My invention relates to signaling devices for mail boxes and the like. An object of my invention is to provide an efficient signaling device readily adaptable for use on mail boxes or the like to indicate when the door of the box or the like has been opened.

Another object is the provision of means for signaling to be seen at a distance from a mail box or the like whether or not the door thereof has been opened.

Another object is the provision of an economical and efficient mechanism for operating a signal carried by a mail box by means of actuation of a swinging door of the box.

Another object is the provision of a means having a simple structure that is sturdy in use and dependable in operation.

Another object is the provision of a signaling mechanism which may be readily applied to and used with a mail box or the like.

Another object is the provision of a signaling device meeting the requirements for such uses in connection with mail delivery boxes.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a perspective view of a mail box having applied thereto a signaling device embodying my invention, showing the door closed and the signaling arm in a lowered or non-signaling position;

FIGURE 2 is a similar perspective view but showing the door in an open position and with the signaling arm in its lowered, non-signaling position;

FIGURE 3 is a similar view but showing the door moved to its closed position and with the signaling arm raised to its upper or signaling position (its previous lowered position being indicated in broken lines);

FIGURE 4 is a side view of a portion of a mail box to which my signaling device has been applied showing the hinge in closed position and the signaling arm in lowered or non-signaling position;

FIGURE 5 is a similar view, but showing the door in lowered position and the signaling arm still in lowered or non-signaling position;

FIGURE 6 is a similar view showing the arrangement of the parts after the door has been moved to closed position so as to raise the signaling arm to upright or signaling position; and

FIGURE 7 is a cross-sectional view taken through the line 7—7 of FIGURE 6.

In the drawing, a mail box of usual construction is generally denoted by the reference character 11. This mail box 11 of sheet metal construction is of the usual form in which mail is deposited by a mail carrier. The mail box 11 has a side wall 12 formed of a single sheet of metal rolled or bent in the usual manner to form the sides and curved top of the box. A rear wall 13 closes the rear of the box and a bottom wall 18 joining the side walls and the rear wall complete the enclosure of the box except for the front opening.

A door 14 of appropriate shape to close the front opening is mounted to the front of the box by a pivot hinge 17 so arranged that the door 14 may be swung to an upright position to close the front opening or swung down to a substantially horizontal position to open the front of the box. A handle 15 carried by the door 14 is adapted to cooperate with a catch 16 of resilient nature so arranged that the catch 16 by engaging with the handle 15 holds the door in a closed upright position. By pulling on the handle 15, the interengagement of the handle with the catch is overcome and the door is swung on the pivot hinge 17 downwardly from the closed position shown in FIGURES 1 and 4 to the open position shown in FIGURES 2 and 5.

Secured to a side of the box 11 and to the wall 12 thereof is a mounting plate 20 of metal or other appropriate material. This plate 20 is preferably of rectangular form as illustrated. It is secured to the box by bolt and nut assemblies 21, or it may be secured by welding or other suitable means to the box. Adjacent the upper and forward edge portions of the plate 20, there is a stop or limiting device 22 protruding therefrom. Adjacent the rearward and upper edge portions of the plate 20, there is another stop or limiting device 23 protruding therefrom. The axes of these stops 22 and 23 are substantially normal to the plane of the plate 20.

A signaling arm 24 of metal or other appropriate material is pivotally carried by the mounting plate 20 by means of a pivot pin 27 extending outwardly from the plate 20 and normal to the plane thereof. A washer 26 is disposed between the lever arm 24 and the plate 20 so that the arm 24 is free to swing on the pivot pin 27 without frictional engagement with the side of the plate 20. The arrangement is such that the signaling arm 24 may swing on the axis of the pivot pin 27 between the limits determined by the stops 22 and 23. The lever arm 24 is a signal flag or other signaling device 25 carried by its upper or free end so as to be clearly visible from a distance when in a raised position and disposed alongside the box when in a lowered position. The signal flag 25, of course, carries an indication, such as being painted red or yellow.

