

M. WIBERG.

LETTER BOX.

No. 395,802.

Patented Jan. 8, 1889.

Fig. 1.

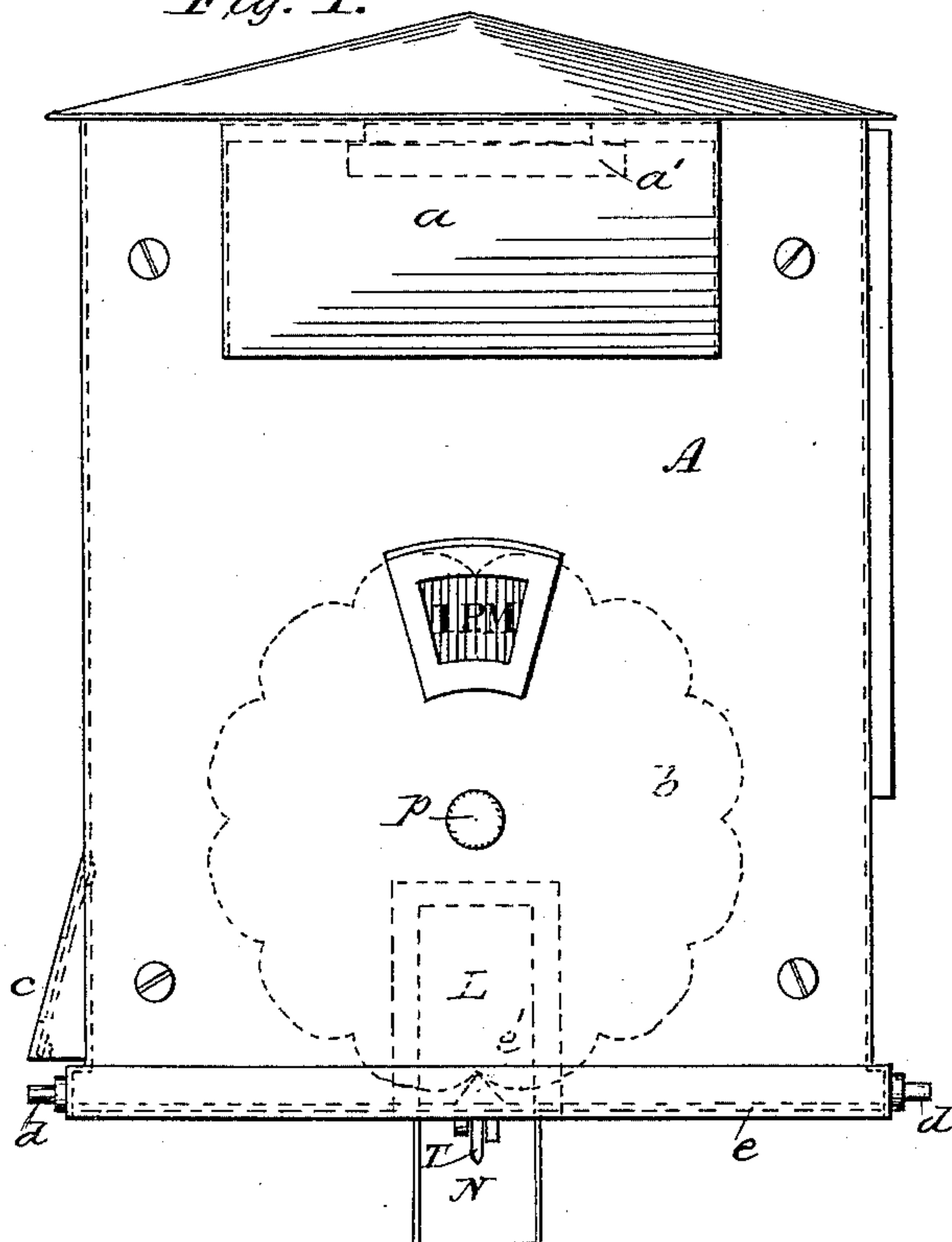


Fig. 2.

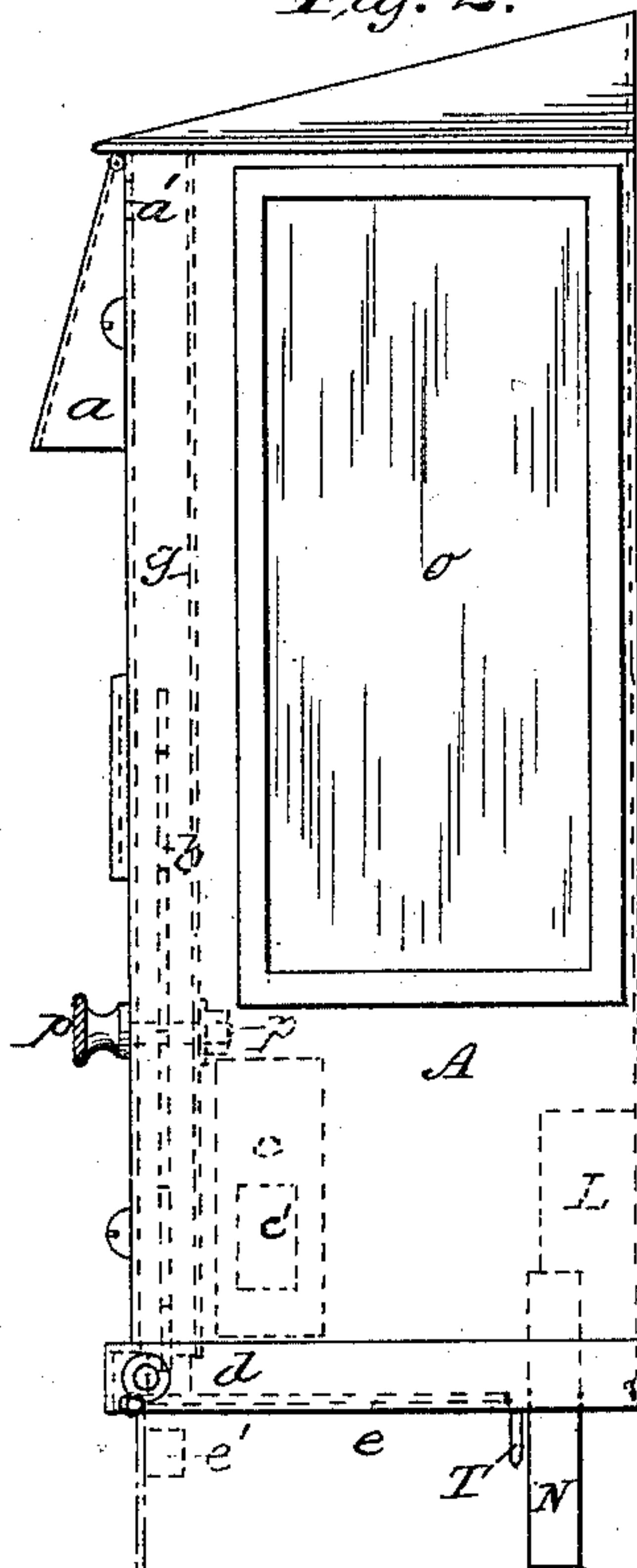


Fig. 3.

