(No Model.) 3 Sheets—Sheet 1.

B. D. AYARS, Jr.

MAIL BAG DELIVERING APPARATUS.

No. 539,374. Patented May 14, 1895.

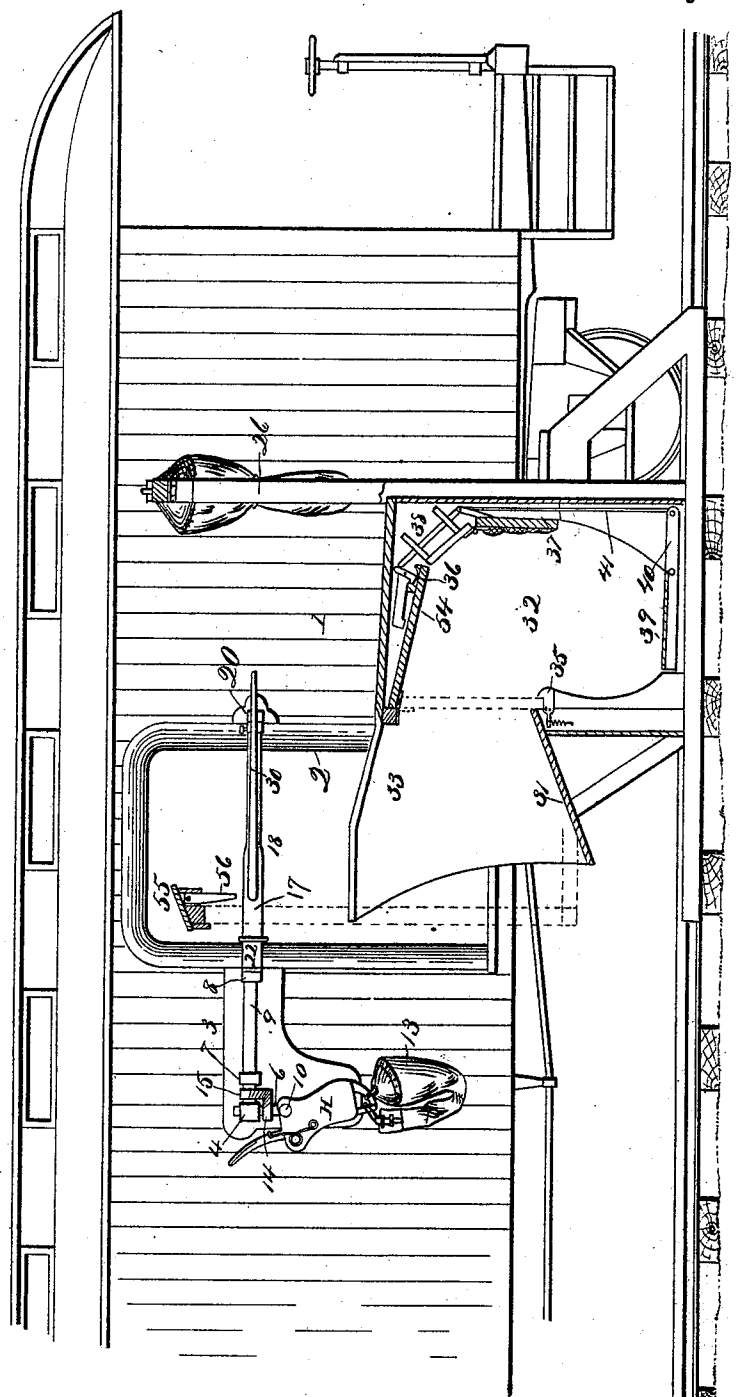

Fig. 1.

Witnesses:
J. M. Fowler Jr.
Thomas Durant.

Inventor:
Benjamin D. Ayars Jr.
By Munn & Munn
his Attorneys.

