

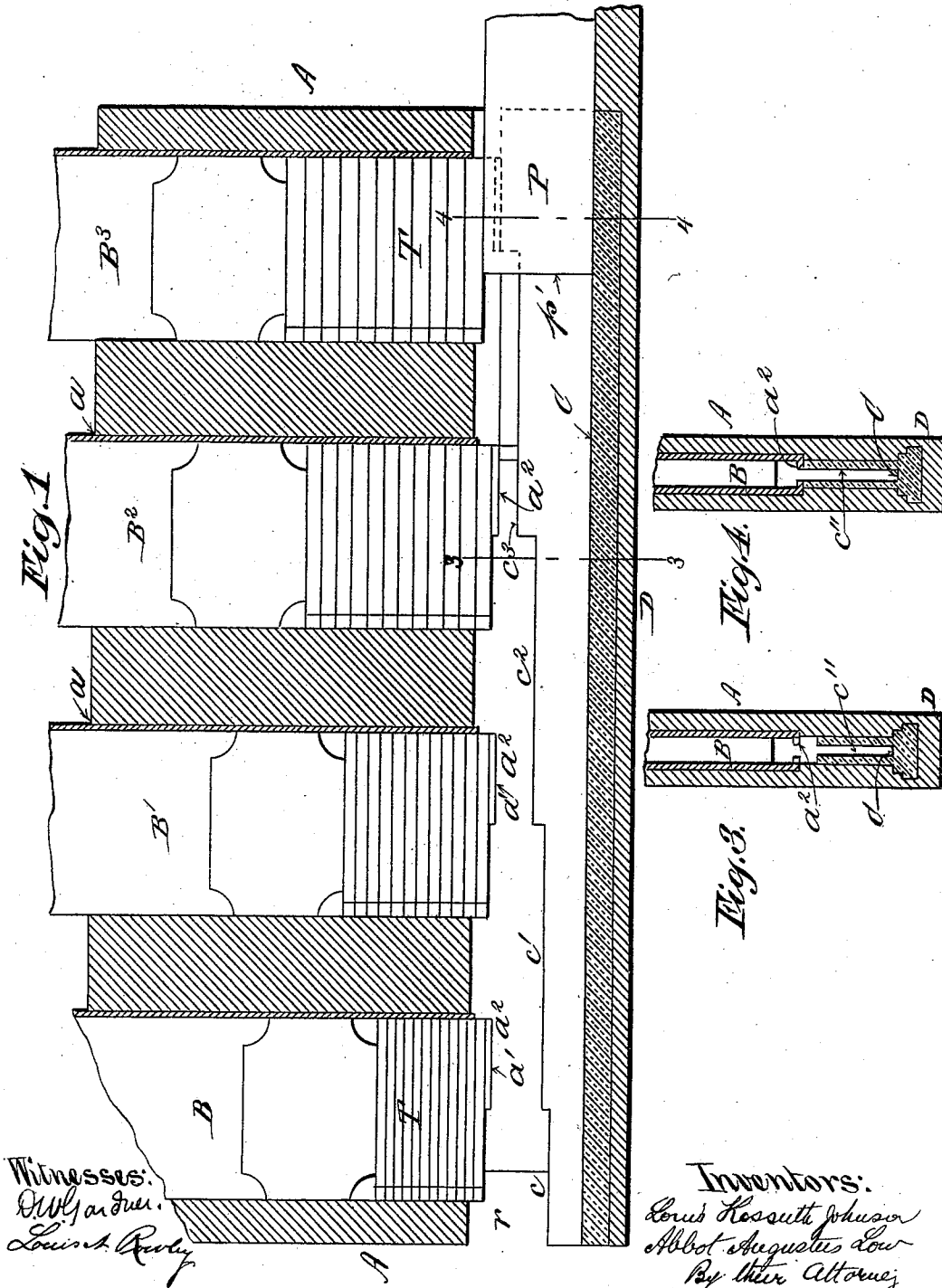
(No Model.)

2 Sheets—Sheet 1.

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

No. 562,081.

Patented June 16, 1896.



Witnesses:
O. W. Anderson.
Louis A. Reilly.

