

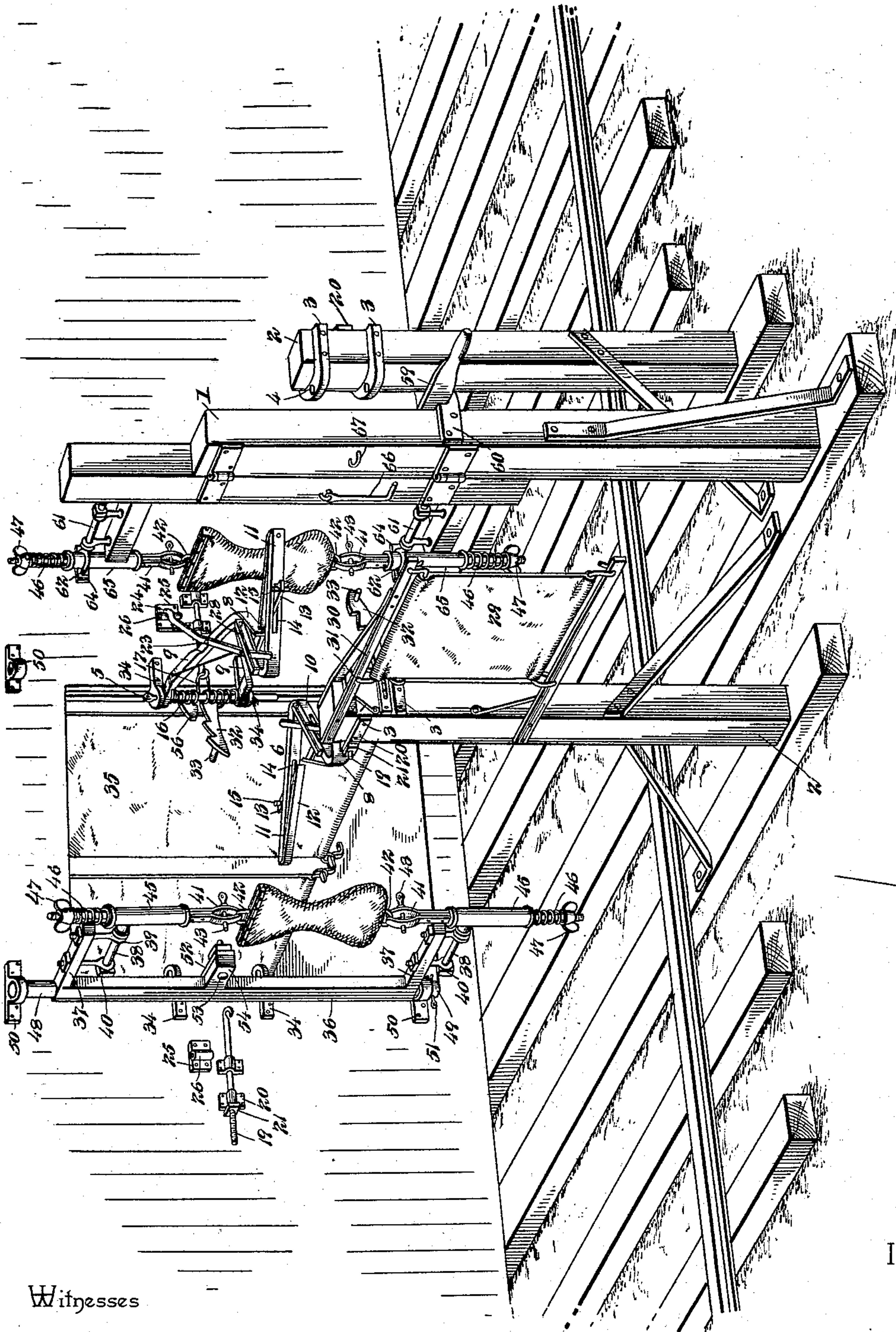
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W. Z. RUNKLE.  
MAIL RECEIVER AND DELIVERING APPARATUS.

No. 572,315.

Patented Dec. 1, 1896.



Inventor

Witnesses

*E. H. Stewart*  
*O. E. Hoyle*

By *his* Attorneys, *William Z. Runkle*  
*C. A. Snow & Co.*

(No Model.)

