

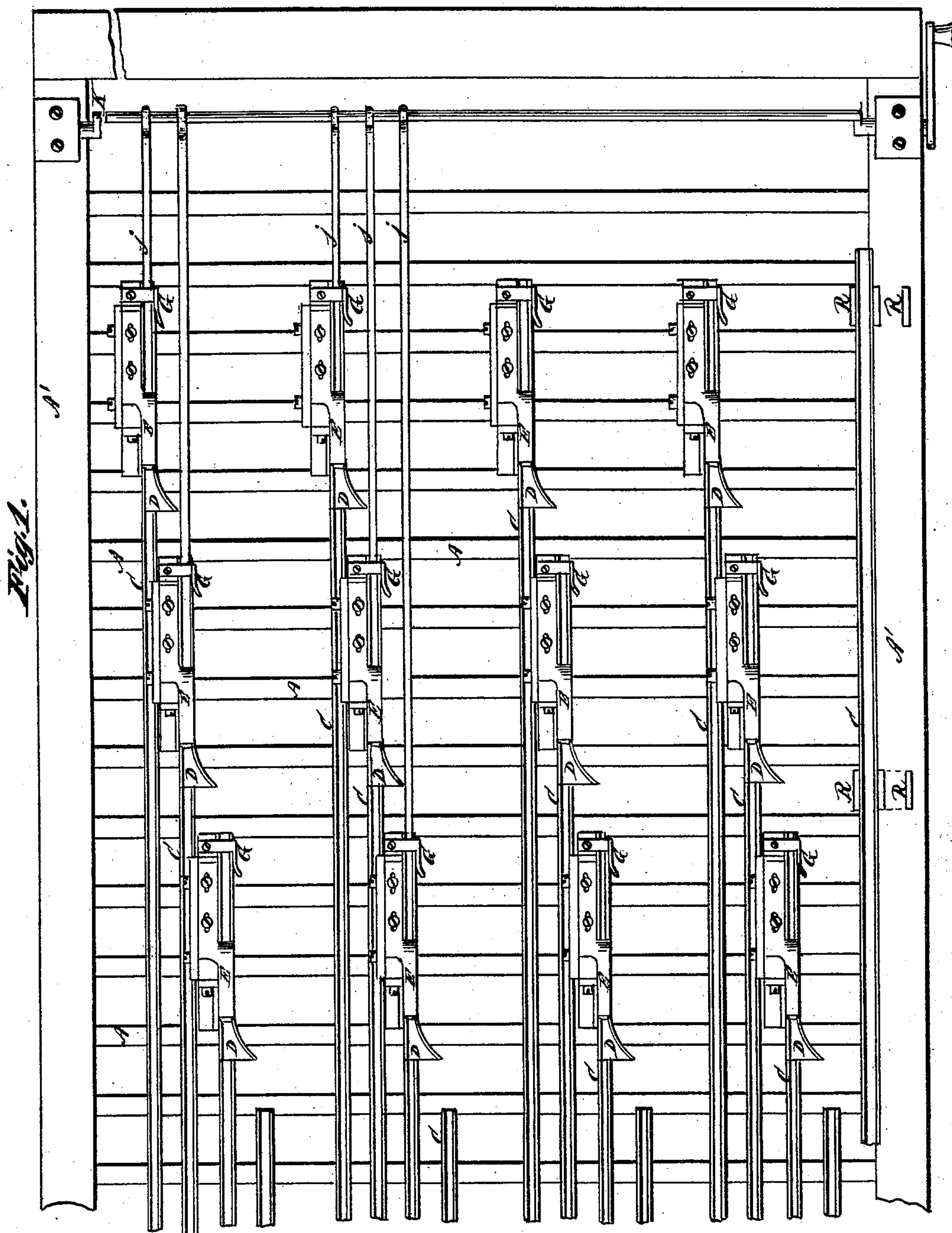
(No Model.)

5 Sheets—Sheet 1.

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

No. 435,564.

Patented Sept. 2, 1890.



Witnesses:
W. Gardner
J. M. Crohan

Inventors:
Louis K. Johnson,
A. Augustus Low.
By their attorney
Geo. H. Malt

(No Model.)

5 Sheets—Sheet 2.

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

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Patented Sept. 2, 1890.

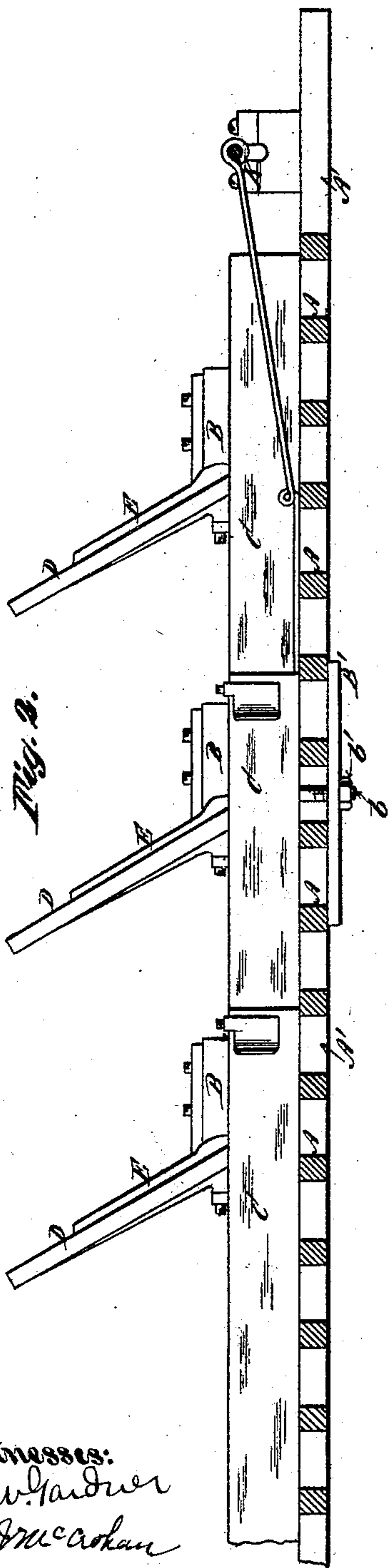


Fig. 2.

