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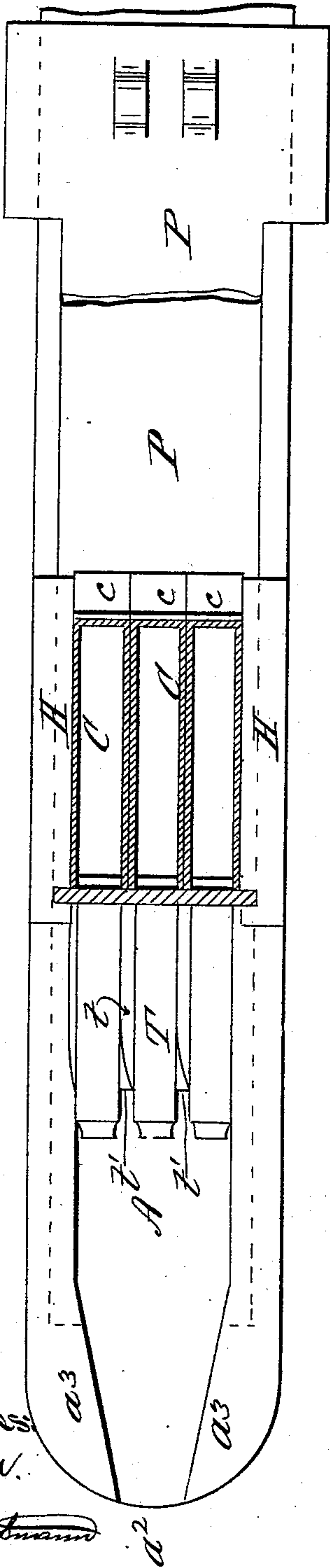
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L. K. JOHNSON & A. A. LOW.  
TYPE SETTING APPARATUS.

No. 539,950.

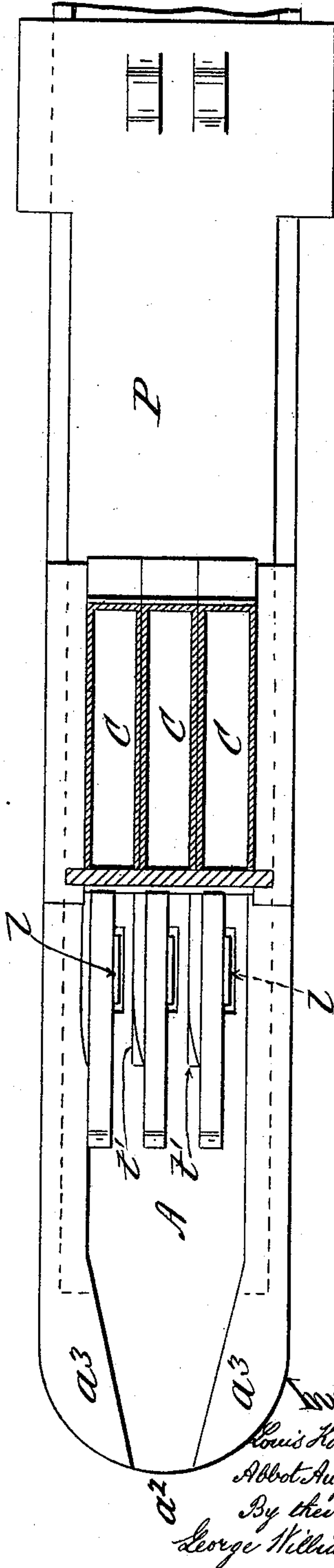
Patented May 28, 1895.

Fig. 1.



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D. W. Gardner.  
August Wapman

Fig. 2.



Inventors:  
Louis Rossuth Johnson,  
Abbot Augustus Low,  
By their Attorney  
George William Miatt

(No Model.)