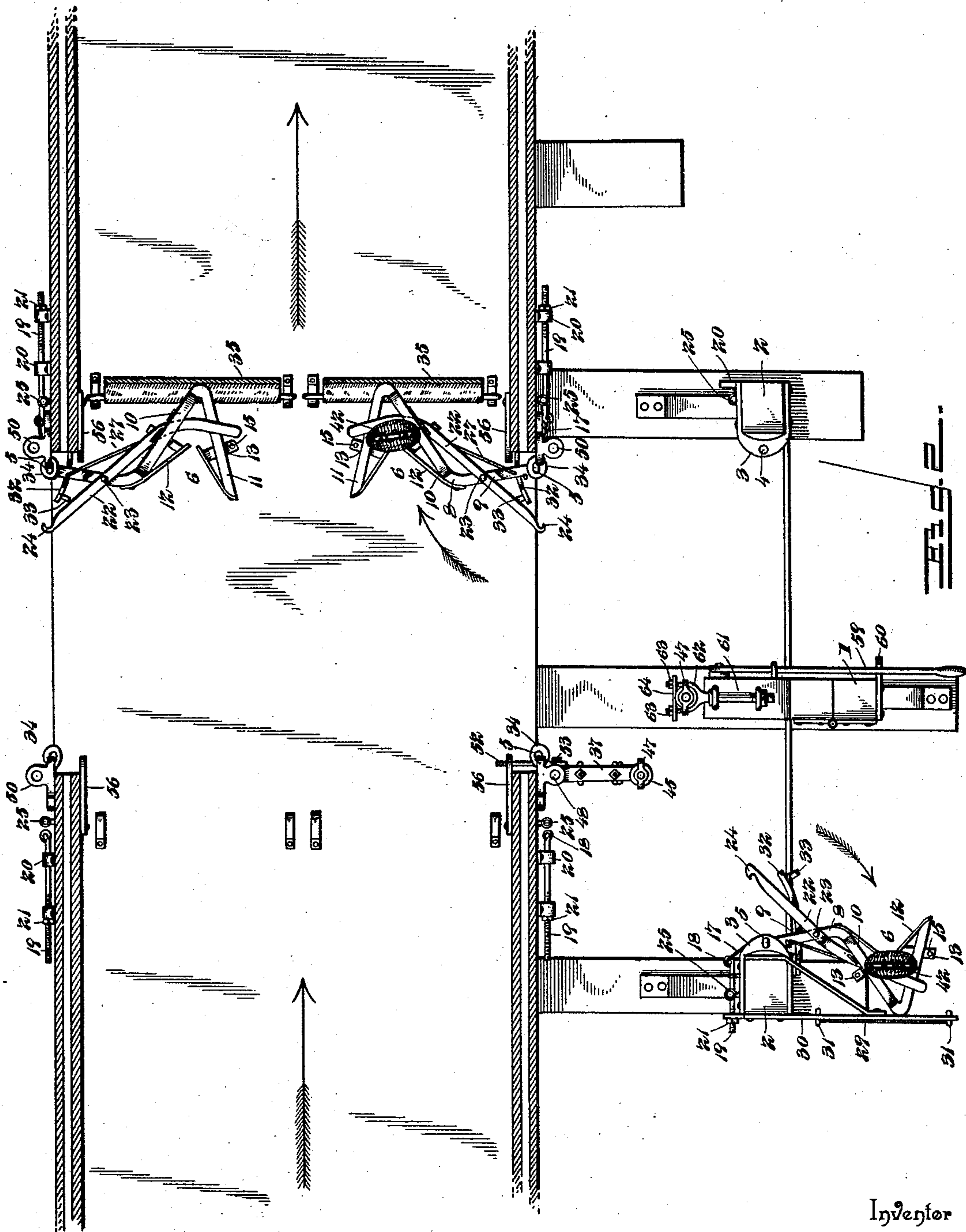
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