Fig. 3.

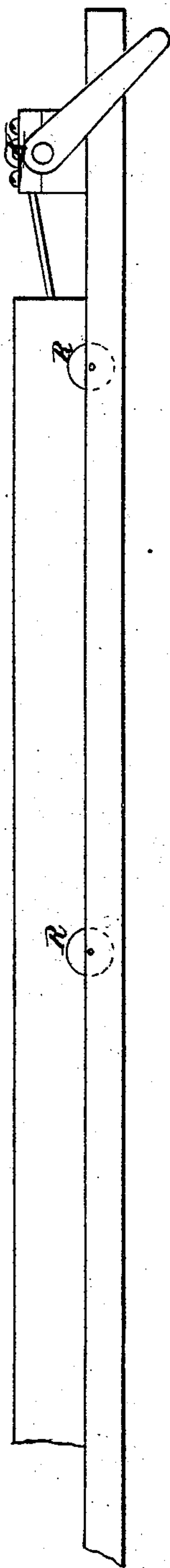


Fig. 4.

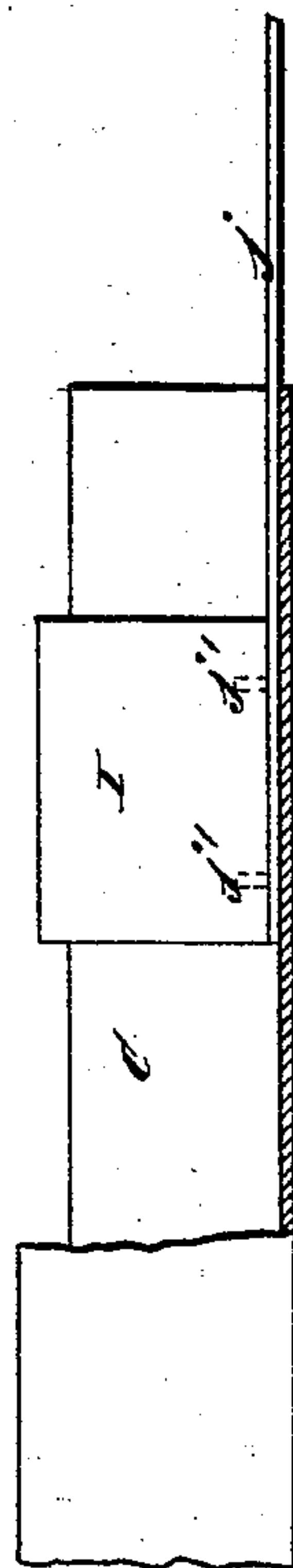


Fig. 5.



Fig. 6.



Fig. 7.



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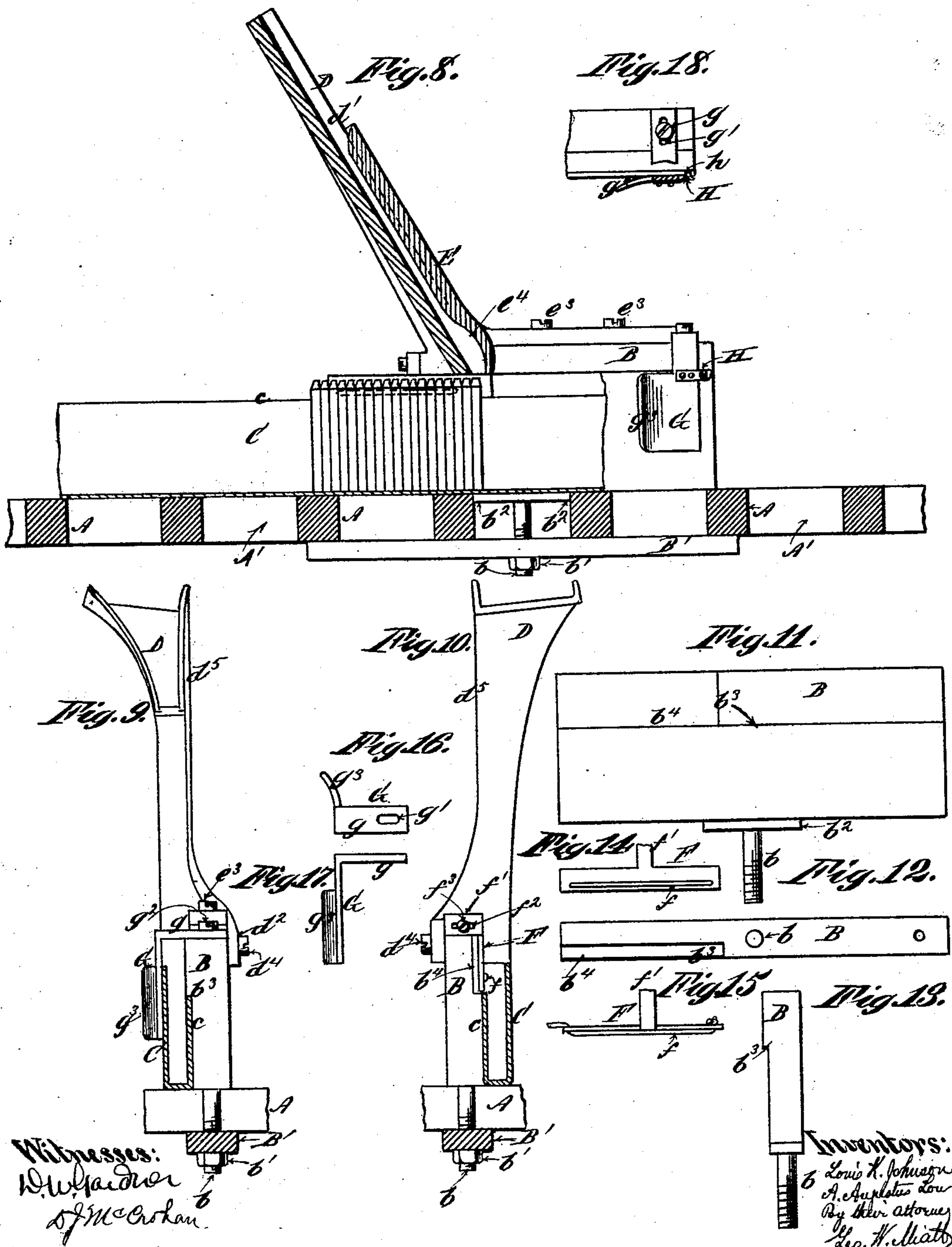
(No Model.)

