P. HEMPEL.

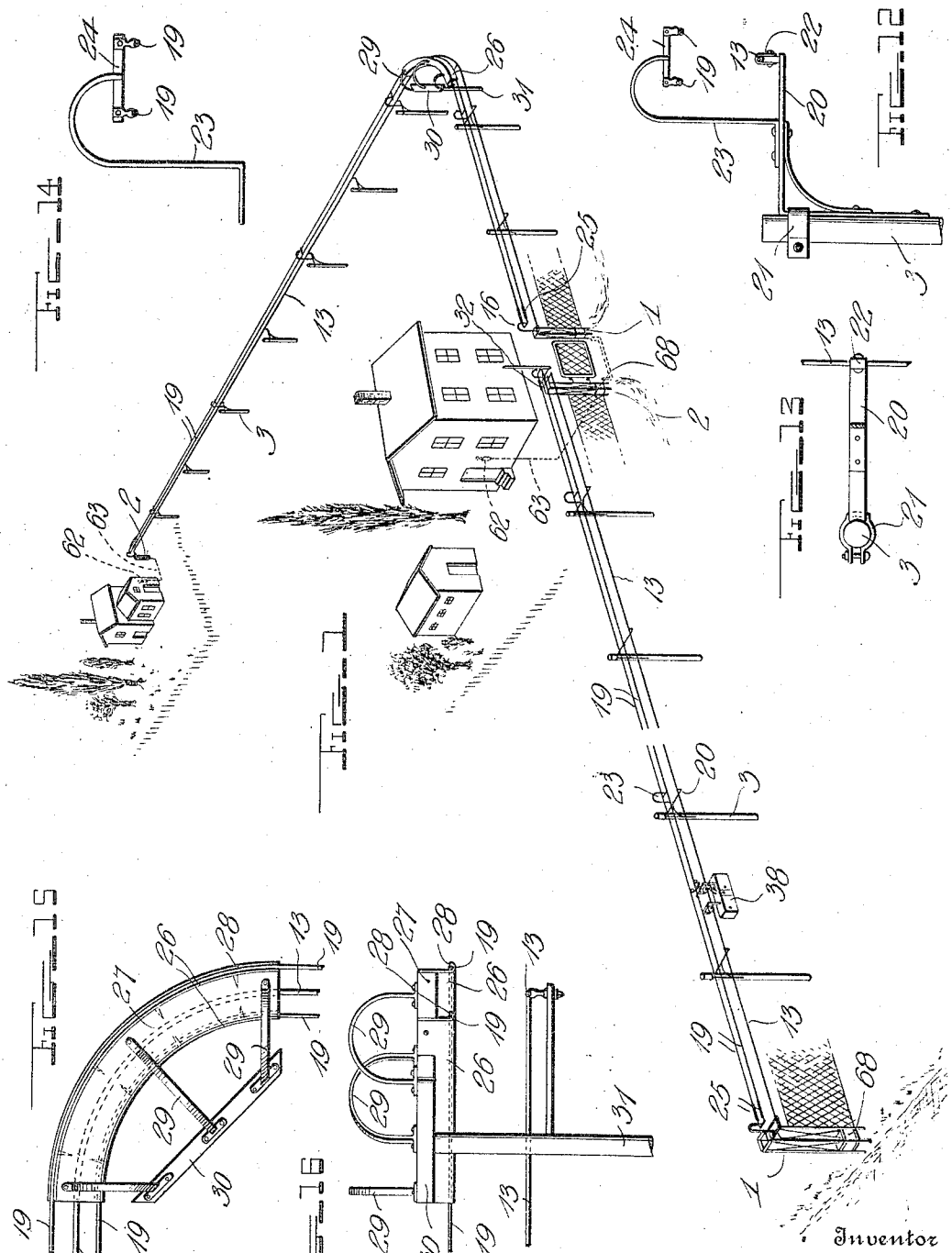
DELIVERY APPARATUS.

APPLICATION FILED JAN. 16, 1913.

1,067,112.

Patented July 8, 1913.