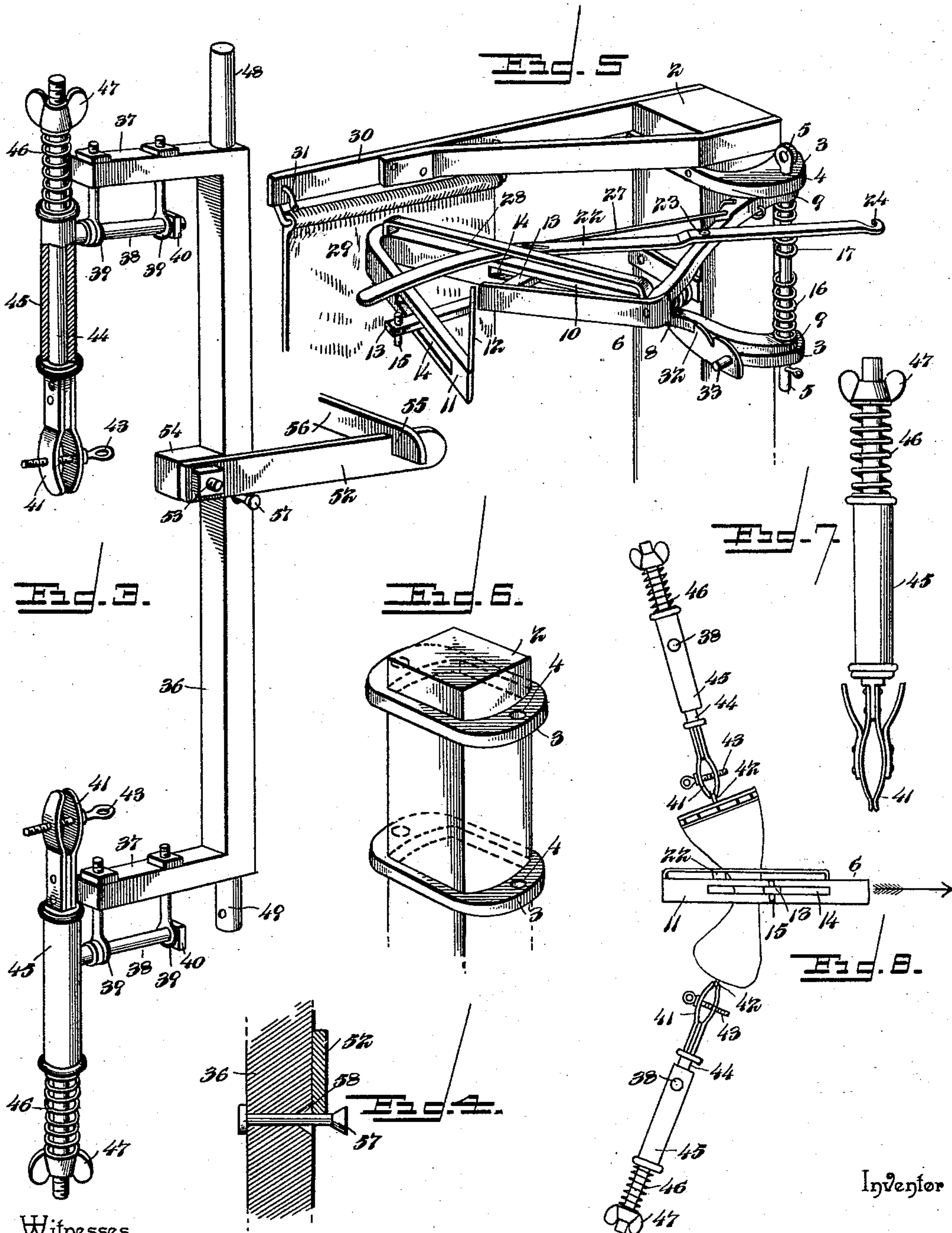
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E. H. Stewart

