(No Model.) 5 Sheets—Sheet 1.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 494,572. Patented Apr. 4, 1893.

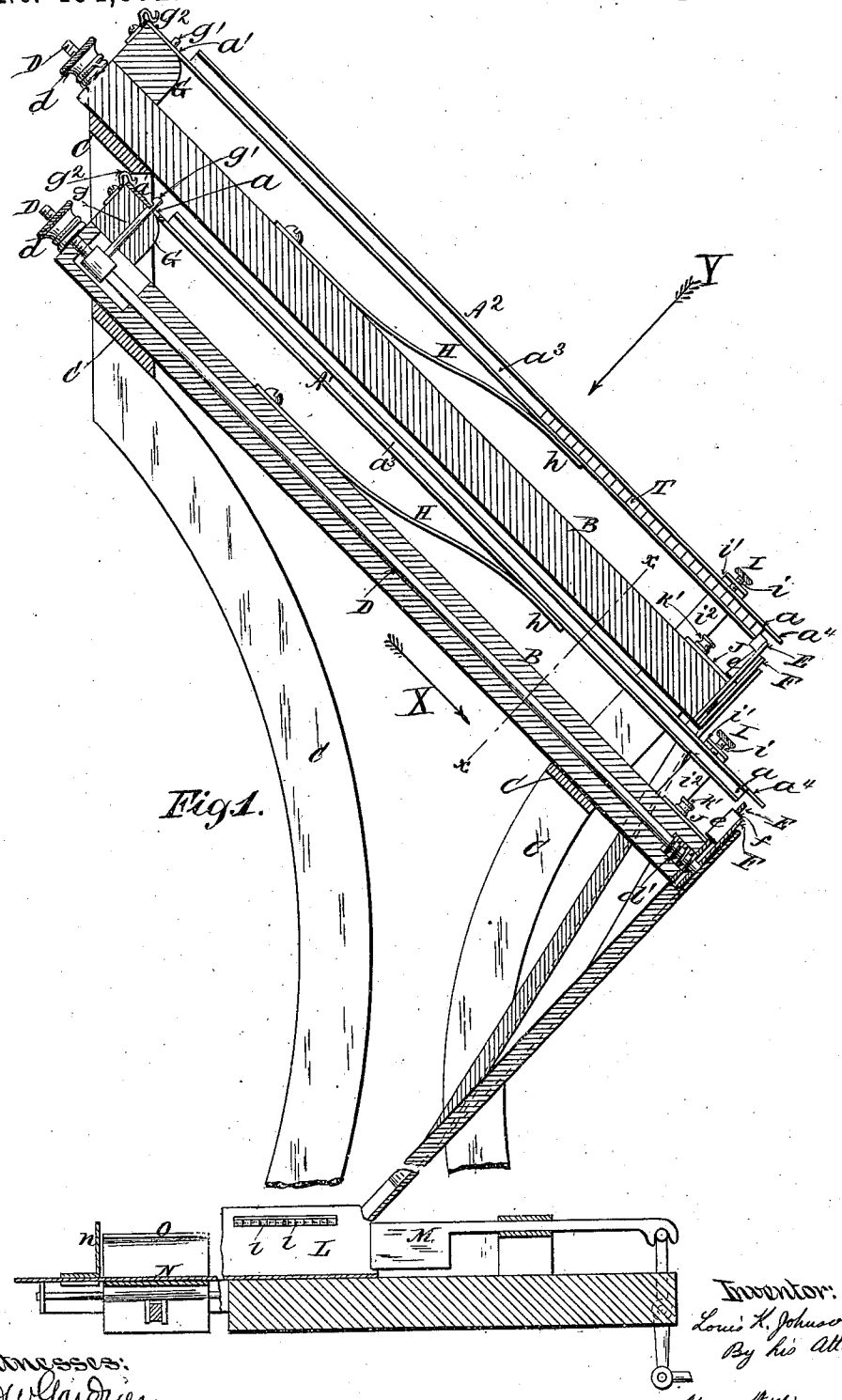

Fig. 1.

