

No. 652,549.

Patented June 26, 1900.

M. S. NORTON.
MAIL BOX TIME INDICATOR.

(Application filed Apr. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

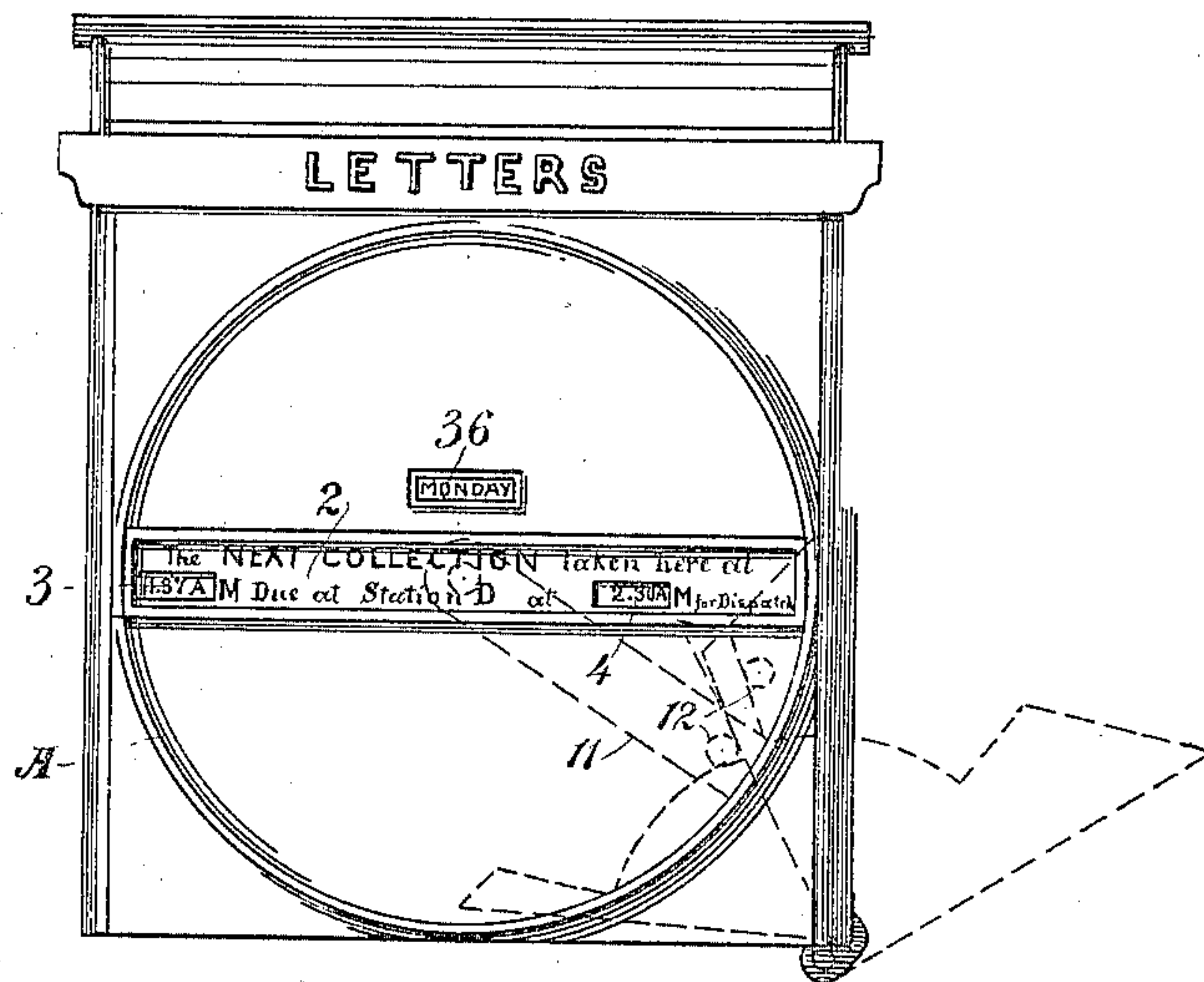
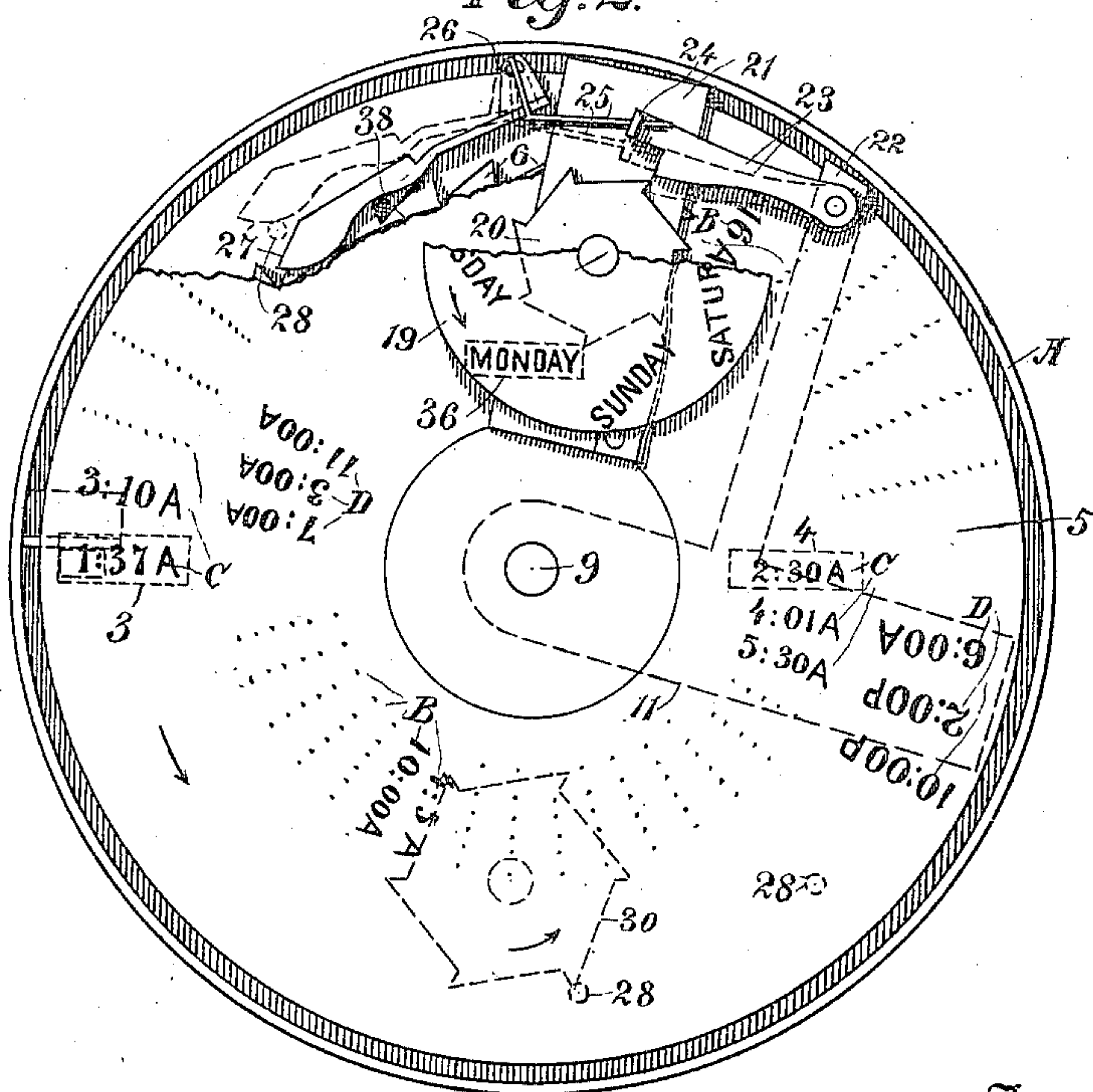


