J. L. ADAM.

MAIL BAG HANDLER.

APPLICATION FILED SEPT. 25, 1909.

944,711.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.

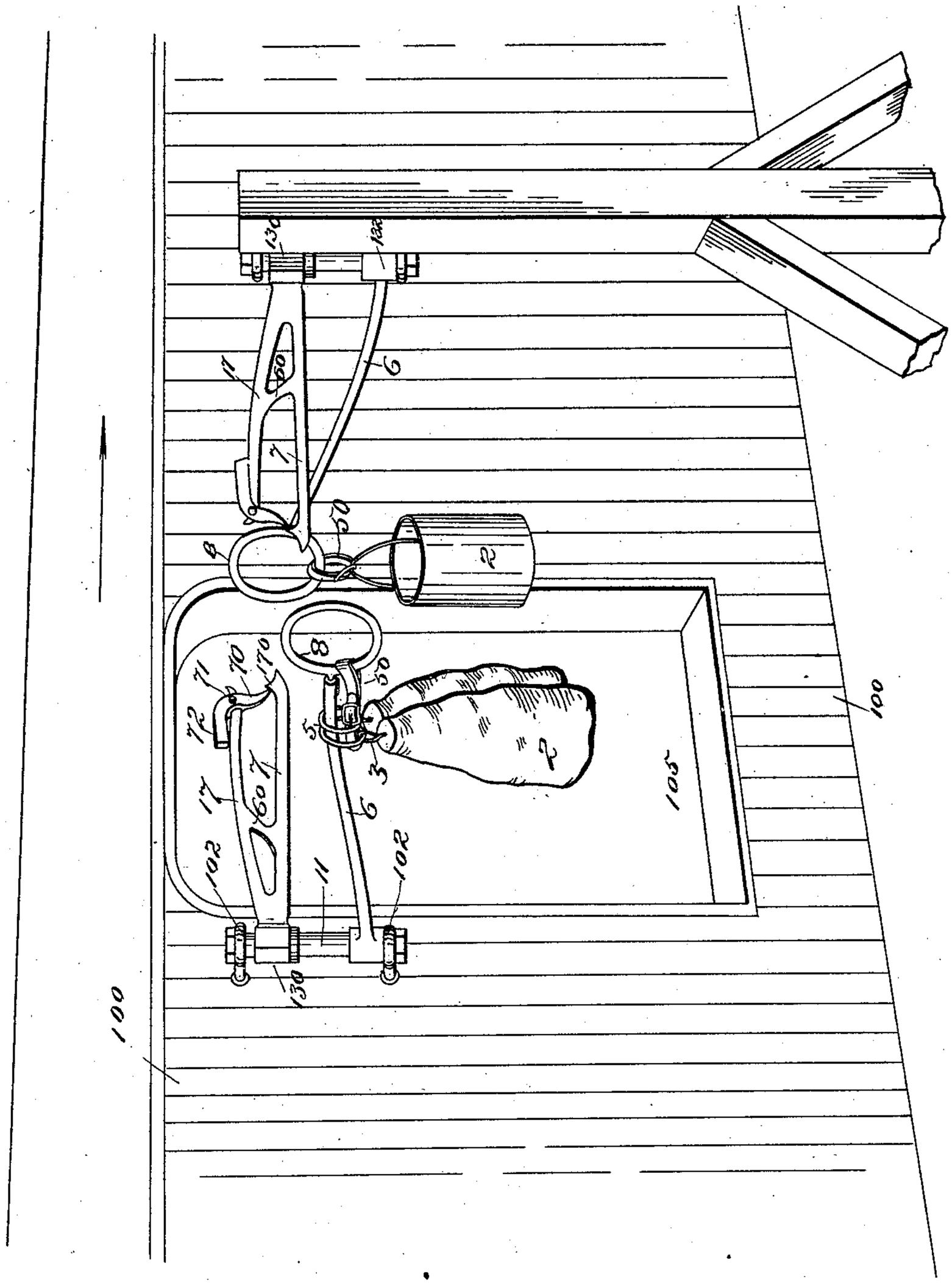

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 3.

