

No. 878,360.

PATENTED FEB. 4, 1908.

J. C. DAYTON.

MAIL BAG CATCHING AND DELIVERING APPARATUS.

APPLICATION FILED SEPT. 21, 1907.

3 SHEETS—SHEET 1.

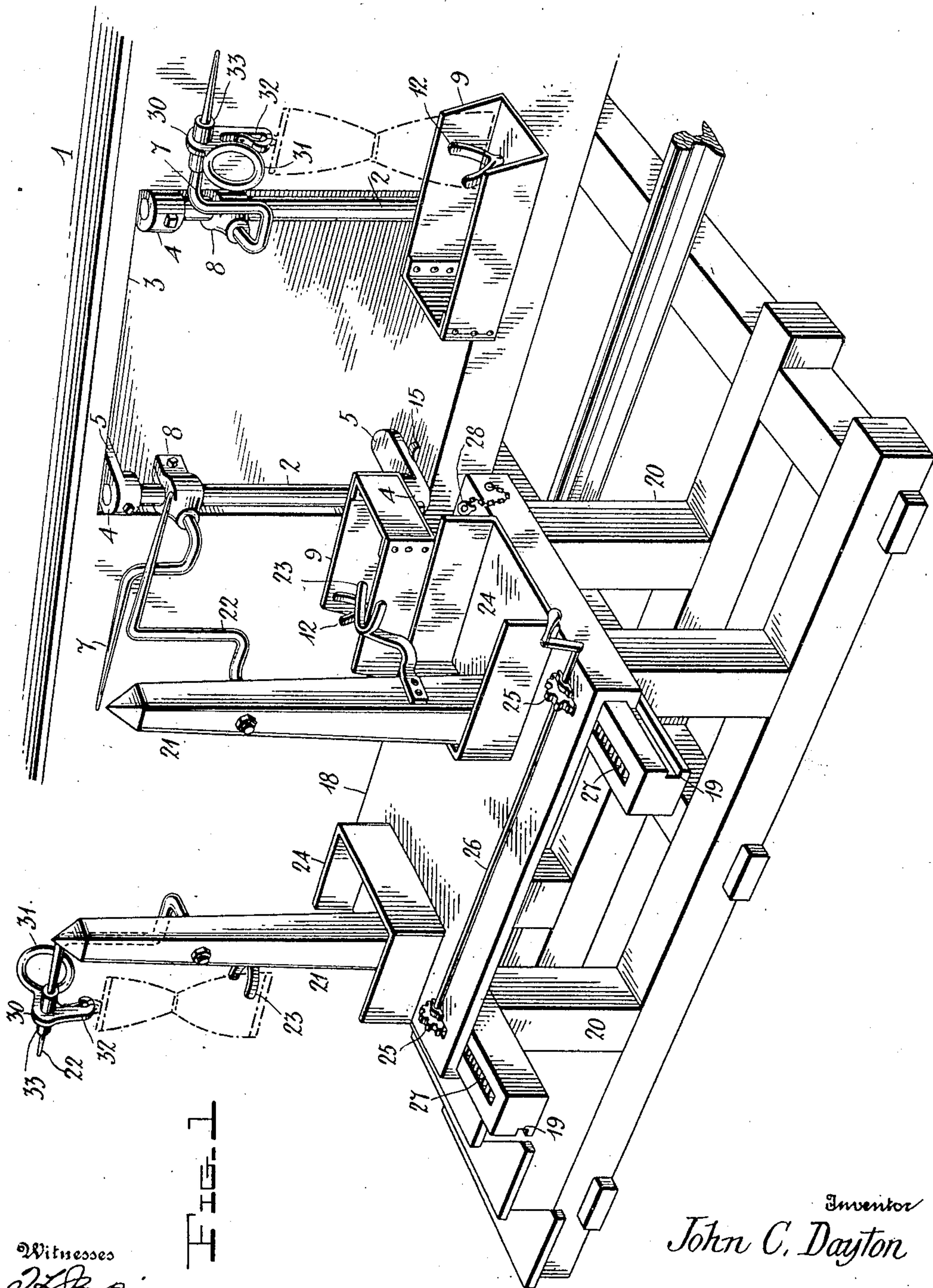


FIG. 1

Witnesses

