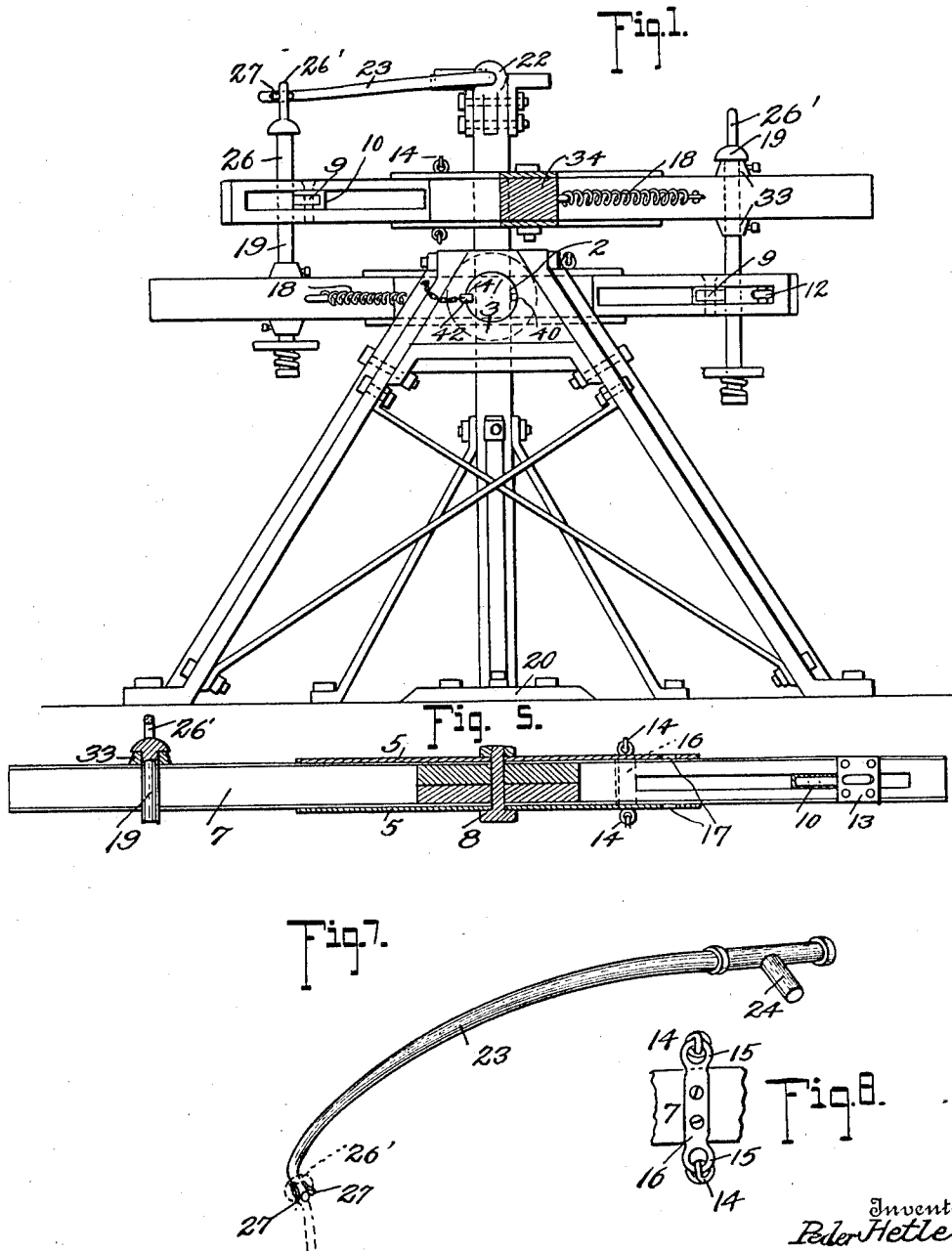


P. HETLE.
MAIL RECEIVING AND DELIVERING APPARATUS.
APPLICATION FILED SEPT. 23, 1912.

1,061,744.