3 SHEETS—SHEET 1.



Witnesses

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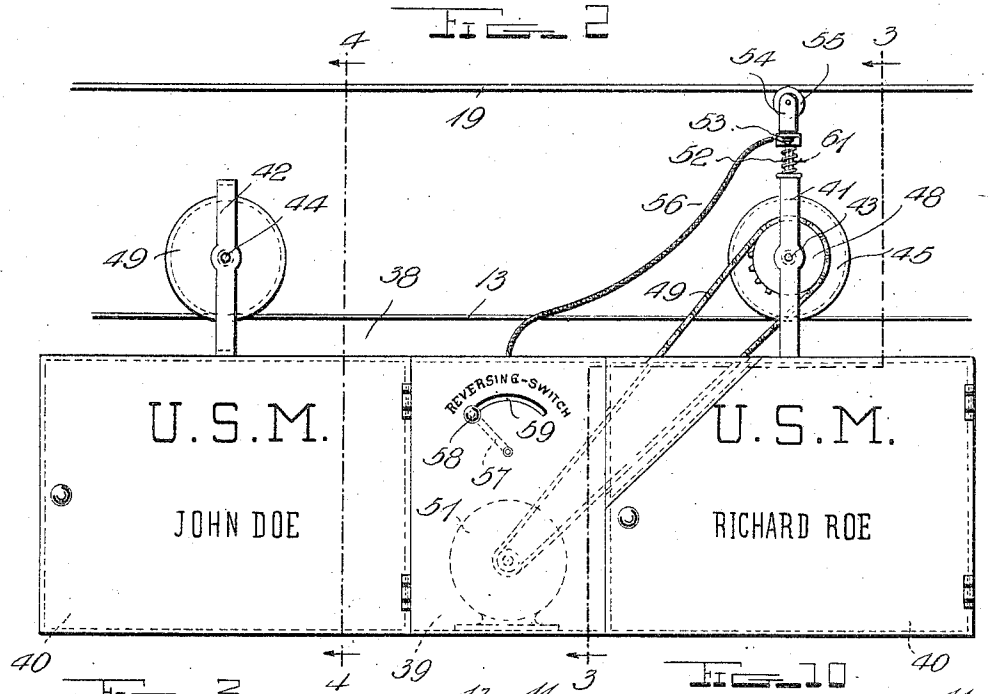
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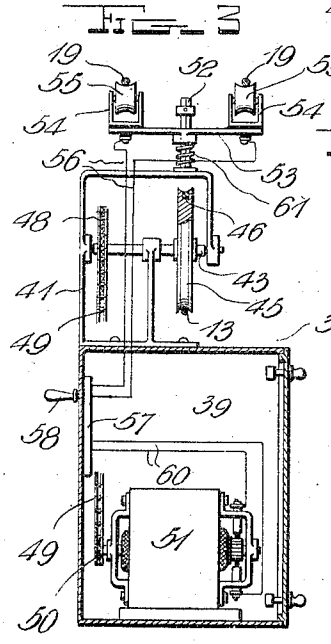
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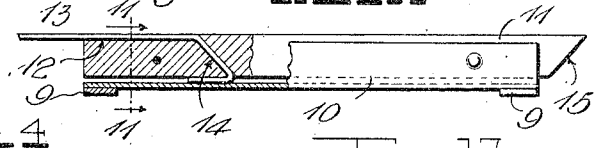
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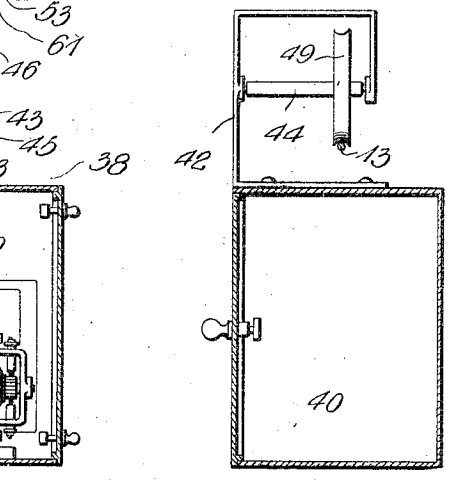
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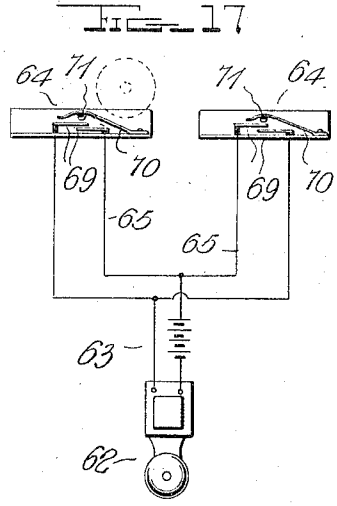
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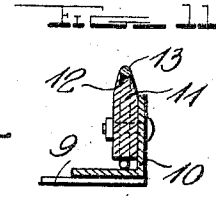












Witnesses

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3 SHEETS—SHEET 3.

