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Patented June 24, 1902.

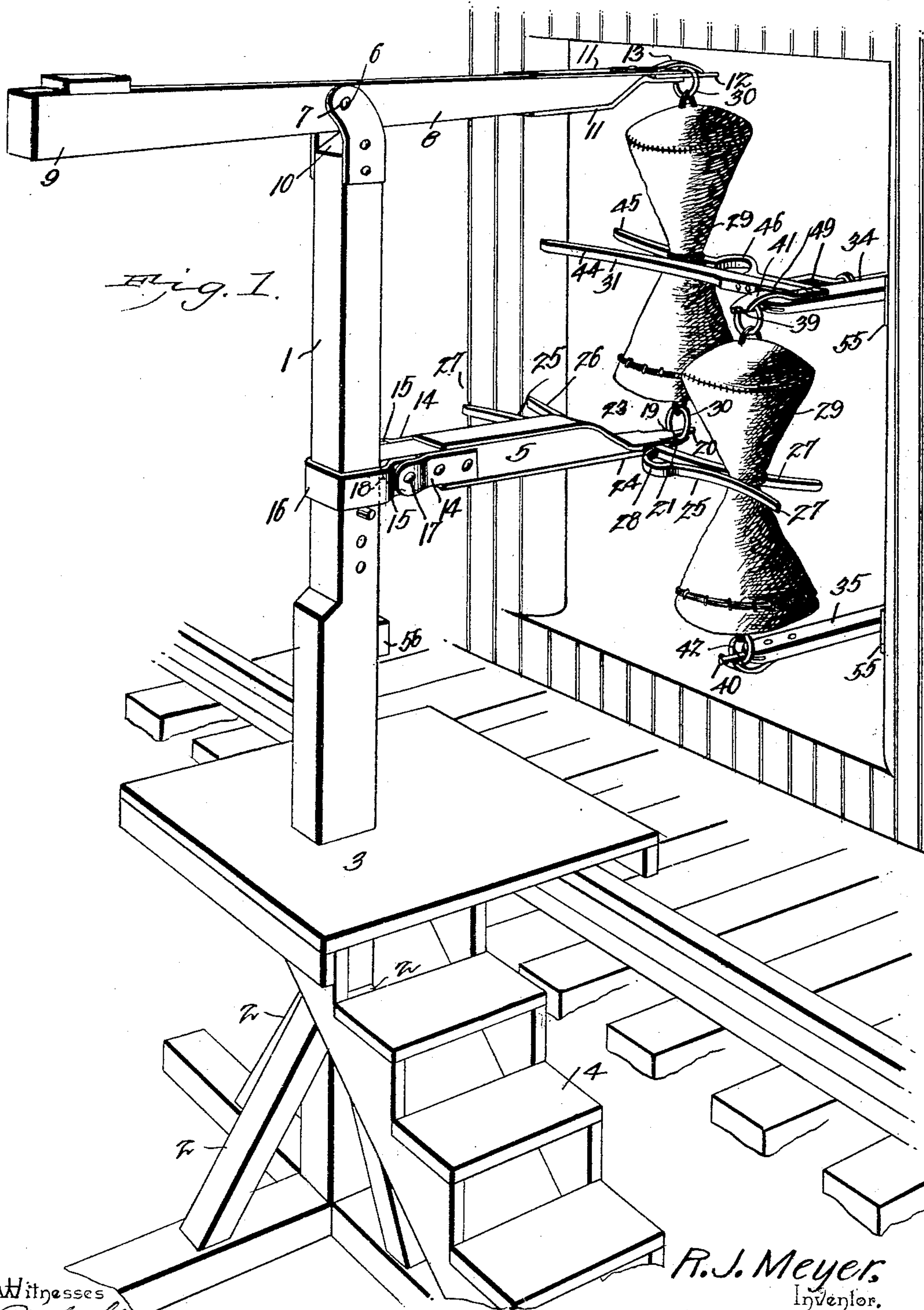
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MAIL BAG CATCHING AND DELIVERING MECHANISM.

