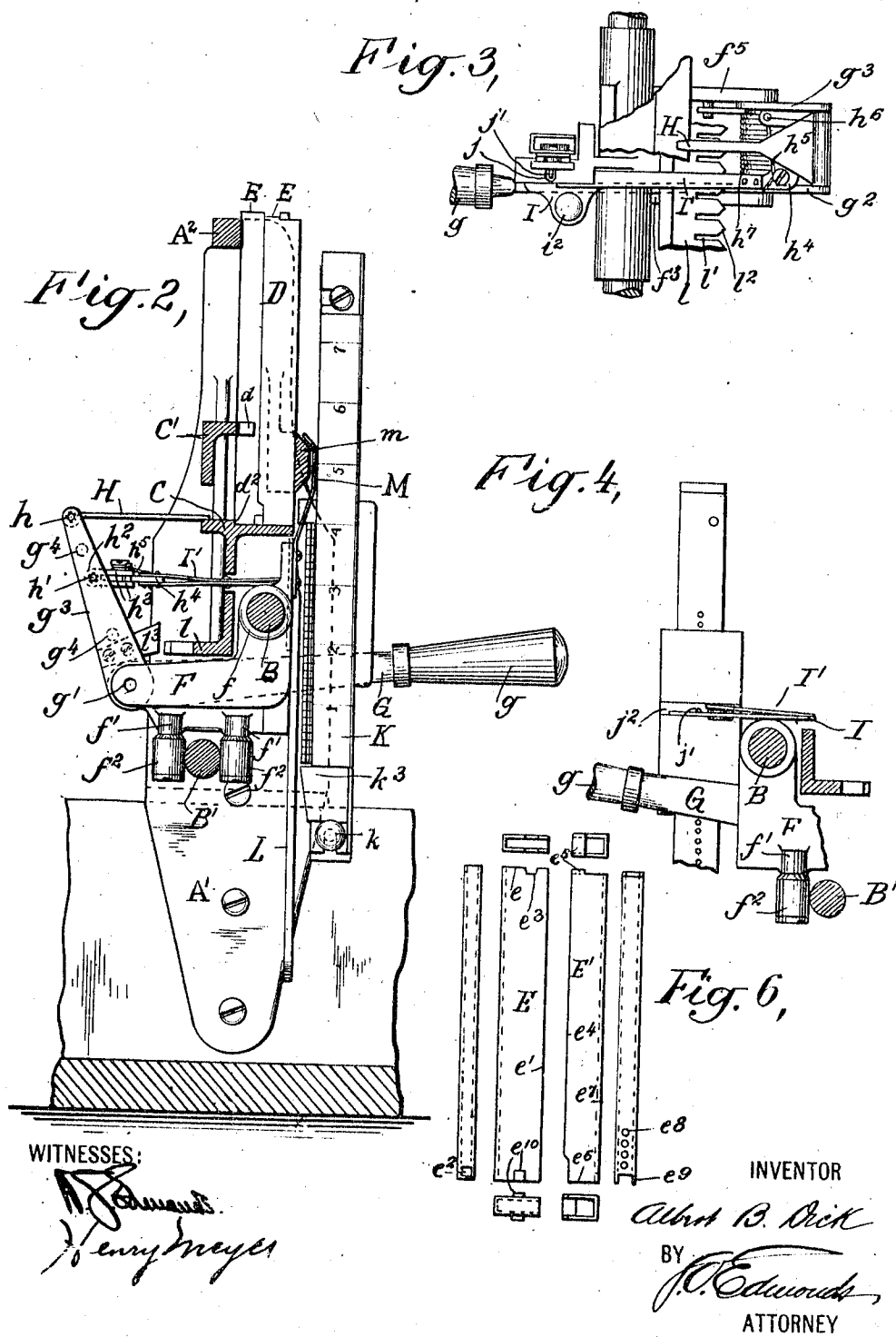


A. B. DICK.
TYPE SETTING MACHINE.
APPLICATION FILED JULY 31, 1909.

1,031,326.

Patented July 2, 1912.

2 SHEETS-SHEET 2.



WITNESSES:

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ALBERT B. DICK, OF LAKE FOREST, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-SETTING MACHINE.

1,031,326.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed July 31, 1909. Serial No. 510,553.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Type-Setting Machines, of which the following is a specification.

This invention is directed to the provision of a machine for setting type for use in printing, and it relates more particularly to a type-setting machine adapted for use in offices in setting type for office printers, for which use it would frequently be operated by persons not possessing a great degree of skill.

The invention concerns a type-setting machine of the character disclosed in the patent to Henry Weiniger, No. 919,408, granted April 27, 1909, and its object is to effect certain improvements in the construction of the apparatus disclosed in that patent, whereby the machine is made more reliable and efficient in operation and more convenient to use.