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By

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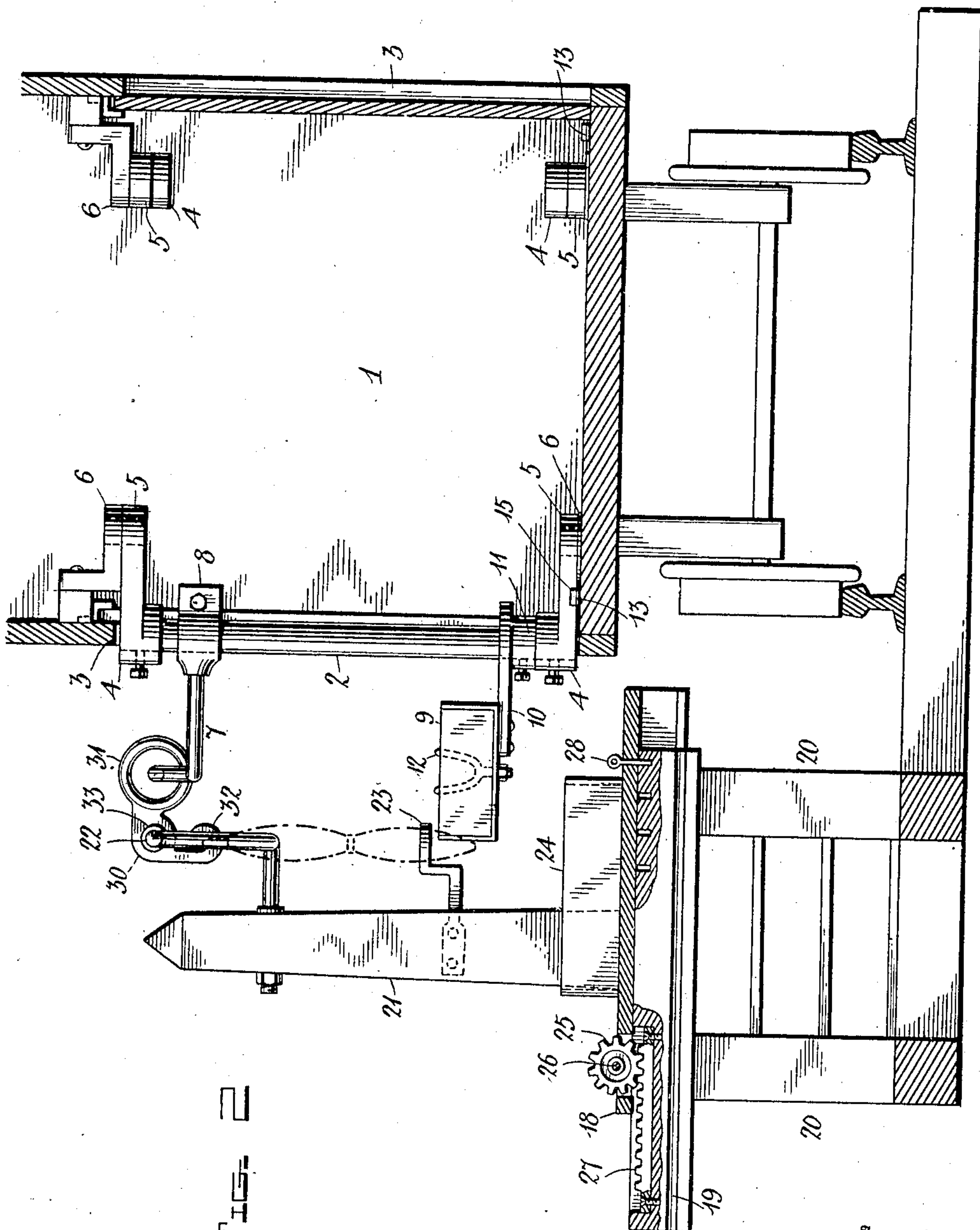
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3 SHEETS—SHEET 2.



