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MAIL POUCH RECEIVING AND DELIVERING APPARATUS FOR RAILWAY CARS AND THE LIKE.
APPLICATION FILED JAN. 6, 1909.

931,263.

Patented Aug. 17, 1909.

3 SHEETS—SHEET 1.

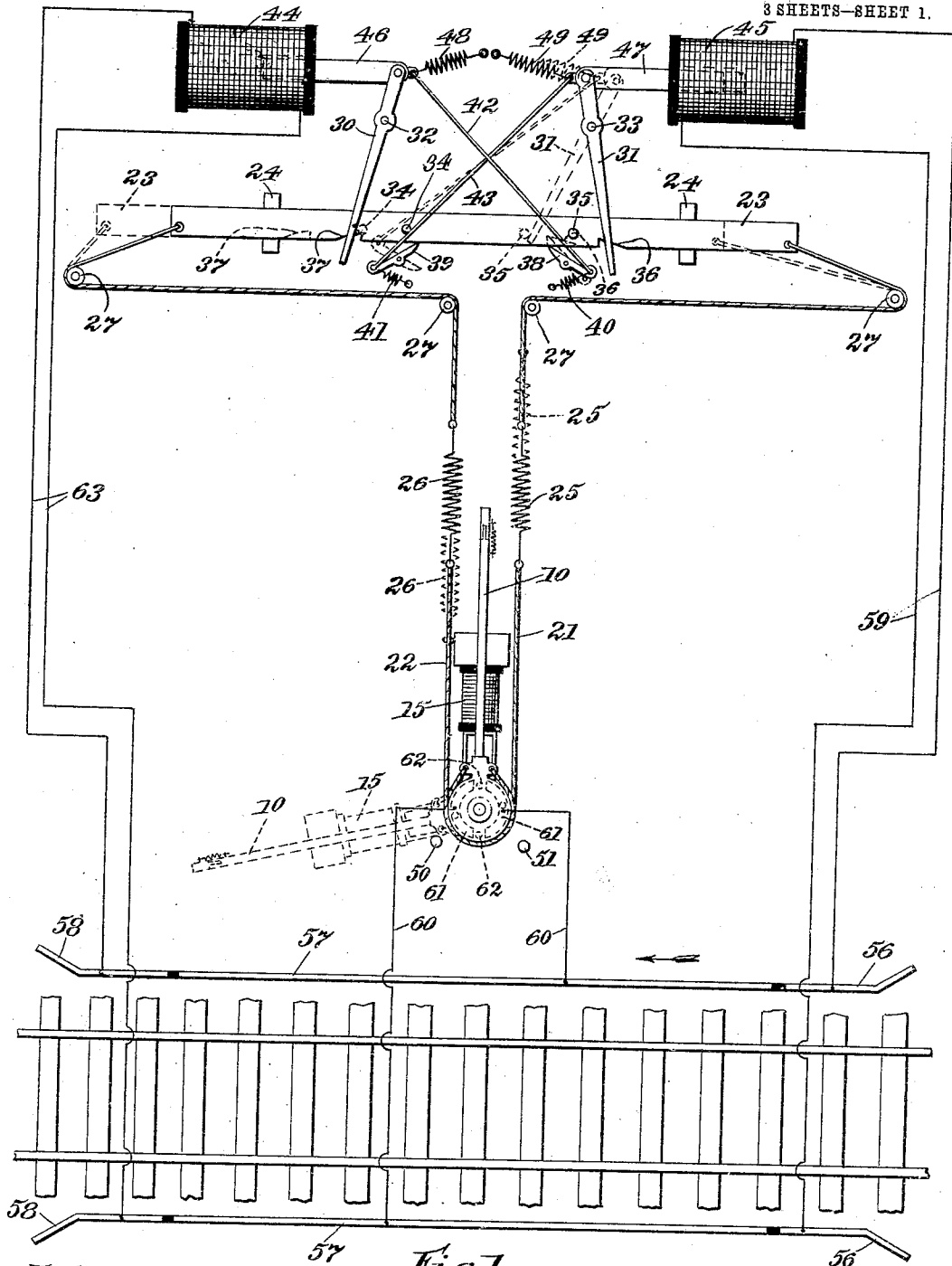


Fig. 1.

