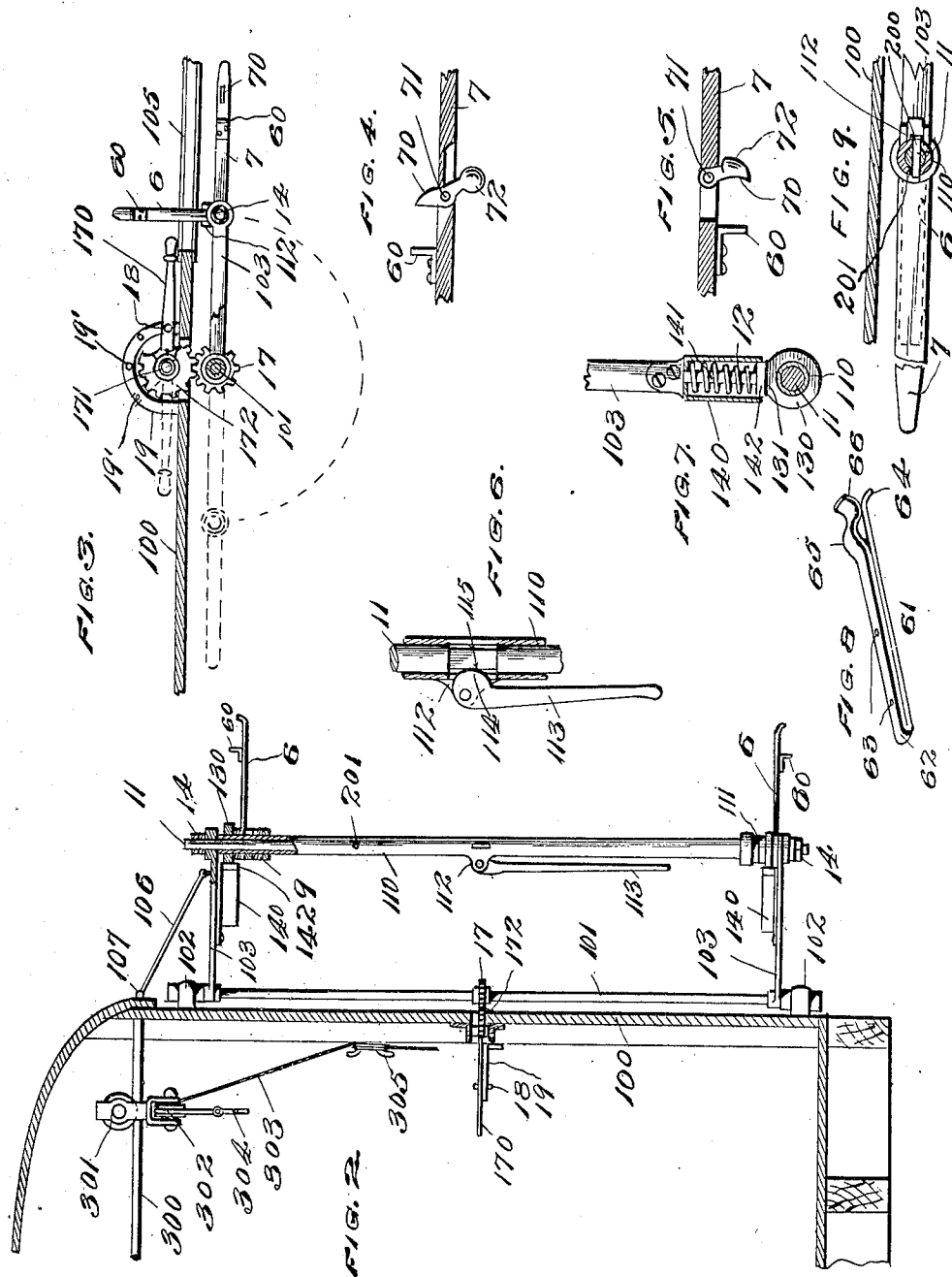


J. L. ADAM.
MAIL BAG HANDLER.
APPLICATION FILED JUNE 16, 1908.

926,228.

Patented June 29, 1909.

2 SHEETS—SHEET 2.



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JOHN L. ADAM, OF NEW ORLEANS, LOUISIANA.

MAIL-BAG HANDLER.

No. 926,228.

Specification of Letters Patent.

Patented June 29, 1909.