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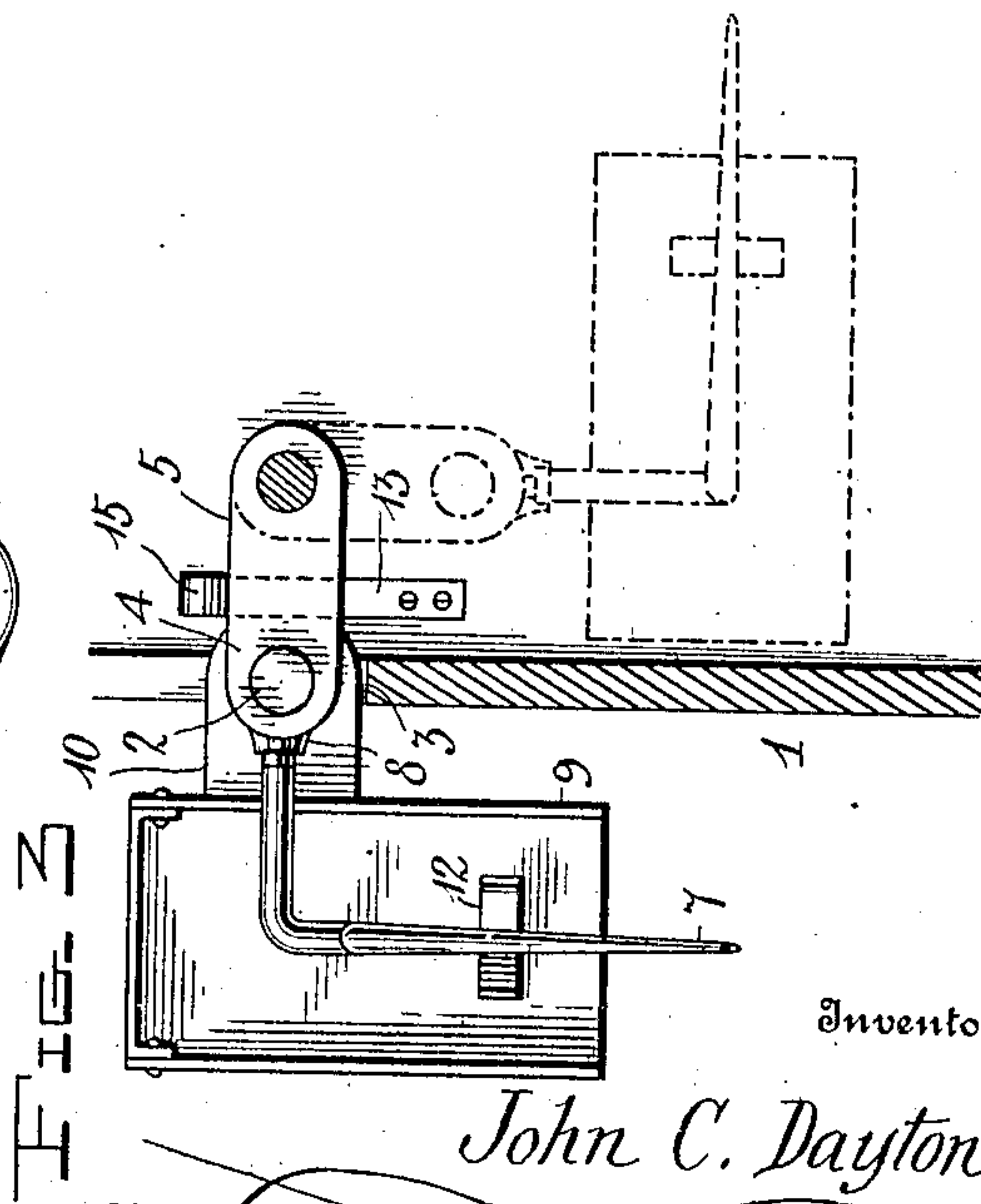
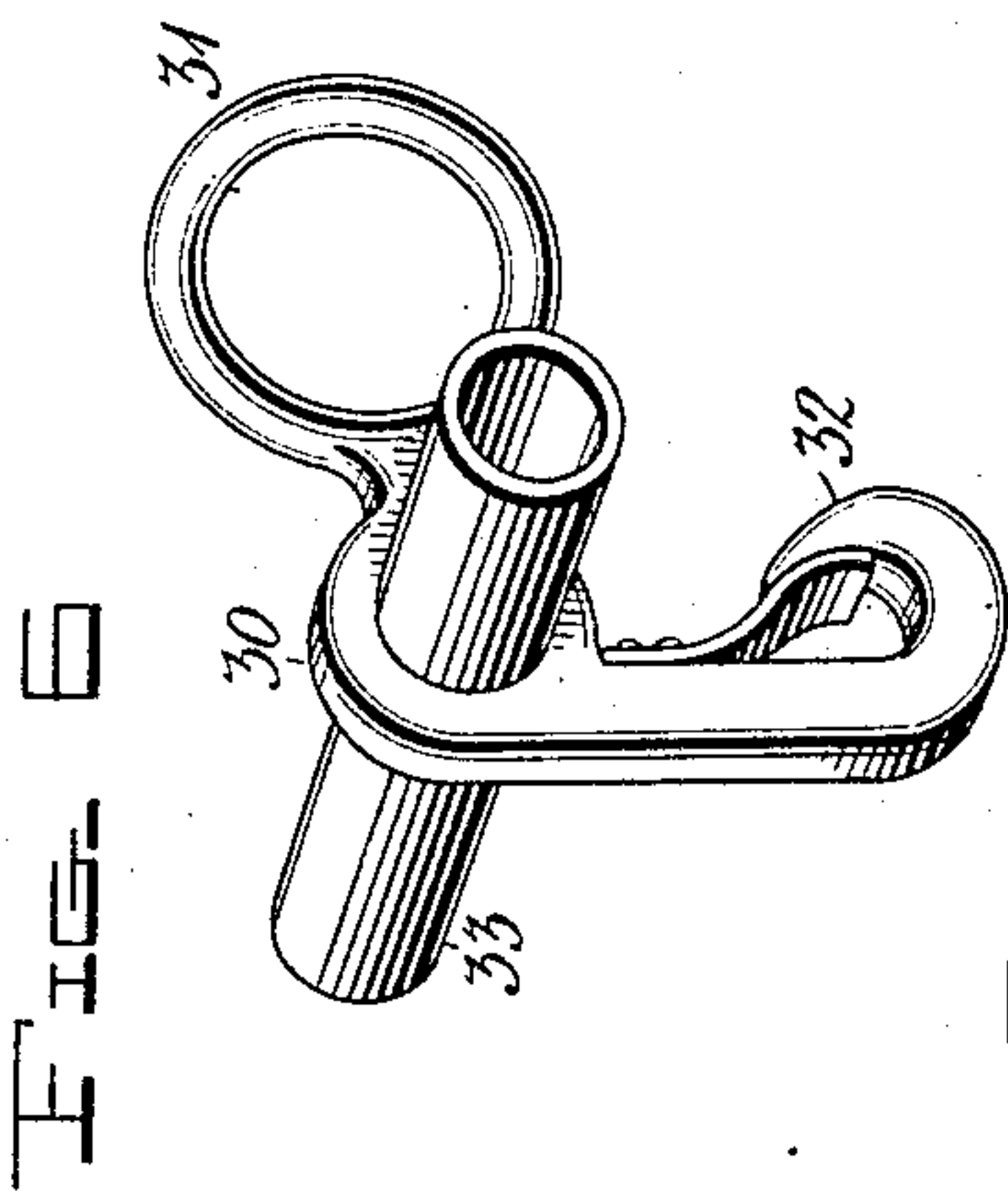
