June 11, 1963 J. M. ALLEY 3,093,302

MAIL BOX AND SIGNAL

Filed Nov. 16, 1961 2 Sheets-Sheet 1

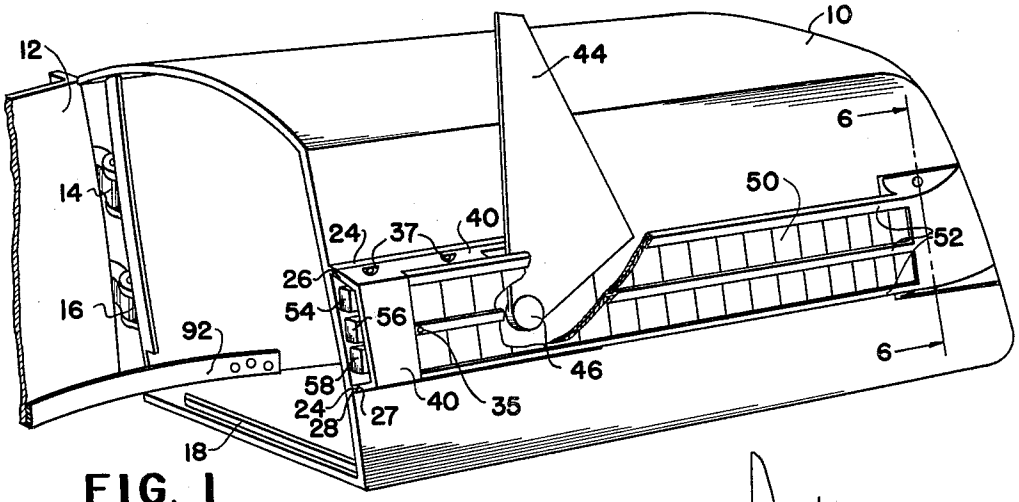


FIG. 1

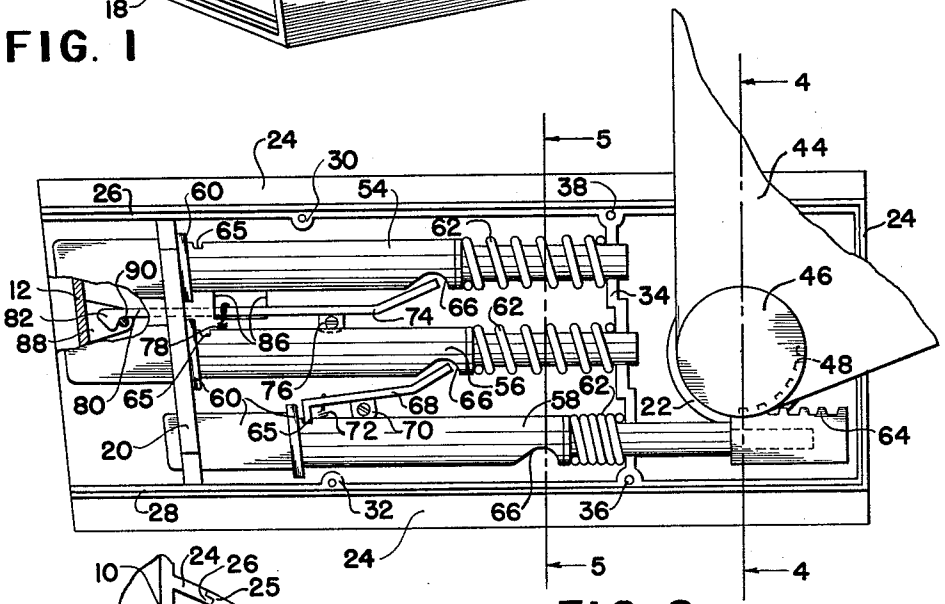


FIG. 2

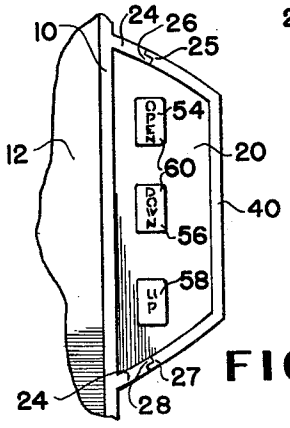


FIG. 3

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June 11, 1963 J. M. ALLEY 3,093,302