Application filed June 16, 1908. Serial No. 438,698.

To all whom it may concern:

Be it known that I, JOHN L. ADAM, a citizen of the United States, and resident of New Orleans, Orleans parish, State of Louisiana, have invented certain new and useful Improvements in Mail-Bag Handlers, and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to railway rolling stock, and more especially to that class of devices known broadly as mail bag delivery and specifically as catchers and cranes; and the object of the same is to provide a device on the car adapted to coöperate with another on a post at the station for an interchange or transfer of mail bags or packages. In a companion application filed Feb. 13, 1908, Number 415749, I cover broadly the principle on which a mail bag transfer device of this general type operates; and in another application filed April 22, 1908, Number 428614, I cover the details of construction as applied to the transfer of pieces of freight or express and perhaps passengers or other live and delicate articles. Both said applications show and describe the device at the station which it will not be necessary to amplify in the present case, and all these applications involve a principle of operation which is properly made the subject of the broader claims in the earliest.

The present invention is more particularly a mail bag handler although equally useful with pieces of freight or express, and it includes a construction of the catcher and crane on the car which will permit it to be folded into very small compass against the side of the car when it is not in use, and simplifies the mechanism and reduces the number of parts. It also includes devices within the car which coöperate with the catcher and by means of which a bag or bags or pieces of freight or express too heavy or cumbersome to be conveniently handled by the agent can be taken from the catcher proper and moved away from the doorway to a proper point within the car. The various details are set forth in the following specification and illustrated in the accompanying drawings, wherein—

Figure 1 is a general perspective view of the device illustrated on a car supposed to be moving to the right, with the parts in

the position they assume when ready for use—that is, with the catching arms or hooks projected toward the crane on the post at the station (which crane is not shown) and with the holding arms projecting outward at right angles to said hooks and hence to the side of the car and the line of travel; Fig. 2 is a cross section through the car illustrating the conveyer therein, showing the crane in elevation and the parts at its outer end in section and set in the same position as illustrated in Fig. 1; and Fig. 3 is a horizontal section through the car and its doorway, the full lines showing the parts in the position for the agent to attach the bag to the holding arms and the dotted lines showing them folded against the side of the car and out of the way—it being understood that in the position of parts shown in Figs. 1 and 2 the crane stands between the extremes illustrated in this view. Figs. 4 and 5 are sectional details of the catches in the hooks. Fig. 6 is a detail of the eccentric and lever for adjusting the position of the hooks with respect to the arms. Fig. 7 is a sectional detail through the plunger casing. Fig. 8 is a perspective detail of a modified form of the holding arm. Fig. 9 is a fragmentary section showing the hooks and arms standing parallel adjacent the side of the car.

In the drawings the numeral 100 designates a car having a doorway 105 as usual, and 101 is a swinging support such as an upright rod mounted in eyes 102 on the car and from which rod projects a crane consisting of brackets 103 in which is journaled an upright shaft 11 having nuts 14 at its extremities. If necessary this crane may be supported by a swinging truss rod 106 pivoted at its upper end to an eye 107 in the side of the car. The crane is positioned adjacent the door so that its outer end can be swung opposite thereto as seen in full lines in Fig. 3, or the entire crane with the parts carried thereby may be swung around to the position shown in dotted lines when it will occupy only a few inches of space beyond the flat outer side of the car wall.

Any suitable swinging device may be used, but I have shown herein and preferably employ that which will now be described and which is best shown in Fig. 3. 17 is a gear attached to the swinging support 101 opposite a slot in the car wall 100, and 170 is a lever mounted at 171 on any suitable pivot and having a segment 172 projecting through

said slot and engaging the gear so as to rotate the latter and hence to swing the crane in either direction when the lever is moved in the opposite direction. It has a
 5 suitable opening through which may be passed a pin or other catch 18 adapted to engage openings or notches 19' in a segment 19 or other casting supported within the car, and said openings are so located and
 10 designated that the agent can tell without looking outside what is the position of the crane. By preference the size of the gear and length of the segment 172 are such that the handle of the lever lies flat against the
 15 car wall when the crane is at either extreme position, and projects straight into the car when the crane stands straight outward—thus giving unmistakable notice to the agent that the device is then ready for use.