5 Sheets—Sheet 3.

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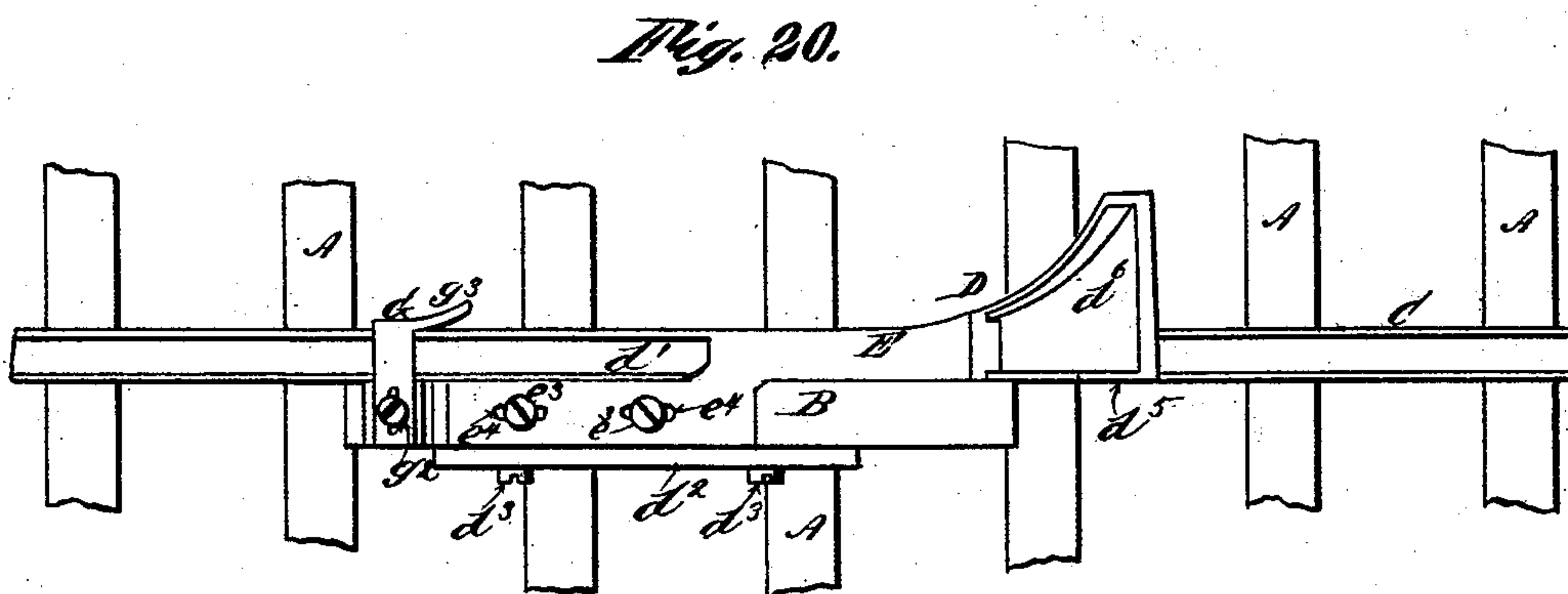
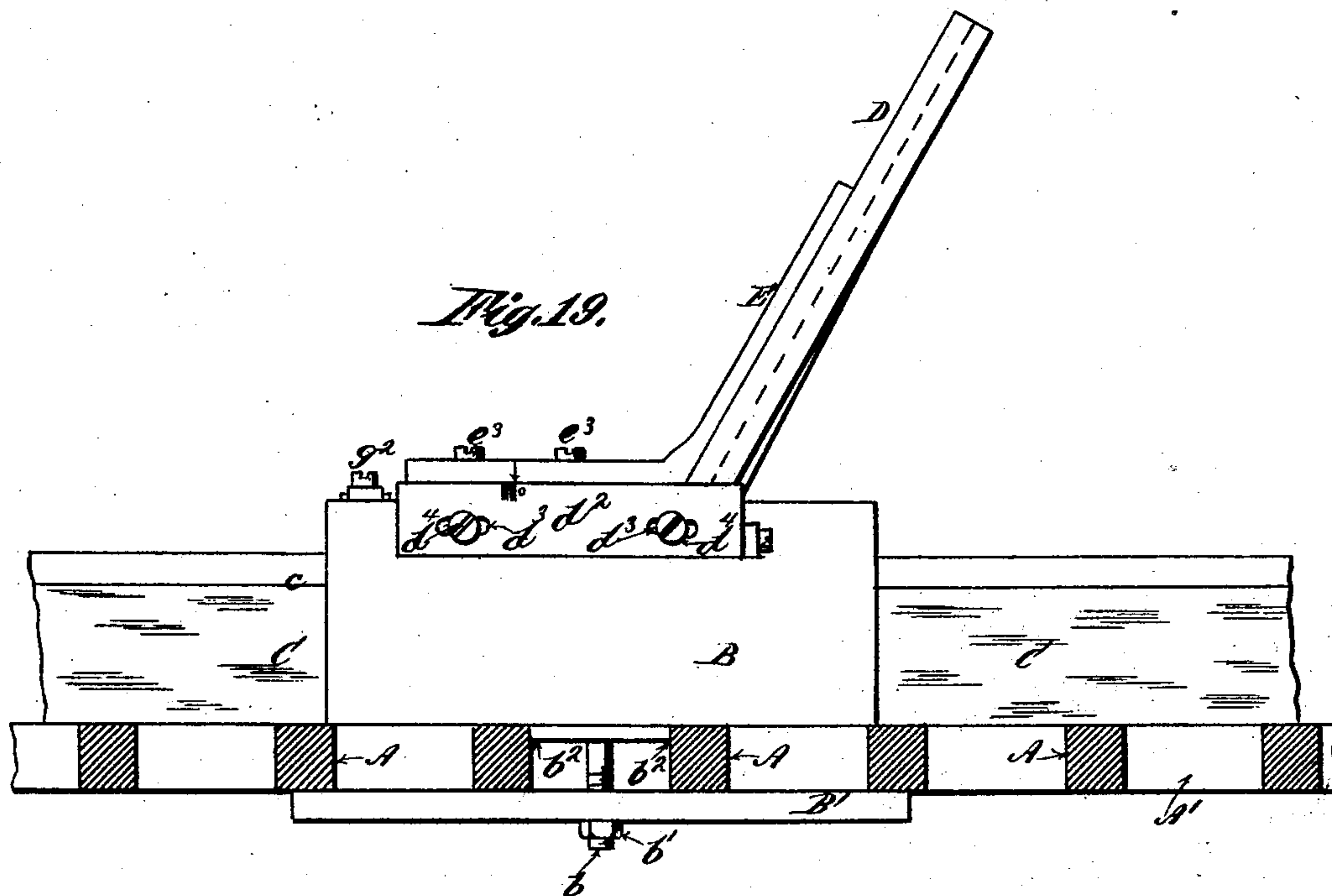
(No Model.)