MAIL BOX AND SIGNAL

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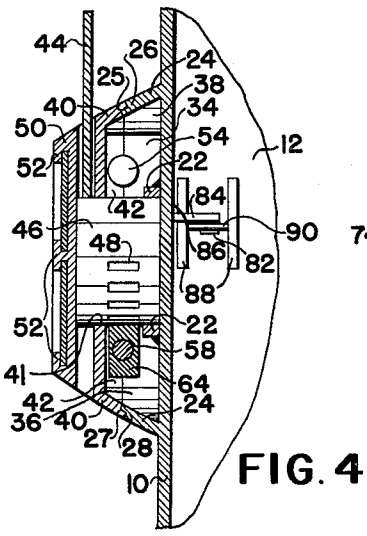


FIG. 4

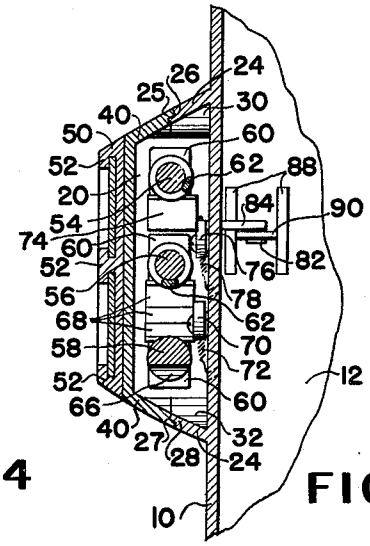


FIG. 5

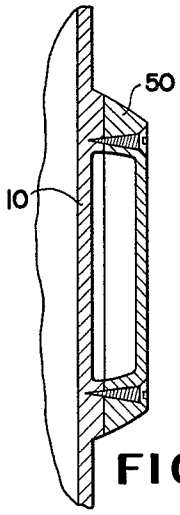


FIG. 6

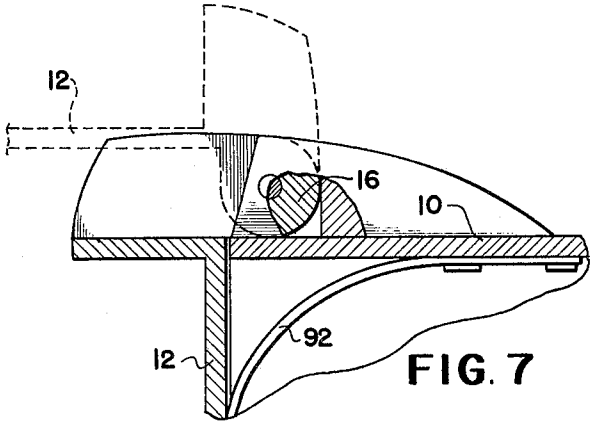


FIG. 7

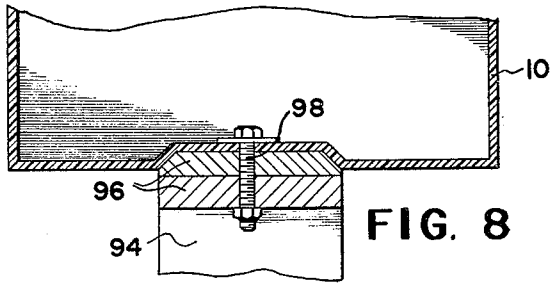


FIG. 8

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MAIL BOX AND SIGNAL

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7 Claims. (Cl. 232—35)

My invention relates broadly to mail and to means of storing such. In a more specific aspect, my invention relates to mail boxes. Yet in a more specific aspect, my invention relates to mail boxes equipped with devices by which the mail box door can be easily, safely and conveniently opened and by which a signal, such as a flag, informing persons viewing the box from a distance whether there is mail, can be easily, safely and conveniently activated and deactivated. Yet more specifically my invention relates to mail boxes equipped with push buttons by means of which the mail box door can be easily, safely and conveniently opened and by means of which the flag can be conveniently raised and lowered, such as from an automobile or truck.

