

No. 834,775.

PATENTED OCT. 30, 1906.

H. W. VAIL.  
AUTOMATIC MAIL AND PACKAGE DELIVERER.

APPLICATION FILED AUG. 17, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

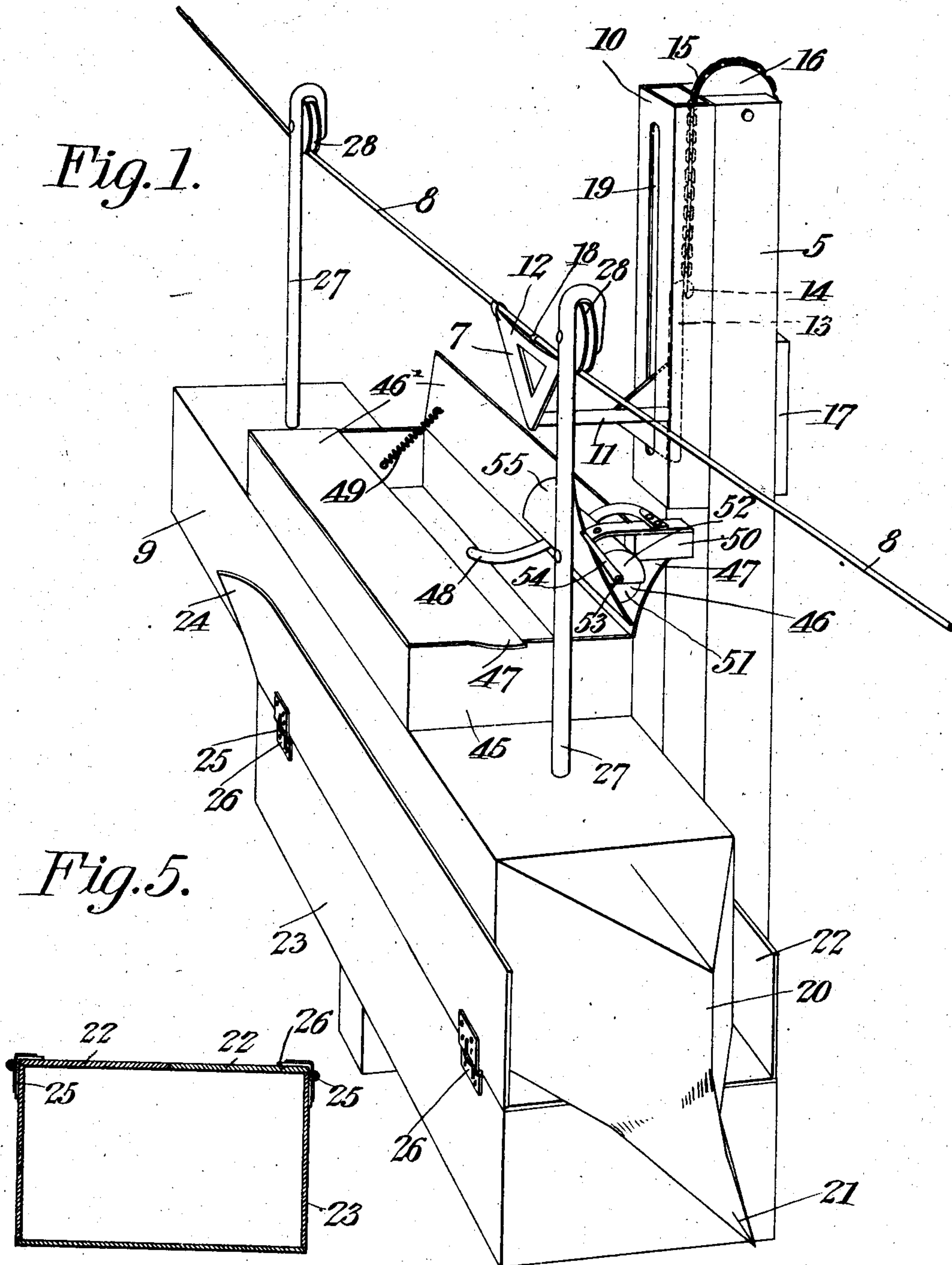


Fig. 5.