A feature of primary importance in my invention is the provision of a plurality of type-supports or cases, one for each of the type characters, and a movable selecting device which may be brought into cooperative relation to any one of these type-cases and operated to move one type from the case into a composing-stick. The type-cases are of peculiar construction, are arranged so as to hold the similar type characters in a line, and so constructed that they may be readily opened to permit of the insertion of a new line of type characters therein; and they are provided with openings whereby the selecting mechanism may eject one type character from the case. The machine is provided with means for supporting a plurality of these type-cases and holding them in a definite relation, so that the selector may readily eject a type from the desired case.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a front view of the type-setting machine broken away in part; Fig. 2 is a transverse section of the same; Figs. 3, 4 and 5 are detail views hereinafter referred to; and Fig. 6 is a view showing one of the type-cases.

Referring to these drawings, the machine

consists of two end-members A and A' connected at their upper ends by a bar A², and below this by two rods B and B'. Above the rod B are two bars C, C', extending parallel to the rod B and fixed at their ends to the end-members A, A'. These two bars C and C' form the supports for the several type-cases, one for each supply of similar type characters. Each supply of similar type characters is contained within a case D, and the several cases D are adapted to stand in a vertical position, as shown in Fig. 1, with their lower ends resting upon the upper surface of the bar C. The bar C' is of angular cross-section, and in one of the webs thereof is a plurality of guide-grooves d, adjacent grooves being separated by a narrow wall d'. The upper surface of the bar C is formed to provide a shoulder d² therein, so that the rear portion of the upper face of the bar C is raised slightly above the front portion of the upper face of this bar, and the shoulder d² is directly in line with the rear walls of the guide-grooves d, so that when a case D is mounted in position its lower end rests upon the bar C, its rear side bears against the shoulder d² and the rear wall of the guide-groove d and the case is held in a vertical position by the flanges d' at the sides of the guide-groove d.

The construction of each of the several type-cases is best shown in Figs. 2 and 6, from which it will be seen that each type-case consists of two sheet-metal members E and E'. The member E is a boxlike structure, open at the end e and the edge e', and the rear edge is closed throughout except for the provision of a small opening e² at the lower end of the member. The side walls of the member E are provided with notches at their upper ends, as shown at e³. The member E' is also a boxlike structure and of such width that its side walls may fit over the side walls of the member E, as shown in Fig. 2, the member E' being open at the edge e' thereof. The upper end of the member E' is open except for the provision of a strap e⁵ connecting the side walls of the member and of a width corresponding to the width of the notch e³ in the member E. The lower end of the member E' is open, as indicated at e⁶, but the member is closed along the edge e' except for the provision of a plurality of sight-openings e⁸ and an opening e⁹ at the lower end of the member E'. 110

It will thus be seen that when the member E is filled or partially filled with type, the member E' may be inserted thereover and the strap e^6 brought down into the notches e^3 . Thereupon the lower end of the member E' may be moved over the lower end of the member E until the side walls of the former engage and are arrested by raised portions e^{10} provided upon the member E.

When the parts are in this position, the case is ready for insertion upon the support C. At this time it will be seen that there is an opening e^2 in the rear edge of the case at the bottom thereof, and a corresponding opening e^9 in the front edge of the case at the bottom thereof. These openings are of less width than the width of two type, so that only one type can move through either of these openings at a time. It will be understood that one case D is provided for each of the several sets of similar type characters, and that each of these cases is mounted in its proper position upon the support C in the manner indicated in Figs. 1 and 2 and above described.

The rod B forms a support upon which a carriage is adapted to move back and forth between the end-members of the machine, this carriage supporting a selector which may be operated whenever the carriage is in the desired position, in order to move one type from its case into a composing-stick. The carriage is shown at F, and it has a sleeve f formed integral therewith, adapted to slide upon the rod B. On the carriage F are two depending studs f' , each carrying a roller f^2 , and these rollers lie one on either side of the rod B' and coact with this rod to preclude movement of the carriage F about the rod B. The carriage F has an integral side wall f^3 disposed transverse to the axis of the sleeve f and an integral depending finger f^4 parallel to the wall f^3 near the front edge thereof. The space between the walls f^3 and f^4 forms a guide-groove for a pivoted lever G having an operating handle g . The carriage F also has an integral arm f^5 projecting rearwardly from the sleeve f parallel to the wall f^3 and spaced apart therefrom, as shown in Fig. 3. At their rear ends, the parts f^3 and f^5 carry a rod g' on which the lever G is pivotally mounted. This lever G is a bell-crank lever and the end thereof opposite that on which the handle g is secured extends upwardly from the pivot g' , as shown at g^2 . Loosely mounted on the pivot g' is a lever g^3 similar in shape to the arm g^2 of the bell-crank lever G and connected thereto by rods g^4 . A rod h connects the upper ends of the arms g^2 and g^3 , and on this rod is loosely pivoted a pusher or ejector H, the forward end of which rests upon the upper surface of the bar C. Also extending between the arms g^2 and g^3 is a rod h' , on which is loosely

