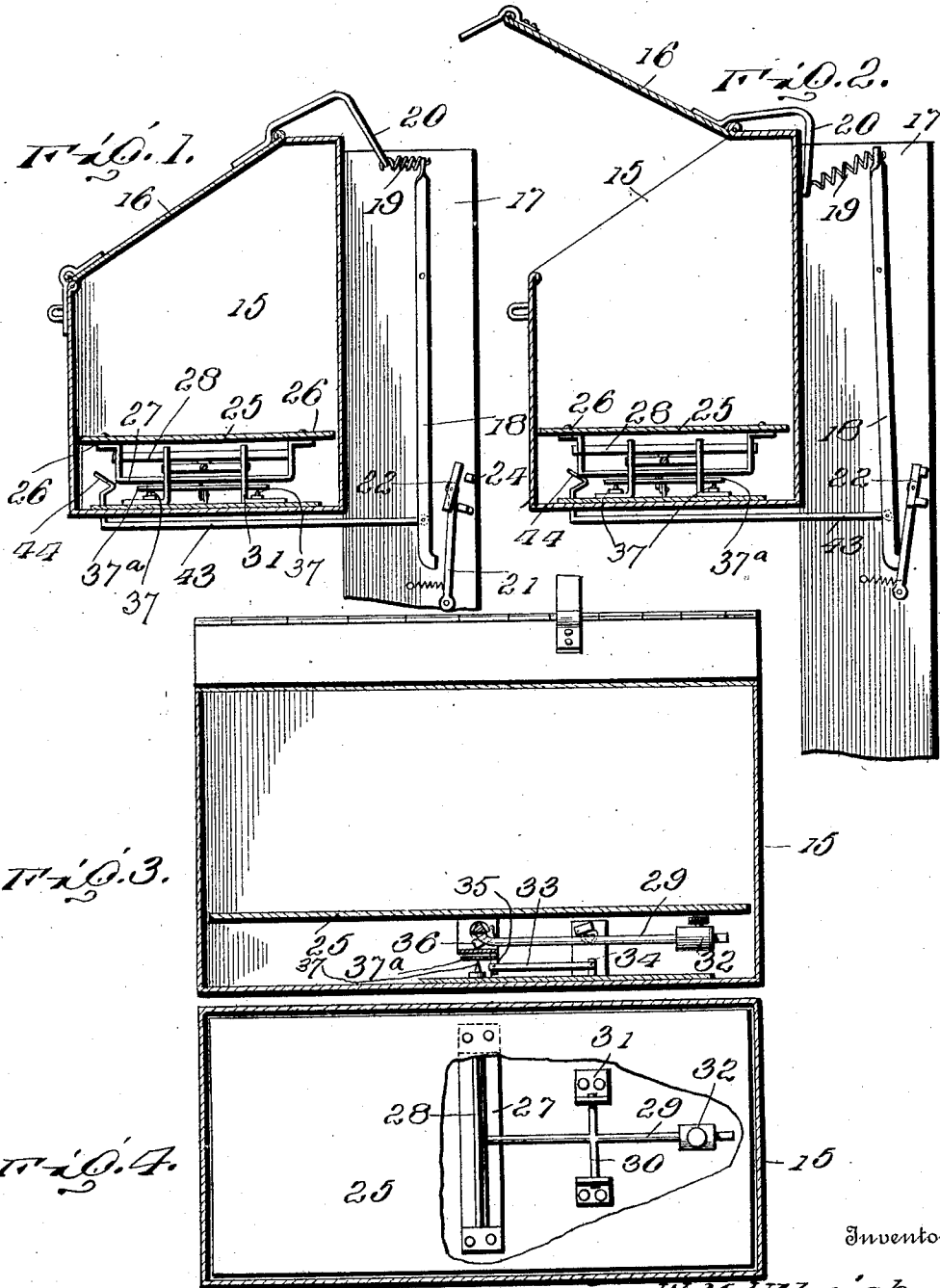


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MAIL BOX SIGNAL.
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1,015,523.

Patented Jan. 23, 1912.
2 SHEETS—SHEET 1.



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2 SHEETS--SHEET 2.



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MAIL-BOX SIGNAL.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM M. ULBRICH, citizen of the United States, residing at Atlantic, in the county of Cass and State of Iowa, have invented certain new and useful Improvements in Mail-Box Signals, of which the following is a specification.

This invention comprehends certain new and useful improvements in signaling apparatus and relates particularly to signaling devices to be used with rural mail boxes.