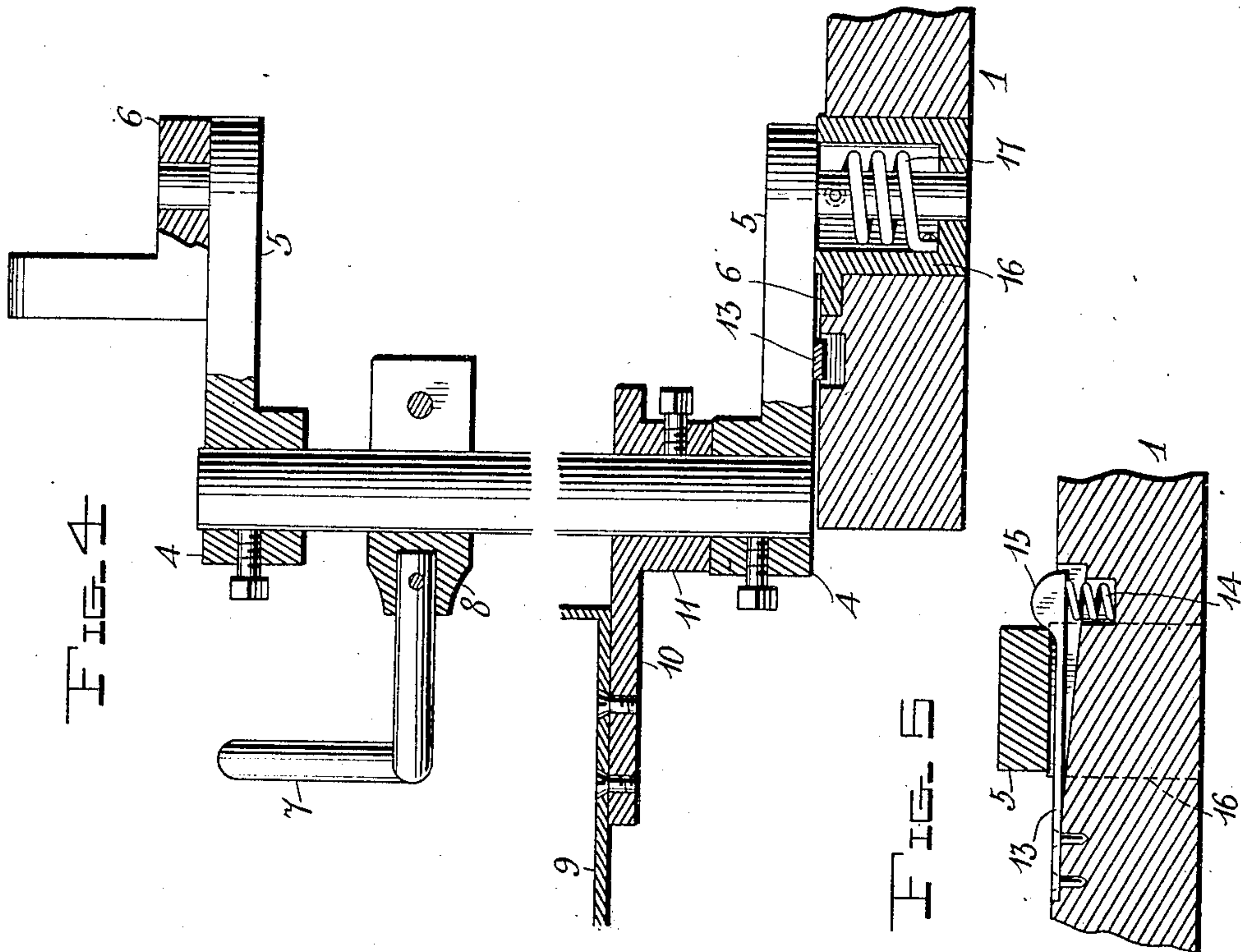
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3 SHEETS--SHEET 3.



