April 6, 1937. L. CASPER 2,076,017

MESSAGE DROP BOX AND SIGNALING SYSTEM

Filed Dec. 7, 1928 3 Sheets-Sheet 1

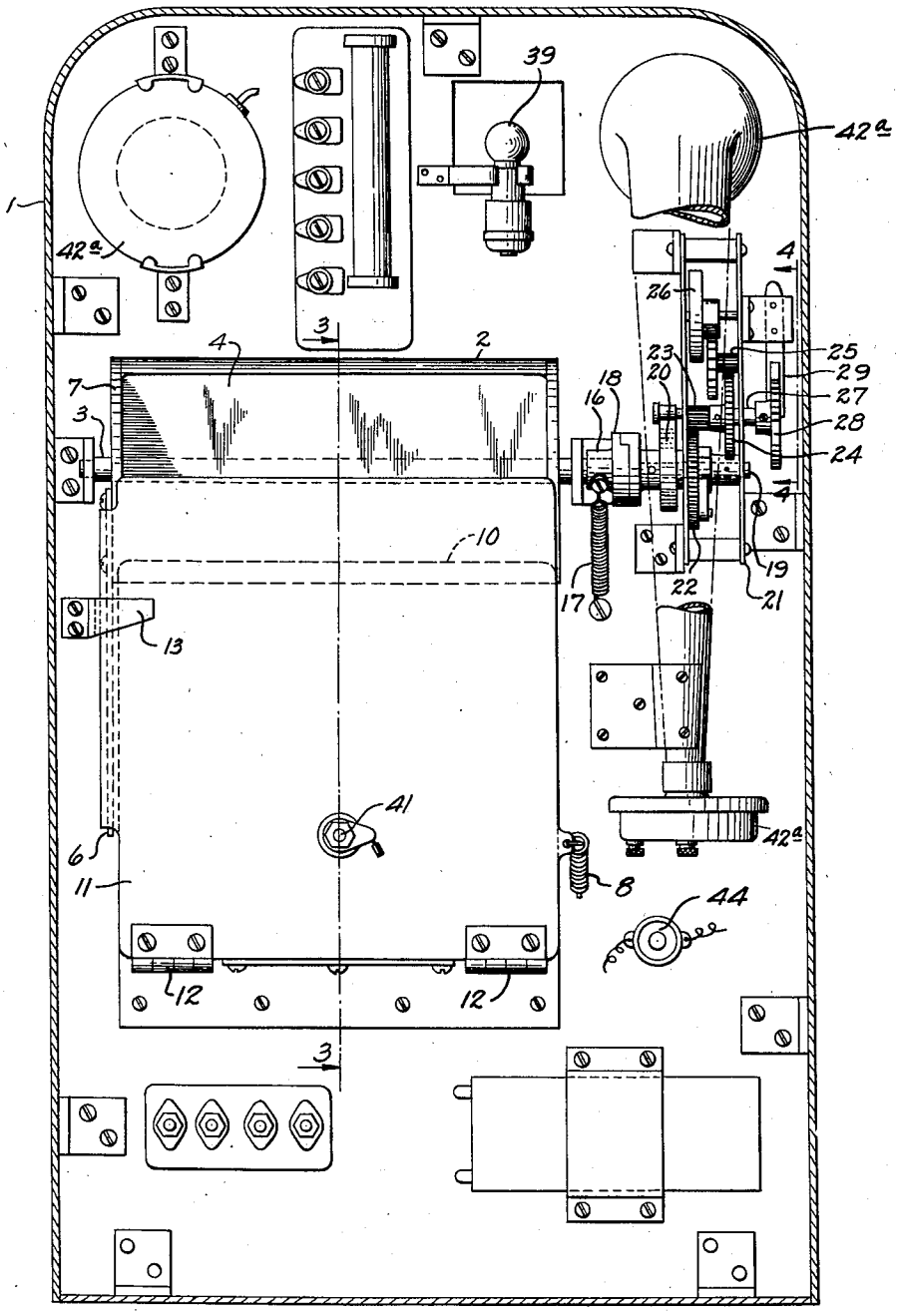


Fig 1

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MESSAGE DROP BOX AND SIGNALING SYSTEM