The invention has for its primary object broadly considered means to avoid the necessity of the householder leaving the house and going to the mail box in repeated and fruitless searches for mail and to determine whether or not the letter carrier has called and deposited mail in the box or extracted out-going mail therefrom, it being recognized that in nearly every case, the boxes are set along the road, and the house back from the road some considerable distance from the box, owing to which fact without an apparatus of this character, the occupants of the house have been compelled to make unavailing trips to and from the mail box, this of course resulting in inconvenience, particularly in inclement weather, at which time especially it is impossible to gage the arrival of the post-man.

More specifically my invention has for its object a signaling apparatus for rural mail boxes which will apprise the householder both by audible and visual means, of the arrival of the post-man at the box, and which will also indicate whether or not mail has been deposited in the box or extracted therefrom.

The invention also has for its object, a signaling apparatus of this character which is so arranged that only one of the signaling devices may be operated at one time. That is to say, means are provided whereby the lifting of the lid of the box will operate a signal indicating the arrival of the mail carrier, and means are also provided whereby it will be indicated that the post-man has deposited mail within the box, or has taken from the box, mail which has been placed therein by the house-holder, the parts being so arranged that there will be absolutely no interference between the two signaling devices, the second named being held inoperative while the box lid is in raised or open position and being automatically released upon the closing of the lid. And

the invention has for a further object to generally improve this class of devices and to render them simple in construction, durable and not liable to get out of order, efficient in operation and commercially desirable.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a transverse sectional view of a mail box constructed in accordance with my invention; Fig. 2 is a similar view showing the lid of the box raised; Fig. 3 is a longitudinal sectional view of the box; and, Fig. 4 is a horizontal sectional view thereof, a part being broken away; Fig. 5 is a plan view of the indicating apparatus; Fig. 6 is a fragmentary perspective view thereof; and, Fig. 7 is a diagrammatic view of the wiring.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

The indicating apparatus may be located in or near the house, and supported in any desired way. In the present embodiment of the invention it embodies a base 1 which supports an electromagnetic bell of which 2 designates the foundation plate, and 3 the electromagnets, 4 designating the clapper of the bell which is designed to be vibrated by the electromagnets 3 in the usual manner, and also to be drawn toward and held by the cores of the magnets under certain conditions which will be hereinafter fully set forth.

5 designates the gong.

The clapper or gong sounding arm 4 is pivotally connected by a link 6 to the relatively short arm of a lever 7 which is fulcrumed intermediate of its ends on a post 8 secured to the base 1. The other arm of the lever 7 is correspondingly connected by a link 9 to the relatively short arm of a lever 10 which is also fulcrumed intermediate of its ends and is supported by a post 11 secured to the base 1. The other arm of this last named lever carries a laterally projecting tappet arm 12 which is secured at one

end thereto in any desired way, and which is designed to engage by its other end, a pointer or indicator 13 which is pivotally mounted as at 14 on the base 1 and in one position is designed to rest substantially upright against the end of the tappet arm 12. When one of the circuits hereinafter specifically described, is closed, the current flowing through the bell before mentioned will start the arm 4 vibrating and thereby sound the gong 5 so as to produce an audible signal, while at the same time, the initial vibration or movement of the arm 4 will cause the levers 7 and 10 to move the tappet arm 12 in a direction to throw the pointer 13 downwardly thereby indicating that the mail box lid has been raised by the post-man and of course apprising the householder that mail is either to be deposited, or removed or both, as the case may be.

The preceding paragraph indicates that an electric circuit is closed when the mail box lid is raised or opened and I shall now describe the particular or specific elements and combinations of the parts and their correlated operations to effect this result.

The mail box designated 15 may be of any desired type or design, so long as it includes some part which must be moved in order to obtain access to the interior. In the present embodiment of the invention, this part is a hinged lid 16. The box may be supported in any desired way as upon a post 17, and fulcrumed intermediate of its ends on the post 17 is a switch closing lever 18, one arm of said lever being connected by a contractile spring 19 to an actuating bar or strip 20 secured to the lid 16, near the hinged edge thereof, whereby when the lid 16 is opened, the plate 20 will, through the spring 19 bear down upon the upper arm of the lever 18 and cause the other arm of said lever to engage a spring contact carrying rod 21 secured to the post 17. The rod 21 carries a pivotally mounted cross bar 22, adapted to engage circuit terminals 24 secured to the post 17 whereby to close the circuit of the electromagnetic bell which sets up the vibration of the clapper or gong sounding arm 4 and the actuation of the pointer 13 before described. In the normal position of the parts, the rod 21 holds the cross bar 22 out of engagement with the terminals 24 and returns it to such position by spring action as soon as released by the return movement of the lever 18.