Patented May 13, 1913.

3 SHEETS-SHEET 1.



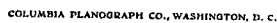
Witnesses
Edw. Wagner,
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Robb & Robb
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3 SHEETS--SHEET 2.

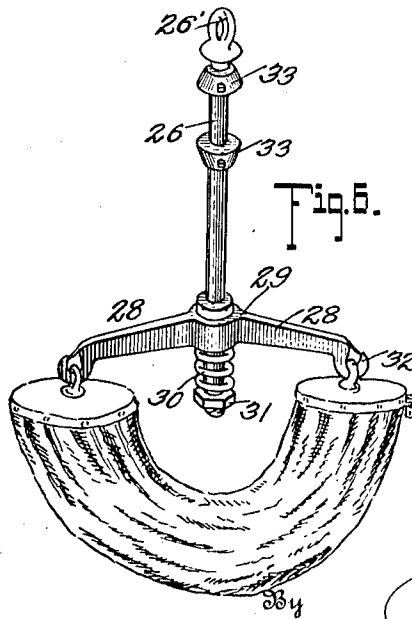
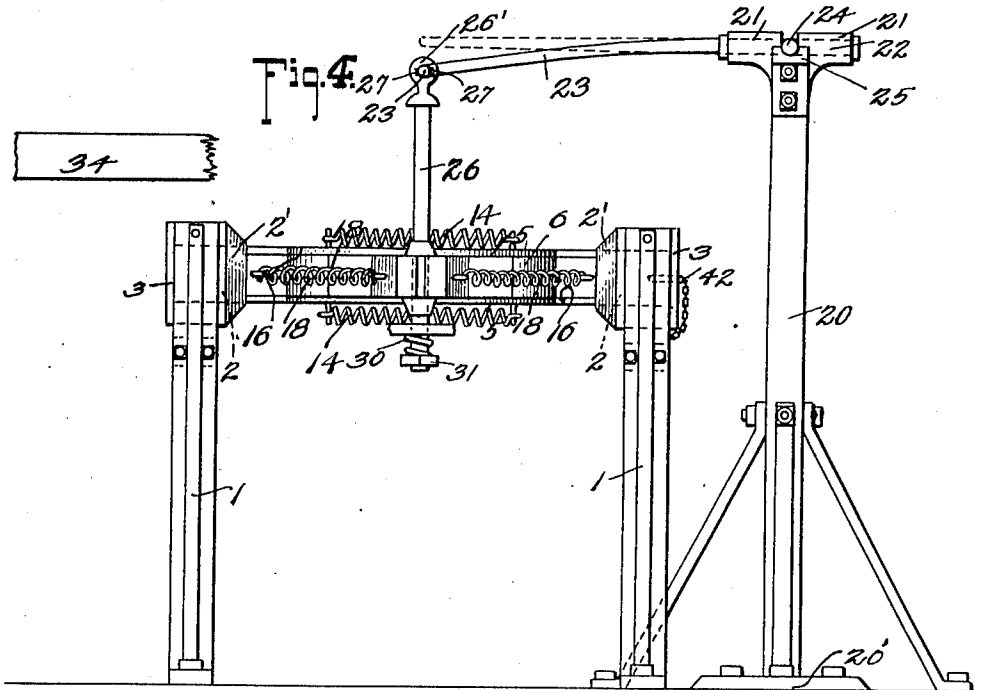


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UNITED STATES PATENT OFFICE.

PEDER HETLE, OF MINER, NORTH DAKOTA.

MAIL RECEIVING AND DELIVERING APPARATUS.

1,061,744.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed September 23, 1912. Serial No. 721,992.

To all whom it may concern:

Be it known that I, PEDER HETLE, a citizen of Norway, residing at Miner, in the county of Morton and State of North Dakota, have invented certain new and useful Improvements in Mail Receiving and Delivering Apparatus, of which the following is a specification.