Fig. 5

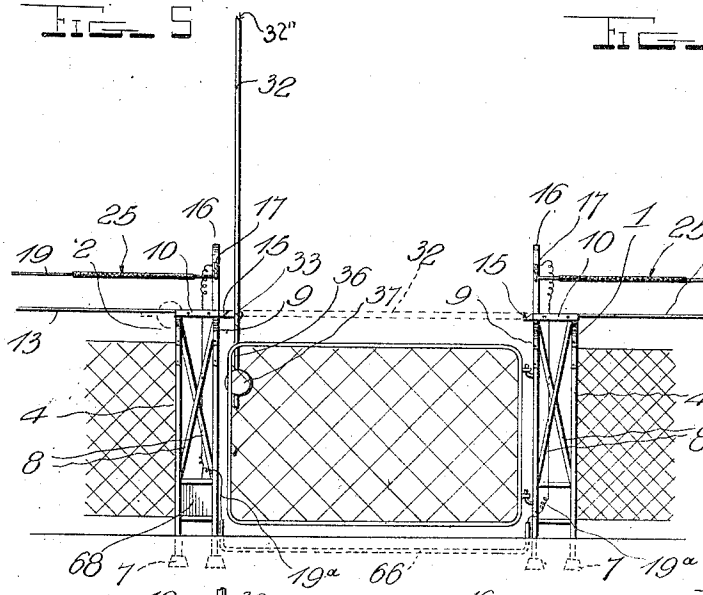


Fig. 6

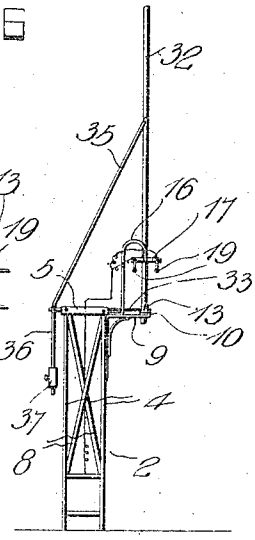
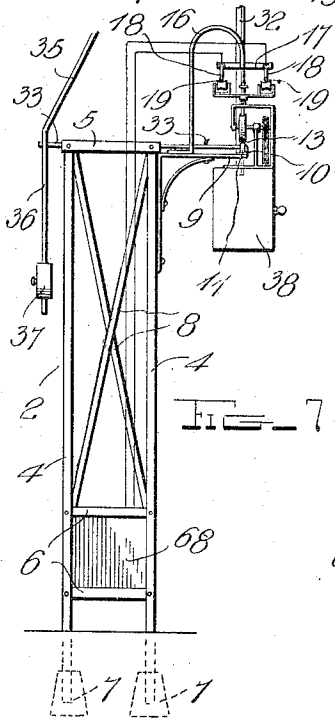


Fig. 7



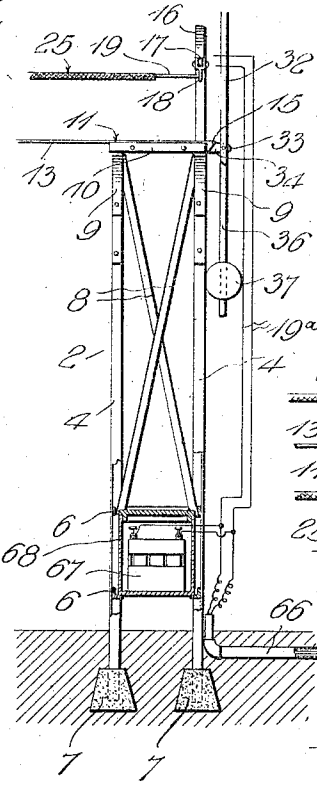
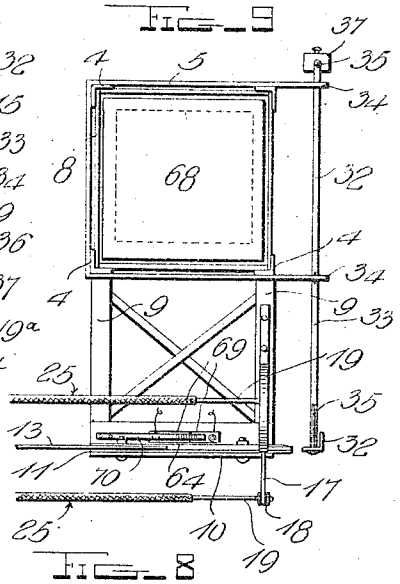