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MAIL-BAG CATCHING AND DELIVERING APPARATUS

No. 878,360.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed September 21, 1907. Serial No. 393,951.

To all whom it may concern:

Be it known that I, JOHN C. DAYTON, a citizen of the United States, residing at Petersburg, in the county of Grant, State of West Virginia, have invented certain new and useful Improvements in Mail-Bag Catching and Delivering Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has reference to mail-bag catching and delivering mechanism employed for effecting a transfer of mail to and from a moving train.

While it is the general object of the invention to provide an exceedingly simple and effective mechanism of the class above referred to, the invention consists more particularly in certain specified improvements in the construction shown and described in my prior application filed on or about the eighth day of August, 1907, Serial Number 387,670. These improvements which will be hereinafter more fully described, reside in the particular construction of the hook-carrying posts which are secured to the car in such a manner as to permit of their complete revolution, so as to dispose the hooks entirely within the car when in their inoperative position; in the provision of a bag-supporting ring including a supporting sleeve through which the hook is adapted to pass, so as to retain the bag in proper position with respect to the hook and prevent to a great extent any sidewise movement thereof; in the attachment to each post of a receptacle adapted to support the lower end of the mail-bag so as to remove the weight of the bag from the supporting ring; in the provision of mechanism for engagement with the posts when the latter are in their operative position *i. e.* with the hooks disposed exteriorly of the car; and in the further provision of mechanism for automatically effecting a return of the posts to their normal or inoperative position *i. e.* with the arms disposed within the car.

The invention further resides in the provision of certain improvements in connection with the mechanism located at the receiving station, such improvements residing in the provision of a post-supporting platform the top of which is movable towards

and from the rails over which the trains travel; in the provision of means for effecting such movement of the platform top; and in the provision of means for limiting such movement in both directions.

The invention still further resides in the manner or disposition of the post-supporting platform upon cross ties which form an extension of the cross ties disposed in the road-bed and upon which the track rails rest, so that any change in the position of the rails will effect a corresponding change in the position of the platform, thereby insuring a proper disposition of the platform and its posts with respect to the cars.

With the above and other ends in view the invention consists in the particular construction, combination and arrangement of parts all as hereinafter fully described, specifically claimed and illustrated in the accompanying drawings, in which like parts are designated by corresponding reference numerals in the several views.