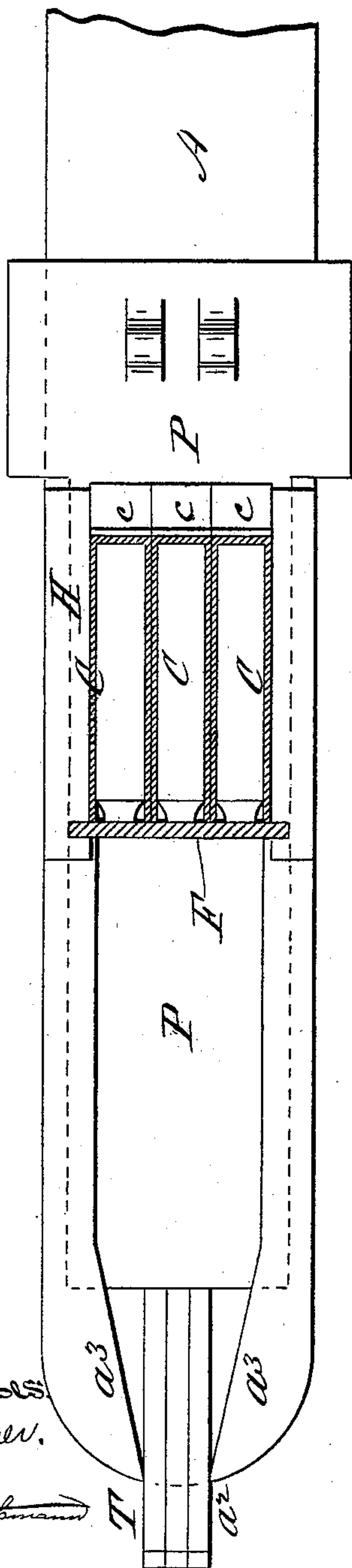
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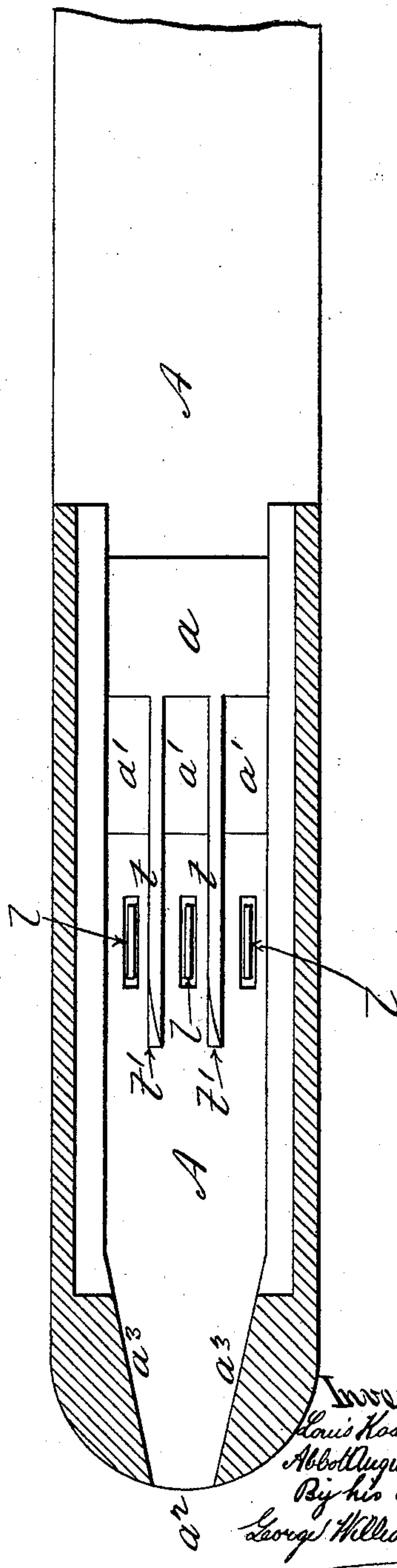
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Fig. 3.



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Fig. 4.



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(No Model.)

6 Sheets—Sheet 4.

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Fig. 10.

