

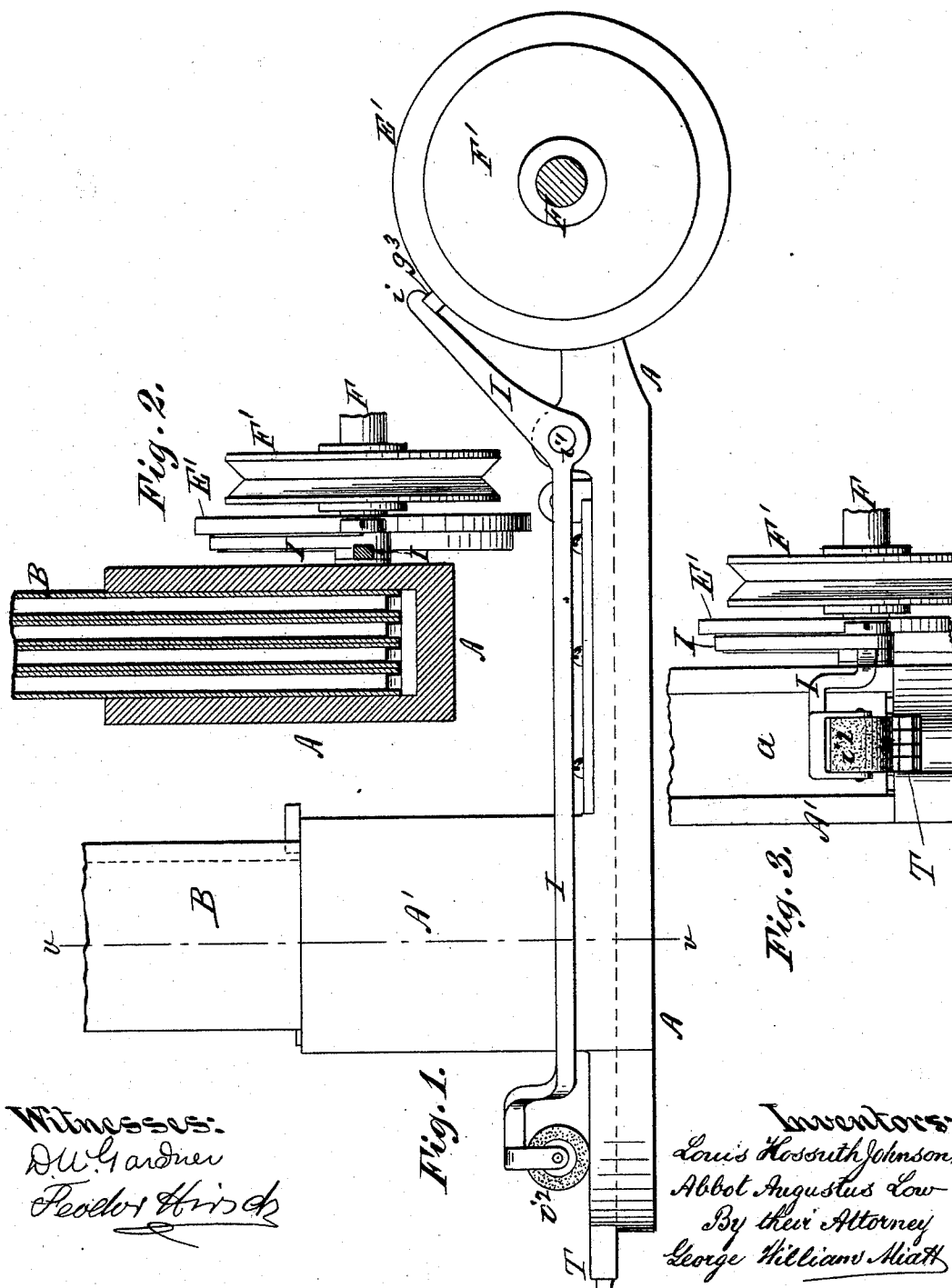
(No Model.)

5 Sheets—Sheet 1.

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

No. 522,716.

Patented July 10, 1894.