Of the said drawings, Figure 1 is a perspective view of the complete invention. Fig. 2 is a cross sectional view through Fig. 1. Fig. 3 is a fragmentary top plan view of the car, the roof of the car being broken away. Fig. 4 is an enlarged vertical section through one of the hook-carrying posts, illustrating the mechanism for effecting the automatic return thereof to inoperative position. Fig. 5 is an enlarged detail section of the locking mechanism used in connection with each post to retain the same in operative position. Fig. 6 is an enlarged perspective view of one of the bag-supporting rings.

In the following description reference will first be had, as in the application above referred to, to the mechanism which is carried by the mail car 1 and which includes the more important features of the invention. This mechanism comprises, primarily, a pair of vertical posts 2 which are disposed upon opposite sides of the doorway 3, each post having its opposite ends fitted in sleeves 4 which are formed integral with a pair of horizontal crank arms 5 whose upturned ends fit in seats formed in a pair of plates 6 which are secured to the roof and floor of the car. The position of these plates and the length of the crank arms is such that the posts may be moved from a position within the interior of the car to one within the doorway. The posts are retained in

engagement with the above mentioned sleeve portions of the crank arms by means of set screws which fit in openings formed through the sleeves and impinge against the posts, the arrangement being such that the posts can be completely removed from the crank arms, as will be understood. In order to permit the mechanism to be utilized irrespective of the direction in which the car travels and of the position of the receiving station on one side or the other of the car, two separate sets of crank arms are made use of, one set being located upon each side of the car adjacent the door opening, there being a doorway in each side of the car, as shown in Fig. 2. It will therefore be apparent that the posts may be disengaged bodily from one set of crank arms and subsequently attached to the other set, the plates by which the crank arms are carried being disposed a sufficient distance away from the sides of the car to permit the ordinary sliding movement of the doors.

Each post carries a laterally projecting hooked arm 7 which is bent upon itself intermediate its ends to provide an upper and a lower horizontal section and a vertical connecting portion, the upper section of each arm being disposed at right angles to the lower section thereof and extending towards the adjacent end of the car. In order to permit the adjustment of said arms, each has its inner ends fitted in a socket formed in a collar 8 which is slidable upon the post and is retained in position thereon by means of a set screw. Owing to the particular manner in which each arm is bent, its lower section will project laterally from the corresponding post and lie in a plane approximately at right angles to that of the car side while its upper section will be disposed in a plane parallel with the car side which will extend towards the adjacent end of the car as above stated.

Towards its lower end each post is provided with a receptacle 9 which is supported upon the laterally extending arm 10 of a collar 11 which is likewise adjustable upon the post and is retained in position thereon by a set screw. Each receptacle, which has a shape approximately that of a scoop, includes a sheet metal body portion and a rear end or back formed of heavy sole leather. The receptacles are each additionally provided with a vertically disposed U-shaped clip 12 whose stem extends through the bottom and is made fast to the collar arm 10. These clips are adapted for positive engagement with the lower ends of the bags.

The posts above referred to are disposed normally in inoperative position within the interior of the car and are swung bodily into their operative position in the doorway, this movement being effected manually by the mail clerk. In order to retain the posts in

the last mentioned position the lower crank arms are each adapted to be engaged by a latch 13 disposed within a seat formed in the floor of the car and normally held in elevated position by an expansive coil spring 14 which is likewise disposed within the above mentioned seat and bears against the under face of the latches at the free end thereof, each latch being headed at such point as indicated by the numeral 15, such head having a rounded face over which the crank arm rides during its outward movement. The posts are thus held in this position until the transfer of the mail-bags is effected, whereupon the springs are depressed to effect the disengagement of their head portions with the crank arms.

The invention further contemplates the provision of means for effecting an automatic return of the posts to their interior or inoperative position. To this end the lower plates 6 are provided with depending sleeve extensions 16 whose internal diameter is sufficiently greater than that of the intumed ends of the crank arms to permit such ends to carry retractile coil springs 17 each of which is secured at one end to the corresponding crank arm end and at its opposite end to the extension 16, as shown in Fig. 4. By reason of this construction it will be apparent that when the posts are moved into their outer or operative position the springs will be expanded and will be held in such tensioned position by reason of the engagement of the latches 13 with the crank arms. When, however, the latches are disengaged from the crank arms the force of the springs will tend to draw the arms back into their normal position within the car.

