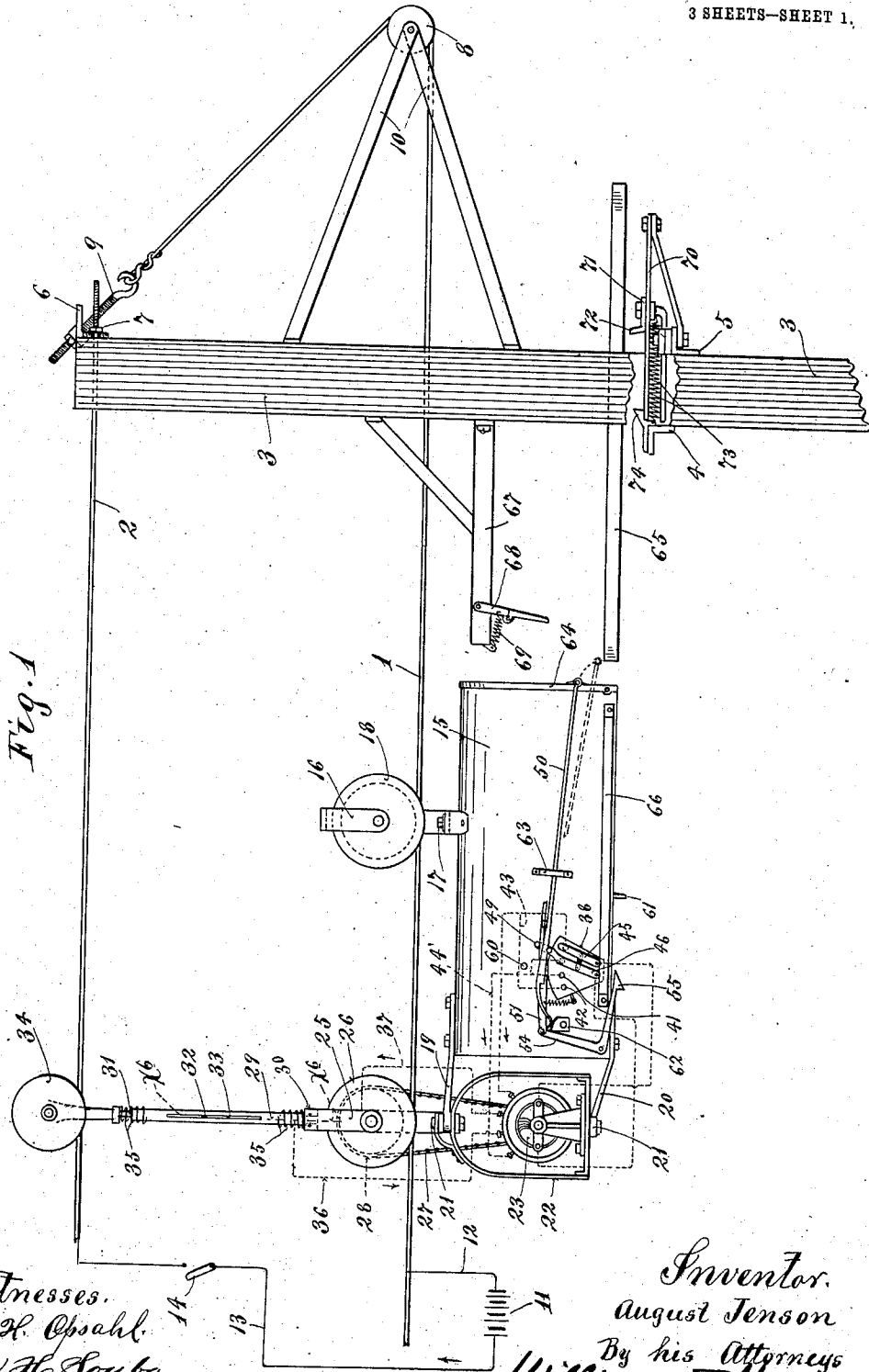


A. JENSON.
RURAL MAIL DELIVERY DEVICE.
APPLICATION FILED APR. 7, 1910.

1,019,795.

Patented Mar. 12, 1912.

3 SHEETS—SHEET 1.



Witnesses.
A. H. Opsahl.
W. H. Souba.