Heretofore, mail boxes have been equipped with a variety of signaling devices which serve the dual purpose of informing the rural mailman when there is mail to be picked up and informing the occupant when mail has been delivered. When the mailman picks up but delivers no mail, he drops the flag, when the occupant goes out and brings in the mail but leaves none to be picked up, he drops the flag. The most common of these signaling devices has been a red metal flag on an arm. These flags and similar devices have been heretofore constructed so that it is necessary to reach along the side of the box some distance, and it is thus often difficult or impossible for a person in a car or truck to reach the flag in order to raise or lower it. Also, the metal arm of the flag is often rusted or has sharp metal edges making it dangerous for people, particularly children, to operate. At times fingers or clothing get caught, torn and soiled in the hinging mechanism of the flag. The difficulty or inconvenience is such that often either the postman or the occupant fails to raise or lower the flag at the proper time, causing confusion and unnecessary stops or trips out from the house, and defeating the purpose of the signal flag. Also, the mailboxes of the prior art have commonly been equipped with a simple, spring-loaded catch to hold the door shut. This has the difficulty of being difficult to operate when one's hands are full of mail. Also, the protruding handle which is necessary on such a mail box deteriorates because it is exposed to the elements. It, too, can catch on, and soil clothing, as it becomes very dirty and rusty with time. In cold weather, the spring-loaded catch can freeze solid and the door can be opened only with difficulty, again wetting and soiling the hands. Not the least of the drawbacks of the prior art mail boxes is that they are ugly and unattractive to look at, with the exposed flag arm and hinge, and the protruding handle and spring loaded catch for the door.

The invention overcomes these difficulties by providing a lever or push button mechanism at the front of the mail box. By a simple manual operation of this mechanism, a signal can be activated or deactivated. It is no longer necessary to reach along the side of the mail box, or to get out of the car or truck. Also, preferably by pushing one of the buttons, the door is opened, simply and automatically.

More specifically and preferably, my mail box consists of a six-sided box, made of a suitable material such as plastic, having a roof, preferably curved. The mail box is equipped with a door which, when closed, preferably slants slightly outward at the top and which is hinged on its left side, as viewed from the front. The mail box has a back side which is preferably slanted parallel to the

closed door and whose edges are preferably rounded at their junction with the other sides of the mail box. The mail box conveniently has door stops to prevent the door from continuing into the box upon being closed.

It is an object of this invention to provide a new mail-storing means.

It is another object of this invention to provide a new mail box.

It is still another object of this invention to provide a mail box with a signal easily activated and deactivated manually from the front of the box.

It is still another object of this invention to provide a mail box with a series of push buttons by means of which a signal flag can be raised and lowered and the door to the box can be opened.

Other objects and advantages of my invention will become apparent to those skilled in the art upon reading this disclosure.

Drawings accompany and are a part of this disclosure. These drawings depict preferred specific embodiments of my new mail box invention, and it is to be understood that such drawings are not to unduly limit the scope of my invention.

FIG. 1 is a perspective view of a preferred specific embodiment of the new mail box of my invention, with the door open, and the elongated mechanism cover partially cut away to show the preferred nature of the flag mounting.

FIG. 2 is a longitudinal view of the preferred push button mechanism, shown with the mechanism cover and the elongated mechanism cover off.

FIG. 3 is a transverse view of the preferred push button mechanism shown with the mechanism cover on, viewed from the front.

FIG. 4 is a partial cross-section of the flag, showing its gear teeth, the cross-section being taken as shown in FIG. 2 along line 4—4.

FIG. 5 is a cross-section of the mechanism, taken as shown in FIG. 2, along line 5—5.