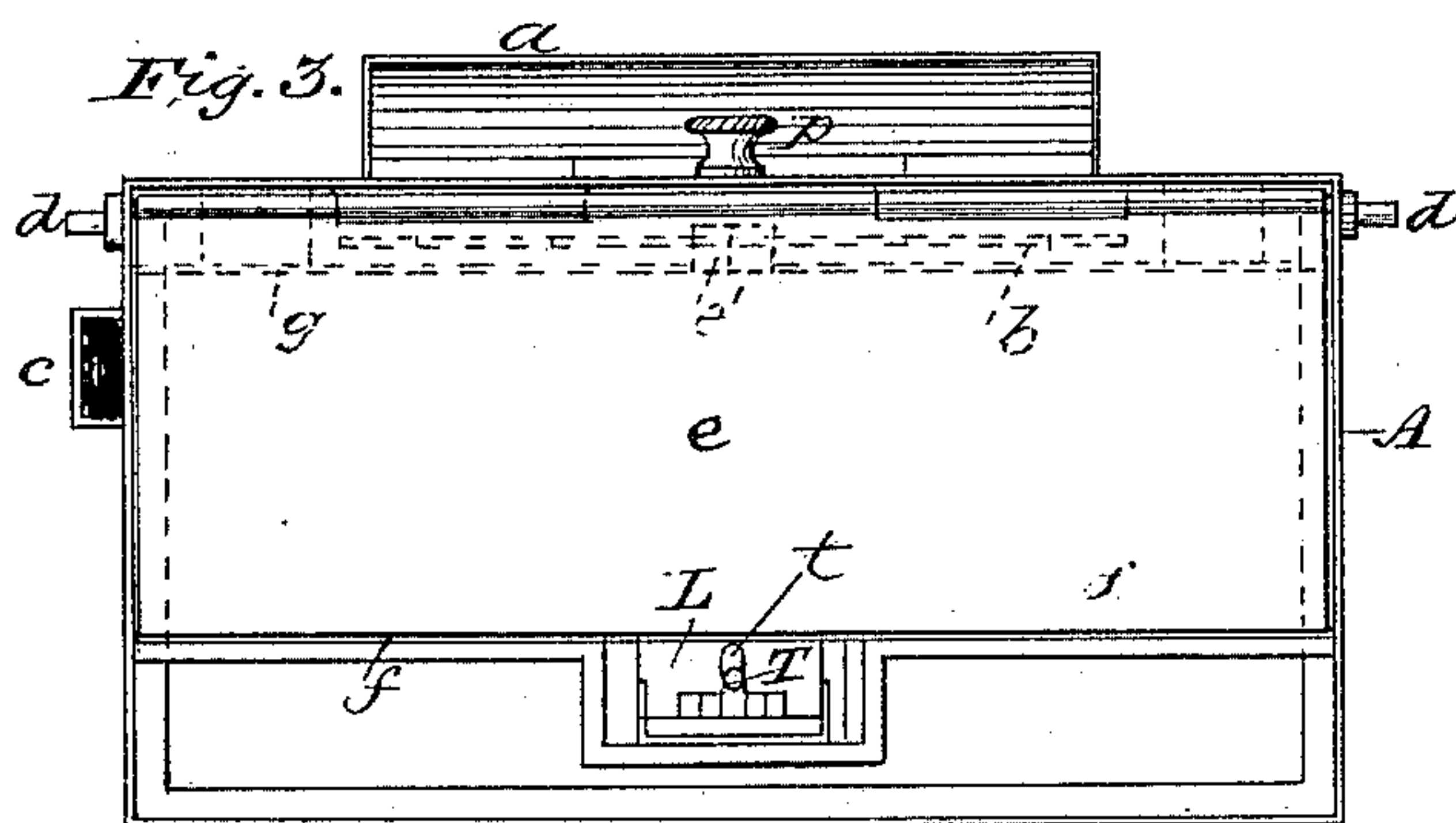


Fig. 4.

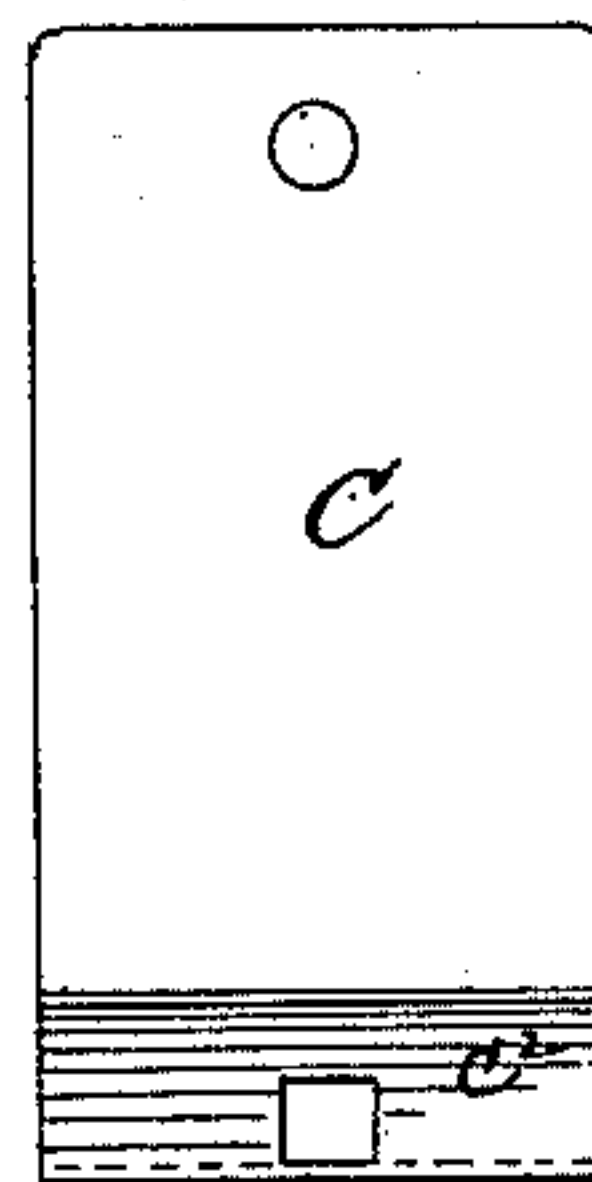


Fig. 4.

