(No Model.) 6 Sheets—Sheet 1.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 529,497. Patented Nov. 20, 1894.

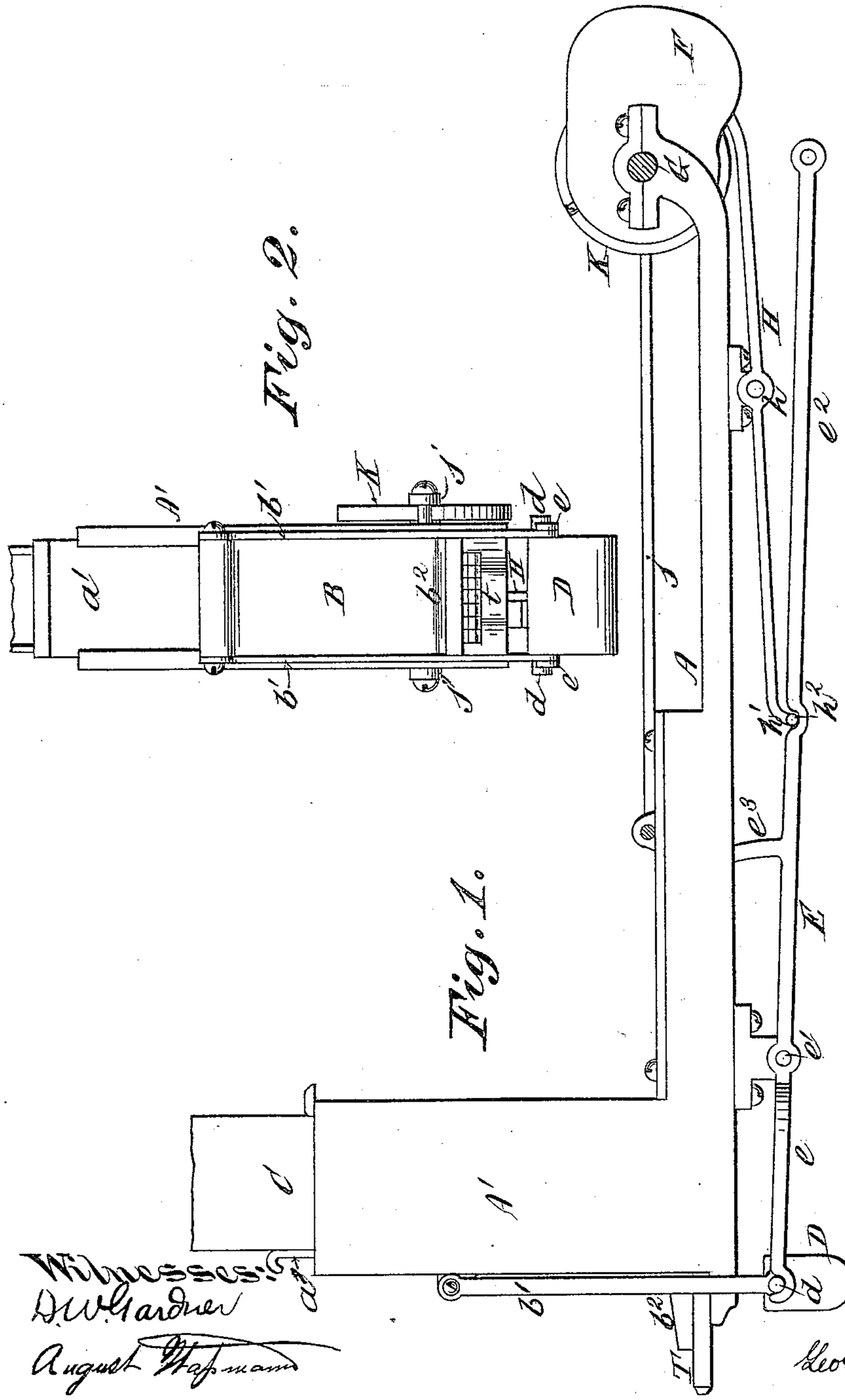

Fig. 2.

Fig. 1.

Witnesses:
D. W. Gardner
August Hofmann

Inventor:
Louis K. Johnson
By his Attorney
George William Miatt

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TYPE SETTING APPARATUS.