As indicated at the outset of the specification, my invention also includes in addition to the means for indicating the opening of the mail box, means for indicating the depositing or removal of mail. To this end the body portion of the box 15 includes a false bottom 25 which is secured in any desired way and is supported by the outturned ends 26 of a bracket 27, said bracket extend-

ing transversely of the box and mounted upon the transversely extending arms 28 of a scale beam 29. The beam 29 is poised intermediate of its ends by means of laterally extending trunnions 30 which are journaled in bearing brackets 31 that are secured to the main or stationary bottom of the box, and the rearwardly extending arm of the beam carries a weight 32 which is detachably held thereon by a set screw so as to very slightly overbalance the weight of the false bottom 25 and its concomitant parts, the weight, preferably, of say a postal card being sufficient to overbalance the false bottom or platform 25 and cause the same to descend. Preferably the platform is guided in its movements by a link 33 which is pivotally mounted at one end upon a post 34 projecting upwardly from the bottom of the box 15. The other end of the link 33 is pivotally connected to a bar 35 projecting downwardly from the bracket 27. In the preferred construction and arrangement of the parts, the bracket 27 is detachably connected to the transversely extending arms 28 of the beam 29 by pivoted latch plates 36, the trunnions of the beam being similarly connected to the bracket plate 31. The bracket 27 serves as the switch closing member for another circuit in which the electromagnetic bell is included, said last named circuit also including terminals 37 that are secured in any desired way to the bottom of the box 15 the terminals being bridged by the bracket 27 and the circuit closed when the platform or false bottom 25 descends. When this last named circuit is closed by the descent of the platform 25, the current through the electromagnetic bell will draw the gong sounding arm 4 up against the cores of the electromagnets 3, and the consequent movement of the lever 10 will swing to the left the upper ends of a pointer 38 which is distinguished by differences in form or otherwise from the pointer 13. In the present embodiment of the invention, this movement is effected by forming a slot 39 in the lever 10, said slot accommodating a crank arm 40 which is formed on the shaft 41 which carries the pointer 38. This shaft 41 is journaled in a post 42 secured to the base plate 1 as shown.

From so much of the description as has preceded, together with the illustrated parts relating thereto, it will be understood that when the lid 16 of the box 15 is opened an electric circuit will close which will cause the arm 4 to vibrate and actuate the indicating pointer 13, but it is also to be understood that when the lid 16 is subsequently closed, another circuit will be closed (if mail has been deposited in the box) said last named circuit actuating the pointer 38. To hold the last named circuit open and the pointer 38 upright, while the lid of the box is open, I secure to the lever 18, a rod 43, said rod

working through a slot formed in the bottom of the box 15 and carrying at one end a preferably inclined stop or abutment 44 which is designed to move under the bracket 5 and hold the same in its elevated position and prevent any downward movement thereof so long as the lid is raised. When the lid is lowered it is clear that the movement of the lever 18 under the influence of the lid 10 will draw upon the rod 43 and move the same in a direction to carry its spring stop 44 out from underneath the bracket 27, so that if any mail has in the meantime been placed on the platform 25, the same will be 15 free to descend and the circuit will be closed so as to actuate the pointer 38. Conversely, if outgoing mail has been previously deposited in the box to be taken out by the letter carrier, the opening of the box will cause the 20 circuit that had been held closed by the bracket 27 to be opened and the spring 4^a of the arm 4 will be permitted to act to draw the arm away from the electromagnets 3 to swing the pointer 38 in a direction to indicate that the lid has been opened and that 25 the out-going mail had been removed.

