(No Model.) 2 Sheets—Sheet 1.

G. A. COLTON.

LETTER BOX.

No. 582,457. Patented May 11, 1897.

Fig. 1.

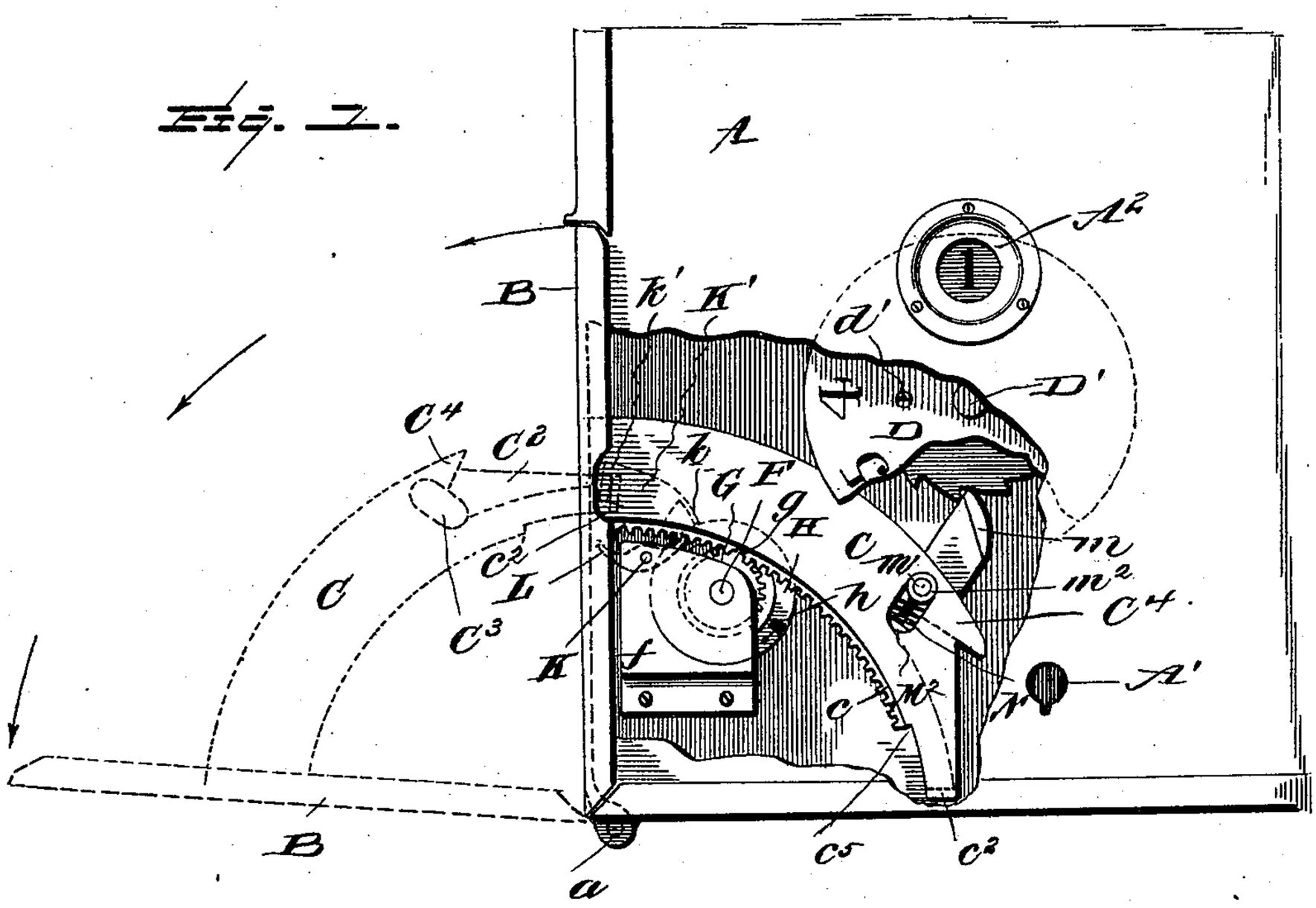

Fig. 2.

