Aug. 18, 1959 P. W. BAILEY 2,900,046

STREET COLLECTION CONVEYOR MAIL BOX

Filed July 14, 1958 2 Sheets-Sheet 1

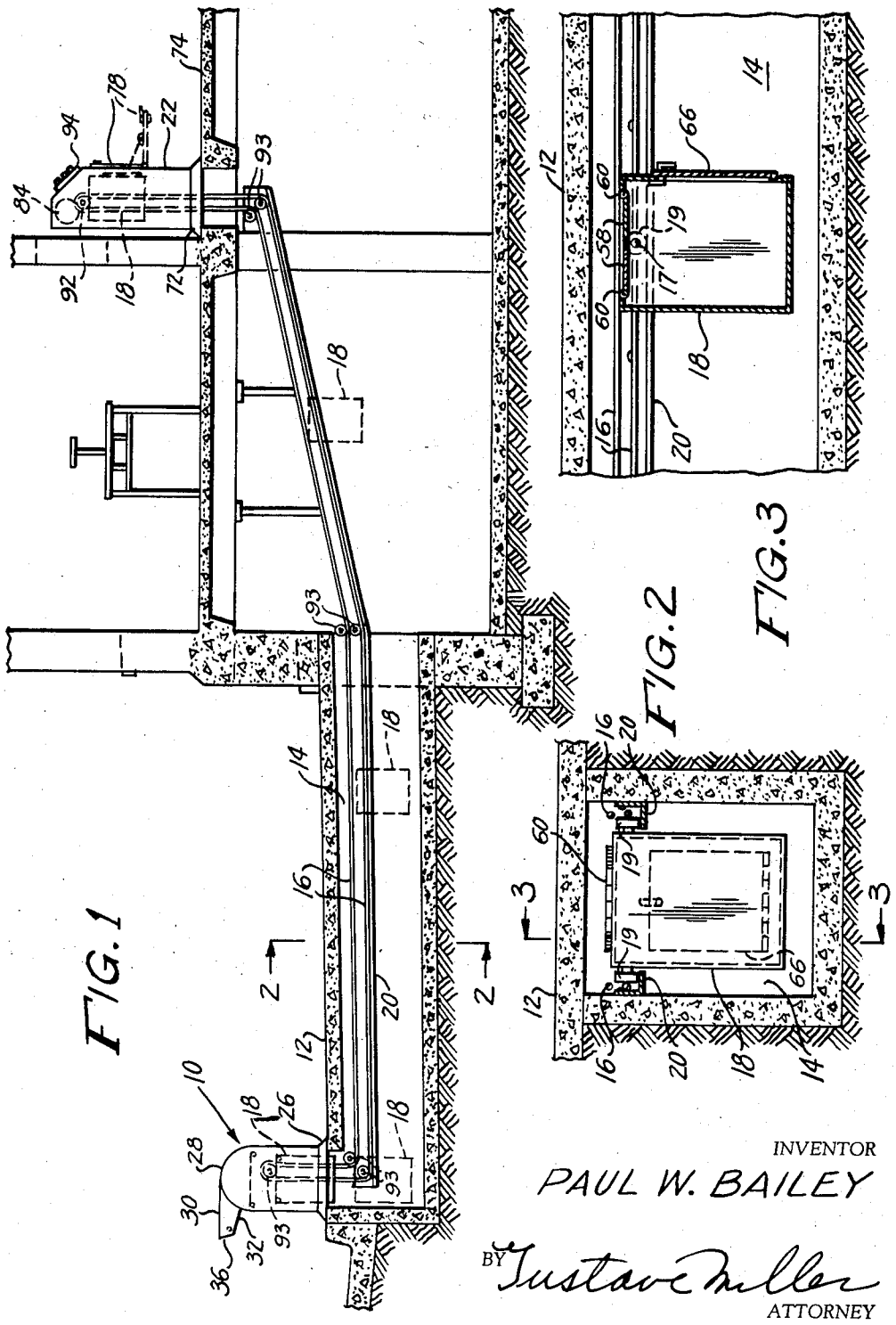


FIG. 1

FIG. 2

FIG. 3

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STREET COLLECTION CONVEYOR MAIL BOX