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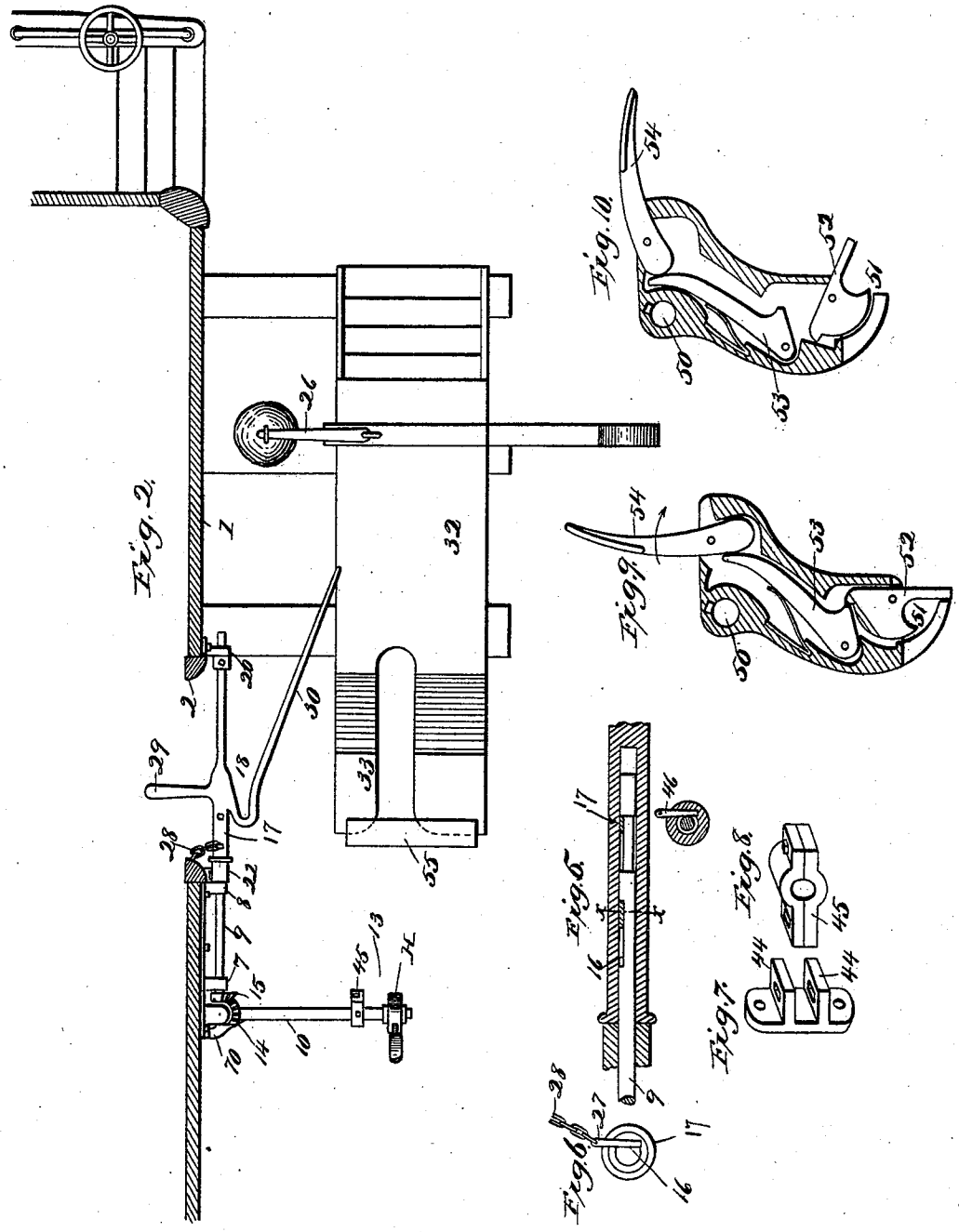

Witnesses:
J. McFarlan Jr.
Thomas Durant

Inventor:
Benjamin D. Ayars, Jr.,
By Church & Church
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

B. D. AYARS, Jr.

MAIL BAG DELIVERING APPARATUS.

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Fig. 3.