5 Sheets—Sheet 4.

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

No. 435,564.

Patented Sept. 2, 1890.



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5 Sheets—Sheet 5.

No. 435,564.

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Fig. 21.

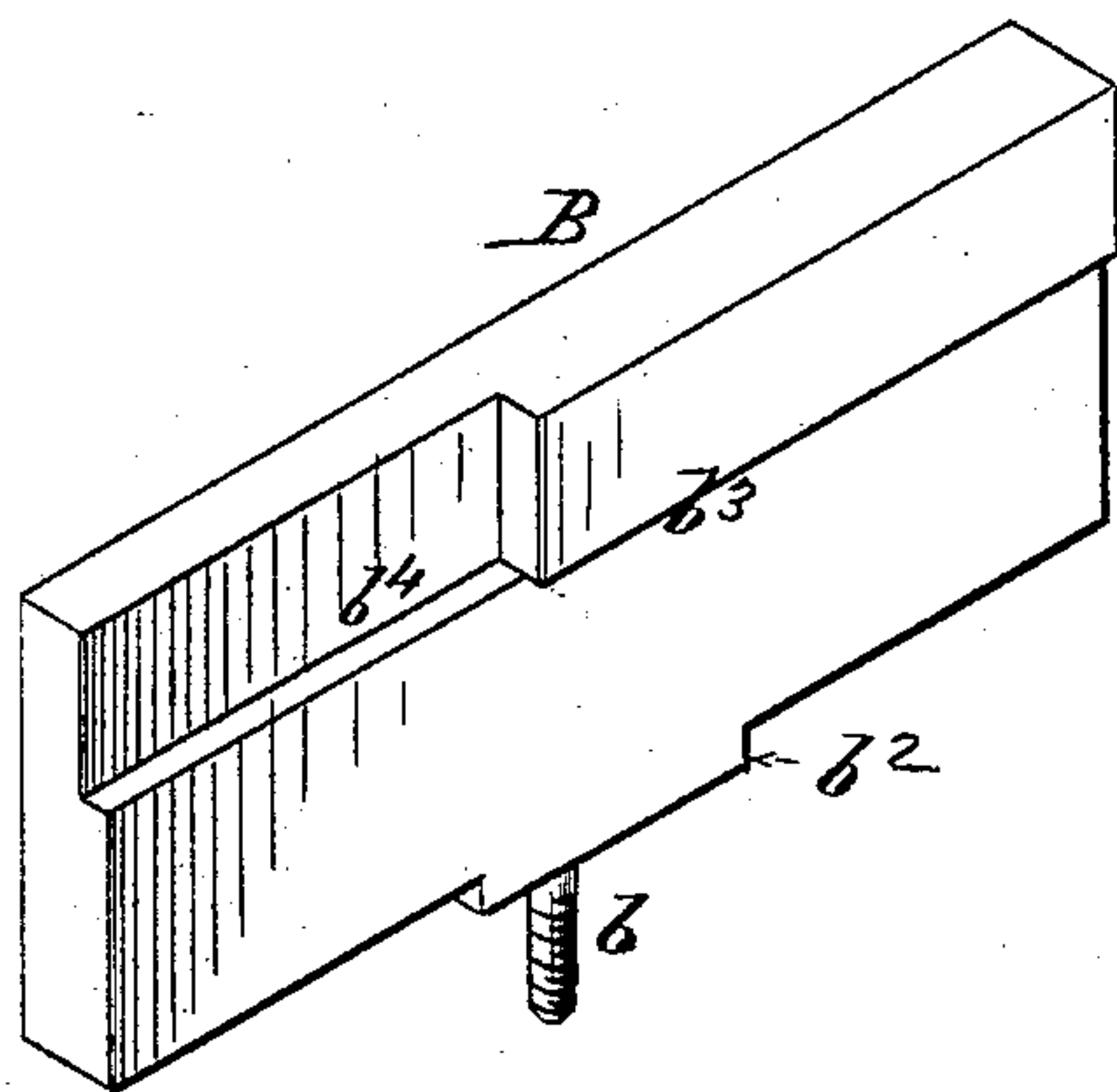
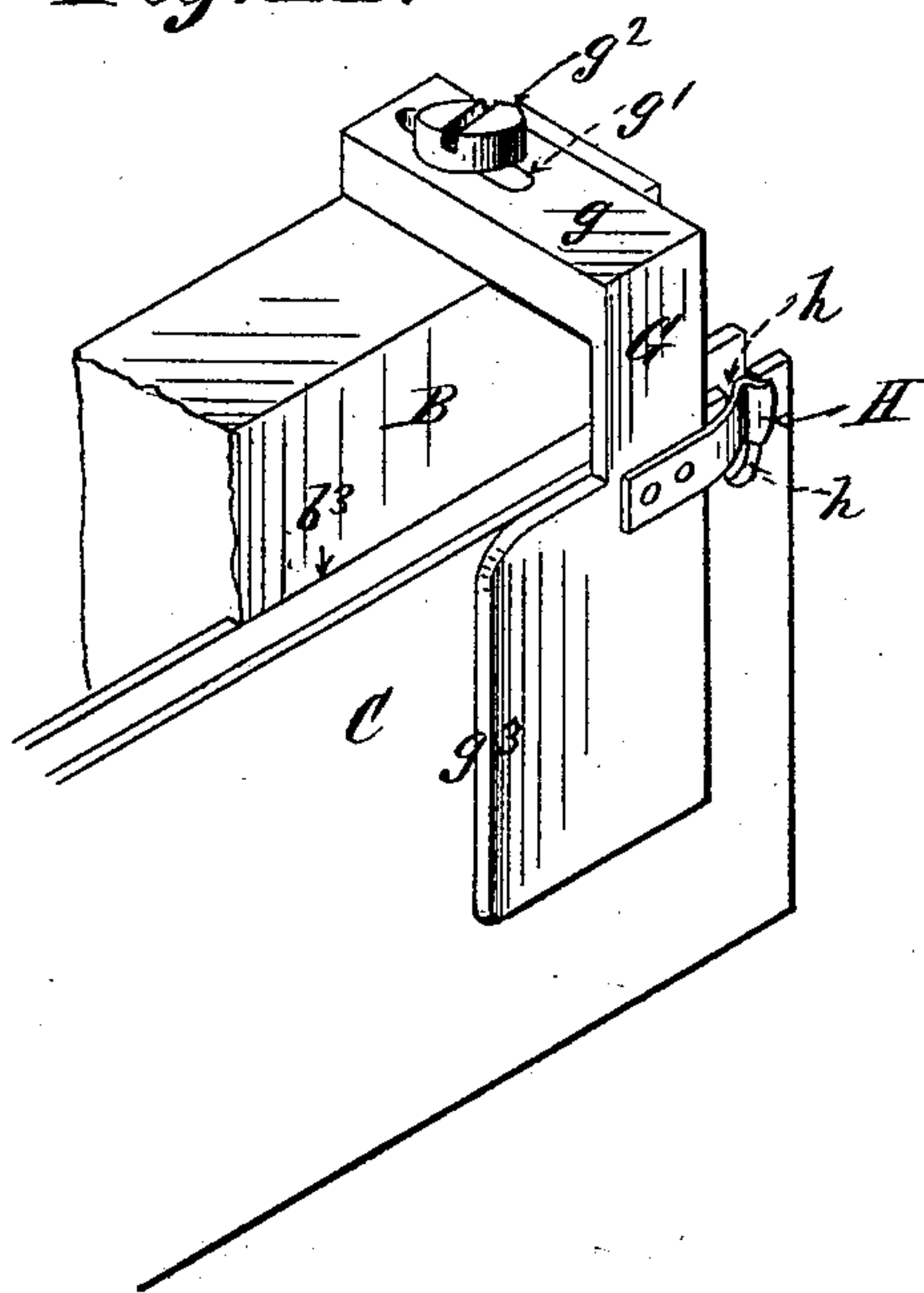