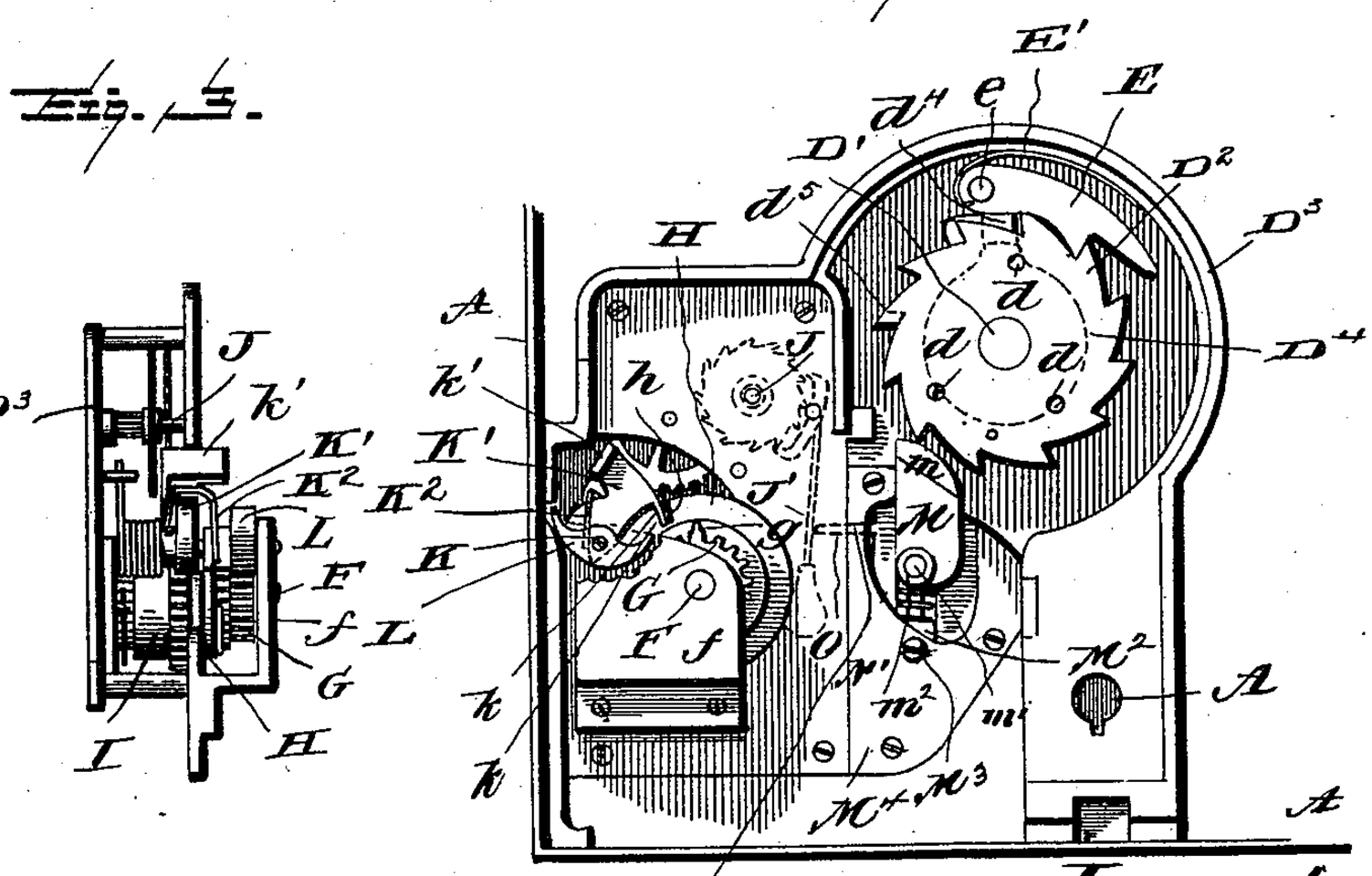

Fig. 3.