For an illustration of one arrangement of wiring which may be employed for the different circuits, reference is to be had to Fig. 30 7 wherein 45 designates an electric battery or other source of supply consisting, say, of two cells connected together as indicated at 46 in Fig. 5. A wire 47 connects one of the poles of the battery 45 with one of the terminals 24, and a wire 49 connects the other pole of the battery 45 with one binding post 35 49^a. A wire 48 connects the other terminal 24 with the other binding post 48^a. It will thus be seen that when the terminals 24 are 40 bridged, as has been hereinbefore described, one of the circuits will be closed to effect the continuous ringing of the bell until the circuit has again been opened. When this circuit is closed, the current will pass from the 45 battery through the lead wire 47, thence across the terminals 24 and will enter the bell through the lead 48 at the binding post 48^a. The current will then pass from the binding post 48^a through the tension screw of the interrupter and thence through the 50 electromagnets 3 and binding post 49^a and back to the battery through the lead 49, whereby the electromagnets will be energized intermittently, as is customary in electro- 55 mechanical bells of this character, the circuit being intermittently interrupted at the tension screw of the bell clapper so as to vibrate the latter and effect the continuous ringing of the bell. The other circuit is a 60 shunt circuit including a relatively short wire 50 which is connected to one of the terminals 37 and which runs to the wire 47. The other terminal 37 is connected by a wire 51 to the tension screw of the vibrator arm 65 4. Thus it will be understood that when the

first named circuit is closed at the terminal 37, the gong striking arm 4 will be attracted by the poles of the electromagnets and drawn over to its full extent and held there. When the terminals 37 have been bridged to 70 close the shunt circuit, the current will flow from the battery 45 through the branch lead 50, across the bridged terminals 37 and through the lead wire 51 to the set screw of the interrupter, and thence through the elec- 75 tromagnets 33, energizing the latter. The current will also flow from the electromagnets through the binding post 49^a back to the battery 45, whereby the electromagnets will be continuously energized until this 80 shunt circuit has been opened, the clapper arm being thereby drawn over and held in engagement with the cores of the magnets, the clapper striking the gong but once and serving to hold the indicator 38 in an opera- 85 tive position through the mechanism hereinbefore described.

It is to be understood that the invention is not limited to any particular form of wiring and arrangement of circuits, as various 90 changes may be made in this part of the device, as well as in the construction and arrangement and proportion of the mechanical parts, without departing from the scope of the invention as defined in the appended 95 claims.

Briefly described, the operation of my improved signaling apparatus (the detailed movements and functions of the parts having been described concurrently with the 100 description of their construction and arrangement) it will be understood that when the lid of the box 15 is raised, the lever 18 will be moved in one direction to effect the bridging of the terminals 24, one circuit of 105 the electromagnetic bell being thereby closed and the gong sounding arm thereby actuated as well as the pointer 13. The spring 19 will yield sufficiently to permit the lid to be fully opened. Upon the open- 110 ing of the lid, the stop 44 will be automatically moved under the bracket 27 which supports the false bottom or platform 25, the latter being thereby held stationary while the outgoing mail is being removed, 115 or incoming mail deposited, in the latter event, when the lid is subsequently closed and the stop 44 removed from underneath the bracket 27, the weight of the mail will cause the platform 25 to descend, the 120 bracket 27 thereupon bridging the terminals 37. The other circuit will then be closed, and the pointer 38 actuated. It is to be noted that only one circuit can be closed or opened at one time. Hence there will be no 125 confusion in the signals.

Preferably, a copper plate 37^a is pivotally suspended from and underneath the bracket 27 so as to insure proper connection with and bridging of the terminals 37. 130

Having thus described the invention, what is claimed as new is:

1. The combination with a receptacle provided with a lid and a counterpoised platform, of two electrically actuated signals, means for automatically operating said signals upon the opening of the lid and upon the depression of the platform, and means for automatically preventing the depression of the platform when the lid is in open position.

2. The combination with a receptacle provided with a lid and a counterpoised platform, of electrically actuated signals, means for automatically operating said signals upon the opening of the lid and upon the depression of the platform, and means controlled by the lid for holding the platform against a depressing movement when the lid is open, and for releasing the platform to permit it to be depressed upon the movement of the lid to closed position.

3. The combination with a receptacle provided with a lid and a counterpoised platform, of audible and visual signals, electrically actuated means for operating said signals, including electric circuits and separate switches, one of said switches being closed by the opening of the lid and the

other closed by the depressing of the platform, and means controlled by the lid for holding the platform against a depressing movement when the lid is open and for releasing the platform to permit it to be depressed upon the movement of the lid to closed position.

4. The combination with a receptacle provided with a lid and a counterpoised platform, of signals, electrically actuated means for operating said signals including separate switches, a switch closing lever, a connection between said lever and lid whereby the opening of the lid will move said lever in a direction to close one of said switches, the other switch being arranged to be closed by the depressing of the platform, and a rod connected to said lever and provided with a stop movable under and into engagement with the platform to prevent the depressing thereof upon the movement of said lever to close its switch.

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

WILLIAM M. ULBRICH. [L. S.]

Witnesses:

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