FIG. 6 is a transverse cross-section taken of the elongated mechanism cover at its rear mounting to the body of the mail box, taken as shown in FIG. 1, along the line 6—6.

FIG. 7 is a cross-section of the door and the top door hinge.

FIG. 8 is a view, looking from the front of the mail box and a means for mounting it to a post or the like.

Referring now to the drawings, FIGS. 1 through 8, the following discussion and description is made referring thereto and whereon the same reference numerals are used to indicate the same parts and/or structure. The discussion and description is of preferred specific embodiments of my invention, and it is to be understood that such is not to unduly limit the scope of my invention.

The preferred mail box of my invention has the following members. The mail box **10** has a door **12** which is hinged thereto by hinges **14** and **16**. A stop **18** limits the inward swing of door **12**. On the right side of the box **10**, as viewed from the front toward the back, is a boss **22** of suitable shape, preferably cylindrical, and made of a suitable material such as plastic, wood, or metal. It is preferably positioned centrally on the right side of box **10**, and extending outward but not inward. A rectangularly formed strip **24** lacking one of the short sides of the rectangle is attached, on one edge of the strip **24**, to the right side of the box **10**, preferably in such a position that the missing side, were it present, would be substantially in the plane of the closed door **12**. The non-attached edges of the two long sides of the rectangle **24**, are bent toward one another. Each of the long sides of **24** has protrusions **30** and **32** with a threaded hole therein whose axis is parallel to that of the boss **22**, that is, perpendicular

to the right side. The non-attached edges of the two long sides each have flanges **26** and **28** extending the length of the long sides and being a continuation of the bottom surface of the top side of the rectangle **24** and the top surface of the bottom side of the rectangle **24**. An elongated holder member **34** made of a suitable material such as metal or plastic is formed at each end thereof to the rectangularly bent strip **24** and has three staggered vertical portions, in the center of each of which is a semi-cylindrical notch. At each junction of this holder member **34** with the rectangularly bent strip **24** are threaded holes **36** and **38**, the axis of which is parallel to that of the cylindrical boss **22**.

Located on the right side of the mail box **10** is a member **20**, preferably made of a suitable material such as plastic, shaped like a flat trapezoid, having three equally spaced rectangular holes with their long sides colinear with each other and parallel to the base of the trapezoid. The base is attached to the right side of the box **10** very near the front, so that the member **20** is substantially parallel to the plane of the door **12**, when closed. The portions of the non-parallel edges nearest the base both fit adjacent to the inwardly bent strips **24**. The rectangular holes are so positioned as to be approximately coaxial with the axis of the corresponding semi-circular notch.

A mechanism cover **40**, made of an appropriate material such as metal or plastic, is mounted on the rectangularly bent strip **24**, and has three portions, each of which have, as a cross section, the three short sides of a flat trapezoid, each of the trapezoids having bases of identical length and having corresponding angles identical with the other two. These bases all are in a plane, and the edges where the sides of the trapezoids meet the missing base have flanges **25** and **27** which allow the cover to be easily mounted and positioned on the rectangularly bent strip **24**. The trapezoids preferably become increasingly flat as they progress rearward. The rearmost portion has a hole **41** whose size is that of the inside of the boss **22** and which is coaxial with the boss **22**. This rearmost portion is spaced a short distance from the boss **22**. The middle portion has a small threaded hole **35** near the front edge. Mounted on the back of the middle portion is a brace **42** whose shape is a mirror image of the holder member or brace **34** and which, when in place, forms with the other brace **34** three circular holes. The sides of this cover have four holes **37**, two coaxial with the holes in the protrusions **30** and **32** of the rectangular strip **24** and the other two coaxial with the holes **38** and **36** in the junctions of the staggered holder **34** with the strip **24**.