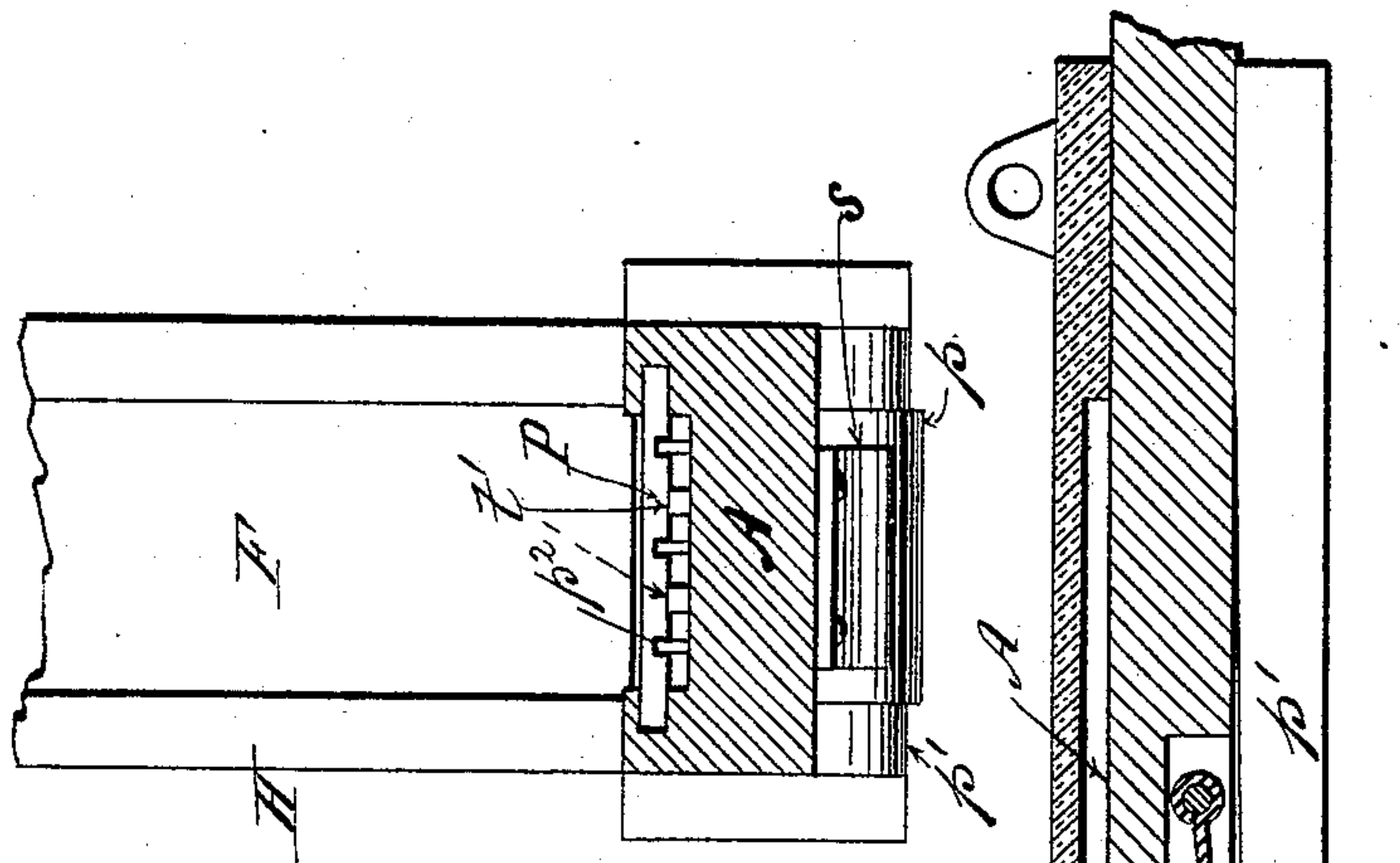


Fig. 8.