Witnesses:
L. C. Hills.
E. K. Bonds.

Inventor:
Geo. A. Colton,
by E. B. Stocking
Atty.

(No Model.) 2 Sheets—Sheet 2.

G. A. COLTON.

LETTER BOX.

No. 582,457. Patented May 11, 1897.

Fig. 4.

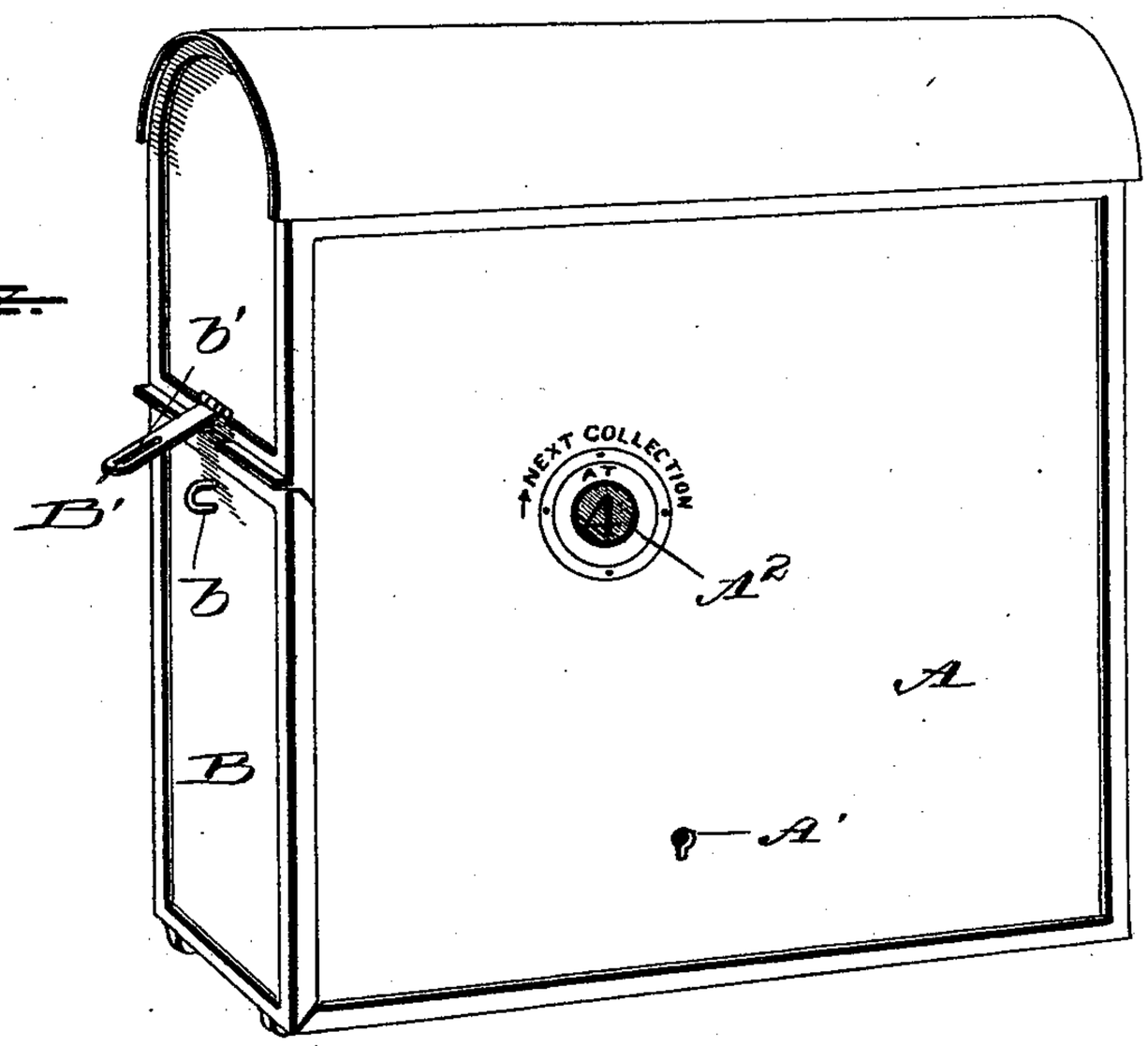

Fig. 5.