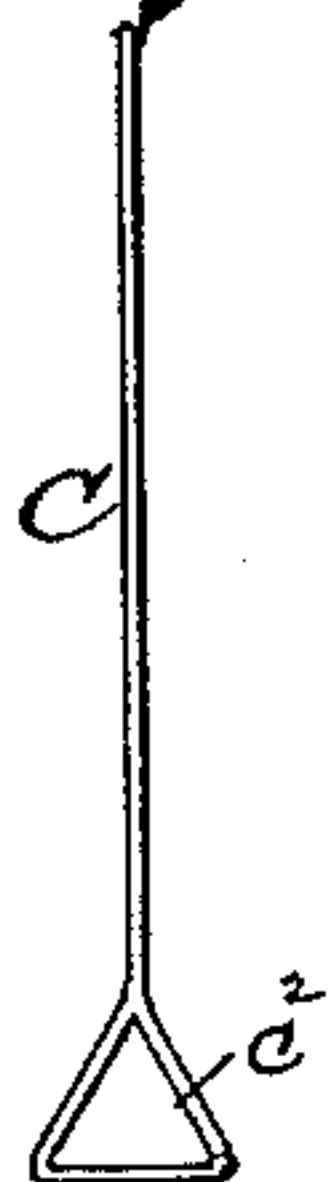


Fig. 5.

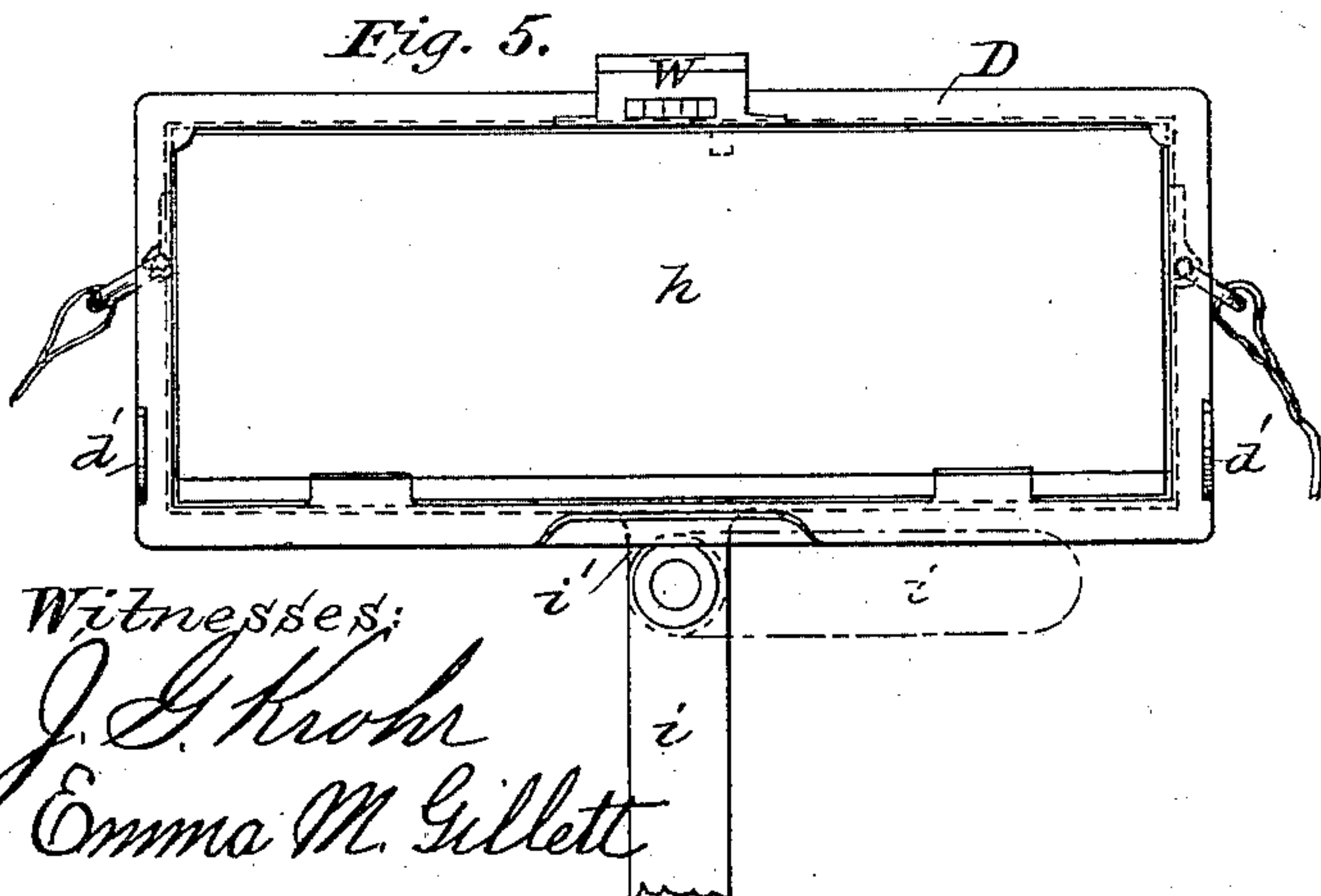
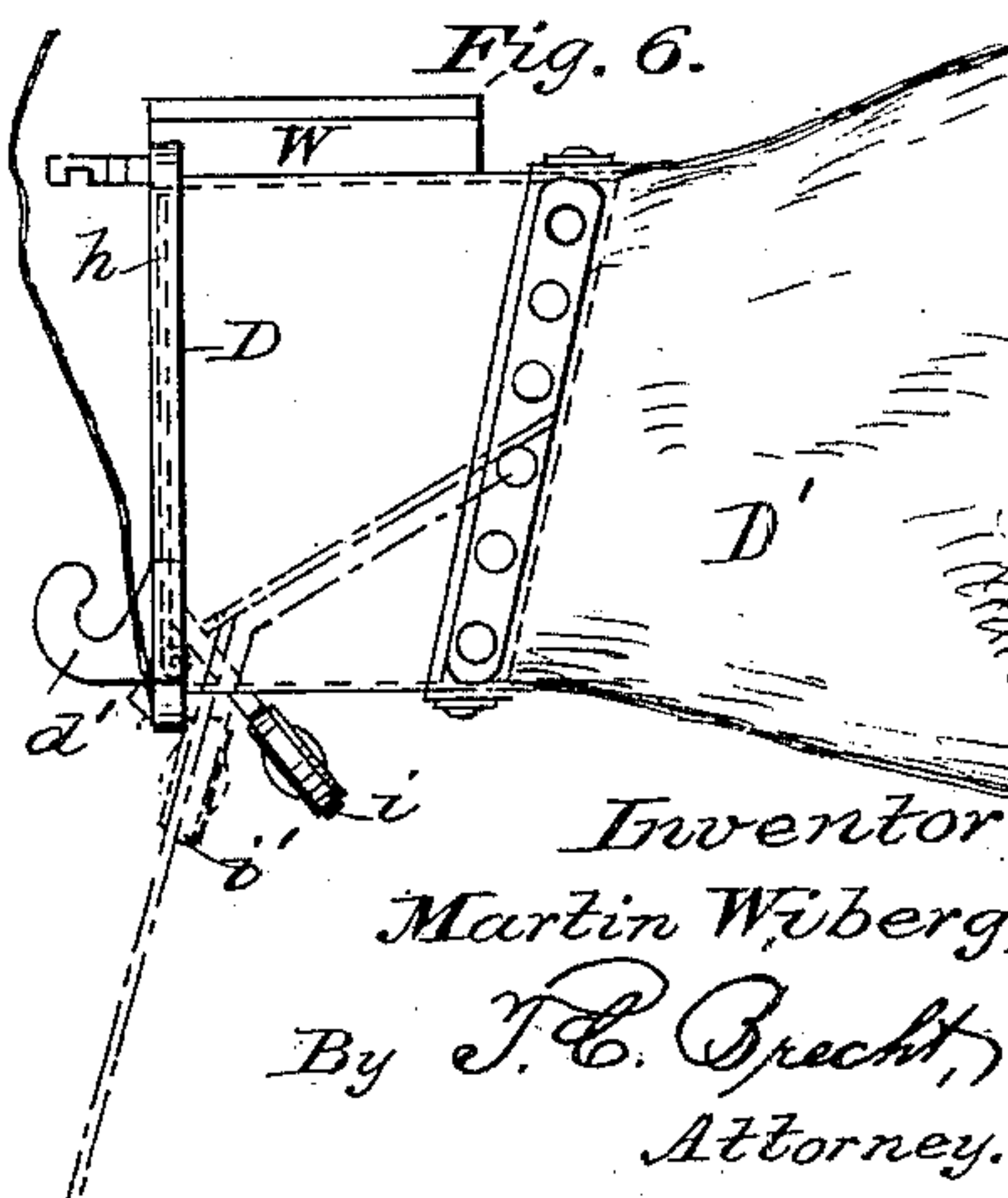