Fig. 2.



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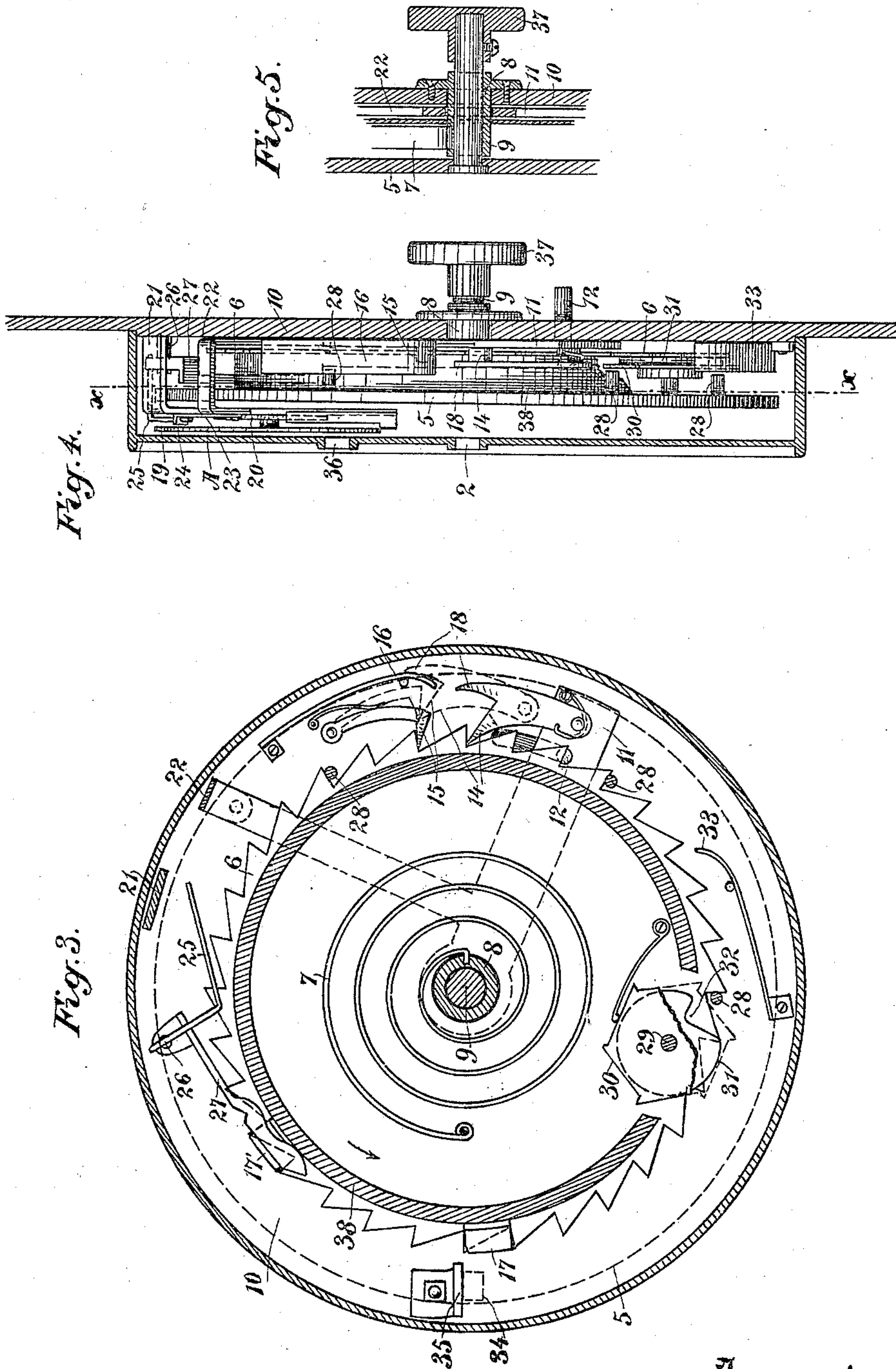
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

MASON S. NORTON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE
POSTAL DEVICE AND IMPROVEMENT COMPANY, OF SAME PLACE.

MAIL-BOX TIME-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 652,549, dated June 26, 1900.

Application filed April 11, 1900. Serial No. 12,436. (No model.)

To all whom it may concern:

Be it known that I, MASON S. NORTON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Mail-Box Time-Indicators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an attachment for street letter-boxes, such as may be used by postal departments.