Witnesses:  
D. W. Gardner  
Frederick Hirsch

Inventors:  
Louis Rosenth Johnson,  
Abbot Augustus Low  
By their Attorney  
George William Malt

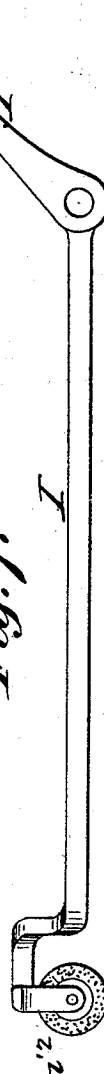
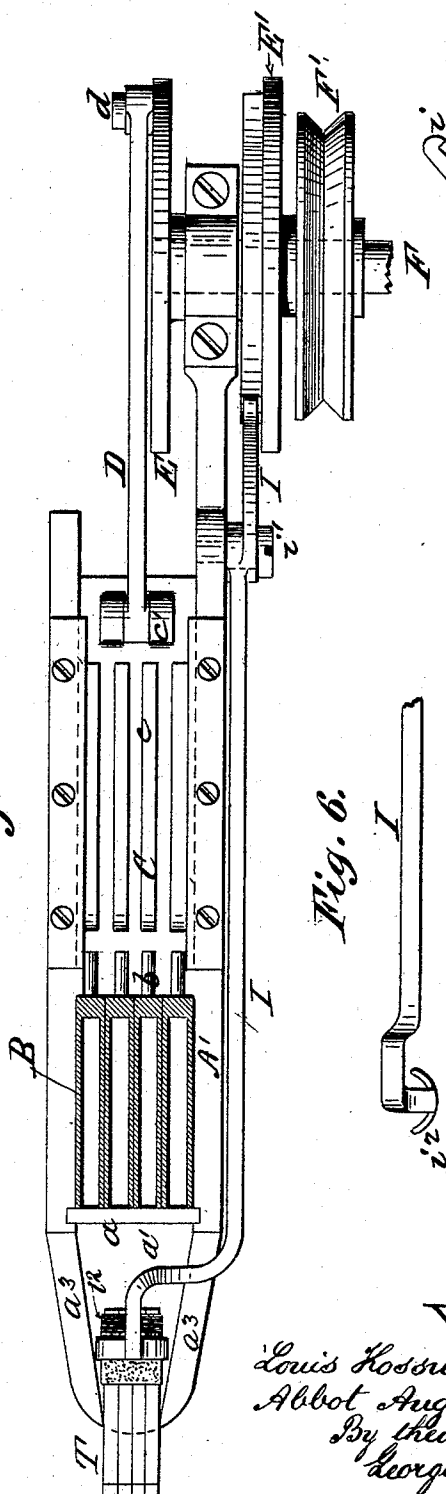
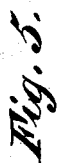
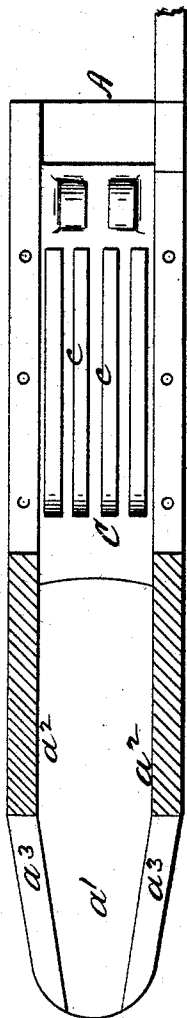
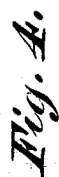
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5 Sheets—Sheet 2.

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TYPE SETTING APPARATUS.