20 Any suitable tension device may be employed for retarding and finally checking the rotation of the shaft 11 within its bearings in the brackets 103, but I have shown herein and preferably employ that which
 25 will now be described. On the shaft at top or bottom or both are fixed D-shaped cams 130 each having a flattened face 131, and within a housing 140 on the adjacent bracket is located a spring 12 which operates a
 30 plunger 141 preferably having a head 142 that bears constantly against the edge of the cam or its flattened face when the latter comes opposite. Secured to the shaft just inside these cams are holding arms 6 which
 35 project radially from the shaft, parallel with each other, and in a direction opposite to that in which the flattened faces 131 are disposed; and hence when the latter contact with the plunger heads 142, the arms 6 will
 40 project straight outward in line with the brackets 103. Other or additional tension devices may be employed without departing from the spirit of the present invention, but in any event it is preferable that the hold-
 45 ing arms be frictionally held in this position and that at all times said devices shall retard the rotation of the shaft 11 and perhaps produce a "thump" as the flattened faces of the cams pass the plungers.

50 The principal point of improvement in the present case over my former applications above referred to consists in mounting the catching arms or hooks 7 adjustably instead of rigidly on the shaft 11, as will now be
 55 described. Between the holding arms 6 a tube 110 is fitted loosely around the shaft 11, preferably held in place by collars 111, and the hooks 7 are mounted rigidly in any suitable manner at 9 and 10 on this tube near its
 60 ends and stand parallel with each other. Pivoted between ears 112 and projecting radially from the tube is a lever 113 having an eccentric 114 adapted when the lever is raised to be projected into the tube and to
 65 engage one of several slots in or flattened

faces 115 on the shaft 11. These are arranged at such points and the eccentric is so disposed with respect to the handle of the lever that when the latter is raised the tube and hooks may be turned upon the shaft; 70 and after setting said hooks to the position desired, the depression of the lever engages the eccentric with one of the faces 115 and locks the hooks in the position to which they have been adjusted with respect to the arms 75 while still permitting all of them and the shaft 11 to have the rotation in the crane as permitted although retarded by the tension devices.

A detail which I employ in the present 80 instance consists in the use of catches 70 pivoted at 71 in the hooks 7 and having weights 72 so positioned that the tips of the catches will be thrown normally toward stops or spurs 60 mounted upon the bodies 85 of the hooks. These spurs are employed to prevent the eyes or handles of the mail bags from moving too far inward on the hook bodies when caught, which might allow the bodies of the bags to strike the tube 110; 90 and by their use on the catching arms or hooks I therefore avoid the necessity of making the latter converge toward each other as formerly. The catches 70 obviously serve the purpose of permitting the 95 handles to pass over them as the bag is caught, and thereafter holding it in place. The spurs 60 may also be employed on the holding arms 6 as shown.

Another detail which I may employ in 100 the present instance consists in the use of a safety locking pin 200 adapted and intended for insertion through holes 201 in the tube and shaft when said holes come into alignment, and the holes are preferably so dis- 105 posed that alinement will occur when the hooks and arms are alined and the entire catcher occupies the narrowest possible place.

In connection with the above catcher and crane, I preferably employ a mail bag han- 110 dler of any suitable type for carrying heavy bags from their position within the car to the arms 6 or from the hooks 7 to their proper position in the car, and the same will now be described. Supported across the car, 115 100 is a rod or track 300 on which runs a trolley or carriage 301 having a pendent sheave 302 and over the latter runs a rope 303 having a hook 304 at one extremity and its body led to a cleat 305 secured within 120 the car. By this handling device it is obvious that the heavy bags can be raised from the floor or removed from the hooks, dragged lengthwise within the car as may be desired, and elevated and moved across the car on the 125 track at will, and although not illustrated it is possible to have pulley blocks within the rope so as to increase the lifting power.

A modification of the holding arm which is shown in Fig. 8 consists in making it of 130

spring metal in two leaves 61 folded upon each other at 62 and there connected in any suitable way (not shown) with the shaft 11, and these leaves are riveted together as shown at 63 to give the arm sufficient rigidity. Toward their outer ends the rivets are omitted and the tip of the lower leaf is bent downward as at 64, while the upper leaf is humped as at 65 and its tip bent upward as at 66 as shown. These divergent tips therefore produce a flaring mouth into which the handle of the bag can be passed and which springs together when said handle has been engaged by the hump. It will be understood that another and similar arm is used at the lower end of the shaft 11 with the parts inverted. By the use of arms of this character the outer eyes at the extremities of a bag can be quickly engaged and will be frictionally held in proper position and when the hooks engage the inner eyes and strip the bag off the arms its handles will be drawn from the hump in the arms and pulled forcibly from between the tips where they contact with each other.