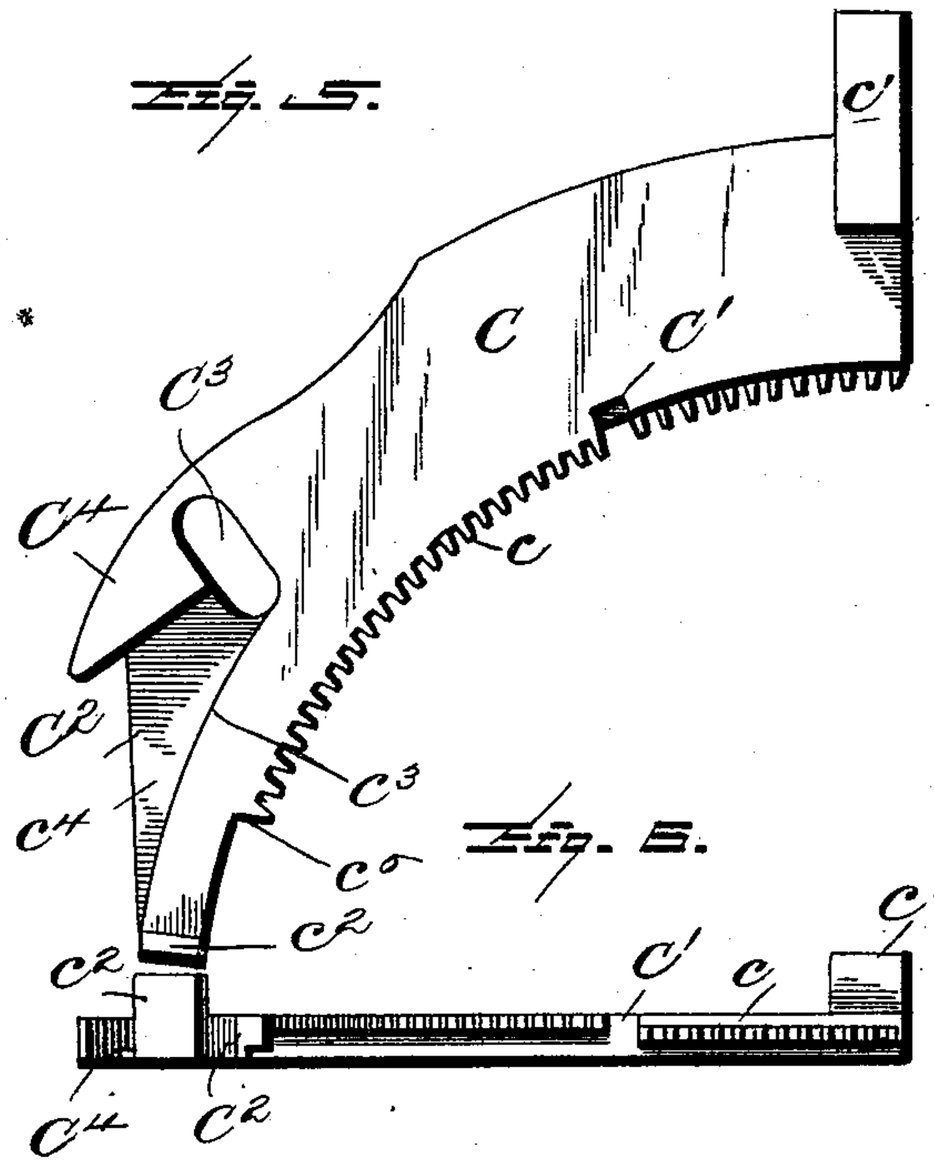

Fig. 6.

