United States Patent [19]

Myers

[11] **3,794,240**

[45] **Feb. 26, 1974**

[54] **MAIL DELIVERY SIGNAL DEVICE**

[76] Inventor: **Douglas T. Myers,** 206 Jackson St., Macon, Mo. 63552

[22] Filed: **June 8, 1972**

[21] Appl. No.: **261,008**

[52] **U.S. Cl.** **232/35,** 116/134, 232/37

[51] **Int. Cl.** **B65d 91/00**

[58] **Field of Search** 232/35, 36, 39, 37; 116/134, 116/175

[56] **References Cited**

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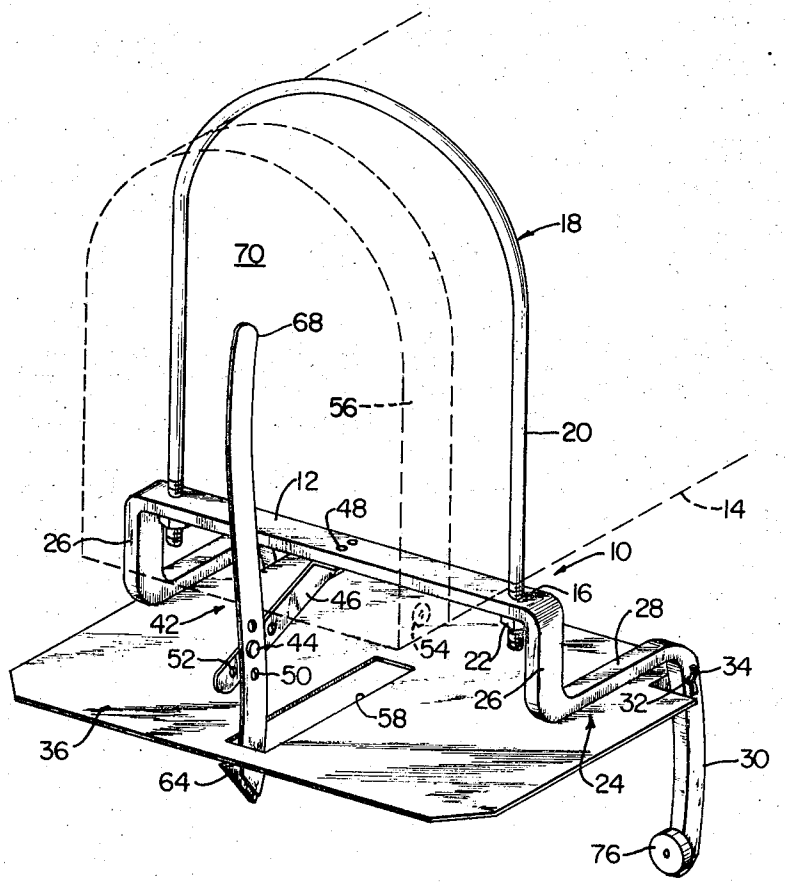
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Primary Examiner—Bobby R. Gay
Assistant Examiner—Peter A. Aschenbrenner

[57] **ABSTRACT**

A signal device for use with rural mail boxes comprises a laterally extending bracket having laterally spaced depending legs. A signal flag of any desired shape is mounted at or near its aft edge to pivotal mounting means for free swinging by gravity. A latch lever is pivotally mounted to the bracket and has a hook at its lower end to engage the forward portion of the flag and hold it in retracted position. The upper end of the lever is in the path of movement of the mail box door and is angularly displaced by opening of the door to release the flag for swinging down to signaling position. The bracket may be mounted in various ways but preferably a bail overlies the box with its free ends extending through apertures in the bracket and secured thereto. The two moving parts are freely pivoted and operate by gravity. There are no springs or sliding members and no modification of the basic mail box.