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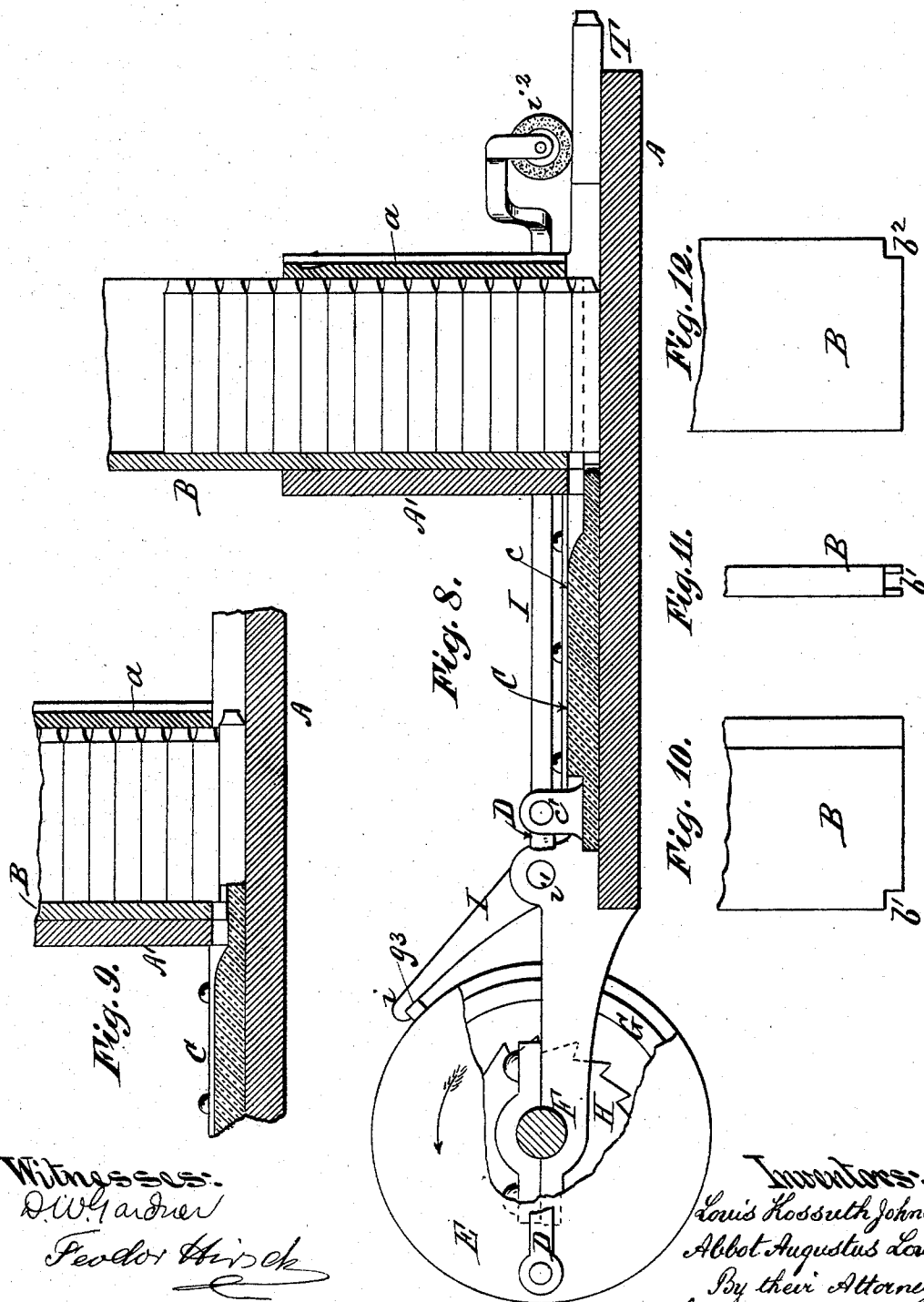
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5 Sheets—Sheet 3.