(Application filed Mar. 25, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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W. J. Riley

by

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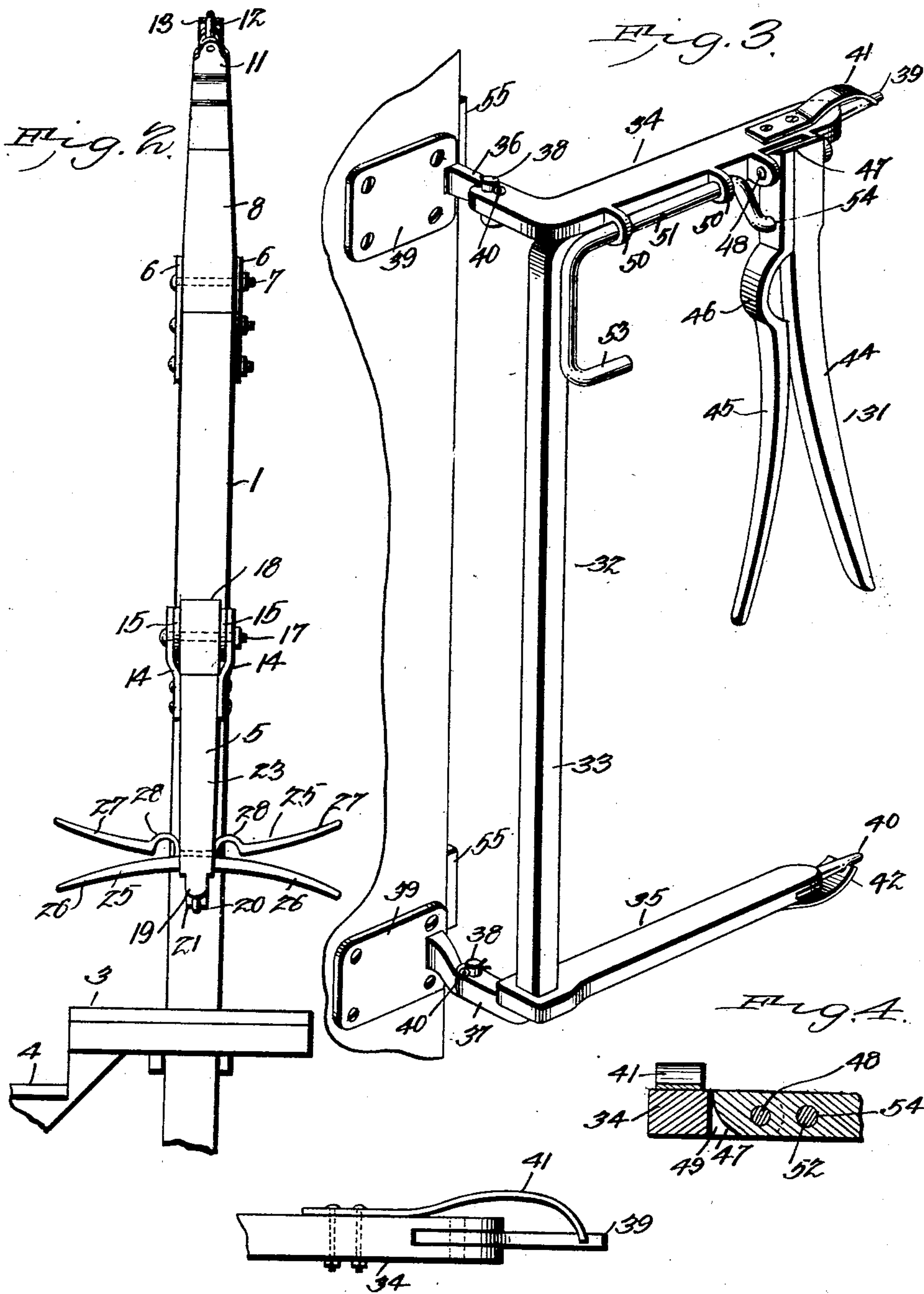
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Witnesses
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Fig. 5. by

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UNITED STATES PATENT OFFICE.

RALPH J. MEYER, OF MITCHELL, COLORADO, ASSIGNOR OF ONE-HALF TO LILLIAN S. DODDRIDGE, JOHN S. DODDRIDGE, AND JOHN B. DOWD, OF REDCLIFF, COLORADO.

MAIL-BAG CATCHING AND DELIVERING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 703,074, dated June 24, 1902.

Application filed March 25, 1902. Serial No. 99,920. (No model.)

To all whom it may concern:

Be it known that I, RALPH J. MEYER, a citizen of the United States, residing at Mitchell, in the county of Eagle and State of Colorado, have invented a new and useful Mail-Bag Catching and Delivering Mechanism, of which the following is a specification.

The invention relates to improvements in mail-bag catching and delivering mechanism.