Fig. 6.



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Fig. 8.

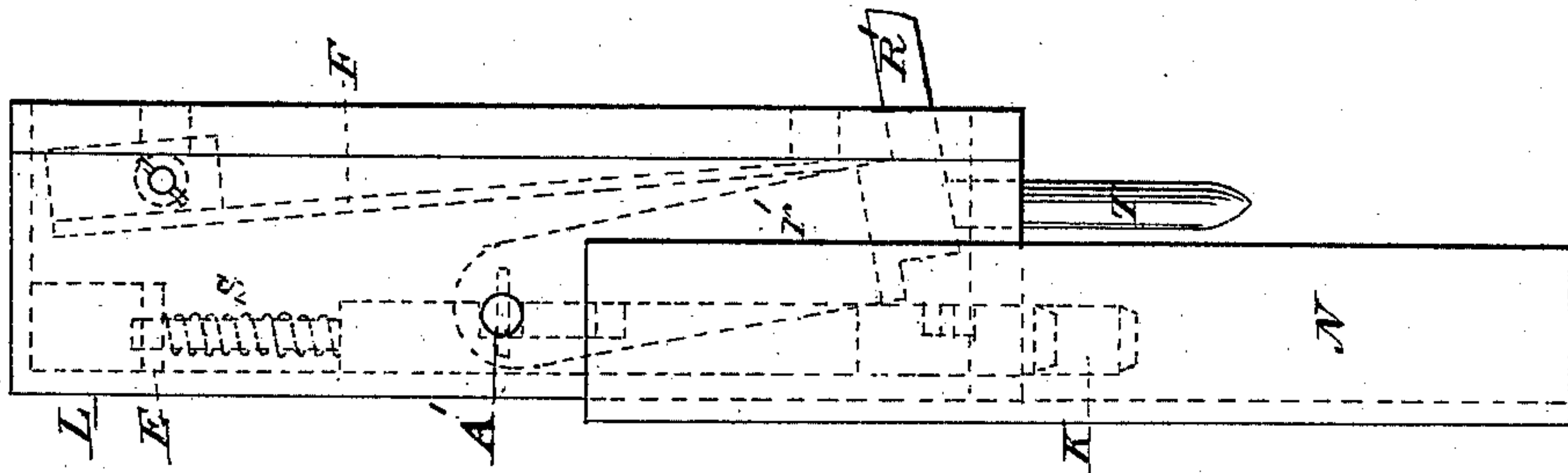


Fig. 7.