*[Signature]*

By *two* Attorneys,

William Z. Runkle

*Chas. H. Co.*



# UNITED STATES PATENT OFFICE.

WILLIAM Z. RUNKLE, OF DELPHI, INDIANA.

## MAIL RECEIVER AND DELIVERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 572,315, dated December 1, 1896.

Application filed March 19, 1896. Serial No. 583,926. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM Z. RUNKLE, a citizen of the United States, residing at Delphi, in the county of Carroll and State of Indiana, have invented a new and useful Mail Receiver and Delivering Apparatus, of which the following is a specification.

My invention relates to an apparatus for receiving and delivering mail-bags by a railway mail-car while in motion; and the object in view is to provide a simple and efficient combination and arrangement of receiving and delivering devices, one of which is arranged upon the car and the other at the station, whereby a mail-bag may be transferred from the delivering to the receiving device without injury to the bag or its contents; to provide such a construction of delivering device as to insure a tensile strain upon the bag at the moment of disengagement, the parts of said device moving to suit the direction and tension of the strain; to provide a mail-receiving device which is adapted to securely hold the bag until removed manually; to provide a receiving device which is automatically swung out of operative position when loaded, the operation of engaging a mail-bag serving to release the receiving device; to provide simple means for cushioning the mail-bag-receiving device as it is thrown out of operative position to avoid injury to the contents of the bag, and to provide simple and efficient means for mounting the receiving and delivering devices whereby they may be disposed to perform their functions with the car moving in either direction, and may be transferred by the mail-clerks from one side of the car to the other while the latter is in motion.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a mail-bag receiving and delivering apparatus constructed in accordance with my invention, the parts being shown in operative position with mail-bags held by the delivering devices in readiness for engagement by the receiving devices. Fig. 2 is a plan view of the same, showing the parts in the posi-

tions which they occupy immediately after the transfer of the mail-bags from the delivering to the receiving devices. Fig. 3 is a detail view in perspective, partly broken away, of the delivering device which is carried by the car. Fig. 4 is an enlarged detail view of a portion of the mail-swing to show the means for supporting the locking-arm in operative position. Fig. 5 is a detail view in perspective of the mail-receiving device which is located at the station, the same being shown in its retracted or inoperative position. Fig. 6 is a detail view of a slightly-modified form of hinge strap or bracket for application to the mail-post, whereby the receiving-crane may be mounted upon either side of the post to engage mail-bags carried by cars moving in either direction. Fig. 7 is a detail view of a modified form of mail-bag holder. Fig. 8 is a diagrammatic view illustrating the relative positions of the parts at the moment of the disengagement of the mail-bag from the holders.

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

In the drawings I have illustrated duplicate sets of mail receiving and delivering devices, one member of each set being carried by the car and the other member of each set being arranged upon a post adapted to be disposed at the station, and in Fig. 1 I have shown upon opposite sides of the mail-swing post 1 duplicate mail-crane posts 2, each of which carries upper and lower hinge-straps or brackets 3, perforated, as at 4, for the reception of a hinge-pin 5. This hinge-pin, which is removably mounted in the hinge straps or brackets, forms the fulcrum of the mail-crane 6, the shank 8 of which is bifurcated to form upper and lower divergent arms 9, which are disposed parallel with and contiguous to the planes of the upper and lower hinge straps or brackets, and are perforated to receive the hinge-pin. The shank of the crane terminates at its outer end in inner and outer jaws 10 and 11, which spread or diverge toward their front ends, or opposite to the direction of movement of the car from which said crane is to receive mail. The throat formed between the jaws is reduced, and a mail-bag, after engagement by



the crane, is held in said throat by means of yielding catches, consisting of spring face-plates 12, secured at their front ends to the jaws and provided at their rear ends with guide-tongues 13, which operate in slots 14 in the jaws. These guide-tongues are preferably provided with terminal stop-pins 15 to limit their inward movement and form suitable handholds by which the catches may be withdrawn to release a mail-bag.

Coiled upon the pivot-pin of the crane is a return-spring 16, secured at its terminals to the arms of the crane and looped at its center, as shown at 17, for engagement with a hook 18 on a tension-rod 19, said tension-rod being mounted in perforated brackets or eyes 20 and having a nut 21 by which the rod may be adjusted to vary the tension of the spring. In order to hold the crane in operative position against the tension of this return-spring, I employ a trigger 22, which is in the form of a lever and is fulcrumed, as at 23, to the shank of the crane. One arm of this trigger terminates in a latch 24 for engagement with a catch-pin 25, preferably fitted with an anti-friction roll or sleeve 26, and the other arm of the trigger extends transversely across the throat of the crane, whereby when the crane is in the position illustrated in Fig. 1 the entrance of a mail-bag between the jaws causes pressure upon the trigger to disengage the latch from the catch-pin and thus release the crane and allow it to be swung back to the inoperative position illustrated in Fig. 2. The trigger is normally held in operative position by means of an actuating-spring 27, which is attached at one end to the outer arm of the trigger and at the other end to one of the arms of the crane-shank. Said outer arm of the trigger also preferably operates in a guide-slot 28, carried by the inner jaw of the crane. It is obvious that the yielding catches, which are arranged contiguous to the inner faces of the jaws of the crane, are adapted to yield as the central portion of a mail-bag passes therebetween, and when the center of the bag reaches the throat and presses against the trigger to release the crane said catches resume their normal positions and thus clamp the mail-bag in place.

