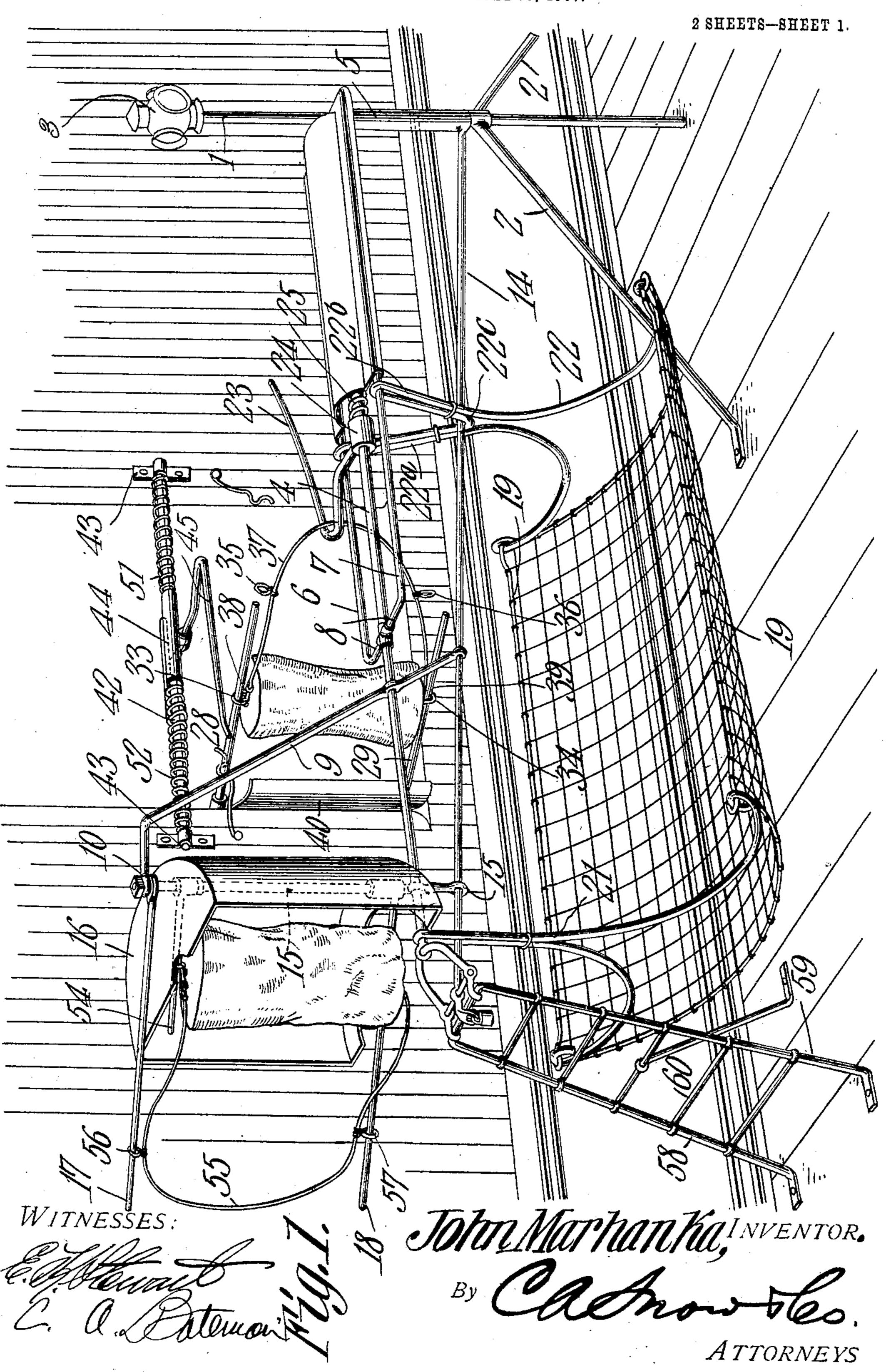
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