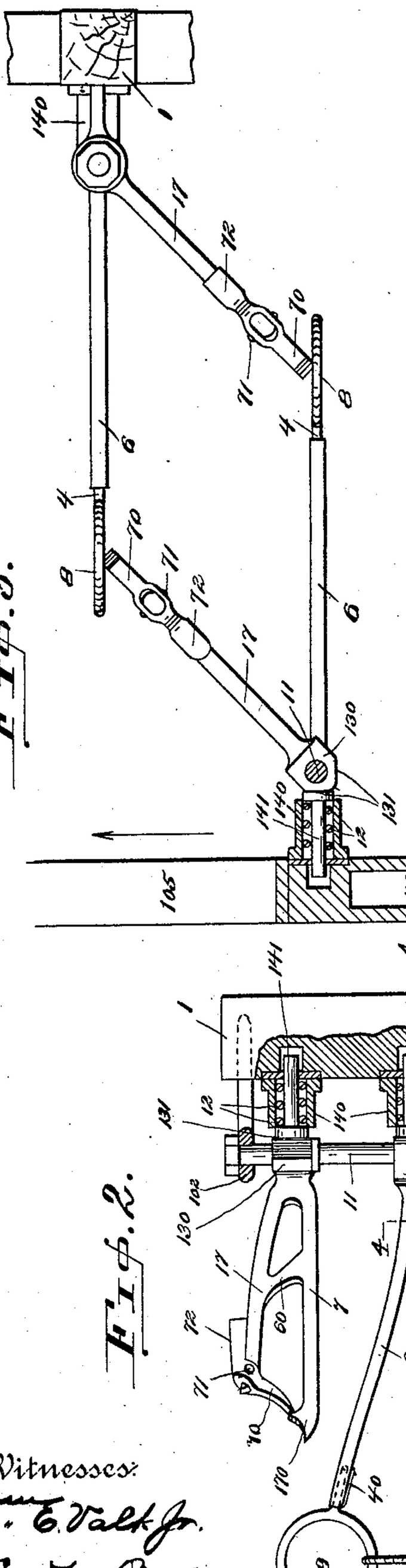


Fig. 5.

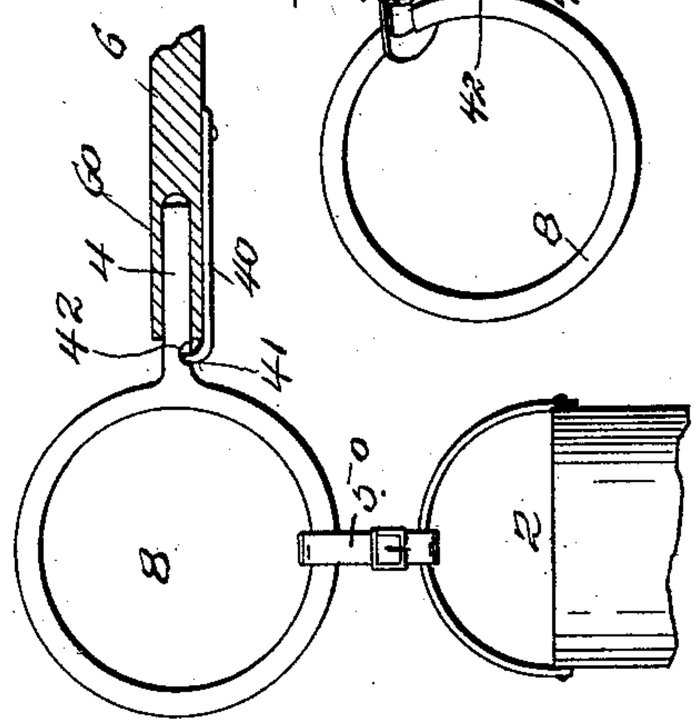


Fig. 6.