This invention relates to improvements in mail receiving and delivering apparatus, particularly of the type adapted for the exchange of mail containers between a station and a moving train without interrupting the progress of the train, and the object in view is the attainment of the exchange without liability of loss, displacement or injury to the bags or containers.

A further object in view is the provision of means for effecting such exchange susceptible of manipulation relative to trains moving in opposite directions.

With these and further objects in view, as will in part be hereinafter set forth and in part become apparent, the invention comprises certain novel constructions, combinations and arrangements of parts as herein specified and claimed.

In the accompanying drawing: Figure 1 is a view in side elevation of apparatus embodying the features of the present invention looking from points of observation along the track for the train, the train-carried elements being illustrated in the act of making the exchange, partly in elevation and partly in section. Fig. 2 is a plan view of the car-carried parts. Fig. 3 is a similar view of the other parts. Fig. 4 is a front elevation of the part seen in Fig. 3, a fragment of the car parts being seen in elevation and the remaining parts being cut away, for clearness of illustration. Fig. 5 is a detail, vertical section taken on the plane indicated by line 5-5 of Fig. 3 and looking in the direction indicated by the arrow, parts in the rear being omitted. Fig. 6 is an enlarged detail perspective view of one of the bag hangers detached. Fig. 7 is a similar view of the suspending arm. Fig. 8 is an enlarged detail fragmentary view in elevation, showing one of the connecting plates for the jaw actuating springs.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Referring to the drawings by numerals, 1

indicates spaced stands or supports, of any preferred type, adapted to be fixed adjacent a railway track and to carry at their upper portions journal bearings 2, 2 in which are journaled the trunnions 3, 3 of the catcher mechanism hereinafter described. The trunnions or journals 3 outstand laterally from a supporting body 4 consisting preferably of a pair of vertically spaced plates of disk shape, as indicated at 5, 5, having interposed therebetween filler blocks 6, 6 which are preferably spaced apart laterally or horizontally for accommodating movement of parts between the plates 5 and the filler blocks. Each journal or trunnion 3 is preferably provided with a collar 2' adjacent its respective bearing for limiting the parts against lateral play. A pair of gripping jaw arms 7, 7 is extended through the space between the plates 5 and said arms are pivotally connected to the plates, as by a pivot pin 8 passing through lapping portions of the arms. Each arm 7 is preferably of a thickness approximately equal to the space between the plate 5 throughout its length, but at an intermediate portion is provided with a lateral extension reduced to one half thickness to lap the corresponding reduced extension of the other arm, and the lapped reduced portions are penetrated by the pivot pin 8, leaving the arms free to swing pivotally within the limits of the casing formed by the body 4, the filler blocks 6 being spaced sufficiently and having their edge portions inclined to accommodate requisite movement of the arms 7. The said arms 7 extend beyond the body 1 a distance sufficient to enable the arms to constitute a clamp at each side thereof, the arms being bent at an intermediate point sufficiently for enabling that section of each arm extending from pivot 8 in one direction to lie contiguous to the corresponding section of the other arm, while those sections of the arms at the other side of the pivot extend on divergent lines from the pivot and thus constitute the open jaws of a clamp. It is of course apparent that the bend at the intermediate point of the arms insures a space between the free ends of the arms either at one side of the pivot or the other, so that when the space at one side is closed by the clamping action of the arms at that side, the opposite portions of the arms will be moved apart.

For facility of description and incident to the nature of operation of the parts, those

