C. C. JOHNSON.

REGISTRY SYSTEM.

APPLICATION FILED JUNE 12, 1919.

1,394,839. Patented Oct. 25, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

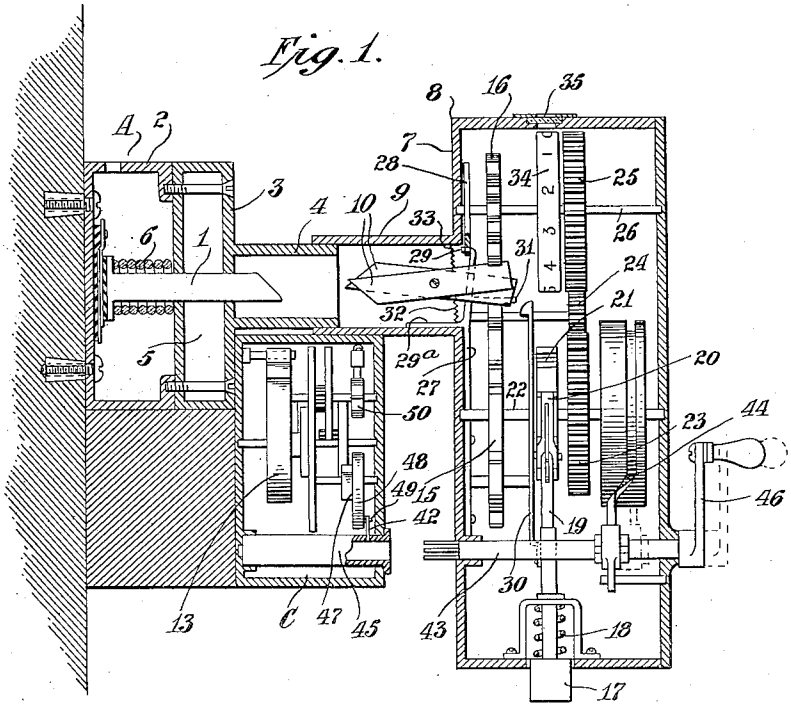
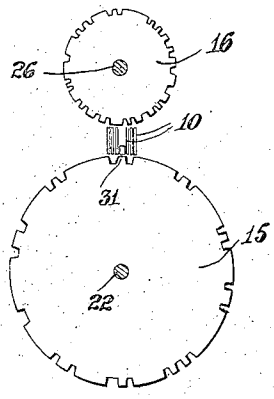
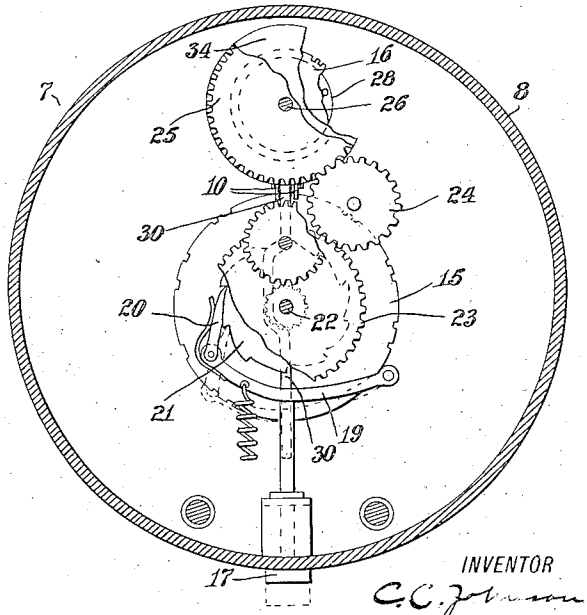


Fig. 3.

Fig. 2.





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2 SHEETS—SHEET 2.

Fig. 4.

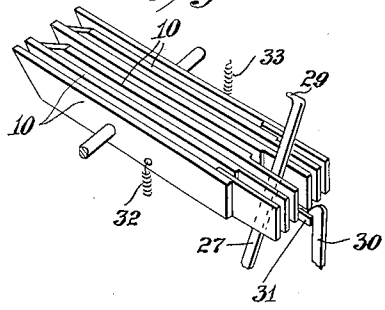


Fig. 5.

