

S. C. COX.
INDICATOR.
APPLICATION FILED APR. 6, 1912.

1,058,558.

Patented Apr. 8, 1913.

3 SHEETS-SHEET 1.

Fig. 1.

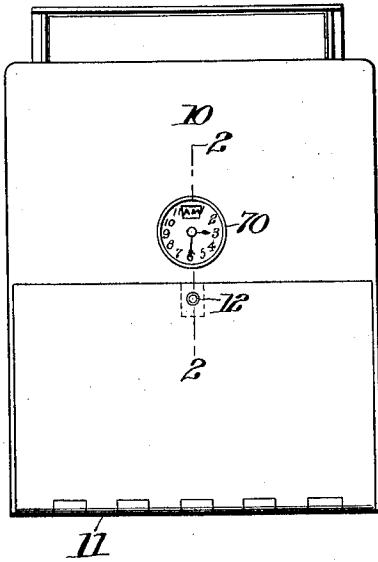


Fig. 7.

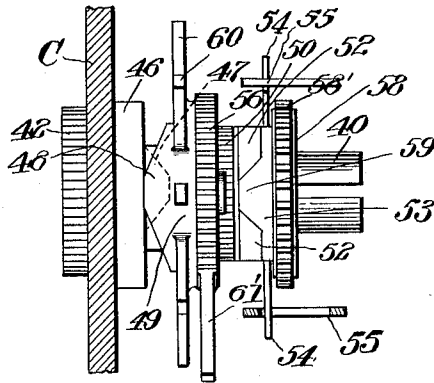
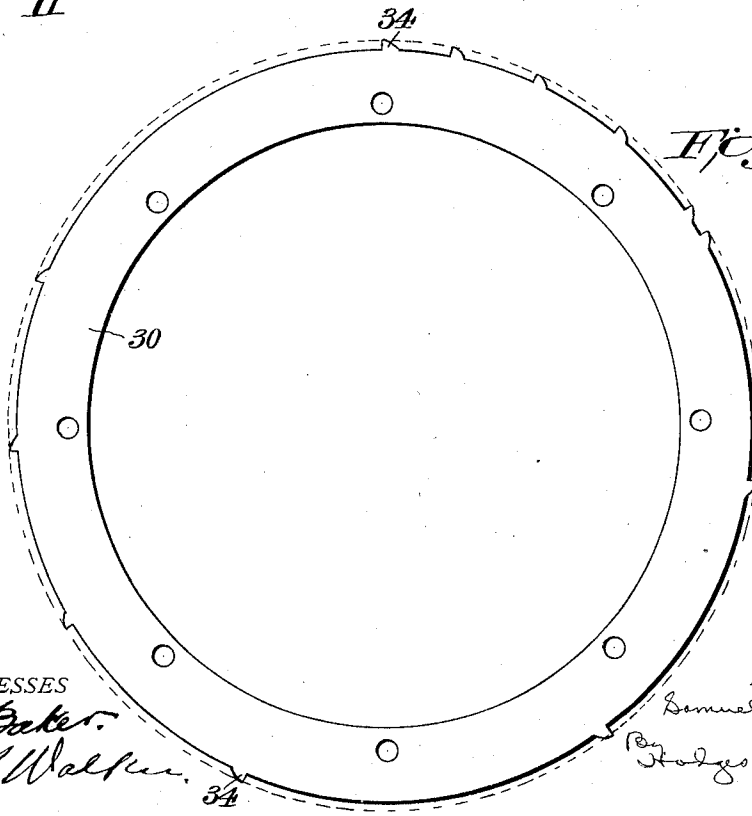


Fig. 6.



WITNESSES
G. F. Baker.
B. H. Walker.

INVENTOR
Samuel B. Cox
By *Holmes & Holmes,*
Attorneys

1,058,558.

Patented Apr. 8, 1913.

3 SHEETS—SHEET 2.

Fig. 2.