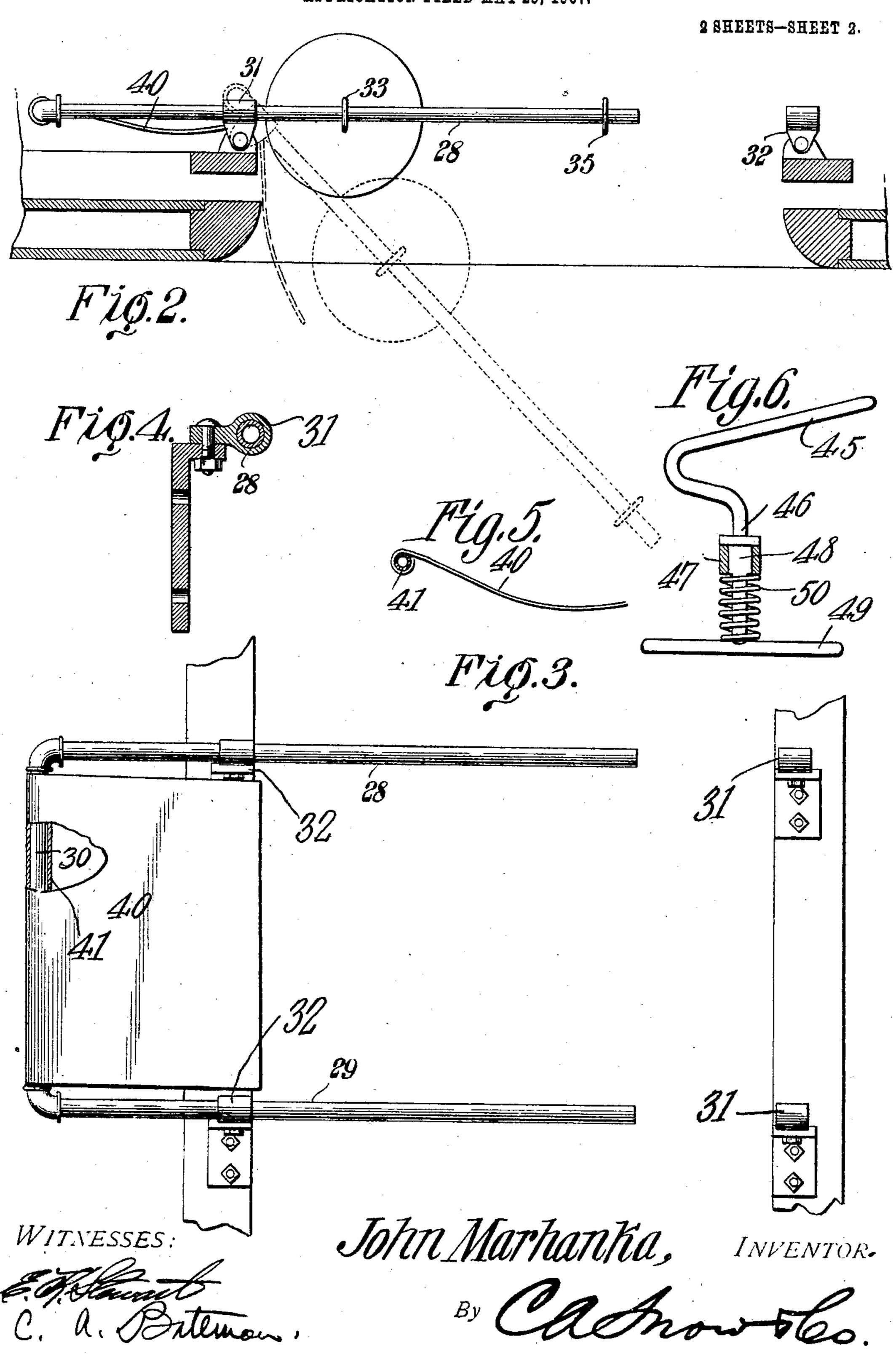
APPARATUS FOR HANDLING MAIL POUCHES.