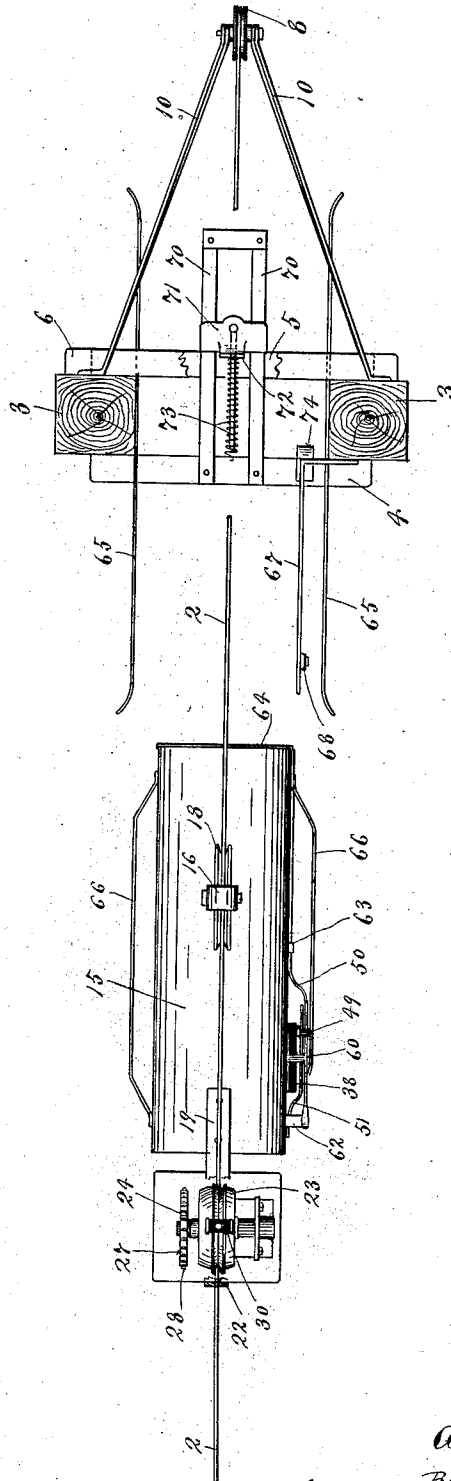
Inventor.
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Fig. 2



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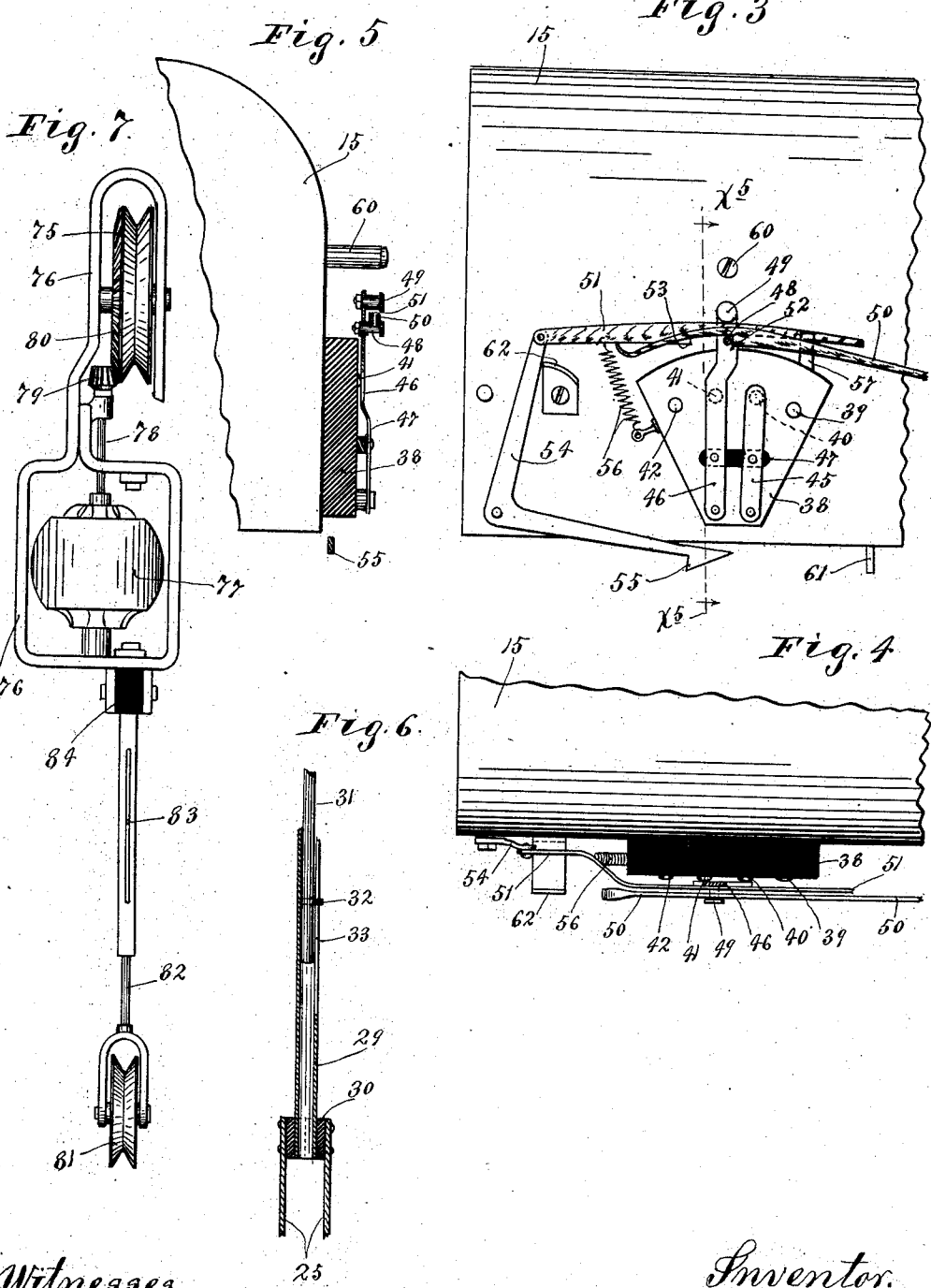
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UNITED STATES PATENT OFFICE.