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By his Attorney
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(No Model.) 5 Sheets—Sheet 2.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 494,572. Patented Apr. 4, 1893.

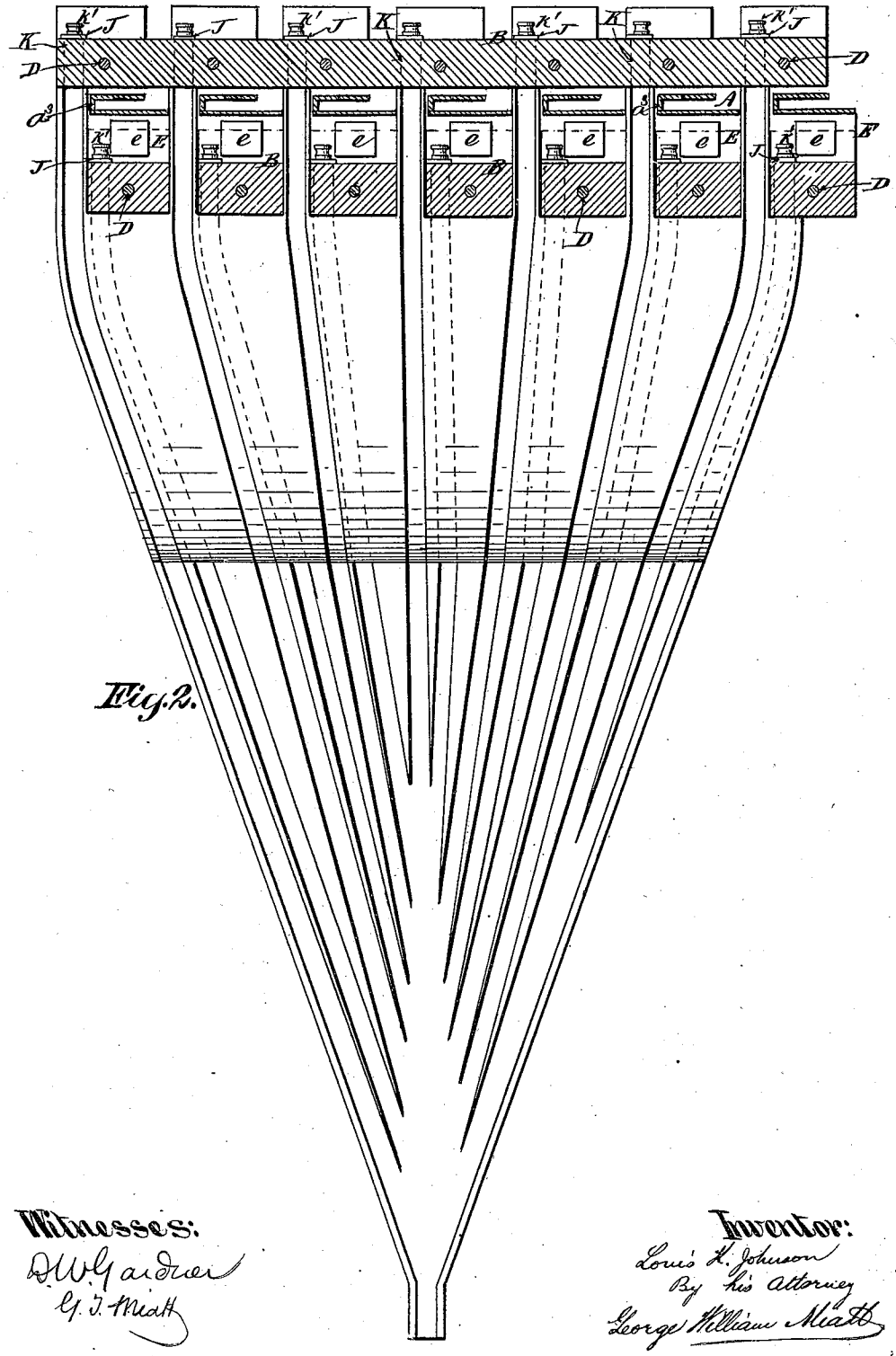

Fig. 2.