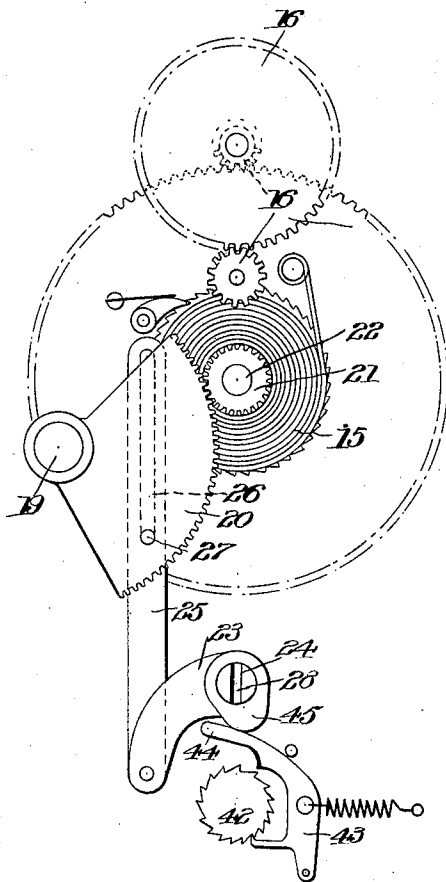
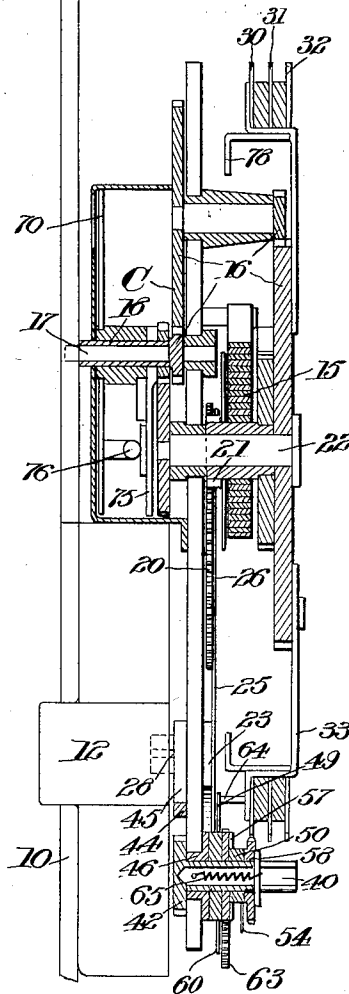


Fig. 4.



WITNESSES

W. F. Baker
C. N. Walter

INVENTOR

Samuel C. Cox
By Rodgers & Rodgers
 Attorneys

S. C. COX.
INDICATOR.

APPLICATION FILED APR. 6, 1912.

1,058,558.

Patented Apr. 8, 1913.

3 SHEETS-SHEET 3.

Fig. 3.

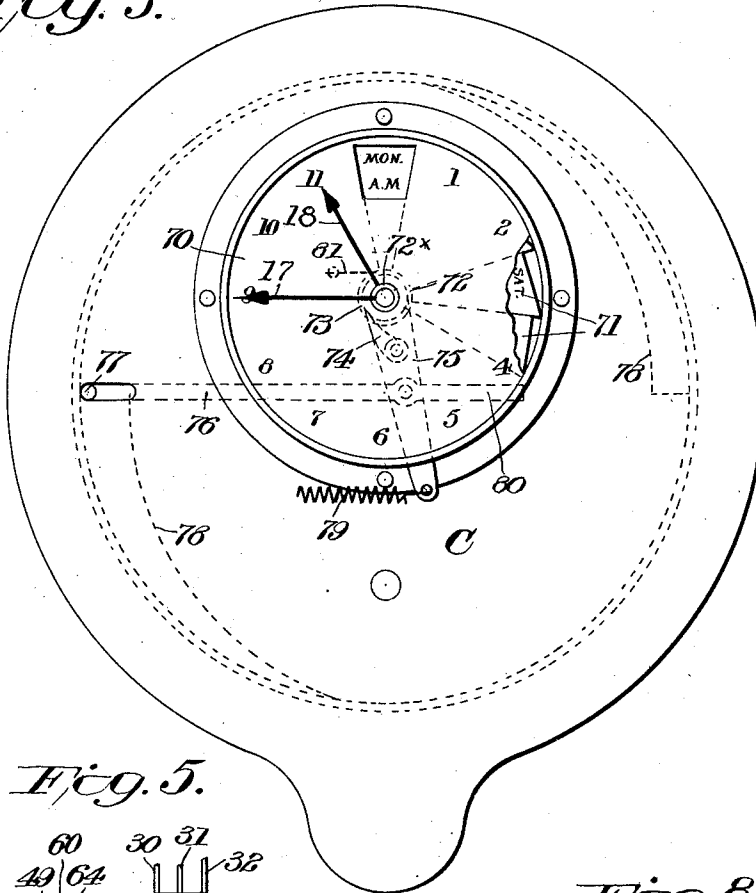
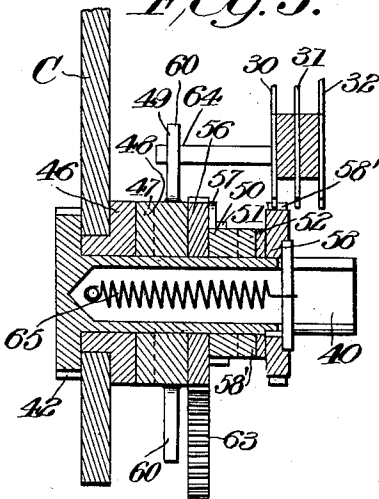