Inventors:
Louis Russell Johnson
Alfred Augustus Low
By their Attorney
George William Meath

(No Model.)

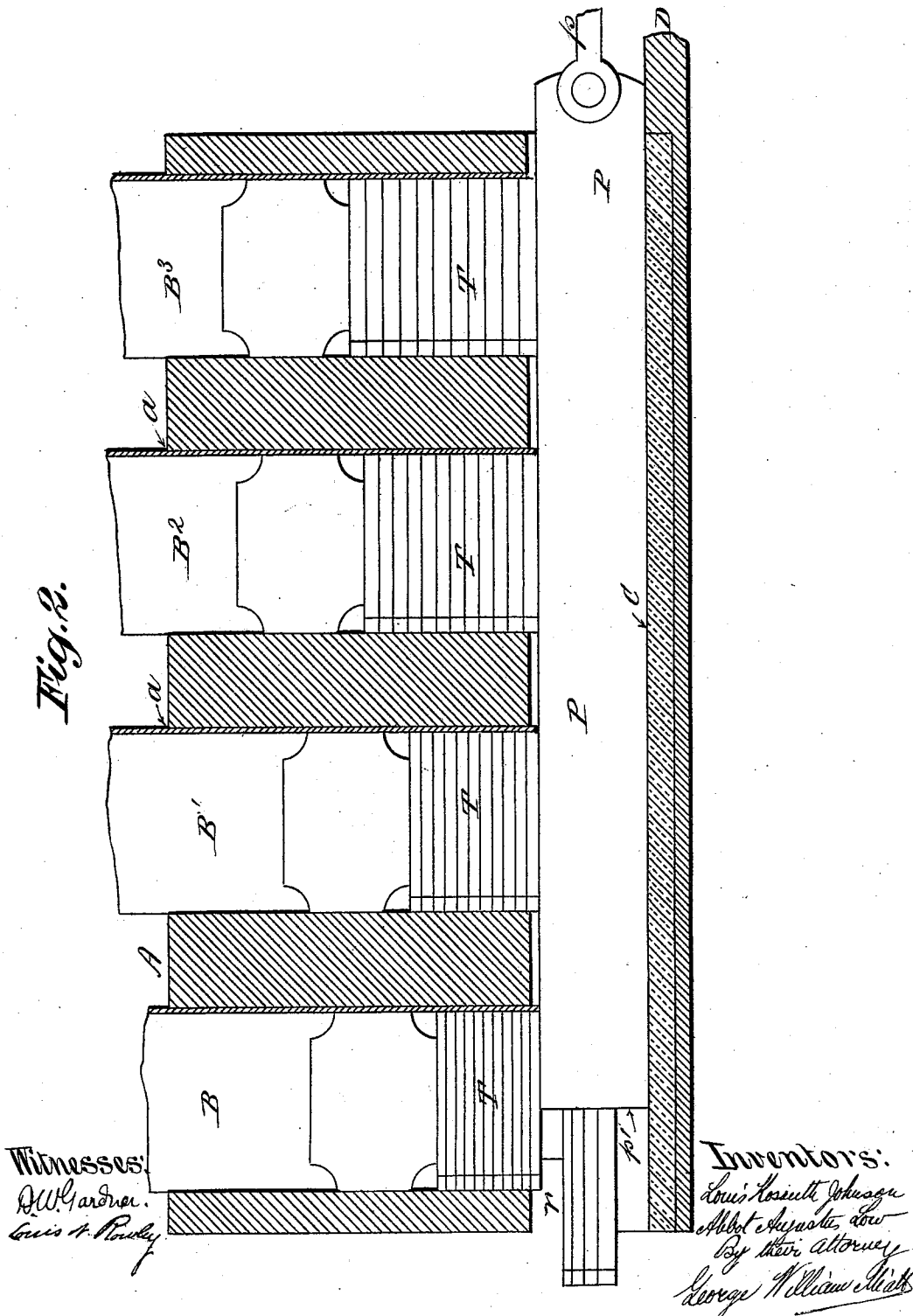
2 Sheets—Sheet 2.

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

No. 562,081.

Patented June 16, 1896.

Fig. 2.



UNITED STATES PATENT OFFICE.