APPLICATION FILED MAY 29, 1907.



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THE NORRIS PETERS CO., WASHINGTON, D. C.

## UNITED STATES PATENT OFFICE.

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## APPARATUS FOR HANDLING MAIL-POUCHES.

No. 863,736.

Specification of Letters Patent.

Patented Aug. 20, 1907.

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To all whom it may concern:

Be it known that I, John Marhanka, a citizen of the United States, residing at Crothersville, in the county of Jackson and State of Indiana, have invented a new 5 and useful Apparatus for Handling Mail-Pouches, of which the following is a specification.

This invention relates to improvements in apparatus for handling mail pouches in connection with trains or other vehicles while in motion, and it has for its object 10 to provide an improved apparatus of this character wherein the pouches are discharged from the postal car to a stationary receiving device, and simultaneously delivered from the latter to the postal car, preventing the pouch getting under the train and the postal matter 15 thus destroyed, as sometimes happens, and the delivering and receiving devices are capable of being readily reversed in order to adapt them to the direction in which the train is moving, enabling the same apparatus to be employed for trains moving in both directions, the 20 pouches being so supported on the car and the stationary crane that they will be positively received by the respective receiving hooks and accidental loss of the pouches is not liable to occur.

To these and other ends, the invention comprises the various novel features of construction and combination and arrangement of parts, which will be hereinafter more fully described, and pointed out particularly in the claims appended hereto.

In the accompanying drawings:—Figure 1 is a per30 spective view of mail handling apparatus constructed in accordance with the present invention, the apparatus being shown in condition for delivering a pouch from a postal car and one from the stationary crane. Fig. 2 represents a horizontal section through a portion of a mail car showing the relative arrangement of the movable crane, the dotted lines indicating the position of the crane in discharging the pouch. Fig. 3 represents a rear elevation of the crane on the car, showing it in readiness to receive a pouch. Fig. 4 represents a sectional view of one of the pivot members for the crane on the car. Fig. 5 is a detail view of one of the pouch shields. Fig. 6 is a detail view showing the manner of mounting the receiving hook on the car.

Corresponding parts in the several figures are indi-45 cated throughout by similar characters of reference.

The apparatus shown in the present embodiment of the invention is so constructed that the services of an attendant during the delivering operation of the pouches from passing trains is unnecessary, so that liability of the employees to injury is minimized, and the apparatus consists, in the present instance, of a relatively stationary crane having a receptacle to receive pouches and suitable devices coöperatively arranged therewith for discharging the pouches from the crane on the car, and devices on the crane for delivering a pouch to the

car, the stationary crane being reversible in order to accommodate it to trains passing in two directions, and the relatively movable crane and receiving hook on the car is also reversible in order to accommodate it to the direction of movement of the train, and is adapted to cooperate with the appliances for supporting and causing the delivery of the pouch as the train passes the stationary crane.

In the present instance, the stationary crane is composed of a standard 1 having a pair of divergently ar- 65 ranged legs 2 rigidly supporting it in vertical position, the lower end of the standard and the ends of the legs being firmly attached to a suitable support, such, for instance, as a station platform, and the top of the standard may be surmounted, if so desired, by a lamp or other 70 signal 3 which serves to aid the postal clerk in locating the stationary crane. Mounted to turn in a horizontal plane about this standard as an axis in an adjustable arm which serves to support the pouch receiving receptacle and the devices for delivering the pouches 75 thereto and also the devices for supporting the pouch is in position to be taken up by the car. This arm comprises, in the present instance, a horizontal guide 4 having its inner end rigidly attached to a sleeve 5, the latter being mounted to turn about the standard. The 80 inner ends of a pair of guide bars 6 and 7 are also joined to the said sleeve, the guide bars extending parallel to the guide and on opposite sides thereof, and having their outer ends joined thereto by means of the cross pieces 8. The outer portion of the guide 4 coöperates 85 with a bracket 9 which extends upwardly from the diagonal brace arm 14 to a point above the end of the crane arm where it is provided with an eye 10, the brace arm extending in a direction both downwardly and inwardly from the outer end of the guide and con- 90 nected to the bearing sleeve 5 on the standard. Cooperating with the outer ends of the brace arm and the guide 4 is a standard 15 which serves as a support for the pouch supporting devices of the stationary crane. This standard is provided with eyes or other suitable means 95 for connecting it to these parts and it extends vertically therefrom, its upper end extending through the eye 10 on the bracket 9. A pouch shield 16 is rigidly supported on the outer or free end of the crane arm, which, in the present instance, is semi-cylindrical in 100 shape and has an opening therein toward the outer end of the crane arm, the standard 15 extending through the casing and provided with a pair of pouch supporting arms 17 and 18 which are adjustable about the standard as an axis, whereby they may be offset angu- 105 larly to either side of the crane arm, the pouches to be taken up by the train being supported on these arms, as will be hereinafter described.