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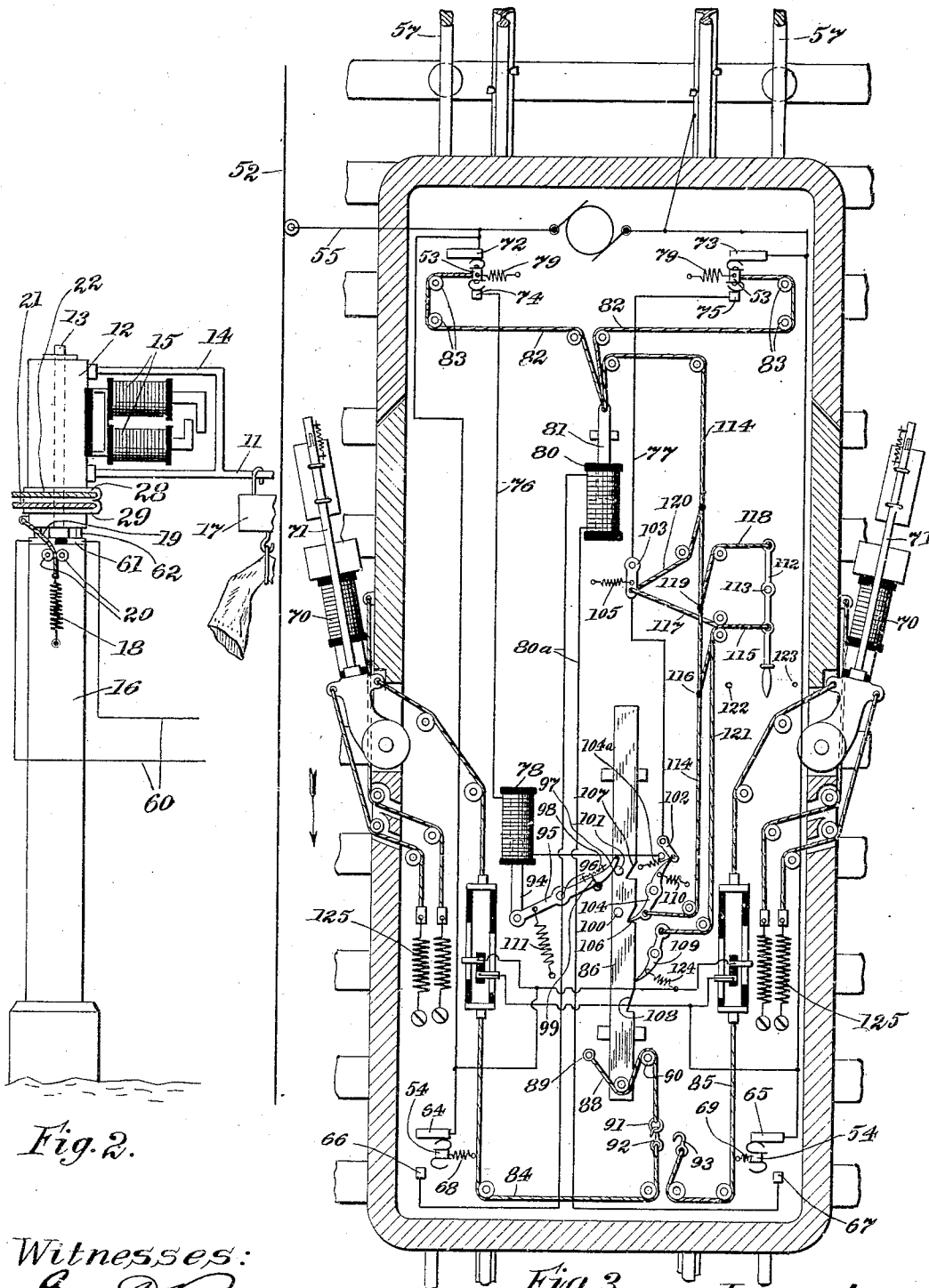


Fig. 2.

Fig. 3.

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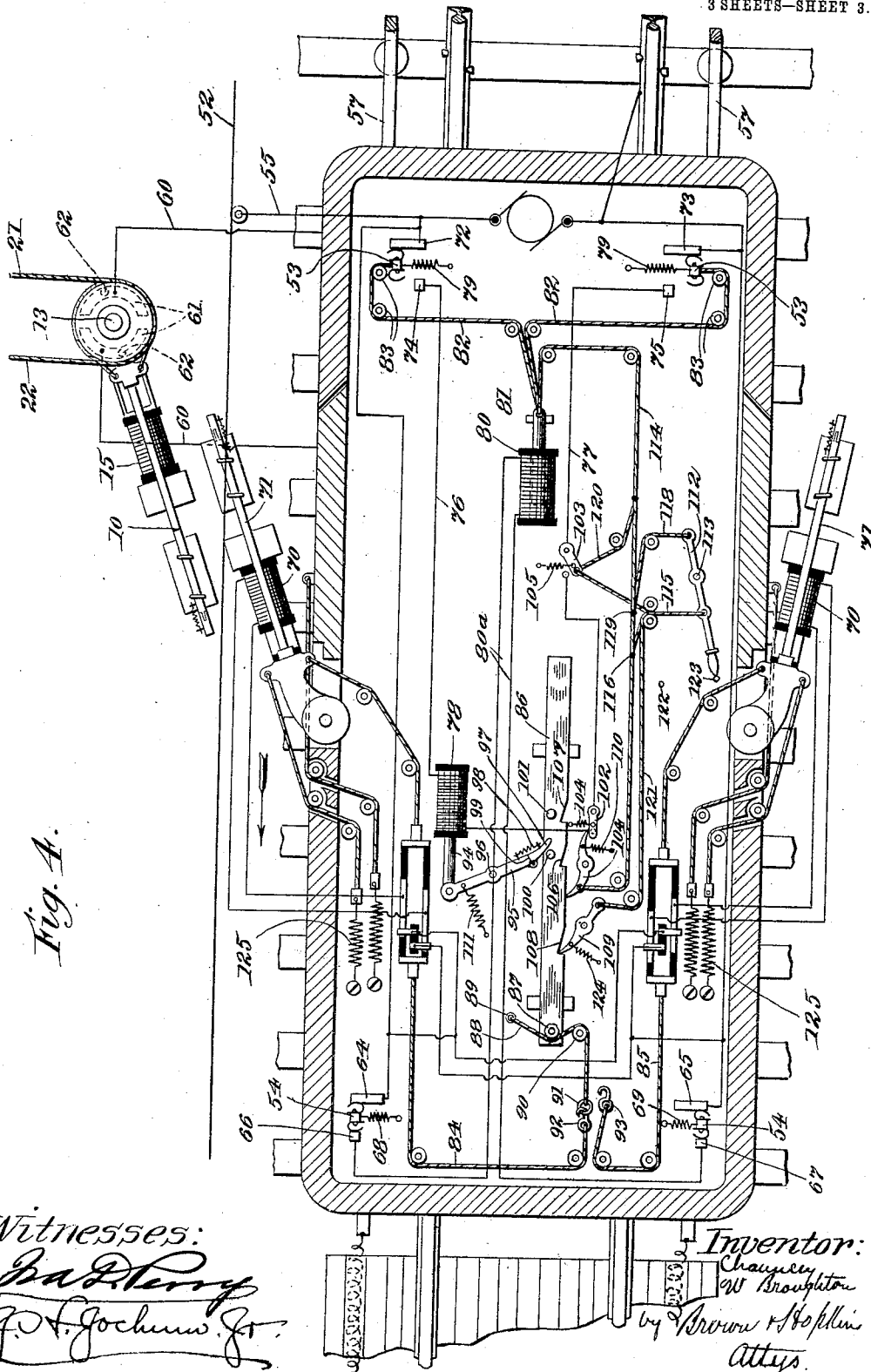


Fig. 4.