Fig. 8



Witnesses

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DELIVERY APPARATUS.

1,067,112. Specification of Letters Patent. Patented July 8, 1913.

Application filed January 16, 1913. Serial No. 742,440.

To all whom it may concern:

Be it known that I, PAUL HEMPEL, a citizen of the United States, residing at Parkston, in the county of Hutchinson and State of South Dakota, have invented certain new and useful Improvements in Delivery Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in delivery apparatus and particularly to apparatus for delivering mail in rural districts from a post road to individual residences located at a greater or less distance from the road.

One object of the invention is to provide an apparatus of this character having an improved construction of track bar for spanning a gateway or other opening in a fence which carries the track cable.

A further object is to provide a rural mail delivery apparatus which will be simple, strong, durable and inexpensive in construction, efficient and reliable in operation and well adapted to the purpose for which it is designed.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 is a perspective view of my improved delivery apparatus; Fig. 2 is an enlarged side view of a car and a portion of the supporting and trolley wires of the apparatus; Fig. 3 is an irregular vertical cross sectional view taken on the line 3—3 of Fig. 2; Fig. 4 is a vertical cross sectional view taken on the line 4—4 of Fig. 2; Fig. 5 is a detail side view of the end of one section of the apparatus and the beginning of another section illustrating in dotted lines the manner in which the connection between the supporting cable of the car is made across a gateway; Fig. 6 is an end view of one of the sections of the apparatus shown in Fig. 5; Fig. 7 is an enlarged view of the parts shown in Fig. 6 and of the end of the car in position on the apparatus; Fig. 8 is a side view partly in section of the end of the section shown in Fig. 7 with the car omitted; Fig. 9 is an enlarged plan view of the end of the apparatus shown in Figs. 7 and 8; Fig. 10 is an enlarged side view partly in section of the means for fastening the end of the track or supporting wire to the wire supporting bracket of the end post; Fig. 11 is a vertical cross section thereof taken on the line 11—11 of Fig. 10; Fig. 12 is an enlarged detail view of the upper end of one of the intermediate supporting posts of the apparatus showing the construction and arrangement of the brackets for holding the track and the trolley wires of the apparatus; Fig. 13 is a top plan view of the parts shown in Fig. 12; Fig. 14 is a detail side view of one of the supporting brackets for the trolley wires of the apparatus; Fig. 15 is a plan view of the means for supporting and guiding the trolley wires of the apparatus at turns or bends in the line; Fig. 16 is an end view of the parts shown in Fig. 15; Fig. 17 is a diagrammatic view of the mechanism by means of which an alarm or signal is operated when the car reaches the end of one section of the apparatus.

As shown in Fig. 1 of the drawings my improved delivery apparatus is designed particularly for conveying mail or other matter from a post road to one or more residences located at a greater or less distance apart and at a distance from the road. The apparatus, as will also be seen from Fig. 1 of the drawings comprises a number of sections one of which extends from the road to the nearest residence thereto and the others of which extend between the residences with which the apparatus is connected. Each of the sections of the apparatus comprises end posts 1 and 2 which are located respectively at the beginning and end of the section and a series of intermediate posts 3 which are located at suitable distance apart between the end posts 1 and 2. The posts of the apparatus may if desired also serve as the supporting posts for a fence and are so shown in the present instance. The end posts 1 and 2 at the beginning and end of the section are preferably skeleton structures comprising angle iron corner bars 4 connected at their upper ends by rectangular frames

5 and near their lower ends by similar frames 6. The lower ends of the bars 4 are planted a suitable distance in the ground and are anchored in suitable bases 7 of concrete or other material. The bars 4 are also braced by inclined brace bars 8.