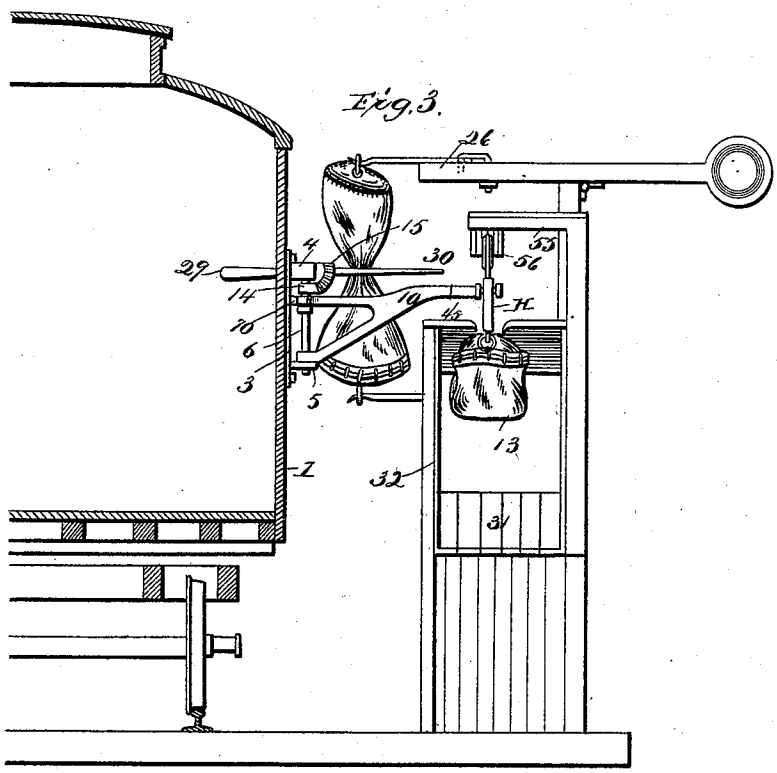
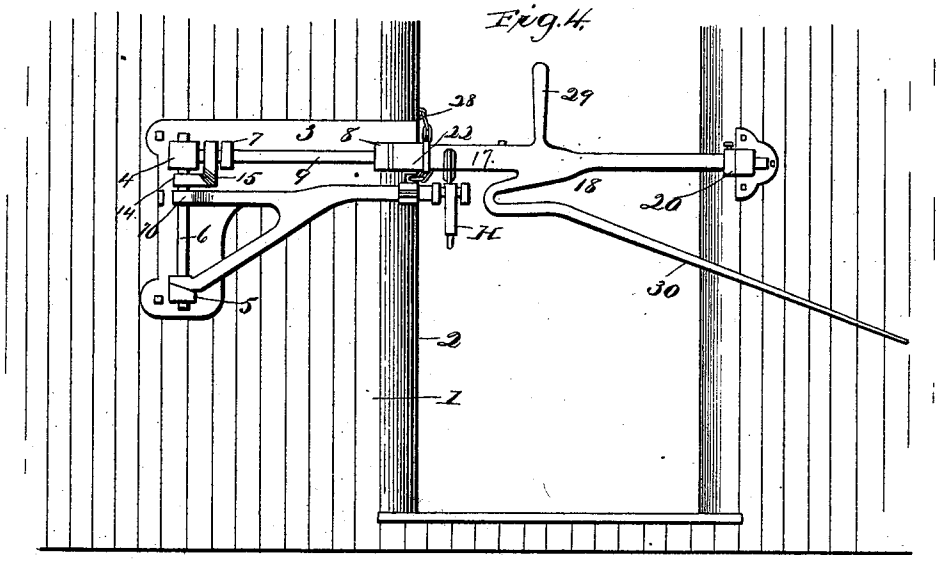


Fig. 4.



Witnesses:
J. M. Fowler Jr.
Thomas Durant

Inventor:
Benjamin D. Ayars, Jr.
By Church & Church
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN D. AYARS, JR., OF CHESTER, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GEORGE M. BUNTING AND GEORGE M. BOOTH, OF SAME PLACE, AND HOWARD W. LIPPINCOTT, OF PHILADELPHIA, PENNSYLVANIA.

MAIL-BAG-DELIVERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 539,374, dated May 14, 1895.

Application filed September 22, 1894. Serial No. 523,808. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN D. AYARS, Jr., of Chester, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Mail-Bag-Delivering Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention relates to devices for delivering mail in bags from moving trains and for catching up the outgoing bag at the same time from the crane alongside the track and upon which the bag is suspended.

The objects of my invention are, first, to provide a mechanism on the car whereby by a single act, the mail clerk on the car can bring both the delivery and catching mechanism into action; second, to improve the construction and operation of the receptacle into which the mail bag is thrown from the car, and, finally, to improve the details of construction of the delivering apparatus, whereby greater efficiency and certainty in its action are secured.