Fig. 22.



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UNITED STATES PATENT OFFICE.

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

TYPE-DISTRIBUTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 435,564, dated September 2, 1890.

Application filed December 27, 1887. Serial No. 259,173. (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-Distributing 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 invention relates to the distribution of types into containing-channels arranged to receive the types from suitable receivers and conduits into which the types are dropped by hand, substantially in the manner set forth in the patents heretofore granted to us for this purpose. Ordinarily in this class of apparatus the receivers are arranged in series or banks connected with each other.

A leading feature of our invention consists in supporting the type-receiving conduits, guards, &c., entirely from the left or rear side of the containing-channels, as the latter are situated upon the bed of the apparatus, leaving their right hand or front sides free and exposed. In this connection our invention involves a special construction of supporting bed or table composed of a series of fixed transverse cross bars or slats situated with relation to each other in such manner as to afford ample support for the standards and channels, while permitting variations in the arrangement of the channels and receivers. The receivers may thus be arranged in series diagonally across the bed or table to facilitate access to the receiving ends of all the containing-channels, or any other arrangement desired by the user may be readily effected.

An important feature of our present invention consists in arranging upon the standards adjoining the type-containing channels adjustable type bearing and sustaining surfaces of some soft or textile material, which project more or less into the type-containing channels at one side, and afford a certain degree of resistance to their passage, sufficient to counteract any tendency to either jump forward, under the impulse of the pusher, or "backlash," from the elasticity of the preceding portions of the lines.

We are aware that in the Letters Patent

No. 360,355, issued to A. Augustus Low, dated March 29, 1887, a type-containing channel formed with a flexible lateral bearing-surface is shown and described, and we confine ourselves herein to the feature of adjustability, the object being to adapt the device to the requirements of different sizes of types and type-containing channels.

Incidentally our invention includes a receiver and conduit, as well as a guard therefor formed with lateral flanges which admit of their attachment and support upon one side of and beyond the type-containing channels, so as to expose the latter throughout its length, excepting at the actual point at which the types are transferred from the receiver-conduit to the channel.