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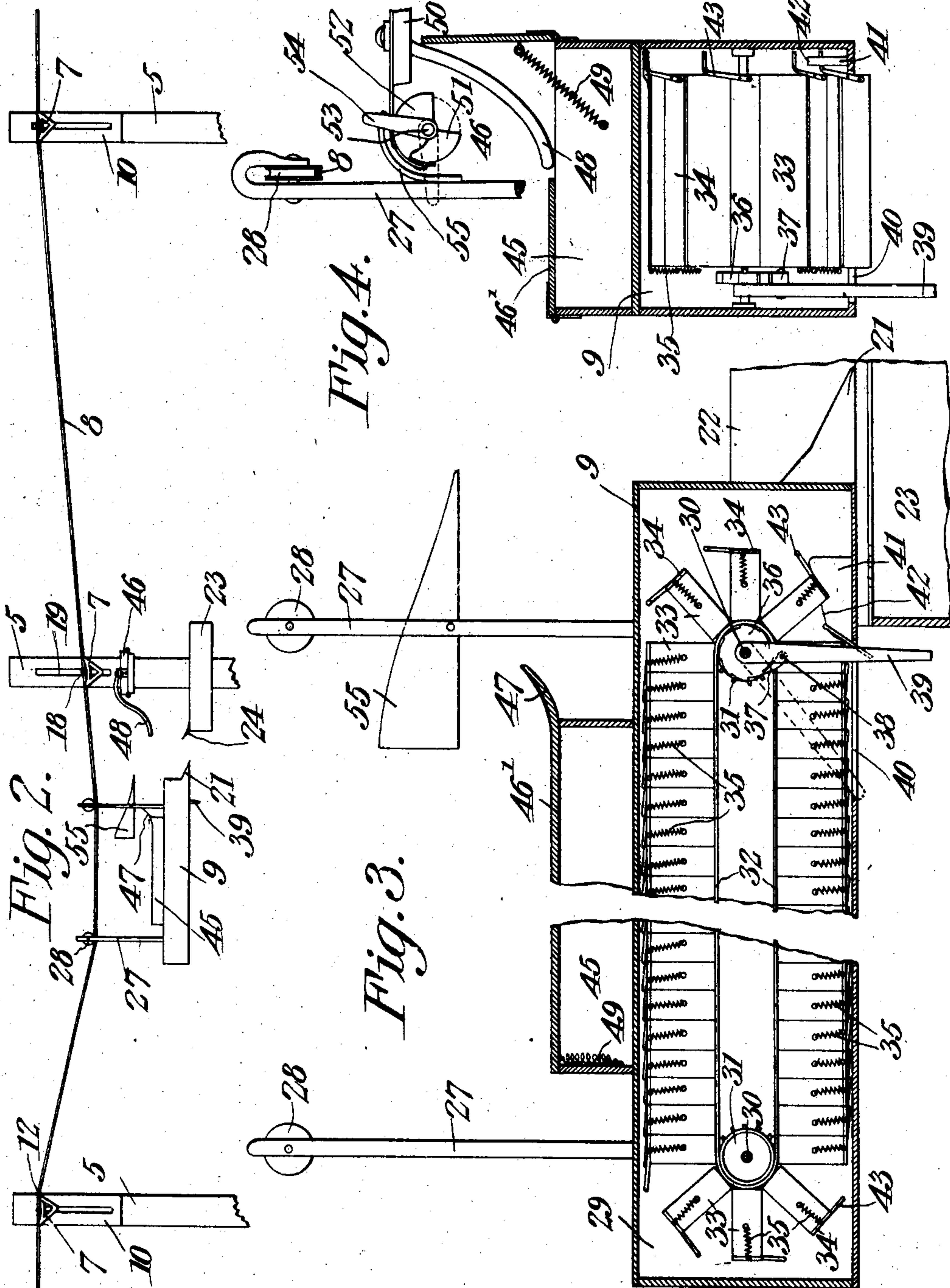
ATTORNEYS

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC MAIL AND PACKAGE DELIVERER.

No. 834,775.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed August 17, 1906. Serial No. 331,088.

*To all whom it may concern:*

Be it known that I, HENRY W. VAIL, a citizen of the United States, residing at Macomb, in the county of McDonough and State of Illinois, have invented a new and useful Automatic Mail and Package Deliverer, of which the following is a specification.

This invention relates to mechanism for handling mail, and more particularly to mechanism of that general class employed for delivering and collecting letters, packages, and other mail-matter on rural mail routes.

The object of the invention is to provide a car or carriage mounted for travel on an overhead cable or track and adapted to automatically deliver the incoming mail to and collect the outgoing mail from the several boxes or receptacles along the route.