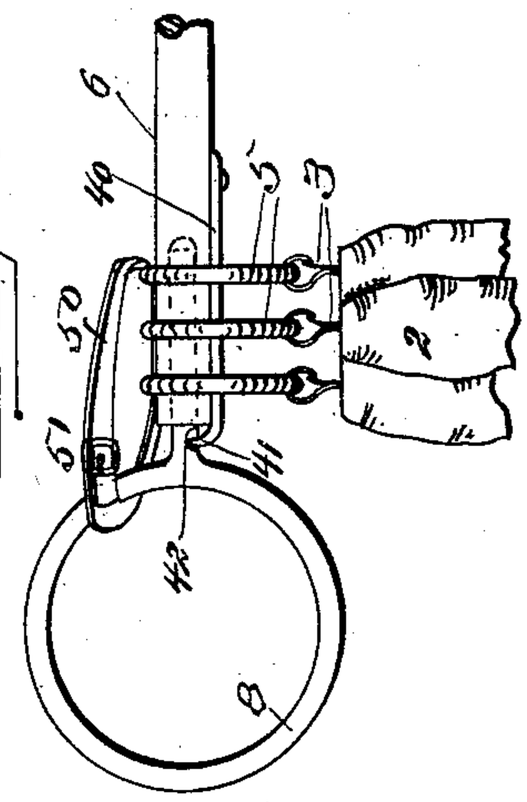


Fig. 2.

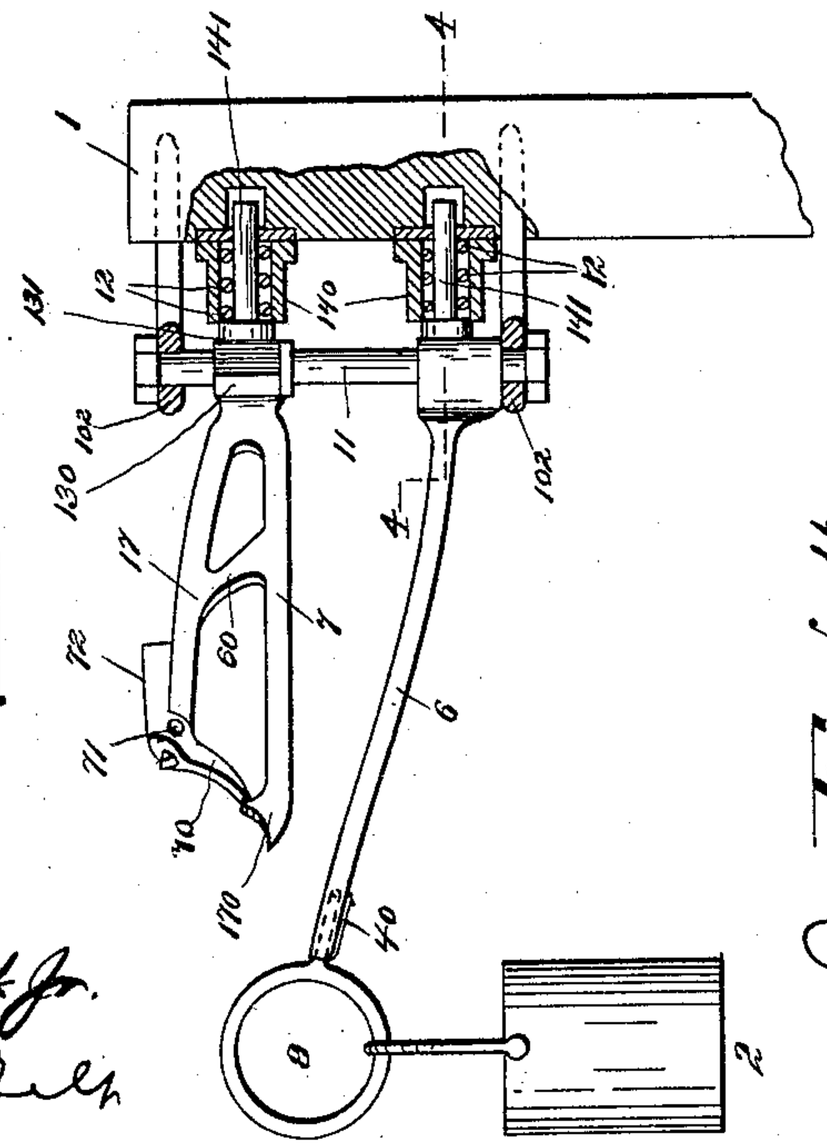
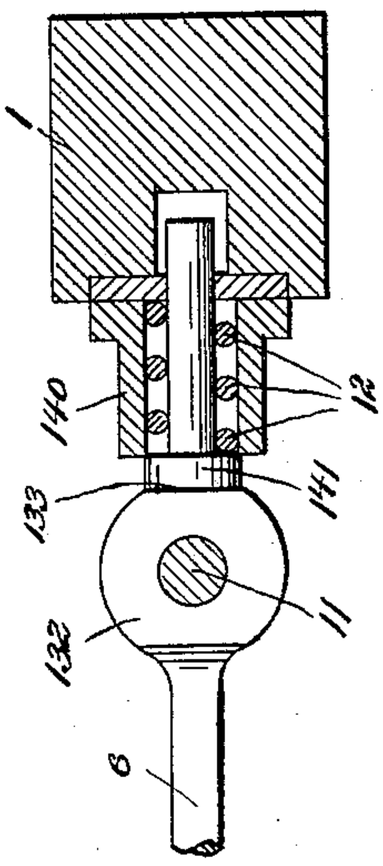