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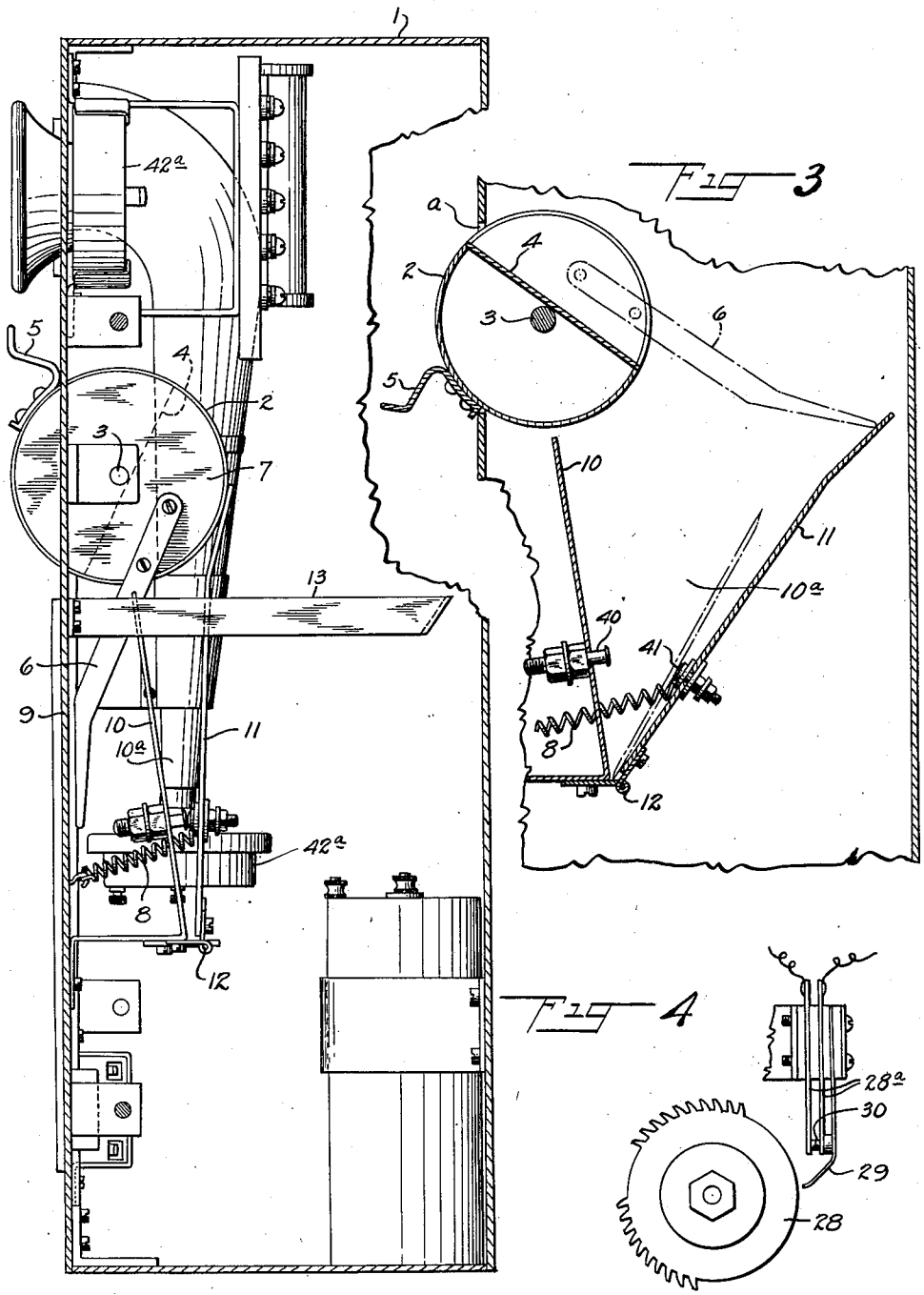


