

1,000,255.

Fig. 1.

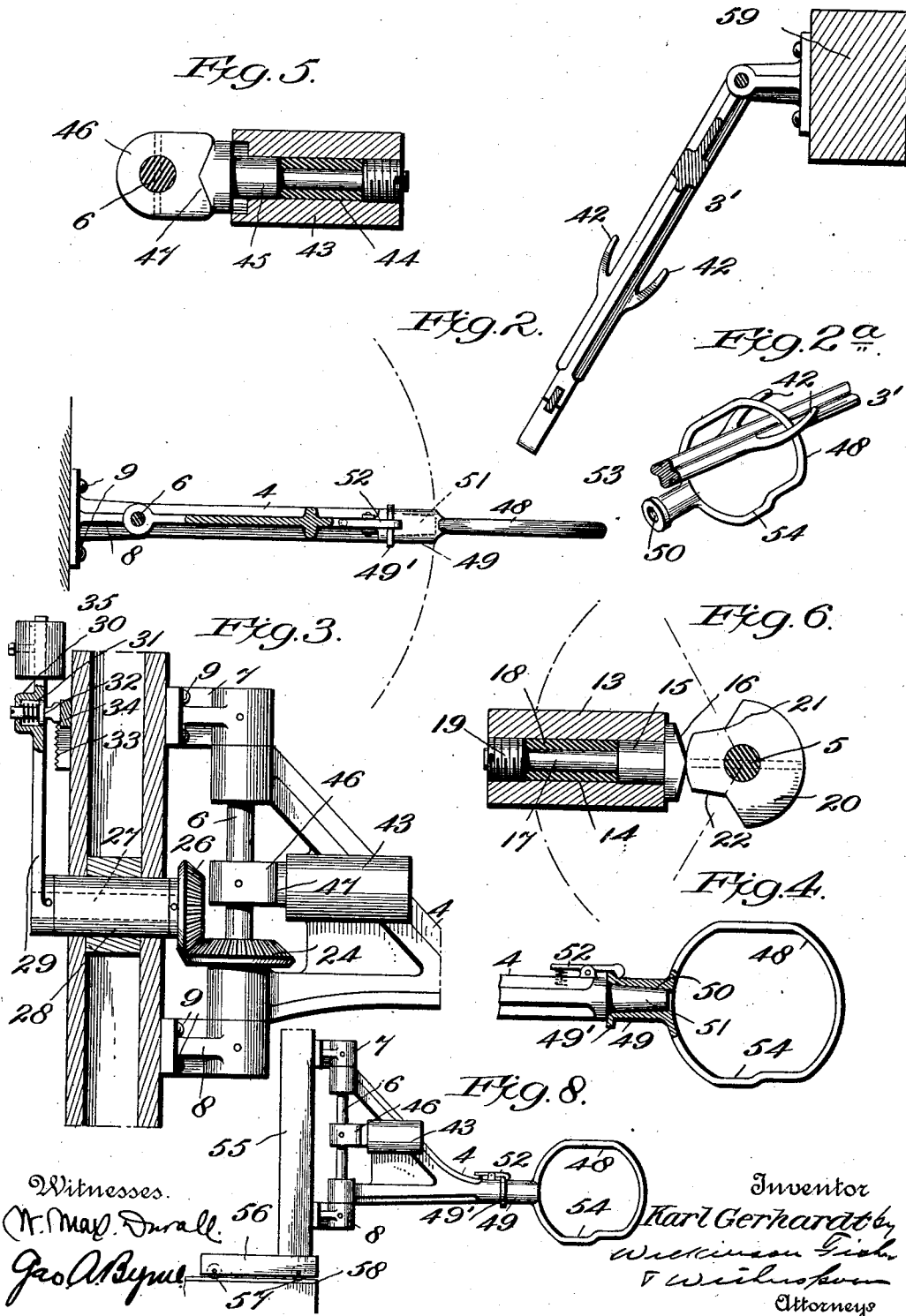


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MAIL BAG HANDLING APPARATUS.
APPLICATION FILED JAN. 10, 1911.

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Patented Aug. 8, 1911.

2 SHEETS-SHEET 2.



UNITED STATES PATENT OFFICE.