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MAIL-BAG HANDLER.

944,711. Specification of Letters Patent. **Patented Dec. 28, 1909.**

Application filed September 25, 1909. Serial No. 519,559.

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 a claim 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 U. S. patents numbered 926,926, 926.927, and 926,228 issued to me June 29, 1909 I cover broadly the principle and specifically the details of a mail bag or freight transfer device of this general type expecting that the holding and catching arms therein stand normally at right angles to each other.

The present invention contemplates the utilization of the same general principle of operation whereby the catcher engages the object caught and then swings on its supporting pivot, but in the present case the holding arm also swings on its supporting pivot which is independent of that of the catcher. Herein the normal angle of the holding and catching arms is less than a right angle (preferably about 45 degrees) when the devices are set for accomplishing a transfer. Also the present invention includes improved details in the support of the ring by its arm, and possibly in the support of a number of mail bags or the like on said arm rather than by the ring direct.

The following specification sets forth my preferred manner of carrying out these objects, reference being had to the accompanying drawings, wherein—

Figure 1 is a general perspective view of the device on a car supposed to be moving to the right and also of the device on a post as near a station, the parts being in position ready for a transfer to take place. Fig. 2 is an elevation of the post with the parts of this device in the same position as shown in Fig. 1, a section through the supports being here shown. Fig. 3 is a plan view of the devices as seen in Fig. 1, and a horizontal section through the car, its doorway, and the upper plunger. Fig. 4 is an enlarged horizontal section on the line 4—4 of Fig. 2. Fig. 5 is an enlarged elevation of the ring with a single object carried thereby, and a section of the tip of the holding arm. Fig. 6 is an elevation of the ring and tip of the holding arm, showing the means provided for holding several bags or objects to be caught.

In the drawings the numeral 100 designates the car having a doorway 105 as usual, and adjacent the same eyes 102 project outward from the car body and carry an upright shaft 11 journaled therein or an upright rod fast therein. Between these eyes there are secured to the car body two housings 140 each containing an expansive spring 12 which forces a plunger 141 normally outward into engagement with the faces of a cam to be described below. Each post 1 alongside the track is provided with a like upright shaft or rod, mounted in eyes which correspond in height with those on the car, and with like housings and plungers. Each upright carries near its lower end a holding arm 6 projecting radially therefrom and slightly upbent, and near its upper end a catching arm or hook 7, either of which or both may be mounted loosely on the same. If the upright be a shaft, one arm may be fast thereon and the other loose, or if it be a non-rotary rod both arms will be loose thereon—the object being to permit them to swing in horizontal planes independently of each other.

The catching arm or hook 7 is mounted at its inner end on said upright, around which it has a cam 130 with two cam faces 131 set 90 degrees from each other (or thereabout) and at equal distances from its axis if projected. By preference this member is of skeleton construction for the sake of lightness, and its body or main portion has an upper member 17 connected with it by a stop 60. To the outer end of said member at 71 is pivoted a catch 70 whose free end or tip is held in normal engagement with the tip 170 of the hook by a weight 72 at the upper end of the catch in rear of its pivot, or by any approved means forming no part of the present invention.

The holding arm which I by preference use in connection with the above-described

catching arm comprises a body 6 slightly upbent (as seen in Fig. 2) from its inner end which latter is mounted on said upright 11, and around the same it has a cam 132 with a single cam face 133 standing at right angles to its projected axis as best seen in Fig. 4. This member is provided in its outer end with a socket 60 which may be of square or angular cross section, and beneath said end there is secured to the arm a spring 40 having an upbent tip 41 passing over the end of the arm and normally slightly across said socket, as best seen in Fig. 5.