14 Claims, 7 Drawing Figures



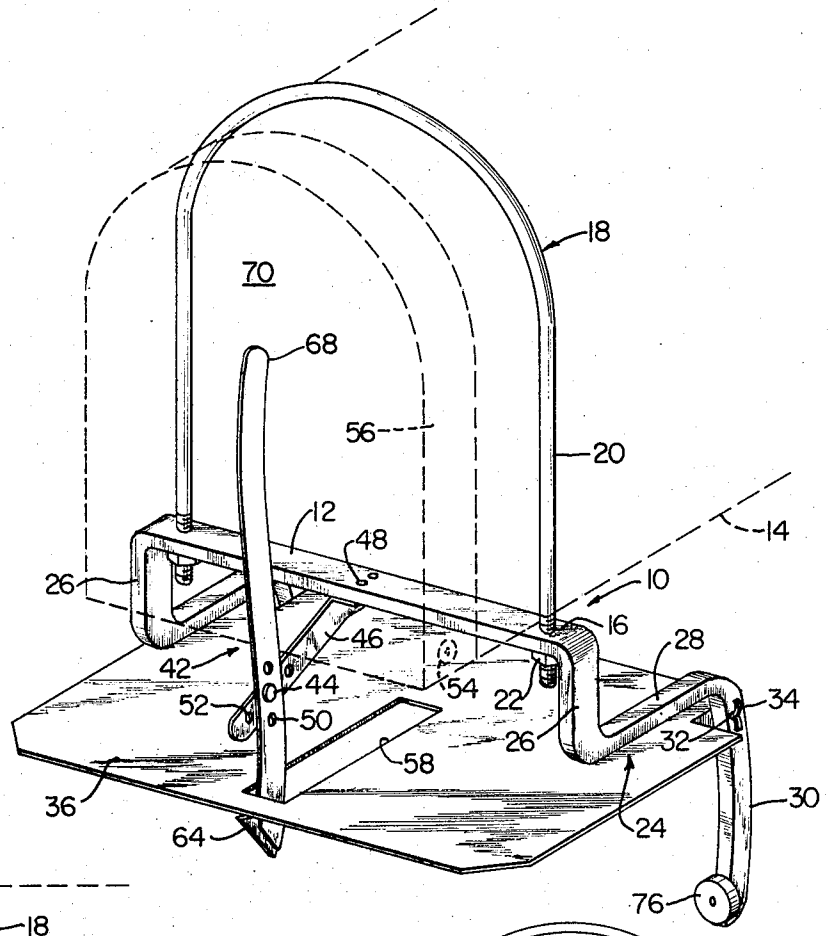


FIG. 1

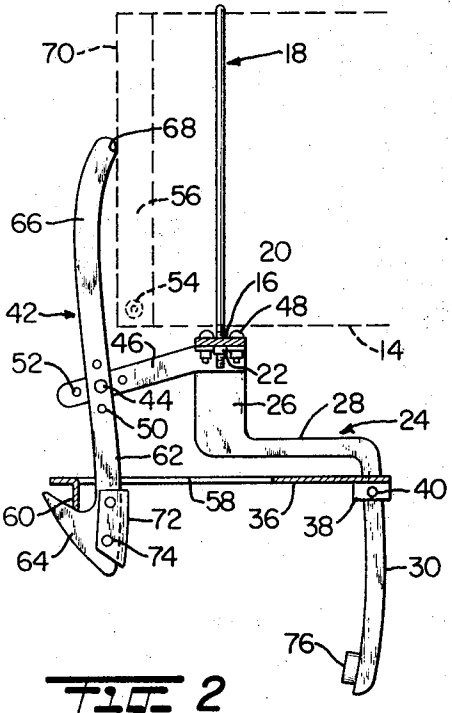


FIG. 2

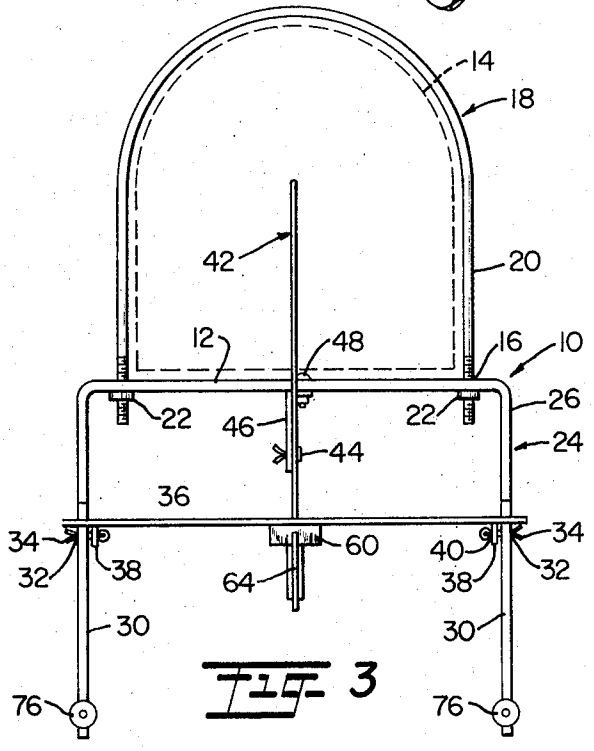


FIG. 3

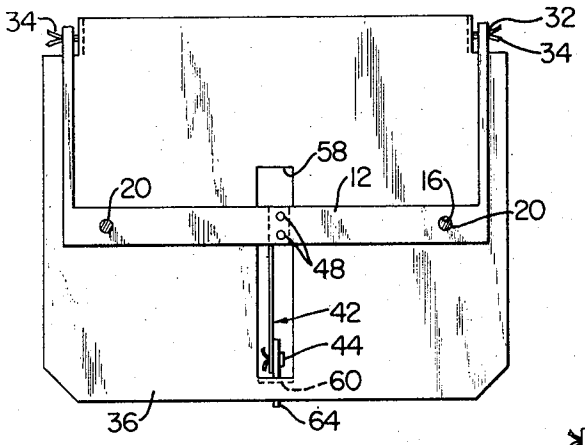


FIG. 4

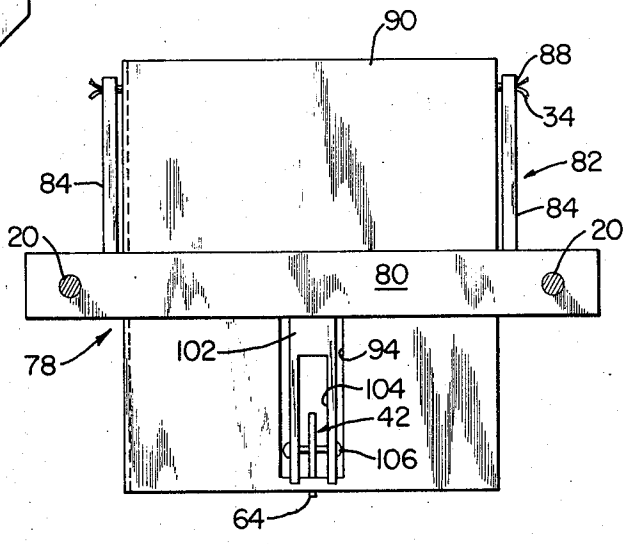


FIG. 7

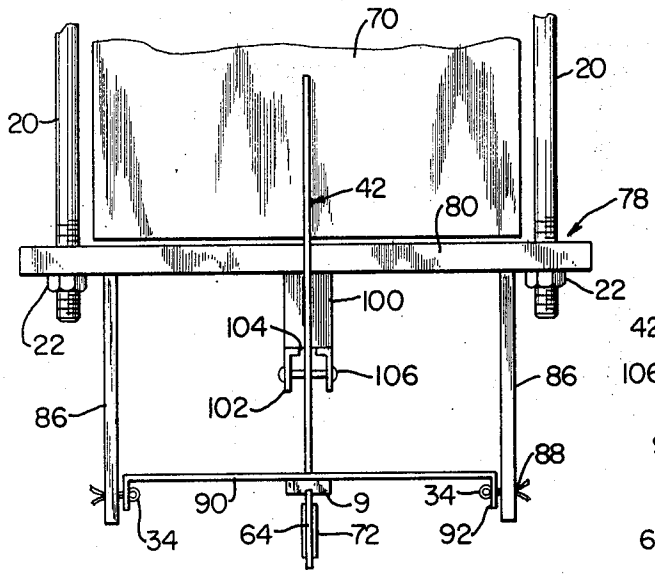


FIG. 6

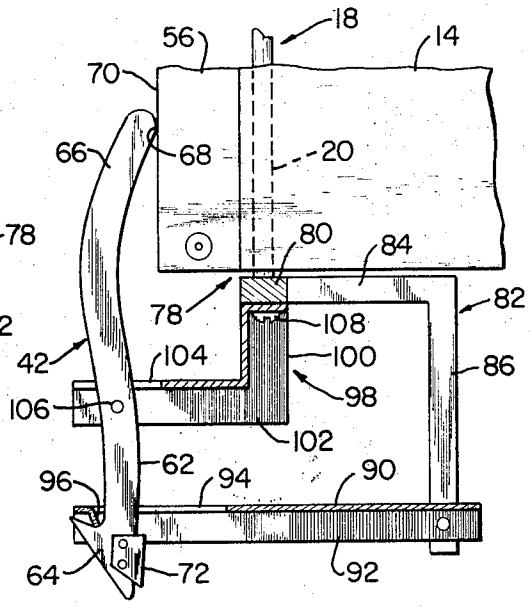


FIG. 5

MAIL DELIVERY SIGNAL DEVICE

BACKGROUND OF THE INVENTION

This invention lies in the field of signal devices for rural type mail boxes and is directed to a device of this type which is simple and reliable and which is very durable in use. It is particularly directed to such a device which requires no modification of the basic mail box structure and which obviates the need for various components which have frequently deteriorated or malfunctioned in earlier mechanism.

The rural type mail boxes presently in almost universal use are of the same shape and may be obtained in two or three sizes. Basically they are elongate with flat bottom and sides and with a semicylindrical upper wall and are open