L. Lebrun.

Type Setting and Distributing Machine.

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2 Sheets-Sheet 1.

Witnesses
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By Ivan Desennick,
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To all whom it may concern:

Be it known that I, Louis Lebrun, managing proprietor of l'Avenir de Spa, a subject of the Kingdom of Belgium, residing at Spa, Belgium, 3 Boulevard Rener, have invented a new and useful Improvement in or Relating to Type Setting and Distributing Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to type-setting machines, and especially to combinations of parts which assure ease, simplicity and accuracy of operation.

In the accompanying drawings, I have shown a form of my invention which is especially useful in setting successive lines of types (as distinguished from matrices) from which printing may be directly or indirectly accomplished. Such drawings show only such parts as are absolutely necessary for an understanding of my invention; other parts, useful for speed working, etc., have been omitted from illustration.

Figure 1 is a top view of my machine, many of the keys, magazines and connections therebetween being omitted; Fig. 2 is a cross sectional view of Fig. 1; and Fig. 3 is a sectional view on the line A—B of Fig. 1.

The table is provided with a front rod 3, secured at its opposite dropped ends 2 to the table. Such rod constitutes an axle common to a plurality of levers 4 to which character bearing finger-keys 5 are attached. In practice, I employ forty-six levers, but I have thought it unnecessary to show more than thirteen. Each lever 4 (see Fig. 2) is connected at pivot 6 with and rearwardly drives a sliding rod 7, which is bent at right angles to pass through a longitudinal slot in the table 31. At their rear ends the rods 7 connect with and move bell-crank levers 8, pivoted at 9, and these levers drive bent rods 10 and bell-crank levers 11, pivoted on a bar 12, which runs across the machine. The levers 11 move rods 13, slides 36 connected therewith by flexible joints, (pins on slides 36, fitting slots in the rods) and used for ejecting type from magazines 35 as hereinafter described.

The machine is provided with an inclined table 30, upon the upper surface of which I secure ribs 31, 32, 33, dividing the surface and being also employed to guide the sliding types to a common delivery point, a channel 34. Along its upper edge, the table 30 is provided with a shifting piece 37 adapted to rest on a plate or continuous shoulder, and to have a slight reciprocation width-wise of the machine, when either of the winged handles 38, 39, at the front of the machine are turned to impart movement in either direction to the rods at the sides of the inclined table 30, and to the levers which positively engage the shifting-piece 37. Ejectors 36 are fitted upon the shifting piece 37, between short guide blocks at either side of the ejectors. By this means the ejectors move with the piece 37, while always free to reciprocate thereon. As a result of the connections shown, any ejector 36, may be caused to eject a type from any one of three magazines. Assuming the magazines to be arranged in groups of three on the upper edge of table 30, and the shifting-piece 37 to be in the position shown—i.e., the intermediate position—an ejector 36 is ready, upon being projected, to eject a type from the middle member of the group of magazines. If desired to have the ejector operate upon the left hand member of the magazine group, the shift-piece 37 is thrown to the right, and the ejector will be brought to position to eject type from the selected magazine. To have the ejector operate upon the right hand member of the magazine group the shift-piece is thrown to the left.

By the arrangement shown and described, I am enabled to eject type from three times as many magazines. In Fig. 1, I have shown three ejectors 36 positioned to remove type from nine magazines.

My new machine is provided with a box or frame 22, having underneath rollers 24, riding on rails or guides 23, and traveling in the direction of the arrow 25. Within said box 22, I have provided a second box or frame 26 (constituting the type-receiving box or frame wherein the composition is effected), having a rear wall 26 and a bottom 27, which carries a rack engaged by a toothed wheel 28 the position of which is controlled by a milled knob 29.

The types discharged from the part 34 fall directly into the box or frame 26, and this box is moved as indicated by the arrow 25 until a line is completed, when the box is returned to line-commencing position, and the box moved rearwardly, by operating the knob 29, the thickness of the line already set or further.

It is desirable to be able to ascertain, at all times, how much of a line is not set, in order that such line may be completed or justified.
by the feeding thereto or insertion of types or quads, or otherwise. For this purpose, I have provided my machine with a scale or rule $40$, which is connected to a helical type-delivery tube $34$, near the lower end of said tube, and the operation of which is hereinafter described.