With these objects in view, my invention consists in the improved construction, arrangement and combination of parts hereinafter fully described and afterward specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of part of a car with my devices attached and a longitudinal vertical section through one of my improved mail-bag receptacles alongside the track, the parts being in operative position with a mail-bag suspended from the crane and another upon the delivery-arm. Fig. 2 is a longitudinal horizontal section through part of a car and a top plan view of the receptacle alongside the track, the various parts being in the same position as in Fig. 1. Fig. 3 is a transverse vertical section through the car and a front end elevation of the receptacle with the parts in the same relative positions as in Figs. 1 and 2. Fig. 4 is a partial side elevation of the car and its attached devices, the parts being in the positions in which they remain when not in use. Fig. 5 is a longitudinal section through part of the mail-catcher, and Fig. 6 is a cross-section through the same on the lines x x of Fig. 5. Figs. 7 and 8 are details of the lock for the delivering-arm. Figs. 9 and 10 are sections through the cast-off device.

Like numerals and letters of reference indicate the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings, the numeral 1 indicates the side of a car, having therein the usual side doorway 2.

On one side of the door opening affixed to the side of the car is a plate 3 having bracket bearings 4 and 5 for a vertical shaft 6 and similar bearings 7 and 8, which, with bearing 5 support a horizontal shaft 9. Secured rigidly to the aforesaid upright shaft 6 is the horizontal delivering arm 10 which has pivoted upon its outer end a trip or cast off (to be presently described), upon which the mail bag 13 to be delivered from the car, is suspended.

On the upper end of shaft 6, I mount a gear segment 14 meshing with a similar gear segment 15 on the horizontal shaft 9. Thus by turning shaft 9, it will cause shaft 6 to turn and move the horizontal arm 10 out to its working position at approximately right angles to the side of the car, as in Figs. 1, 2 and 3 where its motion is arrested by shoulders 70, or back to its position of rest, as in Fig. 4. Shaft 9 has a flat side or cut away portion at 16 (Figs. 5 and 6) and is adapted to enter a cavity or bore in the rear, or large arm 17 of a mail bag catcher 18, sufficient play being left for the ordinary longitudinal movement of the catcher arm. The catcher is supported by this shaft at one end. Its other end enters a bearing 20 secured to the side of the car in front of the door, an adjustable collar being provided to limit its forward movement. Between the rear end of the catcher and the bearing of the horizontal shaft 9, I locate the usual buffer or yielding collar 22, to relieve the sudden impact of the bag when caught from the usual crane, such as 26, set up alongside of the track.

The barrel or large arm 17 is provided with

a transverse opening to receive a flat pin 27 secured to the door jamb by a chain 28, which pin enters the cut away portion 16 of shaft 9, locking the parts for simultaneous rotation, but as the pin is not as long as the flat side of the shaft 9, it permits of a limited movement of the catcher longitudinally on the shaft 9.

A handle 29 is secured to the catcher on the side opposite to the catching hook or arm 30 in position to lie parallel to the side of the car when the catcher is not in use, but when the train is approaching a crane and receiver, the handle 29 is pulled into a horizontal position inside the car, which action places the hook arm 30 in position to catch the bag on the crane and at the same time turns the horizontal shaft 9, and vertical shaft 6, carrying the horizontal arm (with a mail bag suspended upon its hook) to a horizontal position, bringing the bag in proper position to be delivered. This delivery of the bag is automatically accomplished by means of a cast-off device consisting essentially of a block H suspended on the delivering arm by having the arm passed through an aperture 50, Figs. 9 and 10 and having at the lower end a retaining hook and latch 51 for the rings of the mail bag to be fastened in, and at the top, an upwardly projecting releasing lever or arm adapted to strike a stationary trip and release the latch, allowing the bag to escape. In said Figs. 9 and 10 it will be seen that the latch lettered 52 is pivoted and locked in closed position by the spring pressed locking lever 53, the upper end of which rests on the releasing lever 54 in position to release the latch when the lever is moved in the direction indicated by the arrow. The latch normally hangs open by reason of its weighted rear end.

Alongside the track there is arranged a crane 55 carrying a trip with which the releasing lever comes in contact, preferably consisting of a series of pivoted depending fingers 56. The advantage in employing a series of fingers is obvious, for only one or two of them will be struck by the releasing lever and while they will be ample to release the bag, yet they will not strike a damaging blow or injure the delivery apparatus.