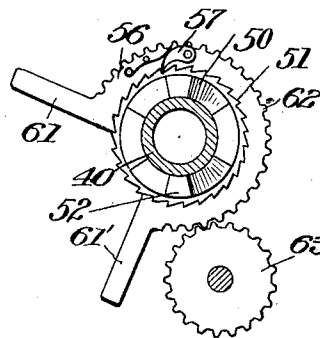
Fig. 5.



WITNESSES

W. Baker
C. M. Walker

Fig. 6.



INVENTOR

Samuel S. Cox
By Hedges & Hedges
Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL C. COX, OF WASHINGTON, DISTRICT OF COLUMBIA.

INDICATOR.

1,058,558.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed April 6, 1912. Serial No. 689,058.

To all whom it may concern:

Be it known that I, SAMUEL C. COX, a citizen of the United States, residing in the city of Washington, District of Columbia, have invented new and useful Improvements in Indicators, of which the following is a specification.

This invention contemplates certain new and useful improvements in indicators, being particularly designed for use in connection with public letter boxes, although not limited to such use.

One of the objects of the invention is to provide an indicator which may be readily attached to a letter box in such manner that the opening of said box will automatically actuate the indicator to indicate the hour of the next collection.

A further object is to provide an indicator of the character referred to which will automatically change from the week day to Sunday schedules.

A further object is to provide means by which the schedules may be altered at will.

A further object is to provide means for setting the indicator to conform to holiday schedules.

A further object is to provide means so attached to a letter box that the latter may not be opened without operating the indicator, thereby affording a check upon the collector.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a front elevation of a letter box with my indicator attached thereto. Fig. 2 is a detail view illustrating the winding mechanism. Fig. 3 is a front view of the dial for indicating the days of the week, and its adjuncts. Fig. 4 is a transverse sectional view on the line 2—2, Fig. 1. Fig. 5 is an enlarged sectional view illustrating the controlling mechanism. Fig. 6 is a detail view illustrating one of the indexing disks. Figs. 7 and 8 are detail views illustrating the controlling mechanism.

Referring to the drawings, 10 designates a letter box of any suitable or preferred construction, the form illustrated being that covered by Letters Patent 960,157, granted to me May 31, 1910, and provided with a drop bottom 11 held normally in closed position by a suitable lock 12.

Supported in any suitable manner within the box is a casing C in which is located a

clock mechanism of any preferred construction, provided with the usual spring 15, and trains of gearing 16 for operating the minute and hour hands 17, 18, respectively, said hands being secured to suitable arbors projecting through the wall of the casing C. Pivottally mounted upon a suitable stud 19 carried by a wall of the inclosing casing is a toothed sector 20 having teeth meshing with the teeth of pinion 21 rotatably mounted upon the winding post 22 for the main spring. A pawl and ratchet connection between pinion 21 and winding post 22 prevents relative rotation of said pinion and shaft in one direction. Said sector 20 is moved on its pivot stud 19 by means of a lever 23 secured to a pivot stud 24, the free end of said lever being pivottally connected to one end of a link 25. Said link is provided with a longitudinal slot 26 to receive a pin 27 projecting from the inner face of the sector 20. The pivot stud 24 is provided with a slot 28 in its outer end, said slot being preferably located opposite the barrel of the lock 12 so that the key for operating said lock will engage the slot 28. In this manner I insure that operation of the lock is imperative before operation of the indicating mechanism can take place, it being necessary to operate the lock before the box may be opened.