AUGUST JENSON, OF KENYON, MINNESOTA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO KENYON ELECTRICAL MANUFACTURING COMPANY, OF KENYON, MINNESOTA, A CORPORATION OF MINNESOTA.

RURAL-MAIL-DELIVERY DEVICE.

1,019,795.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed April 7, 1910. Serial No. 554,007.

To all whom it may concern:

Be it known that I, AUGUST JENSON, a citizen of the United States, residing at Kenyon, in the county of Goodhue and State of Minnesota, have invented certain new and useful Improvements in Rural-Mail-Delivery Devices; and I do hereby declare the following to be a full, clear and exact description of the invention, which will enable others skilled in the art to make and use the same.

My invention has for its object to provide a simple and highly efficient mail carrying device, especially adapted for use in rural districts to carry mail from the road to a house located at a considerable or very long distance from the road. Hitherto devices of this kind have been provided but, so far as I am aware, the mail box has been propelled along its supporting track by a cable, usually driven by hand through cooperating friction wheels. In my improved device, the mail box and its supporting wheels or truck are propelled along the track by means of a small electric motor, carried by the truck or box.

In the accompanying drawings which illustrate the preferred form of the improved mail delivery device, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation, with parts broken away, illustrating the improved mail delivery device and showing the box and its supporting truck in the vicinity of the outer or road extremity of the track; Fig. 2 is a plan view of the parts shown in Fig. 1; Fig. 3 is an enlarged view, showing a portion of the mail box and the motor reversing switch and the associated device applied to the box; Fig. 4 is a plan view of the parts shown in Fig. 3, some parts being broken away; Fig. 5 is a vertical section taken approximately on the line $x^5 x^5$ of Fig. 3, some parts being shown in full; Fig. 6 is a detail in section on the line $x^6 x^6$ of Fig. 1; and Fig. 7 is a view in elevation, illustrating a somewhat modified form of the truck driving connection.

In this improved mail delivery device, I preferably employ a pair of track wires or cables, located one above the other. The lower members of these track wires are indi-