LOUIS KOSSUTH 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. 562,081, dated June 16, 1896.

Application filed September 23, 1895. Serial No. 563,313. (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 specification, sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

Our improvements relate to type-cases in which a series of characters of different denominations are detached or withdrawn from their respective containing-channels and assembled together in such manner as to form a word or other combination of types which are presented simultaneously for removal by the hand of the compositor for insertion in the stick, although the principle involved may also be utilized in other forms of type-setting apparatus in which the selecting and assembling of types is to be accomplished.

Heretofore the type-containing channels containing the desired combination of characters have been placed side by side, and the types have been separated and forwarded from the lower ends of all said type-containing channels simultaneously, the types resting on their edges instead of their flat sides, and being brought together by converging guides, &c. The arrangement of the types in the type-containing channels upon their edges is objectionable for several well-known reasons, as is also the handling and manipulation of the types on their edges.

We have heretofore overcome the necessity for arranging the types upon their edges in the type-containing-channels by various expedients, by which the types were turned from their "flat" in the channels to their edges on the type-platform, as in our Patents Nos. 539,951 and 539,952, dated May 28, 1895; but these structures are expensive and not as simple as is desirable where the handling of types is involved. Furthermore, whether arranged in the type-containing channels on their edges or on the flat, the combined resistance of all the columns of type in the series

or combination had to be overcome by the pusher at one time.

The essential feature of our present invention consists in arranging the type-containing channels consecutively one in advance of the other, the types being supported therein on the flat, and in removing the types successively, one at a time, from the columns in such manner that each succeeding type is deposited upon top of the one next preceding, the types resting one upon the other on the flat with the lowest one (the first detached) on the type-platform, along which all are advanced for presentation and removal. This feature of detaching the types separately and depositing them successively one on top of the other is a new and important feature in the handling of a plurality of types, and we seek to cover herein, broadly, the essential and requisite features of construction, although the same result may be attained by the construction and arrangement of parts different from that herein shown and described, as will be fully demonstrated in succeeding applications for special improvements and adaptations of the essential principle of invention herein involved.

By our invention we avoid the necessity of arranging the types on their edges in the type-containing channels, or of turning them from their flats to their edges, of converging them when on their edges, and of overcoming the combined resistance of all the columns of types while detaching and assembling them. The types are also subject to less wear and the device is rendered much more simple and compact. The type-containing channels being arranged successively one in the rear of the other, the word or combination is presented at the front of the type-platform in a lateral space sufficient only for the requirements and support of a single type-containing channel instead of that requisite for the whole word or combination, as heretofore, and a whole series of words or combinations may thus be arranged within a comparatively small space horizontally.

An important feature of our invention consists in arranging for the support of the type-

columns by shoulders upon the channels themselves for the purpose of rendering the types independent of the type-floor below, so that the latter may be withdrawn without disturbing the types, and so that the types may be positively supported and held in alinement while being lowered into position.

In the accompanying drawings, Figure 1 is a central longitudinal section of a nest of four type-containing channels, supports, &c., showing the type-forwarder slightly advanced and the first type detached from its column. Fig. 2 is a similar view showing the type-forwarder at the end of its advanced stroke; Fig. 3, a transverse section on plane of line 3 3, Fig. 1; Fig. 4, a similar view on plane of line 4 4, Fig. 1.

Any suitable form of socket-holder A may be employed to receive and support the type-containing channels B and their types T, said holder A being in turn supported upon the bed or table D. The type-channels B B' B² B³ are arranged one behind the other in a common vertical plane, their lower ends being in the same transverse or horizontal plane.

As shown in the drawings, the holder A has a series of sockets or recesses *a* formed in it for the reception of the type-containing channels B, said recesses *a* being formed with seats *a'* for the lower edges of the side walls of the type-containing channels. These seats may be also formed with and include the type-supporting shoulders *a*², if desired, as shown in Fig. 6, although we prefer to form the said type-supporting shoulders *a*² directly upon the edges of the channels B themselves, since by the latter structure, which is that shown in the other figures of the drawings, the types are supported entirely in and by the channels, so that no temporary or extraneous support is necessary for the columns of type during transfer or insertion in the holder A.