Fig 2

Fig 3

Fig 4

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MESSAGE DROP BOX AND SIGNALING SYSTEM

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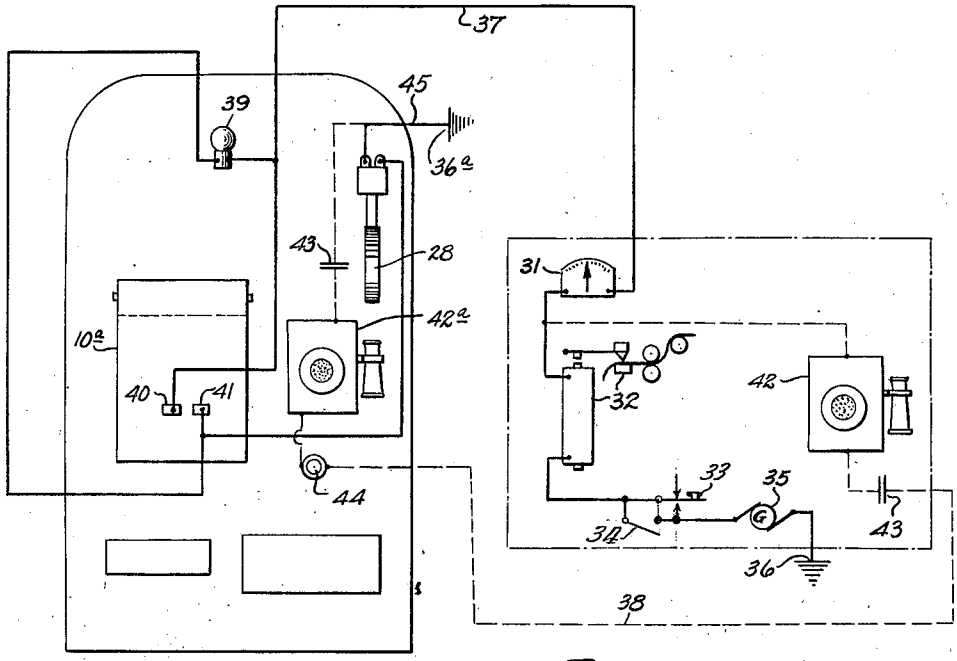


Fig 7

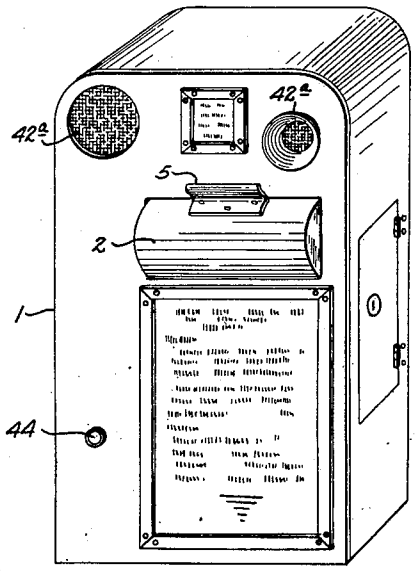


Fig 5

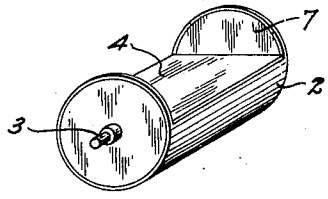


Fig 6

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Patented Apr. 6, 1937 2,076,017

UNITED STATES PATENT OFFICE

2,076,017

MESSAGE DROP BOX AND SIGNALING SYSTEM

Louis Casper, Brooklyn, N. Y.

Application December 7, 1928, Serial No. 324,397

5 Claims. (Cl. 177—311)

My invention relates to a method whereby a patron is enabled to drop a message, letter or other missive preferably in an envelope through an opening into a container or drop box at some outlying place or station. When this is done signals will be transmitted to a central office advising them that a message, letter or other missive had been deposited into said drop box or container. The attendant at the central office on receipt of the signals is enabled to establish the location of the particular drop box where the message or other missive had been deposited and the attendant is enabled to signal the patron who, it is assumed, is standing by the drop box container, that he is advised of the fact that a message had been deposited into said container. The signal at the drop box or container will remain in effect until a messenger arrives and extracts the message from the aforesaid container or drop box. When this is done the signal or light will be automatically extinguished.