cated by the numeral 1 and the upper members of said wires are indicated by the numeral 2. At their outer ends, the track wires 1 and 2 are attached to an anchoring frame or upright, shown as afforded by a pair of heavy laterally spaced posts 3, shown as rigidly connected, at their intermediate portions, by angle iron tie bars 4 and 5 and, at their upper extremities, by a single iron tie bar 6. The upper track wire 2 is shown as passed directly through the depending flange of the tie bar 6, and adjustably anchored thereto by a nut 7 working on the threaded end of said track wire. The lower track wire 1 extends considerably beyond the posts 3, is passed over a guide sheave 8, and its upwardly and backwardly turned end is adjustably connected to the tie bar 6 by a nut-equipped tightening bolt 9. The sheave 8 is journaled to the projecting ends of a pair of laterally spaced brackets 10, secured one to each of the posts 3. At their other ends, the track wires 1 and 2 are anchored or secured to the house in any suitable way, not shown. Both the said wires 1 and 2 are normally charged, so that they serve as trolley wires as well as tracks; and, as diagrammatically shown in Fig. 1, a battery or other source of electrical energy 11 is connected by wires 12 and 13 respectively to the said wires 1 and 2. A switch 14 is shown as interposed in the local wire 13 and is supposed to be located at the house end of the line. The short circuit between the outer ends of the wires 1 and 2, which would otherwise be produced through the tie bar 6, may be prevented by insulating the wire 2 and the nut 7 from the said bar, or this short circuit may be prevented, if desired, by connecting the two ends of the wires 1 and 2 to different transverse tie bars independently secured to the wooden posts 3.

The mail box 15 is preferably in the form of a sheet metal shell, which constitutes a part of the structure, and is provided on top with a wheel bracket 16 that is open at one side, is connected to the said box by a vertical swivel 17, and is provided with a grooved truck wheel 18 that runs on the lower track bar 1. The mail box 15 is horizontally disposed and, at its inner end, is provided with projecting upper and lower arms 19 and 20. The projecting ends of these arms 19 and 20

are connected by vertically alined pivots 21 to the upper and lower portions of a motor-supporting frame 22, within which a small electric motor 23 is mounted. The shaft of the motor 23 projects at one side and is provided with a sprocket 24 (see Fig. 2).

A wheel bracket 25 is rigidly secured to, and projects above, the motor-supporting frame 22 and is provided with a grooved traction wheel 26 that runs upon the lower track bar 1. A sprocket chain 27 runs over the sprocket 24 of the motor shaft and over a sprocket 28 secured to one side of the traction wheel 26.

A tubular stem 29 is rigidly secured to, and extends upward from the top of the wheel bracket 25 and is insulated therefrom at 30, as best shown in Fig. 6. A stem 31 works telescopically in the tubular stem 29 and is held against rotation by a pin 32, that projects therefrom and works in a vertical slot 33 in the said stem 29. A supplemental truck supporting wheel 34 is journaled to the upper end or head of the stem 31 and runs upon the upper track wire 2. A coiled spring 35 surrounds the stem 29 and is attached to the lower portion of the stem 29 and to the head of the stem 31. This spring 35 holds the wheel 34 tightly engaged with the upper track wire 2, but is not, of course, of sufficient strength to lift the wheel 26 from the lower track wire 1 or to diminish, to any great extent, the tractive friction between said wheel 26 and wire 1. The wheels 26 and 34 both act as trolley wheels, and the wires 1 and 2 serve also as trolley wires and are live wires whenever the switch 14 is closed. The stem 29 is, therefore, in electrical connection with the upper track wire 2 while the wheel bracket 25 is in electrical connection with the lower track wire 1. The said stem 29 is connected to the field of the motor 23 by a wire 36 and the wheel bracket 25 is connected to the field of the said motor by a wire 37.

Secured on one side of the mail box 15, is a motor reversing switch, as shown, comprising a switchboard 38 of insulating material provided with four contacts 39, 40, 41 and 42. The outside contacts 39 and 42 are connected by a wire 43 to the field of the motor 23 and the inside contacts 40 and 41 are connected by another wire 44 to another terminal of the said motor field.

Pivottally connected to the switchboard 38, at their lower ends, is a pair of contact levers 45 and 46, that cooperate with the fixed contacts 39 to 42 and are connected for common oscillatory movements by an insulating link 47. The upper end of the contact lever 46 is extended above the switchboard 38 and is provided with vertically spaced, laterally projecting headed studs 48 and 49, both of which are insulated from the said lever. Working between the studs 48 and 49

and resting upon the former, is a pair of long reversely acting push bars 50 and 51, provided respectively with shoulders 52 and 53. The push bar 51 is pivoted to the upper end of a bell crank 54 that is pivoted to the side of the box 15, and the lower arm of which is provided with a cam acting hooked end 55. A light coiled spring 56, shown as attached to the bar 51 and to the switchboard 38, yieldingly draws the former downward onto the stud 52 or onto a stop 57, shown as secured on the side of the box 15. Secured on the side of the box 15, immediately above a stud 49, when the lever 46 is in an intermediate position, is a limiting stud 60, the purpose of which will presently appear. Depending from the bottom of the box is a stop pin or lug 61, the purpose of which will also presently appear. The upper arm of the bell crank 54 normally engages a cam plate 62 secured to the side of the box 15 and engageable with the free end of the push bar 50 under conditions hereinafter noted. The push bar works longitudinally through a keeper 63 on the side of the box 15 and is pivotally attached to a door 64, which is hinged, at its lower edge, to the outer end of the box 15 and normally closes the said box.