L. K. JOHNSON & A. A. LOW.  
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(No Model.)

5 Sheets—Sheet 4.

L. K. JOHNSON & A. A. LOW.  
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Fig. 14.

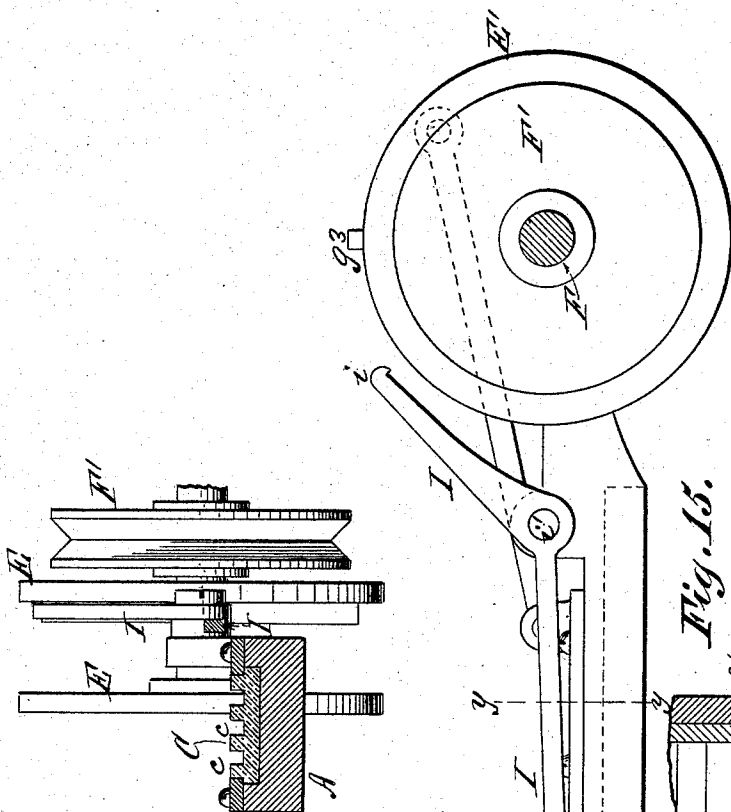


Fig. 15.

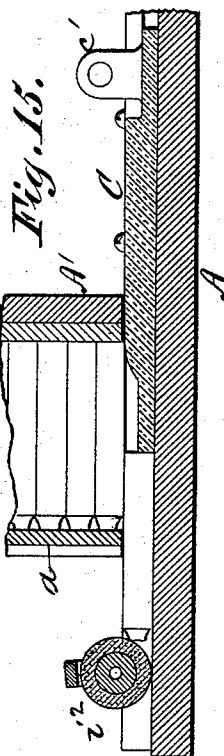
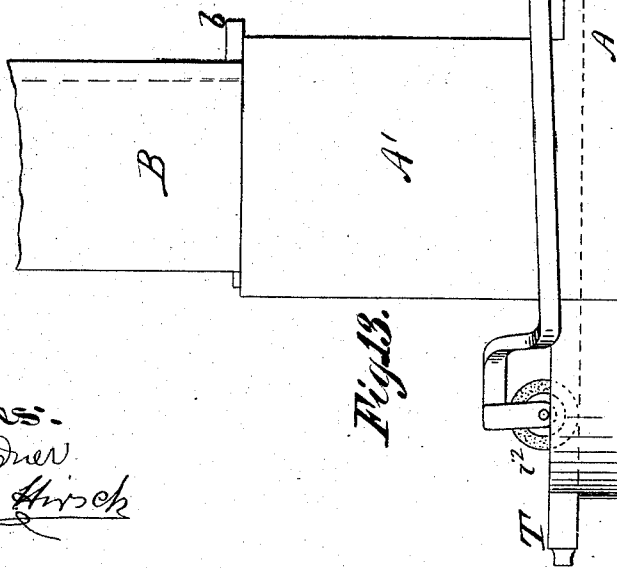


Fig. 13.