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UNITED STATES PATENT OFFICE.

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MAIL-POUCH RECEIVING AND DELIVERING APPARATUS FOR RAILWAY-CARS AND THE LIKE.

No. 931,263.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed January 6, 1909. Serial No. 470,900.

To all whom it may concern:

Be it known that I, CHAUNCEY W. BROUGHTON, a citizen of the United States, residing at Carlton, in the county of Dekalb and State of Illinois, have invented certain new and useful Improvements in Mail-Pouch Receiving and Delivering Apparatus for Railway-Cars and the Like, of which the following is a specification.

This invention is designed more particularly but not necessarily as an improvement upon the mail pouch receiving and delivering apparatus for railway cars of the particular type shown and described in my United States Patent No. 800,008 issued February 25, 1908, to which reference may be had for an understanding of any features common to the two devices which are shown herein but not described in detail.

One of the objects of the present invention is to provide improved means for causing the arm which holds the mail pouch in readiness to be delivered by the apparatus on the mail car, substantially parallel with the car when a train intended to collect the mail is passing said arm and to turn the arm back and away from the track into a position at substantially right angle to the track to prevent the same from being struck by passing objects on the track.

A further object is to provide improved means for causing the approaching train to automatically set the pouch holding arm at the station in position to deliver the pouch to the car, a considerable time before the car reaches such arm and improved means for causing the train to automatically move the station arm into an inoperative position or a position pointing from the track after the train has passed and received the pouch from the station arm.

A further object is to provide improved means for preventing the mail sack or pouch which has been received upon the station arm from the car, from being dropped from the arm until the latter has assumed a position pointing away from the track so that the pouch or sack will not fall upon the track or in a position to be damaged by the train.

A further object is to provide improved means for electrically setting the arm on the car, and improved means whereby the various electrical devices upon the car will be supplied with energy from a source outside

of the car, such as a trolley or third rail conductor.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawing, illustrating the embodiment of the invention, and in which—

Figure 1 is a diagrammatic plan view of the station arm and the setting mechanism for the arm. Fig. 2 is an elevation of the station arm and the supporting post. Fig. 3 is a diagrammatic plan view of a railway car equipped with an improved apparatus of this character constructed in accordance with the principles of this invention and showing the apparatus in a running position or position between stations. Fig. 4 is a view similar to Fig. 3, showing the apparatus in the position to receive the mail from the station arm and also showing the relative positions of the station arm and the car arm when receiving and delivering the mail pouch.

Referring more particularly to the drawings and in the present exemplification of the invention, the numeral 10 designates a horizontal arm which supports the mail pouch at the station in a suitable way preparatory to being received upon the moving car. This arm may be of the usual or any suitable construction but in the present exemplification of the invention it consists of an ordinary bar 11 secured to a rotatable head 12 mounted upon a vertical pivot 13 and also having a guard arm 14 for protecting an electro-responsive device 15 preferably in the form of a magnet. The head 12 is mounted upon the usual post or standard 16 which is arranged along the side of the track and when it is desired to deliver the pouch 17 which is supported by the arm 11, to the car, the arm 11 must be moved into a position substantially parallel with the passing car, as shown in dotted lines in Fig. 1, but when a train is not intended to collect the mail in passing, the arm 11 is adapted to be moved into a position to point away from the track, as shown more clearly in Fig. 1, and at substantially right angle thereto. When the arm is not otherwise controlled, it is held in a position pointing

away from the track by means of a suitable elastic member 18, such as a spring or the like, one extremity of which is secured to the post 16 and the other extremity is secured by means of a suitable flexible member 19 such as a cable, or the like, to the head 12 and the flexible member 19 is adapted to pass through suitable guide rollers 20 secured to the post.

Secured to the head 12, preferably adjacent the lower end thereof, are two cables 21, 22, one extremity of each of which is adapted to be wrapped one or more times around the lower extremity of the head in opposite directions and the free extremities of these cables are connected to a suitable sliding bar or member 23 which moves in suitable guides or supports 24. If desired, the cables 21, 22 may be provided intermediate their extremities with elastic sections 25, 26 and the cables intermediate the sliding bar 23 and elastic sections may pass over suitable pulleys or rollers 27 for guiding the same. If desired, the head 12 may be provided with enlarged portions 28, 29, having grooved peripheries and around which the extremities of the cable are adapted to pass.

The sliding bar or member 23 is adapted to be moved in its bearings 24 by means of suitable arms 30, 31, which are arranged to operate in opposition to each other and each of the arms are pivotally supported by means of a pivot 32, 33. Extending from the sliding bar 23 are pins or projections 34, 35, which are disposed between the extremities of the arms or levers 30 and 31, so that when one of the arms is moved about its pivot, it will engage the respective adjacent pin or projection 34, 35, to shift the sliding bar 23 in its bearings, which movement will draw upon the respective run of the cable to move the head 12 about its pivot 13. Any suitable means may be provided for locking the bar 23 in its adjusted position and for this purpose there may be provided suitable notches 36, 37, in one face of the bar and adjacent the respective pins or projections 34, 35.