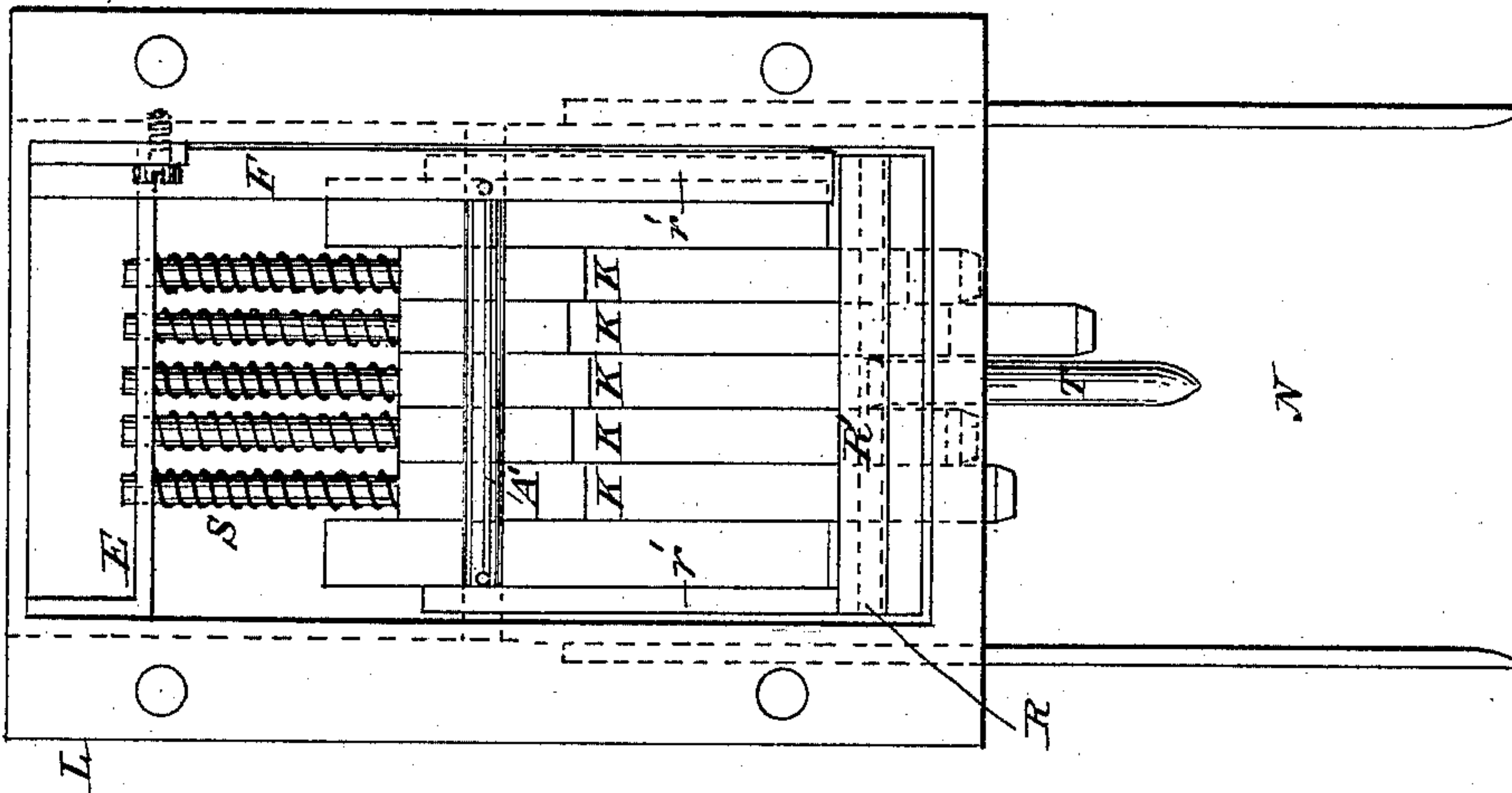


Fig. 10.

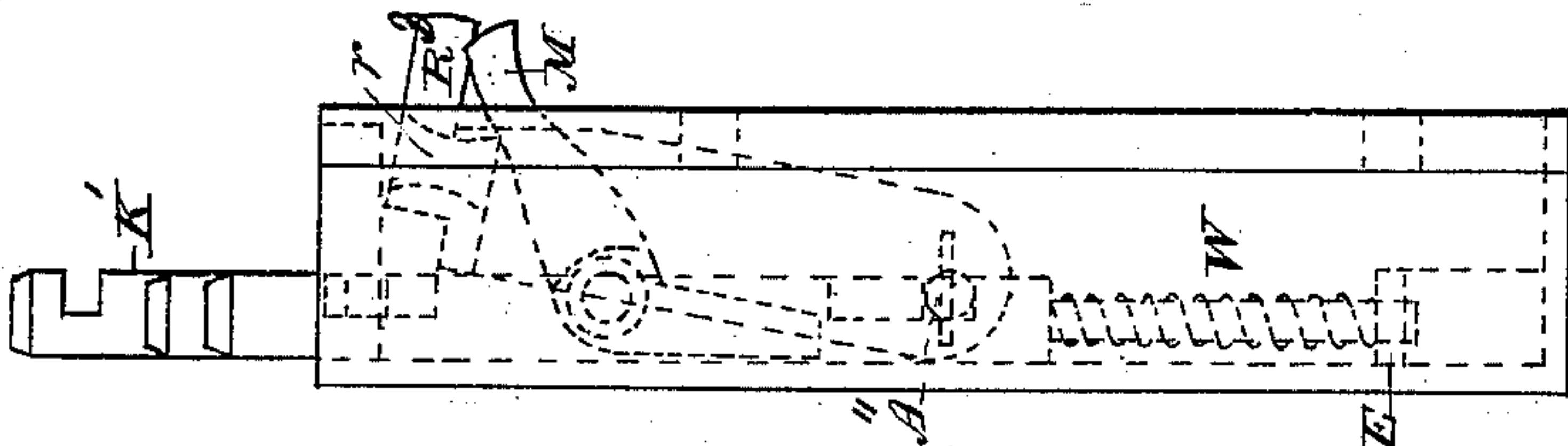


Fig. 9.

