

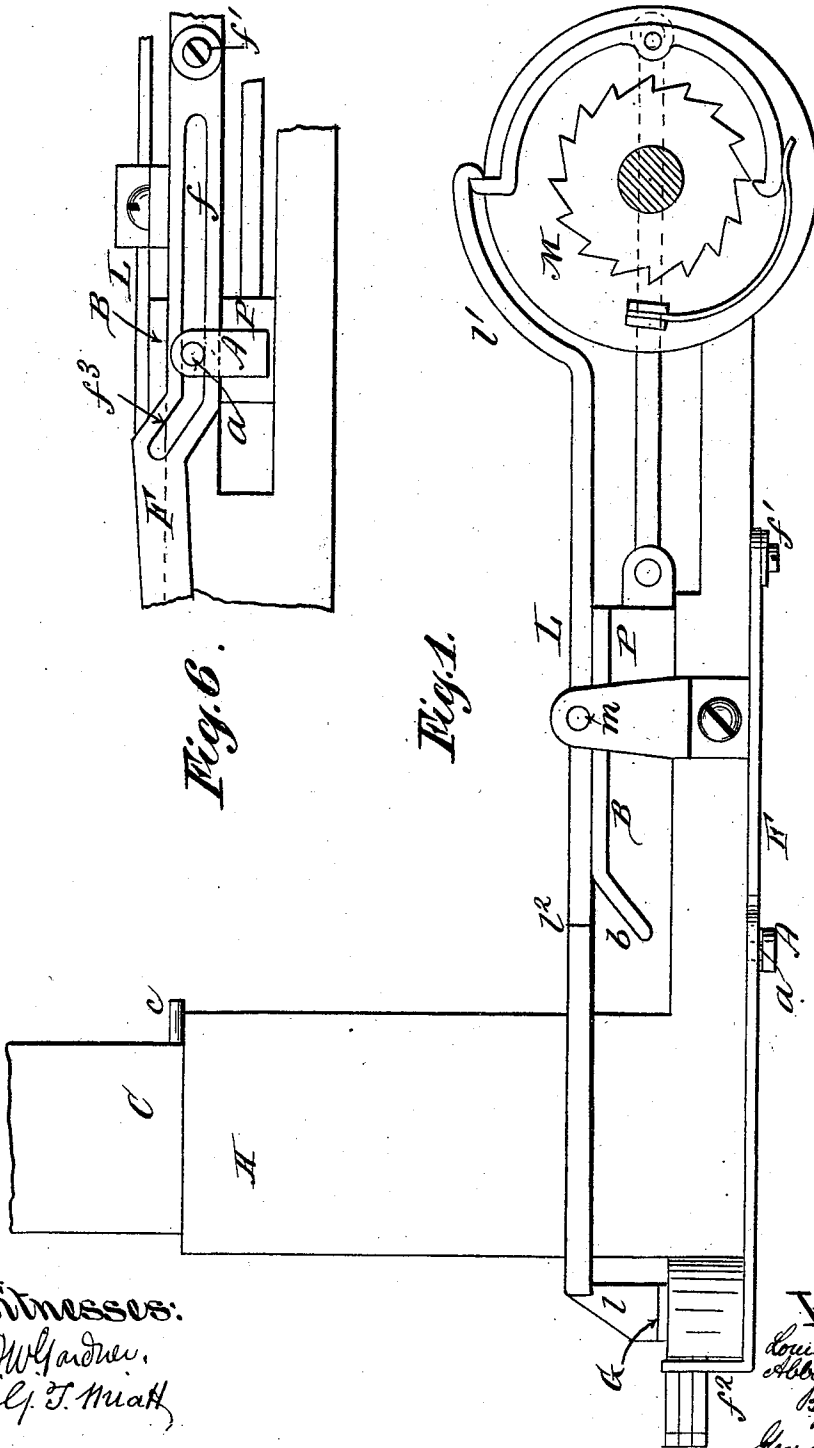
(No Model.)

6 Sheets—Sheet 1.

L. K. JOHNSON & A. A. LOW.
TYPE SETTING APPARATUS.

No. 561,993.

Patented June 16, 1896.