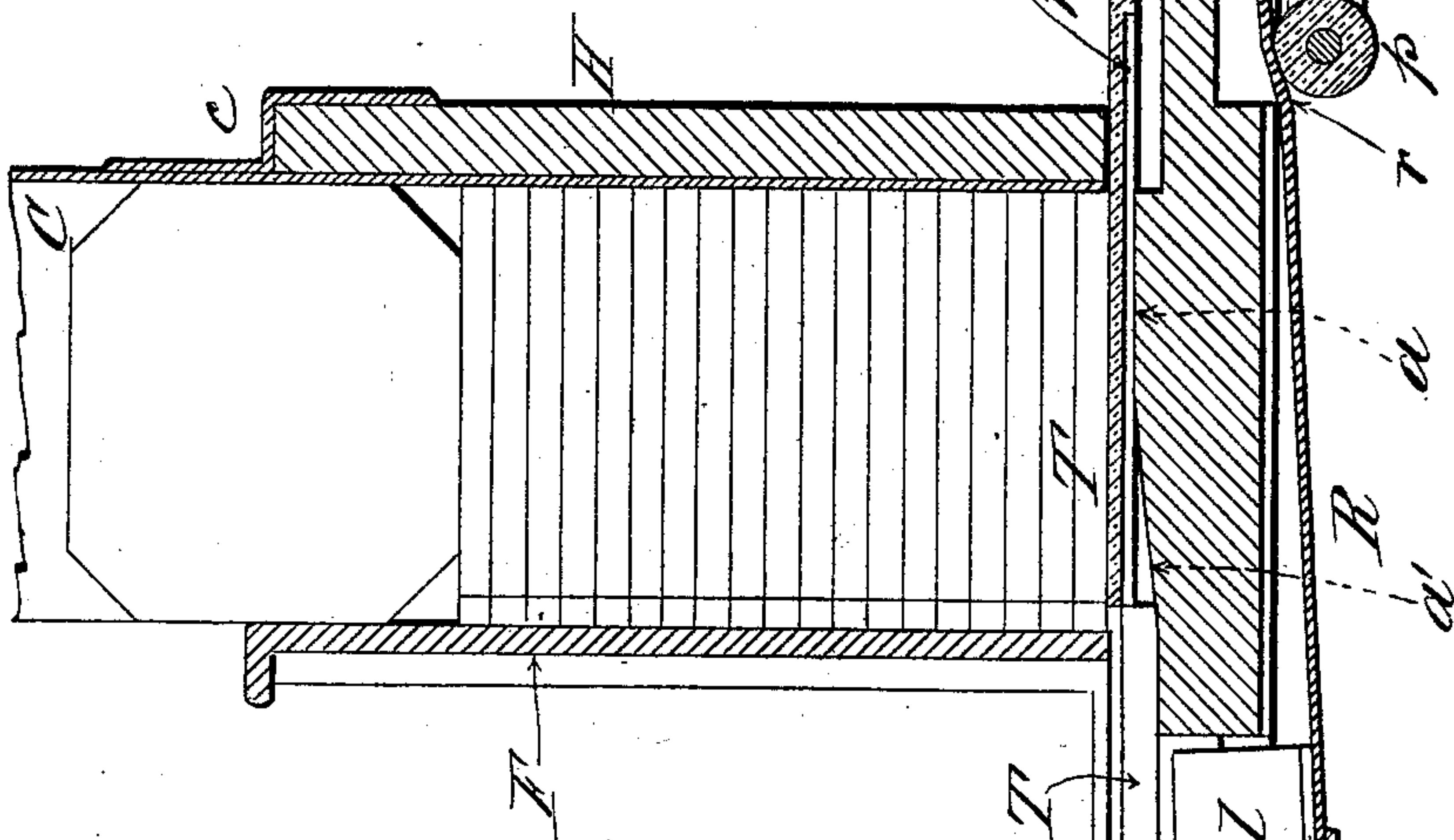
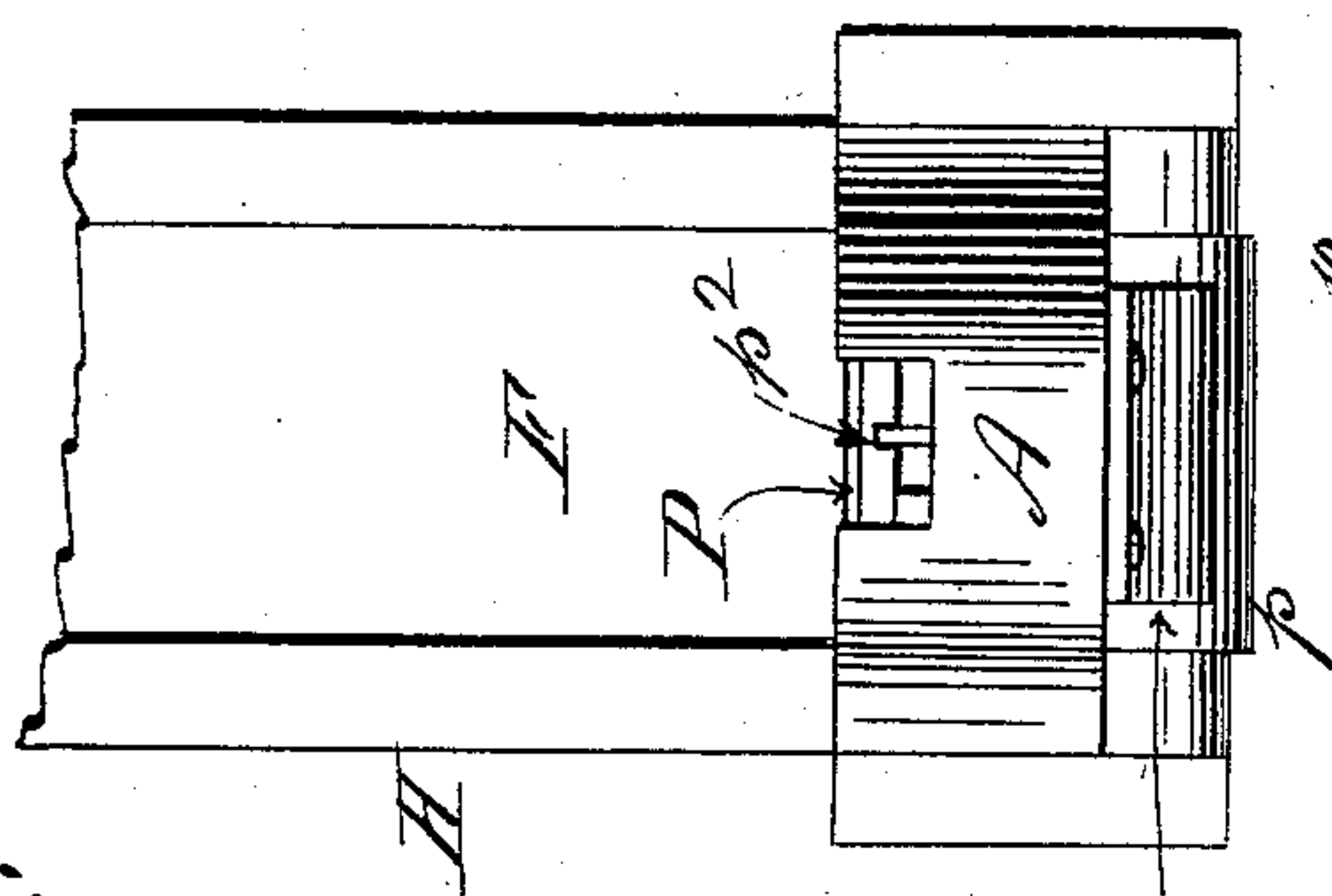