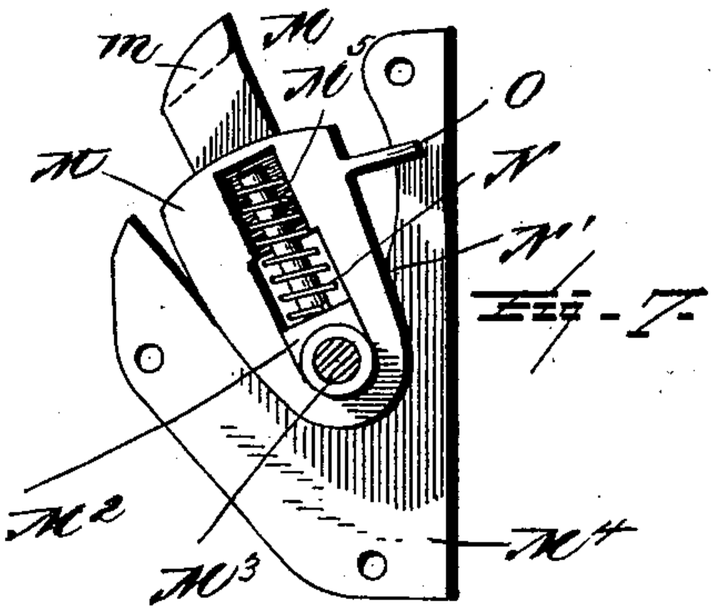

Fig. 7.

Witnesses:
L. C. Hills,
E. K. Bond

Inventor:
Geo. A. Colton,
By E. B. Stocking Atty.

UNITED STATES PATENT OFFICE.

GEORGE A. COLTON, OF WILMETTE, ILLINOIS.

LETTER-BOX.

SPECIFICATION forming part of Letters Patent No. 582,457, dated May 11, 1897.

Application filed October 7, 1896. Serial No. 608,126. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. COLTON, a citizen of the United States, residing at Wilmette, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Letter-Boxes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in letter-boxes, and more particularly to the indicator mechanism therefor, and is designed, primarily, as an improvement upon the Patents Nos. 397,341 and 438,095 previously granted to me.

The present invention has for its object, among others, to provide an improved construction by which the collector can readily determine if the box has been opened and by which the inspector or any one else can readily tell if the carrier has neglected his duties or if he has taken the mail from the box or has skipped the same.

The indicator is provided with a short-time lock to prevent opening the door of the box except at predetermined periods and rendering it impossible to open the door of the box for a few minutes after closing the same, so as to prevent the collector from setting it ahead and skipping one or more collections.

My present construction will also serve as a safeguard against mail-box robberies.

The indicator mechanism is locked within the box, so that it cannot be removed and tampered with, and thus the collector cannot reset the mechanism so as to cover up any neglect on his part, and even if he should perchance be able to unlock the mechanism and remove it the time-lock will prevent his resetting the mechanism without such a loss of time as to insure his detection. The time-lock allows of opening the box only at stated intervals, which intervals may be varied as may be required.

I aim, further, at improvements in the details of construction whereby the mechanism is rendered more complete and compact and the parts reduced to a minimum.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this invention, and in which—

Figure 1 is an elevation of a portion of the box with portions broken away, showing the door open in dotted lines and in full lines closed and the parts in the position they assume when the same is locked. Fig. 2 is a front elevation of the indicator and locking mechanism with the dial removed. Fig. 3 is an end elevation of the indicator-operating mechanism. Fig. 4 is a perspective view of the box. Fig. 5 is a rear elevation of the quadrant removed. Fig. 6 is an under edge view of the same. Fig. 7 is an enlarged detail of the spring-pawl which engages the ratchet of the indicator.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the box, which may be of any well-known form, provided with a door B, hinged at the lower edge at one end, as seen at *a*, and provided with suitable fastening means at the other end—for instance, the staple *b*—adapted to engage the opening *b'* in the hasp B' and to receive a lock of the usual or any preferred form of construction. The joint at the upper end of the door is such as to exclude snow and rain.