It consists of a mechanically-movable device and means by which information is exposed through the front of the apparatus to indicate the times when mails are collected from boxes, the outgoing mail with which such collections will connect, and other matter necessary or useful for the depositor to know.

It also comprises the means by which the information is changed after each collection, so as to show the hour of the next collection, means for indicating the changed times of collection for Sundays and holidays, and means for returning the apparatus after the day's collections are finished or after each of the Sunday or holiday collections are completed to the normal position in readiness for the ordinary week-day collections.

It also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a front view of the indicator. Fig. 2 is a similar view, the outside cover being removed. Fig. 3 is a vertical section on line *x x* of Fig. 4. Fig. 4 is a central vertical section through the casing, showing the interior. Fig. 5 is a sectional detail through the center of the device.

The operation of this mechanism is effected by rotary advance and return movements, the advance movements serving to indicate through openings in a suitable case A the times of collection, and, if desired, the outgoing mail with which a collection of any particular hour will connect. It may also indicate the day of the collection and any other matter which it is desirable to have shown in this connection.

As illustrated in the present case, I have

shown the casing A, made of any suitable and sufficiently-strong material. It may be affixed to or formed with the box, and it has across the face of it a space in which is fitted a card 2, on which is printed the words "The next collection taken here at —," or other suitable inscription. After the word "at" or its equivalent is an open space 3 made through the casing, and through this will appear the figures denoting the hour at which the next collection is to take place and the letter "A" or "P," which will be associated and in line with the letter "M," which is permanently printed on the fixed card in line with the opening through which these figures and letters appear. Thus the figures may be "10:30 A," which taken in conjunction with the fixed letter "M" would denote "A. M.," or they might be "3:30 P," which would indicate in conjunction with the fixed letter "M" that it was an afternoon collection. After this may appear the words "due at" and the name of the station or point where the collections are to be carried, and following this another opening 4, in which will appear the figures denoting the time when the mail collected at the hour indicated will be received at the forwarding-station for despatch. This card is covered by a heavy glass or other transparent plate and is removable from the interior of the case if any changes in its form are necessary.

Within the case is a circular disk 5, mounted upon a central shaft, with which it is turnable. The face of this disk, which is adjacent to the front of the case, is divided into radial and concentric sections. The outer section carries the figures and letters denoting the hour of the day when the collections will be made. Thus if thirteen collections are to be made upon a week-day the hours of these collections, properly spaced, will be arranged radially around the periphery of the disk, and they will be successively brought into line with the opening 3 of the case by each turn of the disk. The opening 4 is on the line of an inner circle of the disk concentric with the outer one mentioned, and upon this inner circle and on the opposite side of the center from the figures denoting collections will appear the figures denoting the hour when the

collection indicated through the opening 3 will reach the point of despatch. The circumference of the circle is sufficiently large to contain as many hours of collection as will occur in the most populous districts, and as there are three hundred and sixty degrees in the circle the space will be ample for this purpose and also for collections which are to be made upon Sundays and holidays. As these collections differ from the week-day collections, being fewer in number, and also differ from each other, because the holiday collections are usually different from those of Sunday, it will be manifest that a different set of figures must be employed to denote these occasional collections.

As shown in the present device, the Sunday collections B follow the week-day collections C and the holiday collections D again follow the Sunday collections, so that by a sufficient revolution of the disk each of these lines of figures may be brought opposite the respective openings.

The disk 5 has fixed upon its rear a toothed ratchet-wheel 6, and carried by this disk is a coiled spring 7, one end of which is fixed to the disk and the other is adapted to connect with a slotted sleeve 8, through which the shaft 9 of the disk is turnable. The slotted sleeve 8 is fixed to another circular disk or face 10, which carries suitable pawls adapted to engage with the teeth of the ratchet-wheel 6, so that after each forward movement of the ratchet caused by the opening and closing of the door, as shown in dotted lines on Fig. 1, it will be retained at the point of its advance. The distance between the teeth of the ratchet-wheel corresponds with the distance between the lines of figures upon the front of the disk which indicate the collections, and it will be manifest that when the disk has been turned forward from one date to the next the pawl 15 upon the fixed disk 10, engaging with a tooth of the ratchet-wheel, will retain it at that point.

