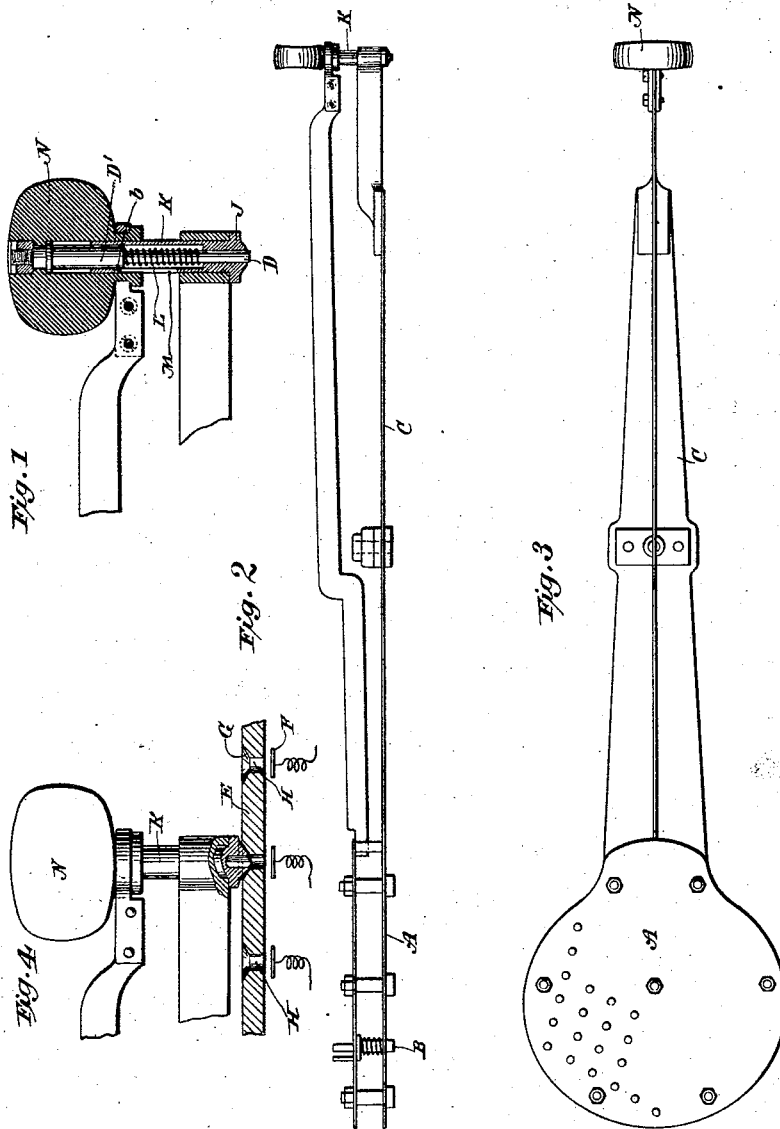


(No Model.)

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ALIGNMENT BAR FOR MATRIX MAKING MACHINES.

No. 455,732.

Patented July 14, 1891.



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# UNITED STATES PATENT OFFICE.

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## ALIGNMENT-BAR FOR MATRIX-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 455,732, dated July 14, 1891.

Application filed November 7, 1890. Serial No. 370,695. (No model.)

*To all whom it may concern:*

Be it known that we, SHERWIN C. BECKWITH, residing at New York, in the county and State of New York, and WILLOUGHBY W. STREET, residing at Springfield, in the county of Hampden and State of Massachusetts, both citizens of the United States, have invented certain new and useful Improvements in Alignment-Bars for Matrix-Making Machines, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

This invention pertains to the art of producing stereotype-matrices by the successive impression of dies in a sheet of card-board or other suitable matrix material.

The improvement subject to the present application is applicable to that class of machines for carrying out this process or art, in which the dies or type are brought successively under an impression device and at a fixed point by means of a key-lever or alignment-bar, and said improvement consists in a novel and useful construction of such lever.

The general character of the lever, which is the part in which the invention resides, will be understood from the following: A plate in which are set a given number of character-dies is carried by a flexible bar or lever which is mounted on a sliding pivot on the bed of the machine. At the forward end of the lever is a contact-key, under which are a number of contacts corresponding in number and position with the type-dies, so that when the end of the contact-key is brought over and thrust down upon any given contact or through a beveled hole in the index-plate directly over the same that one of the type-dies which corresponds to such contact will have been brought to the fixed point for printing and will be forced into the matrix material by the impression device, which is operated by the closing of the circuit between the key and the contact which it encounters. These machines are now well known; but the above description applies more especially to what is now known in the art as the "Goodson matrix-making machine." In these and similar machines, however, the speed of working has been considerably re-