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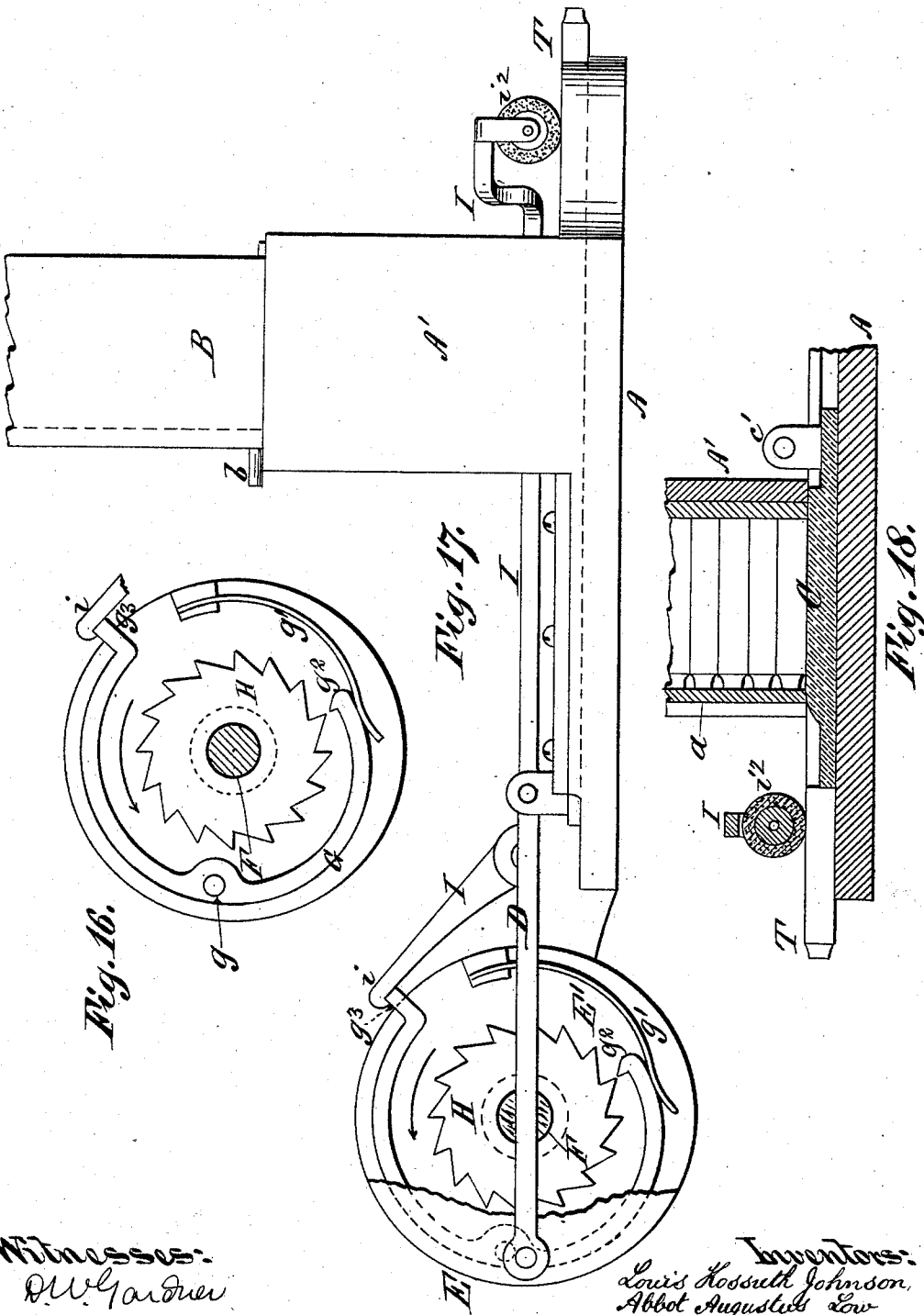
(No Model.)

5 Sheets—Sheet 5.

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

No. 522,716.

Patented July 10, 1894.



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# UNITED STATES PATENT OFFICE.

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

## TYPE-SETTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 522,716, dated July 10, 1894.

Application filed March 10, 1894. Serial No. 503,088. (No model.)

### *To all whom it may concern:*

Be it known that we, LOUIS KOSSUTH 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 description, sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

Our improvements relate to the class of type setting apparatus in which the types are arranged in a prescribed position with relation to each other in type containing channels from the lower ends of which they are successively forwarded into position to be grasped by the fingers of the compositor, for removal to the stick.

In the applications for patent heretofore filed by us, the types are represented as forwarded, either by a direct push or pull exerted by the fingers of the operator, or by mechanism which is set in motion for this purpose by an intermediate switch lever or equivalent device, actuated by the finger of the operator during the act of grasping the types for removal.

The main object of our present invention is to relieve the compositor of the labor involved in thus forwarding the type, or actuating the tripping or switching mechanism; and to accomplish the forwarding of the types automatically into position for removal by utilizing the types themselves as a means for controlling the type forwarding mechanism.

The invention consists essentially in combining with mechanism for reciprocating the type forwarder, a locking and unlocking device which is controlled and actuated by the types themselves,—the removal of the types by the fingers of the compositor unlocking the type forwarding mechanism, and causing the advance of fresh type which, as they come into position for removal by hand, reset and lock the type forwarding mechanism until they are in turn withdrawn and the operation is repeated, and so on continuously, the preceding types controlling the advance of the succeeding types.

The advantages of this improvement are important. The hand of the operator is relieved entirely from the labor of separating the types at the bottoms of the columns from those above, or of actuating mechanism indirectly which will effect the same result. This in the aggregate effects a great saving in time and energy. The compositor always has before him a desired character or combination for removal to the stick, and need pay no attention to the operative mechanism, which is entirely automatic.