The article holder employed in connection with this holding arm is best illustrated in Figs. 5 and 6. It comprises a quite large metal ring 8 having projecting from one side a radial spur 4 round in cross section and provided with a notch 42, the former adapted to enter the socket 60 so that the tip 41 of the spring 40 may frictionally engage said notch. A single article such as a mail bag 2 will by preference be connected directly to and supported by this ring at a point below the projected axis of the spur 4 by a strap 50, as seen in Fig. 5; but a plurality of articles or bags will by preference be connected by snap hooks 3 or the like with individual smaller rings or eyes 5 which will be mounted on and supported by the arm 6, and the strap 50 will be passed through all the eyes 5 and buckled as at 51 through the main ring 8. Thus the weight of a heavy article or articles will be sustained by the arm 6 rather than the spur 4, and the latter will have little friction in its socket 60. The bending of the body of the arm 6 upward brings the axis of the ring 8 about opposite the tip of the hook 7, as best seen in Fig. 2—remembering that the device on the car is mounted at the same height from the ground as that on each post.

In my former patents above referred to wherein the two arms stood at right angles to each other, a swinging support was employed to hold the upright 11 out from the car or the post so that the catching arm which projected straight forward from said upright would be brought into the path of the holder on the opposite device. In the present instance I dispense with the need for such swinging support and mount the upright as closely to the car or the post as the eyes 102 and plungers and cams will permit—thereby saving materials, mechanism, and cost. This I am permitted to do because in operative position as shown in Fig. 3 the cams of the holding arms cause them to project at right angles to the track, and the proper cams of the hooks or catching arms cause them to stand oblique to the track and to the holding arms so that their tips move in paths out of line with the car, the post, and each other, but in direct line with the holders on the opposite devices. This is accomplished by making the hooks 7 shorter than the arms 6 but of such length that when standing oblique the distance of their tips out from their supports will complement the distance of the axis of the holders out from their own supports.

With the above construction of parts and the car moving in the direction of the arrows shown in Figs. 1 and 3, it will be clear that at the moment of impact the tip of the hook 7 on the car enters the ring 8 supported by the post and that of the hook on the post enters the ring on the car, both catches yielding to admit the rings. Further progress of the car then twists the spurs 4 within and draws them out of the sockets 60, the spring-tips 41 slipping out of the notches 42, and each ring with its bags or articles is transferred from one arm to the opposite hook. If said articles are supported on the arm 6 by individual rings or eyes 5, the latter are drawn off the arm by the strap 50 and follow the ring in its transfer to the opposite device; and after the transfer has taken place the agents at the station and in the car respectively can readily detach the bags or articles from the ring or eye.

I find by experiment that in the transfer, the first action which takes place is the impalement of the rings by the hooks which project obliquely forward, the next is the simultaneous turning of all hooks and arms 45 degrees to the rear in the direction of motion which causes the spurs to be twisted in and then drawn out of the sockets, and finally the hooks swing to a position at right angles to the line of travel and the arms from a right-angle to an oblique position when further swinging of both hooks and arms is checked by the withdrawal of the spurs, while the rings become locked on the hooks by the catches. If it be but a single transfer (as from the car to the post) instead of an interchange of bags or articles, the arm on the car and the hook on the post will perform their work no matter what the position of the other arm and hook. If these have been set for a transfer as shown in Fig. 3, the tip of the hook will pass freely by the tip of the arm without contacting therewith, as the arm needs the length added by the ring to bring it into the path of the hook. The fact that the two hooks are short positively prevents their ever contacting with each other, and the disposition of the cam faces on the hooks is such that they will not stand at right angles to the line of travel and hence cannot contact with the arms.