On the inner face of the door is a quadrant C, provided upon its under edge with the teeth *c*, and at a point about two-thirds the distance from its free end is provided with a notch C', for a purpose which will hereinafter appear. This quadrant may be affixed to the door in any suitable manner, in this instance being shown as provided with a lock *c'* for that purpose. Near its free end it is provided with the lateral lug c^2 and upon its upper face with the notch or recess C^2, the under face of which is upon a curve concentric with that of the teeth C, as seen at c^3, leaving the flanged portion c^4, and at the inner end of this notch or recess is the slot C^3, disposed at substantially right angles to the length of the quadrant, as seen best in Fig. 5, the pin C^4 upon the upper side of said notch or recess in proximity to the slot having its upper face preferably rounded, as seen most clearly in Fig. 5. This constitutes all of the mechanism carried by the door.

The remainder of the mechanism is disposed

within the box A and is designed to be locked to the bottom thereof in some suitable manner, the side wall of the box being provided with a keyhole A′, as seen in Figs. 1, 2, and 4, for the introduction of a key to unlock said mechanism when desired. This locking mechanism within the box prevents its removal and guards against its being tampered with by malicious persons or by the collector should he desire to change the same in case he should skip the box on a trip.

The box A is provided with an aperture A^2, through which the numbers on the indicator-dial are exposed. This dial D is detachably secured to the ratchet D^2, fast upon the shaft D′, mounted in the casting or supporting-frame D^3 of the mechanism, as indicated more clearly in Fig. 2, the reference-letter *d* in Fig. 2 designating the openings in the ratchet to receive the screws *d′*, by which the disk is retained in position.

E is a pawl pivotally mounted at *e* and designed to engage the teeth of the ratchet, as indicated more clearly in Fig. 2. This pawl is held to its work by the spring E′. (Seen in Fig. 2.) Loose upon the shaft D′ is the plate or disk D^4, having the projection d^4, which is designed to be engaged by the lug or projection d^5 on the under face of the ratchet, as indicated in Fig. 2, the projecting portion of this disk or plate being designed to ride upon and engage the under face of the pawl E to move the same away from operative relation with the ratchet at predetermined periods, so that the ratchet may be returned by its spring to its normal position after having been moved the desired number of teeth to indicate through the opening A^2 the times of collection of the mail in the box.

F is a shaft supported suitably at one end in the wall of the case D^3 and its other end in the plate or bracket *f*, secured within the same. Fast upon this shaft is a gear-wheel G, with which the toothed quadrant C is designed to engage when the door is shut, so as to wind up the clock mechanism. This gear-wheel is provided with a projecting tooth *g*, as seen in Fig. 2, which is designed to be engaged by the shoulder c^5 of the toothed quadrant when the door is first moved. Fast upon this shaft is a disk H, having a peripheral notch *h*, and also fast on this shaft is a spring-drum I, adapted to operate the clockwork of known construction.

J represents the escapement, and J′ the depending weighted arm or pendulum thereof, as indicated by dotted lines in Fig. 2.

K is a shaft parallel with the shaft F, and fast on this shaft is the arm K′, having the tooth or depending portion *k*, which is adapted to engage in the notch *h* of the disk H, as indicated in Fig. 2, and to ride upon the periphery of said disk when the door is in its locked condition. A spring K^2 serves to normally hold the plate in its innermost position. This plate has a lateral projection *k′*, which is designed to be engaged by the lateral projection c^2 on the inner end of the toothed quadrant as the door is opened, so as to throw the plate toward the front of the case or box and lift its toothed or depending portion *k* out of the notch *h* of the disk H.

L is a double or rocking pawl mounted on the shaft K, as shown, being acted upon by the spring K^2, as indicated in Figs. 2 and 3. This pawl is so mounted that but one of its acting portions is in operative position at the same time. When one end is thrown up into operative relation with the segmental rack, the other end is thrown down, so as not to be affected thereby.