portions of the arms 7 acting at one side of the pivot will be referred to as the front clamp and those at the opposite side as the rear clamp. Pivoted to each of the arms 5 of the front clamp is a link 9, each link extending toward the other and being connected therewith by an intermediate link 10 pivoted to the free ends of the links 9, the front edges of the links 9 being serrated by 10 being provided with half round notches 11, those of one link being adapted to register at times with those of another to form a series of apertures. The link 10 consists preferably of a pair of spaced plates lapping the portions of the respective links 15 9 and connected along their rear edges for insuring against pivotal movement of the free ends of link 9 forwardly or outwardly beyond a position in alinement with the pivotal connections of the links 9 with the 20 respective arms 7, whereby, when the pivots of link 10 are brought into alinement with the pivotal connections of links 9 with arm 7 the links 9 will be locked against further 25 movement and effectively lock the front or forward jaws in open position, the parts being held thus until released by pressure exerted rearwardly against the front portion of link 10. As soon as such pressure 30 is sufficient to move the pivots of link 10 out of alinement with the pivotal connections of links 9, the jaws may be closed, and to lock the jaws in such closed position a latch 12 is preferably provided and pivoted 35 to one of the jaws in position for having locking engagement with the latch plate 13 fixed to the other jaw. Latch 12 is spring pressed and disposed preferably in a mortise in one of the jaws 7 and adapted to enter a 40 mortise in the other jaw 7, the mortise preferably extending through the last mentioned jaw in position for enabling the introduction of an instrument to the exposed end of the latch 12 for releasing the same when it 45 is desired to open the jaws. To insure effective closing of the said jaw when released, the jaws are engaged and pressed in the direction for closing by springs 14, 14, each of said springs having its respective ends 50 fixed to eyes 15 carried by cross bars 16 fixed to the respective arm 7 and extending through arcuate slots 17, 17 in the plates 5, the bars 16 being adapted to travel along the said slots with the movement of the 55 jaws, the opening of the jaws being effected only against the tension of the springs 14.

The rear clamp, consisting of the jaws at the opposite side of pivot 8 from those just referred to, is actuated in an opening direction 60 by the influence of the springs 14, and supplementing said springs are the laterally disposed springs 18, 18 connected to the respective rear jaws and to the corresponding journals 2, the springs 18 being tensioned to draw the rear jaws apart. Each 65

of the rear jaws is formed with a half round recess or notch in its inner edge, each of said notches being adapted to register with the other for forming the transverse, vertical aperture 19 through the jaws 70 when in their closed position.

A standard 20 mounted on base 20' is fixed adjacent and at one side of one of the supports 1, the upper end of the standard extending preferably above the upper end of 75 the supports and being provided at its upper end with a bearing casting 21 formed with spaced journal bearings 22, 22 in which is journaled the end of a spring arm 23. Fixed to the journal of arm 23 and extending at 80 right angles to the axis thereof is a rod 24 adapted to lie in either of oppositely disposed brackets 25, 25 according to the position of the arm 23, the rod 24 serving, in operation, to prevent rotation of arm 23 85 in a direction permitting downward movement of its free end. The arm 23 is curved laterally until its free terminus is directed in a line parallel to the line of travel of a passing car, it is, in line with the line of 90 approach to and exit from the respective jaws carried by body 4, and said free end is disposed above the aperture 19 and adapted to sustain the bolt 26 suspended through said aperture, said bolt 26 being formed with 95 an eye 26' surrounding the free end of the arm 23. Arm 23, at the place of engagement of the eye 26', is preferably provided with a pair of laterally expanded spring fingers 27 disposed to be compressed by 100 movement of the eye 26' longitudinally from the end of the arm 23. The bolt 26 constitutes a portion of the mail bag hanger, the balance consisting of laterally extending arms 28, 28 projecting radially from a sleeve 29 which slidably surrounds the bolt 105 26 and is mounted upon a spring 30 sustained by a nut 31 threaded onto the lower end of bolt 26. The outer end of each arm 28 is preferably provided with a snap hook 110 32 adapted to receive an eye of a mail bag or other mail container. Bolt 26 is preferably formed with a pair of spaced collars 33 designed to be disposed at the opposite horizontal faces of the engaging jaws. 115