As soon as the mail-bag is received by the crane and the latter is released by the disengagement of the latch it is carried around to the inner side of the post, the movement of the crane being in the same direction as that of the car, whereby straining of the parts is avoided, and a cushioning-web 29 or its equivalent is supported, by means of rearwardly-extending arms 30, on the mail-crane post, the attachment of said web with the arms being attained by means of hooks 31. This cushion prevents injury to the apparatus by jar or otherwise, and at the same time prevents injury to the contents of the mail-bag, and the parts are held in the described position by means of a spring-actuated notched catch 32, which allows the crane to swing

freely thereover in its return movement, but prevents movement in the opposite direction. A knob or handhold 33 is preferably arranged at the outer end of the catch to facilitate the disengagement thereof from the crane when it is desired to return the latter to its operative position.

The construction of the crane which is used upon the car is identical with that above described, with the exception of such details of mounting as are necessitated by the construction of the car. For instance, the hinge straps or brackets for supporting the pivot-pin of the crane are so constructed, as shown at 34, as to adapt them for attachment to the surface of the car side, and while in the construction illustrated in the drawings said straps or brackets are secured to the outer surface of the side it will be understood that the same may, by increasing the length of the crane, be attached with equal facility to the inner surface, whereby when not in use the crane may be swung entirely within the car. In the present construction the crane is not adapted to be arranged within the car, but when not in use may be arranged contiguous to and parallel with the door of the car, whereby it is out of the path of obstructions contiguous to the track.

It will be seen from the drawings, furthermore, that the hinge straps or brackets, the tension-rod for the spring which actuates the crane, and the catch-pin for engagement by the latch on the trigger are duplicated upon opposite sides of the door-opening of the car, whereby the crane may be transferred from one side of the door-opening to the other by the mail-clerks to suit the direction of movement of the car, and, as shown in Fig. 2, the release of the crane from its operative position, as when the trigger is engaged by a mail-bag entering between the jaws, is followed by the movement of the crane through the door-opening and into the interior of the car, where, as in the construction employed at the stations, it encounters a cushioning-web 35, which is stretched from the floor to the ceiling of the car.

It will be seen, furthermore, by reference to Fig. 2 that cranes are arranged upon both sides of the car, whereby mail-bags may be received at either or both sides, and the mounting devices are duplicated upon both sides of the door-opening at the opposite side of the car, as described hereinbefore.

The mail-delivering device which I use in connection with the above-described mail-receiving apparatus consists of a mail-swing 36, having upper and lower horizontal arms 37, upon which are mounted rock-shafts or spindles 38, bearing eyes 39 or their equivalents, being arranged upon said arms for the reception of the rock-shafts or spindles, and nuts 40 or their equivalents being threaded upon the extremities of said rock-shafts or spindles to provide for taking up lost motion. These rock-shafts or spindles carry mail-bag holders,



which include jaws 41, to engage the terminal rings 42 on the mail bag or pouch. The specific construction of these holding-jaws may be varied, provided they are so constructed as to hold the rings by frictional contact and provide for disengagement thereof by a straight pull in the line of the jaws. In the construction illustrated in Figs. 1 to 6, inclusive, the holders consist of spring-jaws connected by adjusting-screws 43, whereas in the modified construction illustrated in Fig. 7 the adjusting-screw is omitted and the spring action of the jaws is relied upon to prevent accidental disengagement of the mail-bag rings.