Secured to the upper ends of the posts 1 and 2 are laterally extending cable supporting brackets 9 carrying angle iron bars 10. To the bars 10 are bolted or otherwise rigidly secured wire fastening blocks 11 the upper edges of the inner ends of which are provided with short longitudinal grooves 12 to receive the ends of the track cables 13. The ends of the cables when engaged with the grooves are inserted through inclined apertures 14 formed in the blocks 11 and the extremities bent back beneath the blocks 11 and between the lower side thereof and the lower portion of the angle iron bars 10 as clearly shown in Figs. 10 and 11 of the drawing. The ends of the cables when thus engaged with the blocks 11 are securely fastened to the end posts. The upper portions of the opposite sides of the blocks are tapered inwardly toward the upper edges thereof and said upper edges of the blocks are rounded to correspond with the curvature of the upper portion of the track cables, the ends of which when engaged with the grooves 12 are flush with the upper edges of the blocks as shown in Fig. 10 so that the supporting wheels of the car will run smoothly from the cable onto the bar. The outer ends of the blocks 11 at one side of the gateway are beveled or undercut on an angle as shown at 15, whereas the ends of the blocks at the other side thereof are beveled on their upper sides as at 15′ for a purpose hereinafter described.

Secured to one arm of the brackets 9 are upwardly extending trolley supporting brackets 16 which are in the form of upright bars having their upper ends curved outwardly and downwardly as shown. Secured to the downwardly curved ends of the brackets 16 are cross arms 17 to the ends of which are secured hangers or insulators 18 to which are connected the trolley wires 19 of the apparatus.

The intermediate posts 3 of the apparatus have secured to their upper ends cable supporting brackets 20 in the form of right angular bars which are suitably braced and are fastened at their lower ends to the posts by screws or other suitable fastening devices and at their upper ends are fastened to the posts by clips 21. On the outer ends of the brackets 20 are wire fastening clips 22 by means of which the track cable is securely fastened to the brackets. Secured to the brackets 20 of preferably every other one of the intermediate posts 3 is a trolley supporting bracket 23 which is provided with a cross arm 24 and is otherwise constructed in the same manner as the trolley supporting bracket 16 of the end posts. The trolley wires 19 are insulated for a considerable distance from the supporting brackets on the end posts as shown at 25 so that when the car reaches the insulated portions of the trolley wires the electric current to the motor of the car will be cut off and further movement of the car will be caused only by the momentum the latter has obtained, and the car will thus come to a stop at the end of the section.

At points in the apparatus where it is necessary to make a turn the trolley wires are preferably engaged with and supported by curved plates 26 which are spaced apart and secured at their upper edges of the opposite sides of a curved block 27 and which have their lower edges turned upwardly to form grooves 28 to receive the trolley wires as is clearly shown in Figs. 15 and 16 of the drawings. The spacing block 27 to which the plates 26 are secured is formed of wood or other suitable non-conducting material and said block is supported in position at the turn or curve in the apparatus by bail shaped hangers 29 one end of which is secured to the upper side of the block and the other ends of which are secured to a bar 30 arranged on the upper end of the post 31 at the corner around which the turn in the apparatus is formed as clearly shown in Figs. 15 and 16 of the drawings.

When the end of one section of the apparatus and the beginning of another section are disposed on opposite sides of a gateway as shown in Figs. 1 and 5 of the drawings, provision is made to bridge the space between the end posts of the sections by means of a track bar 32 which is preferably of angle iron construction and is fixedly mounted at one end on the end of a rock shaft 33 which is pivotally mounted in brackets 34 projecting from the frame 5 at the upper end of the posts 2 at the end of one section of the apparatus. The track bar 32 is secured to the opposite end of the rock shaft and is held rigid by a diagonal brace bar 35, the outer end of which is extended beyond the end of the rock shaft and forms a crank arm 36. To the outer end of the arm is adjustably secured a weight 37 whereby the track bar is automatically swung upwardly and held in an inoperative position as clearly shown in full lines in Figs. 5 and 6 of the drawings. When it is desired to shift the car from the end of one section across the gateway to the beginning of the other section the track bar 32 is swung downwardly to the position shown in dotted lines in Fig. 5 of the drawings. The ends of the track bar when thus swung down will register with the outer ends of the blocks 11 to which the ends of the track

cable 13 are secured and the ends of the track bar 32 are oppositely beveled at 32′ and 32″ to match and closely fit the beveled ends 15 and 15′ of the blocks 11. The engaging beveled ends of the blocks 11 and track bar 32 form stops which limit the downward movement of the bar and also form an even joint between the ends of the track bar and the cable fastening blocks to permit the car to travel smoothly across the track bar from the end of one section of the apparatus to the beginning of the next section.