The whole apparatus is inclosed in the case A, the disk 10 forming a back for the inner side of the case, and the device being contained within and protected by the postal box is only accessible when the door of the box is opened.

In order to actuate the mechanism here described, any suitable lever or link connection may be made between the door and the pawl-carrying devices. These devices comprise an arm 11, having its inner end turnable about the sleeve 8, and the outer end has a pin 12, projecting through a slot in the rear disk 10 of the case. This pin serves for the connection, and when the door is opened or closed, as the connection may be made, the pawl 14, carried by the arm 11, will be moved and caused to engage and advance the ratchet-wheel one tooth, at which point it will be retained by the holding-pawl 15. It is preferable that this operation should take place when the door is opened, so that if the disk

needs any adjusting it can be done before the door is closed, it being the only time when adjusting can be done. The spring 7 has a sufficient tension to revolve the disk 5 backwardly whenever the ratchet-wheel is released from the pawl which retains it, and it will be manifest that in order to render the apparatus automatic it will be necessary to return the disk to a position indicating the first morning collection after any day's collection has been finished. In order to effect this, one of the teeth of the ratchet-wheel is blanked, or has a stop which fills it level with the points to prevent the pawl from falling into the teeth and engaging them after the last collection at night. At the same time the movement of closing the door raises the pawl and retains it, so that the spring will act to return the disk 5 to its position for the first morning collection. This operation of raising the pawls 14 15 is effected by means of a plate 16, so located with relation to the pawl 14 that when the latter is raised to rise over the blank tooth, which is shown at 17, a spur 18, carried with the pawl 14, passes above the plate 16, and thus holds the pawl 14 up and out of contact with the tooth of the ratchet, at the same time pressing the pawl 15 upwardly and also out of the path of the teeth 6, and this allows the ratchet and the indicator-disk to return to their normal position. The next movement of opening and closing the door disengages the spur 18 from the holding-plate and allows the pawls, which are spring-pressed, to again drop into the teeth of the ratchet.

In front of the disk 5 is another smaller disk 19, having printed on its face the days of the week. This disk is fixed to a ratchet-wheel 20 with seven teeth, which is pivoted to a bracket 21, extending from the back 10 of the casing. Formed upon the arm 11, at right angles, is another arm 22, carrying on its upper end the pawl 23. The lower edge of this pawl engages the teeth of the ratchet-wheel 20. Above the engaging point is a short extension 24, bent at right angles, and having an eye in its end through which a bent wire 25 is slidable. The wire has one end fixed to a lever 27, pivoted at 26 to the back 10. The weighted lower end rests on the housing 38 of the spring 7, and extending from the back of disk 5 are pins 28. These pins are so located that during their travel with the disk 5 they will lift the lever 27 and lower the wire 25. The latter will lower the pawl 23, so that its point will engage and advance the wheel 20 whenever the arm 22 is operated. Whenever the arm 11 is operated, and with it the arm 22, the pawl 23 will be pushed forward; but as the lever 27 rests on the housing 38 the wire 25 normally retains the pawl 23 suspended and out of contact with wheel 20, as shown in Fig. 2. Now the pins 28 are so timed that when the last collection for the day is made and the pawl 14 kept suspended, as previously de-