Fig. 9.



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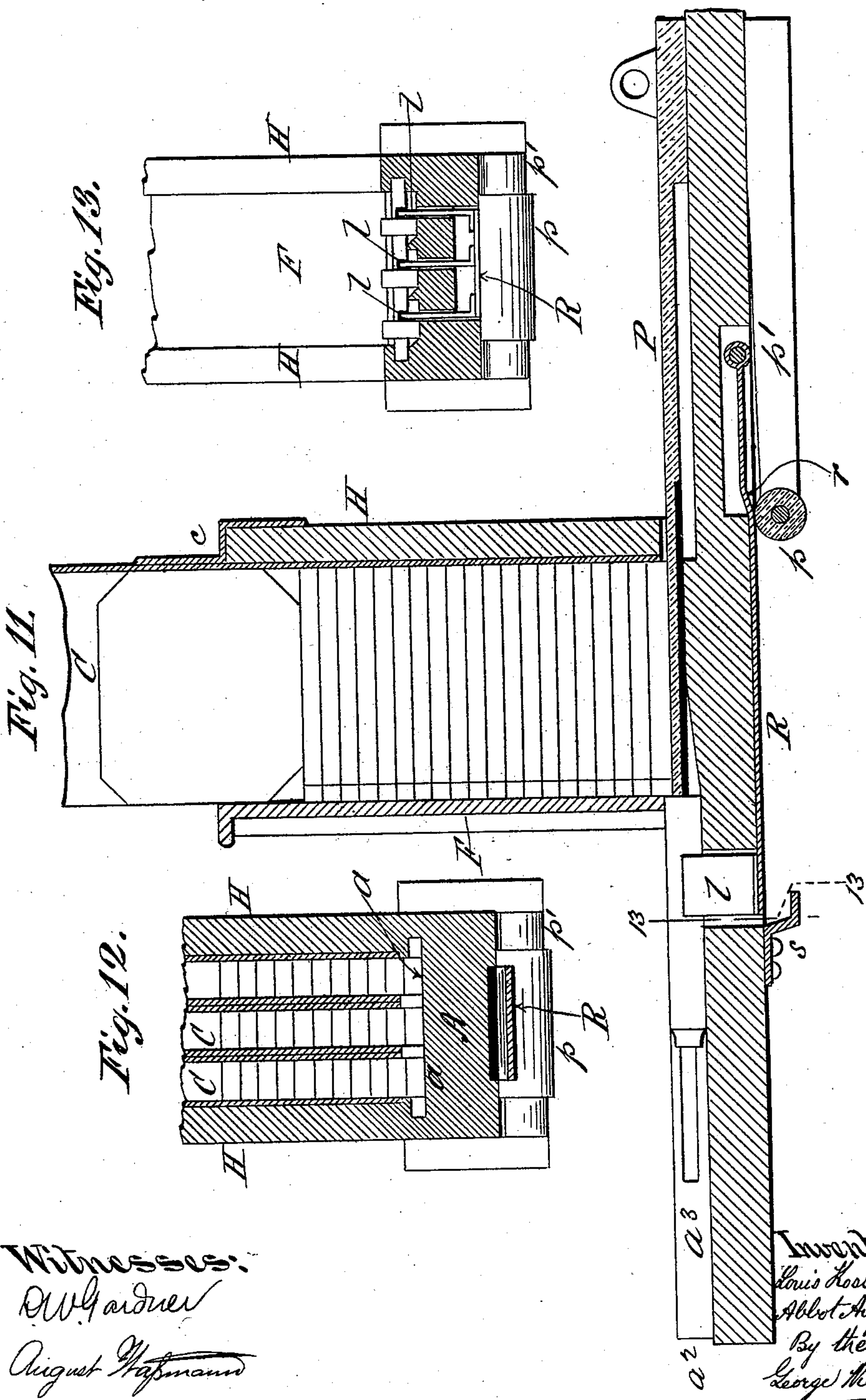
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TYPE SETTING APPARATUS.