The lower end of the signaling arm 24 below the pivot pin 27 is denoted by the reference character 24A. Carried by the lower end portion 24A is a pin or stud 28 extending therefrom normal to the plane in which the lever arm 24 moves. A washer 29 is provided at the outer end of the pin 28 to provide an enlarged end thereof.

A link member or actuating arm 30 is pivotally connected by a pivot pin 33 to the door 14 at a distance from the hinge pivot 17. In the views of FIGURES 1 and 4, the pivot connection 33 is shown above and at a distance from the hinge pivot 17. In the views of FIGURES 2 and 5 the pivot connection 33 is shown as being forwardly of and at a distance from the hinge pivot 17 when the door 14 is in its lowered position. The link member 30 at a distance from the pivot connection, that is, adjacent the lower and rearward end of the link member 30, has an elongated slot 31 formed therein. This slot 31 extends longitudinally of the link member 30, preferably made of metal, for a substantial distance along the length of the member 30, as illustrated in the drawings. Formed on the upper edge of the slot 31 at a location intermediate of its ends, there is formed a shoulder or catch 32. This shoulder or catch 32 is so formed and situated that the pin or stud 28 when moving along the upper edge of the slot 31 catches upon and engages the shoulder 32. Thus the shoulder 32 forms a detent for catching and stopping at that location the pin 28 as the link member 30 is moved so as to move the shoulder 32 against the pin 28. The weight distribution of the link member 30 is such that the link member 30 is biased downwardly and therefore such that the pin 28 rides along the upper edge of the slot 31 and thus is in a position to engage and catch on the shoulder 32 during relative movement in one direction, that is, during the movement of the link arm 30 rearwardly toward the rear wall 15. The pin 28 extends through
the slot 31 and is retained therein by the washer 29 held by the head of the pin 28. The diameter of the Shank of the pin 28 is such that it may freely move lengthwise in the slot 31, both through its wider portion adjacent the rearward end of the link member 30 and also through its narrower portion extending forwardly or the link member 30 from the shoulder 32. When the pin 28 disengages the shoulder 32, then the pin 28 may move forwardly in the slot 31 through its narrowest portion.

The operation of my signaling device is described in connection with use of the mailbox illustrated in the drawings. In FIGURE 1, the door 14 is in its closed position and the signal 25 on the end of the signaling arm 24 is in its lowered position. In this arrangement, the pin 28 is located in the forwardmost end of the slot 31 as illustrated. Upon the mail carrier opening the door 14 to place mail or other papers therein to its position shown in FIGURE 2, the signal 25 remains in its lowered position as shown. In this arrangement, the link member 30 has been pulled forwardly by reason of its interconnection with the door 14 so that the pin 28 has now slid along the slot 31 to its rearwardmost end and adjacent the rear end of the link member 30 as shown.

Upon the mail carrier or other person closing the door 14 to the position shown in FIGURE 3, after having deposited mail or other papers therein, the link member 30 has been pushed or moved rearwardly by reason of its interconnection with the door 14 through the pivot connection 33. In moving the link arm 30 rearwardly, the shoulder 32 has engaged the pin 28 and pushed it rearwardly so as to swing the lower portion 24A of the signaling arm 24 downwardly to its position shown in full lines in FIGURE 3. This simultaneously raises the signaling arm 24 to its upright position with the signal flag 25 raised as shown in full lines in FIGURE 3. The interengagement of the pin 28 with the shoulder 32 is such that the signaling arm 24 with its flag 25 is maintained in an upright signaling position and thus in a position to be readily seen at a distance from the mailbox, such as from the house of the resident in front of which house the box is located. The resident, upon seeing the flag 25 in raised position, receives visual indication that the door 14 has been opened, mail or other papers deposited, and the door 14 again closed by the mail carrier. The resident, after receiving such indication, may then go to the mailbox to take out the mail or other papers there deposited.