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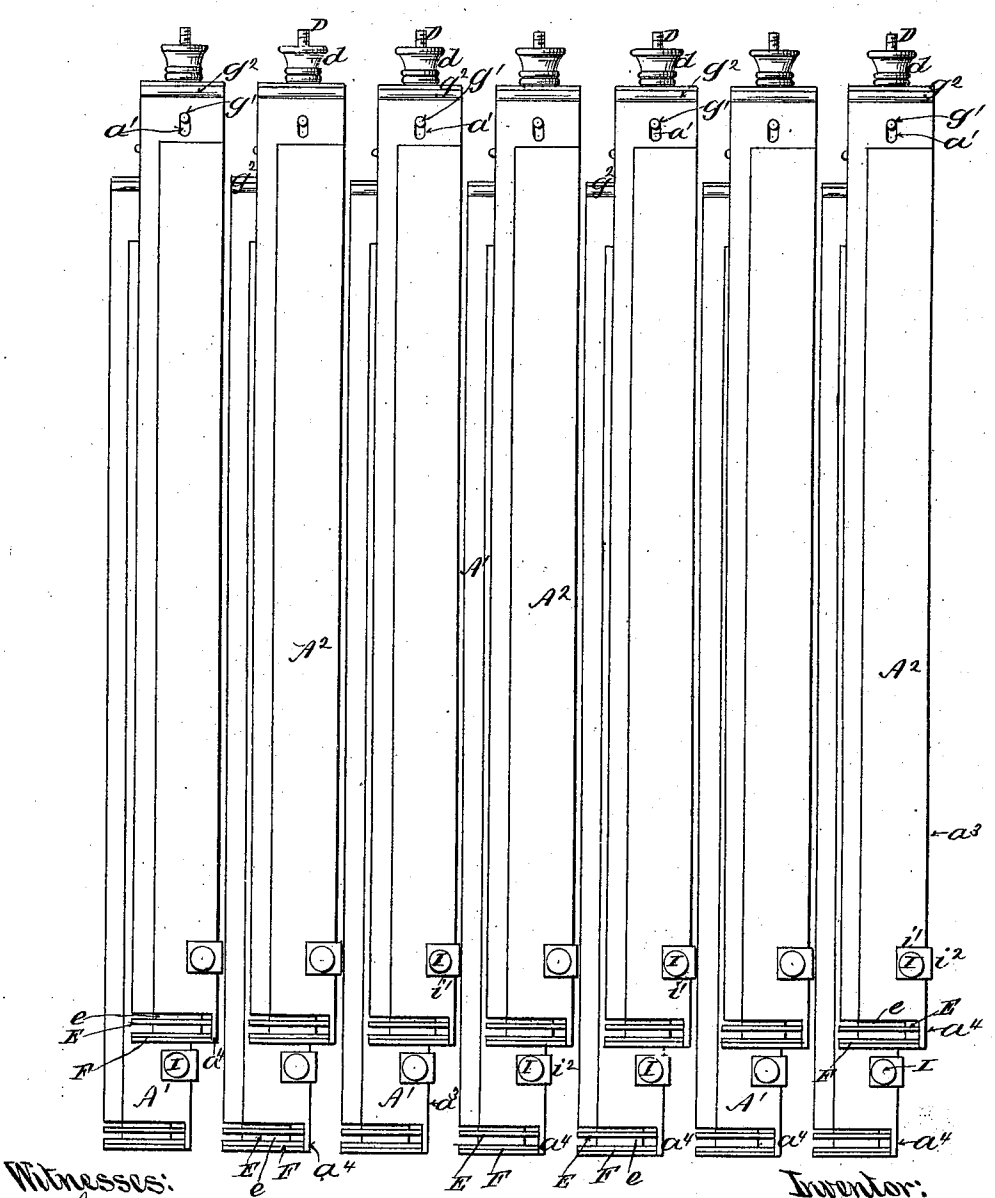
(No Model.) 5 Sheets—Sheet 3.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 494,572. Patented Apr. 4, 1893.

