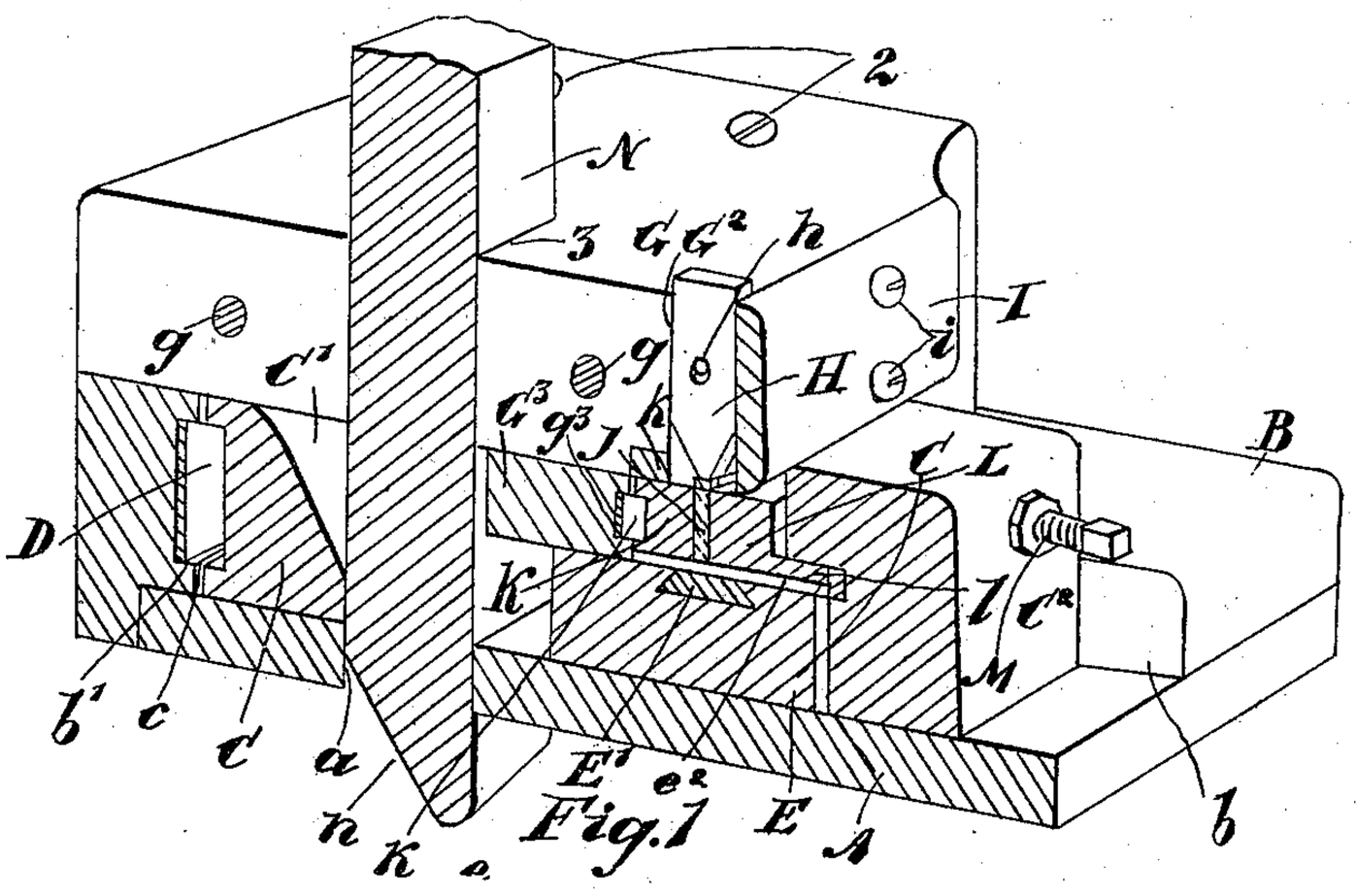

Fig. 1

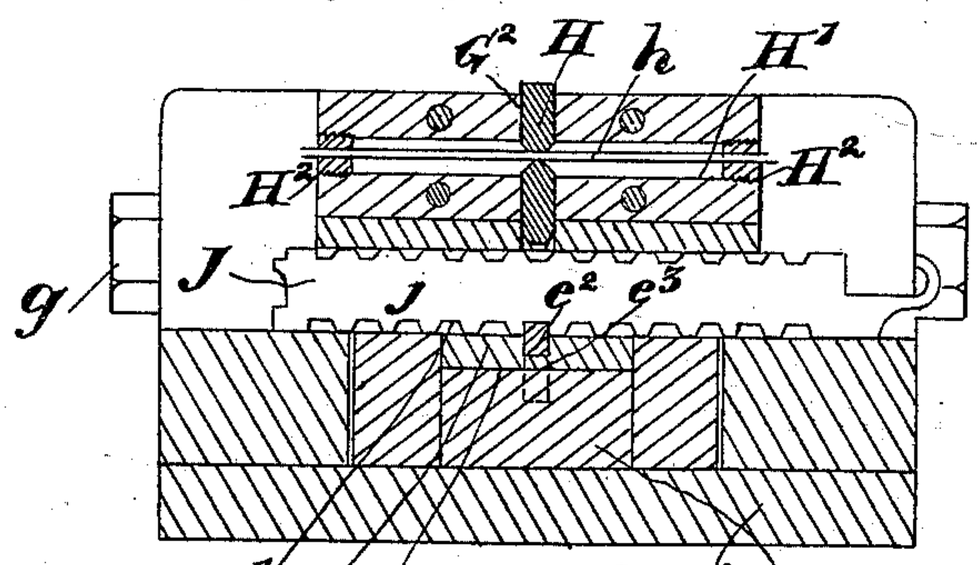

Fig. 2.