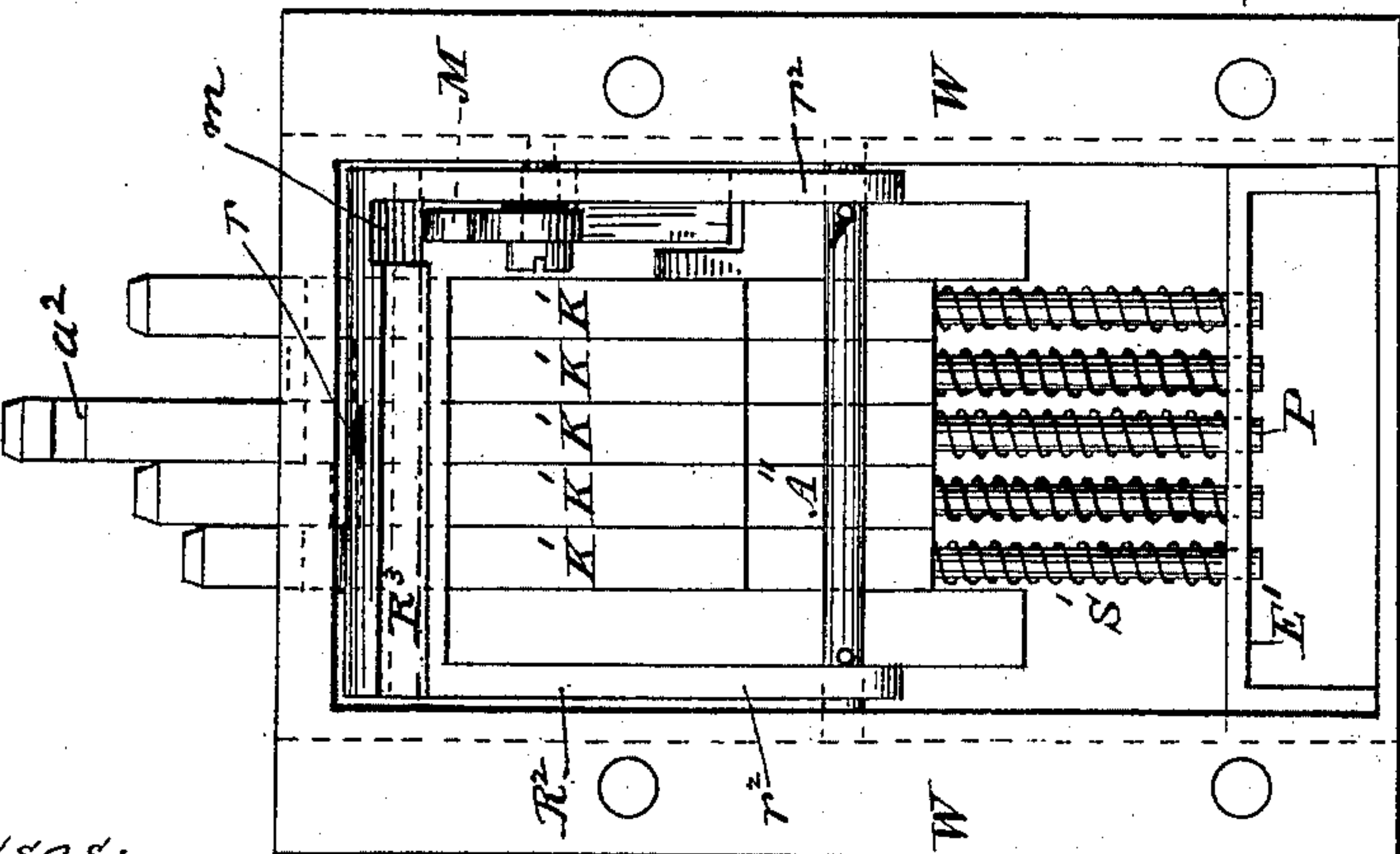
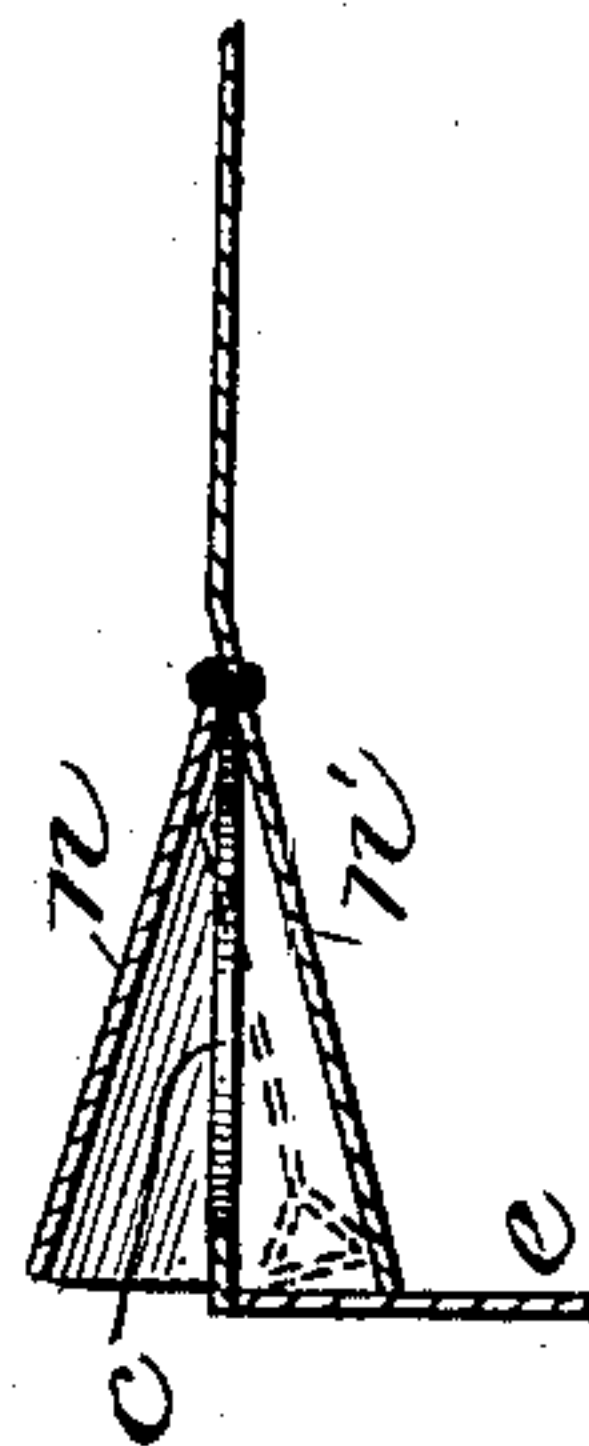


Fig. 11.



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# UNITED STATES PATENT OFFICE.

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## LETTER-BOX.

SPECIFICATION forming part of Letters Patent No. 395,802, dated January 8, 1889.

Application filed January 12, 1887. Serial No. 224,290. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN WIBERG, of Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Letter-Boxes, of which the following is a full, clear, and exact description.

My invention relates to an improvement in that class of letter-boxes consisting of a fixed box and a removable pouch to be carried by the collector, the application of which to the fixed box operating to deliver its contents to the pouch.

The invention consists, essentially, in a letter-box provided with a discharge-door and locking-tumblers and a receiver provided with a door and locking-tumblers, so constructed and arranged that when the receiver is applied to the box the tumblers on one will automatically co-operate with the tumblers on the other in such manner as to unlock the doors and allow the passage of the matter from the box into the receiver, at the same time locking the two receptacles together, the two being disconnected and the doors restored to their former locked position by the manipulation of a lever, to be hereinafter described.

The invention also consists in the use of a detecting-tag in connection with the box, the purpose of which will hereinafter appear.

In the accompanying drawings, Figure 1 is a front elevation of the box. Fig. 2 is a side elevation of the same. Fig. 3 is a bottom plan view of the same. Figs. 4 and 4<sup>2</sup> are detail views of the check. Fig. 5 is a top plan view of the receiving-pouch. Fig. 6 is a side elevation of the same. Figs. 7 and 8 are enlarged views of the locking mechanism for the box. Figs. 9 and 10 are enlarged views of the locking mechanism for the receiving-pouch. Fig. 11 is a vertical sectional view of a portion of the box through the opening for the check, showing the shields for the said opening.

Referring to the drawings, A represents a box or receptacle for letters, &c., preferably of rectangular form in cross-section, and provided, as usual, with an opening or slot at or near the top, through which letters or similar articles are introduced. The box is closed by a bottom, *e*, hinged to its front edge and

adapted to swing downward to discharge the contents of the box, but retained normally in a closed position by a locking mechanism, L, now to be described.

At the rear of the box A, near the bottom, I provide a series of spring-actuated tumblers, K, mounted within an inclosing-case, which is open on one side and fastened securely to the box. The upper ends of these tumblers pass through perforations in a cross-bar, E, by which they are guided. They are provided below this bar with spiral springs S, which encircle them and act to depress or project the same downward. At their lower ends these tumblers are provided in their front sides with slots, which, when arranged in line, form a continuous channel or groove throughout the series.