The impact of a transfer or interchange will swing all hooks and arms part way to the rear against the tension of the spring-actuated plungers, after which they may be moved manually toward the car parallel with its wall, and across its doorway

if the car should be moving in a direction opposite to the arrow in Fig. 3. The bags are then removed by the agent, and the device remains inactive or swung to a diametrically opposite position, until it is needed again for use. Then its hook and arm are turned about their upright to the position shown in Fig. 3, and the operation is repeated. The same for the agent at the station near the post. But in resetting, if either agent have nothing to deliver he need not swing out the holding arm at all, and hence all possibility of accident is avoided. If neither agent swing out his holding arm, the hooks obviously freely pass each other without the possibility of accident or contact. If either should mount a ring in his holding arm and swing it out, and the other should omit to swing out his hook, no further complication would arise than that the transfer would not take place. Finally, if the posts are properly spaced from the track and the arms and hooks of uniform length, there is no possibility that the parts of any device on a car or a bag carried thereby can strike a post, nor the reverse.

What is claimed as new is:

1. A mail bag deliverer comprising an arm projecting substantially horizontally from a support and having a socket in its outer end; combined with a bag holder having a spur adapted to fit frictionally in said socket, and a spring carried by the arm and engaging the spur so as to permit its rotation in and withdrawal from the socket.

2. A mail bag deliverer comprising an arm projecting substantially horizontally from a support and having a socket in its outer end, and a spring carried by the arm with its tip extending partially over the mouth of the socket; combined with a bag holder having a spur adapted to fit removably in said socket and provided with a notch engaged by said tip.

3. A mail bag deliverer comprising an arm having a socket in its outer end, and means for supporting its inner end and permitting it to swing under impact; combined with a bag holder having a radial spur round in cross section adapted to fit frictionally in said socket, and means for supporting the bag from the holder at a point below the projected axis of said spur.

4. A mail bag deliverer comprising an arm having a socket in its outer end, a spring carried by the arm and projecting partly into said socket, and means for supporting the arm and permitting it to swing under impact; combined with a bag holder having a spur adapted to fit removably in said socket and provided with a notch detachably engaged by said tip.

5. In a mail bag transfer, the combination with an upright rod, a hook journaled thereon and projecting radially therefrom, and means for retarding its rotation around the rod; of an arm journaled on the rod independent of the hook, a bag holder comprising a ring adapted to be impaled by the hook, and means for releasably supporting it in upright position at the outer end of the arm.

6. In a mail bag catcher, the combination with an upright rod, a hook journaled thereon and projecting radially therefrom, and a plunger and cams for setting the hook oblique to the line of travel in either direction and for retarding its rotation around the rod; of a movable catch automatically closing against the tip of the hook, a mail bag holder comprising a ring adapted to lift said catch and be impaled on the hook, means for releasably supporting the ring in upright position, and a flexible connection between the ring and bag.

7. In a mail bag catcher, the combination with eyes projecting from a support, an upright rod carried by them, and a spring-actuated plunger between them; of a catching arm journaled on the rod, and a cam on the arm having faces either of which when engaged by the plunger will hold said arm yieldingly in position oblique to the support.

8. In a mail bag catcher, the combination with eyes projecting from a support, an upright rod carried by them, and a spring-actuated plunger between them; of a catching arm mounted on the rod opposite the plunger, and a cam on the arm having two oblique faces and two flat side faces, the former holding the arm oblique and the latter parallel to the support when engaged by the plunger.

9. A holder for mail bags and the like comprising a ring having a spur, and a movable delivering arm releasably supporting said spur; combined with a catcher including a hook adapted to engage said ring, and means for permitting the hook and arm to be moved to the rear by the impact.

10. A holder for mail bags and the like comprising a ring having a spur, and a swinging delivering arm releasably supporting said spur; combined with a catcher including a swinging hook adapted to engage said ring, and means for permitting the hook and arm to be swung to the rear around their supports after engagement with the ring of the hook.

11. A holder for mail bags and the like comprising a ring having a spur round in cross section, and a catcher; combined with a deliverer including an arm having a round socket frictionally receiving said spur, and means for permitting the arm to be moved to the rear as the spur is twisted in and drawn from its socket.

12. A holder for mail bags and the like comprising a ring having a spur, and a catcher; combined with a deliverer includ-

ing a swinging arm having a socket radial to its pivot and frictionally receiving said spur, and means for permitting the arm to be swung to the rear around its pivot after impalement of the ring by the catcher.

13. A holder for mail bags and the like comprising a ring having a spur; combined with handling devices each including an arm having a socket adapted to releasably receive the spur, and a hook adapted to impale the ring and standing at an acute angle to its arm, and means for permitting the arm and hook to be moved by impact.