While it is apparent that the depression of the latches may be effected manually, the shock incidental to the transfer of a mail-bag from the car-carried posts to the post at the receiving station and vice versa will be sufficient to start the posts on their return movement, the rounded formation of the latch heads enabling the crank arms to ride easily thereover. The tension of the coil springs is sufficient to complete such return movement.

The mechanism complementary to that above described or in other words the mechanism located at the receiving station comprises a platform 18 slidable towards and from the track rails upon grooved guides supported upon standards 20. This platform is preferably formed of cast iron and carries a pair of uprights 21 each of which is provided towards its upper end with a hooked arm 22 similar to the arm 7 above described which supports the upper end of the mail-bag, and with a laterally-projecting U-shaped clip 23 disposed directly beneath the said arm and adapted for positive engagement with the lower end of the bag. Each up-

right is provided in addition, with a receptacle 24 which corresponds to the receptacle 9 carried by the car post and is similar thereto.

The movement of the platform towards and from the track rail is effected by means of a pair of pinions 25 which are carried by a shaft 26 mounted upon the platform, the pinions extending through slots formed in the latter into engagement with the teeth of a pair of racks 27 secured to the guides 19, one end of the shaft being bent to form a crank handle. Rotation of the shaft in one direction will therefore move the platform towards the track rails, movement of the platform in the opposite direction being effected by a reversal of the movement of the shaft.

In order to lock the platform in its operative position, or in other words at the limit of its forward movement, it is provided with a pin 28 which is adapted to extend through an opening formed through the platform into a registering opening in the corresponding guide.

It will be obvious that either of the arms 7 carried by the car posts or of the arms 22 carried by the platform posts may be utilized as a bag-receiving arm and the other as a bag-supporting arm, according as the train travels in one direction or the other. In the present instance, however, the left hand arm shown in Fig. 1 acts as the receiving member, the train traveling in the direction indicated by the arrow in said figure. Each mail-bag is held upon its supporting arm by means of a member comprising a pair of peripherally connected rings 30 and 31, the former of which has a diameter somewhat less than that of the latter, and is provided in addition with a depending snap hook 32 adapted for engagement with the ring at the top of the mail-bag. The ring 30 of each supporting member is additionally provided with a transversely disposed sleeve 33 which extends therethrough, as shown in Fig. 6, the bag-supporting arm being adapted to extend through the sleeve bore, so as to hold the mail-bag in place when disposed upon said arm and to prevent it from moving sideways thereon. The larger ring of each supporting member is adapted to be engaged by the complementary receiving arm.

The standards upon which the sliding platform is mounted rest upon beams which are disposed parallel with the track rails, these beams resting in turn upon cross beams which form extensions of the cross ties upon which the track rails are mounted, so that any change in position of the cross ties and, in consequence, of the track rails, will effect the corresponding change in the position of the platform, thus disposing the latter at all times at the proper height with respect to the car door.

The operation of the mechanism may be

described as follows. When a train approaches the receiving station, the posts 5 are swung into their outer or operative position, the right hand post carrying the mail-bag which is to be delivered at the receiving station. The mail-bag to be delivered to the car is likewise attached to the arm carried by the left hand post on the platform 18 which has been previously moved into its operative position, said arms being in each instance passed through the sleeves 33 carried by the smaller ring 30 of the supporting members. As the train passes the receiving station, the forward arm 7 will pass through the larger ring 31 and will thus remove the bag carried upon the corresponding arm of the upright. Simultaneous with the transfer of the mail-bag from the car arm the right hand upright arm will in like manner pass through the larger ring of the car-carried mail-bag which is thus transferred to said arm, the bag traveling in each instance onto the lower section of the arm. The disposition of the receiving arms with respect to the receptacles 9 and 24 is such that the lower end of the mail-bag transferred in each instance to such arms will be supported upon the bottom of the receptacle, the formation of the receptacle back of leather preventing any injury to the bag incidental to its contact therewith.