A further object of the invention is to provide means for automatically elevating and lowering the overhead track or cable as the car travels between the several stations along the route, thereby to maintain the car in a horizontal plane and in position to automatically deposit and collect the mail at the different boxes or receptacles.

A further object is to provide a cable-supporting hanger movable to operative position by the weight of the car and means operatively connected with the hanger for automatically elevating the latter after the passage of the car at any particular station.

A still further object of the invention is to provide a mail-handling apparatus possessing the special advantages of economy of construction, durability and efficiency, and capable of performing its work more rapidly and more effectually than has heretofore been attained.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, and illustrated in the accompanying drawings, it being understood that various changes in form, proportions, and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of a mail-handling apparatus constructed in accordance with my invention, showing the cable or track depressed and the car in position to deliver the mail at one of

the receptacles or boxes along the route. Fig. 2 is a side elevation showing the car or carriage in position to automatically engage the lid of the adjacent mail-receptacle. Fig. 3 is a longitudinal sectional view of the car or carriage and a portion of the adjacent mail-receptacle. Fig. 4 is a transverse sectional view showing the interior construction of the car and also the mail-box. Fig. 5 is a similar view of one of the mail boxes or receptacles.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The device consists of a plurality of spaced posts or standards 5, embedded or otherwise secured in the ground at spaced intervals along the route and to which are secured adjustable hangers 7, carrying an overhead track or cable 8, upon which is mounted for travel a suspended car or carriage 9.

The hangers 7 are mounted for vertical movement in suitable casings or housings 10, secured to the posts 5, and each consists of an angularly-disposed arm 11, having one end thereof provided with a bracket 12, the face of which is concaved for the reception of the cable 8, while the opposite end of the arm is provided with a vertical extension 13, having a terminal hook 14 for connection with chain or other flexible medium 15.

The chain 15 passes over a pulley 16, journaled in the top of the standard 5, as shown, and is thence extended downwardly and connected to a sliding weight or counterbalance 17, so that when the car 9 has traveled beyond any particular post the weight 17 will move the cable 8 to elevated or inoperative position, as best shown in Fig. 2 of the drawings, thereby permitting the passage of wagons and other vehicles beneath the cable without danger of coming in contact therein.

The cable 8 is preferably secured to the bracket 12 by suitable staples or eyes 18 and is movable vertically with the hangers to elevated or inoperative position by the counterweight 17, as before stated, the arm of said hanger being mounted for sliding movement in a slot 19, formed in one wall of the housing 10, thereby to prevent lateral movement of said hangers.

The car or carriage 9 consists of a rectangular body portion having one end thereof pointed, as indicated at 20, and provided with a longitudinally-disposed fender or actuating-lip 21, adapted to engage and automatically



open the pivoted lids or doors 22 of the mail-receptacles 23 when the car travels past the posts or standards 5.

The mail boxes or receptacles 23 are supported in any suitable manner on the standards 5, and the pivoted lids thereof are formed with upwardly-extending lips 24, which engage the fender 21, there being suitable springs 25, secured to the hinges 26, for automatically closing the doors or lids 22 when the carriage enters an adjacent section of the track.

The car 9 is suspended from the cable 8 by suitable rods or supports 27, provided with terminal rollers 28, which bear against the cable, said car being preferably propelled electrically in the usual manner.

Extending transversely across the compartment 29 are stub-shafts 30, carrying sprocket-wheels 31, which operate a suitable belt or endless conveyer 32. Secured to the belt or conveyer 32 are a plurality of boxes or compartments 33, each provided with a pivoted lid or closure 34, normally held in closed position by a coiled spring 35 and adapted to contain the letters, packages, or other mail-matter to be delivered to the boxes or receptacles along the route. Secured to one of the stub-shafts 30 is a ratchet-wheel 36, the teeth of which are engaged by a suitable pawl 37, pivotally mounted at 38 on a lever 39, carried by the adjacent stub-shaft 30 and extended through an opening 40 in the bottom of the car or carriage, as best shown in Fig. 3 of the drawings.

Secured to the bottom of the car or carriage at a point adjacent the opening 40 is a block 41, having an inclined or cam face 42, adapted to engage the levers 43, carried by the pivoted lids 34, as the boxes 33 are rotated within the compartment, thereby moving the lids 34 to open position and permitting the mail-matter within said boxes to be delivered to the boxes or receptacles 23, as will be more fully explained hereinafter.