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MAIL-BAG-HANDLING APPARATUS.

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Specification of Letters Patent.

Patented Aug. 8, 1911.

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To all whom it may concern:

Be it known that I, KARL GERHARDT, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Mail-Bag-Handling Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a mail bag handling apparatus adapted for effecting an automatic transfer of mail or other packages to and from moving trains, and it has for its object to provide an apparatus of this character which will be simple in construction, positive in operation and absolutely reliable in use.

A still further object is to provide a means whereby the apparatus may be mounted on, and operated from within the car.

To these ends the invention consists in the novel details of construction and combinations of parts more fully hereinafter described and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views:—Figure 1 is a perspective view of the apparatus shown applied to a car and to a post at a station, the parts being in their operative positions. Fig. 2 is a horizontal cross sectional view taken on the line 2—2 of Fig. 1 and looking in the direction of the arrows. Fig. 2^a is a detail perspective view showing the supporting ring caught on the auxiliary hooks. Fig. 3 is a vertical cross sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a detail sectional view of the supporting ring and arm taken on the line 4—4 of Fig. 1. Fig. 5 is an enlarged detail sectional view taken on the line 5—5 of Fig. 1. Fig. 6 is an enlarged detail sectional view taken on the line 6—6 of Fig. 1. Fig. 7 is a detail view of the pivoted retaining latch; and Fig. 8 is a view of a modified form of the apparatus shown mounted on a carriage.

1 indicates a mail-car carrying, adjacent to the door 2, the catcher arm 3 and the de-

livering arm 4. These arms are preferably of the shape and construction shown and are carried on the shafts 5 and 6, which shafts are journaled to swing in the bearings 7 and 8 securely held by bolts 9 to the sides of the car.

The catcher arm 3 comprises an upper member 10 and a lower member 11 connected together by a web 12 which web is enlarged as at 13 and bored as at 14 to receive a plunger 15. This plunger is provided with a head 16 having angular or inclined faces and a reduced shank 17 around which is held a rubber sleeve 18, as clearly shown in Fig. 6.

19 indicates a screw threaded adjusting plug for holding the rubber sleeve within the bore 14 and for regulating the tension on the plunger 15.

Keyed to the shaft 5 is a cam 20 provided with two notched cam faces 21 and 22 set 90 degrees from each other, and which cam faces are complementary to and adapted to be engaged by the head 16 of the plunger 15 to hold the catcher arm 3 obliquely from the side of the car as will be more fully hereinafter described.

23 and 24 indicate bevel gears mounted on the catcher arm 3 and the delivering arm 4 which mesh with gears 25 and 26 mounted on the shafts 27 held in the bearings 28 in the sides of the car. Keyed on the ends of the shafts 27 on the inside of the car are the arms 29 for operating the catching and delivering arms. Near the outer ends of these arms 29 are enlargements 30 bored as at 31 to receive the spring pressed plunger 32, adapted to engage the notches 33 on the segments 34, secured to the inside wall of the car as shown in Fig. 3. Adjusting counter-balancing weights 35 are secured to the ends of the arms 29 which together with the spring pressed plungers 32 are adapted to hold the catching and delivering arms 3 and 4 in any desired position.

Pivoted as at 36 to the outer end of the upper member 10 of the catching arm 3 is a latch 37 having a long arm 38 and a short arm 39. This latch normally hangs in the position as shown in Figs. 1 and 7, the long arm 38 coming in contact with the hook 40 on the end of the lower member 11 and the

short arm fitting between the ends of the member 10 to prevent any lateral movement of said latch.

41 indicates a rubber buffer held on the arm 10 to receive the blows from the latch 37 as shown in dotted lines in Fig. 7, and cause the same to immediately spring back in place.

The lower member 11 of the receiving arm 3 is also provided with two auxiliary hooks 42, the purpose of which will be hereinafter described. The delivering arm 4 is also provided with an enlarged portion 43 bored as at 44 to receive a plunger 45 similar in construction and action as that described on the receiving arm 3. Contacting with the enlarged head of the plunger 45 and keyed to the shaft 6 is a cam 46 having a single notched cam face 47 at right angles to its axis as clearly shown in Fig. 5.