Fig. 3.



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(No Model.) 5 Sheets—Sheet 4.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 494,572. Patented Apr. 4, 1893.

Fig. 4.

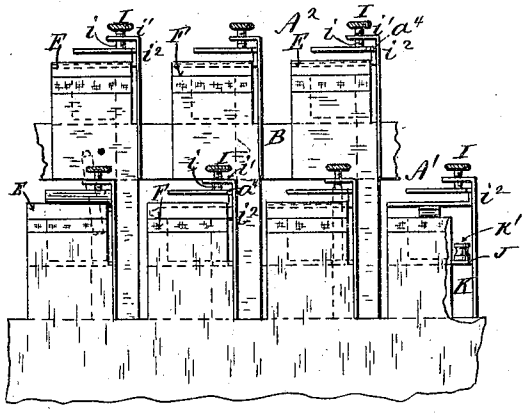


Fig. 5.

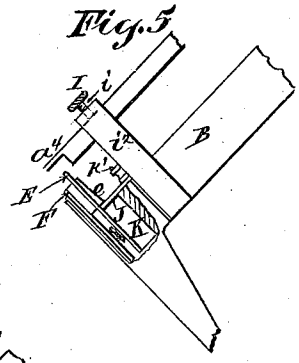


Fig. 6.

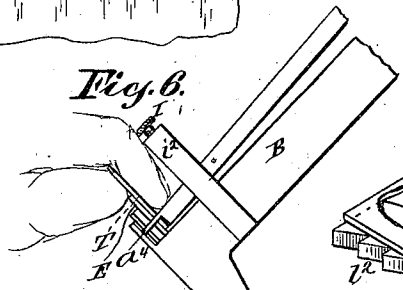


Fig. 13.

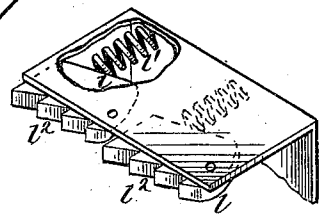
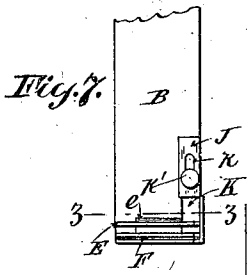


Fig. 12.

Fig. 7.



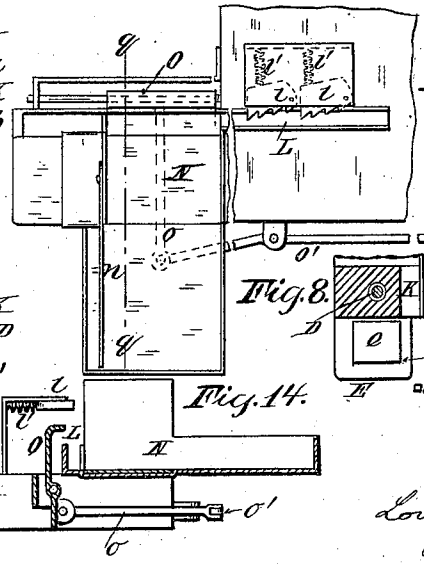


Fig. 10.

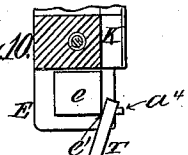


Fig. 9.

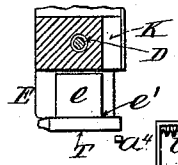


Fig. 8.

Fig. 11.

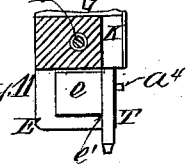


Fig. 14.

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(No Model.) 5 Sheets—Sheet 5.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 494,572. Patented Apr. 4, 1893.