at one end. A door is provided to close this end and is normally of the same shape as the cross section of the box and hinged adjacent its lower margin to open outward and downward. They are usually mounted on posts or fence rails, and sometimes on elongate horizontal bars where several are located at one mail stop.

It is well known that most such boxes are located at the road edge for the convenience of the mail carrier and thus are frequently at a considerable distance from the house for which the mail is destined. Consequently, it has become common practice to attach signal devices to the boxes to be actuated by the carrer to indicate that he has left some mail in the box. The most usual signal is a plate of some kind to serve as a flag which may be swung to a visible position to indicate the deposit of mail. Unfortunately, postal regulations do not permit mail carriers to operate any signal arrangement for indicating that mail has been delivered. Consequently the signal device must be arranged to operate automatically in response to opening of the mail box door by the carrier.

A great many mechanisms have been devised to perform this function, and some of them work quite well when newly installed. However, they have various drawbacks which reduce their desirability. Practically all of them require some alteration of the box itself, such as drilling holes or fastening means or changing the shape of some part of the box so that it will actuate the mechanism. They frequently require very accurate placement in order to operate at all, which calls for various tools and considerable skill, and may necessitate installation at a factory.

In addition to these problems, the devices are often very complicated in themselves and include dozens of component parts including links, levers, sliding parts and springs. Such parts deteriorate rapidly, particularly in winter weather, and often are rendered inoperative by snow and ice.

SUMMARY OF THE INVENTION

The present invention overcomes the difficulties mentioned above and provides a construction and mode of operation which are extremely simple and reliable, reducing first cost and requiring no maintenance.