Should the patron desire to communicate by telephone with the central office, a telephone is provided at the container and likewise at the central office whereby instantaneous communication may be had concerning rates or other information. The telephone arrangement is incorporated in the system either as a metallic circuit or a grounded return, the former, of course, being preferable.

The telephone feature of my invention may or may not be included in the general arrangement.

All the foregoing is accomplished in an extremely simple manner, is easy to manufacture and simple to install.

In further description of my invention reference is made to the attached drawings in which Figure 1 is a front view of the drop box or container; Figure 2 is a side elevation of the drop box or container; Figure 3 is a detail view of the message or letter drop receptacle; Figure 4 is a detail of the contact mechanism for sending selective signals to the central office; Figure 5 is a perspective view of the drop box; Figure 6 is a detail view of the revolving flap; Figure 7 is a schematic wiring diagram showing the electrical connection between one drop box and the central station.

Referring to Fig. 1 and the details thereof in Fig. 3, 1 represents the drop box container as a whole, 2 is a revolving drop slot closure member, cylindrical in shape and which is fixedly secured on shaft 3. Part of the member 2 is recessed to provide a flat platform 4. 5 is a handle with which the revolving flap is turned. 6 is an extension piece secured rigidly to the end disc 7 of the revolving flap 2. 8 is a coiled spring which restores the swinging portion 11 of the message or letter holding receptacle 10a against the opposite piece 10 which is the closed or normal position of the letter holding receptacle 10a. The swinging portion 11 is hinged at 12. 9 is the face or front portion of the container proper (see Fig. 3). The face or front portion 9 has an opening at *a* through which the revolving flap 2 revolves. 13 is a guide and stop latch for the swinging portion 11 of the letter drop holder 10a. 16 is a collar attached to shaft 3 and has one end of spring 17 attached to it. The opposite end of spring 17 is secured to the solid portion of the container. 18 is a keyed cam which is secured to shaft 3. This cam will revolve shaft 19 when the shaft 3 operates on the opening of the flap 2 but will leave shaft 19 free when the flap 2 is restored to its normal or closed position. 20 is a coiled clock spring which when wound up by the turning of shaft 19 and the latter is then released by the keyed cam 18, will operate a train of gears contained in box 21. 22 is a gear attached to shaft 19 which operates pinion 23 which in turn operates gear wheel 24 and its companion pinion 25 that operates weight wheel 26 which forms the usual governor to regulate the speed of the train of gears. The signal wheel 28 on shaft 27 is operated by the train of gears. The signal wheel 28 actuates contact spring 29 (see Fig. 4) as each tooth of the wheel passes the contact spring. This action opens up momentarily the contacts 30 each time a tooth of the signal wheel passes under the contact spring. 28a is the under contact spring.

Referring to Fig. 7, 31 is an indicating meter, 32 as a whole is a recording register, 33 is a conventional telegraph signaling key, provided with the usual shunt switch 34. 35 is a generator or battery which furnishes current to the signaling circuit. 36 is the ground connection which is placed at the last container station in the event that the signaling circuit is grounded. In the event a metallic signaling circuit is used, no ground is necessary, the return circuit in that case being a metallic conductor. 37 is the main line or "leg" connecting the central station with the outlying station where the drop box container is located.

39 is a signal light shown in Fig. 1, 40, 41 are contacts attached to the letter holder section 10 and 11, respectively. 42 and 42a are telephones

shown in Figs. 1 and 2. The telephones may be of any conventional construction. 43 are condensers, 44 is a push button used in connection with the telephone. When it is desired to use the telephone the push button is depressed which connects the telephone with the main circuit.