M is a pawl adapted to engage the ratchet D^2, having a lateral offset portion *m*, as shown, and a stud *m′*, around which is an antifriction-roller m^2, which is designed to travel in the slot c^3 of the quadrant-rack C, as shown in Fig. 1. This pawl is carried by the frame M′, which is mounted to slide in the direction of the length of the pawl, being guided by the portion M^2, upon opposite sides of which the side portions of said frame pass, and this portion M^2 is pivoted upon the pivot M^3, as seen best in Fig. 2. This pivot is supported in the detachable plate M^4, secured within the casing D^3, and carries the stud or pin M^5, around which is a spring N, which serves to normally hold the pawl in its outermost position, but which is compressed as the pawl is moved bodily toward the pivot M^3. This frame M^4 has a cut-away portion with a cam-face N′, upon which the lower end of the pawl works to guide it in its movements.

With the parts in the position shown in Fig. 2 the operation is as follows: When the door B is unlocked and opened, it moves the ratchet one tooth, and consequently the dial-indicator one space. The pawl L is in position to allow the door to be opened. The toothed quadrant having the stud *m′* and the antifriction-roller thereon engaged in its slot C^3, the movement of the parts first moves the pawl M forward with it, so as to engage the ratchet and move it one tooth, and in the further movement of the rack the pawl whose spring has been compressed by this movement is disengaged from the ratchet and then moves downward and to the rear, so as to be out of operative relation with the ratchet. This pawl or the frame carrying the same has a lateral pin or projection O, which engages the pendulum, as indicated in Fig. 2, holding it from vibrating as it engages the same when the door is opened. As the door opens the pawl L prevents its being closed until it has been fully opened, so that the door cannot be opened a little so as to allow of the removal of the mail and then closed after moving the dial, and the dial cannot be set either ahead or back without fully opening and closing the door. When the door is fully opened, the hook or lateral projection c^2 on the end of the quadrant engages the lateral projection *k′* of the plate K′ and lifts its tooth or de-

pending portion *k* out of the slot in the disk H and would allow the time movement to start were it not for the fact that the pendulum was held out of operative relation by the engagement thereon of the projection O. After the mail is removed and the door is started on its closing movement it cannot be thrown open, for the reason that the inner end of the pawl L is raised and prevents withdrawal of the quadrant, and the door must be fully closed. When this is done, it is locked, and, the arm or projection O being moved away from the pendulum J′, as the pawl M is returned to its normal position the time movement is again started and the door cannot be opened until the disk H has made one entire revolution, so that its notch comes opposite the tooth or depending portion *k* of the plate K′, when its spring K^2 throws the same down into the notch, as indicated in Fig. 2. As the door is closed the racked quadrant, engaging the gear-wheel G, winds up the clock-movement, the door is locked, and the arm or pawl M, which revolves the dial, is moved back to its normal position, the stop O is moved away from the pendulum, and the parts are again set in motion. When the time is up, the disk H has made one entire revolution and the tooth *k* falls into the notch thereof, the time-movement is stopped, and the double pawl L is reversed, so that the door may be opened.

The time-movement can, if desired, be employed on a box without the indicator and may be arranged to open any length of time desired or to lock and unlock at stated intervals. The indicator can, if desired, be used without the time-movement.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

I should consider a weighted lever adapted to be raised by the quadrant as an equivalent of the spring designed to be wound by the inner movement of such quadrant, and all such modifications I should consider as clearly within the scope of my present invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with the clock-movement, of the gear-wheel, the movable door and the toothed quadrant carried thereby and adapted to engage said gear-wheel; substantially as described.

2. The combination with the time-lock and the movable door, of means carried by the door for actuating the time-movement; substantially as described.

3. The combination with the indicator and the time-movement, of a movable door, a toothed quadrant carried thereby, and mechanisms constructed and arranged to actuate the indicator as the door is opened and to start the time-movement as the door is closed; substantially as described.