scribed, the first pin 28 will have lifted up the lever 27, thus tilting the wire 25 and allowing the pawl 23 to engage and advance the wheel 20 one tooth. This presents the name of the following day in the opening 36. This operation takes place for each of the week-days; but as on Saturday's last collection the disk 5 is not returned (as will be hereinafter described) the first Sunday morning collection will move the pin 28 beyond the lever 27, and so a second pin 28^a will lift the hanger 27 at the last Sunday collection to show "Monday" at 36. The holding up of arm 11 and also 22 after the forward advancement keeps the lever 27 through its connections also suspended and allows the disk 5, with the pins 28, to pass under pawl 23 and back to its initial position. A third pin 28^b serves in the same way for holiday collections; but in this case the disk 5 is set by hand through the knob 37 in the interior of the letter-box, as shown in Figs. 4 and 5, and that brings this third pin under the lever 27, as before, at the last holiday collection. The same suspension of the lever 27 allows all the pins to pass clear under it, as before described, at the return of disk 5. Inserted in the housing 38 and pivoted therein is a ratchet-wheel 30 with six teeth and having a retaining-spring. Fixed to the back of this wheel 30 is a rim 31, having its radius to come flush with the ends of teeth of the ratchet-wheel 6, so as to form a bridge from one tooth to another. This concentric part of the hub covers five-sixths of its entire periphery, corresponding with the distances of five teeth on wheel 6. The sixth part forms a depression 32, equal in shape and size to the distance between two teeth of wheel 6. Now as the arm 11 is operated on common week-days every last collection will bring the hub 31 under the pawl 14, causing spur 18 of the latter to rise up on plate 16, thus allowing the wheel 6 to return, but in its return one of the teeth on wheel 30 will strike against the spring-plate 33, and this will cause the wheel 30 to revolve until its tooth is clear of plate 33, at the same time passing under it. This movement of wheel 30 is equal to the distance between two teeth of 30, or one-sixth of its periphery, so that at the close of Friday's collection the depression 32 will coincide with the space between two teeth of 6, ready to be presented to pawl 14 at the last Saturday collection, and this will allow the pawl 14 to fall between two teeth of 6, and thus continue the revolutions of the ratchet through the Sunday collections, because the spur 18 will pass beneath the arm 16 and the pawl will not be disengaged. In order to present the list of Sunday collections B on the face of the box, these figures follow in succession after the week-day's collection C, so that, as after Saturday's last collection, the wheel 6 is not returned, because the pawl 14 has dropped into the depression 32 of wheel 30, and consequently the wheel 6 could not return, the collections on Sunday

keep on advancing the disk 5, bringing the Sunday list B in sight. Now the last collection on Sunday should return the disk 5 back again, but the wheel 30 has far advanced beyond the pawl 14, so a bridge 17 is formed between two teeth and so located that at the last collection on Sunday this bridge will raise pawl 14 and let the disk 5 return.

To provide for the holiday collections, the operator turns the disk 5 by means of the knob 37 until the first holiday figure D appears at 3. This is done at the last collection of the day previous. This turning brings the wheel 30 and bridge 17 beyond the pawl 14. Therefore another bridge 17' is located so that at the last holiday collection this bridge 17' meets the pawl 14 and lets the disk 5 return. Of course each return of disk 5 will have rotated wheel 30 one tooth, so that when Saturday arrives the depression 32 will be in readiness again, as will also the pins 28 have operated the mechanism for exhibiting the respective day of the week, no matter on what day of the week the holiday was observed.

The return of disk 5 is limited to its initial position by having a lug 34 on its inner side to come in contact with a stop 35, fixed to the back 10 of the casing.

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

1. The combination with a letter-collecting box of a cylindrical case carried upon the front of said box, an open slot formed in the front of said case, a disk mounted and turnable upon a central shaft and carrying announcements of the hours of collection, a ratchet-wheel fixed and turnable with the disk, a pawl adapted to engage the teeth of the ratchet, an arm upon which said pawl is carried, and a lever between said arm and the door of the letter-box, said lever extending substantially at right angles to the arm, having one end turnable about the shaft and the opposite end contiguous to the door whereby the movement of the door reciprocates the pawl and advances the ratchet wheel and disk, a retaining-pawl, means for automatically releasing both pawls and returning the disk after the day's collections have been completed, and a stop limiting the return movement.

2. The combination with a letter-collecting box of a cylindrical case carried upon the front of said box, an open slot formed in the front of said case, a disk mounted and turnable upon a central shaft and carrying announcements of the hours of collection, a ratchet-wheel fixed and turnable with the disk, a pawl adapted to engage the teeth of the ratchet, an arm upon which said pawl is carried, and a lever between said arm and the door of the letter-box, said lever extending substantially at right angles to the arm, having one end turnable about the shaft and the opposite end contiguous to the door whereby the movement of the door reciprocates the pawl and advances the ratchet wheel and disk, a retaining-pawl,

means comprising a disengaging device and a coil-spring having one end fixed and the other connected with the disk and ratchet whereby the parts are returned to their normal position after the day's collection, and a stop by which the return movement of the disk is arrested.