Adapted to travel on the track cable 13 is a delivery car 38 which is preferably in the form of a sheet metal box having a motor compartment 39 and any suitable number of mail or package receiving compartments 40, the car in this instance being shown as having two mail or package receiving compartments one of which is arranged at each end of the car as shown. The compartments 40 are closed by suitably fastened doors on which are placed the names of the parties to whom the mail or packages in the respective compartments are addressed.

The supporting mechanism for the car comprises brackets 41 and 42 in which are revolubly mounted pulley shafts 43 and 44. Fixed on the shaft 43 is a driving and supporting pulley 45 in the grooved periphery of which is arranged a band or annular strip 46 of rubber or other suitable material whereby the pulley may obtain a firm grip on the track cable 13. On the shaft 44 is fixed a supporting pulley 49 having a plain grooved periphery which engages the track cable 13 and supports the end of the car to which the supporting bracket 42 is secured. Also fixed on the shaft 43 is a sprocket gear 48 which is connected by a sprocket chain 49 to a sprocket pinion 50 fixed on the drive shaft of an electric motor 51 which is arranged in the motor compartment 39 of the car and which may be of any suitable construction. The drive chain 49 extends upwardly from the motor through a suitable passage formed in the box or car as indicated in dotted lines in Fig. 2 of the drawings.

Secured to and projecting upwardly from the bracket 41 of the pulley 45 is a trolley wheel supporting bar 52 which is preferably rectangular and has slidably mounted thereon a cross arm 53 on the ends of which are secured bearing brackets 54 in which are revolubly mounted trolley wheels 55, said wheels being adapted to engage the trolley wires 19 hereinbefore described. The brackets 54 are insulated from the cross arm 53 and have electrically connected thereto the terminals or outer ends of current conducting wires 56 which extend downwardly into the mail car and are suitably connected with an electric motor reversing switch 57 arranged in one side of the motor compartment and provided with a handle 58 which works through a curved slot 59 in one side of the motor compartment as clearly shown in Fig. 2 of the drawings. The switch 57 is connected by current conducting wires 60 to the commutator brushes of the motor 51 whereby the current passing through the trolley wires is conveyed to the motor and the latter thereby operated. The movement of the motor when thus driven is imparted through the drive chain 49 to the shaft 43 and through the latter to the driving and supporting pulley 45 whereby the latter is driven in the proper direction for propelling the car toward or from the post road or outer end of the apparatus according to the position of the reversing switch 57 as will be readily understood. The trolley wheels 55 are held up in yielding engagement with the trolley wires by a coiled spring 61 which is arranged on the bar 52 below the cross arms 53 and exerts an upward pressure on said bar and the trolley wheels mounted thereon thus holding said wheels in operative engagement with the trolley wires. By thus arranging the motor and reversing switch it will be seen that when the car has reached one or the other of the ends of the apparatus and it is desired to send the car back in the opposite direction it is simply necessary to reverse the position of the switch and to start the car in the desired direction.

By reference to Fig. 5 of the drawings it will be seen that the ends of the trolley wires of one section are electrically connected to the ends of the trolley wires of the next section by current conducting wires 19ª which extend down the end posts of the sections and through a conduit 66 arranged across the gateway and below the surface of the ground. The trolley wires are supplied with electric current by strong storage batteries 67 which are stored in water tight receptacles 68, disposed in certain of the end posts of the sections, as clearly shown in Fig. 8 of the drawings.

In order to notify the occupants of the houses located at the ends of the sections of the apparatus that the mail car has reached their end of the apparatus, I provide an electrically operated signal 62 which may be of any suitable construction and arranged at any desired location in or near the house. The signals 62 are arranged in electric circuits 63 in which are also arranged circuit closers 64 one of which is disposed at the end of one section and the other of which is arranged at the beginning of the next section, said circuit closers being connected by branch wires 65 as shown in diagram in Fig. 17.