10 The object of the present invention is to improve the construction of mail-crane and to provide a simple and comparatively inexpensive mail-bag catching and delivering mechanism adapted to enable mail bags or
15 sacks to be conveniently exchanged between a train and a station without necessitating a person on the train exposing any portion of his body in effecting the exchange.

20 A further object of the invention is to provide a simple and efficient track-crane in which the supporting-arms will be adjustable to receive bags or sacks of different lengths and in which the said arms will automatically drop or swing back out of the way after
25 an exchange has been made.

30 Furthermore, it is the object of the invention to provide a car-crane mounted wholly within a car and adapted to be changed from one side to the other to avoid turning the car and capable of being readily manipulated to extend it from the car and to return it within the same.

35 The invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

40 In the drawings, Figure 1 is a perspective view of a mail-sack catching and delivering mechanism constructed in accordance with this invention. Fig. 2 is an elevation of a portion of the track-crane, showing the upper and lower supporting-arms swung back out of the way. Fig. 3 is a perspective view
45 of the car-crane. Fig. 4 is a detail sectional view of the upper portion of the same. Fig. 5 is a detail view of the outer end of the upper sack-supporting arm of the car-crane.

Like numerals of reference designate cor-

responding parts in all the figures of the drawings. 50

1 designates a vertical standard of a track-crane mounted on a suitable base and supported by suitable inclined braces 2 and supporting a platform 3, arranged between its 55 ends at a suitable elevation. The track-crane is provided with steps 4, leading to the platform, and the upper portion of the standard forms a guide for a vertically-adjustable pivotally-mounted lower sack-supporting arm 5, 60 and the upper end of the standard is provided with a pair of upwardly-extending perforated ears 6, receiving a pivot 7, on which is mounted an upper sack-supporting arm 8, consisting, preferably, of a weighted lever 65 and having a rearwardly-extending weighted arm or portion 9, which, after an exchange of mail bags or sacks has been made, is adapted to swing the upper sack-supporting arm upward out of the way to the position 70 shown in Fig. 2 of the drawings. The upwardly-extending ears 6 are set at a slight inclination, and the rear edge of the upper end of the standard is beveled or cut away at 10 to permit the weighted lever to assume an 75 inclined position, and when the same is in a horizontal position the upper supporting-arm or front portion of the weighted lever rests upon the upper end of the standard, and it is held in such position by the sack or bag, as 80 hereinafter explained, so that as soon as the bag is removed the upper supporting-arm will be automatically swung upward or backward out of the way.

85 The outer end of the upper sack-supporting arm is provided with outwardly-extending upper and lower longitudinal ears 11, arranged horizontally when the supporting-arm is horizontal and preferably formed by plates secured to the upper and lower faces of the 90 outer end of the arm, as clearly shown in Fig. 1 of the drawings. Mounted between these ears is a pivoted finger 12, arranged to swing laterally in either direction to permit a mail sack or bag to be carried off of it by a 95 train traveling in either direction and adapted to be held longitudinally of the supporting-arm by a spring 13, secured to the upper

plate of the supporting-arm and having a free outer portion arranged to engage the pivoted finger. The outer end of the spring is provided with a central notch and is rounded
 5 at each side of the same to provide beveled edges to enable the finger to be readily swung laterally into and out of engagement with the spring.

The lower supporting-arm 5 is provided at
 10 opposite sides of its inner end with perforated ears 14, having attachment plates or shanks and offset from the side faces of the supporting-arm 5 to receive the ends or ears 15 of a sliding sleeve or yoke 16, arranged on
 15 the upper portion of the standard and adapted to be located at different elevations, as herein-after explained. The sleeve or yoke is approximately U-shaped, being composed of two sides and a transverse connecting end
 20 portion, the terminals of the sides forming the said ears 15 and receiving the inner end of the supporting-arm 5, which is secured to the sleeve or yoke by a pintle 17. The pintle 17 passes through the perforated ears, the joint being reinforced by the said ears 14.
 25 The inner end 18 of the lower supporting-arm is curved to form a cam, which is located between the pivot and the standard when the lower arm is in a horizontal position and
 30 which is adapted to bind against the said standard, whereby the arm is firmly held in its adjusted position. When the arm 5 swings downward or backward, the cam is carried out of engagement with the standard, and the
 35 sleeve and the arm will slide downward on the same. The arm 5 is provided at its outer end with ears 19, similar to those of the upper supporting-arm and receiving a pivoted
 40 finger 20, which is engaged by a spring 21, arranged beneath the ears and constructed the same as the finger-engaging spring heretofore described. The plates 23 and 24, which
 45 connect the ears with the lower supporting-arm 5, also support a pair of oppositely-disposed sack-engaging forks 25, extending laterally from the said arm and secured between the plates, which are extended and recessed at their inner faces to receive the forks. Each
 50 fork consists of a rigid curved side 26 and a resilient side or spring 27, the curved sides 26 being preferably formed by a continuous bar or piece extending between the plates 23 and 24, and the springs or resilient sides 27 preferably consist of a single continuous piece
 55 of resilient material. The springs, which are slightly curved, as shown, diverge from the rigid sides and are provided at their inner ends beyond the contiguous portions of the fork with a bend 28, forming a clamping-
 60 loop and adapted to receive and hold a mail-bag. A mail-bag coming in contact with the fork will be carried into the clamping-loop, the spring or resilient side being adapted to be forced outward to permit this operation.
 65 The arm 5 in swinging downward or backward will carry with it the bag or sack and hold the same until removed. The track-