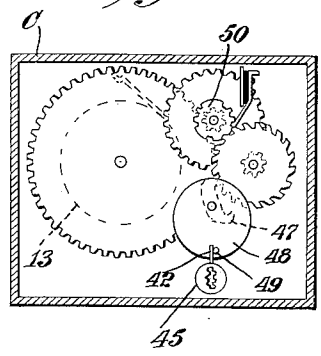


Fig. 6.

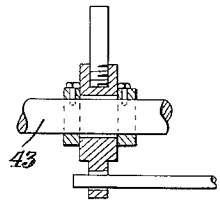


Fig. 7.

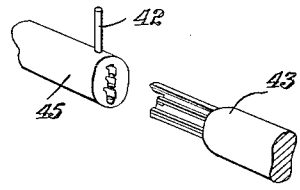
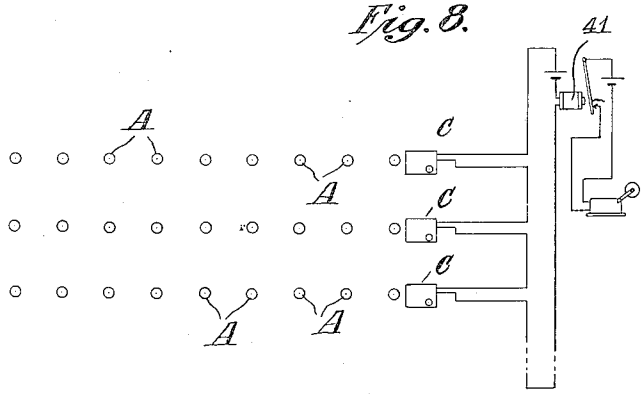


Fig. 8.



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REGISTRY SYSTEM.

1,394,839. Specification of Letters Patent. Patented Oct. 25, 1921.

Original application filed December 28, 1917, Serial No. 209,279. Divided and this application filed June 12, 1919. Serial No. 303,594.

To all whom it may concern:

Be it known that I, CLARENCE C. JOHNSON, a citizen of the United States of America, and resident of Mount Vernon, in the county of Westchester and State of New York, have invented a Registry System, of which the following is a specification.

My invention relates to improvements in signaling systems, and particularly to improvements in watchmen's register systems. The present application is a division of my application, Sr. No. 209,279, filed Dec. 28, 1917, wherein is set forth a system according to which the watchman is provided with a portable register having registry mechanism adapted to be actuated by the watchman each time the latter reaches a station which he is supposed to visit; but the registry mechanism is normally locked, and can be actuated only when the watchman has applied his register to a suitable key device, or "conditioning device," of which there is one at each station to be visited. The several key devices are preferably differentiated one from another, and the mechanism of the register is such that actuation of the registry mechanism at one station conditions that mechanism for actuation upon application to the next key device of the series. At one or more stations of the series means are provided whereby the watchman may transmit a signal to a central or supervising station; but provision is made so that this signal may be transmitted only when all of the preceding stations have been visited and the register correctly operated thereat. In the arrangement for this purpose, particularly claimed in said application Sr. No. 209,279, the watchman's register is itself provided with a signal transmitter, provided with means whereby it may be "plugged into" a signaling circuit at the station from which such signal is to be transmitted; the transmitter being so interconnected with the registry mechanism, however, that it may not be operated unless the registry mechanism has been operated correctly at all of the preceding stations of the system. According to the invention of the present application, the signal transmitter is permanently located at the station from which the signal is to be sent, but means is provided whereby this transmitter may be operated only when the register itself has been operated correctly at all of the preceding stations of the system.

My invention comprises a registry system consisting of a plurality of stations to be visited, and each provided with a key device or conditioning device, one or more of said stations also provided with a transmitter, in connection with a register adapted to be applied to each such key device and thereby to be conditioned for operation, and in connection with means whereby said transmitter may be operated only when the register itself has been operated correctly at all of the previous stations of the system. Other features of my invention will be pointed out hereafter.