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Fig. 4.

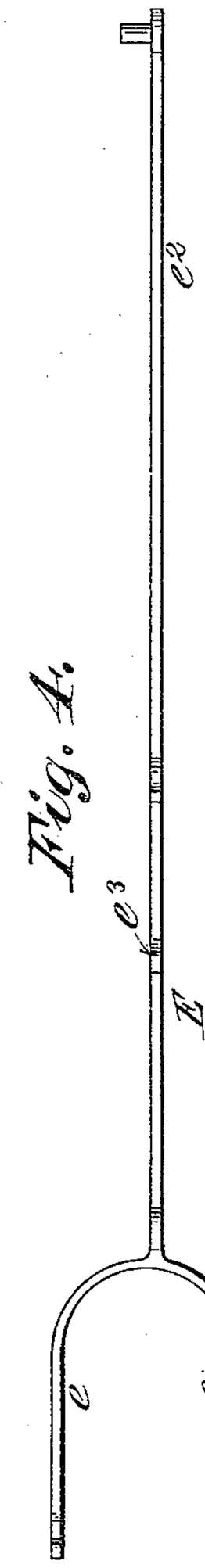


Fig. 3.

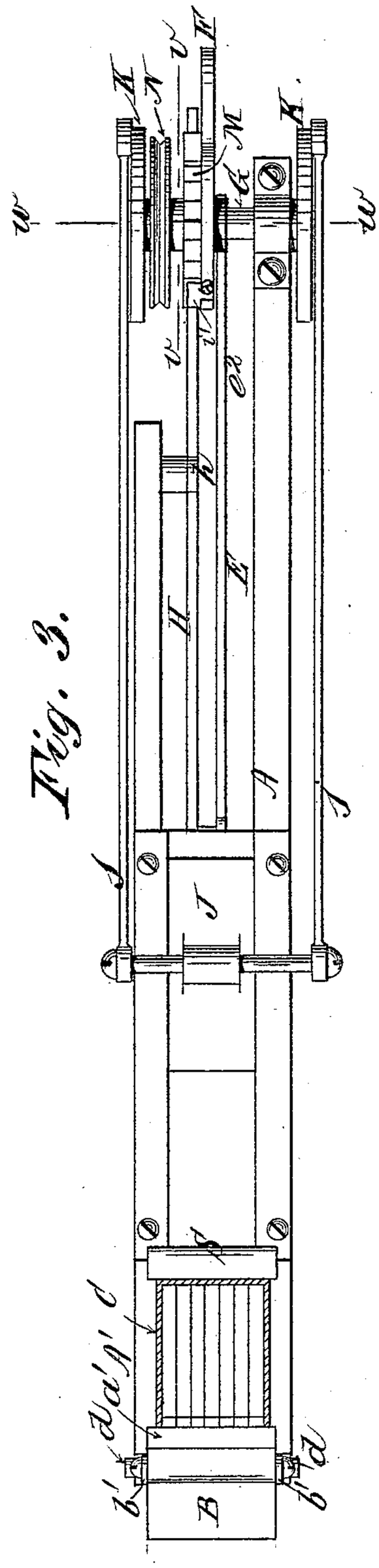


Fig. 6.

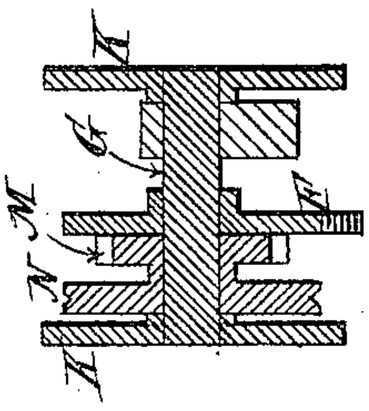
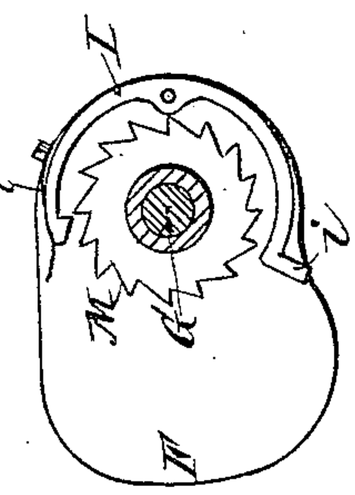


Fig. 5.