4. The combination with the indicator and the time-lock, of the pivoted plate having a lug, and the quadrant on the door having a projection to engage the lock on said plate, and a pawl actuated by the movement of the quadrant to actuate the indicator; substantially as described.

5. The combination with the clock-movement, of a gear on the arbor thereof, a notched disk on said arbor, a pivoted plate having a portion to engage the notch of said disk, and the movable door having a toothed quadrant adapted to engage said gear, and a portion to actuate said plate to disengage its lug from the notch; substantially as described.

6. The combination with the clock-movement, of a gear on the arbor thereof, a notched disk on said arbor, a pivoted plate having a portion to engage the notch of said disk, and the movable door having a toothed quadrant adapted to engage said gear, a portion to actuate said plate to disengage its lug from the notch, and a double rocking pawl arranged in the path traversed by said quadrant; substantially as described.

7. The combination with the box, the indicator and the movable door, of a time-lock and a quadrant carried by the door and constructed to control the movements of the indicator and time-lock; substantially as described.

8. The combination with the letter-box, its movable door and the time-lock, of a toothed quadrant carried by the door, a pivoted plate having a finger, and a lateral projection, a double rocking pawl, and a spring acting on said plate and also on said pawl; substantially as described.

9. The combination with the letter-box and its door, of a time-lock arranged within the box and constructed to be controlled in its movements by positive engagement with means carried on the door; substantially as described.

10. The combination with the letter-box and its door, of a time-lock arranged within the box and constructed to be controlled in its movements by positive engagement with means carried on the door, and an interposed double rocking pawl mounted in position to control the movements of the door; substantially as described.

11. The combination with the time-lock and the movable door with its toothed quadrant, of the indicator, its ratchet and the pawl for engaging said ratchet, having a portion working in a slot in said quadrant; substantially as described.

12. The combination with the time-lock and the movable door with its toothed quadrant, of the indicator, its ratchet and the pawl for engaging said ratchet having a portion working in a slot in said quadrant, and

a spring acting to normally force said pawl outward; substantially as described.

13. The combination with the indicator and its ratchet, and the pawl engaging said ratchet, of the time-lock, and a projection carried by said pawl adapted to engage the pendulum of the escapement of said time-lock; substantially as described.

14. The combination with the indicator and its ratchet, and the pawl engaging said ratchet, of the time-lock, and a projection carried by said pawl adapted to engage the pendulum of the escapement of said time-lock, said pawl being mounted in a slot in the toothed quadrant carried by the door; substantially as described.

15. The combination with the indicator and its ratchet, of the movable door, the toothed quadrant carried thereby and having a transverse slot, and the pivoted pawl having a portion working in said slot and mounted for movement lengthwise thereof; substantially as described.

16. The combination with the indicator and its ratchet, of the movable door, the toothed quadrant carried thereby and having a transverse slot, the pivoted pawl having a portion working in said slot and mounted for movement lengthwise thereof, and a spring acting on said pawl to normally force it outward; substantially as described.

17. The combination with the time-lock and the clock-movement and its pendulum-escapement, of the pawl for engaging the ratchet of the indicator mechanism, and a lateral projection on said pawl adapted to engage said pendulum; substantially as described.

18. The combination with the time-lock and the clock-movement and its pendulum-escapement, of the pawl for engaging the ratchet of the indicator mechanism, a lateral projection on said pawl adapted to engage said pendulum, and means carried by the movable door to control the time-lock and to actuate said pawl; substantially as described.

19. The combination with the clock-movement and the gear-wheel on the arbor thereof having a projection, of the movable door, and the quadrant carried thereby having a racked under portion, and a shoulder to engage the projection on the gear; substantially as described.

20. The combination with the clock-movement and the gear-wheel on the arbor thereof having a projection, of the movable door, the quadrant carried thereby and having a racked under portion, a shoulder to engage the projection on the gear, and a double rocking pawl mounted in the path of said quadrant to be engaged by the teeth thereof; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. COLTON.

Witnesses:
AUG. W. BUTZOW,
HATTIE M. COLTON.