Our invention also includes numerous special features of construction hereinafter described and claimed.

In the accompanying drawings we illustrate operative mechanism for carrying out our improvements, although we do not confine ourselves strictly to the identical form and construction of parts, since it is obvious that various modifications may be introduced without deviating materially from the essential features of our invention.

Figure 1 is a plan of a portion of a type-distributing apparatus embodying our improvements, some of the details of construction being omitted for simplicity; Fig. 2, a vertical longitudinal section of a portion of the apparatus; Fig. 3, an elevation of a portion of the front edge of the apparatus. Fig. 4 is a sectional elevation of the receiving end of a type-containing channel, showing the use of a "slug" as a pusher. Fig. 5 is a view of the under side of a slug adapted for use as a pusher. Fig. 6 is a view of the upper side of the forward extremity of the pusher-rod; Fig. 7, an elevation of the pushing-edge. Fig. 8 is an elevation, partly in vertical longitudinal section, of the receiving end of a type-containing channel and adjoining portions of the apparatus, the plane of section passing through the receiving-conduit and guard above. Fig. 9 is an elevation of a standard, receiving-conduit, &c., looking from the right end of the apparatus. Fig. 10 is a vertical transverse section of a type-containing channel and an elevation of a standard, receiver-

conduit, &c., looking from the left end of the apparatus. Fig. 11 is a front elevation of one of the standards removed from the bed or table of the apparatus. Fig. 12 is a top view of the same; Fig. 13, an elevation of the right-hand extremity of the standard. Fig. 14 is a front elevation of the adjustable flexible type-bearing surface; Fig. 15, a top view of the same. Fig. 16 is a top view of the support for the front sides of the channels; Fig. 17, an elevation of the right-hand edge of the same; Fig. 18, a sectional detail showing the detent for holding the channels against longitudinal movement. Fig. 19 is an elevation of the rear side of one of the standards, receivers, &c.; Fig. 20, a top view of a receiver, standard, &c., and adjoining portions of the apparatus. Fig. 21 is an elevation of one of the receiver-conduits detached; Fig. 22, an elevation of the rear side of same; Fig. 23, a top view of one of the guard-plates detached; Fig. 24, an elevation of the rib side of the said guard; Fig. 25, an elevation of the rear side of same; Fig. 26, a transverse section through one of the conduits and a rib-guard superposed; Fig. 27, an elevation of a reversible form of guard for use where the types to be distributed in the apparatus vary greatly in thickness; Fig. 28, a top view of the same, showing the slats by which the device is adjusted with relation to the receiver-conduit. Fig. 29 is an isometrical view of one of the standards; Fig. 30, a similar view, upon an enlarged scale, of the detent for holding the channels against longitudinal movement, also showing adjoining parts of the apparatus.

The table or bed of the apparatus consists of a number of parallel cross pieces or slats A secured in a suitable frame A'. These slats are arranged transversely and afford support for both the standards B and the type-containing channels C.

The standards B consist, substantially, of a solid block of any suitable material, adapted to be secured to the table A by any suitable means, and to afford bearings or supports for the receiver-conduits D and guards E.

Although we do not wish to confine ourselves strictly thereto, the means shown for securing the standards to the table have the advantage of simplicity, while affording the requisite degree of adjustability. As shown, each standard A is provided upon its under side with a threaded stud or screw-bolt b , of sufficient length to project below the under side of the transverse bars or slats A and engage with the clamping-strip B' by means of the nut b' . Owing to the space between the parallel bars A A, it is obvious that the standard B can be varied in position upon the table within the limits of the area bounded by cross-bars adjoining the stud b , and as the latter may be inserted between any of the cross-bars constituting the table or bed it is thus obvious that we attain a universal adjustment and interchangeability of standards; but in certain cases, since the stand-

ards are all interchangeable and variable in position upon the tables longitudinally, we prefer to form the lower side of each standard with shoulders b^2 b^2 , which project between the adjoining cross-pieces A and gage and centralize the standard, while permitting of its transfer or adjustment laterally.

The front side of each standard B is formed with a horizontal shoulder b^3 , which projects over the upper edge of the low wall c of the type-containing channel C, as will be understood by reference to Figs. 9, 11, 13, 29, and 30. This shoulder b^3 assists in holding the containing-channel in position, and also enables us to widen the top of the standard in order to get as broad a bearing for the receiver-flange d as possible, since the lower parts of the standards are necessarily made as thin as practicable in order to economize space in cross-section and bring all the receivers D within convenient reach of the operator. The front side of each standard B is also formed with a recess b^4 at its upper left-hand edge for the accommodation of the adjustable plate F, carrying the flexible type-bearing surface f . This plate F coincides, when in position, with the shoulder b^3 , and is formed with a rectangular flange f' , by which it is secured in position. The flange f' is formed with a longitudinal slot f^2 , through which the holding and adjusting screw f^3 passes. As shown in the drawings, for convenience the plate F is attached to the rear of the receiver-flange d ; but it is obvious that it may be attached directly to the standard, if preferred. Other means of securing and adjusting it may also be substituted with like result.

The face of the plate F is provided with an elastic or flexible material f , which is designed to project more or less into the path of the types, and by its contact therewith sustain them in position against any tendency to undue motion arising from backlash or other cause, substantially in the manner set forth in Letters Patent No. 360,355, issued to A. Augustus Low, dated March 29, 1887. The feature of novelty in the present case consists, primarily, in making this flexible type-bearing surface adjustable, so as to increase or diminish its frictional contact with the types, or for the purpose of regulating its position with relation to the size of type and channel used, and, secondarily, in affording it an independent support outside of the channel. It will thus be seen that the device is adapted to all sizes of type, while the lateral pressure it exerts upon them may be regulated with greatest nicety. It also enables us to distribute the smaller sizes of types into the larger sizes of containing-channels, since it insures the perfect alignment of the types from the start, and when the line is properly formed it will ordinarily advance in the channel unbroken. It will be noticed that the forward end of the plate F projects slightly beyond the lower end d of the type-receiving conduit D, so that the types are received in