No. 539,950.

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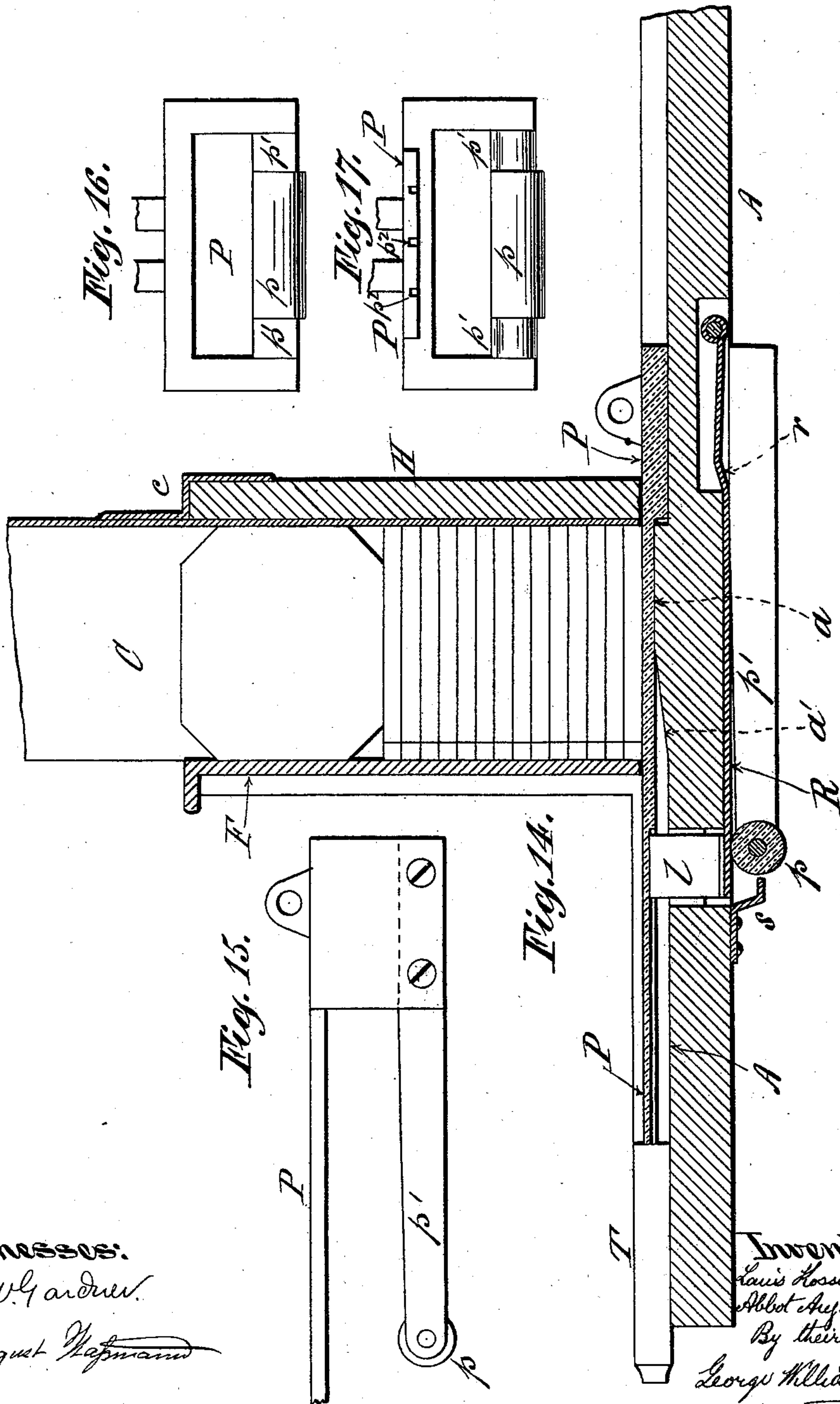
(No Model.)