Suitable dogs or pawls 39 may be pivotally mounted adjacent the notched face of the bar 23 and elastic members 40, 41 may be provided for causing the extremities of the dogs or pawls to be seated in one of the notches 36, 37, when the latter are moved adjacent thereto. One of these dogs or pawls is provided for each of the arms or levers 30, 31 and are connected by means of suitable connecting rods 42, 43, to move with the opposite lever so that when one of the arms or levers is moved to shift the bar 23, the movement of this lever will release the dog or pawl which coöperates with the other arm or lever. Any suitable means may be provided for rocking these arms or levers and for that purpose there may be provided

a pair of electro-responsive devices 44, 45, preferably in the form of solenoids arranged to oppose each other. The core 46 of the solenoid 44 is pivotally connected to one of the arms or levers preferably the arm 30 beyond its pivot and the core 47 of the solenoid 45 is connected to the other arm or lever 31 beyond its pivot, so that when one of the solenoids is energized in the manner to be set forth, the respective arm or lever will be adjusted to shift the bar 23 in the corresponding direction. When the solenoids are deenergized the respective cores thereof and the levers to which the cores are connected may be returned to their normal positions by means of suitable elastic members 48, 49.

If desired, suitable stops 50, 51 may be provided and arranged within the path of movement of the arm 10 to limit the movement of the arm in the direction toward the track.

The solenoids or magnets 44, 45, are energized by a source of current derived from a conductor 52 outside of the car and through the medium of brushes 53, 54 carried by the car and which brushes receive the current from the conductor 52 through the medium of a trolley or collector 55. These brushes 53, 54 are adapted to deliver a current to stationary conductors 56, 57, 58, on the road bed, the conductors being spaced or insulated from each other, so that when the car approaches the conductors, which are preferably arranged some distance from the station arm, one set of brushes 54 on the car will engage the conductors 56 when moving in the direction indicated by the arrow to energize the electro-responsive device 45 through the conductors 59. When the electro-responsive device 45 is energized, the core 57 will be attracted and the arm or lever 31 will be rocked about its point of pivotal support and against the tension of the elastic member 49 into the position shown in dotted lines in Fig. 1, thereby shifting the bar 23 to move the station arm 10 to a position substantially parallel with the track, as shown in dotted lines in Fig. 1. When the arm is moved in this position, it will be locked by means of the dog or pawl 38. After the brushes pass from the conductors 56, the magnet 45 will be deenergized and the brushes will move into engagement with the conductors 57 to supply a current to the magnets 15 on the station arm through the conductors 60. These conductors 60 are connected to terminal plates 61 on the post 16 and the head 12 is provided with depending projections 62 in the form of pins or the like, which latter are connected to the magnets 15 by suitable conductors. The terminal plates 61 are spaced from each other, as shown in Fig. 1, and the pins 62 are so arranged that when the station arm 10 is in the position shown in full lines in Fig. 1,

the pins will stand between the plates 61 to break the circuit through the magnets 15. When the arm is in the position shown in dotted lines in Fig. 1, the pins 62 will move
 5 upon or into engagement with the terminal plates 61 so as to energize the magnets 15 to attract the armature of the pouch supported by the arm upon the car. The dog or pawl will hold the station arm in the
 10 position shown in dotted lines in Fig. 1 until the car has passed and received the bag therefrom and when the brushes 54 pass out of engagement with the conductors 57, the brushes 53 on the other end of the car will
 15 pass into engagement with the conductors 57 to maintain a circuit through the magnet 15 to prevent the bag from being discharged or dropped from the arm until the arm moves from the position shown in dotted
 20 lines back to the position shown in full lines. As the brushes 54 pass from the conductors 57 they will move into engagement with the conductors 58 to supply a current through the conductors 63 to the coils of
 25 the solenoid 44 to energize the same, and when so energized the core 46 thereof will be attracted and will move the arm or lever 30 about its pivot to shift the bar 23 back to a central position to move the arm 10 into
 30 the position shown in full lines in Fig. 1. Before the arm or lever can move the bar 23, the pawl 38 must be tripped and for this purpose the connection 42 is provided between the core and the pawl, so that when
 35 the core is attracted the pawl 38 will be rocked about its pivot to release the bar 23. In order that the station arm will not be rigidly held when in its operative position the cables 21, 22, are provided with the elastic
 40 sections 25, 26, which latter are adapted to yield slightly when pressure is exerted upon the arm 10 by the arm upon the car. Obviously if the train is approaching the station from the opposite direction, the action
 45 of the station arm, will be the same except that it will be first moved by the opposite electro-responsive device 44 to swing the arm in the opposite direction. When the brushes 54 engage the stationary conductors they
 50 will be moved into engagement with the contacts 64, 65, 66 and 67 against the tension of the elastic members 68, 69 to energize the magnet 70 on the arm 71 supported by the car. The brushes 53 between the stations are
 55 held in engagement with the contacts 72, 73, 74, 75, and when their lower ends strike the ground conductors or rails 56, they are thrown out of engagement with the contacts 72, 73, 74, 75 as in the patent hereinbefore
 60 referred to; thereby alternately supplying current to the conductors 56 while passing a station through the medium of the conductor 55, and to the conductors 76, 77 on the car for energizing the magnet or solenoid
 65 78 which operates the pouch receiving mech-

anism on the car in a manner to be set forth. When the lower ends of the brushes 53 arrive at a gap in the stationary conductors 56, 57, 58 where a crossing is situated, the
 70 springs 79 would tend to hold the brushes 53 in engagement with the contacts and thereby maintain a closed electrical connection between the brushes to energize the mechanism including the solenoid 78 on the car at the time when the latter should be
 75 deenergized.