Generally stated, the signal device disclosed herein comprises a bracket having means for fastening it to a support, such as the mail box itself, laterally spaced depending legs on the bracket, and a signal flag pivotally connected to the legs for swinging between a retracted generally horizontal position and a generally vertical signaling position. In the preferred form, the flag is generally rectangular and the pivotal axis is adjacent to its aft margin which is well aft of its center of gravity. Thus it extends forwardly in the direction of the forward end of the box when in its forward, retracted, position and is adapted to swing downward and rearward by gravity alone to its extended, vertical, signaling position.

A latch lever is provided to retain the flag in retracted position between mail deliveries. A support arm is attached to the bracket and exends downward and forward to provide a pivot mounting below and forward of the mail box door hinge. The latch lever is connected intermediate its ends to the pivot mounting and is provided with a weight at its lower end to continuously urge it to an upright attitude with its upper end close to or in contact with an intermediate portion of the face of the mail box door. The lower end is provided with an upwardly concave hook formation which passes through a fore and aft elongate slot in the flag and engages the under side of the flag to retain it. When the carrier opens the door, it swings downward and forward and angularly displaces the lever. This causes the hook formation to release the flag and allow it to swing down and back to its signaling position. The presently preferred manner of supporting the bracket is to apply a downwardly open bail over the box with its free ends passing through apertures in the bracket, the free ends being provided with threads engaged by nuts to clamp the bracket to the box.

The entire device includes only four major components all of which are very simple and durable and easy to connect. It is not necessary to make any holes in the box or to deform any part of it, and the location of the bracket below the box leaves maximum freedom for placement of name plates and the like at the upper side. The device operates entirely by gravity, obviating any need for springs, complicated links or levers, or sliding members, all of which are subject to deterioration, breaking and jamming. Furthermore, it may be re-set with the use of only one hand while the delivered mail is held in the other.

BRIEF DESCRIPTION OF THE DRAWINGS

Various other advantages and features of novelty will become apparent as the description proceeds in conjunction with the accompanying drawings, in which:

FIG. 1 is a schematic view in perspective of a signal device incorporating the invention;

FIG. 2 is a side elevational view, partly in section, of the device of FIG. 1;

FIG. 3 is a front elevational view of the device;

FIG. 4 is a top plan view of the device, partly in section;

FIG. 5 is a schematic side elevational view, partly in section, of a modified form of the device;

FIG. 6 is a front elevational view of the device of FIG. 5; and

FIG. 7 is a tp plan view of the device of FIG. 5.

DESCRIPTION OF PREFERRED EMBODIMENTS

A typical signal device incorporating the features of the invention is schematically illustrated in FIG. 1, in which bracket 10 may be in the form of a plate of substantial area but preferably comprises a bar 12 which extends laterally of the longitudinal axis of the mail box 14 with which it is to be used. Securing apertures 16 are formed through the bar near its ends, and screws may

be passed through the apertures to fasten it directly to the mail box or to any suitable support on which the mail box may rest. However, in order to avoid modification of the box and to facilitate placement at any selected point, an inverted or downwardly open bail **18** with legs **20** is provided and is made of a size to fit freely over the box with the free ends of legs **20** extending down through apertures **16** to receive nuts **22** to clamp the device to the box.

The ends of bar **12** are provided with preferably integral downwardly and rearwardly extending legs **24** wich may incorporate vertical, horizontal, and vertical sections **26, 28,** and **30** respectively. Sections **30** are provided with pivotal mounting means in the form of apertures **32** which are aligned on a horizontal axis extending laterally of the longitudinal axis of the mail box, and may be provided with cotter pins **34** as shown, or rivets, or bolts and nuts.

The signal flag **36** is shown in its preferred form as a substantially rectangular plate slightly wider than the span of the bracket and having cut-out and downwardly depending mounting ears **38** with apertures **40** at or near the aft margin. Apertures **40** are laterally aligned with apertures **32** in the legs, and cotter pins **34** provide a free pivotal mounting. Since the center of gravity of the flag is near its center of area, the pivotal mounting axis is well aft of the center of gravity so that the flag wll freely swing down from its horizontal retracted position to its vertical signaling position in response to the force of gravity if it is released.