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

No. 539,950.

Patented May 28, 1895.



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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. 539,950, dated May 28, 1895.

Application filed December 10, 1894. Serial No. 531,362. (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 setting apparatus in which the types are forwarded from containing channels into position to be conveniently grasped by the fingers of the compositor. In the distribution of the types into the containing channels there are certain well known advantages in depositing the types therein on their broad or "flat" sides, one upon the other.

In our method of handling the types in setting, especially where a plurality of types are to be forwarded and assembled into position to be grasped simultaneously between the fingers of the compositor, it is essential [that the types rest upon the presenting platform on their edges or narrow sides. This we have accomplished heretofore by forwarding the types through quarter turn grooves; by dropping them from their flat sides to their edges; and by raising and turning them by means of pivoted lifters.

Our present invention consists in turning the types from their flat sides to their edges by means of vertical lifters which rise through the type platform at the appropriate time, and cause the types to make a quarter-turn upon their longitudinal axes before they commence to converge together. In this connection it is to be noted that while we herein show and describe our improvements as embodied in apparatus for forwarding and assembling a plurality of types, the invention is equally applicable to the forwarding and setting of individual types, singly or in bank.

Our invention also includes special features of construction and arrangement hereinafter set forth whereby the pusher is utilized to

turn the types upon their longitudinal axes,—the types being turned simultaneously, &c.

In the accompanying drawings, Figure 1 is a horizontal section of the containing-channels and front plate, showing the plan of the type-platform, &c., with a series of types partially forwarded on their flat sides. Fig. 2 is a similar view showing the types just after they have been lifted onto their edges. Fig. 3 is a similar view showing the completion of the forward stroke of the pusher. Fig. 4 is a horizontal section through the side walls of the type-platform, the pusher being omitted. Fig. 5 is a central vertical longitudinal section of the parts with the type-forwarder in its retracted position. Fig. 6 is a plan of the type-turners and supporting-plate. Fig. 7 is a vertical section upon plane of line 7 7, Fig. 5, looking toward the type-channel holder. Fig. 8 is a central longitudinal section showing the type forwarded onto the type-platform beyond the type-containing channels and just prior to being lifted onto their edges. Fig. 9 is a front view of the device; Fig. 10, a transverse section upon plane of line 10 10, Fig. 8; Fig. 11, a vertical longitudinal section of the parts just after the types have been lifted onto their edges. Fig. 12 is a transverse section upon plane of line 12 12, Fig. 5; Fig. 13, a transverse section on line 13 13, Fig. 11. Fig. 14 is a vertical longitudinal section showing the parts at the completion of the forward stroke of the pusher; Fig. 15, a side elevation of the rear portion of the type-forwarder; Fig. 16, a rear view, and Fig. 17 a front view, of the type-forwarder.

The type containing channels C, are supported above the type platform A, in a holder H, as heretofore, by any suitable means, as by the clasps c, shown in the drawings, which fit over the rear wall of the holder H. The lowered end of the front plate F, and the lower edges of the type containing channels are suspended above the path of the pusher blade B. When the type forwarder P, is in the retracted position the lowest type T, in the columns rest upon the elevated portions a, of the type platform A.