It will thus be seen that the initial movement of the car or carriage will cause the fender 21 to engage the lips 24 of the mail-receptacle 23 and automatically open the doors 22, a further movement of the car causing the lever 39 to engage the adjacent edge of the receptacle 23, thereby moving the lever rearwardly to the dotted position. (Shown in Fig. 3 of the drawings.) As the lever 39 moves rearwardly the boxes 33 travel downwardly with a step-by-step movement to the opening 40, the levers 43 successively engaging the cam-face 42 and automatically opening the lids 34, thus permitting the mail to be discharged through the opening 40 in the car into the receptacle 23. As soon as the car passes the receptacle 23 the spring 35 will automatically close the lid 34 of the box 33, while the spring 44 will return the lever 39 to vertical position, and in which position the succeeding box 33 will automatically engage

the cam-face 42 and open said box to permit the discharge of the contents thereof when the lever 39 is again depressed.

Attention is called to the fact that as the car travels between the several posts the weight of the car will lower the cable 8, so as to support said car in horizontal alinement with the mail boxes or receptacles 23, and that when the car passes the receptacle the weight or counterbalance 17 will automatically elevate the cable, as best shown in Fig. 2 of the drawings.

Secured to the top of the car or carriage 9 is a box or compartment 45, adapted to receive the outgoing mail discharged from an auxiliary mail-receptacle 46, secured in any suitable manner to the standard 5. The box or compartment 45 is provided with pivoted lids or closures 46', each having one end thereof deflected upwardly, as indicated at 47, for engagement with an actuating-arm 48, extending laterally from the standard 5, said doors being normally closed by suitable coil-springs 49, fastened in any suitable manner to the interior walls of the compartment, as shown. The auxiliary mail receptacle or box 46 is mounted on a bracket 50, extending laterally from the standard 5 and is preferably formed of two telescopic sections 51 and 52, mounted for rotation on a suitable shaft 53, to which is secured a lever 54.

The lever 54 extends in the path of movement of a cam 55, secured to one of the rods or supports 27 of the car 9, so that when the cam 55 engages the arm 54 it will rotate the section 51, and thus permit the outgoing mail in the auxiliary compartment to drop into the compartment 45 of the car, so that the same may be carried by said car to the post-office for delivery.

It will thus be seen that the arm 48 by engagement with the lips 47 will automatically open the lids of the compartment 45, so that when the cam 55 engages the lever 54 and opens the auxiliary receptacle 46 the mail in said receptacle will drop into the compartment 45.

The lever 54 is preferably provided with a counterweight, whereby the section 51 will automatically return to closed position after the passage of the car, the springs 49 also serving to close the lid 46' of the compartment 45 as soon as the arm 48 is disengaged from said lid.

It will of course be understood that the cars may be made in different sizes and shapes and that any suitable motive power may be used for propelling said cars.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art, and further description thereof is deemed unnecessary.

Having thus described the invention, what is claimed is—



1. In automatic mail-delivering apparatus, an overhead track, a car mounted for travel on said track and movable with the latter to lowered position by the weight of the car, and means for automatically elevating the track at predetermined intervals.

2. In an automatic mail-delivering apparatus, an overhead track, a car mounted for travel on said track and adapted to depress the latter, and means for automatically elevating the track at predetermined intervals.

3. In automatic mail-delivering apparatus, a plurality of spaced standards, hangers slidably mounted on said standards, a track carried by the hangers, a car mounted for travel on the track and adapted to depress the latter, and means operatively connected with the hangers for automatically elevating the track at predetermined intervals.

4. In automatic mail-delivering apparatus, a plurality of spaced standards, hangers slidably mounted on the standards, a track carried by the hangers, a car mounted for travel on the track and adapted to depress the latter, and counterweights operatively connected with the hangers for automatically elevating the track at predetermined intervals.

5. In automatic mail-delivering apparatus, an overhead track, a plurality of mail-receptacles disposed along the track, a car mounted for travel on the track and adapted to automatically open the receptacles, means for lowering the track at said receptacles to permit the passage of the car, and means for automatically elevating said track.

6. In automatic mail-delivering apparatus, an overhead track, a plurality of mail-receptacles disposed along the track, a car mounted for travel on said track, an endless cable arranged within the car and provided with a plurality of compartments for automatically delivering the mail to said receptacles, an auxiliary mail-receptacle, and means carried by the car for actuating the auxiliary receptacle thereby to deliver the mail to the car.