Coöperating with the double clamp above described is a similar clamp carried by the mail car and consisting of the body 4', similar in construction to body 4, with the connected parts of the clamp identical with 120 those of the body 4 so that the same reference numerals have been applied and the same description will apply. However, the body 4, instead of being journaled to rotate, is carried by an arm 34 whose inner end is 125 pivoted as at 35 to the wall of the car and held in an outstanding position by a retaining bracket 36 outstanding laterally from the car adjacent the pivot 35, the bracket 36 being disposed in front of arm 34, relative 130

to the direction of movement of the train, and in advance of the bracket 36 a cable 37 is passed through the wall of the car and engages the body 4' for holding the same in a position for retaining the arm 34 in contact with bracket 36. Cable 37 is rendered elastic by being provided with a pair of interlocking links 38 surrounded by a spring 39 permitting and resisting longitudinal travel of the links with respect to each other whereby the body 4' is held normally in position but is capable of rearward swinging movement for a short distance under tension of the spring 39. In practice, cable 37 is fastened within the car and may be fed out for permitting the body 4' to be adjusted or to be swung upon the pivot 35 into the car through the doorway in the wall of the car through which the arm 34 extends.

In operation, a mail bag is suspended by the use of a bolt 26 in the aperture 19 of the clamp carried by body 4' and a similar bag is similarly suspended in the aperture 19 of the clamp carried by body 4, the latter bag being suspended on the spring arm 23 which is positioned to be subjected to tension when supporting a bag, as clearly indicated in Fig. 4, the non-tensioned position being shown in dotted lines therein. This tensioning of arm 23 insures retention of the bag in position against accidental displacement or dislocation prior to its being taken up by the clamp on the car. The collars 33 serve in this connection as guides for positioning the bolt 26 between the jaws and in the aperture 19 each of said collars may be provided with a set screw for retaining the same in a given adjusted position on the bolt 26. As the car approaches the stand 1, with the parts in the position indicated in Fig. 2 and the links 9 holding their engaged jaws open, the clamping apparatus will move across and above that carried by body 4 until the link 10 of the clamp carried by body 4' contacts with the bolt 26 suspended from spring arm 23 and held in the jaws of the forward clamp of body 4. At the same time, the bolt 26 held in the rear jaws of the clamp of body 4' will contact with the link 10 of the rear jaws of body 4 and thus both links 10 will be pressed in a direction toward the respective pivots 8 and the jaws thereby allowed to close, clamping the engaging bolt 26 in any one of the annular recesses formed by the registering notches 11. It is observed that as the jaws of each of the clamps close upon the respective bolt 26, the other set of jaws opens and releases its hold on its formerly engaged bolt 26, leaving it free to be retained by the other clamping device; hence, as the train passes, a mail bag is delivered to the rear jaws of the clamping device carried by body 4 and a similar bag is delivered from the clamp to the forward jaws of the clamp carried by

body 4'. The operator in the car then swings the body 4 into the car and opens the forward jaws until the links 9 are brought into alinement, the bag being thus released and the parts reset for the next operation. The operator then draws the cable 37 inwardly, and at the same time swinging the body 4' outwardly to its operative position. The operator at the stand 1 performs the same operation so far as releasing the bag from the jaws is concerned and if the next mail train is to approach in the same direction as the last one, the introduction of a bolt 26 in the recess 19 just prior to the complete opening of the jaws engaged by links 9 will complete the preparation for the next operation, it being understood of course that the eye 26' has been placed over the free end of spring arm 23 and over the fingers 27. If the next succeeding train is to approach from an opposite direction, the operator, before the introduction of the new bag, swings the body 4 upon its journals until it is relatively inverted and the former forward parts are thus placed in the rear. To bring the spring arm 23 in proper relative position, it is only necessary to revolve the same until the rod 24 is moved from its at rest position on one bracket 25 to an at rest position on the opposite bracket 25.