crane is adapted to receive a mail bag or sack 29 of the ordinary construction, provided at the top and bottom with rings 30 for engaging
 70 the fingers, and when such mail-bag is engaged by the mail-crane of a car the fingers will be swung laterally out of engagement with the springs and will permit the bag to slide off of them.

The bag or sack of the track-crane is engaged by a fork 31 of a car-crane 32, comprising a vertical bar or standard 33 and upper and lower sack-supporting arms 34 and 35, and the said crane is provided at the top and
 80 bottom with lugs or ears 36 and 37, arranged substantially at right angles to the sack-supporting arms and detachably mounted on pintles 38 of brackets 39. The brackets 39, which are designed to be located in pairs at
 85 opposite sides of the door of a mail-car, are provided with suitable arms, at the outer ends of which are arranged the said pintles 38, perforated for the reception of suitable keys 40, by means of which the crane 32 is
 90 detachably mounted on the brackets and which permit the cranes of a car to be readily reversed and changed from one side of the car to the other to arrange them properly without turning the car end for end. Each car
 95 will be provided with a right-hand crane and with a left-hand crane, such cranes being located at the rear side of the door-openings in order to present the fork to the front, and when a mail-car has reached its destination
 100 the cranes may be changed to permit the mail-car to return to the other end of the loop without turning it end for end.

The upper lug or ear is preferably formed integral with the upper supporting-arm, as
 105 shown, and the lower ear or lug is formed integral with the vertical bar or standard. The upper arm 34 is rigid with the bar or standard, and the lower arm is slidably mounted on the latter to enable it to be adjusted ver-
 110 tically to accommodate mail bags or sacks of different lengths. The outer ends of the sack-supporting arms 34 and 35 are bifurcated to receive pivoted fingers 39 and 40, which are engaged by upper and lower springs
 115 41 and 42, constructed the same as the sack-receiving fingers and springs heretofore described. The inner end of the lower arm 35 is provided with a rectangular opening to receive the vertical bar or standard, which is
 120 squared; but any other non-circular shape may be provided for these parts.

The fork 31, which is adapted to swing upward and downward to arrange it in horizontal position for operation and to lower it to
 125 an approximately vertical position to permit it to pass through the car-door opening, is composed of a rigid side 44 and a resilient side or spring 45, having a bag-receiving loop or bend 46, which forms a clamp and which
 130 is adapted to receive the central portion of a bag or sack similar to the forks heretofore described. The fork 31 is provided at its inner end with a curved edge 47 and is perforated

adjacent to the same for the reception of a pivot 48, which passes through the fork and through perforated ears 49, extending outward from the upper supporting-arm, adjacent to the outer end thereof. The upper supporting-arm is also provided with ears or bearings 50 for the reception of a rock-shaft 51, having a crank-arm 52 at its outer end and provided at its inner end with a suitable handle 53. The L-shaped arm or crank 52 at the outer end of the rock-shaft extends into a perforation 54 of the fork 31, and the rock-shaft is adapted to be partially rotated to swing the fork upward from an approximately vertical position to a horizontal position, and the handle 53 at the inner end of the rock-shaft is adapted to operate as a handle or grip for swinging the crane inward and outward and for raising and lowering the fork 31. The crane is adapted to lie normally against the side of a car, and it is swung horizontally with the fork in its lowered position when it is desired to arrange the crane for catching the mail bag or sack while the car is in motion. By swinging the crane horizontally it is extended through the door-opening, carrying with it the bag or sack to be delivered to the station in exchange for the one collected, and after the car-frame has been extended through the doorway the fork is swung upward and is held rigidly in a horizontal position by means of the rock-shaft. When the fork 31 is swung upward, its cam edge 47 is carried into contact with the upper supporting-arm of the crane to form a stop for limiting the upward movement of the said fork. After the mail bag or sack is lodged in the clamping loop or bend of the resilient side or spring of the fork 31 the latter is swung downward and the car-crane is swung horizontally to return it to its former position with the car. This operation may be effected without necessitating the operator exposing any portion of his body.