3. The combination with a letter-collecting box of a circular case having openings in the front, a disk having marked thereon the hours of collection, a shaft upon which said disk is turnably mounted, a ratchet-wheel turning in unison with the disk, a pawl mounted upon a centrally-fulcrumed arm and adapted to engage the teeth of the ratchet, a connection between the pawl-carrying arm and the movable door of the letter-box whereby the pawl is moved by the opening and closing of the door so as to advance the ratchet a single tooth at each forward movement of the arm, a retaining-pawl, a rider or bridge by which the pawl is prevented from engaging a tooth of the ratchet at the last collection, a spur carried by the pawl and an arm which engages said spur at the next movement of the pawl whereby the latter and the retaining-pawl are held out of contact with the ratchet, and a spring by which the disk and ratchet are returned to their normal position.

4. The combination with a letter-collecting box of a circular casing having openings made through its face, a disk upon which the hours of collection or delivery for week-days are marked, followed by those for Sunday, a ratchet fixed and turnable in unison with the disk, an arm connected with the door of the letter-box and movable about the center of suspension of the disk with each movement of the door, a pawl carried by said arm adapted to engage the teeth of the ratchet to advance it one tooth at each movement of the arm, a retaining-pawl, an independent ratchet having as many teeth as there are days in the week, carried by the disk and having a rim, the periphery of which is on the level of the teeth of the main ratchet for five-sixths of its circumference, said ratchet and rim being so located that they are brought beneath the pawl of the main ratchet at the end of each week-day's collection to form a bridge whereby said pawl is disengaged from the teeth of its ratchet, and the latter allowed to return.

5. The combination with a letter-collecting box of a circular casing having openings made through its face, a disk upon which the hours of collection or delivery for week-days are marked, followed by those for Sunday, a ratchet fixed and turnable in unison with the disk, an arm connected with the door of the letter-box and movable about the center of suspension of the disk with each movement of the door, a pawl carried by said arm adapted to engage the teeth of the ratchet to advance it one tooth at each movement of the arm, a retaining-pawl, an independent ratchet having as many teeth as there are days in the

week, carried by the disk and having a rim, the periphery of which is on the level of the teeth of the main ratchet for five-sixths of its circumference, said ratchet and rim being so located that they are brought beneath the pawl of the main ratchet at the end of each week-day's collection to form a bridge whereby said pawl is disengaged from the teeth of its ratchet, and the latter allowed to return, a notch formed in the rim of the supplemental ratchet and coinciding with the teeth of the main ratchet after the last collection of Friday night, so that the pawl will continue to act and turn the main ratchet and the disk to expose the Sunday collection.

6. The combination with a letter-collecting box of a case having a centrally-pivoted disk carrying the hours of collection, an opening through the case through which the next hour is exposed after each collection, a ratchet fixed and turnable with the disk, a centrally-fulcrumed arm, and connections between said arm and the door of the letter-box whereby the arm is reciprocated in a small arc by each opening and closing of the door, a spring-pressed pawl carried by the arm, engaging the ratchet so as to advance it one tooth at each opening and closing of the door, and a retaining-pawl to hold the ratchet at each point of its advance, a circular rim carried by the disk, so located that at the last collection of the day it moves beneath the pawl and lifts it above the line of the ratchet-teeth, a spur carried by the pawl and an arm with which said spur engages to retain the pawl in its elevated position when the door is closed for the last time during the day, a spring by which the ratchet is returned to its normal position whereby the next opening and closing of the door acts to again engage the pawl with the ratchet and indicate the next-following collection.

7. In combination with a letter-collecting box of a case having a centrally-pivoted disk carrying the hours of collection, an opening through the case through which the next hour is exposed after each collection, a ratchet fixed and turnable with the disk, a centrally-fulcrumed arm, and connections between said arm and the door of the letter-box whereby the arm is reciprocated in a small arc by each opening or closing of the door, a spring-pressed pawl carried by the arm engaging the ratchet so as to advance it one tooth at each opening and closing of the door, and a retaining-pawl to hold the ratchet at each point of its advance, a circular rim carried by the disk so located that at the last collection of the day, it moves beneath the pawl, and lifts it out of the line of the ratchet-teeth, a device engaging and retaining both pawls out of contact with the ratchet, a spring by which the ratchet and disk are returned to their normal position, a six-toothed ratchet fixed and turnable with the circular rim, and an arm engaging said ratchet when the main disk is returned so as to advance it one tooth at each movement.