As it is essential that the parts during operation shall be effectively held against displacement, the advantages gained by the journal mounting of the body 4 which enables use of the parts relative to a train traveling in either direction would be destroyed if the journals were not capable of being held against rotation and therefore either one or both of said journals is provided with diametrically opposite key slots 40 adapted at times to receive a key 41, the bearing or bearings being provided with a key slot 42 adapted to register with either one of the slots 40. The key 41 may be chained or otherwise loosely connected with adjacent parts to prevent loss when not in use. After the body 4 has been given a given horizontal position, one of the notches 40 will register with the notch 42 and the key 41 will then be inserted and thus lock the journals against rotation and retain the parts in the given horizontal position. When the body 4 is to be inverted, the key is withdrawn and the body revolved to the inverted position, which brings the other slot 40 into registry with slot 42, and the key 41 is then again inserted and the parts are again locked and ready for operation.

Having thus described the invention, what is claimed is:

1. The combination of oppositely disposed clamps, means for pressing the jaws of one of the clamps toward a clamping position, a trip lock for locking said jaws in an open position, said trip lock pivotally connecting

said jaws, similar car-carried clamps disposed inversely to the disposition of the first mentioned clamps, means carried by the car-carried clamps for tripping the lock of the first mentioned jaws, and means carried by the first clamp for tripping the jaws of the car-carried clamp.

2. The combination of oppositely disposed clamps, means for pressing the jaws of one of the clamps toward a clamping position, a trip lock for locking said jaws in an open position, said trip lock being pivotally connected to both of said jaws, similar car-carried clamps disposed inversely to the disposition of the first mentioned clamps, mail-sustaining means carried by the car-carried clamps for tripping the lock of the first mentioned jaws, and mail sustaining means carried by the first clamp for tripping the jaws of the car-carried clamp.

3. The combination of relatively stationary mail sustaining jaws, mail catching jaws coöperatively connected therewith for clamping mail carrying means when the first mentioned jaws are released, means pressing the first mentioned jaws toward a released position, and a trip lock retaining the second mentioned jaws in mail sustaining position, the said trip lock connecting and being collapsible between the second mentioned jaws, said trip lock being disposed to lie in the path of car-carried trip mechanism.

4. The combination of pivotally connected arms disposed to form a pair of clamping jaws at each side of the pivot means for tensioning the jaws and pressing the same in a direction for closing one set of jaws and opening the other, a trip locking mechanism for retaining the last mentioned jaws in clamping position, said last mentioned jaws being adapted to sustain mail carrying means and to release the same on being opened, similar clamps adapted to be carried by a car and to have one of its jaws sustain mail carrying means in the line of the trip lock mechanism of the first mentioned jaws, and trip lock mechanism on the car carried clamp disposed in the line of the mail sustaining means carried by the first mentioned clamp.

5. In mail receiving and delivering apparatus, the combination of a body adapted to swing vertically from a horizontal position extending in one direction to a horizontal position extending in the opposite direction, means for locking the same in a horizontal position, and pairs of clamping jaws extending therefrom and coöperatively connected for respectively releasing and gripping mail carrying means.

6. In mail receiving and delivering apparatus, the combination of pivotally mounted arms comprising oppositely disposed clamping jaws, a trip lock mechanism adapted to retain one set of said jaws in an

open position, means pressing the last mentioned jaws toward a closed position and thereby tending to press the other jaw toward an open position, the latter jaws being adapted to sustain mail carrying means, and similar clamping mechanism adapted to be carried by a car in position for delivering, mail sustaining means in contact with and in position for releasing the latched lock, the said car-carried clamping means being adapted to grip the mail sustaining means of the first mentioned gripping jaws upon being released by the tripping of the trip lock.

7. In a mail apparatus, the combination of stationary supports, a body journaled therein, oppositely disposed clamping jaws pivotally sustained by the body, a spring arm disposed above said jaws and adapted to be directed along one pair of jaws, mail sustaining means retained by the last mentioned jaws, and a trip mechanism pivotally connected with both of the other of said jaws adapted to release the mail sustaining means and to clasp other mail sustaining means when released.

8. In a mail apparatus, the combination, with a body, of jaws pivotally carried thereby and adapted to sustain mail supporting means, a spring arm fixed above the jaws and extending from a position substantially at right angles thereto to a position in line therewith, and adapted to have its free end engage the mail sustaining means, a pair of jaws carried by said body and adapted when closed to move the first mentioned clamping jaws to an open position for releasing the mail carrying means, and a trip lock on the second mentioned jaws positioned for releasing the second mentioned jaws and permitting the closing thereof when struck by train carried mail sustaining means.