Witnesses:
D. W. Gardner.
August Hofmann

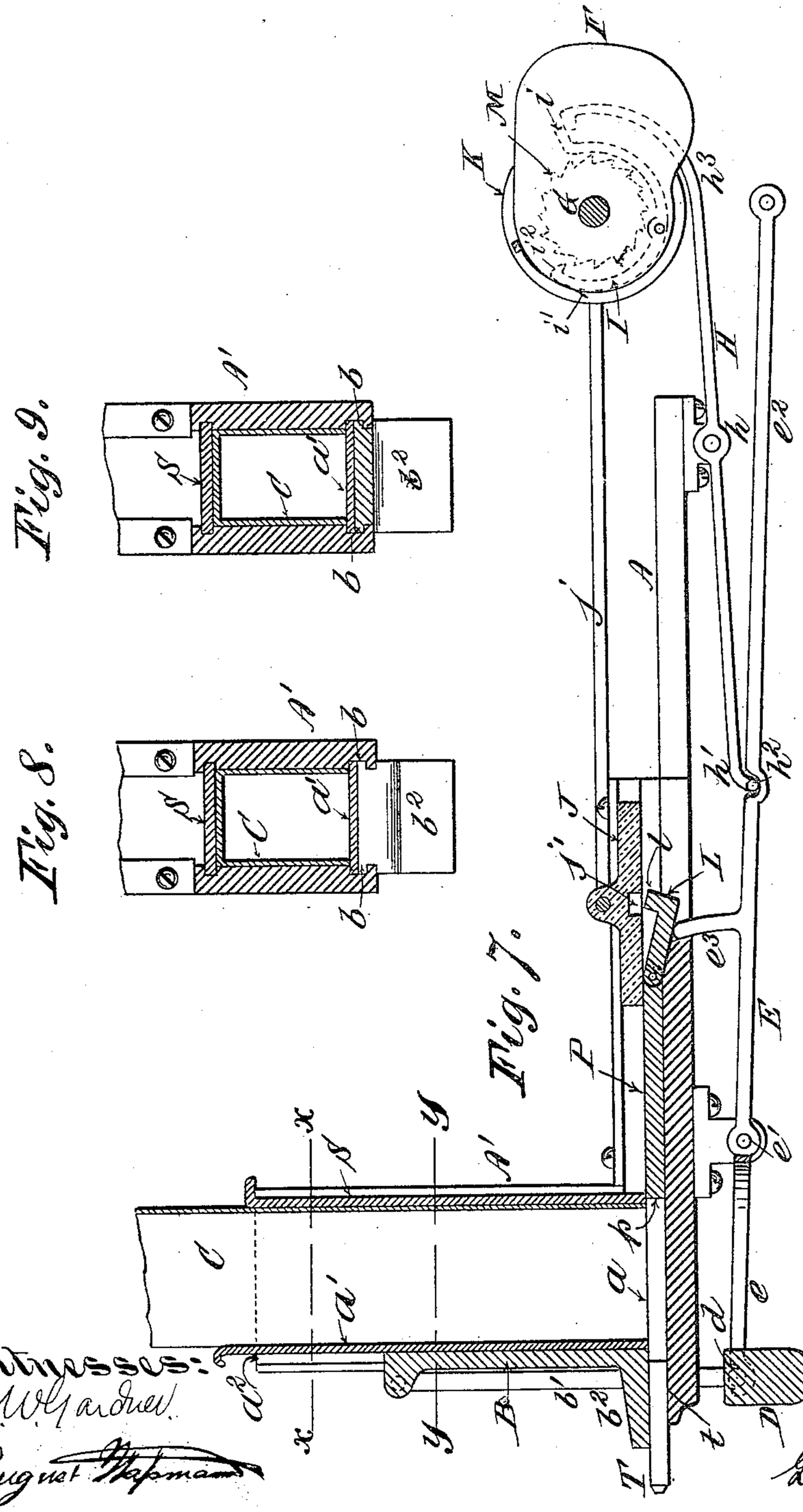
Inventor:
Louis K. Johnson
By his Attorney
George William Miatt

(No Model.) 6 Sheets—Sheet 3.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 529,497. Patented Nov. 20, 1894.