To receive the bag as it is released from the delivering crane without injury to either the bag or surrounding objects I provide a receiver which in combination with the delivery apparatus on the car enables the bags to be delivered and taken up with equal facility.

The receiver consists of a house-like structure 32 built upon the extended ends of the ties close beside the track and having at the end toward which the train approaches, a flaring mouth 31, the top of which inclines upward and is slotted centrally as at 33 for the passage of the holding device on the delivering arm. Thus the bag passes into the mouth of the receiver and by locating the trip 54 above the said mouth the bag is released, and passes into the body of the receiver while the holding device passes on through the slot and may be swung in against the side of the car.

As the bag passes back into the receiver it strikes the curved rear wall and is deflected, finally coming to rest on the bottom from whence it may be removed through a door in the side of the receiver. In order to prevent the abstraction of the bag through the entrance, I provide a swinging door 54 which is normally held in the position shown in full lines, Fig. 1, but which is released by the bag and then swings down to the position shown in dotted lines, where it is held by a catch or automatic lock 35 and can only be returned to normal position from the inside of the receiver by the person removing the bag. The door is held up by a catch 35 and released by the backward movement of a swinging board 37 acting both as a buffer and as a releaser for the door catch, the connection with the catch being made through the connecting rod 38 as shown.

To insure the release of the door should the bag not strike the swinging board or releaser the bottom 39 of the receiver is pivotally supported and has an arm 40 connected by rod 41 with the rear end of rod 38. Thus when the weight of the bag depresses the floor the door is released and automatically closes the entrance opening.

The crane 26 is of ordinary construction and may form part of, or be erected against the receptacle, or may be separate or distinct from it, as may be desired, as it individually forms no part of this invention.

When it is desired to use the catcher, without using the delivery arm (as at stations where there is no receptacle) the pin 27 is withdrawn allowing the catcher to be rotated independently of the horizontal shaft 9, leaving the delivery arm against the side of the car, where it may be locked by inserting the pin 27 in the slotted lugs 44, between which the slotted projection 45 on the delivering arm passes when the arm is swung in. When this is done the accidental separation of the shaft 9 from the catcher is prevented by a second pin 46 passing through the base of the catcher and through an annular recess formed near the end of the shaft 9 all as will be readily understood from Figs. 5 and 6.

The whole device is exceedingly simple and with practically the same labor mails may be delivered and caught while the train is running at full speed. In the practical operation of the device the postal clerk hangs the bag on the holder by the rings or loops at its ends, while the delivering arm is turned in with its end projecting into the door opening. Then as the station is approached he grasps the handle of the catcher, turning the latter into operative position and simultaneously swinging the delivering arm out into operative position. When the station is passed the catcher will automatically swing down into normal position and turn the delivery arm in where it may be locked as before set forth.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of a longitudinally movable mail catcher and a mail delivery arm pivoted on horizontal and vertical axes respectively with interposed gearing held against longitudinal movement with the catcher whereby the turning of the catcher on its horizontal axis will cause the delivery arm to swing on its vertical axis, substantially as set forth.

2. The combination of a mail catcher, a horizontal shaft to which it is secured, a swinging delivery arm, pivoted on a vertical axis and bevel gears on the catcher shaft and delivery arms, meshing with each other, substantially as and for the purpose set forth.

3. The combination of the delivery arm, the vertical shaft upon which it is mounted, the horizontal shaft, the gearing held against longitudinal movement connecting the shafts, and a mail catcher connected to rotate with and capable of a movement longitudinally of the horizontal shaft whereby when the mail catcher is turned it turns the delivery arm on the vertical shaft, substantially as described.

4. The combination of the swinging delivery arm, the vertical shaft thereof, the horizontal shaft geared thereto, and held against longitudinal movement the catcher mounted on said shaft and having an independent longitudinal movement, and the buffer between the end of the catcher and the bearing of the horizontal shaft, substantially as and for the purposes set forth.

5. The combination of the horizontal shaft mounted to rotate in bearings on one side of the car door and held against longitudinal movement, the mail catcher mounted on the end of said shaft and capable of an independent longitudinal movement, bearings on the other side of the car door to receive the other end of the catcher, and a delivery arm operated by the horizontal shaft, substantially as and for the purposes set forth.