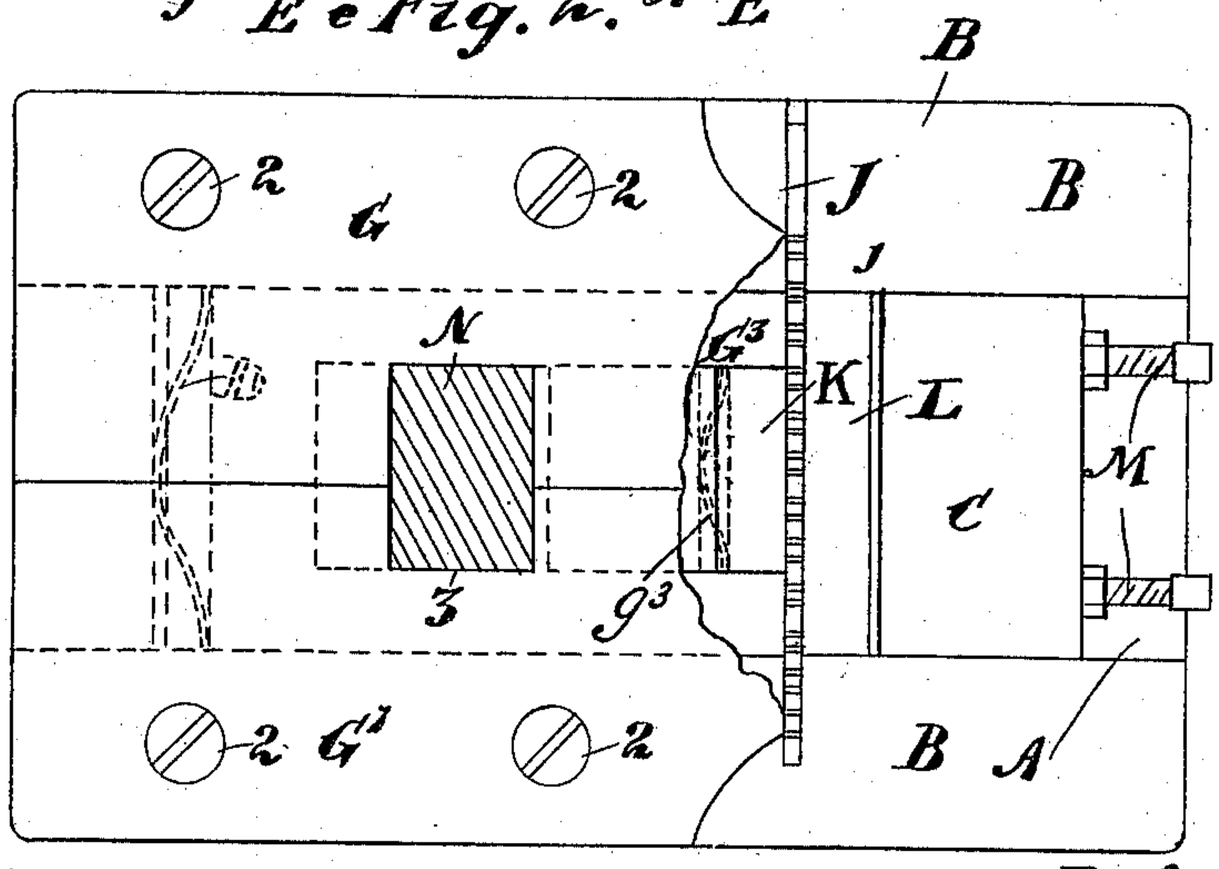

Fig. 3.

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UNITED STATES PATENT OFFICE.

EVERARD VAN DER WEE, OF ROCHESTER, NEW YORK.

MACHINE FOR LOCATING AND STAMPING MATRIX-BARS.

SPECIFICATION forming part of Letters Patent No. 627,160, dated June 20, 1899.

Application filed September 15, 1898. Serial No. 691,050. (No model.)

To all whom it may concern:

Be it known that I, EVERARD VAN DER WEE, mechanic, of the city of Rochester, in the State of New York, have invented certain new and useful Improvements in Machines for Locating and Stamping Matrix-Bars, of which the following is a specification.

My invention relates to improvements in letter locating and stamping machines for matrix-bars; and the object of the invention is to produce the type-letters of matrices for line-casting machines in a simple, cheap, and positive manner and by which a perfect alinement of the type in a line of type when cast is insured; and it consists, essentially, of a suitable bed-plate having a suitable gaging-rib, which, corresponding with notches of the matrices to the letters required in the alinement, are designed to be placed to hold such matrix from longitudinal displacement, end blocks being also provided to provide for the different thicknesses of the matrix-bars, such rib and blocks being supported upon a suitable longitudinally-adjustable block operated through a suitable plunger and inclined recess in the rear portion of the block and a pressure-spring, an upper guiding-block being provided for the plunger into an aperture, in the front of which is placed each punch, which when the matrix-bar is in position is located directly over the notch designed to receive the impression, the parts being constructed and arranged in detail, as hereinafter more particularly explained.