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TYPE SETTING APPARATUS.

No. 529,497. Patented Nov. 20, 1894.

Fig. 12.

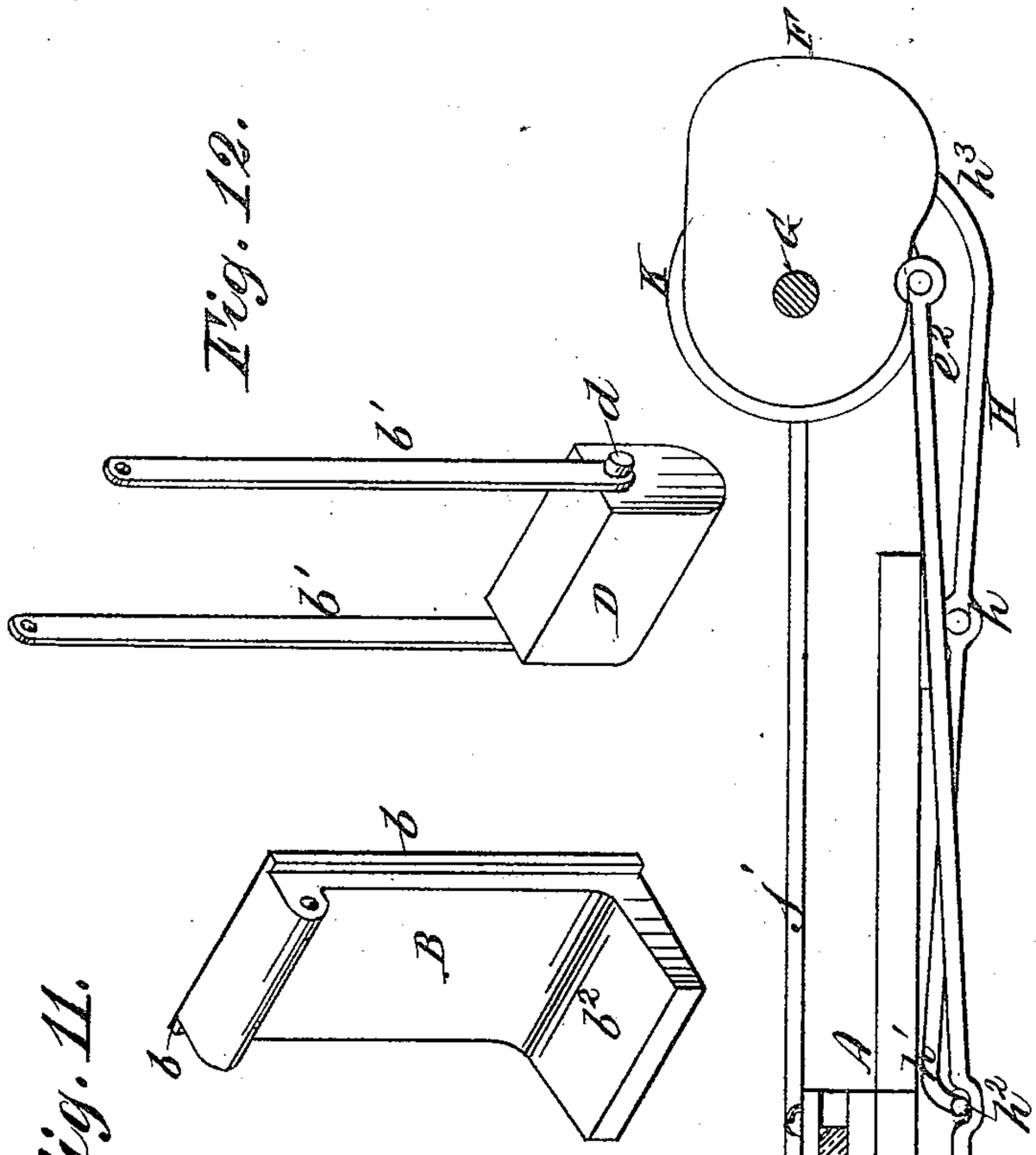

Fig. 11.