The operation of the clock mechanism is regulated by means of index plates 30, 31, 32, separated by suitable spacing disks, and all secured to a disk 33 so connected with the clock mechanism as to be impelled by the main spring of the latter. Each of said disks comprises a ring formed of sheet metal provided with peripheral ratchet teeth 34, each disk being constructed with two hundred and eighty eight of such teeth, each tooth representing a period of five minutes. In practice all of such teeth are removed save those that represent the various hours at which it is desired to interrupt the movement of the clock hands 17, 18. In the drawings the teeth that are removed are illustrated in dotted lines while the teeth that are retained are illustrated in full lines, although it is obvious that I am not limited to the precise arrangement shown the same being merely an arbitrary illustration. The disk 30 is so arranged as to conform to the usual week day collection schedule; the disk 31 for the Sunday schedule, and the disk 32 for the holiday schedule. Thus, as illustrated, the disk 30 retains, for instance,

twelve ratchet teeth or stops 34; the disk 31 retains four ratchet teeth or stops 34; and the disk 32 retains six of such ratchet teeth or stops.

5 The mechanism for controlling the operation of the index plates or disks comprises a shaft 40 provided at one end with a ratchet wheel 42 engaged by a double escapement pawl 43, said pawl being provided with an overhanging arm 44 arranged in the path of movement of a cam 45 on the pivot stud 24. The shaft 40 is rotatably mounted in the wall of the casing C, the ratchet wheel 42 being located on one side of said wall. On the opposite side of said wall is a cam 46 having an opening for the passage of the shaft 40, said cam being provided with a projection 47 adapted to be engaged by a similar projection 48 carried by a star-wheel or disk 49 rotatably mounted upon the shaft 40. A second disk 50 is also rotatably mounted upon the shaft 40, said disk being provided with peripheral ratchet teeth 51 and cam faces 52. Interposed between the disk 49 and the disk 50 is an operating member 56 carrying a spring pressed pawl 57 engaging the ratchet teeth 51, the arrangement being such that said operating member may swing or oscillate in one direction independently of the disk 50, but movement in other direction is imparted to said disk 50. A rotating stop member 58 is keyed or feathered to shaft 40 and provided with peripheral stop-teeth 58' arranged to engage the ratchet teeth 34 of the index plates. Interposed between said stop member and disk 50 is a cam member 53 provided with cam portions 59 which are complementary with the cam portions 52 of the disk 50. Cam member 53 is prevented from rotation by means of pins 54 which engage slotted arms of a yoke 55 secured to casing C. The disk 49 is provided with a series of radial arms 60, preferably one for each day in the week, and the operating member 56 is provided with two arms 61, 61'. Said operating member is also provided with a toothed segmental portion 62 which is engaged by an operating pinion 63. The carrier 33 for the index plates is provided with a pin 64 arranged to engage the arms 60 of the disk 49 to impart a step by step movement thereto, said pin being also arranged to engage either of the arms 61, 61' that may be in its path of movement.

The operation of the controlling mechanism is as follows:—When the stud 24 is oscillated in the act of unlocking the box the cam 45 is swung into engagement with the overhanging arm 44 of the pawl 43, thereby disengaging one arm of the latter from the ratchet wheel 42, and placing the other arm in position to engage said ratchet. This permits opening of the box and effects winding of spring 15. The locking move-