9. In a mail apparatus, the combination, with a revolubly mounted body, of a pair of jaws extending forwardly therefrom, a pair of jaws extending rearwardly therefrom, a spring arm journaled adjacent the body and bent to a position directed substantially in line with the first mentioned jaws, laterally extending brackets at opposite sides of the journal of the spring arm, and an extension projecting from the spring arm in position for engaging one or the other of said brackets according to the position of the spring arm, said spring arm being adapted to be revolved to either of reversed positions relative to the positions of the jaws, the first mentioned jaws being adapted to sustain mail supporting means coöperatively with said spring arm, and the second mentioned jaws being adapted to release the engagement of the first mentioned jaws with the mail sustaining means and to themselves engage and sustain mail carrying means.

10. In a mail apparatus, the combination of pivotally mounted jaws, means pressing said jaws toward an open position, other pivotally mounted jaws, means pressing the
 5 second mentioned jaws toward a closed position, and a trip lock for locking the second mentioned jaws in an open position, the second mentioned jaws being connected to sustain the first mentioned jaws in a
 10 closed position, the trip lock being disposed in position for lying in the path of movement of car carried mail sustaining means and the first mentioned jaws being adapted to engage mail sustaining means.

15 11. In a mail apparatus, the combination of jaws adapted to engage mail sustaining means, other jaws adapted to actuate the first mentioned jaws for releasing the same, a pair of links pivotally connected with the
 20 second mentioned jaws and pivotally connected together and adapted to be brought into alinement for locking the second mentioned jaws against closing movement, springs for opening the first mentioned
 25 jaws, and a spring pressing the second mentioned jaws toward a closed position, the links being disposed in the path of travel of car carried mail sustaining means.

30 12. In a mail apparatus, the combination of jaws adapted to engage mail sustaining means, other jaws adapted to actuate the first mentioned jaws for releasing the same, a pair of links pivotally connected with the second
 35 mentioned jaws and pivotally connected together and adapted to be brought into alinement for locking the second mentioned jaws against closing movement, a spring for opening the first mentioned jaws, a spring pressing
 40 the second mentioned jaws toward a closed position, the links being disposed in the path of travel of car carried mail sustaining means, and a latch for locking the second mentioned jaws together.

45 13. In mail apparatus, the combination of an arm adapted to be pivotally carried by a

car, a body sustained by the arm, mail carrying and mail clamping means carried by said body, a bracket in advance of the arm limiting forward swinging thereof, and an
 50 elastic cable connected with the body and extending in advance of the bracket for retaining the body in position against pivotal movement and adapted to allow such movement against the tension of the cable.

14. In mail receiving and delivering apparatus, the combination, of mail exchange mechanism relatively fixedly mounted and
 55 coöperating mail exchange mechanism car carried and adapted to move past the first mentioned mail exchange mechanism, the first mentioned mail exchange mechanism
 60 being provided with mail delivering and receiving means and the second mentioned mail exchange mechanism being provided with similar means adapted to receive mail
 65 under a relatively driving blow incident to a moving car passing a stationary object and grasping the mail sustaining means against the inertia thereof, and an elastic cable connected to the car carried mail exchange mechanism and extending in advance
 70 thereof and connected to the car.

15. The combination of oppositely disposed clamps, one adapted to sustain and deliver mail and the other adapted to receive mail, means extending across and connecting the jaws of the receiving clamp for
 75 sustaining said jaws open, said means being collapsible to permit closing of said jaws, and means pressing said jaws toward a closed position, the said jaws being connected with the jaws of the sustaining and delivering clamp for opening the latter jaws
 80 when the former jaws are closed.

In testimony whereof I affix my signature
 85 in presence of two witnesses.

PEDER HETLE.

Witnesses:

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