In order to prevent the springs 79 from closing the circuits 76, 77, a magnet or solenoid 80 is provided and its core or armature 81 is connected by cables 82 passing
 80 around suitably arranged pulleys 83 with the brushes 53 respectively, so that when the magnet or solenoid 80 is energized from the brushes 54 and conductors 80, the brushes 53 will be held back out of engagement with
 85 their respective contacts 72, 73, 74 and 75, while the lower ends of the brushes are passing the gap in the conductor rails.

The arms 71 on the car are shifted by the cables 84, 85 in the same manner as in the
 90 patent above referred to and the sliding bar 86 is provided for drawing upon the cables to shift the arms.

Mounted upon the sliding bar 86 is a pulley 87 and a cable 88 is secured by one
 95 extremity 89 to a fixed support. The cable 88 passes over the pulley 87 and a similar pulley 90 located beyond the bar, and the free extremity of the cable is provided with an eye or loop 91 which is adapted to be
 100 detachably engaged by suitable hooks 92, 93 on the cables 84, 85, according to the arm on the car which it is desired to operate so that when the bar 86 is shifted, the cable 88 will be drawn over the pulley 90 to exert a
 105 tension on the cables 84 and 85, thereby permitting a greater pull to be exerted upon the cables attached to the arm by a shorter and more powerful pull on the sliding bar according to the current in the coils of the
 110 solenoid 78. The solenoid 78 is arranged in the circuit formed by the conductor 76, 77, contacts 74, 75, brushes 53, and contacts 72, 73, which latter are connected to the conductor 52 on the outside of the car through
 115 the medium of the collector 55.

The bar 86 is shifted by the core 94 of the solenoid 78 through the medium of a lever
 95 pivoted as at 96 intermediate its ends, one extremity of the lever being pivotally
 120 connected to the core 94 of the solenoid and the other end being provided with a pivoted extremity 97 which is adapted to yield against the tension of the elastic member 98 when the lever is moved in one direction
 125 and to be locked against movement by the shoulder 99 when the lever is moved in the opposite direction.

The sliding bar 86 is provided with spaced
 130 lateral projections 100, 101 preferably in the

form of pins, and are so arranged that the pivoted extremity 97 of the lever 95 will successively engage the projections when the coils of the solenoid 78 are energized, to shift
 5 the sliding bar 86 to draw upon the cables 84, 85.

Arranged within the circuit of the solenoid 78 are two switches 102, 103 which are normally held in closed positions by the springs
 10 104^a and 105.

The sliding member 86 is preferably provided with notches 106, 107 and a dog 104 is provided, one extremity of which is adapted to enter the respective notches 106, 107,
 15 to lock the bar 86 in its adjusted position. The bar is also provided with a notch 108 into which one extremity of a suitable dog 109 is adapted to enter, for a purpose to be set forth.

20 When the parts are in the position shown in Fig. 3, or the running position of the car between stations, the bar 86 will be in a position to permit the extremity of the dog 104 to enter the notch 106 under the influence of
 25 the elastic member 110. When one extremity of the dog 104 is seated in the notch 106, the other extremity thereof will engage the switch 102 to shift the latter and thereby interrupt the circuit through the coils of the
 30 solenoid 78 to permit the lever 95 to be moved under the influence of the elastic member 111 into such position that the pivoted extremity 97 of the lever upon its next movement under the influence of the solenoid 78
 35 will engage the pin or projection 101 to impart a further shifting movement to the bar 86.

When it is desired to swing the arm 71 into the car, which movement will break the
 40 circuit through the magnet 70 to drop the mail bag into the car, in the manner set forth in the above referred to patent, the bar 86 is shifted from the position shown in Fig. 3 to exert a further tension upon the cables
 45 84, 85, according to which of the cables is attached to the cable 88. In order to accomplish this end, the hand lever 112 is provided and this lever is pivoted intermediate its extremities as at 113. Connected to the dog
 50 104 is a cable 114 which latter passes over suitable pulleys and is connected to the core 81 of the solenoid 80. Leading from the lever 112 and on one side of the pivot thereof is a cable 115 which is connected as at 116
 55 to the cable 114 and a cable 117 is also connected to the lever 112 at the same point and has communication with the switch 103. A similar cable 118 is connected to the lever 112 on the other side of the pivot 113 and
 60 also has connection as at 119 to the cable 114. A similar cable 120 is connected to the switch 103 and also to the cable 114 preferably beyond the point of connection 119 of the cable 118 therewith. These cables are
 65 adapted to pass over suitable pulleys. An-