The receptacle for receiving the pouches from the postal car may be of any suitable form, that shown in 110

the present instance embodying a pair of strips 19 of relatively heavy wire or rod arranged parallel and at opposite sides, and a basket-work composed of wire or rope which is semi-cylindrical in shape. This recep-5 tacle is supported on the crane arm by means of a pair of brackets 21 and 22, the former having an intermediate portion doubled over the outer ends of the guide 4 and brace arm 14, the bracket 22 having a pair of loops 22a and 22b which coöperate with the parallel 10 members 6 and 7, a loop 22c being preferably formed on the bracket 22 between the loops described and cooperating with the brace arm 14 to steady the receptacle and prevent its swinging or sagging under the load of the pouches.

The devices on the stationary frame for delivering the pouches into the receptacle embody, in the present instance, a hook 23, which is arranged at an acute angle relatively to the guide 4, that is to say, it extends diagonally relatively to the direction of movement of the 20 crane, its outer end being free and its inner end attached to a slide 24 which is movable longitudinally on the guide 4 in order to permit it to ease the shock or impact caused by the discharge of the pouch, a yielding buffer or recoil check being interposed between the 25 slide for the hook and the crane arm to absorb the shock. The buffer or recoil check employed in the present instance comprises a helical spring 25 attached at its inner end to the sleeve 5 and at its outer end to the slide, the tension of the spring acting normally to 30 move the hook toward the standard and to resist forces tending to move it away from the standard, the inner end of the sleeve 26 of the slide coöperating with the sleeve 5 or any other stationary part of the crane arm as a stop for limiting the inward movement of the slide 35 under the action of the spring and serving to normally retain the delivery hook in proper position relative to the pouch receptacle. The delivery hook is reversible, that is to say, it is adapted to occupy positions on both sides of the guide, the hook being capable of turning in 40 a vertical plane about the guide 4 as an axis, the op-

of the guide. The relatively movable crane on the car for supporting the pouch in readiness to discharge into the relatively fixed receptacle comprises, in the present instance, a pair of parallel arms 28 and 29 connected at one end by a cross piece 30. These arms are adapted 50 to operate longitudinally in pivot members 31 of any suitable form secured to the jamb at one side of the door opening when the car is moving in one direction, and to interchangeably fit a pair of similar pivot members 32 at the opposite side of the door opening, these

positely arranged parallel members 6 and 7 coöperating

with a portion of the hook adjacent to the slide thereon

to support the hook in operative position at either side

55 pivot members having vertical axes in order to permit a swinging movement of the crane in a horizontal plane, and, if so desired, the arms of the crane may be of a length sufficient to engage both pairs of pivot members and thus form a closure for the door opening. These crane arms 60 are adapted to receive the usual rings 33 and 34 secured, respectively, to the top and bottom of the pouch, and also the rings 35 and 36 on the sack discharging cable or other flexible element 37, the latter having snap

hooks or other suitable attaching devices 38 and 39 at 65 its ends adapted to coöperate respectively with suit-

able attaching devices on the pouch, or, if so desired, the top and bottom rings of the pouch may be utilized as fastenings for the snap hooks of the discharging cable. The rings 35 and 36 on the chain are located some distance from the ends thereof in order that an interme- 70 diate portion of the chain may extend between the crane arms toward their outer open ends and the sack may be supported on the crane arms at a point nearer the car so as to provide sufficient clearance between the pouch and the crane for the passage of the discharging 75 hook on the relatively fixed crane.

In order to protect the pouch on the car from the rain and wind while it is in position preparatory to delivery, it is preferable to provide a shield, that shown in the present instance comprising a deflector plate 40 having 80 one of its vertical edges rolled to form a sleeve 41 which encircles the connecting portion 30, or it is attached in any other suitable way that may be desired. The advantage of attaching it to the connecting member 30 is that it will be correctly positioned relatively to the 85 pouch when the supporting arms 28 and 29 are extended through the car door, as shown in dotted lines in Fig. 2, and when these arms are reversed, that is to say, when they are applied to the bearing members at the opposite side of the car door, an inversion of the arms will 90 serve to position the shield so that it will protect the pouch when the car is moving in the opposite direction.