the channel C within the control of the said plate and all objectionable contact with its forward end is avoided. The channel C is held against the standard B by means of a rectangular holder G, which projects from the standard, straddling the channel and bearing against the exterior of its high wall. The holder G is preferably made adjustable upon the standard B to adapt it to type-containing channels of different width. This may be accomplished by forming its horizontal arm g with the elongated slot g' , through which the set-screw g^2 passes, as shown in the drawings, or by any other suitable means. It is desirable to bevel or flare the bearing-surface g^3 of the holder G, in order to facilitate the insertion of the channel C into position between it and the standard B, and although the whole device may be made rigid it is preferable to make the said bearing-plate g^3 flexible, so that it will hold the channel in place with an elastic pressure. It is obvious that the holder G may be supported upon the bed A independently, if preferred, although its attachment to the standard B has the advantage of simplicity and convenience in use.

Situated upon any convenient or desirable portion of the holder G is a catch or detent H for gaging the position of the type-containing channel and preventing its movement longitudinally. The essential feature of this device is such a construction as will enable the detent to automatically engage with a recess or nick in the channel when the latter is brought into proper relation to the standard B, and various forms of spring-catches might be substituted for that shown in the drawings, in which a simple flat metallic spring H is attached, as a matter of convenience, to the holder G, and engages with a nick h , formed in the upper edge of the side wall of the type-containing channel C, as illustrated in Fig. 18.

The receiver-conduit D is mounted upon the standard B by means of a rectangular flange d , projecting entirely upon one side of the conduit d' , so that the latter overhangs the type-containing channel C. The flange d is formed with the vertical extension d^2 , by which it is secured to the standard for the purpose of leaving the top of the flange d free and unobstructed for the attachment of the guard-flange e .

Horizontal slots $d^3 d^3$ are formed in the extension d^2 for the admission of the set-screws $d^4 d^4$, by which the receiver-conduit D is fastened to the standard. This admits of regulating the receiver-conduit upon its standard with relation to the type-forwarding mechanism for the purpose of effecting the final adjustment of parts with convenience and accuracy, the proximate position having been attained by adjusting the standard upon its bed or support, as hereinbefore set forth.

One side d^5 of the conduit d' is made straight, while the opposite side is curved or flared

outward to form the receiver or cup d^6 . The bottom of the conduit d' is also inclined or tilted laterally, as will be understood by reference to Fig. 26, in order to cause the types to descend against the straight side of the conduit, and thereby insure their entrance into the type-containing channel below with precision as regards position.

The guard E is T-shaped in cross-section, as shown in Fig. 26, and other views, its rib e' entering the conduit d , and its side flanges $e^2 e^2$ projecting over the walls of the latter. It is secured adjustably upon the receiver-conduit by means of set-screws $e^3 e^3$, which pass through the elongated slots $e^4 e^4$, formed in the flange e , and bind it down upon the flange d of the receiver-conduit. When set to zero, or for the smallest type to be used, the side flanges of the guard E rest against the side walls of the conduit d , and afford a means of setting the device to that point quickly.

The lower extremity of the guard F, immediately above the end of the conduit-floor, is made with a concave recess e^4 , which allows the type to gradually change its inclination as it descends into the type-containing channel below, thus obviating all undue wear upon the faces of the types and allowing the types to more quickly assume the required position in the channel. Where constantly reciprocating type-forwarding mechanism is used, this last consideration is of especial importance, since it reduces the chances of the heels encountering the upper surface of the pusher. In other words, since types thus descend at once in a practically vertical position into the channel, the time, that of the protrusion of the pusher into their path of descent, is the minimum.

Where a great variety of type is to be distributed, the guard E may be made double and reversible, as shown in Figs. 27 and 28, each end being adapted to certain sizes of types.

The ordinary type-sustainers or slugs I are utilized by us as pusher-fingers in the following manner: Pusher-rods j of suitable length are formed at their inner extremities with projections or shoulders $j' j'$, which are adapted to engage with corresponding holes, notches, or recesses $i i$ formed in one edge of the slug I, which is thereby temporarily attached to the pusher-rod. The slugs I are readily applied or removed, are interchangeable, and their utility as ordinary slugs or type-sustainers is not impaired.

In order to adapt the apparatus for use where power is not available, we actuate the pusher-rods j by means of a crank K, to which they are connected in any suitable manner. When so operated, the pusher-rods j are preferably jointed, as shown in Fig. 2, so that the pushers will move horizontally.

The receivers, &c., are herein shown as arranged facing the right, and the types are ad-

vanced in the type-containing channels toward the left, although the arrangement may be reversed, if preferred.

The temporary channel-rests R R consist of
5 rotatable disks mounted in any convenient position and manner upon the table or bed of the apparatus.

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

10 1. In a type-distributing apparatus substantially such as described, the combination, with a series of movable standards upon which the type-receivers are mounted, and with a
15 series of type-containing channels, of the table or bed consisting of a series of transverse bars or slats with slots or open spaces between them, for the purpose and substantially in the manner described.

2. In a type-distributing apparatus substantially such as described, the combination,
20 with the bed or table consisting of a series of transverse bars A, formed with slots or spaces between them, of a standard B for a type-receiver, &c., provided with a screw-stud b ,
25 clamping-bar B' , and nut b' , substantially in the manner and for the purpose described.

3. In a type-distributing apparatus substantially such as described, the combination,
30 with the bed or table consisting of a series of transverse bars A, formed with slots or spaces between them, of a standard B for type-receivers, &c., formed with the shoulders b^2 b^2 ,
35 and with a clamp for securing it to the said bed or table, substantially in the manner and for the purpose described.

4. In a type-distributing apparatus substantially such as described, a standard B
40 for the support of a receiver-conduit, formed with the longitudinal shoulder b^3 , in combination with a type-containing channel, for the purpose and substantially in the manner described.