other cable 121 is connected to the dog 109 and also to the lever 112 on the same side of the pivot 113 thereof as the cables 116, 117. When it is desired to shift the arm into
 70 the car as above referred to, and in order to shift the sliding bar 86 the required distance to accomplish this result, the hand lever 112 is shifted from the position shown in Fig. 3 to the point 122, which operation will draw
 75 upon the cable 114 through the medium of the cable 118 to move the dog 104 out of the notch 106 against the tension of the spring 110 and will also move the extremity of the dog 104 out of engagement with the switch
 80 102 to permit the latter to move into a closed position under the influence of the spring 104^a and as the switch 103 is held in closed position by the spring 105, current will flow through the coils of the solenoid 78 to en-
 85 ergize the same to attract the core 94 thereof which movement of the core will rock the lever 95, the extremity of which will engage the projection 101 to shift the bar 86. As soon as the bar 86 begins to move the lever
 90 112 may be released and the extremity of the dog 109 will move against the face of the bar 86 until the notch 107 assumes a position to receive the extremity of the dog. When one extremity of the dog is seated in the
 95 notch 107, the other extremity thereof will engage the switch 102 to again shift the latter to break the circuit and deenergize the solenoid 78. After the completion of this operation the arm will be pulled into the car and when
 100 the mail bag to be delivered has been placed thereon and it is desired to set the arm into the running position or the position shown in Fig. 3, the dog 109 and switch 103 are provided. By moving the lever 112 from
 105 the position shown in Fig. 3 of the point 123, the dog 109 will be moved out of the notch 107 through the medium of the cables 114, 115 and the switch 103 will be shifted to break the circuit through the solenoid 78. At the same time the extremity of the dog
 110 109 will be moved by the tension on the cable 121 against the sliding bar 86 and against the tension of the spring 124 and will be held in this position until the bar 86 is shifted under the tension of the elastic member
 115 125 which controls the arm 71 until the notch 108 has assumed a position that the extremity of the dog 109 will enter therein to arrest the further movement of the sliding bar under the influence of the spring
 120 125. By then releasing the hand lever 112 the springs 124 and 105 attached respectively to the dog 109 and switch 103 will pull the lever 112 back into the position shown in Fig. 3. As the dog 109 is withdrawn from
 125 the notch 108 and the switch 103 is closed, the dog 109 will enter the notch 106 which latter has assumed a position to receive the dog, to shift the switch 102 to break the circuit through the solenoid. The arm on
 130

the car will then be in a running position. As the station is approached the brushes 54 will be moved into a position to complete the circuit through the conductors 80^a to energize the solenoid 80 and as the core 81 thereof is attracted a tension will be exerted upon the cable 114 to pull the dog 109 out of the notch 106 and at the same time the switch 103 will be shifted to break the circuit through the solenoid 78, through the medium of the cable 120 which is attached to the switch 103 and the cable 114, thereby permitting the arm on the car to assume the position shown in Fig. 4 of the drawing to receive and deliver mail from and to the station arm 10.

It will be noted that the pivoted extremity 97 of the lever 94 is adapted to yield when the lever is moved from its operative to its inoperative position so that it will pass over the projection 101 on the bar 86 but when the solenoid 78 is energized to attract the core 94, the pivoted extremity 97 of the lever will be locked against a yielding movement so that the bar 86 may be shifted.

Obviously by providing each of the cables 84, 85 with a hook 92, 93 at the extremity thereof, either of the cables may be connected to the cable 88 to operate the respective arm 71 on the desired side of the car.

In order that the invention might be fully understood the details of the foregoing embodiment have been thus specifically described, but

What I claim as new is—

1. In a device for the purpose described, the combination of magnetic means upon a railway car for supporting a mail pouch, means for energizing said magnetic means from a source exterior of the car, and means arranged at the side of the line of movement of the car for holding the mail pouch preparatory to being engaged by said magnetic supporting means.

2. In a device for the purpose described, the combination of an arm or projection for sustaining a mail pouch adjacent to a railway track, movable away from the track and toward the track into a position substantially parallel with the track, electro-responsive devices for moving the arm into and out of operative position, a railway car adapted to travel upon the track, a source of electrical energy separate from the car, and means carried by the car for communicating said energy through the car and successively to said electro-responsive devices while the car is passing.

3. In a device for the purpose described, the combination of an arm or projection for sustaining a mail pouch adjacent to a railway track, movable away from the track and toward the track into a position substantially parallel with the track, electro-responsive devices for moving the arm into

and out of operative position, a railway car adapted to travel upon the track, a source of electrical energy separate from the car, means carried by the car for communicating said energy through the car to one of said electro-responsive devices for moving the arm into an operative position while the car is passing, means for locking the arm in such a position, means for communicating the said energy to the other of said electro-responsive devices for releasing the arm, and means for moving the arm into an inoperative position when released.

4. In a device for the purpose described, the combination of an arm or projection for sustaining a mail pouch adjacent to a railway track, movable away from the track and toward the track into a position substantially parallel with the track, electro-responsive devices for moving the arm into and out of operative position, a railway car adapted to travel upon the track, a source of electrical energy separate from the car, means carried by the car for communicating said energy through the car to one of said electro-responsive devices for moving the arm into an operative position while the car is passing, means for locking the arm in such position, and means for communicating the said energy to the other of said electro-responsive devices for tripping the locking means and shifting the arm from its operative position.

5. In an apparatus for the purpose described, the combination of an arm or projection for sustaining a mail pouch adjacent to a railway track, movable toward and away from the track, an adjustable member operatively connected to the arm for moving the latter into and out of operative position, electro-responsive devices arranged in opposition to each other, means whereby the operation of either of said devices will shift the said member to adjust the arm, means for locking the member in either of its adjusted positions, a source of electrical energy separate from the car, means carried by the car for communicating said energy through the car successively to the said electro-responsive devices, and means whereby the operation of one of the electro-responsive devices will release the locking means of the other of the electro-responsive devices.

6. In an apparatus for the purpose described, the combination of an arm or projection for sustaining a mail pouch adjacent to a railway track, movable toward and from the track, electro-responsive devices arranged in opposition to each other for respectively moving the arm into and out of operative position, means for locking the arm in operative position, spaced stationary conductors adjacent the track and respectively in circuit with said electro-responsive devices, a source of electrical energy, a railway car

adapted to travel on the track, means carried by the car for placing said source of electrical energy in circuit with said stationary conductors for successively energizing the electro-responsive devices, and means actuated by the operation of the electro-responsive device for releasing said arm.