The apparatus shown in the present instance is not only capable of discharging pouches from the car to a 95 relatively stationary crane, but it is also capable of automatically transferring pouches from the stationary crane to the car when the train is in motion, the devices employed in the present instance for accomplishing this purpose comprising a slide bar 42 extending hori- 100 zontally across the car door and supported by brackets or other suitable devices 43, and mounted to slide on this bar is a cross head 44 which carries the receiving hook 45, the latter being attached to the cross head in any desired way and preferably in such a manner that 105. it may be reversed and thus permit it to be used while the car is moving in either direction. In the present instance, a shank 46 of the hook is rotatably mounted in the bearing portion 47 on the cross head, the latter being provided with a squared portion to receive a cor- 110 respondingly shaped part 48 on the shank of the hook, the shank beyond the squared portion being rounded or reduced and provided at its inner end with an operating handle 49 whereby it may be manipulated. A helical spring 50 interposed between the handle and 115 the cross head serves to normally retain the squared portion of the latter and the hook in coöperative relation; so that the hook will be supported in a horizontal position in readiness to take up a pouch supported on the stationary crane. When it is desirable to reverse 120 the hook, the shank thereof is moved axially of the cross head against the compression of the spring 50, thereby disengaging the coöperating squared portions and permitting the hook to be rotated through half a revolution about the shank thereof as an axis.

In order to reduce the shock due to the impact of the pouch against the hook on the car, it is preferable to provide suitable recoil devices for absorbing the momentum, a pair of helical springs 51 and 52 being employed in the present instance which encircle the slide 130

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bar at each side of the cross head and between the latter and the respective supporting brackets at the end of the slide bar.

The pouch to be taken up by the car is also provided 5 at its ends with a pair of rings which are adapted to be slipped upon the supporting arms 17 and 18 from the outer ends thereof, or, if so desired, a supplemental supporting arm 54 that is relatively shorter than the main supporting arms may be employed to receive the 10 upper ring on the pouch, the supplemental supporting arm being also mounted on the vertical standard 15. The pouch to be taken up by the car is also provided with a sling or loop which is composed of a cable or flexible element 55 and it has a pair of loops or rings 56 and 15 57 thereon which are arranged to engage the ring supporting arms 17 and 18 at points adjacent to their outer ends, so that the intermediate portion of the loop or sling will extend between the outer ends of the arms and in a position that will enable it to be readily en-20 gaged by the hook 45 on the car. The shield 16 preferably has its closed side arranged in the direction from which the train approaches, so that the draft produced by the movement of the train will not cause the pouch to be blown from its supporting arms.

In order to support the outer ends of the reversible crane arm and prevent movement thereof during the reception and discharges of the pouches relatively thereto, it is preferable to provide a steadying device which comprises, in the present instance, a pair of 30 substantially parallel vertical members 58 and 59 which are connected by a series of cross bars 60 which may be utilized as a ladder to enable the attendant to place the pouch into the receptacle or shield 16. This steadying device may be either stationary, that is to 35 say, it may be permanently fastened to the station platform or other support, or, if so desired, it may be attached to the outer end of the crane arm so as to swing therewith. It is shown in the present instance as secured to the platform and detachably locked to 40 the crane.