Witnesses:
D. W. Gardner,
C. J. Math,

Inventors:
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Abbot Augustus Low
By their attorney
George William Smith

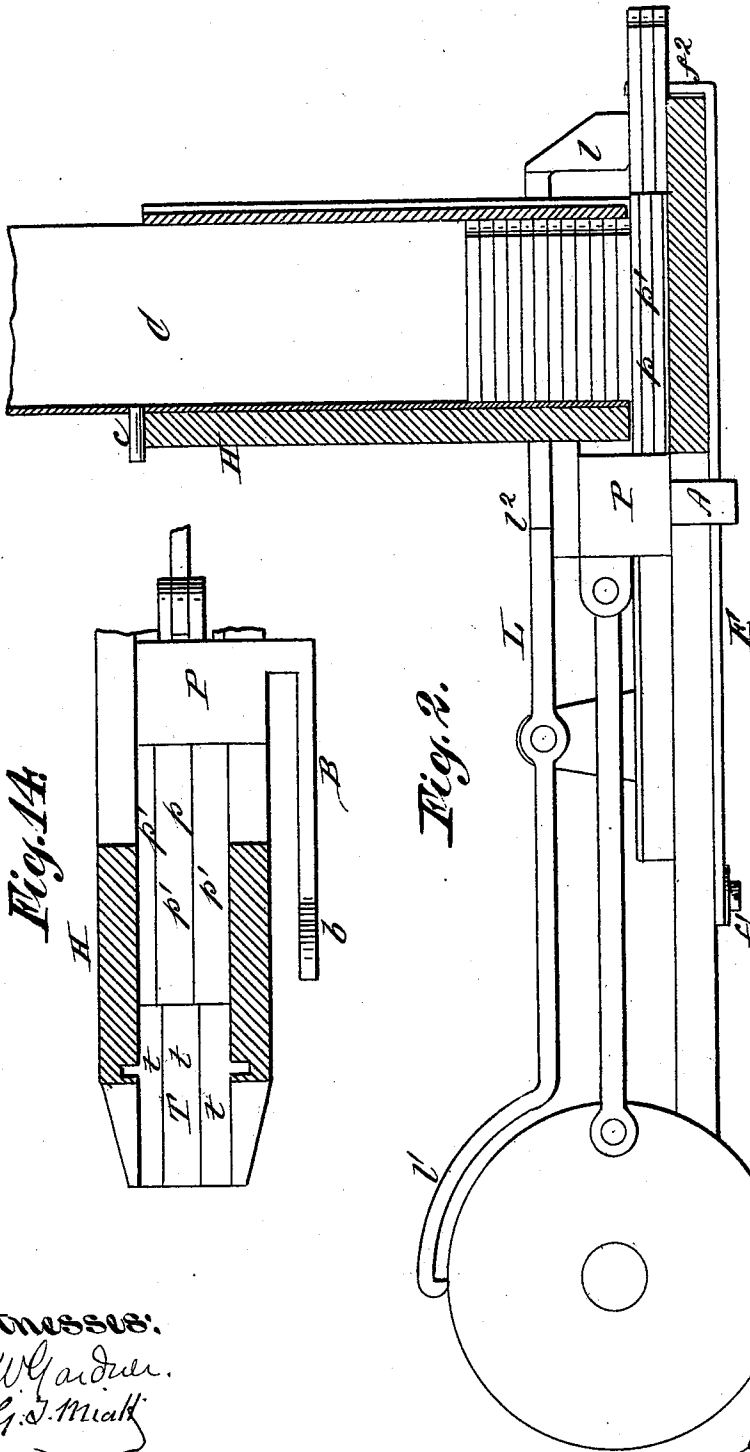
(No Model.)

6 Sheets—Sheet 2.

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6 Sheets—Sheet 3.