The holding-jaws are provided with stems or shanks 44, which operate in tubular guides 45, carried by the above-described rock-shafts or spindles, and said stems or shanks are pressed outwardly to normally maintain the holding-jaws separated by means of coiled springs 46. The tension of these spreading-springs may be adjusted by means of thumb-nuts 47 or their equivalents threaded upon the extremities of the stems or shanks.

Inasmuch as the holding-jaws are capable of longitudinal and also swinging movement, in the first instance by reason of the movement of the stems or shanks in the tubular guides and in the second by reason of the rock-shafts, it will be seen that when a mail bag or pouch is engaged between its terminal rings by means of the receiving-jaws of a crane the bag or pouch will be looped or doubled upon itself at its center and the extremities thereof will be drawn toward each other, as illustrated clearly in Fig. 8, whereby the strain upon the bag and upon the holding-jaws is tensile and directly in line with the contiguous portions of the bag and the jaws. This avoids the possibility of injuring the parts, as by a lateral strain, and at the same time insures the efficient disengagement of the terminal rings from the holding-jaws.

In order to facilitate the mounting of the mail-swing at either side of the door-opening in the car to accommodate the position of the crane, I provide it, at its upper and lower extremities, respectively, with a long trunnion 48 and a short trunnion 49, each of which is adapted to be mounted in a bearing 50. In order to remove the mail-swing from its bearings, it is elevated vertically (this being possible by reason of the long upper trunnion) until the lower trunnion is dismounted, after which the upper trunnion may be removed from its bearing. In order to prevent accidental dismounting of the swing, I preferably arrange a split key 51 or its equivalent in a transverse perforation in the portion of the trunnion below the bearing.

When not in use, the mail-swing is adapted to be folded parallel with the plane of the side of the car, and in order to hold the latter in operative position, as illustrated in Fig. 1, I employ a swinging arm 52, fulcrumed, by means of a removable bolt 53, to the short in-

termediate projection 54 of the swing, said arm being provided contiguous to its inner extremity, in its upper edge, with a notch 55 for engagement by a pivotal latch 56, carried by the car. In order to support this swinging arm in its horizontal or operative position and at the same time allow it to be dropped to a pendent or vertical position when the apparatus is not in use, I employ a supporting-pin 57, mounted in a transverse opening 58 in the body portion of the swing and headed at its extremities to prevent disengagement. This pin is capable of longitudinal movement through a sufficient distance to bring it into the path of the lower edge of the arm or remove it therefrom in order to allow freedom of movement of said arm. It will be seen that the swing may be mounted in either of the sets of bearings arranged, respectively, upon opposite sides of the door-opening, and in order to adapt the holding-arm 52 to the different positions of the swing the bolt which forms its fulcrum is removable, as above indicated.

Substantially the same construction of mail-swing is employed upon the mail-swing post 1, with the exception that it may be of timber instead of metal, the latter material being more suitable for use upon the car for the reason that it occupies less space. The swing which is mounted upon the post 1 is held in operative position by means of a pivotal arm 59, adapted to engage a stationary catch 60. In the construction illustrated the rock-shafts or spindles 61 on the arms of the swing mounted upon the post 1 are provided with forks 62, engaged at their extremities by nuts 63 and holding a bearing-plate 64, which secures the tubular guide 65 in said forks by frictional contact. This construction provides for the longitudinal adjustment of the guides.

It will be seen by reference to the drawings that the bearings for the rock-shafts or spindles of the holders are arranged upon the car-swing at the under sides of the arms and upon the station-swing at the upper sides of the arms, whereby the holders are arranged in such positions as to support mail-pouches in different planes to accommodate the different planes of the receiving-crane, whereby the crane upon the car may pass the station-crane without contact, and whereby both receiving devices may operate simultaneously to engage and thus transfer the mail bags or pouches.

While in the drawings duplicate mail-crane posts are shown to support the crane when arranged to receive mail from cars moving in opposite directions, it will be understood that one of these posts may be dispensed with when the double hinge strap or bracket illustrated in Fig. 6 is employed. This modified form of hinge strap or bracket is elliptical and is provided at opposite ends with openings for the reception of the crane pivot-pin, and the reversal of the apparatus is accomplished simply by disengaging the pin from the perfora-



tion at one end and inserting it in the perforation at the other end. The mail-delivering device operates with equal efficiency in both directions, and hence requires no adjustment to suit the direction of movement of the train.