A modification or rather a simplification of this entire structure which it is possible to make although unnecessary to illustrate, would consist in the omission of the lower arm and hook so that the bag to be delivered would be suspended on the upper arm only and the bag to be caught would be engaged by the upper hook alone—all of which is included within the scope of the present idea. It will be obvious without further description or illustration that this device may deliver a bag without catching one, may catch a bag without delivering one, or may exchange its bag for that at a station.

The operation of this improved mail bag handler will be as follows, it being understood that the catching and delivering devices on the post at a station are constructed in such a manner as to coöperate with those on the car shown herein; and as the station devices form no part of the present invention and are fully covered in my companion applications, it is thought that it will not be necessary to give their details. Also it is to be understood that the bag has eyes or handles at both ends as usual, or if pieces of freight or express are to be handled they are put into a holder (for description of which see my companion applications above noted) also having handles or eyes, and said eyes are made double at each extremity and spaced so that the two outermost will engage the holding arms 6 while the two innermost are adapted to be engaged by the two hooks 7.

In the folded condition of parts the arms and hooks stand parallel with each other and with the brackets of the crane, and the entire device is swung around against or nearly against the side of the car and out of the way, as indicated in dotted lines in Fig.

3. When the device is to be brought into use the agent manipulates the lever 170 to swing the crane and its parts through one half a circle, where it will stand across the doorway 105, and then by properly manipulating the lever 113 he turns the tube 110 and swings the hooks 7 into the car if the train is moving to the right or out of the car if the train is moving to the left—the arms and hooks in either event standing at right angles to each other as shown in full lines. By use of the handling devices the bag or holder is then brought to the doorway and its outermost eyes engaged with the tips of the arms 6, the hooks then being out of the way as seen. The entire crane is then turned through one quarter circle by movement of the lever 170, when it projects straight outward from the car and can be locked by engaging the pin 18 with the proper opening 19'. In this position of parts (best seen in Figs. 1 and 2) the arms 6 project straight outward in line with the brackets 103 and are held frictionally by the flattened faces 131 of the cams 130 and the heads 142 of the plungers 141; while the hooks project forward toward the device at the station which the train is approaching. It being understood that another bag is similarly supported on a corresponding device at the station and with the hooks thereof projecting toward the approaching train, when the latter passes the station the tips of the hooks on each device will engage the eyes of the bag on the other and will strip them off the tips of the arms by which they were supported. As described in my aforesaid companion applications, these eyes slide onto the catching arms or hooks and the bags come to rest without striking the tubes 110—the spurs 60 in the present instance positively limiting their movement toward said tubes and the catches 70 retaining them against dislodgment. It will be obvious that the impact on the devices will cause its shaft 11 to rotate in the crane, but this rotation will be retarded and finally checked by the tension devices and the rotating parts will come to rest with the flattened faces of the cams against the plunger heads and the hooks still standing at right angles to the arms. During such rotation the tube turns with the shaft because it is locked thereto by the eccentric lever, and after the station is passed the agent within the car uses the lever 170 to swing the device back to the doorway, after which he removes the new bag from the hooks, sets them again parallel with the arms and all of them parallel with the brackets, and swings the entire device around against the side of the car to its folded position when it is out of the way.

It is contemplated that the tube shall turn on the shaft with some little friction, such as may be produced by properly setting the

collars 111 against its ends, and it is also contemplated that the friction of the tension devices shall not be too great or too little. Hence it is possible for the agent, when applying a bag to the arms or removing one from the hooks, to move them with respect to each other or to rotate the shaft and arms manually within the crane; and by these means great facility of attachment and detachment of the bag is afforded. I prefer that the eccentric lever handle shall lie close to the tube when its eccentric head 114 engages the faces 115 in the shaft, because in the act of making a transfer the tube rotates with the shaft as the latter is spun in its bearings by the force of the impact. The lever handle 113 need not be longer than is necessary to overcome the friction produced by setting of the collars 111 and the weight of the bag on the hooks, and in any event it is shorter than the distance between the tube and the crane support 101. The lever handle 170 is preferably made as short as possible for the sake of economy of space within the car. The locking pin 200 may be dispensed with entirely, and the use of the handling device is obvious although I consider it highly advantageous in this connection. The spurs and catches are details perhaps not essential to the principal feature of the invention, which latter consists in the use of a single pair of hooks instead of a double pair as heretofore and in means for setting them at right angles to the arms and on either side of them according to the direction of movement of the train. I do not limit myself to the details of construction further than as necessary to carry out the general idea, nor to the sizes, shapes, proportions or materials of parts.