7. In a device for the purpose described, the combination of an arm or projection adjacent to a railway track movable toward and from the track for holding a mail pouch in readiness to be received upon a passing car, stationary conductors arranged along the track and at intervals in their length being situated above the road-bed, and at other intervals below the road-bed or shielded, a car adapted to travel upon the track having two pairs of deflectible brushes spaced from each other in the length of the car and adapted to connect with said conductors, a source of electrical energy separate from the car, a collector for delivering said energy to the brushes at both ends of the car, electrical means on the car for receiving the mail pouch while supported at the station, comprising means for holding said electrical means in its withdrawn position, fixed contacts arranged adjacent to one pair of said brushes for receiving current from said source of energy when each pair of brushes is out of contact with said conductor and thereby supplying said electrical means on the car with current, fixed contacts arranged adjacent the other pair of said brushes and adapted to be engaged by the same when the latter said pair of brushes engages said conductors, an electro-responsive device on the car in circuit with the last said pair of contacts and having mechanical connection with the first said pair of brushes for holding the latter out of contact with their said adjacent fixed contacts when they pass the shielded parts of said conductors.

8. In an apparatus for the purpose described, the combination of a mail pouch provided with an armature, means for supporting the pouch and armature, a car, an electro-magnet mounted upon the car and adapted to be turned outwardly therefrom into a position to engage said armature, a source of electrical energy, a pair of brushes on the car, fixed contacts adjacent the brushes for receiving current from said source of energy to supply the electro-magnet with current, an electro-responsive device mounted upon the car and operatively connected to the magnet for pulling it inwardly to an intermediate position, said electro-responsive device embodying an electric circuit whereby the same is energized from the said brushes, mechanical means for locking the electro-magnet in its adjusted position, an electro-responsive device on the car, means for supplying said device with current, a mechanical connection

between said device and said brushes for keeping the brushes out of contact with their said adjacent contacts when the last said electro-responsive device is energized, and a mechanical connection between said electro-responsive device and the said locking means for releasing the electro-magnet when the said electro-responsive device is energized.

9. In an apparatus for the purpose described, the combination of a mail pouch provided with an armature, means for supporting the pouch and armature, a car, an electro-magnet mounted upon the car and adapted to be turned outwardly therefrom into a position to engage said armature, a source of electrical energy, a pair of brushes on the car, fixed contacts adjacent the brushes for receiving current from said source of energy to supply the electro-magnet with current, an electro-responsive device mounted upon the car and operatively connected to the magnet for pulling it inwardly to an intermediate position, said electro-responsive device embodying an electric circuit whereby the same is energized from the said brushes, a switch in said circuit for breaking the circuit, mechanical means including a dog for locking the electro-magnet in its adjusted position, an electro-responsive device on the car, means for supplying said device with current, a mechanical connection between said electro-responsive device and the said brushes and also between said device and the said dog, and means for energizing said electro-responsive device for moving and holding the brushes out of contact with their said adjacent contacts, and for tripping the dog to release the said electro-magnet, said dog being also adapted to open the switch when tripped to deenergize the first said electro-responsive device.

10. In an apparatus for the purpose described, the combination of an arm or projection for sustaining a mail pouch upon a car to be delivered, stationary conductors arranged along the track and spaced at intervals in their length, two pairs of deflectible brushes spaced from each other in their length of the car and adapted to contact with the conductors, a source of electrical energy having communication with the brushes at both ends of the car, an electro-responsive device in circuit with one pair of brushes for withdrawing the arm, mechanical means for locking the arm in its withdrawn position, fixed contacts arranged adjacent one pair of said brushes for receiving current from said source of energy when such pair of brushes is out of contact with said conductors for supplying current to the said electro-responsive device, a switch in the circuit of said device, a pawl for locking the arm in a withdrawn position and for holding the said switch open when

said pawl is in an operative position, fixed contacts adjacent the other pair of brushes and adapted to be engaged by the same when the latter said pair of brushes engages the conductors, an electro-responsive device on the car in circuit with the last said pair of contacts, mechanical connections respectively between the last said electro-responsive device and the pawl and first said brushes, for keeping the first said pair of brushes out of contact with their said adjacent fixed contacts and for tripping the pawl to release the arm, when the first said brushes are out of engagement with the conductors, and additional means for interrupting the circuit in the first said electro-responsive device when the first said brushes are out of engagement with their respective contacts.

11. In an apparatus for the purpose described, the combination of an arm or projection for sustaining a mail pouch upon a car to be delivered, stationary conductors arranged along the track and spaced at intervals in their length, two pairs of deflectible brushes spaced from each other in their length of the car and adapted to contact with the conductors, a source of electrical energy having communication with the brushes at both ends of the car, an electro-responsive device in circuit with one pair of brushes for withdrawing the arm, mechanical means for locking the arm in its withdrawn position, fixed contacts arranged adjacent one pair of said brushes for receiving current from said source of energy when such pair of brushes is out of contact with said conductors for supplying current to the said electro-responsive device, a switch in the circuit of said device, a pawl for locking the arm in a withdrawn position and for holding the said switch open when said pawl is in an operative position, fixed contacts adjacent the other pair of brushes and adapted to be engaged by the same when the latter said pair of brushes engages the conductors, an electro-responsive device on the car in circuit with the last said pair of contacts, mechanical connections respectively between the last said electro-responsive device and the pawl and first said brushes, for keeping the first said pair of brushes out of contact with their said adjacent fixed contacts and for tripping the pawl to release the arm, when the first said brushes are out of engagement with the conductors, additional means for interrupting the circuit in the first said electro-responsive device when the first said brushes are out of engagement with their respective contacts, and a mechanical connection between said additional means and the second said electro-responsive device for operating the former when said device is energized.