tarded by the character and mode of operation of the contact-key. In some instances a rigid alignment-bar is employed, in the end of which a spring-retracted plunger is set, which having been brought over the desired perforation in the index-plate is pressed down through the bar. In other instances a flexible bar is used in which the pin or post is fixed, and this being brought over the desired perforation is depressed therein by bending down the flexible bar. In both cases, however, it will be observed that the hand directing and operating the key must in the selection of each letter move the pin or post from a point above the surface of the index-plate to a point below it, where it meets the appropriate contact, and that when a flexible bar is used considerable effort must be applied to raising or depressing it through such a distance. We obviate this by employing a flexible bar and a spring-seated key or plunger constructed and combined in the manner herein described by reference to the drawings.

Figure 1 is a vertical central section of the improved key. Fig. 2 is a side elevation of the entire alignment-bar detached from the machine. Fig. 3 is a top plan view of the same; and Fig. 4 is a part section of the key and a portion of the index-plate.

A is a plate or carrier in which are set the type-dies B B.

C is the long flexible bar or lever for aligning the dies or bringing them to the proper impression-point one after another. This bar in the machine has a swinging and sliding movement within proper limits, so that any one of the type-dies may be brought into the proper position for printing or making an impression.

In the end of the bar C is set a plunger D that may be moved over an index-plate E, in which are drilled holes corresponding in number and relative position with the type-dies in the carrier A, and so arranged that when the plunger D is forced down through any perforation the character or type-die corresponding thereto will be exactly at the printing-point under the impression device.

Immediately under the several perfora-

tions are the contact-plates F of the controlling-circuits corresponding to the different characters, and in the operation of the machine the plunger D is forced down through one or another of the perforations in the index-plate and into engagement with the contact-plate under the same. On the upper surface of the index-plate E all of the perforations are countersunk, so that each has a tapered opening G and a straight contracted bore H.

On the under side of the bar or lever C is a rounded projection J, that fits into the countersunk or tapered openings G of the perforations in the index-plate. The pin or plunger D passes through the center of this projection, so that when the projection is moved into one of the countersunk seats the plunger will be directly in line with the hole. The construction which we prefer for this purpose is shown in Fig. 1.

The projection J forms the head of a cylinder K, passing through a hole in the end of bar C. Within this cylinder slides the enlarged part D' of the plunger, between which and the bottom of the cylinder is a spiral spring L, surrounding the stem of the plunger. To prevent the plunger from rotating and to limit its vertical play, a pin b is set in the part D' and works in a vertical slot M in the cylinder. To the top of the plunger is secured in any proper manner a knob or key-handle N, that extends down around the cylinder K, which slides freely within it. Normally the plunger is raised by the action of its spring, so that its lower end is about flush with or just within the projection J. In moving the bar C over the index-plate the projection J slides over the surface of the same without impeding its movement. When the desired character-hole is reached and the bar brought to a standstill, the projection J at once settles in the tapered seat and the key and plunger are forced down. It will be seen that the end of the plunger has to travel only from the bottom of the countersink to the contact-plate beneath the index-plate. The flexible and resilient bar is so adjusted as to keep the projection J down in contact with the surface of the index-plate and to force it down into the seats therein. The pressure exerted is very light, so that the movement of the projection J over the indented surface of the plate is not sensibly im-

peded. By this means, however, the necessity of raising the bar each time that a character is made is obviated, and the operator's hand thus relieved of a considerable amount of work.

A rigid bar P is shown as connected to the key-handle N. This bar forms no part of the present invention, and we do not therefore describe it further than to remark that by special mechanism in a completely-organized machine it is locked after the plunger is thrust down onto its contact until the impression device has done its work. This is to prevent the key being released too soon.

By means of this device a machine of the kind described may be more easily and rapidly operated than by the devices hitherto employed.

What we claim is—

1. In a character aligning or selecting device for matrix-making machines, the combination, with a flexible alignment-bar and an index-plate containing perforations or seats, of a spring-seated key or plunger carried by said bar and adapted to be thrust through the bar into said perforations, as herein set forth.

2. The combination, in a machine of the kind described, with a flexible alignment-bar and an index-plate provided with perforations and seats, of a spring-seated plunger carried by the bar and passing through a rounded projection on the under side of the bar, as set forth.

3. The combination, in a machine of the kind described, with an index-plate provided with countersunk perforations forming seats and contacts under the same, of a flexible alignment-bar provided at its end with a projection adapted to fit into the said seats, a contact pin or plunger carried by the bar and passing centrally through the projections thereon, a key or handle for manipulating the plunger, and a spiral spring surrounding or acting upon the plunger, in the manner set forth.

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