48 indicates a ring for supporting the mail bag on the end of the delivering arm 4 and comprises a sleeve 49 provided with a collar 49' and a tapering bore 50. This ring 48 is held on the reduced tapering end 51 of the arm 4 by the spring-pressed latch 52, as shown in Fig. 4.

To hold the mail bag in a vertical position and thereby prevent it from assuming different positions the ring 48 is distorted to form a horizontal depression 54.

Instead of mounting the receiving arm 3 and delivering arm 4 on the car, they may be mounted on a bar 55 supported on a carriage 56 provided with rollers 57, as is shown in Fig. 8. This carriage is adapted to travel back and forth across the car from one door of the car to the other on tracks 58 whenever it is desired to use the apparatus on either side of the car.

Means for catching and delivering the mail is also mounted on a post 59 at a station. This means is the exact duplicate of that mounted on the car, except, that the operating mechanism for throwing the catching and delivering arms in and out of their operating positions has been eliminated, but may be used if desired. Said means therefore, briefly stated, consists of the delivering arm 4' carrying the ring 48' from which is suspended the mail bag 48^a and the receiving arm 3'. These delivering and receiving arms are mounted on the post 59 in such a position that they may transfer and receive the mail from the delivering and receiving arms on the car as is clearly shown in Fig. 1.

The operation of the apparatus is as follows:—Assuming a train to be moving in the direction of the arrow as indicated in Fig. 1; the delivering arm 4 is manually operated from within the car through the operation of the lever 29, gears 26 and 27, and brought around to a position in front of the door

2, where the ring 48 containing the mail bag 48^b to be delivered is placed on the tapering end 50 of said arm. Through the operation of the lever 29, the arm 4 is then swung around to a position at right angles to the side of the car, Fig. 2, when the tapering head 47 of the plunger 45 comes in contact with the notched cam 46 and causes the arm holding the mail bag to be arrested.

The catching arm 3 on the car may now, through the operation of its lever 29, be brought to an oblique position preferably at about 60 degrees from the side of the car where it is arrested by the tapering head 16 of its plunger 15 coming in contact with the notched cam 20. The catching arm 3' and receiving arms 4' containing the mail bag 48^a on the post 59 at the station are brought to their respective positions for delivering and receiving the mail from the car.

Where the receiving arm 3 on the car engages the ring 48' on the delivering arm 4' on the post, it causes the latch 37 to revolve on its pivot and to be immediately returned under the impact on the rubber buffer 41. This prevents the ring containing the mail bag from escaping from the receiving arm should it fail to catch on the auxiliary hooks 42.

Simultaneously with the transfer of the mail from the station to the car, mail is transferred from the car to the station by the receiving arm 3' on the post 59 engaging the hook 48 on the delivering arm 4 holding the mail bag 48^b.

By practical demonstration, I have found that the rings 48 and 48' containing the mail bags will hook over one and under the other of the auxiliary hooks 42 on the receiving arms 3 and 3' as is shown in Fig. 2^a, thereby arresting motion of the mail bags.

With the above construction and arrangement of parts it will be seen that a car moving in the direction of the arrow will at the moment of transfer cause all the arms to swing on their shafts part way to the rear and against the cushioning effect of the plungers 15 and 45 after which they may be again manually operated.

It is obvious that those skilled in the art may vary the arrangements of parts as well as the details of construction without departing from the spirit of my invention, and, therefore, I do not wish to be limited to such features, except as may be required by the claims.

What I claim is:—

1. In a mail bag handling apparatus, mounted on fixed and movable supports, the combination with a plurality of horizontally disposed delivery and catcher arms rotatably mounted on said supports, and counter-balancing means adapted to hold at different angles the delivery and catcher

arms carried by the movable support, substantially as described.

2. In a mail bag handling apparatus, mounted on fixed and movable devices, the combination with a plurality of horizontally disposed delivery and catcher arms rotatably mounted on said devices, counter-balancing means adapted to hold the delivery and catcher arms on the movable device at different angles, and means for holding stationary said counter-balancing means, substantially as described.

3. In a mail bag handling apparatus mounted on fixed and movable devices, the combination with a plurality of horizontally disposed delivery and catcher arms rotatably mounted thereon, counter-balancing means adapted to hold the delivery and catcher arms on the movable device at different angles, and a spring-pressed means for holding the said counter-balancing means, substantially as described.