Figure 1 is a sectional perspective view of my locating and stamping tool. Fig. 2 is a cross-section on a line with the center of the punch. Fig. 3 is a plan view showing the front portion of the guiding-block partially broken away to exhibit the position of the matrix-bar.

In the drawings like letters and numerals of reference indicate corresponding parts in each figure.

A is the bed-plate of my locating and stamping tool, which is suitably and securely held on a bed-plate of any form of press, and *a* is an aperture, preferably rectangular, extending through the rear end of the bed-plate A.

B is a three-sided frame, which is suitably secured to the bed-plate A and is provided with a central front aperture *b*.

C is a rectangular block having a central rectangular opening C′ with an inclined rear side. The front of the block C is provided with a raised overhanging portion C^2.

The block C fits within the aperture *b*, the rear end of the block C being provided with the cross-recess *c* directly opposite a cross-recess *b*′ in the back portion of the frame B. Fitting within the recesses *c* and *b*′ I provide a flat curved spring D, the normal tendency of which is to force the block C forwardly.

E is a block fitting within the opening C′, near the front end thereof.

G G′ are the two portions of the upper guiding-block. The two portions G and G′ are secured together by suitable bolts *g*, extending through them from side to side and to the sides and ends of the frame B by the cap-screws 2.

It may be stated that the section shown in Fig. 1 is not through the center of the machine, but to one side thereof, and that the inner side is shown in this figure. The longitudinal center section of the machine would be, however, the center of the rectangular punch H, which is shown in full in this figure fitting within a corresponding aperture G^2 at the front of the guiding-blocks G G′. The bottom of the punch H is tapered, as shown, and is provided with the usual type, embossed or otherwise formed on the lower end thereof.