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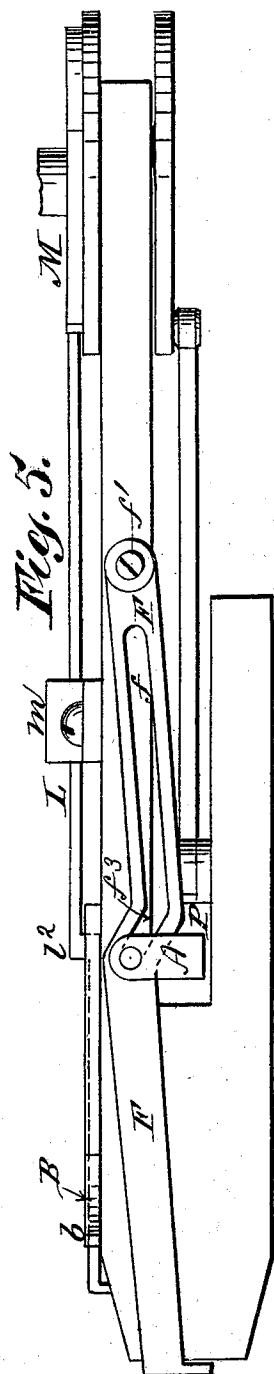


Fig. 5.

Fig. 3.

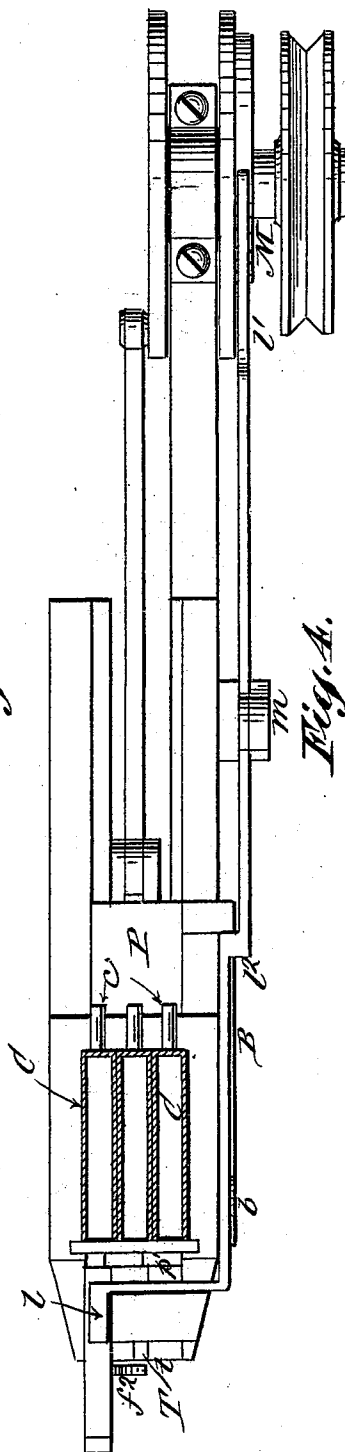
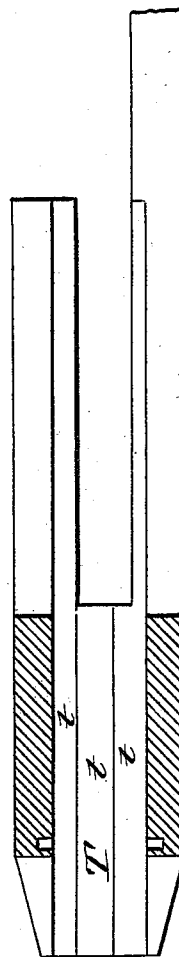


Fig. 4.



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6 Sheets—Sheet 4.

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Fig. 7.