Fig. 10.

Witnesses:
D. W. Gardner
August Hafemann

Inventor:
Louis K. Johnson
By his Attorney
George William Mott

(No Model.) 6 Sheets—Sheet 5.

L. K. JOHNSON.

TYPE SETTING APPARATUS.

No. 529,497. Patented Nov. 20, 1894.

Fig. 14.

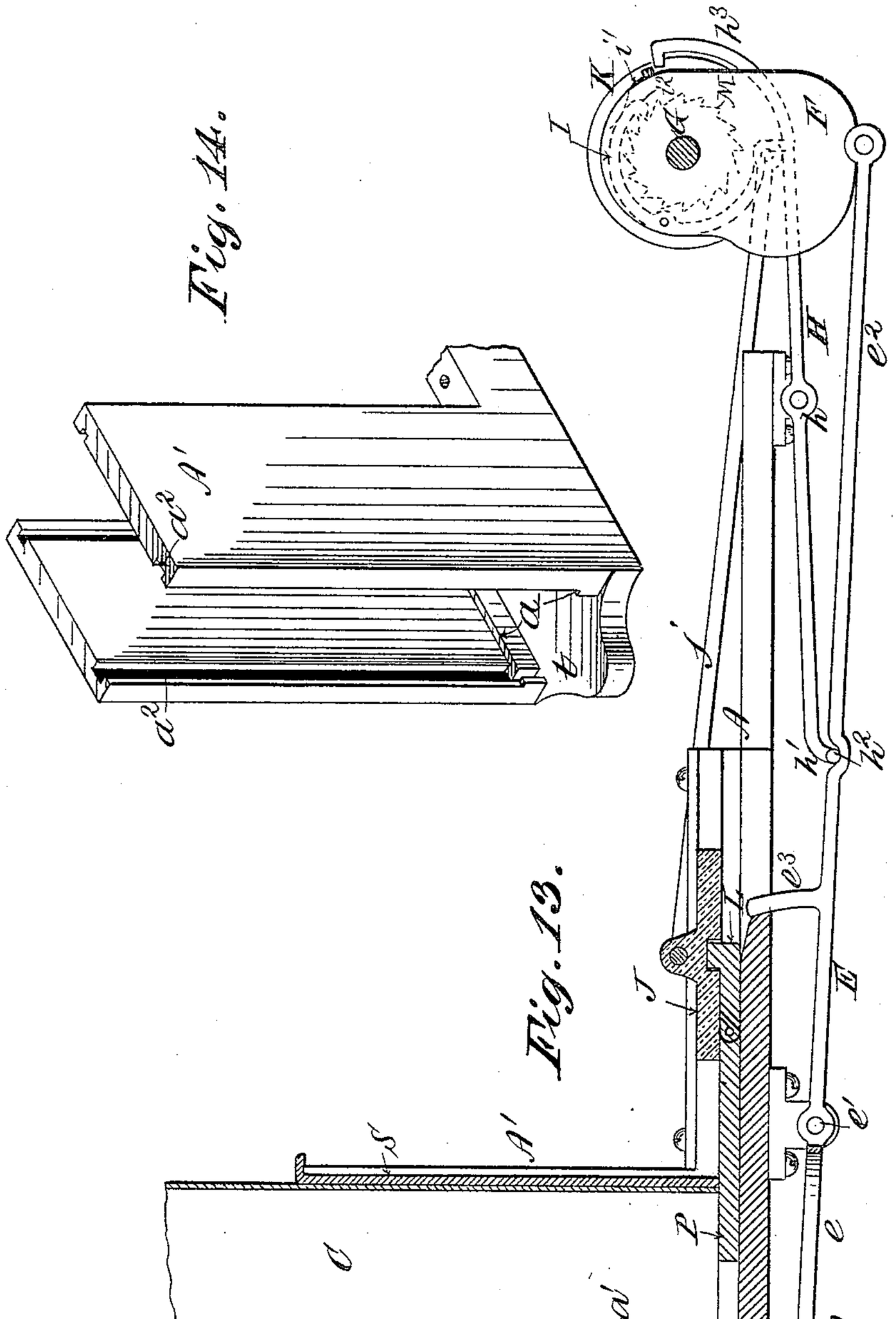

Fig. 13.