The resident or person opening the box to take the deposited material from the box may freely open the box at the link member 30 freely moves along with the door 13 as it is opened. In doing so, the pin 28 is free to move to the rearward end of the slot 31, that is, adjacent the rearwardmost end of the link member 30. However, upon the resident or other person closing the door again, the flag 25 and signaling arm 24 would remain upright unless moved to the lowermost position, such as to the position shown in FIGURE 1. This is readily accomplished by raising the body of the link member 30 by depressing the short extension portion 30A protruding forwardly from the pivot connection 33. This may be readily done by the thumb or a finger of a person pressing downwardly on the extension portion 30A. This raises the rearward end of the link member 30 so that the shoulder 32 disengages the pin 28 to move forwardly through the narrower portion of the slot 31 to the position illustrated in FIGURE 1. The weight of the signal flag 25 is such that the signaling arm 24 is biassed to swing downwardly to its lowermost position when the pin 28 has been disengaged from the shoulder 32 so as to permit the pin 28 to slide forwardly in the slot 31 to the position shown in FIGURE 1. In this manner the signaling device is again set for its next cycle, such as when the door is opened again for receiving of mail and papers, and the closing of the door thereafter, which again raises the signal flag 25 as previously described.

The present disclosure includes that contained in the appended claims, as well as that of the foregoing description.

Although this invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:
1. A signaling device for a mailbox having a door swingable on a hinge axis between closed and open positions and having a side wall, the hinge axis being disposed substantially normal to the plane of said side wall, comprising in combination, a mounting member secured to said side wall, a first lever arm pivotally mounted on a first pivot axis carried by said support member and spaced from and substantially parallel to said hinge axis, signal means carried by said first lever arm, a pin carried by said first lever arm, signal means and pin being oppositely disposed along said first lever arm relative to said first pivot axis, a second lever arm pivotally mounted on a second pivot axis carried by said door and spaced from and substantially parallel to said hinge axis, said second lever arm having an elongated slot extending therealong adjacent a first end thereof as a distance from said second pivot axis, said slot having an uppermost marginal edge disposable at variable angles to the vertical in the different positions of the said second lever arm, said second lever arm having a step portion disposed on said uppermost marginal edge of said slot intermediate the ends thereof, said pin being extended into said slot to slide therealong under relative movement between said lever arms, said second lever arm being biased to move the said uppermost marginal edge of said slot downwardly toward said pin to cause the pin to engage and catch on said step portion in sliding along the slot in one direction, the arrangement of the lever arms, pin and step portion relative to said axes providing that upon moving said door toward open position the pin moves in said slot away from said second pivot axis in an opposite direction and upon moving said door toward closed position the said pin moves in said slot toward said second pivot axis in said one direction to engage and catch on said step portion whereby further movement of the door toward closed position causes the said pin caught on the said step portion to swing said first lever arm on said first pivot axis and thereby change the position of the signal means carried by the first lever arm, said pin being releasable from engagement with said step portion by moving the second lever arm in opposition to said bias thereof.
2. A signaling device as claimed in claim 1 and including an extension portion on said second lever arm extending beyond said pivot axis in a direction away from said first end of the second lever arm whereby manual swinging of said extension portion moves the second lever arm in opposition to the bias thereof to release said pin from engagement with said step portion.
3. A signaling device for a mailbox having a door swingable on a horizontal hinge axis, comprising in combination, a signal member having an arm pivotally mounted on a first horizontal pivot axis carried by the mailbox at a distance from said hinge axis, a link member pivotally mounted on a second horizontal pivot axis carried by said door at a distance from said hinge axis, signal member and link member having end portions, respectively, crossing each other in parallel adjacent disposition, said link member having an elongated slot extending therealong and the said end portion of the signal member having a pin portion disposed in and movable lengthwise along said slot as one of said
members is moved relative to the other member, said slot having a detent portion intermediate the ends thereof and along the uppermost side thereof, the end portion having said slot being biased to urge said uppermost side of the slot downwardly to engage said pin portion, the interengagement of said pin portion and said detent portion providing that movement of said link member by the swinging toward closed position of said door and second pivot axis carried thereby causes said signal member to swing on said first pivot axis to a first and signaling position, the disengagement of said pin portion and detent portion by overcoming the bias of said end portion permitting said signal member to swing on said first axis to an opposite position and non-signaling position.