In order to reduce the shock or jar to a minimum to avoid injuring the car-crane when the fork comes in contact with a sack or bag, suitable cushions 55 are provided, and a cushion 56 is preferably mounted on the standard of the track-crane to receive the lower pivoted supporting-arm when the latter swings downward. These cushions may consist of blocks of rubber or they may be constructed in any other suitable manner.

It will be seen that the mail-sack catching and delivering mechanism is adapted to enable a mail-sack to be collected by a train in motion and that it will permit a train to simultaneously deliver a sack or bag at the station or other point. It will also be clear that the sack-supporting arms of the track-crane are adapted to swing backward automatically to arrange them out of the way as soon as the sack is removed and that the car-crane is adapted to be manipulated entirely from the interior of a car without necessitating the operator exposing any portion of his body during the entire operation.

What I claim is—

1. In a mail-sack catching and delivering mechanism, the combination with a support, of a pair of oppositely-disposed sack-engaging forks consisting of a rigid bar centrally secured to the support and projecting from opposite sides thereof to form a rigid side for each fork, and a single continuous piece of resilient material centrally fixed to the support and projecting from opposite sides thereof to form a resilient side for each fork, said resilient material being provided with sack-receiving loops or bends arranged adjacent to the support and adapted to clamp a sack, substantially as described.

2. In a mail-sack catching and delivering mechanism, the combination of a standard, an upper pivotally-mounted sack-supporting arm provided with means for engaging a sack or bag, a lower pivoted sack-supporting arm provided with plates extending from its outer end, means arranged at the outer ends of the plates for engaging a sack or bag, and the oppositely-disposed sack-engaging forks comprising a continuous bar secured between the said plates and extending from opposite sides thereof, and a continuous spring also secured between the plates and projecting from opposite sides of the same, substantially as described.

3. In a mail-sack catching and delivering mechanism, the combination of a hinged car-crane arranged to swing horizontally and designed to be mounted on the interior of a car and provided with means for engaging a sack, a pivoted fork mounted on the crane and arranged to swing upward and downward, and operating mechanism connected with the fork and adapted also for swinging the crane inward and outward, substantially as described.

4. In a mail-sack catching and delivering mechanism, the combination of a hinged car-crane designed to be mounted on the interior of a car and arranged to swing horizontally and provided with means for supporting a sack, bag or sack engaging means pivotally mounted on the crane and arranged to swing upward and downward, a rock-shaft connected with the said means and adapted to swing the same upward and downward, said rock-shaft being also adapted for swinging the crane, substantially as described.

5. In a mail-sack catching and delivering mechanism, the combination of a car-crane designed to be hinged at the interior of a car and provided with means for holding a sack, a sack-engaging fork movably mounted on the crane, a rock-shaft mounted on the crane and connected with the fork, and a handle arranged at the inner end of the rock-shaft and adapted for operating both the fork and the crane, substantially as described.

6. In a mail-sack catching and delivering mechanism, the combination of a car-crane designed to be hinged to a car at the interior thereof, a sack-engaging fork pivotally mounted on the crane at the top thereof and pro-

vided with means for engaging the same to limit its upward swing, and a rock-shaft mounted on the crane and provided at its outer end with an arm connected with the fork, said
5 rock-shaft being also provided at its inner end with a handle adapted to be operated to manipulate the fork and to oscillate the crane, substantially as described.

7. In a mail-sack catching and delivering
10 mechanism, the combination of brackets designed to be secured within a car, a reversible crane provided at the top and bottom with lugs detachably mounted on the brackets, said crane being composed of a vertical bar

or standard, an upper rigid sack-supporting 15 arm, and a lower sack-supporting arm adjustably mounted on the bar or standard, a fork pivotally mounted on the upper supporting-arm, and operating mechanism connected with the fork and adapted to oscillate the 20 crane, substantially as described.

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

RALPH J. MEYER.

Witnesses:

W. J. DILLON,

J. H. JOCHUM, Jr.