4. In a mail bag handling apparatus mounted on fixed and movable devices, the combination with a plurality of horizontally disposed delivery and catcher arms rotatably mounted thereon, a plurality of rearwardly extending hooks mounted on the catcher arms, and counter-balancing means adapted to hold the delivery and catcher arms on the movable device at different angles, substantially as described.

5. In a mail bag handling apparatus mounted on fixed and movable devices, the combination with a plurality of horizontally disposed delivery and catcher arms rotatably mounted thereon, a plurality of rearwardly extending hooks mounted on the catcher arms, counter-balancing means adapted to hold the delivery and catcher arms on the movable device at different angles, and a spring-pressed means for holding the said counter-balancing means, substantially as described.

6. In a mail bag handling apparatus, the combination with a support, of bearings mounted thereon, vertical shafts mounted in the bearings, catcher and delivery arms rotatably mounted on the shafts, gears carried by the catcher and delivery arms, horizontal shafts mounted in said support, gears mounted on one end of the horizontal shaft and meshing with said gears on the catcher and delivery arms, a counter-balancing means for said arms mounted on said horizontal shaft, and means associated with said counter-balancing means for holding said catcher and delivery arms at different angles, substantially as described.

7. In a mail bag catcher the combination with a support, of bearings mounted thereon, a rod vertically mounted in the bearings, an arm horizontally mounted on the vertical rod, hooks on said horizontal arm, a plunger

mounted in said arm, and a notched cam mounted on said vertical rod and adapted to engage with and hold said plunger at different angles to position the horizontal arm, substantially as described.

8. In a mail bag catcher the combination with a support, bearings mounted thereon, a rod vertically mounted in the bearings, an arm horizontally mounted on the vertical rod, a plurality of rearwardly extending hooks on said horizontal arm, a pivoted latch on said horizontal arm adapted to contact with one of said hooks, and a ring adapted to actuate the latch and be caught over one and under another of said rearwardly extending hooks on said horizontal rod, substantially as described.

9. In a mail bag catcher the combination with a support, of bearings mounted thereon, a shaft mounted in the bearings, an arm comprising an upper and a lower member connected together by a web mounted on the shaft, a plunger provided with an inclined face mounted in the web, a cam provided with a notch engaging with the inclined face of the plunger, a hook mounted on the end of the lower member, a latch pivotally connected to said upper member to engage said hook, a resilient buffer on the upper member adapted to be struck by said latch, and a plurality of auxiliary hooks mounted on said lower member for receiving a ring attached to a mail bag, substantially as described.

10. In a mail bag catcher the combination with a support, bearings mounted thereon, a shaft mounted in said bearings, an arm comprising an upper and a lower member connected together by a web mounted on the shaft, a plunger mounted in the web, a resilient sleeve surrounding said plunger, an adjusting screw for regulating the pressure on the resilient sleeve, a cam engaging the said plunger, a plurality of hooks on said lower member, a latch pivotally connected to said upper member to engage one of said hooks, and a resilient buffer on the upper member adapted to be struck by said latch, substantially as described.

11. In a mail bag deliverer, comprising an arm having a tapering end, a ring provided with a sleeve having a collar and a tapering bore adapted to be releasably supported on the tapering end of the arm, a spring-pressed latch mounted on the said arm to engage the collar on said sleeve, means for supporting said arm and permitting it to swing under impact, combined with a catcher arm containing a plurality of hooks to engage the said ring, substantially as described.

12. In a mail bag deliverer, the combination with a support, an upright shaft mounted thereon, a rotatable arm mounted

on the shaft, a plunger provided with an inclined face mounted in the arm, a cam provided with a notch mounted on the shaft and engaging said inclined face of the plunger for holding said arm at an angle to the support, a bag-supporting ring provided with a collar having a socket adapted to be held on the said arm, and a spring-pressed latch mounted on said arm and en-

gaging said collar for releasably holding the ring on the said arm, substantially as described.

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

KARL GERHARDT.

Witnesses:

LAWRENCE M. JANIN,
P. G. CLOUGH.

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