ment of the key brings pawl 43 back to its original position, the temporary disengagement of the pawl and ratchet permitting the index plates to be rotated under power of spring 15 and causing the ratchet tooth 34 in engagement with the stop member 58 to rotate said member. As soon as the pressure upon the pawl 43 is relieved, however, said pawl will again engage the ratchet wheel 42 and lock shaft 40 against rotation so that when the next ratchet tooth 34 engages the stop member 58, movement of the index plate, and consequently movement of the clock hands is arrested. It will be noted in this connection that as long as the index plates are permitted to move the hands 17 and 18 move concurrently therewith. The pin 64 is arranged to engage the arms 60 once in each complete revolution, and in the construction shown, the disk 49 would revolve completely once in each week. Thus as the parts are operated for the last collection on Saturday night the disk 49 has been moved to such a position as will cause the cam projections 47 and 48 to engage each other, forcing the disk 49, disk 50, operating member 56, and stop member 58 outward, bringing the latter into line with the index plate 31 containing the Sunday schedule. After the last collection Sunday the pin 64 again moves the disk 49 so as to disengage the cam portions 47, 48, whereupon the spring 65 will return the remaining parts of the controlling mechanism to their normal positions. Should it be desired to change the indicator and set it for holiday collections, the pinion 61 is rotated manually at any time previous to the last collection before the holiday and under the regular schedule, said operation shifting the member 56 so as to bring arm 61 into the path of movement of pin 64. When said arm 61 is engaged by the pin 64 the disk 50 is rotated on shaft 40 so as to cause the cam portions 52 and 59 to move the stop member outwardly to a position to engage index plate 32. At the same time the arm 61' is moved into a position to be engaged by the pin 62 the next time the latter comes around. After the last collection on the holiday the arm 61' is engaged by pin 64 bringing the cam parts 52 and 59 into such relation that the spring 65 will return stop member 58 to its normal position in alignment with the index plate 30. In connection with the foregoing it will be noted that the cam portions 47, 48 and 52, 59, may operate conjunctively or independently, according to whether or not a Sunday and a holiday immediately precede or succeed each other.

In addition to indicating the hours of collection I have also provided means for indicating the days of the week, as well as the a. m. and p. m. subdivisions of each day.

As illustrated, this means comprises a disk 70 subdivided into spaces 71 containing the desired information and mounted upon a tubular shaft 72 rotatably mounted upon the arbor 72* for the hour hand. Said shaft is provided with a ratchet wheel 73 engaged by a spring pressed pawl 74 carried by an arm 75 pivotally mounted on said arbor 72*. Said arm 75 is oscillated by means of a rod 76 pivotally connected to one end thereof, said rod being provided with a projection 77 arranged to be engaged by cams 78 carried by the disk or carrier 33. The spaces 71, as shown indicate the a. m. and p. divisions of each day of the week, and I therefore show two cams 78, whereby the arm 75 is oscillated once every twelve hours. A spring 79 returns the rod 76 to its normal position after each operation, and said rod is provided with a finger 80 adapted to engage notches in the periphery of the disk 70 to prevent the said disk from turning too far during each operation. If desired, I may also provide a spring 81 bearing against the shaft 72 and acting as a brake thereon.

From what has been said it will be understood that the main spring of the clock mechanism is wound up each time that the main box is opened, and when the box is closed the parts are operated so as to indicate the hour of the next collection. In this connection it will be noted that while I have described my invention as connected with the lock of a mail box, I do not desire to limit myself in this particular as it is obvious that the same may be connected to any other operating element without departing from the spirit of my invention.

Having thus explained the nature of my invention and described an operative manner of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the forms of its use, what I claim is:—

1. An indicator of the character described comprising indicating mechanism, a motor for operating the same, an index device connected with said indicating mechanism, means for supporting the same, a movable stop member arranged to engage said index device, the axes of said index supporting means and said stop being substantially parallel, and means for controlling said stop member.

2. An indicator of the character described comprising indicating mechanism, an operating shaft therefor, an index device connected with said shaft, a stop member arranged to engage said index device, a rotatable shaft supporting said stop member and parallel with said drive shaft, and means carried by said rotatable shaft for controlling the stop member.

3. An indicator of the character described comprising indicating mechanism, a spring

for operating the same, an index device connected with said indicating mechanism, a stop member having its periphery in engagement with the periphery of said index device, a controlling device for said stop member, a locking device normally engaging said controlling device, means for periodically winding said spring, and means actuated by said winding means for operating said locking device to release said controlling member.

4. An indicator of the character described comprising indicating mechanism, a spring for operating the same, an index device connected with said indicating mechanism, a stop member having its periphery in engagement with the periphery of said index device, a pivot stud, means operated by said pivot stud for periodically winding said spring, and means operated by said pivot stud for controlling said stop member.