8. The combination with a letter-collecting box with the indicating-disk, main ratchet advancing and retaining pawls and disengaging mechanism, of a circular rim carried by the disk and so located that during week-days it raises the pawls after the last collection to allow the indicating-disk to return to its starting position, said rim having a notch corresponding with the Friday collection, and means for advancing the rim so as to present the notch in unison with a tooth of the main ratchet to allow the pawl to fall into said notch and tooth of the ratchet, whereby the pawls remain in engagement to continue its advance and expose the Sunday hours of collection.

9. The combination with a letter-collecting box, the indicating-disk, main ratchet advancing and retaining pawls and disengaging mechanism, of a circular rim carried by the disk, and so located that during week-days it raises the pawls after the last collection to allow the indicating-disk to return to its starting position, a six-toothed ratchet fixed to said rim, and an arm or pawl engaging the ratchet to advance it one tooth upon each return of the indicating-disk, whereby the notched portion is brought to coincide with a tooth of the main ratchet every sixth day.

10. The combination with a letter-collecting box, the indicating-disk, main ratchet advancing and retaining pawls and disengaging mechanism, of a circular rim notched at one side carried by the disk and so located that during week-days it raises the pawls after the last collection to allow the indicating-disk to return to its starting position, a six-toothed ratchet fixed to said rim, and an arm or pawl engaging the ratchet to advance it one tooth upon each return of the indicating-disk, whereby the notched portion is brought to coincide with a tooth of the main ratchet every sixth day, a supplemental disk carrying all the days of the week, a correspondingly-toothed ratchet-and-pawl mechanism by which it and the disk are turned to indicate the successive days of the week.

11. The combination with a letter-collecting box, indicating-disk, main ratchet, advancing and retaining pawls and disengaging mechanism, of a circular rim carried by the disk having a notch in its periphery, and means for rotating said disk so that the notch coincides with a tooth of the main ratchet to allow the pawl to continue its engagement with the ratchet, and advance the latter to expose the Sunday's collections, and a bridge fixed between two of the teeth adapted to raise the advancing and retaining pawls and cause them to be held up by the disengaging

mechanism after the last Sunday's collection, whereby the disk returns throughout the whole distance to the week-day commencing-point.

12. The combination with a letter-collecting box, an indicating-disk, main ratchet, advancing and retaining pawls, of a disengaging mechanism by which the disk and ratchet are returned to their initial position after each week-day's collections, and a supplemental device by which said disengaging mechanism is prevented from operating on the last week-day, and the disk is further rotated to expose the Sunday-collection hours.

13. The combination with a letter-collecting box, of an indicating-disk, with one or more series of differently-timed collection-hours marked thereon, and means for advancing said disk to successively expose the hours of one series, and to return the disk to its initial point after the completion of said series, and a mechanism by which such return is periodically prevented, and the rotation of the disk is continued to expose the following series.

14. The combination with a letter-collecting box of an indicating-disk with two or more series of differently-timed collection-hours, disposed in a single line of curvature, means for advancing the disk to successively expose the hours of one series and to return the disk to its initial point after the completion of said series, a mechanism by which such return is periodically prevented, and the rotation of the disk is continued to expose the following series, and a device releasing the disk to allow it to return to its initial point after the completion of the subsequent series.

15. The combination with a letter-collecting box of an indicating-disk with two or more series of differently-timed collection-hours disposed in a single line of curvature, means for advancing the disk to successively expose the hours of one series and to return the disk to its initial point after the completion of said series, a mechanism by which such return is periodically prevented, and the rotation of the disk continued to expose the following series, and a supplemental indicator and means for moving it in unison with each exposure of the first series, and to indicate the exposure of the second series.

In witness whereof I have hereunto set my hand.

MASON S. NORTON.

Witnesses:

S. H. NOURSE,
JESSIE C. BRODIE.