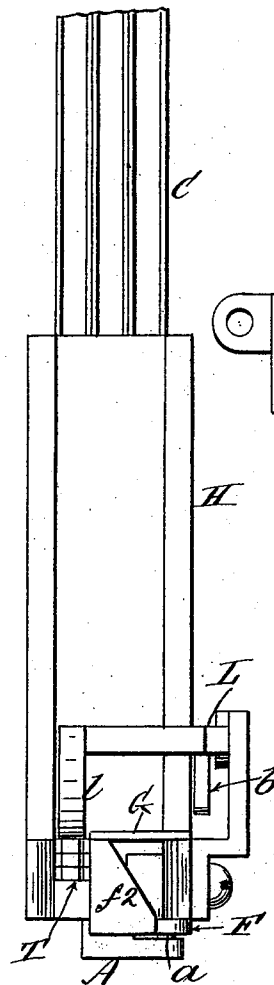
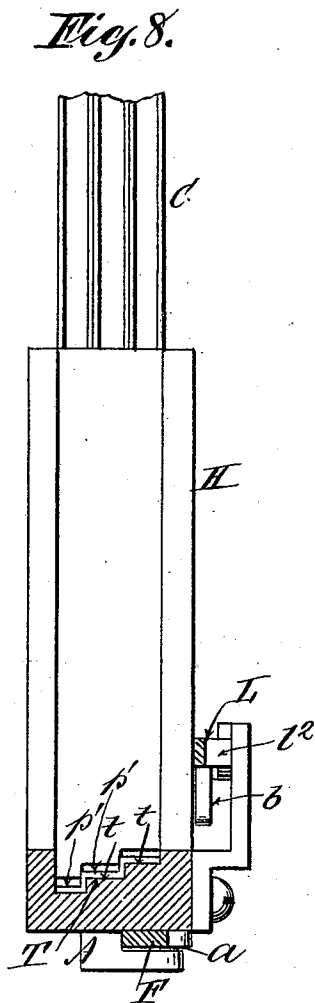


Fig. 9.

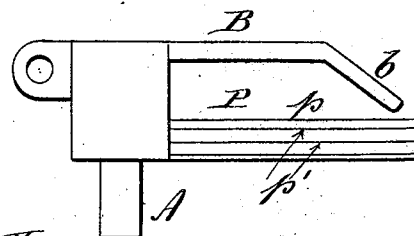
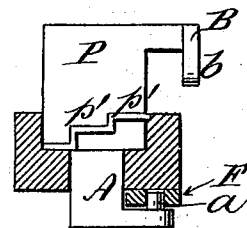


Fig. 10.



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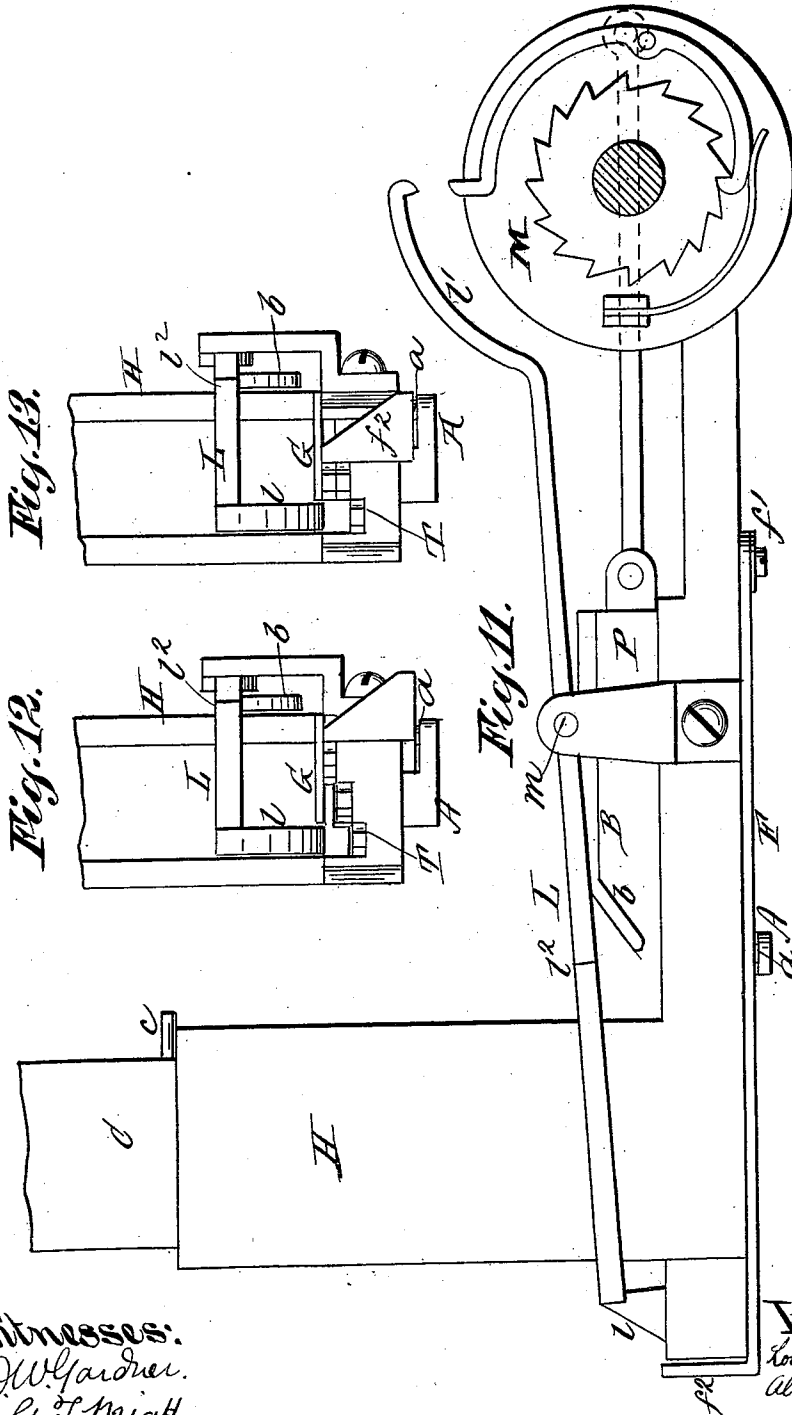
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(No Model.)