The objects of my invention are to improve and simplify registry systems such as referred to, and the registers thereof, and to reduce liability to derangement of the transmitter or transmitters of the system.

I will now proceed to describe my invention with reference to the accompanying drawing, in which one form of register, transmitter, etc., are illustrated, and will then point out the novel features in claims. In said drawings:

Figure 1 shows a side elevation of the key device and the transmitter at one of the stations, also a side elevation of the watchman's register, the casings of these devices being shown in vertical section, and the register being shown partly, but not completely, in engagement with the key device. Fig. 2 shows a detail front elevation of the locking disks of the register together with the locking levers associated therewith. Fig. 3 shows a front elevation of the registry mechanism of the register, the casing of the register being sectioned transversely; Fig. 4 shows a detail perspective elevation of the locking levers and associated parts; Fig. 5 shows a front elevation of the transmitter mechanism, the casing of the transmitter being sectioned transversely; Fig. 6 is a detail fragmentary vertical section of a portion of the mechanism of the register; Fig. 7 shows a detail perspective elevation of the transmitter locking device and the coacting portion of the register; and Fig. 8 is a diagram of the system.

In the drawings, 1—1 designate a plu-

rality of what may be termed "key-shanks," located within a casing 2, and guarded thereby and also by a cover 3 for that casing, having a tubular extension 4 and a hollow base 5, held to the casing 2; a spring 6 surrounding the key-shanks 1 being pressed against the broad bases of these key-shanks by the cover 3, so that these key-shanks are held in place, partly by the pressure of the spring, and partly by the guidance derived from the aperture in the cover through which these key-shanks project; this cover being held to the shell 2 by suitable screws, the idea being that if an ill-intentioned person should remove the cover, the key-shanks will fall away as the cover is removed, thus preventing that person from learning the particular arrangement of the key-shanks which existed before the removal of the cover. The device 1—2—4 constitutes a key device, or "register conditioning device" and one such device will be located at each station to be visited.

7 designates, generally, a register to be carried by the watchman from station to station. It comprises a casing 8, having a tubular extension 9, adapted to fit over the tubular extension 4 of the key device at each station. Within this register there are a plurality of levers 10 corresponding coöperatively to the key-shanks 1 at the several key stations. 15 and 16 designate peripherally-notched wheels, the notches of which are adapted to receive the thin inner ends of the levers 10. The outer ends of the key-shanks 1 and levers 10 are beveled selectively, so that when the register is applied to one of the key devices 2, the lever or levers 10 in engagement with a notch or notches of wheel 15 will be caused to disengage said wheel, and the lever or levers 10 in engagement with a notch or notches of wheel 16 will be caused to disengage that wheel, so freeing wheels 15 and 16, provided the arrangement of the key-shanks 1 of that key device corresponds to the arrangement of the notches of wheels 15 and 16 then opposite the inner ends of levers 10 for the key shanks 1 of the several key devices are so arranged in each key device as to individualize that key device with respect to all of the other key devices of the series; and, correspondingly, the several groups of notches of wheels 15 and 16 differ from one another, each arrangement of notches corresponding to an arrangement of key shanks 1 at a particular key station, and at that particular key station only. Unless such arrangement of notches does correspond to such arrangements of keys, the box 7 cannot be thrust on to the key box far enough to permit the operation of the hereinafter described registry mechanism.

For advancing the wheels 15 and 16 step by step, as the watchman passes from one station to another, a push-button 17 is provided, which button is normally pressed out by a spring 18. This push button, as it is pressed inward, acts, through a lever 19, upon a ratchet pawl 20, engaging the teeth of a ratchet wheel 21, on the shaft 22 of wheel 15, and drivingly connected thereto. Motion is communicated through shaft 22, and gears 23, 24 and 25, to the shaft 26 of wheel 16. Thus wheels 15 and 16 are rotated together by the action of push button 17.