In order to retain the flag in retracted position prior to mail delivery, a latch lever **42** is pivotally mounted at an intermediate point by means of pivot **44** to a support arm **46** which is mounted on bar **12** by bolt type fasteners **48,** although alternatively it may be welded to the bar or made integral with it. Several holes **50** and **52** may be formed in the lever and arm respectively as shown to provide for adjustment as desired. The support arm preferably extends downward and outward as shown to locate pivot **44** below the level of the bottom of the box and forward of the hinge **54** of the box cover **56.**

As best seen in FIG. **2,** flag **36** is formed with a central, axially elongate slot **58,** at the forward end of which is provided a downwardly directd laterally extending lip **60.** The lower end **62** of the latch lever is provided with an upwardly concave hook formation **64** which passes down through the slot to underlie the flag and engage lip **60** at a right angle. This small area of contact provides a slight drag to prevent accidental releasing movement. The upper end **66** of the lever is curved somewhat backward so that only its tip **68** will contact the intermediate portion of the face **70** of the box cover **56.**

When the carrier opens door **56** to place mail in the box, the door swings out and down about its hinge **54,** and the contact of face **70** with tip **68** angularly displaces the latch lever with the result that hook formation **64** swings back and up, disengaging lip **60** and allowing the flag to swing down to its signaling position. It will be noted that the position of pivot **44** below the bottom of the box insures that portion **66** of the lever will not interfere with opening of the door to its maximum extent. Weight **72** is secured to lower end **62** by rivets **74** and serves to continuously urge the lever to its upright attitude. Because of this, the flag **36** may be retracted and latched simply by raising it with one hand while the other hand is free to hold the delivered mail. The lever may be adjusted so that tip **68** is lightly in contact with face **70** or slightly spaced from it as desired.

Legs **30** extend well below pivotal mountings **32** to stop the flag at the bottom of its swing. If it is desired to prevent the flag from swinging in the wind, retaining means may be provided adjacent to the lower ends of the legs. These may be of various types, such as spring latches, but it is presently preferred to use magnetic discs **76.** The flat may be made of ferrous metal or it may be of other material such as plastic, in which case the portions which contact the magnets will be pieces of ferrous metal.

A somewhat modified form of the invention is illustrated in FIGS. **5** to **7** in which the flag supporting legs are located closer together and the pivotal mounting means are beneath the box where they are protected to a great extent from inclement weather. In this form, bracket **7** includes a bar **80** similar to bar **12** of the first form, with apertures near its ends to receive legs **20** of the bail. However, the flag supporting legs **82** are located inwardly of the bar ends as shown and include horizontal sections **84** and vertical sections **86.** The latter are substantially shorter than those of the first form and have no extensions to serve as stops for the flag. pivotal mounting means **88** are adjacent to the lower ends of these sections **86.**

The flag **90** is generally the same as flag **36** but somewhat narrower and, instead of small cut-out ears at the aft end, a continuous depending flange **92** is provided at each side to stiffen the entire plate. A slot **94** and lip **96** are provided in the same manner as before and the same latch lever **42** is employed to operate in the same way. A modified form of support arm comprises a channel-shaped member **98** having a vertical section **100** and a horizontal section **102,** the forward portion of which has an axial slot **104** to receive the latch lever. Pivot pin **106** passing through the side walls of the channel carries the latch lever. The support arm may be secured to bar **80** by machine screw **108** or other suitable fastening means. The total operation of the device is basically the same as that of the previously described form.

While the invention has been described with reference to its application to a mail box it obviously has application to other type containers with which it can be used to indicate whether the door has been opened.