In handling mail pouches with an apparatus constructed in accordance with the present invention, the adjustable crane arm on the relatively fixed crane is set to point in a direction in which the train that is to 45 discharge the pouches is moving, and the crane arms of the relatively movable crane are inserted in the pivot members 31, that is to say, those toward the front of the car, and after the rings at the top and bottom of the pouch have been slipped over these arms while 50 the latter occupy the position shown in Fig. 2, and the rings of the cable have been slipped over the outer ends of these arms, the crane is turned about the pivot members into a position similar to that indicated by the dotted lines in Fig. 2. While the crane on the car 55 occupies this position, the intermediate portion of the chain is in line with the relatively fixed discharging hook on the stationary crane, and as the postal car passes the latter, the discharging hook will engage the intermediate portion of the cable and the relative 60 movement of the discharging and receiving parts of the apparatus will serve to draw the rings of the cable and pouch longitudinally toward the outer ends of the crane arms on the car. The angular position of the crane arms on the car relatively to the direction of 65 movement of the train will cause an outward movement of the pouch as it disengages from the crane arm, and this will operate to swing it into a position above the receptacle in rear of the discharging hook when the cable attached to the pouch has been engaged thereby, and the weight of the pouch will serve to de- 70 posit it into the receptacle. The recoil or impact produced by the sudden arresting movement of the pouch is absorbed by the check or buffer 25, so that damage or injury to the pouch or its contents is avoided and the strain on the stationary crane is minimized.

When the train is moving in the opposite direction to that described above, the adjustable arms on the stationary crane may be adjusted accordingly by operating the lever 6 to withdraw the locking pin 9 and the apertures 10 and 11 of the sleeve and standard, respec- 80 tively, the crane arm being also then turned in a horizontal plane through an angle of 180°. The crane arm will then occupy a position on the opposite side of the standard and pointed in the direction of movement of the train, and by rotating the discharge hook 23 about 85 the guide 4 as an axis, its position will be reversed and it will be directed toward the path of the train, a portion of the hook coöperating with the member 7 to support the hook in operative position. The crane on the car is applied in this case to the pivot members 32 90 at the opposite side of the car and swung at the proper angle to carry the discharge chain into line with the discharging hook on the stationary crane.

The foregoing is a description of the operation of the devices which serve to transfer the pouch from the car 95 to the stationary support, and, in the present instance, the apparatus is capable also of transferring the pouch from the stationary support to the postal car while the latter is in movement, and without interfering with the operation of discharging the pouch from the car, the 100 pouch to be taken up by the car being introduced into the casing or shield 16 and the loop thereon having its supporting rings 56 and 57 slipped over the outer ends of the supporting arms 17 and 18, the latter having been previously turned about the standard 16 as a center, so 105 that they are offset from the crane arm in a direction toward the crank. When these arms are so adjusted, the intermediate or looped portion of the cable attached to the pouch will be in the path of movement of the receiving hook 25 on the car, and as this hook passes the 110 stationary crane, it will withdraw the pouch from the shield or casing after the pouch supporting arms on the car have passed it, the pouch swinging behind these arms and into the car door. The shock or momentum produced by the impact between the pouch and the re- 115 ceiving hook on the car is absorbed by the recoil springs.

The reversible feature of the apparatus adapts it especially to service on single track roads where the trains move in both directions on a single track, but it may be applied also to double track roads by mounting 120 the stationary crane at a point midway between the two tracks, and the apparatus is capable of such a use for the reason that no parts of the apparatus project unduly at either side thereof, the pouch receptacle having its support arranged centrally thereon in order that the 125 pouches may be deposited into either side thereof according to the direction of movement of the train.

Mail delivery apparatus constructed in accordance with the present invention insures a positive transferring of the pouches from the postal car to the relatively 130

fixed receiving devices, and vice versa, so that the pouches cannot be dropped or otherwise permitted to fall and thus become lost or destroyed under the running gear of the train, and the operation is performed 5 automatically, so that not only is injury to bystanders prevented, but, as the apparatus does not require the services of an attendant at the receiving devices, injury of the employees is not liable to occur.

Moreover, the reversible feature enables the same ap-10 paratus to be adjusted to operate with trains moving in both directions, thus economizing in the cost and maintenance of the apparatus and reducing the number of obstructions along the track, and, furthermore, the novel mode of supporting the pouches not only insures 15 its positive delivery, but it obviates the necessity of tying a strap about the center of the pouch, so that full pouches may be handled with the apparatus, and injury to the pouches is minimized for the reason that the receiving hooks do not engage the body of the pouch, 20 and this feature may be employed in connection with apparatus of various forms, the cable or flexible member attached to the pouch being adapted to coöperate with the receiving hooks employed generally on postal cars.