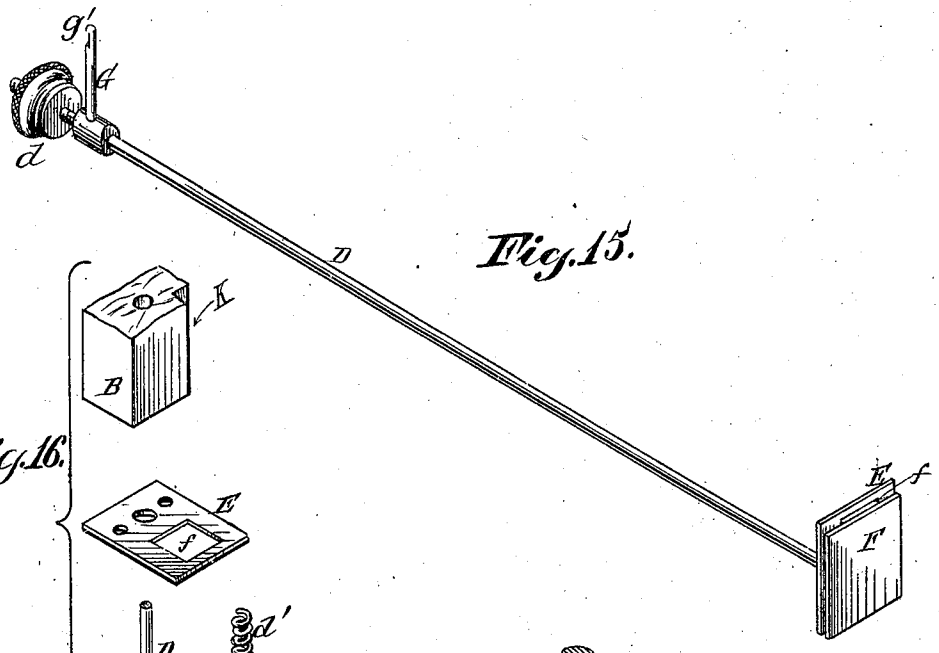

Fig. 15.

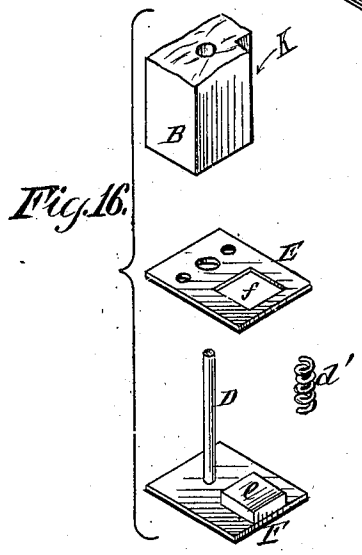

Fig. 16.

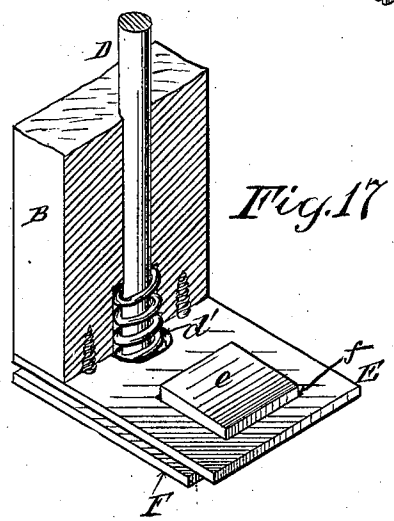

Fig. 17.

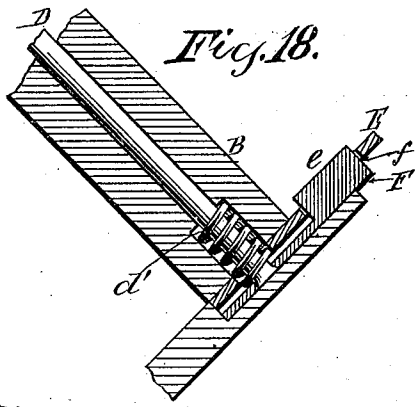

Fig. 18.