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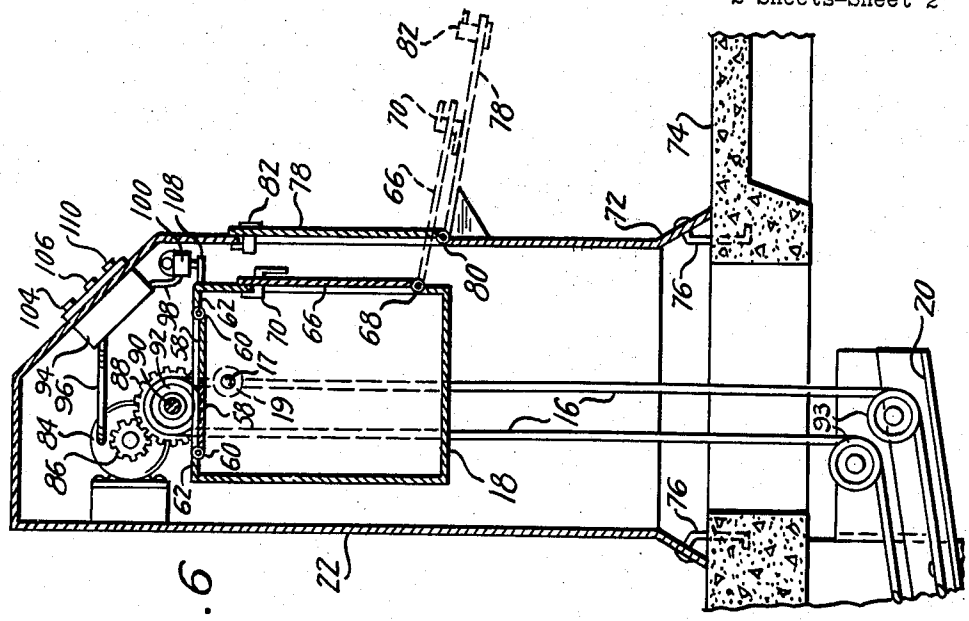


FIG. 6

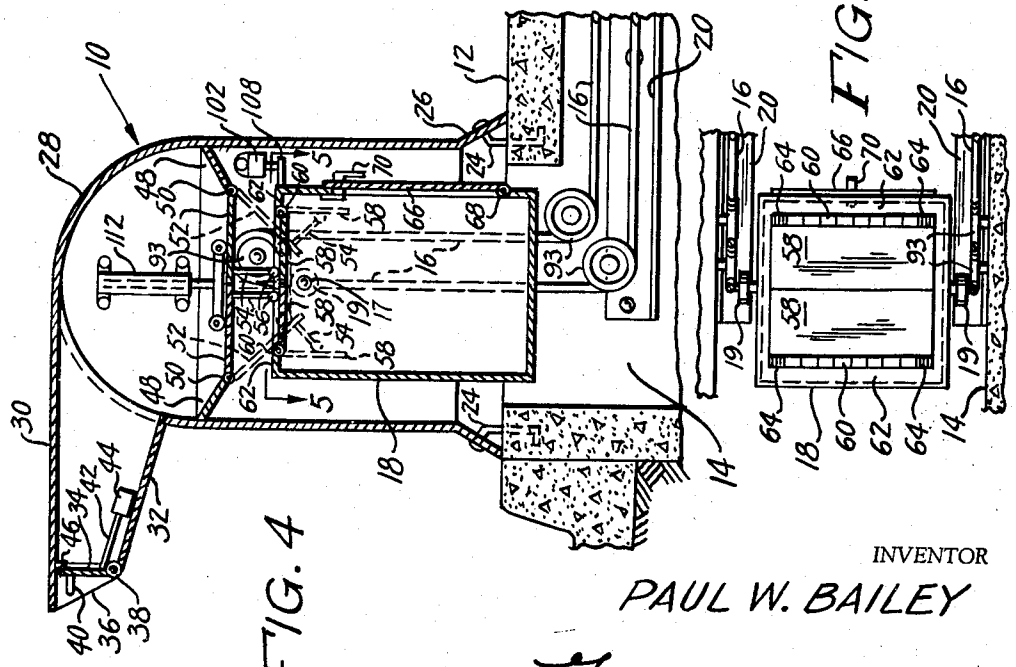


FIG. 4

FIG. 5

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STREET COLLECTION CONVEYOR MAIL BOX

Paul W. Bailey, Oakland, Calif.

Application July 14, 1958, Serial No. 748,251

1 Claim. (Cl. 186—1)

This invention relates to an improved street collection mail box, and it particularly relates to a mail box which can receive mail at street level in the ordinary manner and from whence the mail can then be delivered directly into the post office without removing it from the collection box.