In order that a message or other missive may be dropped into the drop box container, the handle 5 of the revolving flap 2 must be pulled by the patron. This action turns the revolving flap 2 to the point where the flattened surface 4 is on a level with the opening just below *a* of the face 9 of the container 1. This exposes an opening through which the message or other missive may be dropped. The message falls in the space between sections 10 and 11 of the letter drop holder 10^a, the latter two sections of the letter holder being held apart by the action of extension piece 6 forcing back section 11 and against spring 8 when the disc 7 (Fig. 3) is turned simultaneously with the turning of the flap 2. When the flap 2 is turned, the shaft 3 is also turned and with it the spring 17 is stretched. When the handle 5 is released the spring 17 on shaft 3 forces the revolving flap 2 back to its normal or closed position.

When the letter holder 10^a is normally closed, that is, when section 11 is bent over and resting upon section 10, electrical contact is maintained between contact points 40 and 41. When this occurs the lamp 39 is unoperated, the aforementioned contacts with its associated wiring acting as a short circuit.

When a letter or other missive is dropped into the letter holder 10^a, the letter or other missive falls between sections 10 and 11. When the handle 5 is released, section 11 falls back due to the dropping down of extension piece 6 and the tension of spring 8. The letter or other missive, however, situated in the space between the two sections 10 and 11 acts as an insulator and prevents contact from being made between contacts 40 and 41, and as a consequence the lamp 39 will glow and it will continue to glow until the message or other missive is removed after which normal contact shall have been made between contacts 40 and 41 thus extinguishing the lamp due to the short circuit as already stated.

Referring to Fig. 7 which represents a central station, a circuit is started beginning with the ground 36, in the event the circuit is a grounded one, generator 35, signaling key 33, register or other indicating instrument 32, indicating meter 31. The circuit then passes along wire or "leg" 37 to the distant drop box container 1 connecting at one side of the lamp 39, branches on each side of the lamp 39 to contacts 40 and 41. The circuit continues through contacts 30 and contact spring 28^a to the ground 36^a (Fig. 1). In the event it is desired to add more drop box containers on one particular line circuit, the ground 36^a is lifted and in lieu thereof the wire 45 is continued on from contact spring 28^a to the connection of lamp 39 of the second drop box container; and the same connection scheme as shown in Fig. 7 is carried out and finally grounded at 36^a in the next following drop box container.

In this manner any reasonable number of drop box containers may be connected in series on one circuit terminating at the central office and each drop box will have direct communication by signal and by telephone with the central office.

The operation of this system is as follows: When the handle 5 is pulled, the revolving flap 2 will turn and will expose the message or letter slot. The letter or message is dropped into the drop box container. The act of turning the revolving flap 2 brings extension piece 6 from a vertical to a horizontal position, thus forcing back section 11 of letter holder 10^a. The letter falls between sections 10 and 11, separating contacts 40 and 41 causing lamp 39 to glow. At the same time shaft 19 being first revolved in one direction and then released will turn in the opposite direction under impulse of clock spring 20 which starts the operation of the train of gears in box 21 including signal wheel 28. The number of teeth on the signal wheel 28 being predetermined the proper combination of signals will be sent to the central station through contacts 30. These signals are recorded on the tape of the recording register 32.

The attendant at the central office noting the signal combination on the register will transmit an answer back signal by means of signaling key 33, opening and closing the same which will cause the lamp 39 to flash up and go out alternately. This will be an indication to the patron that the central office is aware of the fact that a message has been dropped in that particular drop box container. No lights will be observable at any other drop box container or receptacle, should more of them be in series on a particular circuit due to contacts 40 and 41 being normally closed in each drop box container, hence each lamp or other indicator is short-circuited.

Should anyone operate the handle 5 without dropping a message, the attendant at the central office will immediately become aware of the fact by reason of the short circuit of contacts 40 and 41. The needle of the meter 31 would show a full line current deflection, whereas if the lamp 39 were free from a short circuit, by the separation of contacts 40 and 41, the resistance of said lamp in the circuit would be manifested in the meter 31 by a reduced deflection owing to the reduced current flow in the circuit due to the added resistance of the lamp aforesaid in said circuit.