R represents a bail or frame consisting of the two side arms, *r'*, pivoted preferably to a cross bar or shaft, A', extending across the casing in front of the tumblers. These two arms are connected at their forward ends by a cross-bar, R', adapted to enter the slots in the tumblers when they are arranged in line, but which, when the parts are in their normal position, projects outward in the box and supports the hinged bottom, preventing the same from dropping downward. When the slots of the tumblers are arranged in line, the cross-bar, entering therein, as more fully described hereinafter, is withdrawn from beneath the bottom and permits the same to swing downward.

The cross-bar R' is provided with a rigid depending pin, T, as plainly shown in Figs. 7 and 8, which passes through a slot, *t*, in the casing of the lock, and is adapted to enter a corresponding slot in the casing of the lock on the receiving-pouch and engage the same, as more fully described hereinafter. A spring, F, secured to the casing of the lock, bears against the pivoted bail R and tends to urge the cross-bar R' against the tumblers.

A partition, *f*, separates the forward portion of the box A from the locking mechanism and prevents the operation of the same from being interfered with by the contents of the box.

D' represents the receiving-pouch, of leather, canvas, or other suitable material,



provided at its mouth with a rectangular frame, D, corresponding in size to the bottom of the box. It is provided, like the box, with a cover or door, *h*, hinged to the front of the frame and adapted, like the hinged bottom of the box, to swing downward to permit the contents of the box to enter the pouch when the two are connected together.

W represents a lock substantially similar in construction and operation to the lock L on the box. Its operating mechanism is contained in a casing, *i*, attached to the rear part of the pouch in such position that when the two are connected the tumblers in the lock on the box shall be coincident with those in the lock on the pouch. This lock consists of a series of spring-controlled tumblers, K', corresponding in number and sectional dimension to those in the opposite lock. Their lower ends extend through a guide-bar, E', and are encircled by spiral springs S', which tend to urge them upward. Their movement, like those in the opposite lock, is uniformly limited in a similar manner. Near their upper ends these tumblers are provided with slots or notches, which, when in line, form a continuous groove throughout the series.

A bail or frame, R<sup>2</sup>, consisting of the two side arms, *r*<sup>2</sup>, and the front cross-bar, R<sup>3</sup>, is pivoted to the casing in a manner similar to the corresponding part in the opposite lock, and is adapted to enter the slots in the tumblers when arranged in line. This cross-bar, like the cross-bar R' of the lock L, is adapted to extend beneath the cover *h* of the pouch when the parts are in their normal position, and give support to the same, but which is withdrawn from under it by the cross-bar entering in the slots of the tumblers when arranged in line. The cross-bar is also provided with an opening or slot, *r*, for the reception of the depending pin T in such position that it shall be directly thereunder when the pouch is placed in position beneath the box.

The springs S S', surrounding the tumblers K K in the two locks, are of different tensions, the tumblers in each lock being provided with alternately strong and weak springs, the tumblers provided with the strong springs in one lock being opposed to the corresponding tumblers provided with the weak springs in the opposite lock, so that the depression and consequent retraction of the tumblers with the weak springs will occur previous to that of the tumblers with the strong springs, the purpose of which will more fully appear hereinafter.

The box A is provided at or near its bottom with trunnions *d*, adapted to be engaged by hooks *d'*, attached to the receiving-pouch, as shown, by which it is suspended on the box.

The operation of the device is as follows: The parts being in the position shown in the drawings, the pouch is hung on the box and is swung on its trunnions upward, being guided by a plate, N, attached to the box and depending therefrom. The tumblers of the

two locks meet, the strong springs in one opposing the weak springs in the other, so that each tumbler in one lock pushes back the corresponding tumbler in the other until their further movement is prevented by the shoulders on the tumblers coming in contact with the cross-shafts A' A<sup>2</sup> on the locks. At this time the tumblers with the weak springs have completed their movement and are in their proper position, the slots being in line; but the cross-bars are prevented from entering therein by the tumblers with the strong springs. Now, when the raising of the pouch is continued, all the weak springs on both sides having been compressed, the compression of the strong springs begins and continues until the shoulders on the tumblers come in contact with the cross-shafts A' A<sup>2</sup>, at which time all the slots in both series of tumblers will be in line, they having assumed their proper positions simultaneously. During this operation the depending pin T enters the slot in the casing of the lock W and passes into the slot *r* in the cross-bar R<sup>3</sup>, and when the notches of the tumblers are aligned the spring F forces the cross-bar on which it acts into the channel formed by the slots. At the same time the cross-bar on the opposite lock is forced into the channel formed by the slots in the tumblers by means of the pin T, which action withdraws the two supports simultaneously from beneath the two doors, and they swing downward, permitting the contents of the box to enter the pouch.

In order that the box and receiving-pouch shall be locked or connected together during the transferring operation, one of the tumblers is provided with a slot in its end, and is constructed of such length that when the two receptacles are brought together it will enter the opposite lock and form in line with the tumblers therein, so that when the cross-bar enters the slots it will also enter the slot in the extended tumbler and prevent the pouch from being removed. In this case it is apparent that two slots will be formed in the extended tumbler—one for the cross-bar of its own lock and the other for the cross-bar on the opposite lock; also, that the tumbler in the opposite lock to which it is opposed will not contain a slot, as the slot in the extended tumbler takes its place.

The operation of closing the top of the receiving-pouch, which also closes the bottom of the box, is performed by means of a lever or handle, *i'*, (shown in Figs. 5 and 6,) attached to the top and extending outward, so as to be conveniently grasped by the operator. For convenience this lever is pivotally connected near its conjunction with the top, so as to be turned out of the way when not in use.

In order that the tumblers may be simultaneously released and the two cross-bars withdrawn from the slots at the same time, I provide an angular lever, M, which is pivoted to the side of the casing of the lock of the receiving-pouch, one arm of which extends out-



ward in the path of the swinging top, the other arm being extended laterally and seated behind one of the arms  $r^2$  of the bail  $R^2$ , so that when tripped by the swinging top, operated by the lever before referred to, which carries with it the bottom of the box, it will act against the bail to force the cross-bar  $R^3$  outward, at the same time forcing the cross-bar  $R'$  outward by means of the depending pin attached thereto. The cross-bar  $R^3$  is recessed, as at  $m$ , so as not to interfere with the arm of the lever, thus permitting a free movement of the bail. After the swinging bails have been thrown outward from the tumblers the springs acting thereon project the same to their original and normal positions, by which both the doors are locked, the pouch is unhooked, and the collector proceeds on his way.

From the foregoing description it will be perceived that the delivery of the contents from the box to the receiving-pouch is automatically effected, as it is only necessary to place the pouch in position beneath the box, when the two doors, being released by the action of one set of tumblers upon the other, drop by their own weight.