5. An indicator of the character described comprising indicating mechanism, a spring for operating the same, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a toothed sector for winding said spring, a pivot stud, sector oscillating means actuated by said pivot stud, means for controlling said stop member, and means actuated by said stud for controlling said stop member controlling means.

6. An indicator of the character described comprising indicating mechanism, a spring for operating the same, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a winding device for said spring, a pivot stud, an operating lever for said winding device secured to and actuated by said pivot stud, and means actuated by said pivot stud for controlling said stop member.

7. An indicator of the character described comprising indicating mechanism, an operating shaft therefor, means for actuating said shaft, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a rotatable shaft to which said stop member is connected said shaft being parallel with said operating shaft, means independent of the stop member for locking said shaft against rotation, and means for periodically releasing said shaft from said locking means.

8. An indicator of the character described comprising indicating mechanism, an operating shaft therefor, a spring for actuating said shaft, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a rotatable shaft supporting said stop member and parallel with said operating shaft, a winding device for said spring, an operating lever therefor independent of said stop device, means for locking said shaft

against rotation, and means carried by said operating lever for controlling said locking means.

9. An indicator of the character described comprising indicating mechanism, an operating shaft therefor, a spring for actuating said shaft, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a rotatable shaft supporting said stop member and parallel with said operating shaft, a ratchet wheel secured to said shaft independently of said stop member, a locking pawl normally engaging said ratchet wheel, means for periodically winding said spring, and means connected with said winding means for disengaging said pawl from said ratchet wheel.

10. An indicator of the character described comprising indicating mechanism, a spring for operating the same, an index device connected with said indicating mechanism, a horizontally disposed shaft, a stop member secured to one end of said shaft and arranged to engage the periphery of said indexing device, a ratchet wheel on the other end of said shaft, a locking pawl normally engaging said ratchet wheel, winding means for said spring, an operating arm for said winding means, and a cam actuated simultaneously with said operating arm for disengaging said pawl from said ratchet wheel.

11. An indicator of the character described comprising indicating mechanism, means for operating the same, indexing mechanism connected with said indicating mechanism, stopping mechanism, means for reciprocating said stopping mechanism to selectively engage said indexing arranged mechanism, and means for controlling said stopping mechanism.

12. An indicator of the character described comprising indicating mechanism, means for operating the same, indexing mechanism connected to said indicating mechanism, said indexing mechanism being provided with a plurality of series of stop devices, stopping mechanism means for reciprocating said stopping mechanism to selectively engage the respective series of stop devices, and means for controlling said stop mechanism.

13. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating mechanism, a reciprocable stop device arranged to selectively engage said index members, and means for controlling the operation of said stop device.

14. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said op-

erating mechanism, a rotatable stop device, means for reciprocating said stop device to selectively engage said index members, means for normally preventing rotation of said stop device, and means for periodically releasing said stop device.

15. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of rotatable index members connected with said operating mechanism, a laterally movable rotatable stop device arranged to selectively engage said index members, means for normally preventing rotation of said stop device, and means for periodically releasing said stop device.

16. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a laterally movable stop member mounted on said shaft, and arranged to selectively engage said index members, means for normally preventing rotation of said shaft, and means for periodically releasing said shaft.

17. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a laterally movable rotatable stop device arranged to selectively engage said index members, means for periodically shifting said stop device, and means connected with said index members for operating said shifting device.

18. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a stop device, means operated by said index members for imparting a step by step rotation to said stop device, and means for periodically shifting said stop device to selectively engage said index members.

19. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a stop device, means operated by said index members for imparting a step by step rotation to said stop device, and means connected with said rotating means for shifting said stop device to selectively engage said index members.

20. An indicator of the character described, comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a stop device, means for imparting a step by step rotation to said stop, and means for shifting said stop device to selectively engage said index members.

21. An indicator of the character de-

scribed comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a stop device, means for imparting a step by step rotation to said stop device, means for normally preventing rotation of said stop device, means for periodically releasing said stop device, and means for shifting said stop device laterally to selectively engage said index members.

22. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, means for imparting a step by step rotation to said shaft, and means for shifting said stop member upon said shaft to selectively engage said index members.

23. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, means for imparting a step by step rotation to said shaft, and a cam device for shifting said stop member laterally to selectively engage said index members.

24. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, an operating member for said shaft, and a cam device for shifting said operating member and said stop device to cause the latter to selectively engage said index members.

25. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, a trip device, means for setting the same, and means operated by said trip device for shifting said stop member to selectively engage said index members.

26. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, a trip device, means for setting the same, and a cam operated by said trip device for shifting said stop member to selectively engage said index members.

27. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, a trip device, means for setting the trip device, means operated by

the trip device for shifting said stop member to selectively engage said index members, and means carried by said index members for actuating said trip device.

28. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, a cam-shifting device provided with operating arms, means carried by the index members for engaging said operating arms, means for setting said trip device to bring said arms into the path of movement of said engaging means, and a cam operated by said cam-shifting device for shifting said stop member to selectively engage said index members.

29. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, and a plurality of independent cam devices for shifting said stop member to selectively engage said index members.

30. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby, said stop member being adapted to selectively engage said index members, an automatic device for shifting said stop member, and a manually controlled device also arranged to shift said stop member.

31. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, a stop member carried thereby and adapted to selectively engage said index members, means operated by said index members for periodically rotating said shaft, an automatic cam device operated by said rotating means for shifting said stop member, and a manually controlled device also operated by said index members for shifting said stop member.

32. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality of index members connected with said operating means, a rotatable shaft, means for normally preventing rotation thereof, means for periodically releasing said shaft, a stop member carried by said shaft, and a plurality of independent cam devices for shifting said stop member to selectively engage said index members.

33. An indicator of the character described comprising indicating mechanism, means for operating the same, a plurality

of index members connected to said operating means, a rotatable shaft, means for normally preventing rotation thereof, means for periodically releasing said shaft, a stop member carried by said shaft, an automatic device for shifting said stop member to selectively engage said index member, and a manually controlled device also arranged to shift said stop member to selectively engage said index members.

34. In an indicator, the combination with a lock provided with a movable member, of indicating mechanism, means for operating the same, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a controlling device for said stop member, a locking device normally engaging said controlling device, and means operated conjunctively with the movable member of the lock for operating said locking device to release said controlling device.

35. In an indicator, the combination with a lock provided with a movable member, of indicating mechanism, means for operating the same, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, a controlling device for said stop member, a locking device normally engaging said controlling device, and a pivot stud arranged to operate conjunctively with the movable member of said lock, said pivot stud being provided with means for operating said locking device to release said controlling device.

36. In an indicator, the combination with a lock provided with a key barrel, of indicating mechanism, means for operating the same, an index device connected with said indicating mechanism, a normally locked stop member arranged to prevent actuation of said index device, a pivot stud arranged in alinement with said key barrel and provided with a slot to receive a key projecting through said barrel, whereby said stud will be oscillated when the key is turned, and means operated by said pivot stud for releasing said stop member.

37. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, an index device connected with said indicating mechanism, a stop member arranged to prevent movement of said index device, and means operated by said index device for rotating said disk step by step.

38. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, an operating device therefor, an index device connected with said indicating mechanism, a

stop member arranged to prevent movement of said index device, and means operated by said index device for actuating said operating device.

39. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, an oscillatory arm for operating the same, an operating rod for said arm, an index device connected with said indicating mechanism, a stop member arranged to engage said index device, and means connected with said index device for moving said operating rod.

40. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, an index device connected with said indicating mechanism, a stop member for controlling said index device, cams movable with said index device, and means operated by said cams for imparting a step by step rotation to said disk.

41. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, an oscillatory arm for operating said disk, an operating rod for said arm, an index device connected with said indicating mechanism, a stop member arranged to control said index device, and cams movable with said index device and arranged to actuate said rod.

42. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, an operating rod therefor, an index device connected with said indicating mechanism, a stop member arranged to control said index device, and means for periodically actuating said rod, said rod being provided with means for engaging the periphery of said disk to limit the rotation thereof.

43. In an indicator, the combination with indicating mechanism, and means for operating the same, of a rotatable disk, having notches in its periphery, an operating rod, means actuated by said rod for rotating said disk step by step, an index device connected with said indicating mechanism, means for controlling said index device, means connected with the index device for actuating said rod, and means carried by said rod for engaging the notched periphery of said disk.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL C. COX.

Witnesses:

WM. S. HODGES,
H. JOSEPH DOYLE.