A special advantage of the above-described construction resides in the fact that after engaging a mail bag or pouch the receiving-crane at the station swings out of the path of the delivering device on the car, the movement thereof being in the direction of movement of said car, and the crane which is carried by the car swings through the door-opening and into the interior, whereby it is readily accessible for the removal of the bag or pouch, thus avoiding the inconvenience heretofore experienced in connection with devices of this class attending the disengagement of the bag or pouch.

In order to hold the mail-swing at the station in its inoperative position when not in use and hence out of the way of other trains not designed to receive mail, I employ a fastening device, which in the construction illustrated consists of a hook 66 on the swing adapted to engage a staple 67 on the post 1.

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

Having described my invention, what I claim is—

1. In a mail-pouch-handling apparatus, a delivering device having holders for frictionally engaging the mail-pouch rings, the rings being adapted to be disengaged therefrom by a longitudinal strain, said holders being mounted for longitudinal movement toward and from each other and vertical swinging movement parallel with the direction of movement of the mail-receiving devices, yielding means for normally maintaining the holders retracted or at the limits of their movement from each other, and yielding means for normally maintaining the holders in their upright or vertical positions, substantially as specified.

2. In a mail-pouch-handling apparatus, a delivering device having holders for frictionally engaging the mail-pouch rings, the rings being adapted to be disengaged therefrom by a longitudinal strain, and guides mounted for swinging movement in a vertical plane and yieldingly held in their upright or normal positions, the holders being mounted in said guides for longitudinal movement toward and from each other and yieldingly held retracted, or at the limits of their movement from each other, substantially as specified.

3. In a mail-pouch-handling apparatus, the combination with a swing having horizontal upper and lower arms, of guides having lateral horizontal spindles mounted in alined bearings, respectively, on the upper and lower arms of the swing and yieldingly held in their

normal or upright positions, and holders having jaws for frictionally engaging mail-pouch rings and provided with stems mounted for longitudinal reciprocation in said guides, the upper and lower holders being yieldingly held at the limits, respectively, of their upward and downward movements, substantially as specified.

4. In a mail-pouch-handling apparatus, a delivering device having upper and lower holders for frictionally engaging mail-pouch rings, and provided with stems, guides for said stems having horizontal rock-shafts or spindles mounted to allow the guides to swing in a vertical plane parallel with the direction of movement of the mail-car, each guide having a preponderance of weight below its rock-shaft or spindle to hold it yieldingly in a vertical position, and means for yieldingly maintaining the upper and lower holders at the limits, respectively, of their upward and downward movements, substantially as specified.

5. In a mail-pouch-handling apparatus, the combination with a swing having horizontal arms provided respectively with alined inner and outer bearings, tubular guides provided respectively near their upper extremities with horizontal spindles mounted in said bearings, said guides being yieldingly held in upright positions by the preponderance of their weight below said spindles, holders for frictionally engaging mail-pouch rings having stems mounted for longitudinal reciprocation in said guides, thumb-nuts threaded upon the remote or outer extremities of the stems of the holders beyond the said guides, and springs interposed between the remote extremities of the guides and said thumb-nuts and adapted to be adjusted in tension by the latter to yieldingly maintain the holders at the limits of their movement from each other, substantially as specified.

6. In a mail-pouch-handling apparatus, a delivering device having upper and lower tubular guides provided with lateral spindles mounted in bearings to allow swinging movement of the guides in a vertical plane parallel with the direction of movement of the mail-car, said guides being yieldingly held in their upright positions, holders provided with stems fitted for longitudinal reciprocation in the guides and adapted to turn therein, and return-springs mounted upon the guides for normally maintaining the holders at the limits of their movement from each other, substantially as specified.

7. In a mail-pouch-handling apparatus, a car delivering device having a swing provided with vertically-alined trunnions, holders carried by the swing for engaging the mail-pouch rings, a pivotal holding-arm mounted upon the swing, and means consisting of a pivotal latch 56 for securing said arm to a fixed object on the car when extended to hold the swing in operative position, substantially as specified.