Witnesses:
D. W. Gardner.
August Hofmann

Inventor:
Louis K. Johnson
By his Attorney
George William Miall

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L. K. JOHNSON.

TYPE SETTING APPARATUS.

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Fig. 16.

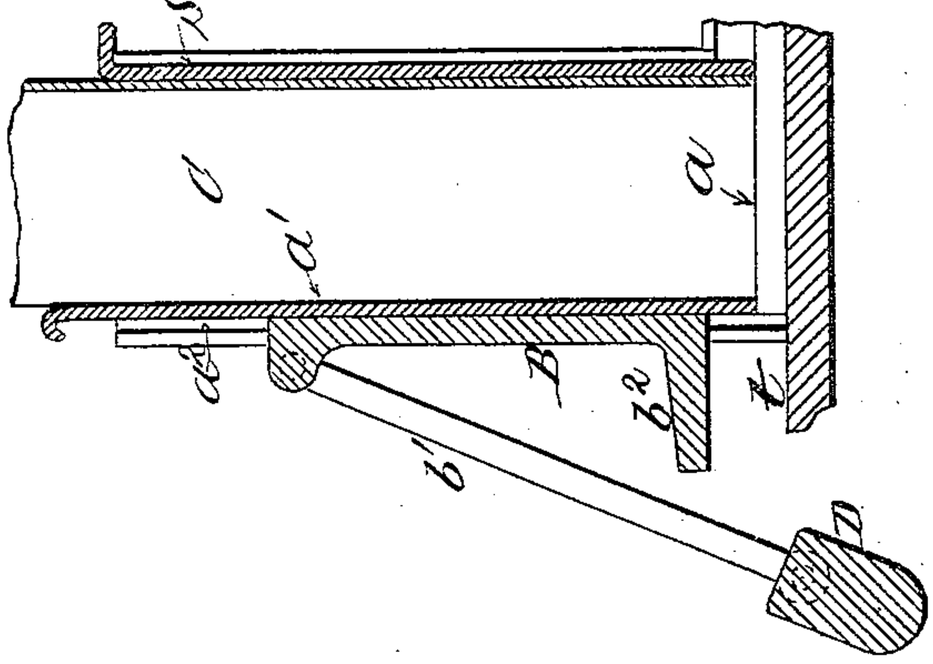


Fig. 15.

Fig. 18.

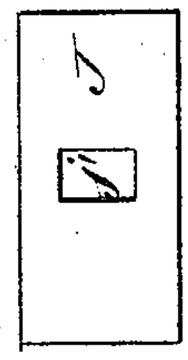
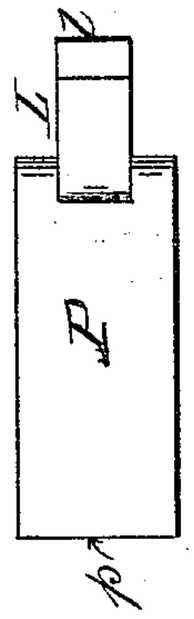


Fig. 17.



Witnesses:
D. W. Gardner.
August Hafemann

Inventor:
Louis K. Johnson,
By his Attorney
George William Mott

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. 529,497, dated November 20, 1894.

Application filed June 27, 1894. Serial No. 515,816. (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 specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My improvements relate to the class of type setting apparatus in which a plurality of types are arranged in prescribed positions with relation to each other in a single type containing channel, (as set forth in my last application, filed June 14, 1894, Serial No. 514,505,) from the lower end of which channel they are forwarded into position to be grasped by the fingers of the compositor for removal to the stick.

My improvements also relate especially to the construction of apparatus set forth in the application of Johnson and Low, filed April 9, 1894, Serial No. 506,876; and the invention consists in the special construction and arrangement of parts hereinafter described and claimed.