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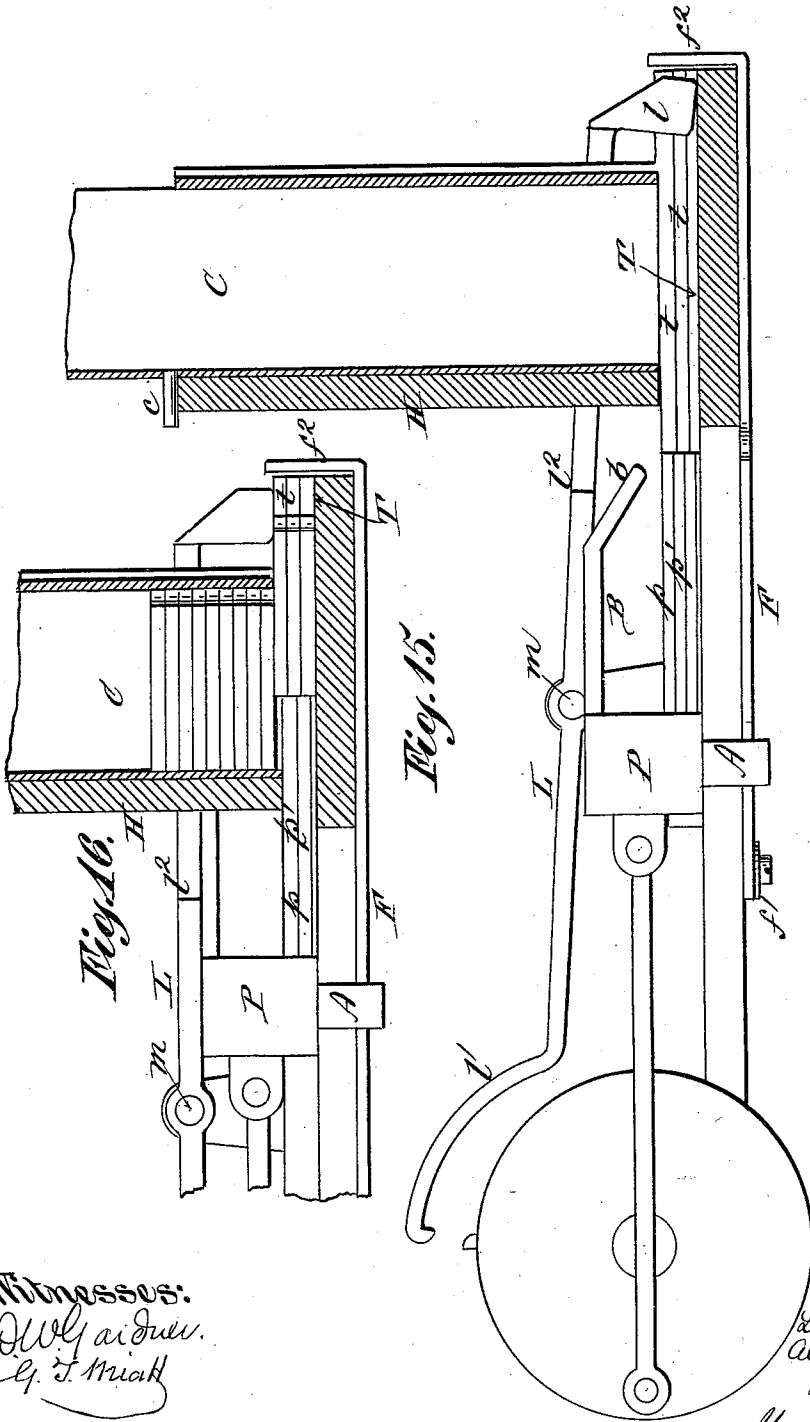
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UNITED STATES PATENT OFFICE.