It will readily be seen that my invention so far described can be readily changed or modified without departing from the spirit of the invention. For instance, any mechanical arrangement may be devised to simultaneously lift up the message flap 2 and at the same time lift up the section 11 of message holder 10^a. I also do not wish to confine myself to the design of the interrupting signaling arrangement. There are many devices well known to the art to accomplish this; for instance, telegraph call boxes, fire alarm boxes, watchmen's signal boxes, and so forth.

Another feature of my invention is that of telephone communication between any drop box container and the central office. This is preferably performed by the use of an added wire or "leg", as at 38, for a return circuit, in lieu of the grounded return 36. This would make the telephone less liable to inductive disturbance. There may be instances where the grounded telephone return through suitable condensers may be practicable, however.

Referring to Figs. 1, 2 and 7, 42, 42^a are telephones located at the central office and at one of the drop box containers, respectively. The telephones 42, 42^a are completely equipped with necessary induction coils and telephone transmitter batteries common to telephone systems. The telephone circuit is connected with the main circuit 37 through the medium of condensers 43,

and is bridged across return circuit 38 shown in dotted line. Should a patron desire to speak to the central office, the handle 5 may be turned without dropping a message in the drop box. The attendant at the central office will observe on the meter 31 that the resistance of lamp 39 is not in series with the circuit and he will therefore answer on the telephone.

Now, having described my invention what I claim as new is:

1. In a drop box and signaling system, a plurality of drop boxes, each box having a message receiving slot, movable means for normally closing said slot, operating means for moving said means to expose said slot, a normally closed switch in said box, a code wheel for opening said switch a predetermined number of times, means operative by said slot closing means in exposing said slot to operate said code wheel, a pair of normally closed contacts in each box, means including said slot exposing means for opening said contacts on exposing of said slot, said contacts being held separated by a message deposited in said box, a central receiving station, a circuit connecting each box with said central station, said switch and said contacts being serially included in said circuit, a branch circuit having a signal lamp therein shunting said contacts at each box, an indicator in said circuit at said central station, means including an electromagnet in said circuit at said central station for registering impulses transmitted by each code wheel and switch, and means in said circuit at said central station for controlling said signal lamps.

2. In a drop box and signaling system, a normally closed electric circuit, a plurality of drop boxes included therein and having each a normally closed slot, means for transmitting characteristic signals from one of said boxes to a central office, means in each box for exposing its slot, means for actuating said transmitting means by operation of the slot exposing means, a signaling means in said circuit located at each box, said circuit including normally closed separable contacts in series with said transmitting means for shunting said box signaling means while closed, means operable by slot exposing movement of the slot exposing means for separating said contacts, and means for holding a message in position to maintain said contacts separated by its physical presence therebetween.

3. In combination with a message drop box having a normally closed slot, means for transmitting a series of characteristic signals, manually operated means for exposing said slot, an actuating connection between said manually operated means and the characteristic signal transmitting means, a message receptacle in said box, normally closed electric contacts in said receptacle, a normally closed circuit serially including said signal transmitting means and contacts, means operable by the actuation of said slot exposing means for opening said normally closed contacts, and a box carried signaling means in a circuit shunting said contacts for control thereby.

4. In a drop box signaling system, a message drop box, separable electrical contacts therein and biased to normally closed position, means for separating said contacts by depositing a message in the box, a characteristic signal transmitter in the box, a main electrical circuit serially including said contacts and transmitter, means for operating said transmitter upon deposit of a message in the box, a circuit shunting said separable contacts, and means in said shunt circuit for changing the current strength of the main circuit upon separation of said contacts.

5. In a drop box signaling system, a normally closed message drop box, normally closed separable electrical contacts therein, means for separating said contacts on deposit of a message, means in the box disposing a deposited message between and separating said contacts, a characteristic signal transmitter in the box, a main circuit including said contacts and transmitter, a circuit shunting said contacts, current reducing means in said shunt circuit, and means operable upon the opening of said box for actuating said transmitter.

LOUIS CASPER.