Distinguishing features of the present invention consist in the use of a single type containing channel for a plural number of types, and hence the use of a straight instead of a concave pusher,—the necessity for converging the types on the type platform being avoided; the use of a counterweight below the type platform coupled to the bearing plate above; and the means for automatically releasing and stopping the type forwarding mechanism.

In the accompanying drawings, Figure 1, is a side view of my improved apparatus; Fig. 2, a front elevation; Fig. 3, a plan; Fig. 4, a detail of the controlling lever; Fig. 5, a section upon plane of line *v*, *v*, Fig. 3; Fig. 6, a section upon plane of line *w*, *w*, Fig. 4; Fig. 7, a central longitudinal section, the parts being at rest; Fig. 8, a horizontal section upon plane of line *x*, *x*, Fig. 7; Fig. 9, a horizontal section upon plane of line *y*, *y*, Fig. 7; Fig. 10, a central longitudinal section with the parts in the position they assume immediately after the withdrawal of the types; Fig. 11, an isometrical view of the type holder; Fig. 12, a similar view of the counterweight; Fig. 13, a central longitudinal section showing the parts during the forwarding of the types; Fig. 14, an isometrical view of the channel holder; Fig. 15, a central longitudinal section showing the parts at the end of the forward stroke of the pusher; Fig. 16, a sectional view showing the swinging out of the counterweight; Fig. 17, a plan of the type pushing plate; Fig. 18, a view of the under side of the reciprocating pusher bar.

In the drawings A, represents portions of a stationary frame or support of suitable construction. Each channel holder A′, consists of a socket piece of rectangular form, adapted to hold a single wide channel C, capable of accommodating two or more columns of types of different denominations arranged relatively so as to compose a word when taken horizontally.

The channel C, is supported in the socket holder A′, in any convenient manner. In the construction shown in the drawings seats *a*, *a*, are formed in the inner side walls of the sockets A′, upon which the lower edges of the side walls of the type channel C rest.

The front of the socket piece A′, is closed with a flat guard *a*′, sliding vertically in grooves a^2, a^2, formed in the side walls at or near their front edges. These grooves are made sufficiently wide to receive the vertical tenons *b*, *b*, upon the type holder B, so as to retain the latter in position in front of the socket piece A′, while allowing it free vertical movement. The holder B, is connected by swinging arms *b*′, *b*′, with a counterweight D, below the type platform *t*, said weight being pivotally supported between and upon the lower ends of the said arms *b*′, *b*′.

The forward portion of the controlling lever E is bifurcated, the ends *e*, *e*, resting under the trunnions or pivots *d*, *d*, on the counterweight D. The controlling lever E is fulcrumed at *e*′, to a stationary part of the apparatus, its rear arm e^2, extending back to a position below the cam F, on the shaft G. An intermediate lever H, is pivoted to a stationary part of the apparatus at *h*, its forward end *h*′, resting upon the controlling lever at h^2, while its rear arm h^3, is bent upward and en-

gages the projecting end *i*, of the spring pawl I, when the rear arm e^2, of the controlling lever E is depressed.

The pusher P, consists of a flat plate having a straight front edge *p*. Pivotally connected to the rear of the pusher plate P, is a latch L, which tends constantly to swing downward into the position shown in Fig. 7.

The reciprocating forwarder J, which is actuated through the medium of the pitmen *j*, by the disk-crank K, whenever the latter are rotated by the shaft G, is formed with a recess *j'*, in its under side adapted to receive the tongue *l*, of the latch L, when the plate P, and the forwarder J, are brought into proper relation to each other. This occurs at the end of the retractile stroke of the forwarder J, as illustrated in Fig. 10. If there are types T in position on the front of the type platform *t*, the foot b^2, of the holder B, is held up by them away from the type supporting platform *t*, as shown in Figs. 1, 7, 13 and 15.