The invention is shown in the accompanying drawings, and is herein described, as applied to type forwarding mechanism similar to that shown in our last application, filed February 17, 1894, Serial No. 500,548, in which a plurality of type containing channels are supported in such relation to each other that a single pusher forwards a word or combination of letters which are made to converge and come together into position to be simultaneously grasped and removed by the fingers of the compositor.

Our invention is equally applicable to mechanism for separating and forwarding types singly, and we do not confine ourselves in the use of the automatic means for controlling the type forwarding mechanism to a plurality of type containing channels.

In the accompanying drawings, Figure 1, is an elevation of the right hand side of mechanism embodying our invention. Fig. 2, is a vertical section upon plane of line *v, v*, Fig. 1. Fig. 3, is a front elevation of the type platform and parts adjoining. Fig. 4, is a horizontal section, showing a plan of the type platform and of the type forwarding plate. Fig. 5, is a plan of the apparatus, the type containing channels being shown in horizontal section. Fig. 6, is a detail of the forward end of the controlling lever, showing a modification in the form of type bearing surface. Fig. 7, is a detail of the controlling lever as provided with a type bearing surface in the form of a roller. Fig. 8, is a sectional elevation taken from the left hand side of the device showing the parts as locked by the type last forwarded. Fig. 9, is a sectional detail showing the forwarder just after it has en-

countered the heel of the lowest type in the column. Fig. 10, is a detail of the lower end of the channel; Fig. 11, a back view of the channel; Fig. 12, a view of the opposite side of the channel. Fig. 13, is an elevation of the device just after the controlling lever has been tripped to release the forwarding mechanism by the removal of the types from the front of the type platform. Fig. 14, is a transverse section on plane of line  $y, y$ , Fig. 13, looking toward the rear of the device. Fig. 15, is a sectional detail showing the type as being forwarded and about to raise the controlling lever into position to relock the type forwarding mechanism. Fig. 16, is a detail view showing the inner side of the clutch mechanism; Fig. 17, an elevation of the left hand side of the device; Fig. 18, a sectional detail showing the pusher and type at the end of the forward stroke.

In the drawings A, represents a stationary frame, or support of suitable construction. The channel support A', consists of a socket piece or holder of rectangular form, adapted to hold a plurality of channels, that shown in the drawings accommodating four type containing channels B, resting snugly against each other, and held or suspended in position by pins  $b$ , projecting from their spine, which pins  $b$ , rest upon the upper edge of the socket A'. The front of the socket piece A', and consequently the lower portion of the channels are closed by a flat guard  $a$ .

$a'$ , is a type supporting platform, upon which the lowest types in the several columns rest.

$a^2, a^2$ , are the parallel side walls, and  $a^3, a^3$ , the converging side walls similar to those described in our prior application hereinbefore referred to; and the whole operation of forwarding, converging, centralizing and presenting the types is substantially the same as that disclosed in said application.

By reference to Figs. 4 and 5, it will be seen that the pusher C, consists of a flat plate formed with ribs  $c, c$ , upon its upper surface. The side walls of the channels extend down nearly to the level of the upper surface of the plate C, the lower ends of their spine being notched as shown at  $b'$ , in Figs. 10, 11 and 12, to admit of the passage of the ribs  $c$ , upon the pusher C.

The reciprocation of the pusher C, is effected through the medium of a pitman D, pivotally connected to the rear end of the pusher at  $c'$ , and to the disk E, at  $d$ . This disk E, is mounted rigidly upon the shaft F. A pulley F', is mounted loosely upon the shaft F, and has a ratchet wheel H, rigidly secured to it. A disk E', is rigidly secured to the shaft F, to the inner surface of which a spring pawl G, is pivoted at  $g$ . The spring  $g'$ , mounted upon the disk E', tends constantly to throw the point  $g^3$ , of the ratchet pawl G, into engagement with the teeth of the ratchet wheel H, thereby causing the shaft F, to rotate with the pulley F', and