Heretofore, it has been the general procedure to provide mail drop boxes at designated places on the street and especially adjacent the post office itself. In order to remove the mail from these mail drop boxes, the postal worker must go from box to box, open the box, remove the mail, place it in a bag, re-lock the box and take the bag to the next box to repeat the procedure. Even where the box is close to the post office, it is necessary to go through this procedure before taking the mail into the post office. This is time-consuming and wasteful and greatly increases the difficulties and costs, especially in inclement weather.

It is one object of the present invention to overcome the above difficulties by providing a mail-pickup system which is rapid and automatic and which is entirely free from the effects of the weather.

Another object of the present invention is to provide a mail-pickup system which will result in great savings in time, labor and money and which is of relatively simple construction and easily maintained.

Other objects of the present invention are to provide an improved mail pickup system, of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, this invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Fig. 1 is a somewhat schematic sectional view of a mail-pickup system embodying the present invention.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is an enlarged sectional view of the collection box on the street end of the system.

Fig. 5 is a fragmentary sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is an enlarged sectional view of the delivery box assembly at the post office end of the system.

Referring now in greater detail to the drawings wherein similar characters refer to similar parts, there is shown a mail collection box **10** on a street or sidewalk **12** underneath which is a delivery tube **14** through which runs the conveyor belt **16** carrying the receptacle **18** having rollers **19** moving over rails **20**. The conveyor belt **16** attached to the receptacle **18** at **17**, carries it up into a delivery box **22** within a designated room in the post office to which the mail is to be delivered for processing.

The collection box **10** is anchored to the sidewalk **12** by means of steel hooks or the like shown at **24**. These

hooks **24** are connected to a bottom skirt **26** on the box **10** and are embedded within the cement of the sidewalk. At its upper end, the box **10** is provided with an arcuate wall **28** from which extends a spout **30** provided with an inclined bottom wall **32** serving as a chute.

The spout **30** has an open front end adapted to be closed by a closure plate **34**. The closure plate **34** is positioned at the inwardly and downwardly-inclined mouth **36** of the spout **30**, being hinged to the lower edge of the mouth **36** by a hinge **38**.

Adjacent its upper edge, the closure plate **34** is provided with a handle **40** while adjacent its hinge there is connected a rod **42** carrying a counterweight **44**. A stop **46** depends from the inner surface of the upper wall of the spout **30** in a position to hold the closure plate **34** in closed, upright position. By this construction, the closure plate **34** is normally held in closed position by the counterweight **44** on rod **42** and stop **46** but can be pulled into open position by means of handle **40**. When handle **40** is released, the closure plate **34** is automatically moved back into closed position by rod **42** and counterweight **44**.

Within the mail collection box **10**, just under the spout **30**, there are provided downwardly and inwardly inclined wall surfaces **48**. At the lower edges of these wall surfaces **48** are hinged, as at **50**, a pair of closure plates **52**. These closure plates or doors **52** are trap doors which, when in horizontal position, close against each other in edge-to-edge contact (as shown in full line in Fig. 4) while they open downwardly (as shown in dotted outline in Fig. 4).

The doors **52** are provided on their undersurfaces, adjacent their inner edges, with downwardly-extending rods **54**, each having an abutment knob **56** on its lower end. These knobs **56** bear against corresponding trap doors **58** hinged at **60** to the upper peripheral flange **62** of the receptacle **18**. By this construction, when the receptacle **18** is in the position shown in Fig. 4, the trap doors **52** and **58** open simultaneously because of the rods **54** and knobs **56**. However, the hinges **60** are provided with torsion springs **64** which bias the doors **58** into their closed position so that when the doors **52** move back into their closed position or when the receptacle **18** moves away from the position shown in Fig. 4, the doors **58** close automatically.

The receptacle **18** is provided with a side door **66** hinged to the receptacle at **68** and held in closed and locked position by a key-operated latch means **70**. The receptacle **18** is mounted on the conveyor **16** for movement between box **10** and box **22** in the post office; the latch **70** being closed while the receptacle **18** is in box **10** and being openable by the clerk in the post office who is supplied with a key with which he can open the door **66** when it is in box **22**.