12. In an apparatus for the purpose described, the combination of an arm or pro-

jection for sustaining a mail pouch upon a car to be delivered, stationary conductors arranged along the track and spaced at intervals in their length, two pairs of deflectible brushes spaced from each other in their length of the car and adapted to contact with the conductors, a source of electrical energy having communication with the brushes at both ends of the car, an electro-responsive device in circuit with one pair of brushes for withdrawing the arm, mechanical means for locking the arm in its withdrawn position, fixed contacts arranged adjacent one pair of said brushes for receiving current from said source of energy when such pair of brushes is out of contact with said conductors for supplying current to the said electro-responsive device, a switch in the circuit of said device, a pawl for locking the arm in a withdrawn position and for holding the said switch open when said pawl is in an operative position, fixed contacts adjacent the other pair of brushes and adapted to be engaged by the same when the latter said pair of brushes engages the conductors, an electro-responsive device on the car in circuit with the last said pair of contacts, mechanical connections respectively between the last said electro-responsive device and the pawl and first said brushes, for keeping the first said pair of brushes out of contact with their said adjacent fixed contacts and for tripping the pawl to release the arm when the first said brushes are out of engagement with the conductors, additional means for interrupting the circuit in the first said electro-responsive device when the first said brushes are out of engagement with their respective contacts, and mechanical means operatively connected to said additional means and to the said pawl for tripping the latter and operating the former to release the arm and deenergize the first said electro-responsive device when the second said electro-responsive device is deenergized.

13. In a device for the purpose described, the combination of an arm or projection on the car for sustaining a pouch to be delivered and movable into and out of the car, an electro-responsive device on the car for moving the arm out of the position to deliver the pouch, a source of electrical energy, means arranged at one end of the car for supplying said energy to the electro-responsive device, for adjusting the arm, means for locking the arm in its adjusted position, mechanical means for interrupting said current and for releasing the arm, a second electro-responsive device in the car, means at the other end of the car having connection with the said source of energy for supplying current to the second electro-responsive device, mechanical means operatively connected to the last said electro-responsive device for interrupting the current of the first said

electro-responsive device, mechanical means connected to the second said electro-responsive device and the said locking means for the arm for releasing the arm, a switch in the circuit of the first said electro-responsive device, and a mechanical connection between said switch and the second said electro-responsive device for operating the switch to break the current of the first said electro-responsive device.

14. In a device for the purpose described, the combination of an arm or projection on the car for sustaining a pouch to be delivered and movable into and out of the car, an electro-responsive device on the car for moving the arm out of the position to deliver the pouch, a source of electrical energy, means arranged at one end of the car for supplying said energy to the electro-responsive device for adjusting the arm, means for locking the arm in its adjusted position, mechanical means for interrupting said current and for releasing the arm, a second electro-responsive device in the car, means at the other end of the car having connection with the said source of energy for supplying current to the second electro-responsive device, mechanical means operatively connected to the last said electro-responsive device for interrupting the current of the first said electro-responsive device, mechanical means connected to the second said electro-responsive device and the said locking means for the arm for releasing the arm, a switch in the circuit of the first said electro-responsive device, a mechanical connection between said switch and the second said electro-responsive device for operating the switch to break the circuit of the first said electro-responsive device, and means for limiting the movement of the arm when the said locking means therefor is released.

15. In a device for the purpose described, the combination of an arm or projection on the car for sustaining a pouch to be delivered and movable into and out of the car, an electro-responsive device on the car for moving the arm out of the position to deliver the pouch, a source of electrical energy, means arranged at one end of the car for supplying said energy to the electro-responsive device for adjusting the arm, means for locking the arm in its adjusted position, mechanical means for interrupting said current and for releasing the arm, a second electro-responsive device in the car, means at the other end of the car having connection with the said source of energy for supplying current to the second electro-responsive device,

mechanical means operatively connected to the last said electro-responsive device for interrupting the current of the first said electro-responsive device, mechanical means connected to the second said electro-responsive device and the said locking means for the arm for releasing the arm, a switch in the circuit of the first said electro-responsive device, a mechanical connection between said switch and the second said electro-responsive device for operating the switch to break the circuit of the first said electro-responsive device, means for limiting the movement of the arm when released, means tending normally to hold the said limiting means in an inoperative position, and a connection between the said limiting means and the first said mechanical means for moving the former into an operative position.

16. In a device for the purpose described, the combination of an arm or projection on the car for sustaining a pouch, a flexible member one end of which is connected to the arm, the other end being secured to a fixed support, pulleys over which the cable passes, one of the pulleys being disposed adjacent the fixed end of the cable, a sliding member on the car, a pulley on the member disposed between the last said pulley and the fixed end of the cable and over which the cable passes, and electro-responsive means on the car for sliding said member to draw upon the cable to adjust the said arm.

17. In a device for the purpose described, the combination of an arm or projection on the car for sustaining a pouch, a flexible member one end of which is connected to the arm, the other end being secured to a fixed support, pulleys over which the cable passes, one of the pulleys being disposed adjacent the fixed end of the cable, a sliding member on the car, a pulley on the member disposed between the last said pulley and the fixed end of the cable and over which the cable passes, elastic means tending normally to move the arm outward from the car and for moving the sliding member in one direction, and electro-responsive means on the car for moving the member in the opposite direction to draw the arm toward the car and against the tension of the said elastic means.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 4th day of January A. D. 1909.

CHAUNCEY W. BROUGHTON.

Witnesses:

J. H. JOCHUM, Jr.,
M. W. CANTWELL.