What is claimed as new is:

1. In a mail bag catcher, the combination with a crane, and a shaft supported thereby; of a tube mounted loosely on said shaft, catching hooks projecting radially from the tube and parallel with each other, and means for adjusting the position of the tube on the shaft.

2. In a mail bag catcher, the combination with a crane, and a shaft supported thereby and having flattened faces; of a tube mounted loosely on said shaft, catching hooks projecting radially from the tube and parallel with each other, a lever on the tube for adjusting its position on the shaft, and devices for engaging said faces to hold the tube in its adjusted position.

3. In a mail bag catcher, the combination with a crane, and a shaft supported thereby and having flattened faces; of a tube mounted loosely on said shaft, catching hooks projecting radially from the tube and parallel with each other, a lever pivoted to the tube for adjusting its position on the shaft, and an eccentric head on the lever for engaging

said faces to hold the tube in its adjusted position.

4. In a mail bag catcher, the combination with a crane, and a shaft supported thereby and having flattened faces; of a tube mounted loosely on said shaft, catching hooks projecting radially from the tube and parallel with each other, ears projecting from the tube between which it is slotted, a lever pivoted between the ears for adjusting the tube around the shaft, and an eccentric head on the lever so disposed around its pivot that when the lever lies against the tube the head is retracted but when it is swung outward the head is projected through said slot to engage one of said faces.

5. In a mail bag catcher, the combination with a crane mounted in a swinging support and carrying an upright shaft, and means for swinging the crane; of parallel catching hooks mounted for rotary adjustment on said shaft, and means for locking them in adjusted position.

6. In a mail bag catcher, the combination with a crane mounted on a swinging support on a car adjacent its doorway and carrying an upright shaft, and means for swinging the crane from within the car to move the shaft opposite said doorway or remote therefrom; of parallel catching hooks mounted for rotary adjustment on said shaft, and means for locking them in adjusted position.

7. In a mail bag catcher, the combination with a crane mounted on a swinging support on a car adjacent its doorway and carrying an upright shaft, and means for swinging the crane from within the car to move the shaft opposite said doorway or remote therefrom; of parallel catching hooks mounted for rotary adjustment on said shaft, and an adjusting lever connected with the hooks and of less length than the distance between the shaft and support.

8. In a mail bag catcher, the combination with a crane mounted on a swinging support and carrying an upright shaft, and means for swinging the crane; of collars on said shaft, a tube held between them thereon, catching hooks projecting rigidly from the tube, and means for adjusting the latter and its hooks to set them at various angles to the crane.

9. In a mail bag transfer, the combination with an upright shaft mounted in a support, and parallel arms carried by the shaft and adapted to project from it in line with said support; of a tube mounted for rotation on the shaft between the arms, parallel hooks projecting from the tube, and means for setting the latter with its hooks at various angles with respect to the arms.

10. In a mail bag transfer, the combination with an upright shaft mounted in a support, and parallel arms carried by the

shaft and adapted to project from it in line with said support; of a tube mounted for rotation on the shaft between the arms, parallel hooks projecting from the tube, and means for setting the latter with its hooks parallel with the arms when the device is in folded condition or at right angles to the arms when the device is in operative condition and on either side of the arms as necessary.

11. In a mail bag transfer, the combination with a swinging crane mounted in a support and having an upright shaft, and means for swinging the crane; of a holding arm carried by the shaft and adapted to project from it in line with the crane, a catching hook mounted loosely on the shaft, and means for setting its position thereon with respect to the arm.

12. In a mail bag transfer, the combination with a swinging crane mounted in a support on a car adjacent its doorway and having an upright shaft, and means for swinging the crane to bring said shaft opposite the doorway or remote from it adjacent the car wall or to cause the crane to stand outward from the car; of a holding arm carried by the shaft and adapted to project from it in line with the crane and straight outward from the car when the crane is so disposed, a catching hook mounted loosely on the shaft, and means for setting its position thereon with respect to the arm.