The box **22** is somewhat similar to box **10** in that it has an open bottom mating with an open passage leading from the delivery tube **14** and through which the conveyor belt **16** extends. The box **22** is provided with a skirt **72** surrounding its bottom opening, and this skirt is secured to the floor **74** by hooks **76** similar to hooks **24**. The box **22** is provided with an opening having a door **78** hinged to the box **22** at **80** and closed by a latch means **82**. Opening of door **78** permits access to door **66** when receptacle **18** is inside the box **22**, as shown in Fig. 6.

The conveyor belt **16** is operated by a reversible motor **84** in the upper portion of box **22**, this motor **84** having a sprocket **86** on its motor shaft. The sprocket **86** meshes with a gear **88** on a shaft **90** on which is also mounted a pulley **92** for the conveyor belt **16**, the other guide pulleys for the belt **16** being shown at **93**. The

motor 84 is controlled through a switch box 94 in box 22; the switch box 94 being connected to motor 84 through electrical cable 96. The switch box 94 is also connected through cable 98 to a plunger switch 100 in box 22 as well as to a plunger switch 102 in box 10 through electrical wires, not shown. A button switch 104 on switch box 94 may be pressed to rotate the motor 84 in one direction and a button switch 106 is used to rotate the motor 84 in the opposite direction. The receptacle 18 is provided with a lateral contact arm 108. When the receptacle 18 reaches the position of Fig. 4, the contact arm 108 abuts the plunger switch 102 to stop the motor 84 while, when the receptacle reaches the position of Fig. 6, the abutment of contact arm 108 against plunger switch switch 100 also stops motor 84.

The switch box 94 is also provided with a third button switch 110. This switch 110 is connected by appropriate electrical wiring (not shown) to a solenoid 112 in the upper portion of box 10. This solenoid 112 can be actuated by switch 110 to pull up and hold the doors 52 in closed position. When deactivated, the doors 52 drop into the open position by their own weight.

In use, the receptacle 18 is in box 10 with the trap doors 52 and 58 in the open position. In this position, any mail dropped down chute wall 32 falls into receptacle 18. When the receptacle 18 is full, the clerk in the post office presses button 110 to actuate solenoid 112 to close doors 52. The clerk then presses button 104 which starts motor 84 operating in a direction to move conveyor 16 to bring receptacle 18 from box 10 to box 22. When receptacle 18 reaches box 22, contact arm 108 acts through plunger switch 100 to stop the motor 84. Then the clerk opens door 78, reaches in to open door 66 and takes out the mail. Meanwhile any mail thrown down the chute 32 is held and piled up on closed doors 52.

After the clerk has removed the mail and re-closed the doors 78 and 66, he presses button 106 to operate the motor 84 to move the receptacle 18 back into box 10. When the receptacle 18 reaches its position in box 10, the contact arm 108 actuates plunger switch 102 to stop the motor 84.

The solenoid 112, in addition to being activated by button switch 110 may be deactivated by either this button 110 or a similar button switch (not shown). It may also be deactivated by contact between contact arm 108 and plunger switch 102. In other words, the switch 102 may be electrically connected to solenoid 112 in such manner that when contact arm 108 abuts plunger switch 102, it not only stops operation of motor 84 but also deactivates

solenoid 112 so that the doors 52 automatically open, and simultaneously push open the doors 58 upon movement of receptacle 18 into position within box 10 (as shown in Fig. 4).

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

Having thus set forth and described the nature of this invention, what is claimed is:

A mail-pickup system comprising a collection box, a tunnel connecting said collection box to a delivery station, a delivery box at said delivery station, said collection box and said delivery box each having an open bottom, said tunnel being connected to each open bottom, a conveyor positioned between said collection box and said delivery box, and extending through said tunnel and into both of said collection and delivery boxes, at least one receptacle on said conveyor said receptacle being movable by said conveyor from a position within said collection box to a position in said delivery box, reversible means to drive said conveyor, said receptacle having a side opening with a closure door thereon, said delivery box having a delivery opening therein with which said closure door is adapted to be aligned when said receptacle is positioned within said delivery box, said receptacle having an open top, hinged door means on said receptacle adapted to close said open top resilient means biasing said door into closed position, an opening in said collection box, closure means adapted to close said opening, said opening forming the upper end of a chute, the lower end of the chute being arranged above the top of said receptacle when said receptacle is in said collection box, means operatively connecting said closure means and said hinged door means for simultaneous opening and closing, means normally biasing said closure means to closed position, a solenoid operatively connected to said closure means, and means actuating said solenoid to move said closure means and hence said hinged door means to open position.

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