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THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LOUIS K. JOHNSON, OF BROOKLYN, ASSIGNOR TO THE ALDEN TYPE MACHINE COMPANY, OF NEW YORK, N. Y.

TYPE-SETTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 494,572, dated April 4, 1893.

Application filed May 7, 1891. Serial No. 391,851. (No model.)

To all whom it may concern:

Be it known that I, LOUIS K. JOHNSON, a citizen 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 it appertains to make and use the same.

My improvements are designed to afford a case which by a simple adjustment may be adapted either for use in setting by hand into the ordinary hand "stick" or for setting the types in a continuous line in a channel in which they may be justified and from which they may be transferred in sub-divisions or lines of required length into a stick or galley forming a portion of the apparatus. The apparatus may thus be used as a single or duplex machine affording employment for two men if required, one for setting and the other for justifying the types, as in the case of the majority of machines of this class, or if from the sickness or absence of one of the men, or for any other cause that would render such a course desirable, the case may be set for use as a simple hand case from which the types may be removed by the fingers from the lower ends of the type channels substantially in the manner set forth in the Letters Patent heretofore issued to myself and A. Augustus Low on this subject.

My invention includes the special construction of parts whereby two or more series or banks of type containing channels, with the type turning mechanism and converging conduits, are arranged with relation to each other in such manner as to effectually utilize and economize space, while each channel, type-turning device, and type conduit is entirely independent of the rest.

A distinguishing feature of my invention consists in making the depression of the lower end of each type-containing channel to detach the lowest type, act to turn and project the latter outward substantially at right angles to its former position in the channel and between the thumb and finger of the operator when it is desired to set by hand or into alignment with the mouth of the type conduit by which it is conducted to the justifying channel when it is desired to follow that method, as hereinafter more fully set forth.

My invention also includes certain special features of construction and arrangement hereinafter specified and claimed for the purpose of effecting the adjustment of the parts to types of different sizes, for receiving and forwarding the types for justification and separation into lines and for other minor purposes.

By my invention all intermediate mechanism, as keys, levers, &c., for operating the types is dispensed with, the type-containing channels themselves constituting the equivalent of such mechanism in detaching and starting the types, &c., and the apparatus being thereby rendered much more simple in construction and operation than the comparatively complicated and expensive machines heretofore used in setting type directly into justifying channels.

In the accompanying drawings I show portions of an apparatus sufficient to illustrate the embodiment of my improvements in practical form, although I do not wish to confine myself to the identical form and construction of parts shown since it is obvious that various modifications may be made in details without departing from the essential features of my invention.

Figure 1, is a vertical section of an apparatus in which two series or banks of type containing channels are arranged one above the other. Fig. 2, is a section upon plane of line x, x, Fig. 1, looking downward in the direction of the arrow X, and illustrating an arrangement of face plates suitable for conveying the types from the setter channels to the justifying channel and galley. Fig. 3, is a front view of a portion of the two series of type containing channels, looking in a plane at right angles thereto as indicated by the arrow Y, Fig. 1; Fig. 4, a view of the under side of several adjoining type supports &c; Fig. 5, a side elevation of one of the type supports, partially broken away; Fig. 6, a view similar to Fig. 5, illustrating the depression of the channel and the grasping of the lowest type; Fig. 7, a front view of a type support, &c., without the channel; Fig. 8, a section on line of z, z,

Fig. 7, showing the type turning finger of the channel also in section; Fig. 9, a similar view illustrating the position of the lowest type before the depression of the channel; Fig. 10, a similar view illustrating the turning of the type during the depression of the channel; Fig. 11, a similar view illustrating the position of the type upon the complete depression of the channel; Fig. 12, a top view of the justifying channel, galley, &c., Fig. 13, an isometrical view of the type-holders in the justifying channel; Fig. 14, a sectional view upon plane of line *q q*, Fig. 12. Fig. 15, is an isometrical perspective of the shoulder and foot plates, adjusting rod, &c.; Fig. 16, an isometrical view of the shoulder plate, foot plate, spring and lower part of support, separated; Fig. 17, an isometrical upon an enlarged scale of the shoulder and foot plates, &c., the lower extremity of the support being shown in transverse section; Fig. 18, a sectional elevation of the parts in a plane at right angles to the plane of section in Fig. 17.