When the types are withdrawn from the platform *t*, by the fingers of the compositor the holder B, drops until its foot b^2, rests upon the type platform *t*, as shown in Fig. 10. As the holder B, and weight D, descend they depress the outer or front end *e*, of the controlling lever E, thereby rocking said lever on its pivot *e'*, and elevating the rear end e^2, of the said lever. The elevation of the rear arm e^2, of the lever E, causes its arm or spur e^3, to raise the latch L so that its tongue *l*, enters into the recess *j'*, in the under side of the forwarding bar J, as shown in Fig. 10. Simultaneously the raising of the inner end e^2, of the controlling lever E, rocks the intermediate lever H, on its fulcrum *h*, so as to release the end of the spring pawl I, and allow its spring *i'*, to force its opposite end i^2, into engagement with the ratchet wheel M. Since the pawl I, is attached to the side of the cam F, which, together with the crank K, is secured rigidly to the shaft G, while the ratchet M, is attached to the power pulley N, which is loose upon the said shaft G, it follows that the engagement of the pawl I, with the ratchet M, causes the rotation of the shaft G, and the disks K and the cam F. As a result the pitmen *j*, start the forwarding bar J, forward immediately, the latch L, being carried forward with it onto the horizontal type floor, thereby insuring the locking together of the forwarder J, and the pusher plate P, until the end of the retractile stroke.

When the front end of the controlling lever E, is depressed by the holder B, and weight D, as before described, the rear end e^2, of the controlling lever E, is thrown up into the position shown in Fig. 10. As the rotation of the shaft G, begins the periphery of the cam F, encounters the rear end of the controlling lever E, depressing said rear end, and elevating its forward end *e*, together with the counterweight and holder B, so that the foot b^2, is raised above the type platform *t*, and sustained in that position until the forward stroke of the pusher plate P has advanced the types into position under the foot b^2, when the continued rotation of the shaft G, carries the cam surface beyond the inner end e^2, of the controlling lever E, and allows the weight D and holder B, to descend until the foot b^2, rests upon the types T. This returns the controlling lever to the first position, with the spur e^3, below the position of the latch L, when depressed, so that as soon as the forwarder plate P, and the bar J, reach the end of the retractile stroke the tongue *l*, of the latch drops out of the recess *j'*; while the rear end h^3, again protrudes into the path of the end *i*, of the spring pawl I, so as to rock the latter out of engagement with the ratchet M at the end of the rotation, and thereby release the shaft G, from the power pulley N.

When it is desired to gain access to the lower end of the type channel C, and socket A', the weight D, is swung forward so as to clear the front of the type platform *t*, when the holder B, may readily be elevated and withdrawn if required. The rear of the socket piece A', is provided with a vertical slide S, for convenience in inserting or removing the type channel C.

When it is desired to remove the holder B, from in front of the channel holder A', the weight D is swung forward upon the pivoted arms *b'*, until it clears the front of the type platform *t*, as illustrated in Fig. 16.

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

1. In type setting apparatus the combination of an independently supported type containing channel, a type platform, a type forwarder resting upon said platform, means for reciprocating said type forwarder, a type holder and suspended counterweight, and a controlling lever operated by said type holder and counterweight to release the reciprocating mechanism, substantially in the manner and for the purpose described.

2. In type setting apparatus, the combination of an independently supported type containing channel, a type platform, a type forwarder resting upon said platform, means for reciprocating said type forwarder, a type holder and suspended counterweight, a controlling lever operated by said type holder and counterweight, and an intermediate lever for engaging and disengaging the reciprocating mechanism, substantially in the manner and for the purpose described.

3. In type setting apparatus, the combination of an independently supported type containing channel, a type platform, a type forwarder resting on said platform, means for reciprocating said type forwarder, a type holder, and suspended counterweight, a controlling lever operated by said type holder and counterweight to release the reciprocating mechanism, and a cam rotating with said reciprocating mechanism which acts upon the controlling lever to raise the counterweight

and holder to allow the types to pass under the latter, substantially in the manner and for the purpose described.

4. In type setting apparatus, the combination of an independently supported type containing channel, a type supporting platform, a type forwarder resting upon said platform, means for reciprocating said type forwarder, a type holder and a counterweight united by swinging arms, the counterweight being detachably secured to the controlling lever so that the counterweight may be swung out beyond the end of the type platform, and said controlling lever operated by said type holder and counterweight to release the reciprocating mechanism, substantially in the manner and for the purpose described.

LOUIS K. JOHNSON.

Witnesses:
D. W. GARDNER,
GEORGE WILLIAM MAITT.