I is a plate which is secured to the front of the upper guiding-blocks G G′ by suitable screws *i*. The plate retains the punch H in position at the front. It will be noticed that the punch H extends normally slightly above the level of the guiding-blocks G G′ and is held in such position by the spring-rod *h*, which extends through it and through the hole H′, extending from side to side of the guiding-blocks G G′ at the front. The ends of the rod *h* are supported by screw-nuts H^2, through which they freely extend.

To place another punch in position, it is simply necessary to unscrew one of the nuts H^2 and remove the rod, when another punch

may be placed in position and the rod inserted through it and held in position, as before. When in position, it will of course be understood that such rod acts as a support for the punch, restoring it to its normal position after it has been struck to stamp a letter or character upon the matrix.

E′ is a cross-bar, of hardened steel, dovetailed in cross-section and fitting in a corresponding groove *e* in the block E.

J is the matrix-bar, which is formed in the usual manner and provided with the top notches *j*, in which the type representing the different characters are stamped by different punches in the bottom of the recesses.

j′ are notches, which notches correspond in number to the notches *j* and are situated directly beneath them and are of larger size. These notches *j* and *j′* and the construction of the matrix-bar and its use in type-casting machines will be understood by those skilled in the art, so it will be unnecessary here to describe it further, except to show the use to which the notches *j* may be adapted in stamping the different letters and characters.

e^2 is my gage-bar, which is fitted in a groove e^3, extending from the front to near the rear of the block E, at the top thereof.

G^3 is a stop-block provided with a front cross-recess g^3. The block G^3 is secured to the bottom of the guiding-blocks G G′.

K is the block situated in front of the stop-block G^3 and provided with the cross-groove *k*. Fitting within the opposing grooves g^3 and *k* I provide a flat curved spring *k′* (shown in full lines in Fig. 1 and dotted lines in Fig. 3) and designed to normally press the block K forwardly.

It will be noticed that the matrix-bar J fits directly in front of the block K and is held in position between the block K and the front block L, which is L-shaped in cross-section and is adjusted up to this position against the matrix-bar J by the set-screws M, extending through the portion C^2 of the block C. The block L is of course held down in position by means of the forward lower extension I.

N is a plunger having a beveled bottom end *n*, which is designed to coact with the inclined rear inner side of the block C. The plunger N extends through an aperture 3 in the upper guiding-blocks G G′.

Heretofore it has been common in stamping the letters and other characters on matrix-bars to use a gang of punches containing letters of each individual matrix-bar, which are held in a holder in the punch-press and used simultaneously. In practice it has been found that it has been impossible to so regulate and adjust the punches that the same sunken letters of each matrix-bar when stamped would be in exactly the same position, and thus produce a line of type when cast with perfect alinement. Another defect arose in employing a gang of punches simultaneously to stamp each matrix-bar from the fact that it was difficult to get the bottom of the punches even. In fact it was almost impossible to do so. It must be remembered that an infinitesimal difference would produce great defects in printing, and this has been found actually to be the case that some letters would print dark and others light, and thus produce very poor printing. To overcome these defects my invention was designed, in which it will be noticed that as the top of the punch projects above the top of the guiding-block but a small distance such punch necessarily can only be depressed such a distance. Consequently every matrix-bar must have the type stamped so that the sunken portion is exactly on a level.

The operation of my invention is as follows: In the position shown in the drawings in Figs. 1 and 2 the matrix-bar is shown with one of the notches *j′* straddling the guiding-rib e^2. The plunger J is also shown in Fig. 1 down, so as to hold the matrix-bar in position directly underneath the punch H. By striking the punch H the desired stamp of letter is imparted to the bottom of the notch *j′*. By raising the plunger N until the beveled end comes opposite the inclined side at the rear of the block C it will be seen that such block will be forced forward by the movement of the spring, so as to throw the matrix-bar to the front of the plate I, when it can be readily removed and another matrix-bar placed in position. By lowering the plunger N the newly-placed matrix-bar will be placed in position directly underneath the punch to receive the impression when the punch is struck, and so on.