As stated, the box or frame $26$ is progressed as the type are assembled therein, and I have provided the machine with connections whereby simplicity and certainty of such operation is easily, automatically and economically assured. The mechanism preferred by me is one which is directly put under the control of the sliding rods $7$, and comprises a plate $14$ fitted to slide in the grooves of roller $15$, and at its rear edge adapted to compress springs $16,16$, interposed between the plate and fixed projections. The springs $16,16$ tend to drive the plate $14$ forward, the distance being, however, regulated by the adjusting screws $17$.

Plate $14$ carries a spring-pressed pawl $18$ which engages with the teeth of a wheel $19$, and moves said wheel, when the plate is driven rearwardly, in the direction of the arrow. Wheel $19$ is connected with, and drives, a wheel $20$, the teeth of which engage a toothed rack $21$ secured upon a plate constituting a part of the box or frame $22$.

In order to permit of setting of all types, it is, of course, necessary that the travel of the box or frame shall be variable, and in accordance with the units-width of the characters or types as they are set. Thus, as an instance, if a type bearing the character "I" is set, the movement of the box or frame will be equal to three units, while if a type bearing the character "W" is set, the movement of said box or frame will be equal to six units. I have, therefore, provided the machine with means for contributing such variable travel to the box or frame. In the particular machine shown in the drawings, I have provided means for setting three different thicknesses of types, and to impart three different extents of travel or progression to the box or frame. Various arrangements will readily suggest themselves for this purpose, but I prefer to drive the plate directly by the bent rods $7$, which strike the plate $14$, and positively move it. One way of variably moving said plate, is to interpose stops in the path of the moving rods to thus control the extent of their movement, or to have the levers $4$ arranged in groups, each group having a different stroke, or contributing a different stroke to plate $14$. Another way is to have all of the levers $4$, mounted to have like strokes, and to recess the plate $14$ to different depths, so as to have some portion of the stroke of some of the levers ineffective upon the plate. This latter plan is the one employed by me.

Referring to Fig. 1, it will be seen that I have provided the forward edge of plate $14$ with three notches $43$. One of these, the central notch, may be slightly deeper (further cut into the plate) than the others. If, now, the fullest extent of travel is to be imparted to the box or frame, the proper rod $7$ will strike against an unnotched part of the edge of plate $14$, and will immediately drive said plate. If the box or frame is to be progressed an intermediate distance, the rods $7$ alined with the right and left hand notches of the plate will move into said notches, and to that extent, without driving the plate; and when the box or frame is to be progressed only the smallest distance, the rods alined with the central notch will move the full depth of said notch before driving the machinery.

In order to ascertain the amount of unset space in a line in order to complete or to justify said line, I have provided a measuring mechanism. The illustrated mechanism is controlled by the part $34$, in the following manner. As the box or frame $22$ slides in front of the rule $40$, it points out by indicating upon said rule the amount or portion of the predetermined line, which is still to be filled. When the operator has composed, for instance, a word of six characters the plate is advanced in accordance with the thickness of the said characters in the direction of the arrow in Fig. 1, and the operator may ascertain, by looking at the rule, the portion of the line which still remains at his disposal. The rule $40$ is thus at all times a true type-measuring device indicating not only the work already performed but the portion of the line remaining unfilled.

What I claim is;

1. In a type-setting machine, a composing box or frame, a finger-key, an ejector, connections between the key and the ejector, a group of type-magazines, and connections for shifting the ejector, independently of its reciprocation, to render it effective for removing type from any one of said group of magazines.

2. In a type-setting machine, a composing box or frame, type-magazines, means for ejecting type therefrom under control of finger-keys and connections, and means including a notched plate with the notched and unnotched parts of which the type-ejecting connections cooperate for moving the composing box or frame to the extent desired.

3. In a type-setting machine, a composing box or frame, an inclined table and connections for guiding type toward said composing box or frame, a plurality of type-magazines for delivering type to the inclined table, said magazines being arranged in groups, type ejectors one for each group, means for shifting said ejectors to render them effective on one member of each group of magazines, finger-keys and lever connections for moving
said ejectors for ejecting type from the magazines, a plate operated by said lever-connections, and a mechanism for progressing the composing box or frame to an extent corresponding to the width of the type as set, comprising a rack on the box or frame and a wheel driven by the plate aforesaid.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

LOUIS LEBRUN.

Witnesses:
CHARLES HOWSER,
GREGORY PHELAN.