As the type forwarder, P, advances it forwards the lowest types, T, down the incline  $a$  onto the main floor of the type platform and into the position shown in Figs. 1 and 8. As the type forwarder P, continues to advance, the roller  $p$ , upon the extension  $p'$ , of the pusher, passes over the incline  $r$ , on the plate R, to the front end of which the vertical lifters are attached, thereby thrusting the upper edges of said lifters  $l$ , above the surface of the type platform and raising the types, T, from their flat sides to their edges as indicated in Figs. 2 and 11. The continued advance of the type forwarder P, carries the types forwarded into position with their faces projecting through the port  $a^2$ , the side walls  $a^3$ , having effected the converging of the types as heretofore described and claimed by us.

During the retractile movement of the type forwarder P, the raising roller  $p$ , passes to the rear of the incline  $r$ , on the plate R, allowing the said plate and the lifters  $l$ , to descend by gravity until the front edge of the plate R, rests against the stop,  $s$ , in which position the upper edges of the lifter  $l$ , are below the upper surface of the type platform A. At the completion of the retractile movement of the type forwarder, the next succeeding lowest types have descended to the platform  $a$ , and the parts are at rest until the removal of the types just forwarded sets in operation automatic mechanism such as heretofore described and claimed by us, by which the type forwarder again starts to advance and the operations above described are repeated. As such automatic actuating devices form no part of our present invention they are omitted from the drawings for the sake of simplicity and clearness, it being understood that the type forwarder P, is to be reciprocated intermittently by any suitable or well known mechanism.

The construction and arrangement of the lifter  $p$ , with relation to the pusher P, to which it is attached, or of which it forms a part, are also of secondary importance, the essential feature in this respect being an arm or projection  $p'$ , moving with the pusher, and timed to encounter the incline  $r$ , and to raise the plate R, and the lifters  $l$ , when the types have reached the proper position in front of, and beyond the front of, the type containing channels.

Instead of the plate R, being hinged as shown in the drawings, it may consist of a spring plate attached rigidly to the under side of the type platform at its rear end, in which case the roller  $p$ , will raise the lifters  $l$ , against the elasticity of the plate, the resilience of which will again depress the lifters  $l$ , below the surface of the type platform A, when the roller  $p$ , has passed to the rear of the incline  $r$ .

The under side of the pusher blade is

grooved as at  $p$ , to allow the flat pusher blade to pass over the lifters  $l$ , when elevated.

Type shoulders  $t$ , are formed upon the type platform A, in line with the side walls of the type containing channels to sustain the adjoining edges of the types against the action of the lifters  $l$ . These shoulders are beveled on the sides opposed to the lifters  $l$ , to facilitate the turning of the types, while their front ends  $t'$ , are rectangular as shown in Fig. 10, to sustain the types laterally until they advance beyond the type lifters  $l$ .

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

1. In type setting apparatus, the combination of a type containing channel supported independently, a type platform, a type forwarder, and a vertically moving type turner for raising the types onto their edges substantially in the manner and for the purpose described.

2. In type setting apparatus, the combination of a plurality of type containing channels supported independently, a type platform, a type forwarder, and a series of vertically movable type turners for raising the types onto their edges on the platform, substantially in the manner and for the purpose described.

3. In type setting apparatus, the combination of a plurality of type containing channels supported independently, a type platform formed with type turning shoulders, a type forwarder, and a series of vertically movable type turners for raising the types onto their edges against the resistance afforded by the type-turning-shoulders upon the type platform, substantially in the manner and for the purpose described.

4. In type setting apparatus, the combination of a plurality of type containing channels supported independently, a type forwarder, a series of vertically movable type turners mounted upon a hinged plate, and means whereby said plate and type turners are raised by the type forwarder during its forward stroke substantially in the manner and for the purpose described.

5. In type setting apparatus, the combination of a plurality of type containing channels supported independently, a type platform, a type forwarder, a series of vertically movable type turners mounted upon a hinged plate, and an arm or extension on the type forwarder for raising said plate and type turners during the forward stroke of the type forwarder, substantially in the manner and for the purpose described.

6. In type setting apparatus, the combination of a plurality of type containing channels supported independently, a type platform, a type forwarder, a series of vertically movable type turners mounted upon a hinged plate, and an arm or extension on the type



forwarder provided with a roller for raising said plate and type turners during the forward stroke of the type forwarder, substantially in the manner and for the purpose described.

7. In type setting apparatus, the combination of a plurality of type containing channels supported independently, a type platform formed with converging side walls, a type forwarder, a series of vertically movable type turners mounted upon a hinged plate,

and an arm or extension on the type forwarder provided with a roller, for raising said plate and type turners during the forward stroke of the type forwarder, substantially in the manner and for the purpose described.

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