I do not describe the manner in which the plunger N or punch H is given the requisite movement, as this is but a simple matter when my machine is used in a press suitable for the purpose.

It is of course well known that in type-casting machines there are usually eight matrix-bars containing twelve notches and blanks in each, making really ninety-three letters and characters and three blanks. In changing my matrix-bars instead of changing the whole bar by a gang-punch, as hereinbefore described, I would use the same punch for each letter of the corresponding notch whether fifty or any number of matrix-bars, depending on the number of sets required to be used in the machine. After the required number have been stamped with one letter I remove the punch H and place a corresponding punch containing the next letter desired to be stamped on the matrix-bar, and so on, thereby insuring in each matrix-bar and in each corresponding notch thereof an identical position for the letter of such notch. It will therefore be understood that by stamping the letters in each recess or notch separately the position of each individual letter is accurately

located, so that every line of type will be in perfect alinement, and the printing from such line of type necessarily so.

What I claim as my invention is—

1. A locating and stamping machine for matrix-bars comprising a suitable base-block, a guiding-rib to receive corresponding notch of the matrix-bar to the letter required in the alinement, means for holding the sides of the bar in position and a single stamping-punch located in an aperture in a suitable guiding-block above the guiding-rib and matrix-bar and normally projecting a slight distance above such guiding-block as and for the purpose specified.

2. A locating and stamping machine for matrix-bars comprising a suitable base-block, a guiding-rib to receive corresponding notch of the matrix-bar to the letter required in the alinement, means for holding the sides of the bar in position and a single stamping-punch located in an aperture in a suitable guiding-block above the guiding-rib and matrix-bar and normally projecting a slight distance above such guiding-block and a suitable stripping means to raise the punch after being struck as and for the purpose specified.

3. A locating and stamping machine for matrix-bars comprising a suitable base-block, a guiding-rib to receive corresponding notch of the matrix-bar to the letter required in the alinement, means for holding the sides of the bar in position, and a single stamping-punch located in an aperture in a suitable guiding-block above the guiding-rib and matrix-bar and normally projecting a slight distance above such guiding-block and a spring-rod extending through the punch and a cross-opening in the guiding-block and the screw-nuts supporting the ends of the same as and for the purpose specified.

4. In a locating and stamping machine for matrix-bars, the combination with the bed-plate and rectangular frame secured thereto, having a central aperture, the longitudinal block provided with a central opening and means within the opening for supporting the matrix-bar, a guiding-rib located on such means for holding the matrix-bar in position, the upper guiding-block and punch and means for holding the matrix-bar and notch therein directly underneath the center of the punch as and for the purpose specified.

5. In a locating and stamping machine for matrix-bars, the combination with the bed-plate and rectangular frame secured thereto, having a central aperture, the longitudinal block provided with a central opening having an inclined inner side and means within the opening for supporting the matrix-bar, a guiding-rib located on such means for holding the matrix-bar in position, the upper guiding-block and punch, a plunger having an inclined beveled side and a spring designed to normally force the block containing the matrix-bar forward as and for the purpose specified.

6. In a locating and stamping machine for matrix-bars, the combination with the bed-plate and rectangular frame secured thereto, having a central aperture, the longitudinal block provided with a central opening and means within the opening for supporting the matrix-bar, a guiding-rib located on such means for holding the matrix-bar in position, the upper guiding-blocks and punch, an inclined inner side at the end of the opening of the block, a plunger having an inclined beveled side, a cross-recess at the rear end of the adjustable block, a corresponding recess in the rear portion of the frame and a flat curved spring located in such recess and designed to exert a normal pressure forwardly as and for the purpose specified.

7. The combination with the block C having a central opening C', and the raised front overhanging portion C^2, of the upper guiding-blocks G G′, the stop-block G^3, the holding-blocks K and L, the set-screws N and the punch H located in an aperture in the upper guiding-block and normally projecting slightly above the top surface of same as and for the purpose specified.

Montreal, Canada, September 8, 1898.

EVERARD VAN DER WEE.

In presence of—

C. S. DAVIS,

FRANK PLUMMER.