LOUIS K. JOHNSON AND ABBOT AUGUSTUS LOW, OF BROOKLYN, NEW YORK, ASSIGNORS TO THE ALDEN TYPE MACHINE COMPANY, OF NEW YORK, N. Y.

TYPE-SETTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 561,993, dated June 16, 1896.

Application filed November 3, 1895. Serial No. 568,316. (No model.)

To all whom it may concern:

Be it known that we, LOUIS K. JOHNSON and ABBOT AUGUSTUS LOW, citizens of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Setting Apparatus, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

Our present invention relates to the form of type-setting apparatus in which the type-containing channels are arranged side by side with their lower ends arranged at different levels over a series of terraced type-supporting ways, the types being on their "flat" and being assembled together one over the other after they have left the type-containing channels, those above being slid over and upon those next below until they are all brought into alinement, as set forth in our concurrent application, Serial No. 567,266, filed October 29, 1895. In said last application the types are assembled by a converging side wall as they advance under the action of the pusher, in which case support has to be afforded to the heels of the types while they are being acted upon by the converging side wall, necessitating the use of a heel-plate for the front end of the pusher, which has to advance and recede automatically in front of the type-containing channels in order to avoid interference with the next succeeding types in the channels.

The main object of our present invention is to dispense with the automatic heel-plate and the converging side wall and to effect the assembling of the types in a more direct and simple manner.

The invention consists, primarily, in the use of a laterally-movable finger arranged to push the types off their respective ways and over and upon each other after they have advanced beyond their type-containing channels and at the termination of the forward stroke of the pusher. Secondly the invention includes the special construction and arrangement of parts whereby the type-lever which controls the forwarding mechanism is lifted out of the way of the advancing types,

and whereby the assembling type-finger is also actuated by the type-pusher.

In the accompanying drawings, Figure 1 is a side elevation of our improved device, the type-pusher being in its retracted position; Fig. 2, a sectional elevation taken from the opposite side of the device, showing the type-pusher at the end of its forward stroke; Fig. 3, a plan of the device; Fig. 4, a plan of the type-supporting terraces, the pusher being omitted and the side walls of the channel-holder being shown in section. Fig. 5 is a plan of the under side of the device. Fig. 6 is a partial view of the under side of the device, illustrating the rocking over of the finger-lever during the retractile movement of the pusher. Fig. 7 shows a front view of the device with the types assembled. Fig. 8 is a sectional elevation taken immediately in front of the channel-holder. Fig. 9 is a side elevation of the type-pusher; Fig. 10, a front elevation thereof with the adjoining parts in section. Fig. 11 is an elevation showing the pusher in its retracted position, showing the release of the forwarding mechanism by the withdrawal of the types last forwarded. Figs. 12 and 13 are front views of the type-platform, illustrating the action of the lateral finger in assembling the types; Fig. 14, a view similar to Fig. 4, showing the pusher in position, partly retracted. Fig. 15 is a sectional elevation showing the terraced supports for the types, &c., the types being omitted and the type-lever depressed. Fig. 16 is a sectional elevation of a portion of the device, showing the elevation of the type-lever before the advance of the type under its front end.