What is claimed is:— 25

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1. In apparatus of the character described, the combination with a pouch support having a pair of suitably spaced arms, of a flexible member adapted to be attached to a pouch and having an intermediate portion of the flexible 30 member and devices adapted to coöperate with the said arms to suspend a portion of said member between them, and a device adapted to coöperate with an intermediate portion of the flexible member for disengaging it from the said arms.

2. In an apparatus of the character described, the combination with a pouch support having a pair of substantially parallel arms adapted to receive rings on the ends of the mail pouch, and a flexible member having its ends adapted to be attached to the pouch and provided with 40 portions adapted to cooperate with the said arms to suspend a portion of the member between them, of a hook adapted to cooperate with that portion of said member suspended between the arms and serving to disengage the said member and pouch from the arms.

3. In an apparatus of the character described, the combination with a pouch support having a pair of substantially parallel supporting arms adapted to receive rings on the ends of a mail pouch, and a flexible member having its ends provided with snap hooks for detachably engag-50 ing the pouch and provided at intermediate points with rings adapted to operate longitudinally of the arms and serving to suspend a portion of the flexible member between them, of a device having a portion adapted to engage between the intermediate portion of the connecting 55 member and the pouch and serving to disengage them in a direction longitudinally of the said arms.

4. In an apparatus of the character described, the combination with a pouch support having a pair of suitably spaced arms adapted to receive rings in the ends of the 60 mail pouch, and a flexible member having its ends adapted to be attached to the mail pouch and having rings detachably engaging the said arms and serving to suspend an intermediate portion of the connecting member between them, of a device adapted to coöperate with the interme-65 diate suspended portion of said member to disengage it and the pouch from said support, and a receptacle arranged in cooperative relation to said disengaging device and adapted to receive the pouch while the connecting member is in engagement with the said device.

5. In a device of the character described, the combination with a pouch support embodying a pair of parallel arms connected at one end, and a pair of pivot members having vertical axes and adapted to slidingly receive the arms of the crane, devices for positioning the pouch be-

tween the said arms, of a hook for disengaging the pouch 75 from the said support.

6. In a device of the character described, the combination with a pouch support embodying a pair of parallel arms, and a member for rigidly connecting them at one end, and pairs of pivot members adapted to be arranged 80 at opposite sides of a car door and to interchangeably receive the arms, and a flexible discharging member adapted to be attached at its ends to a mail pouch and having devices arranged thereon and coöperating with the arms for suspending an intermediate portion of the said 85 member between them, of a hook adapted to coöperate with the said intermediate suspended portion of said member for disengaging the latter from the pouch support.

7. In a device of the character described, the combination with a pouch support embodying a pair of substan- 90 tially parallel arms spaced sufficiently to admit a mail pouch full length between them, and a member rigidly connecting them at their inner ends, pairs of pivot members adapted to be arranged at the opposite sides of a car door and adapted to interchangeably receive the said arms 95 and also to simultaneously receive the arms to provide a closure for the door, and devices for positioning the pouch between the arms, of a device for disengaging the pouch from the pouch support.

8. In a mail handling apparatus, the combination with 100 a mail pouch support adapted to be carried by a car, of a crane having an arm thereon reversible according to the direction of movement of the car, and a hook on said arm reversible according to the position occupied by the said arm the hook being yieldable in a direction longitudinally 105 of the said arm and serving to discharge the pouch from its support.

9. In a mail handling apparatus, the combination with a mail pouch support adapted to be carried by a car, of a crane having an arm mounted thereon to turn in a hori- 110 zontal plane and adapted to occupy two positions, and a hook mounted to turn in a vertical plane on said arm and having means for supporting it in position on opposite sides of the said arm and permitting a relative longitudinal movement of the hook.

10. In a mail handling apparatus, the combination with a suitable mail pouch support adapted to be carried by a vehicle, of a relatively fixed crane having an arm mounted thereon to turn in a horizontal plane and adapted to occupy positions at opposite sides of the 120 standard and extending in the direction of movement of the vehicle, a guide on the said arm, a hook mounted to turn in a vertical plane above the said guide for reversing the position of the hook at opposite sides of the said arm, and a pair of hook supporting members arranged 125 at each side of said guide and coöperating with portions of the hook for supporting the latter at each side thereof.