8. In a mail-pouch-handling apparatus, a delivering device having a swing mounted upon vertically-alined trunnions, holders carried by the swing for engaging the mail-pouch rings, a holding-arm pivotally mounted upon the swing, an adjustable supporting-pin carried by the swing for holding the arm in its extended position, and a latch for engaging the arm when the swing is in operative position, substantially as specified.

9. In a mail-pouch-handling apparatus, a receiving device having forwardly-deflected jaws and opposite spring-catches carried respectively by the jaws to engage a mail-pouch, substantially as specified.

10. In a mail-pouch-handling apparatus, a receiving device having forwardly-deflected jaws, and spring-catches carried respectively by the jaws for engaging a mail-pouch and arranged contiguous to each other at their rear ends, each catch consisting of a spring face-plate secured at one end to the inner surface of a jaw and provided at the other end with a guiding-tongue, substantially as specified.

11. In a mail-pouch-handling apparatus, a receiving device having forwardly-deflected jaws, spring-metal face-plates secured at their front ends, respectively, to the inner surfaces of the jaws, guiding-tongues carried by the free rear ends of the plates and operating in slots in the jaws, and terminal stop-pins at the outer extremities of the tongues to form handholds and limit the inward movement of the face-plates, substantially as specified.

12. In a mail-pouch-handling apparatus, a pivotal receiving device mounted to swing in a horizontal plane and having jaws provided with opposite yielding catches for engaging and supporting a mail-pouch, a return-spring to fold or swing said device to its inoperative position, and means for temporarily holding the crane in operative position to resist the pressure of an engaged pouch until securely engaged by said catches, substantially as specified.

13. In a mail-pouch-handling apparatus, a pivotal receiving-crane provided with jaws, laterally-yielding catches for engaging and supporting a mail-pouch by lateral compression, said crane being adapted to yield after the engagement of the mail-pouch by the catches to carry the bag out of the path of delivering devices, and means for temporarily resisting the pressure of a mail-pouch until securely engaged by said catches, substantially as specified.

14. In a mail-pouch-handling apparatus, a receiving device having a crane mounted to swing in a horizontal plane and provided with jaws to engage a mail-pouch, said crane being adapted to yield when encountered by a mail-pouch, and a cushioning-web for checking the

movement of the crane when it reaches its inoperative position, substantially as specified.

15. In a mail-pouch-handling apparatus, a receiving device having a swinging crane provided with jaws, yielding catches on the jaws to engage a mail-pouch, a latch for temporarily securing the crane in its operative position, and a trip connected with the latch and arranged in rear of the catches in the path of a mail-pouch entering between the jaws, substantially as specified.

16. In a mail-pouch-handling apparatus, a receiving device having a swinging crane provided with jaws to engage a mail-pouch, resilient actuating devices for swinging the crane to its inoperative position when released, a latch for temporarily holding the crane in its operative position, and means actuated by a mail-pouch for disengaging the latch and releasing the crane, substantially as specified.

17. In a mail-pouch-handling apparatus, a receiving device having a swinging crane provided with jaws to receive a mail-pouch, a spring for normally holding the crane in its inoperative position, means for adjusting the tension of said spring, a latch for temporarily securing the crane in its operative position, and means actuated by a mail-pouch for disengaging the latch to release the crane, substantially as specified.

18. In a mail-pouch-handling apparatus, a receiving device having a swinging crane provided with jaws for engaging a mail-pouch, a spring coiled concentrically with the fulcrum of the crane and provided with a central loop, a tension-bolt engaging said loop and adapted to be adjusted to vary the tension of the spring, a latch for temporarily securing the crane in its operative position, and means actuated by a mail-pouch for disengaging the latch to release the crane, substantially as specified.

19. In a mail-pouch-handling apparatus, the combination with duplicate sets of spaced hinge straps or brackets provided with alined openings, a pivot-pin removably engaging said openings, a crane fulcrumed upon said pivot-pin and provided with jaws for engaging a mail-pouch, a spring carried by said pin for folding the crane, and means for temporarily securing the crane in its operative position and releasing the same when encountered by a mail-pouch, substantially as specified.

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

WILLIAM Z. RUNKLE.

Witnesses:

FRANK BENHAM,  
EDWARD WISEMAN.