It will be perceived that the lock on one receptacle operates as a key to the lock on the other, and it is to be understood that I do not confine myself to the employment of the locks in combination with the receptacles to which they are attached, as the locks can be used separately and as a key, which is done in opening the pouches at the main office or for the purpose of inspecting the various boxes on the route.

In the side of the box  $A$ , near its bottom, an opening,  $c'$ , is formed, communicating with its interior for the admission of a tell-tale check,  $C$ , as shown in Fig. 4. This check is preferably of a rectangular form, and is provided with an enlargement or head,  $c^2$ , which is too large to be inserted in the slot  $a'$  or "drop" at the top of the box.

While I have shown and described the enlargement on the check  $C$  to prevent its entrance into the drop, it is to be understood that other means the equivalent of the foregoing may be employed.

The opening  $c'$  is covered on the exterior and interior of the box by shields or hoods  $n$   $n'$ , which extend from the top of the opening in a slanting direction outward and downward a slight distance below the termination of the opening, as shown in Fig. 11, so that when the door of the box is closed it will be in contact, or nearly so, with the inner shield,  $n'$ , thus effectually preventing any communication to the interior of the box from the outside. The outer shield is provided with a glass window, which permits an examination of the box to see that the checks are properly placed. The check is inserted upward into the opening  $c'$  until its lower and enlarged end is clear of the lower edge thereof, and is then pushed inward and rests in the bottom of the box in a nearly-upright position be-

tween the hood and the lower edge of the opening, this construction permitting but one check to be inserted while the box is locked. When the delivery of the contents of the box occurs, the check will fall into the receiver with the mail-matter.

The collector, when starting on his route, is provided with a number of checks of uniform color corresponding to the number of boxes to be emptied. After emptying a box and locking it he inserts a check in the opening in the place of the one previously inserted, and which passed into the receiving-pouch with the mail-matter when the box was emptied.

From the foregoing it will be perceived that it is impossible for the collector to omit emptying a box without being detected, as the receiving-pouch of each collector should contain all the checks from the boxes on his route inserted by the collector preceding him, and, as the checks can be inserted in the lower opening only and but one at a time, it would not be possible for one collector to prepare the way for his follower to omit the collection of a box.

Having thus described my invention, what I claim is—

1. A letter-box provided with a delivery-door and locking mechanism, in combination with a removable pouch provided with a receiving-door and locking mechanism, substantially as described, one of said locking mechanisms provided with a pin or projection, as  $T$ , adapted to automatically engage the other mechanism when the pouch and the box are joined, whereby the two mechanisms are compelled to lock and unlock in unison.

2. The box  $A$ , its door, the series of slotted tumblers, and the bar  $R'$ , adapted to enter the slots in said tumblers.

3. The box  $A$ , its door, the series of slotted spring-actuated tumblers, the bail or cross-bar adapted to enter the slots in said tumblers, and the depending pin  $T$ , in combination with the receiving-pouch, its door, and locking mechanism having a cross-bar adapted to engage the pin  $T$ .

4. The box  $A$ , its door, and the series of spring-actuated tumblers, in combination with the receiving-pouch, its door, and the series of spring-actuated tumblers, the springs on said tumblers being of variable tension.

5. The box  $A$ , its door, and the series of spring-actuated tumblers, in combination with the receiving-pouch, its door, and spring-actuated tumblers, the springs on said tumblers being of different tension, the strong springs on one lock opposing the weak springs on the other lock, as and for the purpose described.

6. The box  $A$ , with the trunnions thereon, in combination with the receiving-pouch and the hooks thereon adapted to engage said trunnions, as and for the purpose described and shown, and locking devices for said receptacles.

7. The box  $A$ , its door and series of slotted



tumblers, and the bar  $R'$ , adapted to enter said slot, in combination with the receiving-pouch, its door, slotted tumblers, and bar  $R^3$ , one or more of which tumblers are constructed to enter and engage with the opposite lock when the two receptacles are placed together, whereby they are automatically locked together.

8. The box, its door, and the series of tumblers, in combination with the receiving-pouch, its door, the series of slotted tumblers, the cross-bar adapted to enter the slots in said tumblers, the lever connected to the door, and intermediate mechanism, whereby the closing of the door effects the release of the tumblers and consequent disconnection of the two receptacles.

9. The box A, its door, its slotted locking-tumbler, the cross-bar adapted to enter the slots in said tumblers, and its rigid depending pin, in combination with the receiving-pouch, its door, the series of slotted tumblers, the bar adapted to enter the slot in said tumblers and containing an opening for the pin T, the angular lever pivoted to the lock and engaging said bar, and projecting outward in the path to the door, and the operating-lever  $i'$ , connected to the door, whereby the closing of the door trips the lever and causes the two bars to be withdrawn from the slots in the tumblers simultaneously.

10. The box, its door, and tumblers, in combination with the receiving-pouch, its door and tumblers, and the lever pivotally connected to the door of the pouch near its conjunction therewith, whereby the lever can be turned out of the way when not in use.

11. The box A, its door, the locking mechanism thereon, and the partition  $f$ , separating said mechanism from the mail-receiving portion of the box, as and for the purpose described.

12. The box A, its door, the series of spring-actuated tumblers, being reduced in thickness, and the cross-shaft  $A'$ , seated in such reduced portion, whereby the motion of the tumblers is limited, substantially as and for the purpose described.

13. The receiving-pouch  $D'$ , its door, the series of slotted tumblers thereon, the bail adapted to enter the slots in said tumblers, and the lever M, engaging said bail and adapted to be engaged by the door of the pouch, whereby the closing of the door will trip said lever and push the bail out of the slots in the tumblers, as and for the purpose described.

14. A letter-box provided with a door and locking mechanism, in combination with a mechanism mounted in a suitable casing, one of said mechanisms provided with a pin or projection, as T, adapted to automatically engage the other mechanism when the two are placed together, whereby one serves as a key to the other.

15. The box, its door and locking-tumblers, the opening  $c'$ , and the shield  $n'$  on the interior of the box for said opening, in combination with the check and receiving-pouch.

16. The box, its door and locking-tumblers, the opening  $c'$  therein, and the shield  $n'$  on the interior of the box, extending from the top of the opening in an outward and downward direction below the termination thereof, and in contact, or nearly so, with the door when closed, in combination with the check and receiving-pouch.

17. The box, its door and locking-tumblers, the opening  $c'$  therein, located near the bottom of the box, and the exterior and interior shields for said opening, as and for the purpose described, in combination with the check and receiving-pouch.

18. The box, its door and locking-tumblers, the opening  $c'$  therein, and the exterior shield,  $n$ , covering said opening, in combination with the check and receiving-pouch.

19. The box A, its door and locking-tumblers, and the opening  $c'$  therein, in combination with the receiving-pouch and check.

Stockholm, September 8, 1886.

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