ratchet wheel H. This tendency of the spring  $g'$ , to maintain an engagement and rotation of the disk E, with the ratchet H, and pulley F', and consequently a rotation of the shaft F, and disk E, is counteracted normally by a stop  $i$ , upon the end of the controlling lever I, fulcrumed at  $i'$ , to a stationary part of the frame. The other or forward end of the lever  $i'$ , is formed with a type bearing surface  $i^2$ , which consists preferably of a roller faced with india-rubber, cloth, or other suitable soft or elastic material. Instead of the roller a simple curved surface may be used, as indicated in Fig. 6; or another form of bearing surface may be substituted which will be capable of contact with the types without injury thereto. When the types are under this bearing piece  $i^2$ , the controlling lever I, is sustained in the position shown in Figs. 1, 3, 5 and 17, in which position the stop or hook  $i$ , engages with the projecting end  $g^3$  of the pawl G, thereby holding the toothed end  $g$ , of the pawl G, out of engagement with the ratchet wheel H, against the resistance of the spring  $g'$ , and allowing the pulley F', and the ratchet wheel H, to rotate upon the shaft F, without disturbing the latter or the disks E, E'.

The thickness of the pusher C, when taken through ribs  $c$ , is slightly greater than that of the width of the types; and the forward ends of the ribs  $c$ , are curved forward as at  $c^2$ .

The operation is as follows: The compositor, desiring to withdraw the types indicated at T, grasps them between his thumb and finger, previous to withdrawing them from the ports P, at the front of the type platform  $a$ . As he withdraws the type, the forward end of the controlling lever I, drops until the type bearing surface  $i^2$ , rests upon the type platform  $a'$ , thereby throwing up the short arm of the lever I, and causing the shouldered end  $i$ , to release the projecting end  $g^3$ , of the pawl G, upon the disk E', when the spring  $g'$ , throws the point  $g^3$ , of the pawl G, into engagement with the ratchet H, and the disk E, shaft F, and disk E', start to rotate with the shaft F. As the disk E, rotates from the position shown in Fig. 1, it forwards the pusher C, through the medium of the pitman D. When the pusher C, has advanced sufficiently to forward the lowest type about half way out of their channels the inclined surfaces  $c^2, c^2$ , engage the heels of the next lowest types in the columns, and lift the columns very slightly, but sufficient to raise and support the types from contact with the heels of the receding types as the latter leave the fronts of the type containing channels. At the completion of one half of the revolution of the disk E, the forward stroke of the pusher is attained, the types being forwarded into the position T, as illustrated in Fig. 18, and the columns of types resting upon their ribs  $c$ . Prior to this however the types being forwarded have encountered the roller  $i^2$ , as shown in Fig. 15, and have passed under the latter thereby again raising the controlling

lever I, and throwing its shouldered end  $i$ , into position to receive and stop the projecting end  $g^3$ , of the pawl G, thereby disengaging the end  $g^2$ , of the pawl G, from the ratchet wheel H, at the completion of one revolution of the disk E'. The parts are thus again locked so that no types can be forwarded until those projecting from the end of the type platform are removed. The type bearing surface  $2^2$ , performs an additional and important function in holding and steadying the types P, in position, acting in this respect as a top guard while interfering in no way with the easy withdrawal of the types.

It is obvious that the pawl and ratchet device herein described may be dispensed with, and a like result accomplished by the use of any other well known releasing or clutching mechanism, the essential feature in this respect being the employment of a device actuated by the type-controlled lever I, which shall couple the disk E, with the constantly rotating part of the apparatus.

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

1. In type setting apparatus, the combination of one or more type containing channels; a type platform, a reciprocating type forwarder; mechanism for connecting and disconnecting said type forwarder with a motor;

and a type-controlled lever for locking and unlocking the type forwarding mechanism, substantially in the manner and for the purpose described.

2. In type setting apparatus, the combination of one or more type containing channels; a type platform; a reciprocating type forwarder; mechanism for connecting and disconnecting said type forwarder with a motor; and a type-controlled-lever for locking and unlocking the type forwarding mechanism, formed with a bearing surface for the types consisting of a roller, for the purpose and substantially in the manner described.

3. In a type setting apparatus, the combination of one or more type containing channels; a type platform; a reciprocating type forwarder; mechanism for connecting and disconnecting said type forwarder, consisting of a pawl and ratchet device herein described; and a type-controlled-lever for locking and unlocking the said pawl and ratchet, substantially in the manner and for the purpose set forth.

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Witnesses:

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