The type-containing channels C are supported in the channel-holder H by any suitable means, as by the pins *c c*, resting on the upper edge of the holder or by any of the special means of support which we have heretofore patented. The type-platform T is formed with the terraces *t t* for the reception and support of the types in the channels above.

The pusher P is formed with the blade *p*, having the offsets *p'*, corresponding to and resting upon the terraces *t*. It is also formed with a lateral bayonet-arm B, the forward end *b* of which raises and sustains the type-

lever L, as hereinafter set forth. The lower portion of the pusher P is also formed with an arm A, carrying the pin or stud *a*, which engages with a slot *f* in the finger-lever F.

5 The type-lever L is pivoted at *m* to a stationary part of the device. Its front end is formed with a type-bearing *l* and is of greater weight than the rear end *l'*, which engages with the clutching mechanism M set forth in
10 our Patent No. 522,716, dated July 10, 1894, or its equivalent.

The finger-lever F is pivoted at its rear end *f'* to a stationary part of the device, and its forward end *f*² is formed to act as a finger to
15 assemble the type, as hereinafter described.

A top guard G extends over all but the last or lowest of the type-terraces *t* of the type-platform T.

The parts being in the position shown in
20 Fig. 1, the withdrawal of the types from the front end of the platform T allows the forward end of the type-lever L to drop, causing its rear end *l'* to release the type-forwarding mechanism M. This starts the type-
25 pusher P forward, advancing the lowest types from the channel along their respective terraces; but before the faces of the advancing types reach the bearing *l* of the type-lever L the forward end *b* of the bayonet B encounters the shoulder *l*² of the lever, passing under it and raising the lever into the position
30 shown in Fig. 16, thereby allowing the types to pass forward without obstruction. As the forward stroke of the pusher terminates, the
35 stud *a* on the arm A, projecting from the lower side of the pusher, acting upon the incline *f*³ of the slot *f*, rocks the finger-lever F inward, causing its finger-piece *f*² to push the higher types over laterally onto those
40 next below, as illustrated in Figs. 12 and 13, until they are all in alinement, as shown in Fig. 7, in which position they support the forward end of the type-lever L, so that the clutch will engage with the rear end of the
45 lever at the completion of the retractile movement of the pusher, and thereby lock the parts until the types just forwarded are removed by hand. During the retractile movement of the type-pusher P the finger-lever
50 F is rocked back by the pin *a*, in which position it remains until the next forward stroke of the pusher. It will be seen that by this

method of manipulation the faces of the types are not subjected to contact with any surface, as they are where converging side walls are
55 used. The assembling of the types is also rendered positive and accurate.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a type-case the combination of a series of terraced type-supporting ways, a type-forwarder, and a laterally-movable type-assembler arranged and operating substantially
60 in the manner and for the purpose described.

2. The combination of a series of terraced type-supporting ways, a type-forwarder, and a laterally-moving type-forwarder actuated by said pusher, substantially in the manner
65 and for the purpose described.

3. The combination of a series of terraced type-supporting ways, a type-forwarder, a laterally-moving type-assembler, a type-lever for engaging with the actuating mechanism, and means upon the type-pusher for engaging and holding said lever, substantially in
70 the manner and for the purpose described.

4. The combination of the type-platform T, formed with the terraced type-supporting ways *t*, *t'*; the type-pusher P, formed with the type-blade *p*, arm A, and stud *a*; and the
80 finger-lever F, formed with the slot *f*³, *f*, and type-assembler *f*², the whole arranged and operating substantially in the manner and for the purpose described.

5. The combination with the type-platform T, formed with the terraced type-supporting ways *t*, *t'*; the type-pusher P, formed with the type-blade *p*, the bayonet-arm B, *b*, and the arm A, and stud *a*; the finger-lever F, formed with the slot *f*, *f*³, and type-assembler *f*²; and
90 the type-lever L, the whole arranged and operating substantially in the manner and for the purpose described.

6. The method herein set forth of assembling types consisting in forwarding them
95 from their channels at different heights and then sliding them laterally one over the other into alinement substantially in the manner and for the purpose described.

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