The posts 3 are shown as provided with horizontally extended laterally spaced guide strips 65, that cooperate with guide bars 66 secured to the sides of the box 15. To one of the posts is rigidly secured a bracket 67, to the projecting end of which is pivoted a trip lever 68. This trip lever 68 stands at one side of the box 15 and is adapted to engage with the stud 49 of the lever 46 and with the limiting stud 60 of the box. A light coiled spring 69 yieldingly holds the lever 68 in the position shown in Fig. 1. The said lever is provided with a pivoted lower extremity which is adapted to fold when pressed in a direction away from the posts 3, but operates as a rigid part of the lever when pressed toward the posts.

Rigidly secured to the tie bars 4 and 5 of the posts 3, is a cross head guide 70, upon which is mounted a cross head 71. This cross head 71 has an upwardly extended stop lug 72, that is adapted to be engaged by the depending lug 61 of the box 15. A coiled spring 73, attached to the cross head and to the bar 4, yieldingly holds the said cross head in the position shown in Figs. 1 and 2. Rigidly secured to the tie bar 4 and positioned to be engaged by the hooked end 55 of the bell crank 54, is a beveled lock-lug 74.

In the modified construction shown in Fig. 7, a traction wheel 75 is arranged to run on the upper wire and is journaled in the upper portion of a motor supporting frame 76. The motor 77, which is carried by said frame 76, has an armature shaft 78 provided with

a beveled pinion 79 that meshes with a beveled gear 80 secured to said wheel 75. A lower wheel 81 is mounted in the pronged end of a stem 82 that works telescopically within a tubular stem 83 secured to the frame 76 but insulated therefrom at 84.

When the motor reversing switch 45—46 is set in an intermediate position shown in Fig. 3, the motor circuit will be broken and the motor will, of course, remain idle. When the said reversing switch is moved to its extreme position toward the right, and the switch 14 is then closed, the motor circuit will be closed in a direction to cause the motor to drive the mail box in a direction from the house toward the road, or in a direction from left toward the right in respect to Fig. 1. On the other hand, when the said reversing switch is set in its extreme position toward the left, its levers 45 and 46 will engage, respectively, with the switch board contacts 41 and 42 (best shown in Fig. 3) and the motor will then be driven in a direction to cause the mail box to travel from the road toward the house or in a direction from the right toward the left, in respect to Fig. 1. When the mail box traveling from the house toward the road reaches nearly the limit of its outward movement, the depending end of the trip lever 68 will engage the upper stud 49 of the switch lever 46 and will move the motor reversing switch into its neutral intermediate position, at the completion of which movement the stud 60 will strike the said lever 68 and thereby force the said lever out of engagement with the stud 49. It may be here stated that the said stud 60 will pass under and to the right of the lever 68 and that, under return movement of the mail box, the pivoted lower end of the said lever will fold up and permit the free return movement of the said stud 60. Immediately after the trip arm 68 has thus acted to set the motor reversing switch in its neutral position, the stop pin 61 on the bottom of the mail box 15 engages the stop flange 72 of the cross head 71, thereby forcing the said cross head outward or toward the right, against the tension of the spring 73, far enough to permit the hooked end 55 of the bell crank lock lever 54 to engage the lock lug 74 and thereby lock the mail box at the limit of its outer movement, and with the spring 73 set under increased tension, for an important purpose which will presently be noted. If the mail box door 64 should be opened and again closed while the motor reversing switch is in its extreme position toward the right, the push bar 50 will have no action whatever on the said reversing switch. If, however, the said door be opened by the mail carrier in removing mail from the box or in depositing mail therein, after the said motor reversing switch has been set in its neutral position, as