In order that the push button may not be operated effectively to rotate notched wheels 15 and 16 unless the tubular portion 9 of the signal box has been thrust the full distance over the tubular portion 4 of the key device (and, as explained previously, this can be done only when the register is applied to a key device the key arrangement of which corresponds to the particular arrangement of notches of wheels 15 and 16 then presented to the inner ends of levers 10) a spring lever 27 is provided, the end 29 of which is normally engaged with a hole in a wheel 28 on the shaft 26 of wheel 16. Said lever 27 is provided with a projection 29^a which, when the tubular portion 9 is thrust fully home over the tubular portion 4 of the key device, is engaged by that tubular portion 4 and pushed inward, so disengaging lever 27 from wheel 28, and permitting rotation of wheel 28 under the influence of the push button.

In order that the watchman may actuate the push-button once only for each application of the register to a key device, the shank of the push button is provided with a spring pawl 30 which, when the push button is pressed inward, engages a lug 31 on the lever 27. Thereby the push button is held against return until, the register having been withdrawn from the key device, lever 27 retracts, so disengaging lug 31 from the pawl 30.

One or more of the levers 10 is or are provided with a spring 32 tending to cause that lever or levers to move into engagement with wheel 15; the other or others of levers 10 is or are provided with a spring or springs 33 tending to cause such other lever or levers to move into engagement with wheel 16.

The shaft 26 is provided with a dial wheel 34 opposite a window 35 in casing 8; through which window the watchman may observe the numbers on the dial wheel and thus be assured that the mechanism of the register is operating as the push button 17 is operated.

At one or more of the stations, (but usually at not all the stations), there will be a transmitter C. This may be an ordinary spring-driven transmitter such as is commonly used in so-called messenger call-

boxes. 13 designates the driving spring, 47 the escapement, and 48 the pendulum. 50 designates the signal wheel. Any suitable means may be provided for winding the spring 13. The register is provided with a push bar 43, arranged to be thrust out by a cam 44 (on the shaft of ratchet wheel 21 and turned thereby) when the registry mechanism of the box has reached a condition corresponding to a visit to the particular station at which the transmitter is located. This push bar 43, when so thrust out, is in a position to engage the stem 45 of a signal box locking device itself comprising a pin 42 normally in engagement with a pin 49 on a pendulum 48. When 43 and 45 are in engagement, the handle 46 is turned, so releasing the mechanism of the transmitter. Obviously, the bar 43 is in effect a key, and its end may be shaped so that only by that key can the locking device of the transmitter be operated.

As indicated in Fig. 8, each such transmitter is connected by a suitable circuit to a central station at which there are signal recording or receiving devices, represented generally by the relay 41. From a consideration of this figure it will be apparent how, by sending through the circuit one signal only for each watchman's route, when, and only when, the watchman having that route has completed his tour of the route, the number of signals to be sent through the circuit is greatly decreased, as compared with the present common practice of sending a signal at each station of the route; and, therefore, the number of watchman's routes which can be allotted safely to each circuit is greatly increased.

What I claim is:—

1. A registry system comprising a plurality of stations each provided with a register conditioning device, a signal transmitter at one or more of said stations, and a portable register adapted to coact with each such conditioning device and arranged to be conditioned by actuation at one conditioning device, for coaction with and actuation at another conditioning device of the series, said register comprising means controlling the transmission of signals by said transmitter or transmitters.

2. A registry system comprising a plurality of stations, each provided with a register conditioning device, a signal transmitter at one or more of said stations, and a portable register adapted to coact with each such conditioning device and arranged to be conditioned by actuation at one conditioning device, for coaction with and actuation at another conditioning device of the series, said register comprising means controlling the transmission of signals by said transmitter or transmitters and arranged to prevent such transmission unless said register has been actuated duly at previous stations of the series.

3. A registry system comprising a plurality of stations, each provided with a register conditioning device, a signal transmitter at one or more of said stations, and a portable register adapted to coact with each such conditioning device and arranged to be conditioned by actuation at one conditioning device, for coaction with and actuation at another certain conditioning device of the series and at that certain conditioning device only, said register comprising means controlling the transmission of signals by said transmitter or transmitters and arranged to prevent such transmission unless said register has been actuated duly at all previous stations of the series.