13. In a mail bag transfer, the combination with a swinging crane mounted in a support, an upright rotary shaft journaled in the outer end of the crane, a tension device for retarding its rotation, and means for swinging the crane; of a holding arm carried by the shaft and projecting rigidly therefrom, a catching hook mounted loosely on the shaft, and means for setting its position thereon with respect to the arm.

14. In a mail bag transfer, the combination with a swinging crane mounted in a support on a car adjacent its doorway, an upright rotary shaft journaled in the outer end of the crane, a tension device for retarding its rotation, and means for swinging the crane to bring the shaft opposite the doorway or remote from it; of a holding arm carried by the shaft and projecting rigidly therefrom and adapted to stand straight outward from the car when the crane is so disposed, a catching hook mounted loosely on the shaft, and means for setting its position thereon with respect to the arm.

15. In a mail bag transfer, the combination with a swinging crane mounted in a support, an upright shaft journaled in the outer end of the crane, a cam fast on the shaft and having a flattened face standing

opposite the direction in which said arm projects, a spring-actuated plunger on the crane bearing against said cam and its flattened face, and means for swinging the crane; of a holding arm carried by the shaft and projecting rigidly therefrom, a catching hook mounted loosely on the shaft, and means for setting its position thereon with respect to the arm.

16. In a mail bag transfer, the combination with a swinging crane mounted in a support on a car adjacent its doorway, an upright rotary shaft journaled in the outer end of the crane, a cam fast on the shaft, a spring-actuated plunger on the crane bearing against said cam, and means for swinging the crane to bring the shaft opposite the doorway or remote from it; of a holding arm carried by the shaft and projecting rigidly therefrom and adapted to stand straight outward from the car when the crane is so disposed, a catching hook mounted loosely on the shaft, and means for setting its position thereon with respect to the arm.

17. In a mail bag transfer, the combination with a crane, and concentric solid and tubular shafts journaled therein and upon each other; of a delivery device carried by one shaft, a catching device carried by the other, and means for setting the latter with its tip at different angles to that on the former shaft.

18. In a mail bag transfer, the combination with a crane, and concentric solid and tubular shafts journaled therein and upon each other; of a delivery device carried by one shaft, a catching device carried by the other, means for setting the latter with its tip at different angles to that on the former shaft, and means for permitting both shafts to have a retarded rotation in the crane.

19. The combination with a mail bag crane including an upright swinging support, a gear thereon, and devices carried by the crane for engaging the bag; of a casting, and a lever pivoted thereon and having a segment engaging said gear.

20. The combination with a mail bag crane including an upright swinging support, a gear thereon, and devices carried by the crane for engaging the bag; of a casting having openings, a lever pivoted thereon and having a segment engaging said gear and provided with a hole moving over said openings, and a pin adapted to engage the hole and either opening when in alinement.

21. The combination with a swinging mail bag crane and means for moving it, a shaft carried thereby and having a transverse hole, a tube mounted on the shaft and having holes adapted to aline with said hole therethrough, and delivering and catching devices independently mounted on the shaft

and on the tube; of a locking pin adapted to be passed through the alined holes when said devices are alined with each other.

22. A mail bag catcher, comprising a
5 straight arm projecting horizontally from an upright support, a spur rising therefrom, and a catch pivoted to the arm adjacent the spur and having a weight holding its tip normally in position to coöperate with said
10 spur, for the purpose described.

23. In a mail bag catcher, the combination with an upright shaft; of a pair of catching
15 arms projecting therefrom parallel with each other, spurs on said arms adjacent the shaft, and a catch pivoted to each arm and weighted so that its tip coöperates with its
20 spur, for the purpose set forth.

24. A mail bag deliverer comprising an arm consisting of two leaves folded upon
20 each other and riveted together adjacent

their bend and having divergent tips, the uppermost leaf being humped adjacent its tip, and means for supporting the arm at its folded end.

25. In a mail bag handler, the combina- 25 tion with the crane supported adjacent a car door, and the catching and delivering devices carried thereby; of an overhead track across and within the car adjacent said door, a carriage thereon having a sheave, 30 and a block-and-tackle engaging with said sheave and carrying a hook, for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature this the 9th day of 35 June, A. D. 1908.

JOHN L. ADAM.

Witnesses:

T. F. HOOPER,
J. H. HEMMER.