Two series A′, A², of type channels, are shown in the accompanying drawings, A′ the lower, and A², the upper bank, although any desired number of banks may be superposed one over the other in like manner when desired. The supports B, for the channels are inclined upon a suitable frame work C. In the support underneath each channel is a rod D, which is adjustable longitudinally by means of a nut *d*, at the upper end, and a spring *d′*, at the lower end, the office of the latter being to press the rod downward as far as the nut *d*, will allow it to go. The lower end of the rod D, carries the shoulder plate F, formed with the shoulder or abutment *e*. This shoulder *e*, projects upward through a slot or recess *f*, formed in the stationary foot plate E, upon the top of which the column of type rests, in front of the shoulder *e*. A bearing G, is attached to the rod D near the upper extremity by a lateral arm *g*, which also serves as the pin or stud *g′*, upon which the upper end of the type-containing channel is hung. It will thus be seen that by adjusting the rod D, longitudinally the lower end of the type channel and the upper edge of the type shoulder *e*, will be simultaneously adjusted and regulated in position with relation to the fixed type-plate E, secured to the lower extremity of the supports B.

The lower or rear wall of each type containing channel extends upward beyond the narrower front wall thereof, and is formed with an elongated slot *a*, for the reception of the end of the pin or stud *g′*, the extreme upper edge *a′*, of the channel being clamped and held down against the bearing G, by a flat spring *g*², which however does not prevent the insertion or removal of the channel, or swinging downward of the lower end, in use as hereinafter set forth.

A flat spring H, secured to the support B, at one end, sustains the body of the type-containing channel at its other or free end *h*, and presses the channel upward against the adjustable stop I, which is preferably in the form of a screw *i*, projecting through the flange *i′*, of an arm *i*², extending outward from the support B.

It will be seen that owing to the difference in width of the channel side walls the front walls expose the heads of the types upon the left hand side, while the right hand side of the channel is closed by the spine *a*³. The right hand lower corner of each channel is formed with a downwardly projecting spur or finger *a*⁴, corresponding in position to that occupied by the bottom or heel of the lowest type in a column as it rests upon the front edge of the plate E, as will be seen more clearly by reference to Fig. 9, in which the parts are supposed to be at rest. In Fig. 10, the lower end of the channel has been partially depressed, causing the finger *a*⁴, to turn the lowest type T, upon the corner *e′*, of the shoulder *e*, as a fulcrum. In Fig. 11 the complete depression of the lower end of the channel has been effected, and the type T, has been turned one-quarter around, or at right angles to its former position. If the gate J, is closed over the mouth of the conduit K the type T, will remain in the position shown in Fig. 11, until grasped and removed by the thumb and finger as indicated in Fig. 6, but if the gate J, is raised as in Fig. 7, the type will enter and descend through the said conduit K, to the justifier channel L, to be gradually forwarded by the action of the type pusher M, into the galley or stick N. It will thus be seen that by the use of the gates J, the apparatus may be adapted either to hand or machine composition. The gates J, themselves may be constructed in any suitable manner that will enable them to be adjusted to control the mouths of the conduits K. As shown in the drawings they consist simply of slides formed with longitudinal slots *k*, through which pass set screws *k′*, to secure the slides in either position to the face of the support B.

The receiving end of the justifying channel L, is provided with one or more lateral type holders *l*, which while they permit of the advancement of the types in the channel support them during the retractile movement of the forwarding mechanism. These holders *l*, consist of segmental racks pivoted at their ends next to the forwarding mechanism and having their other ends projected more or less into the channel by springs *l′*, so that their ratchet teeth *l*², engage with the types in the channel immediately in front of them as received from the pusher and thereby support the rear end of the line during justification.