pivoted a sleeve h^2 having two parallel wings h^2 extending laterally from rod h' . Between these wings is pivotally mounted a small bell-crank lever h^4 , and a spring h^5 acts upon this bell-crank lever to turn it to the position in which it is shown in Fig. 3. Movement of the bell-crank lever on its pivot against the tension of this spring is limited by a pin h^6 extending between the two wings h^3 . Secured to the bell-crank lever h^4 , are two leaf-springs I and I', forming part of an escapement mechanism hereafter to be described. A spring h^7 is coiled about the rod g' and has one end secured to the lever G and the other end secured to the carriage F, so that this spring tends to hold the lever in the position in which it is shown in Fig. 2 and in which position the forward end of the pusher or ejector H is near the rear edge of the bar C. By operating the handle g , the lever G may be rocked on its pivot g' against the tension of spring h^7 , so as to cause the pusher H to move forwardly over the upper surface of the bar C, whereupon the forward end of the pusher will be projected through an opening e^2 in one of the type-cases and push the lowermost type in this case out through the opening e^9 of the case.

The carriage F is formed as shown in Fig. 5, to provide a vertical guideway for a slide J. The wall of this guideway is provided with a groove, as shown at j in Fig. 3, through which a plurality of pins j' , fixed to the side of the slide J and spaced apart equally, may pass as the slide moves up and down. The portion of the carriage F in which the guideway is formed is provided with a horizontal groove j^2 in which the leaf-springs I, I' may reciprocate horizontally and coact with the pins j' upon the slide J. The lower spring I is cut away as shown at i'' in Fig. 5, and the upper spring I' is of such length that it projects over the spring I a short distance beyond the cut-away portion i'' . The spring I' is under a slight tension, so that when out of engagement with one of the pins j' , its forward end will rise to the position in which it is shown in Fig. 4, in engagement with the upper wall of the groove j^2 . Thus when the springs I, I' are moved forwardly by rocking the lever G, the forward end of the spring I' will pass over the pin j' which is directly above the spring I, and when the notch i' comes under this pin j' the pin and the slide J to which it is fixed will drop vertically under the influence of gravity; this brings the next pin above down upon the spring I' and moves the latter downwardly until further downward movement is precluded by spring I, and the slide J comes to rest. When the springs I, I' are moved horizontally back to their original positions, the pin j' rides from the spring

I' upon the spring I, so that when the springs are moved forwardly again the spring I' will pass over this pin. It will be seen that since the springs I, I', are fixed to the bell-crank *h*⁴, which is pivotally mounted, the two springs may be moved laterally against the tension of the spring *h*⁵ sufficient to carry them out of engagement with the pins *j*', thus permitting the slide J to be moved up and down at will; the spring I is extended laterally and provided with a button, as shown at *i*², to facilitate this lateral movement of the springs.

To the slide J is detachably secured the composing-stick K. The stick is made of sheet-metal and is provided with a longitudinal slot at its lower end and a transverse slot at its upper end, adapted to coact with the pins *k*, *k*', respectively, on the slide J, to secure the stick detachably to the slide. A leaf-spring *k*² is provided upon the slide J, adapted to bear against the side of the stick K and hold the same rigidly in position. At the bottom of the type-groove in the stick K, I provide a member *k*³ of such length that it projects beyond the side walls of the stick to a point directly under the ends of the type which are set up in the stick, so that this member *k*³ assists in preventing the type from becoming tilted and falling out of the stick while the latter is being moved vertically during the operation of setting up a line of type. Secured to the front of the carriage directly in line with the composing-stick K, when the latter is mounted upon the slide J, is a bar L so positioned that as the composing-stick moves downwardly it will lie close enough to the adjacent ends of the type within the stick to preclude them from moving outwardly and becoming spilled.