7. In automatic mail-delivering apparatus, an overhead track, a plurality of mail-receptacles disposed along the track, a car mounted for travel on said track and having an opening formed therein, an endless cable arranged within the car and provided with a plurality of compartments adapted to successively register with said openings for automatically delivering the mail to said receptacles, a mail-receptacle carried by the car, an auxiliary mail-receptacle, and means carried by the auxiliary receptacle for delivering the mail from the latter into the receptacle on the car.

8. In automatic mail-delivering apparatus, a plurality of spaced standards, vertically-adjustable hangers secured to the standards, an overhead track mounted on

said standards and movable therewith, mail-receptacles carried by the standards and provided with spring-actuating doors, a car mounted for travel on the track and adapted to automatically open the doors of the receptacle, means disposed within the car for automatically delivering mail to said receptacles, a mail-box carried by the car, and an auxiliary mail-receptacle secured to the standard and disposed above the main receptacle for automatically delivering mail to the car.

9. In automatic mail-delivering apparatus, a plurality of spaced standards, a horizontally-disposed cable connecting the standards and mounted for vertical movement thereon, mail-receptacles secured to the standards, a car mounted for travel on the cable and adapted to depress the cable at said mail-receptacles, means carried by the car for automatically delivering mail to the receptacles, and means for elevating the cable.

10. In automatic mail-delivering apparatus, an overhead cable, a plurality of mail-receptacles disposed at spaced intervals along the cable and provided with spring-actuating doors having terminal upwardly-extending lips, a car mounted for travel on said cable and provided with a fender adapted to engage the lips for automatically opening the doors of the receptacles, and means disposed within the cars for automatically delivering the mail to the receptacles.

11. In automatic mail-delivering apparatus, an overhead cable, a plurality of mail-receptacles disposed along the cable and provided with spring-actuating doors the ends of which are formed with terminal upwardly-extended lips, a car mounted for travel on said cable and provided with a fender adapted to engage said lips for opening the doors of the receptacle, an endless belt mounted for rotation within the car, a plurality of mail-boxes carried by the belt, and a lever associated with the belt for moving the mail-boxes with a step-by-step movement thereby to permit said boxes to successively discharge the mail into the receptacles.

12. In automatic mail-delivering apparatus, an overhead cable, a plurality of mail-receptacles disposed along the cable, a car mounted for travel on the cable, an endless belt disposed within the car, mail-boxes carried by the belt, a cam secured to the car, levers carried by the mail-boxes and adapted to engage the cam for successively opening said boxes, and a lever associated with the belt for rotating the latter with the step-by-step movement.

13. In automatic mail-delivering apparatus, an overhead cable, a plurality of mail-receptacles disposed along the cable, a car mounted for travel on said cable, an endless



belt arranged within the car and carrying a plurality of mail-boxes each provided with a pivoted spring-actuating lid, there being a discharge-opening formed in the bottom of the car, and a lever associated with the belt and adapted to engage the mail-receptacles for moving the belt with a step-by-step movement thereby to successively discharge the mail in the boxes through said opening into the mail-receptacles.

14. In automatic mail-delivering apparatus, a plurality of standards, a vertically-movable cable supported by said standards, main and auxiliary mail-receptacles secured to the standards, a car mounted for travel on the cable for automatically delivering mail to the main receptacles, a mail-receiving compartment mounted on the car, and means carried by said car for actuating the auxiliary receptacle thereby to deliver the mail to the car.

15. In automatic mail-delivering apparatus, a plurality of standards, an overhead cable supported by said standards, main and auxiliary mail-receptacles secured to the standards, said auxiliary receptacles being formed of pivotally-united telescoping sections one of which is formed with a laterally-

extending arm, means carried by the car for delivering mail to the main receptacle, a mail-receptacle mounted on the car, and a cam secured to the car and adapted to engage the arm for actuating the auxiliary receptacle thereby to deposit the mail in the receptacle on said car.

16. In automatic mail-delivering apparatus, a plurality of standards, an overhead cable mounted on the standards, main and auxiliary receptacles secured to said standards, an arm extending laterally from the auxiliary receptacle, means carried by the car for automatically delivering mail to the main receptacle, a mail-receptacle mounted on the car and provided with a spring-actuated cover adapted to engage the arm for moving the cover to open position, and means carried by the car for actuating the auxiliary mail-receptacle thereby to deliver mail from the latter to said car.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY W. VAIL.

Witnesses:

E. D. GOBLE,  
L. B. VOSE.