The receiving galley N, is provided with an adjustable arm or side wall *n*, which is regulated in position according to the width of line required.

The types as they are justified at the outer end of the channel L, are separated into lines and forwarded in the galley N, by a rocking pusher O, connected by a rod *o*, with the lever

g', which is adapted to be actuated by hand, or by the foot or knee of the operator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a type setting apparatus substantially such as described, the combination of a plurality of independent type containing channels A', A^2, superposed one above the other, each provided with a foot plate E, for support of the type, a rear abutment or type shoulder e, a projection a^4, by which the lowest type in a column is turned upon and around the corner e', of the said type shoulder e, and between it and said channel projection a^4, and thereby separated from the types above when the channel is depressed, and a series of conduits K, for receiving the types so detached and conducting them to a common justifying machine substantially in the manner and for the purpose described.

2. In a type setting apparatus substantially such as described the combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a foot plate E, and a type shoulder e, the whole arranged and operating substantially in the manner and for the purpose described.

3. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, a shoulder e, and means for effecting the adjustment of the said shoulder e, with relation to the said stationary type supporting shoulder substantially in the manner and for the purpose described.

4. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lowest extremity, a stationary foot plate E, a shoulder e, and means for adjusting the said type channel and said back rest simultaneously with relation to the said stationary type supporting shoulder, the whole arranged and operating substantially in the manner and for the purpose described.

5. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, and a shoulder e, of less width than the length of the types for the purpose and substantially in the manner described.

6. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, a shoulder e, and means for adjusting the said channel longitudinally with relation to the said stationary foot plate, substantially in the manner and for the purpose described.

7. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, and a shoulder e, formed with the rectangular corner e', upon which the type is turned by the finger a^4, when the channel is depressed substantially in the manner and for the purpose described.

8. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, a back rest e, and a conduit K, for receiving and conducting the types from the stationary support E, substantially in the manner and for the purpose described.

9. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, a shoulder e, a conduit K, for conducting the type from the stationary support E, and a justifying channel L, the whole arranged and operating substantially in the manner and for the purpose described.

10. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, a shoulder e, a conduit K, and an adjustable gate J, the whole arranged and operating substantially in the manner and for the purpose described.

11. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, and an adjustable suspender block G, for the support of the said channel, the whole arranged and operating substantially in the manner and for the purpose described.

12. The combination of a type containing channel loosely suspended at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, type shoulder e, suspending pin g', retaining spring g^2, and lifting spring H, the whole arranged and operating substantially in the manner and for the purpose described.

13. The combination of a type containing channel suspended loosely at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, type shoulder e, suspender g', lifting spring H, and stop I, the whole arranged and operating substantially in the manner and for the purpose described.

14. The combination of a type containing channel suspended loosely at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, type shoulder e, suspender g', lifting spring H, stop I, and means for adjusting the said stop I, substantially in the manner and for the purpose described.

15. The combination of a type containing channel suspended loosely at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, suspender g', rod D, plate F, formed with shoulder e, adjusting nut d, and spring d', the whole ar-

ranged and operating substantially in the manner and for the purpose described.

16. The combination of a type containing channel suspended loosely at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, and shoulder *e*, a conduit K, for conducting the types from the stationary shoulder E, a justifying channel L, a type holder *l*, a type forwarder M, and a galley N, the whole arranged and operating substantially in the manner and for the purpose described.

17. The combination of a type containing channel suspended loosely at its upper end and formed with a type finger a^4, at its lower extremity, a stationary foot plate E, and shoulder *e*, a conduit K, for conducting the types from the stationary shoulder E, a justifying channel L, a type holder *l*, a type forwarder M, a galley N, and a line forwarder O, the whole arranged and operating substantially in the manner and for the purpose described.

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Witnesses:
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