A flag **44**, preferably of a suitable material such as meal, and preferably flat, four sided, and painted or otherwise colored with an attention-attracting color such as red, and suitably shaped, such as having one very short side, a second side perpendicular and adjacent to the first side, and a third and fourth mutually perpendicular side, neither perpendicular to the second side, is rotatably mounted to the mail box **10** by means of a cylindrical portion **46** of diameter such as to be rotatably mountable in the boss **22**. The portion **46** extends on one side of the flag **44**, whose axis is perpendicular to the plane of the four sided portion, and whose curved surface is tangent to the second and third sides. The corner of the second and third sides is rounded tangent to the cylinder **46**. The cylinder **46** is rotatably mounted in the boss **22** and in the hole **41** in the mechanism cover **40**. The middle portion of the cylinder **46** has gear teeth **48** cut therein.

An elongated rectangular cover **50** of a suitable material such as metal or plastic is preferably attached by screws, by means of holed flanges in its rear portion to the mail box **10** through two holes drilled in the right side thereof and through a hole drilled in the center of the forward portion to the mechanism cover **40** through the small threaded hole in the middle portion of the mechanism cover. The elongated cover has flange **52** along its length so that two rows of letters and numbers can be inserted, to display the name and address of the occupant of the dwelling using the mail box.

Three similar plungers **54**, **56** and **58** are provided, slidably mounted in the three rectangular holes and the three circular holes. The plungers **54**, **56** and **58** have a rectangular cross section at their front portion, a circular cross section at their middle portion, and a smaller circular cross section at the rear portion. The rectangular ends of the top, middle, and bottom portions are stamped or otherwise marked with the words "door," "down" and "up" respectively. Each plunger **54**, **56** and **58** has a jacket **60** at the junction of the rectangular and circular portions, which is larger in cross section than either of those portions, and which serves to prevent the middle portion from passing forward through the rectangular hole. Each plunger **54**, **56** and **58** is held forward by a helical spring **62** fitted around the rear portion, the spring **62** being braced at one end by the end of the middle circular portion and braced at the other end by the two notched braces. The bottom plunger **58** has a relatively longer rear circular portion equipped at its end with a piece having gear teeth **64** on its top side which are meshable with the gear teeth **48** on the flag cylinder **46** when the bottom plunger is pushed. Each plunger **54**, **56** and **58** has a small notch **65** drilled a short distance therein behind the jacket **60**, on the top of the middle portion. Each plunger **54**, **56** and **58** also has a notch **66** in the bottom of the middle portion near its connection with the rear portion.

A lever **68** is positioned between the "up" and "down" plungers, **58** and **56** respectively, whose fulcrum **70** is attached to the right side of the box **10**, and which has a small spring **72** attached to it and to the box **10** tending to turn the lever **68** counterclockwise as viewed toward the box **10** from the right side. This lever **68** is so positioned and fashioned that when neither the "up" nor the "down" plunger **58** and **56** respectively has been pushed, the spring holds the front of the lever tight against the top of the bottom or "up" plunger **58** and the rear end of the lever **68** fits into the notch **66** in the middle or "down" plunger **56**. When the bottom or "up" plunger **58** is pushed, raising the flag **44**, the front end of the lever **68** fits into the slot **65** cut in the top of the "up" plunger **58**, holding it stationary and holding the flag **44** up. When the middle or "down" plunger **56** is pushed, the rear end of the lever **68** is forced down and out of the notch **65** pulling the front end out of the slot **65** in the bottom or "up" plunger **58**, allowing the "up" plunger **58** to return to its original, forward position, and allowing the flag **44** to come down.

A second lever **74** is positioned between the "down" and "door" plungers **56** and **54** respectively, whose fulcrum **76** is attached to the right side of the box **10**. This lever also has a small spring **78** attached thereto and to the right side of the box **10** tending to turn the lever **74** counterclockwise as viewed from the right side. The front portion **80** of this lever **74** is located just inside the mail box **10**. The front end has a downward protrusion **82**. This front end is connected to the remainder of the lever **74** by means of an elongated piece **84** perpendicular to and passing through a hole **86** in the right side.

A catch is provided which is mounted on the inside of the door **12** in such a position as to be engageable with the downward protrusion **82** of the lever **74**, and this catch comprises two braces **88** with a connecting bar **90**.