What is claimed is:

1. A signal device for use in combination with an elongated mail box having an open forward end and a door hingedly mounted at its lower portion to normally cover the open end, comprising:

a bracket provided with means for mounting it beneath and in the vicinity of the forward end of the box and having pivotal mounting means directed along a lateral axis with respect to the longitudinal axis of the box;

a generally planar signal flag pivotally connected to the pivotal mounting means of the bracket for swinging between a first, retracted, position with its plane generally horizontal and spaced below the bottom of the box, and a second, extended, signaling position with its plane generally vertical;

the pivotal connection of the flag to the bracket being spaced aft of the center of gravity of the flag rearwardly with respect to the open forward end of

the box to cause the flag to swing downward and rearward to its signaling position solely by the action of gravity;

and a latch lever pivotally mounted to the bracket on an axis extending laterally with respect to the longitudinal axis of the box to extend in a generally upright attitude with its lower end in a position to releasably engage the flag and retain it in retracted position and its upper end separate from said door in a position in the path of opening movement of the box door to be angularly engaged and cammed by same to release the flag to swing down to its signaling position.

2. A signal device as claimed in claim 1; wherein the pivotal mounting of the latch lever to the bracket is located below the level of the bottom of the mail box.

3. A signal device as claimed in claim 1; wherein the pivotal mounting of the latch lever to the bracket is located below and forward of the mail box door hinge.

4. A signal device as claimed in claim 1; wherein a weight is secured to the latch lever below its pivotal mounting to continuously urge the lever toward upright attitude.

5. A signal device as claimed in claim 1; wherein the lower end of the latch lever is provided with an upwardly concave hook formation;

and keeper means is provided on the flag to engage the hook formation.

6. A signal device as claimed in claim 5; wherein the flag is formed with an elongate slot therethrough;

and the hook formation extends through the slot to engage the flag at its under side.

7. A signal device as claimed in claim 6; wherein the flag is provided at the forward end of the slot with a downwardly directed laterally extending lip for secure engagement with the concave portion of the hook formation.

8. A signal device as claimed in claim 1; wherein the bracket is provided with laterally spaced securing apertures;

and the bracket mounting means comprises a downwardly open bail configured to overlie the mail box with its free ends passing through the securing apertures, and fasteners connected to the free ends at the under side of the bracket.

9. A signal device as claimed in claim 1; wherein the bracket comprises a laterally extending bar having securing apertures in the vicinity of its ends, and laterally spaced downwardly extending legs;

and the pivotal mounting means are on the legs for swingably mounting the flag.

10. A signal device as claimed in claim 9; wherein the legs are located at the outer ends of the bar and extend rearward and downward;

and the flag is connectd adjacent to its aft margin to the pivotal mounting means.

11. A signal device as claimed in claim 10; wherein the legs extend a substantial distance below the pivotal mounting means to serve as stops for the flag in its signaling position.

12. A signal device as claimed in claim 11; wherein retaining means are provided adjacent to the lower ends of the legs to restrain the flag against swinging.

13. A signal device as claimed in claim 12; wherein

the retaining means are magnetic members;

and at least those portions of the flag which contact the retaining means are ferrous metal.

14. In combination with an elongated container having an open forward end and a door hingedly mounted thereon which opens by gravity when unlocked, a signal device comprising:

a bracket provided with means for mounting it beneath and in the vicinity of the forward end of the container and having pivotal mounting means directed along a lateral axis with respect to the longitudinal axis of the container;

a generally planar signal flag pivotally connected to the pivotal mounting means of the bracket for swinging between a first, retracted, position with its plane generally horizontal and spaced below the bottom of the container, and a second, extended, signaling position with its plane generally vertical;

the pivotal connection of the flag to the bracket being spaced aft of the center of gravity of the flag rearwardly with respect to the open forward end of the container to cause the flag to swing downward and rearward to its signaling position solely by the action of gravity;

and a latch lever pivotally mounted to the bracket on an axis extending laterally with respect to the longitudinal axis of the container to extend in a generally upright attitude with its lower end in a position to releasably engage the flag and retain it in retracted position and its upper end separate from said door in a position in the path of opening movement of the container door to be angularly engaged and cammed by same to release the flag to swing down to its signaling position.

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