6. The combination with the bearings on each side of the car door, of the horizontal shaft mounted in one set of bearings and held against longitudinal movement the catcher mounted on the end of the shaft and secured at its opposite end in the other set of bearings so as to be capable of a longitudinal movement, the buffer collar around the shaft behind the catcher, and the adjustable stop collar on the catcher at the opposite end; substantially as and for the purposes set forth.

7. A mail bag delivery and catching mechanism, the combination with the swinging delivery arm, and the horizontal shaft controlling the same, of the swinging catcher and a removable connector between the catcher and shaft controlling the delivery arm, whereby the catcher and delivery arm may be operated simultaneously or independently; substantially as described.

8. In a mail bag delivery and catching mechanism, the combination with the swinging delivering arm and the horizontal shaft controlling the same, of the catcher arm connected with said shaft but capable of an independent swinging and longitudinal movement and a removable key for locking the catcher and shaft for simultaneous rotation; substantially as described.

9. The combination with a mail bag receiver for receiving the bag from a moving car and having a flaring mouth, of a door for automatically closing said mouth and a catch for holding the door open and a releaser located within the receiver and lying in the path of the mail bag, substantially as described.

10. The combination with a mail bag receiver for receiving the bag from a moving car and having a flaring mouth, of a door for automatically closing said mouth, a catch for holding the door open and a pivoted releaser for said catch located within and in the rear portion of the receiver in position to be struck by the incoming bag; substantially as described.

11. The combination with a mail bag receiver for receiving the bag from a moving car of a door for automatically closing the entrance opening of the receiver, a catch for holding the door and a movable support for the entering bag with a connection between said support and catch; substantially as described.

12. The combination with a mail bag receiver for receiving the bag from a moving car of a door for automatically closing the entrance opening, a hinged yielding buffer for arresting the bag and a catch for holding the door released by the buffer; substantially as described.

13. In a mail bag delivering apparatus, the combination with the bag holder and deliverer suspended on the car to yield toward the rear, and having a projecting releasing lever, of a trip located at the side of the track and having a series of yielding fingers against which the releasing lever strikes and whereby it is moved to release the bag; substantially as described.

14. In a mail bag delivery apparatus, the combination with the bag holder and deliverer mounted on the car and having an upwardly projecting releasing lever, of a trip located beside the track, and having a series of pendulous yielding fingers located in the path of the releasing lever, whereby the bag is released below the trip; substantially as described.

15. In a mail bag delivering apparatus, the combination with the bag holder and deliverer mounted on the car and having the upwardly projecting releasing lever, of a bag receiver, a crane and a yielding trip carried by the crane above the level of the receiver and in position to strike the releasing arm on the bag holder; substantially as described.

16. A mail bag delivering device consisting of the block or frame having the finger and latch at the lower end the locking lever for

the latch, and the releasing lever projecting above the block; or frame; substantially as described.

17. A mail bag delivering device consisting of the block or frame having the finger and pivoted latch at the lower end the locking lever for the latch, the releasing lever projecting upwardly and the opening near the upper end for the reception of the supporting arm; substantially as described.

18. In a mail bag delivering mechanism, the combination with the pendulous bag holder and releasing lever therefor mounted on the car, of the bag receiver having the open mouth into which the bag passes with the top above said mouth slotted for the passage of the holder and deliverer, and a trip located above the level of the receiver and in the path of the releasing lever; substantially as described.

19. In a mail bag delivering mechanism, the combination with the pendulous bag holder and releasing lever therefor mounted on the car, of the bag receiver having the open mouth with the inclined slotted roof whereby the bag may enter the receiver and the holder pass through the slot; substantially as described.

20. In a mail bag delivering mechanism, the combination with the pendulous bag holder and releasing lever therefor mounted on the car of the bag receiver having the open mouth with the inclined slotted roof for the passage of the holder and the trip located in the path of the releasing lever, whereby the bag is released as it passes into the mouth of the receiver; substantially as described.

21. In a mail bag delivering mechanism, the combination with the holding and delivering mechanism on the car, of the receiver having an open mouth in the path of the bag and supports for the receiver passing under and forming part of the track bed whereby the relative position of the receiver and track are maintained; substantially as described.

BENJAMIN D. AYARS, JR.

Witnesses:
WM. B. HARVEY,
H. E. PREDMORE.