The removable type-floor C rests upon the bed or table D and between the lower side walls of the holder or other lateral supports which keep it in alinement with the channels above and with the pusher P. The type-floor C is formed with a series of steps or platforms *c c*, which terminate in each case below or approximately below the front edges of the type-supporting shoulders *a*². The "drop" or difference in level between these platforms *c c' c*² *c*³ is approximately equivalent to the thickness of the type in the column above, so as to reduce the distance to which the type are to drop to the minimum, and thereby obviate jar or derangement.

The type-floor C is formed with the longitudinal groove *c''* for the reception of the reciprocating pusher P, which is nothing more than a plain thin blade actuated intermittently by any suitable or well-known mechanism for this purpose, as by a pitman *p*, connecting with a crank or eccentric thrown into action by the removal of the types last advanced, as in our Patents No. 522,716, issued

July 10, 1894, and No. 529,446, issued November 20, 1894, or by special devices adapted to meet the requirements of use.

In the drawings the type-floor C is grooved centrally, and a type-shoulder *a*² is formed on each side of each channel, so that the types are supported throughout on both edges, the pusher-blade acting centrally on the heels of the types and between the type-shoulder *a*². If preferred, however, the type-support *a*² may be on one side of the channel only, in which case the position of the pusher-blade P and of the groove *c''* may be varied to correspond.

The operation is as follows: The types and channels being all in place and the pusher-blade P started forward, its front edge *p'* first encounters the heel of the lowest type in the channel B³, pushing it beyond the front edge of the type-shoulders *a*², when the type drops upon the first platform *c*³. As the pusher P continues to advance, carrying the first type forward with it, it next encounters the lowest type in the column in the channel B². When the pusher has advanced as far as the front edge of this type-shoulder *a*², the first type will drop onto the type-platform *c*², and the type just released from the column above will drop onto the first type, as shown in Fig. 3, and so on through the series, until the end of the forward stroke of the pusher presents all four of the types upon the front of the platform, as shown in Fig. 2, upon their flat one upon the other and with their front edges projecting over the edge of the platform to facilitate their removal by the fingers of the compositor.

The side walls of the holder A are formed with the recesses *r r* on either side to allow the types to be withdrawn laterally or with a combined longitudinal and lateral movement which allows the hand to turn easily and naturally in transferring the types to the stick. It will thus be seen that at each forward stroke of the pusher P its front edge detaches a single type from each channel, arranging them successively one upon the other on their flat sides in their proper sequence to form a prescribed word or combination of characters which may be transferred bodily to the stick or otherwise be suitably disposed of.

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

1. The combination of a series of type-containing channels arranged one behind the other in the same plane longitudinally; a series of type-supporting shoulders for sustaining the types in said channels; a series of type-platforms of successively different levels below said type-shoulders; and a type-forwarder arranged to successively detach and forward the types substantially in the manner and for the purpose described.

2. The combination with a series of type-containing channels arranged one behind the

other in the same plane longitudinally, said channels being formed with type-supporting shoulders at their lower ends of less width than the type so as to allow the pusher-blade to pass through the channel; a series of type-platforms of successively different levels below the said type-containing channels; and a type-forwarder arranged and operating to successively detach and forward the types, substantially in the manner and for the purpose described.

3. In combination with a series of type-containing channels arranged one behind the other in the same longitudinal plane; and with a type-forwarder substantially such as described; of a removable type-floor formed with a series of steps or platforms of different heights corresponding approximately to the thickness of the types above for the purpose of effecting the deposit of types successively one upon the other during the forward move-

ment of the pusher, substantially as described.

4. The combination of a series of type-containing channels arranged one behind the other in the same plane longitudinally; a series of type-supporting shoulders for sustaining the types in said channels; a series of type-platforms of successively different levels below said type-shoulders; a type-forwarder arranged to successively detach and forward the types; and the side walls of the channel-holder formed with openings or recesses on either side adjoining the front end of the type-floor for the purpose of admitting of the withdrawal of the types laterally in either direction, substantially as described.

LOUIS KOSSUTH JOHNSON.
ABBOT AUGUSTUS LOW.

Witnesses:

GEORGE WILLIAM MIATT,
D. W. GARDNER.