above just stated, the shoulder 52 of the push bar 50 will engage the lower stud 48 of the switch lever 46. Then, when the said box door is closed, the push bar 50 will force the switch 45—46 into its extreme position toward the lever, at the limit of which movement the free end of the bar 50 will engage with the cam plate 62 and force the shoulder 52 above the said stud 48, thus leaving the said push bar 50 supported in an inoperative position, as shown in Fig. 1. The above noted movement of the push bar 50 and the closing movement of the door 64 cause the lower stud 48 to engage the shoulder 53 of the push bar 51 and thereby, for a short interval, raising the hooked end 55 of the lock lever 54 out of engagement with the lock lug 74; and this release is sufficient to permit the spring 73 to move the mail box toward the left in respect to Fig. 1, far enough to carry the said hooked end 55 to the left of the said lock lug 74. Usually, the switch 14 will be opened immediately after the mail box reaches its outermost position, so that the motor circuit will not be immediately closed when the switch 45—46 is moved from its neutral position into a reverse position toward the left, by the opening and closing of the mail box. If the said switch 14 happens to be closed when the motor reversing switch is moved to its extreme position toward the left, the motor will be thrown into action and immediately cause the mail box to start its return movement from the road to the house. Usually, however, said switch 14 will be closed to start the return movement of the mail box at some time subsequent to the above noted manipulation of the door 64.

Any suitable means may be provided at the house end of the line for automatically moving the motor reversing switch from its extreme position toward the left into its neutral intermediate position, or this may be done by hand after the box truck has been stopped by a breaking of the circuit caused by opening the switch 14. Preferably, the motor reversing switch will be set in its extreme position toward the right while the switch 14 is open, and then the box may be started on its outer trip whenever desired simply by closing the switch 14.

The efficiency of the device above described has been demonstrated in actual practice. Practically no manual work is required in the operation of the device. The driving power is entirely electrical and the only hand operations required are those required to operate the switches and the mail box door.

The device has herein been described as a mail delivery device and such is the chief intended function thereof, but it may, nevertheless, be used to deliver various other articles such as parcels from a store. It

will, therefore, be understood that the invention is not limited to a mail delivery device.

What I claim is:

- 5 1. In a mail delivery device, the combination with a track, of a truck including a mail box and wheels arranged to run on said track, said box having a hinged door, of an electrical motor carried by said truck
10 and connected to one of the truck wheels for driving the same, a motor reversing switch carried by said truck, a device at one end of the line for setting said reversing switch in a neutral position, and a connection
15 operated by the said mail box door for setting said switch in position to reverse the action of said motor.
2. In a mail delivery device, the combination with a track, of a truck mounted to
20 travel thereon and having an engaging part, a motor on said truck for driving the same, a motor reversing device on said truck, a lock piece on said truck, a lock lug and a yielding stop at one end of the said track,
25 the latter of which when engaged and moved by the part carried by said truck will permit engagement of the lock on said truck with said fixed lock lug, and a device at the same end of said track operative on
30 said motor reversing device.
3. In a mail delivery device, the combination with upper and lower tracks, of a mail box provided with a pivoted motor supporting frame and a motor therein,
35 truck wheels connected to said motor supporting frame and working one on each of said tracks, a third truck wheel connected to said mail box and working on one of said tracks, the said motor being connected to
40 one of said truck wheels for driving the same, and means for reversing the action of said motor.
4. In a mail delivery device, the combination with a track, of a mail box having
45 wheels adapted to travel on said track, a motor carried with said box and having connections for driving one of said wheels,

a motor reversing device on said box, a device at one end of the line operative on said motor reversing device to set the same in a neutral position, said mail box having a hinged door, a push bar connected to said door and operative to reverse the action of said motor reversing device when said door is opened and then closed while said motor reversing device is in a neutral position.

5. The combination with a track, of a mail box having an engaging part and having truck wheels arranged to run on said track, a motor carried with said box and connected to one of said truck wheels, said box having a hinged door, a motor reversing device carried by said box, a yielding lock also carried by said box, a push bar connected to said door and operative to reverse the action of said motor reversing device when said door is opened and closed while said motor reversing device is in a neutral position, and three devices at one end of the track, the first serving to set said motor reversing device in a neutral position, the second being a fixed lug for engagement with the lock device on said box and the third being a spring retracted stop engageable with the part carried by the box and serving when said lock device is released from said lug to impart a slight initial return movement to said box.

6. The combination with a track of a truck mounted to travel thereon, a truck driving motor carried by said truck, a fixed lock lug and an independent spring retracted stop at one end of the line, and a yielding lock device carried by said truck, engageable with said lock lug when said yielding stop is forced from its normal position by engagement therewith of a part carried by said truck.

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

AUGUST JENSON.

Witnesses:

ALICE V. SWANSON,
HARRY D. KILGORE.