A spring **92** is mounted on the inside of the left wall of the mail box **10**, which is engaged with and exerts force to open the door **12**.

FIG. 8 illustrates a preferred means of mounting the mail box **10** to a post **94** or the like. A wood strip **96** runs the length of the mail box **10** and is secured thereto with nuts and bolts **98**.

The mail box **10** of my invention operates as follows: When it is desired to raise the flag, the bottom or "up" plunger is pushed. The gear teeth **64** mounted on this plunger engage the gear teeth **48** on the flag **44** and turn it to a visible position. At this point the spring **72** pulls

the forward end of lever 68 into the notch on the top of plunger 58, the "up" plunger, holding it stationary. When it is desired to lower the flag, the middle or "down" button is pushed. This forces notch 66 against the rear end of lever 68, and forces its front end out of the hole in plunger 58, allowing plunger 58 to return to its forward position, with the consequent lowering of the flag 44.

When it is desired to open door 12, plunger 54 is pushed. Lever 74 is forced out of the notch 66 in plunger 54, causing the lever to turn around fulcrum 76, raising forward end 80 and removing projection 82 from contact with cross piece 90 of the catch. Spring 92 then forces the door open.

As will be apparent to those skilled in the art, various changes and modifications of the preferred mail box structure of my invention disclosed herein can be made or followed without departing from the spirit of the disclosure or from the scope of the claims.

I claim:

1. A mail box comprising,
a box having attached thereon plunger-supporting means and means to rotatably mount attention-attracting means,
mechanism cover means, mounted on said box,
attention-attracting means, rotatably mounted on said box and said mechanism cover, equipped with means by which said attention-attracting means can be rotatably activated and deactivated,
door opening means,
plunger means, mounted in said plunger-supporting means, capable of rotatably activating and deactivating said attention-attracting means and capable of opening said box, said attention-attracting means being activated by a manual movement of one of said plunger means, said attention-attracting means being deactivated by a manual movement of another one of said plunger means, and said box being opened by manual movement of another one of said plunger means.

2. A mail box comprising a box having a door for its front side, an elongated mechanism cover means mounted on said box, a flag rotatably mounted on said box in close proximity to said cover means, three plungers, means within said cover means to slidably support said three plungers with an end portion of each plunger protruding outside of said cover means, spring means urging said plungers into said protruding position relative to said cover, a

means associated with a first of said plungers to open said door when said first plunger is actuated, a means associated with a second of said plungers to rotate said flag into an upstanding position when said second plunger is actuated, a means associated with a third of said plungers to rotate said flag into a horizontal retracted position when said third plunger is actuated.

3. The mail box structure of claim 2, wherein said means to open the door includes a spring means to bias said door into an open position, and engagement means on said door, a notch on said first plunger, and a pivotally mounted first latch means to releasably engage said engagement means when a portion of said latch means is in selective engagement with said notch on said plunger.

4. The mail box structure of claim 2 wherein the means to rotate the flag includes a cylinder having gear teeth rigidly mounted on said flag, a gear rack on said second plunger in engagement with said teeth on said cylinder, a notch on said second plunger, and a second latch means to releasably engage said notch on said second plunger.

5. The mail box structure of claim 4 wherein the means to rotate said flag into a horizontal retracted position includes a notch on said third plunger, a portion on said second latch means to selectively engage said notch on said third plunger.

6. A mail box comprising a box, a door on said box, a rotatably mounted attention attracting means on said box selectively movable to either a readily observable position or an unobservable retracted position, a manual operating means for said box, said operating means including a means to open said door, a means to move said attention-attracting means to said readily observable position, and a means to move said attention-attracting means to said unobservable retracted position.

7. A means to contain comprising, an enclosure means having a door, an attention-attracting means movably mounted on said enclosure means, operating means for said enclosure means, said operating means including a plunger means to open said door, and a plunger means to selectively position said attention-attracting means independently of said plunger means to open said door.

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