11. In a mail handling apparatus, the combination with a suitable mail pouch support adapted to be carried by a vehicle, of a relatively fixed crane embodying a 130 vertical standard, an arm pivoted to turn about the said standard and having a guide thereon, a slide mounted to operate longitudinally of said guide and having a hook extending diagonally relatively to the guide, and a receptacle supported on said arm beyond the closed end of the 135 hook and having portions projecting to either side of the said arm for receiving the pouches when the arm occupies either of two positions.

12. In a mail handling apparatus, the combination with a suitable mail pouch support adapted to be carried 140 by a vehicle, of a relatively fixed crane embodying an upright, an arm pivoted to turn in a horizontal plane about the said upright as an axis, said arm embodying a guide and a pair of members extending parallel thereto and at opposite sides thereof, a hook pivoted to turn 14% about the guide having portions adapted to coöperate with the said members to support it in reverse positions at each side of the said arm.

13. In a mail handling apparatus, the combination with a suitable pouch support adapted to be carried 150 by a vehicle, of a relatively stationary crane embodying an upright, an arm mounted to turn about said upright as an axis and embodying a radial guide, and a pair of members extending parallel thereto and at opposite sides

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thereof, a slide mounted to reciprocate longitudinally of said guide and to turn about it as an axis, and having a receiving hook thereon, a check for yieldingly resisting the recoil of the hook, portions of the hook coöperating 5 with the said members to support the hook in reverse positions at opposite sides of the guide, and a receptacle having brackets suspended from the crane arm.

14. In a mail handling apparatus, the combination with a suitable mail pouch support adapted to be carried 10 by a vehicle, of a relatively stationary crane embodying a vertical standard, an arm pivoted to turn about the said standard in a horizontal plane and embodying a horizontally arranged guide, and a pair of members arranged on opposite sides of the said guide and extending 15 parallel thereto, a slide mounted to reciprocate axially of the guide and to turn about the guide as an axis said slide having a sleeve thereon adapted to cooperate with a relatively fixed part of the arm to limit the movement of the slide in one direction, and a hook carried by the 20 slide, a helical spring encircling the guide and normally operating to resist the movement of the slide in a direction axially of the guide, the said members being arranged to cooperate with portions of the hook to limit the turning movement thereof about the guide as an axis. 15. In a mail handling apparatus, the combination with a suitable pouch support adapted to be attached to a vehicle, a relatively stationary crane embodying a ver-

tical standard, and an arm mounted to turn about the standard as an axis, the said arm embodying a hori-30 zontally extending guide, a diagonally extending brace arm having its outer end attached to the outer end of the guide; and a pair of parallel members arranged at opposite sides of the said guide, of a receptacle having portions projecting beyond each side of the said rod and 35 having clips for securing it thereto, brackets arranged at opposite ends of the receptacle, one of the brackets engaging in the said parallel members, a slide mounted

to operate longitudinally of said guide and to rotate in a vertical plane about the guide as an axis, and a hook carried by the said slide and having its closed end ar- 40 ranged toward the receptacle, the parallel members serving as means for supporting the hook at either side of the receptacle.

16. In a mail handling apparatus for postal cars, the combination with a stationary crane having a reversible 45 arm thereon, and a reversible pouch support mounted on the free end of the arm and adjustable transversely thereof, of a receiving hook adapted to be carried by the car and serving to take up the pouch on the said support.

17. In a mail handling apparatus for postal cars, the combination with a stationary crane having an arm thereon mounted to turn about a vertical axis, a receiving hook carried by the said arm, a receptacle on the arm in cooperative relation with the receiving device, 55 and a pouch support mounted on the free end of said arm and adjustable in a direction laterally thereof, of a pouch support adapted to be carried by the car and to cooperate with the receiving device of the crane arm, and a receiving device adapted to be carried by the car and to co- 60 operate with the pouch support upon the crane arm.

18. In a mail handling apparatus for postal cars, the combination with a relatively stationary support for the pouches of a receiving hook adapted to be carried by the car and embodying a relatively fixed slide bar, a cross 65 head mounted to reciprocate thereon and a hook reversibly mounted on the cross head.

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

JOHN MARHANKA.

Witnesses:

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C. W. KEACH, ADAM G. RITZ.