The circuit closers 64 may be of any suitable construction but are here shown and preferably consist of spring contact fingers

69 which are arranged on and insulated from the cable supporting brackets of the end posts, and to which fingers are connected the ends or terminals of the branch circuit wires 65. Arranged above each set of spring fingers 69 is a spring circuit closing plate 70 one end of which is secured to the cable supporting bracket and the free end of which projects above the contact fingers 69 and has secured to its under side an insulated finger engaging knob 71. When thus arranged it will be seen that the circuit closing plates 70 and the contact fingers 69 beneath the same are located in the path of movement of the supporting and operating pulleys of the car so that when the latter is traveling in either direction and reaches the end of the section one or the other of the pulleys will ride over the circuit closing plates 70 thus forcing the latter downwardly and causing the knobs 71 thereon to engage and bring the contact fingers 69 together thus completing the circuit to the signal which will indicate to the occupant of the residence that the mail car has reached his end of the apparatus. The occupant of the residence when thus notified is supposed to go out and remove the mail matter directed to him from his compartment of the mail car, if any mail has been placed therein, and to manually shift the car across the gateway or from the end of one section to the adjacent end of the next section as hereinbefore described. When the car has reached the end of the apparatus or the last residence the occupant of this residence is supposed to reverse the motor after removing his mail from the car and placing any mail therein that he may have for collection. After reversing the motor the car will be started on its return trip and will travel until reaching the end of this section where an alarm will be sounded in the manner described and the occupant at this point notified of the arrival of the car, so that he may place any mail he may have for collection in the car and start the same on the next section which operation is repeated until the car reaches the post road or beginning of the apparatus.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

1. In a delivery apparatus of the character described, the combination with an elevated track cable leading from a public highway past an intermediate station to a station remote from said highway and interrupted at the intermediate station, and a movable track bar capable of closing the gap produced by said interruption; of trolley wires paralleling said cable and interrupted at the same point, means for feeding a current to said wires, a car having pulleys traveling on said track and contacts engaging said trolley wires, and an electric motor in the car fed from said contacts and connected with said pulleys.

2. In a delivery apparatus of the character described, the combination with a fence leading from a public highway and interrupted by a gateway having posts at opposite sides, brackets mounted on the fence posts, a track cable carried by said brackets and interrupted at the gateway, and a track bar movably mounted on one gate post and adapted to span the gap produced by said interruption; of a superimposed trolley wire carried by the same brackets and interrupted opposite the gate, means for feeding a current to said wire, a car having pulleys traveling on said track and a trolley wheel contacting with said wire, and an electric motor fed by said trolley wheel and connected with one of said pulleys.

3. In a delivery apparatus of the character described, the combination with a fence leading from a public highway and interrupted by a gateway, said fence including posts at opposite sides of said interruption; of a track made in sections terminating with such gate-posts and consisting of cables, brackets rising from all the posts and supporting the cable-sections, an angle-iron bar carried by the bracket on the gate post, blocks carried by said bars at opposite sides of the gate, the inner end of one block being undercut and the inner end of the other block being beveled on its upper side, and a track bar oppositely beveled at opposite ends and of a length to engage the bevels of said block when the bar stands horizontal, and a pivotal support between said track bar and one of the gate-posts.

4. In a delivery apparatus of the character described, the combination with a fence leading from a public highway and interrupted by a gateway, said fence including posts at opposite sides of said interruption; of a track made in sections terminating with such gate-posts and consisting of cables, brackets rising from all the posts and supporting the cable-sections, an angle-iron bar carried by the bracket on the gate-post, blocks carried by said bars at opposite sides of the gate, the inner end of one block being undercut and the inner end of the other block being beveled on its upper side, a rock shaft journaled across one post, a track bar rising from one end of the rock shaft and itself oppositely beveled at its opposite ends

and of a length to engage the beveled inner end of said block, a brace extending from said track bar across the other end of said shaft and depending therefrom, and a weight on the lower end of this brace, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PAUL HEMPEL.

Witnesses:
W. H. SHAW,
JAMES STEICHEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."