14. A holder for mail bags and the like comprising a ring having a spur; combined with handling devices each including an upright, an arm thereon having a socket releasably receiving the spur, a hook also thereon adapted to impale the ring and standing at an acute angle to its arm, and means for permitting the arm and hook to be swung around the upright by the impact.

15. A mail bag transfer in duplicate on fixed and movable devices, each including an upright, a catching hook projecting therefrom, a delivering arm also projecting therefrom at an acute angle to the hook, and means for retarding the motion of the hook and arm upon the upright, the catcher on each device being disposed opposite the deliverer on the other.

16. A mail bag transfer including an upright, a catching hook journaled thereon, a delivering arm also journaled thereon, and means for setting the former at different oblique angles to the latter.

17. A mail bag transfer device including an upright rod, a catching hook and a delivering arm mounted independently thereon, yielding means for holding the hook in either of two oblique positions, and yielding means for holding the arm either parallel with or at right angles to the track.

18. A mail bag transfer device including an upright rod, a catching hook and a delivering arm mounted independently thereon, yielding means for holding the hook in either of two oblique positions or parallel with the track, and yielding means for holding the arm either parallel with or at right angles to the track.

19. A mail bag transfer device including a support, an upright carried thereby and slightly remote therefrom, and two spring-actuated plungers borne toward the upright; combined with a catching hook and a delivering arm mounted independently on the upright, and cams on the hook and arm, the former having faces holding the hook in either of two oblique positions, the latter having a face holding the arm at right angles to the track, and both having faces adapted to hold their respective members in either of two positions parallel with the track.

20. A mail bag transfer in duplicate on fixed and movable devices, each including an upright, a long delivering arm projecting therefrom at right angles to the track, and a short catching hook projecting therefrom oblique to the track.

21. A mail bag transfer in duplicate on fixed and movable devices, each including an upright, a long delivering arm and a short catching hook projecting therefrom and independently mounted thereon, means for setting the arm at right angles to or parallel with the track, and means for setting the hook oblique to or parallel with the track.

22. A mail bag transfer in duplicate on fixed and movable devices, each including an upright, a long delivering arm and a short catching hook independently mounted thereon, means for yieldingly holding the arm at right angles to the track and permitting it to swing into position alongside the same, and independent means for yieldingly holding the hook in either of two positions oblique to the track and permitting it to swing into position alongside the same.

23. A mail bag transfer in duplicate on fixed and movable devices, each including an upright carried by a support, and two spring-actuated plungers borne toward the upright; combined with a catching hook and a delivering arm independently journaled on the upright and of different length, cams on the hook having faces adapted by contact with its plunger to hold it in either of two oblique positions, and cams on the arm having faces adapted by contact with its plunger to hold it either at right angles to or parallel with the track.

24. A mail bag transfer including a catching hook and a delivering arm independently mounted on upright pivots, the arm having a socket in its outer extremity; combined with a holder comprising a ring, and a radial spur thereon round in cross section and frictionally fitting said socket whereby when drawn therefrom by the hook impaling the ring the spur twists in the socket and checks the swing of the hook to the rear.

25. In a mail bag deliverer, the combination with a delivering arm having a socket in its extremity; of a ring having a spur removably fitting said socket, a series of eyes fitting loosely over the arm and supported thereby, and a strap connecting the ring and eyes.

26. A mail bag transfer in duplicate on fixed and movable devices, each including an upright, a short catching hook journaled thereon and projecting horizontally therefrom, a longer holding arm journaled on the upright below the hook and its body bent upward so that its tip stands substantially in the plane of the tip of the hook, and means for yieldingly setting the hooks and arms at different angles.

27. A mail bag transfer in duplicate on fixed and movable devices, each including an upright, a short catching hook journaled thereon, a catch above and normally closing against the tip of the hook, a longer holding arm journaled on the upright below the hook and its body bent upward so that its tip stands substantially in the plane of the tip of the hook, and means for yieldingly setting the hooks and arms at different angles to the track.

In testimony whereof I have hereunto subscribed my signature this the seventeenth day of September, A. D. 1909.

JOHN L. ADAM.

Witnesses:

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