4. A signaling device as claimed in claim 3 and including an extension portion of said link member extending beyond said second pivot axis in a direction opposite from its said end portion crossing the end portion of the signaling member and providing a lever action for said link member whereby manual swinging movement of the extension portion the said end portion of the link member is swung in an opposite direction to disengage said pin portion and detent portion carried by said crossed end portions, respectively.

5. A signaling device for a mail box or the like having side walls defining a front opening and having a door for closing said opening swingable on a horizontally disposed hinge axis along the bottom of the opening between a closed upright position and an open position, comprising in combination, a signaling arm pivotally swingable on a first pivot axis carried by a said side of the mail box or the like and in a plane substantially parallel to said side between a raised signaling position and a lowered non-signaling position, said signaling arm having a first end portion and a second end portion disposed on opposite sides of the lever fulcrum provided by said first pivot axis, signal means carried by said first end portion to move therewith, a link arm linked to said door at a distance from said hinge axis to be actuated by swinging movement of the door between open and closed positions, said link arm having a slotted end portion at a distance from said door and extended toward the said first end portion of said signaling arm, said slotted end portion having an elongated slot extending therealong, said slot having an upper and a lower longitudinal edge, said upper longitudinal edge of said slot being formed with an abutting shoulder facing in a direction away from said front opening and positioned intermediate the ends of said slot, said second end portion of the signaling arm having a pin portion extending laterally therefrom into said elongated slot and movable therealong and pivotal therein during relative movement between the link arm and said signaling arm, said link arm being biased to urge said abutting shoulder downwardly and the said abutting shoulder under said bias being arranged in said slot to engage and push said pin portion to pivotally swing said signaling arm upon movement of the link arm in a direction away from said front opening, an arrangement of link arm and signaling arm being such that movement of said door toward open position causes the link arm to pull the second end portion of the signaling arm and thereby swing the first end portion of the signaling arm to non-signaling position, and such that subsequent movement of the door toward closed position causes the link arm to slip on engagement of said pin portion with said abutting shoulder, to push the second end portion of the signaling arm and thereby swing the first end portion of the signaling arm to signaling position.

6. A signaling device as defined in claim 5 and including a manually operable lever extending forwardly of the door and connected to said link arm to swing the link arm in a movement to disengage said abutting shoulder from said pin portion for permitting the signaling arm to swing to non-signaling position notwithstanding the positioning of said door in closed position.

7. In a device for indicating the closure of a door on a mail box, the door being swingable on a horizontal hinge axis disposed along the bottom edge of the door opening, the combination of, a lever arm pivotally mounted intermediate its ends to a side of the mail box, a signal element mounted to one end portion of the lever arm, a pin mounted to an opposite end portion of the lever arm, a link member pivotally mounted to the door at a distance from said hinge axis, a sideline carried by the link member at a distance from said door and accommodating said pin to permit relative longitudinal movement of the pin along said sideline, the relative bias of said link member and lever arm being such that said pin is urged upwardly against the upper defining edge of said sideline in its movement along said sideline, and a detent element carried by the link member along said sideline and positioned adjacent said upper defining edge to engage and press against said pin upon movement of the link member toward the said opposite end portion of the lever and thereby pivotally swing the lever in a direction to raise said one end portion of the lever carrying the said signal element.

8. The combination claimed in claim 7 and including means extending from said link member forwardly of said door and manually manipulatable to pivotally swing on its pivot mounting on the door in a direction to disengage the said detent element from said pin to release the lever arm from being held by the engagement of detent element with said pin.

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