4. A registry system comprising a plurality of stations each provided with a register conditioning device, a signal transmitter at one or more of said stations provided with controlling means normally preventing transmission of signals, and a portable register adapted to coact with each such conditioning device and arranged to be conditioned by actuation at one conditioning device, for coaction with and actuation at another conditioning device of the series, said register arranged to operate said transmitter controlling means after actuation at the station at which the transmitter is located.

5. A registry system comprising a plurality of stations each provided with a register conditioning device, a signal transmitter at one or more of said stations provided with controlling means normally preventing transmission of signals, and a portable register adapted to coact with each such conditioning device and arranged to be conditioned by actuation at one conditioning device, for coaction with and actuation at another conditioning device of the series, said register provided with means for operating said transmitter controlling means together with means rendering said operating means ineffective until said register has been actuated at previous stations of the series.

6. A registry system comprising a plurality of stations each provided with a key device, a portable register adapted to be engaged with the several key devices successively and comprising normally inoperable registry means together with means rendering the same operable upon engagement of the registry with one of the key devices, and transmitting means located at one or more of said stations and normally inoperable but comprising means rendering the same operable upon engagement of the register with the key device of the station at which such transmitting means is located.

7. A registry system comprising a plu-

rality of stations each provided with a key device, a portable register adapted to be engaged with the several key devices successively and comprising normally inoperable registry means together with means rendering the same operable upon engagement of the register with one of the key devices and means rendering said register operable only upon engagement with the several key devices in regular succession, and transmitting means located at one or more of said stations and normally inoperable but comprising means rendering the same operable upon engagement of the register with the key device of the station at which such transmitting means is located.

8. A register comprising transmitter-operating means adapted to operate a transmitter external to the register, and key-operated means normally precluding operation of a transmitter by said transmitter-operating means and requiring a succession of key-operations before said transmitter-operating means may operate and comprising means whereby after said succession of key-operations has been performed said transmitter-operating means may operate.

9. A register comprising transmitter-operating means adapted to operate a transmitter external to the register, means normally concealing said transmitter-operating means, and key-operated means arranged by its operation to expose said transmitter-operating means but requiring a succession of key-operations before said transmitter-operating means is exposed.

10. A register comprising a suitable case, transmitter-operating means adapted to operate a transmitter external to the register, but normally retracted within said case, and key-operated means arranged by its operation to project said transmitter-operating means from said case but requiring a succession of key-operations before said transmitter-operating means is so projected.

11. A registry system comprising a transmitter station and a transmitter thereat comprising means controlling the operation of said transmitter and operable by a separate register, a plurality of other stations, and a portable register comprising means for operating said transmitter controlling means, said register and said other stations having in the one case key-operated means and in the other case a succession of keys, together with means for preventing operation of the means for operating the transmitter controlling means until each of said keys has operated said key-operated means.

12. A registry system comprising a transmitter station and a transmitter thereat comprising means controlling the operation of said transmitter and operable by a separate register, a plurality of key stations and keys thereat, and a portable register comprising means for operating said transmitter controlling means, and comprising also key-operated means adapted for operation by said station keys, together with means for preventing operation of said means for operating said transmitter controlling means until each of said keys has operated said key-operated means.

13. A signaling system comprising a transmitting station and a transmitter thereat provided with control means normally rendering said transmitter incapable of sending a particular predetermined signal, a plurality of other stations, and portable means comprising means for operating said control means to render the transmitter operable for sending such predetermined signal, said other stations and said portable means together comprising coacting means for registering visits to such other stations.

14. A signaling system comprising a transmitting station and a transmitter thereat provided with control means normally rendering said transmitter incapable of sending a particular predetermined signal, a plurality of other stations, and portable means to render the transmitter operable for sending such predetermined signal, said other stations and said portable means together comprising coacting means for preventing operation of said control means unless and until such other stations have been visited.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CLARENCE C. JOHNSON.

Witnesses:

ARTHUR ECKERT STEARNS,

ETHEL N. RABAN.