5. In a type-distributing apparatus substantially such as described, the combination,
45 with a type-containing channel, of a standard B for the receiver-conduit, provided with a lateral flexible type-bearing surface, substantially such as described, arranged to project into the path of the types, for the purpose and substantially in the manner described.
50

6. In a type-distributing apparatus substantially such as described, the combination,
55 with the type-containing channel, of a flexible type-bearing surface, substantially such as described, which is adjustable laterally with relation to the said type-containing channel, for the purpose and substantially in the manner described.

60 7. In a type-distributing apparatus substantially such as described, the combination, with a type-containing channel, of a standard B for the receiver-conduit, formed with an adjustable lateral type-bearing surface of flexible material, for the purpose and substantially in the manner described.
65

8. In a type-distributing apparatus sub-

stantially such as described, the combination, with a type-containing channel, and with a
70 standard B, formed with the recess b^4 , of the lateral type-bearing plate F, provided with the flexible material f , and secured adjustably upon the said standard by means of a set-screw passing through an elongated slot,
75 substantially in the manner and for the purpose described.

9. In a type-distributing apparatus substantially such as described, the combination, with a type-containing channel, of a standard
80 B upon one side of the channel, formed with a projecting holder or support for the opposite side of the channel, substantially in the manner and for the purpose described.

10. In a type-distributing apparatus substantially such as described, the combination,
85 with a type-containing channel, of a standard B upon one side of the channel, formed with a projecting holder for the opposite side of the channel, which holder is adjustable upon the said standard, for the purpose and sub-
90 stantially in the manner described.

11. In a type-distributing apparatus substantially such as described, the combination;
95 with a type-containing channel, and with the standard B for supporting a receiver-conduit, of the holder G, formed with the vertical bearing-surface g^3 and the elongated slot g' and secured to the holder B by means of the set-screw, for the purpose and substantially in the manner described.
100

12. In a type-distributing apparatus substantially such as described, the combination,
105 with a type-containing channel, of a standard upon one side of the channel provided with a holder for the opposite side of the channel, said holder being formed with a bearing-surface which is yielding or elastic, for the purpose and substantially in the manner described.

13. In a type-distributing apparatus substantially such as described, the combination,
110 with a type-containing channel, of a standard upon one side of the channel provided with a holder, being curved or flared outward, substantially in the manner and for the purpose described.
115

14. In a type-distributing apparatus substantially such as described, the combination,
120 with a type-containing channel formed with a nick or recess in one of its side walls, of a standard formed with a coinciding latch or detent for the purpose of holding the channel against longitudinal movement, substantially in the manner and for the purpose described.
125

15. In a type-distributing apparatus, the combination, with a type-containing channel,
130 of the standard B upon one side formed with the longitudinal shoulder b^3 , and provided with the holder G for the opposite side of the channel, substantially in the manner and for the purpose described.

16. In a type-distributing apparatus substantially such as described, the combination,

with the standard B, situated upon one side of the channel, of the receiver-conduit D, formed with the lateral flange d , for the purpose and substantially in the manner described.

17. In a type-distributing apparatus substantially such as described, the combination, with the standard B, situated upon one side of the channel, of the conduit D, adjustable longitudinally thereon, substantially in the manner and for the purpose described.

18. In a type distributing apparatus substantially such as described, the combination, with the standard B, situated upon one side of the channel, of the conduit D, formed with the lateral flange d , having the elongated slots $d^3 d^3$, and secured to the standard by the set-screws $d^4 d^4$, substantially in the manner and for the purpose described.

19. In a type-distributing apparatus substantially such as described, the combination of a type-containing channel, the standard B, situated upon one side of the type-containing channel, the receiver-conduit D, formed with the flange d , and the guard E, formed with the lateral flange e , substantially in the manner and for the purpose described.

20. In a type-distributing apparatus substantially such as described, the combination of a type-containing channel, a standard situated upon one side of the type-containing channel, a receiver-conduit mounted upon said standard, and an adjustable guard mounted upon the said receiver, substantially in the manner and for the purpose described.

21. In a type-distributing apparatus substantially such as described, the combination of a type-containing channel, a standard situated upon one side of the said type-containing channel, a receiver-conduit D, formed with a flange d , mounted upon said standard, and a guard E, formed with the flange e , having the elongated slots $e^4 e^4$ and set-screws $e^3 e^3$, for the purpose and substantially in the manner described.

22. In a type-distributing apparatus substantially such as described, the combination, with the receiver-conduit D, of a guard E, formed with the rib e' , and lateral flanges $e^2 e^2$, for the purpose and substantially in the manner described.

23. In a type-distributing apparatus substantially such as described, the combination, with a conduit-receiver and with a type-guard adjustable thereon, of a scale and index corresponding to the adjustments to be made for the different sizes of types, substantially in the manner and for the purpose described.

24. In a type-distributing apparatus substantially such as described, the combination, with a type-containing channel, a suitable receiver-conduit with reciprocating rod formed with suitable projections, of a slug or type-sustainer formed with holes or recesses which coincide with the said projections upon the reciprocating bar, for the purpose and substantially in the manner described.

25. In a type-distributing apparatus substantially such as described, the combination, with a series of receivers and type-containing chambers situated upon a suitable bed or table, of a series of lateral rests or supports for type-channels, formed of pivoted disks arranged upon the table in proper relation to each other, substantially in the manner and for the purpose described.

26. In a type-distributing apparatus substantially such as described, the combination, with a type-containing channel, one wall of which is of less width than the other, and with a suitable type-receiving conduit, of a lateral plate or type surface occupying the space between the upper edge of the low wall of the channel and the lower end of the conduit and extending in front of the latter a sufficient distance to afford a continuous unbroken support to the type during its passage from the conduit to the containing-channel, for the purpose and substantially in the manner described.

27. In a type-distributing apparatus substantially such as described, the combination, with a type-containing channel, of a lateral type-bearing surface supported independent of the channel, substantially in the manner and for the purpose described.

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