In order to facilitate accurately positioning the pusher or ejector H with respect to a case of type, I provide a bar *l* extending between the end-members A, A', and secured thereto; this bar is of angular cross-section, and one web thereof extends rearwardly and has a plurality of slots *l*' cut therein, one for each type-case. The projecting members lying between adjacent slots are beveled at their ends, as shown at *l*², Fig. 3. Fixed to the lever G is a locking-member *l*³, which, when the pusher H is retracted, lies in the position in which it is shown in Fig. 2 with respect to the locking-bar *l*. As soon as the handle *g* is depressed, the locking-member *l*³ moves toward the bar *l* and either passes directly into one of the slots *l*' or engages one of the inclined surfaces *l*² and is guided thereby into the proper slot. On the carriage F is secured a finger M, pointed at its upper end to form an indicator, and this end of the finger is adapted to move back and forth over a bar *m* extending between and secured to the

end-frames A, A', on which is printed in any suitable manner characters representing the type in the cases supported upon the bar C. These characters are of course so arranged that when the finger M points to a particular character, the pusher or ejector H will be directly in rear of the case containing the type of that character. In Fig. 1, only two of the type-cases are shown, but it will be understood that one is provided for each of the characters it is desired to print, and these may be of varying length, so that some will hold a greater number of type than others, the longer cases being provided for the type characters which are most frequently used.

The operation of the machine will be understood from the foregoing description. The type are mounted in the cases D and the latter are positioned upon the supports C, as before described. An empty composing-stick K is then secured upon the slide J and, the springs I, I' being moved laterally, the slide J is raised to the upper limit of its movement. The springs I, I', are then released and returned to their normal position in coaction with the pins *j*'. The handle *g* is then grasped and the carriage moved back and forth upon the rod B until the desired position is reached, whereupon the handle *g* is depressed, thereby first locking the carriage against lateral movement and then moving the pusher or ejector H through the opening in the rear edge of one of the type-cases and forcing the lowermost type therein through the opening in the front edge of this type-case and into the stick K. Within the stick, the type falls upon the lower end thereof or the uppermost type in the stick, and as the handle *g* is raised to unlock the carriage the pusher or ejector H is withdrawn from that type-case. In the forward and return movement of the pusher H, the escapement mechanism, comprising the springs I, I', and the pins *j*', is operated to permit the slide J and the composing-stick K carried thereby to move downwardly a distance equal to the width of one type.

Having described my invention what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. The combination of end-frames, two bars extending between the same one having a plurality of guide-grooves therein, a plurality of disconnected type-cases individually removable by a vertical movement each lying in one of the guide-grooves in one of said bars and bearing at one end on the other of said bars and each of said cases being vertically disposed and containing a single line of similar type, a carriage movable horizontally into coöperative relation to each of said type-cases, an operating device on the carriage, an ejector operated thereby adapted to enter any one of said removable type-

cases and eject a type therefrom, means for locking the carriage against movement when the ejector is operated, a composing stick movable vertically upon the carriage, and
5 an escapement operated when the ejector is operated for governing the movement of said stick, substantially as set forth.

2. The combination of end-frames, two bars extending between the same one having
10 a plurality of guide-grooves therein, a plurality of disconnected type-cases individually removable by a vertical movement each lying in one of the guide-grooves in one of
15 said bars and bearing at one end on the other of said bars and each of said cases being disposed in an upright position and containing a single line of type, each of said cases having openings in opposite walls thereof
20 at one end of a size to permit one type only to pass therethrough at a time, a carriage movable horizontally into coöperative relation to each of said type-cases, an operating device on said carriage, an ejector operated
25 thereby and adapted to pass through said openings, means for locking the carriage when the ejector is operated, a stick movable vertically upon the carriage, and an escapement operated when the ejector is operated for regulating the movement of
30 said stick, substantially as set forth.

3. The combination of end-frames, two bars extending between the same one having
35 a plurality of guide-grooves therein, a plurality of disconnected and individually removable type-cases each lying in one of the guide-grooves in one of said bars and bearing at one end on the other of said bars and each of said cases having openings in op-

posite walls thereof at one end of a size to permit one type only to pass therethrough
40 at a time, a carriage movable into coöperative relation to each of said type-cases, a stick on said carriage, an operating device on the carriage and an ejector moved by said device to enter said openings and transfer
45 a type from a type-case to said stick, substantially as set forth.

4. The combination of end-frames, two bars extending between the same one having
50 a lengthwise shoulder on the upper face thereof and the other having a plurality of guide-grooves therein, a plurality of disconnected and individually removable type-cases each lying in one of said guide-grooves
55 and having one end resting against said shoulder and the surface of the bar adjacent thereto, each of said cases having openings in opposite walls thereof at one end of a
60 size to permit one type only to pass therethrough at a time, a carriage movable into coöperative relation to each of said cases, an operating device on said carriage, an ejector
65 operated thereby to enter said openings and move a type from a type-case, a type-receiver movable on the carriage and adapted to receive the type moved by the ejector, and an escapement regulating the movement of said receiver in accordance with the operation of
said ejector, substantially as set forth.

This specification signed and witnessed
70 this 26th day of July, 1909.

ALBERT B. DICK.

Witnesses:

R. R. HARRINGTON,
W. G. ARNOLD.