As regards the car-carried mechanism it is to be noted that the posts are disposed completely within the interior of the car when not in use, are held against accidental displacement when swung into operative position into the doorway, and are automatically returned to inoperative position immediately upon the transfer of the mail-bags. As regards the mechanism located at the receiving station it will be understood that by reason of its disposition upon the sliding platform, such mechanism is movable bodily with the platform towards and from the tracks upon which the cars run, the platform being retained in its operative position by the pin and socket construction above described. It is also to be observed that the disposition of this mechanism upon the sliding platform renders it possible for the latter to be retained in its retracted or inoperative position until the approach of the mail train, thus obviating the possibility of a premature or accidental removal of the mail-bag. As above stated, moreover, both transfers take place practically the same moment, and the transferred bag in each instance is effectually supported by the corresponding receptacle which thus receives the weight of the bag and accordingly relieves the strain upon the bag rings. As originally stated, the length of the crank arm is such that the post may be moved from a position within the interior of the car to one within the doorway. It is understood, however, that these

crank arms may have a length sufficient to dispose the post entirely outside of the car when in their operative position.

While the preferred form of the invention is illustrated in the drawings, it is to be understood that modifications and changes may be made within the scope of the appended claims.

What is claimed, is—

1. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway and provided at opposite ends with crank arms pivotally connected to the roof and floor of the car, whereby the post may be moved bodily from inoperative position within the interior of the car into operative position in the doorway a movable member adapted for engagement with one of said crank arms to retain the post in operative position; and a bag-supporting hook carried by said post.
2. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway; supporting members carried by said post at its opposite ends and pivotally connected to the roof and floor of the car, to permit the post to be moved bodily from inoperative position within the interior of the car into operative position in the doorway; means adapted for engagement with one of said members, to retain said post in operative position; and a bag-supporting arm carried by said post.
3. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway; supporting members carried by said post at its opposite ends and pivotally connected to the roof and floor of the car, to permit the post to be moved bodily from inoperative position within the interior of the car into operative position in the doorway; a resilient member adapted for engagement with one of said members, to retain said post in operative position; and a bag-supporting arm carried by said post.
4. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway; supporting members carried by said post at its opposite ends and pivotally connected to the roof and floor of the car, to permit the post to be moved bodily from inoperative position within the interior of the car into operative position in the doorway; a resilient member secured to the floor of the car and adapted for engagement with the lower supporting member, to retain said post in operative position; and a bag-supporting arm carried by said post.
5. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway and movable bodily from inoperative position

within the interior of the car into operative position in the doorway; a bag-supporting hook carried by said post; and potential means for automatically returning said post into its inoperative position.

6. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway and provided at opposite ends with crank arms pivotally connected to the roof and floor of the car, whereby the post may be moved bodily from inoperative position within the interior of the car into operative position in the doorway; a bag-supporting hook carried by said post; and potential means for automatically returning said post into its inoperative position.

7. In a mechanism of the class described, the combination, with a car, of a vertical post located at one side of the doorway and movable bodily from inoperative position within the interior of the car into operative position in the doorway; a bag-supporting arm carried by said post; means adapted for engagement with said post for retaining the same in operative position; and means for automatically returning said post into operative position when said retaining means are released from engagement therewith.

8. In a mechanism of the class described, the combination, with a car having bearing plates secured to its roof and floor at one side of the doorway, of a horizontally-movable crank arm pivoted to each plate; a vertical post having its opposite ends engaged with said crank arms, whereby said post may be moved bodily from inoperative position within the interior of the car into operative position in the doorway; means for engaging one of said crank arms, to retain the post in operative position; and a bag-supporting hook carried by said post.

9. In a mechanism of the class described, the combination, with a car having bearing plates secured to its roof and floor at one side of the doorway, of a horizontally-movable crank arm pivoted at its inner end to each plate and provided with a sleeved outer end; a vertical post having its opposite ends engaged with said crank arms, whereby said post may be moved bodily from inoperative position within the interior of the car into operative position in the doorway; and a bag-supporting hook carried by said post.

10. In a mechanism of the class described, the combination with a car, of a vertical post located at one side of the doorway and provided at opposite ends with crank arms pivotally connected to the roof and floor of the car, whereby the post may be moved bodily from inoperative position within the car into operative position in the doorway; means adapted for engagement with the lower crank arm, to retain the post in operative position; and means for automatically re-

turning the post into inoperative position when said retaining means are released from engagement with said crank arm.

11. In a mechanism of the class described, 5 the combination with a car, of a vertical post located at one side of the doorway; supporting members carried by said post at its opposite ends and pivotally connected to the roof and floor of the car, to permit the post to be 10 moved bodily from inoperative position within the car into operative position in the doorway; means adapted for engagement with one of said supporting members to retain the post in operative position; and resilient 15 means connected with said member for automatically returning the post to inoperative engagement with said supporting member.

12. In a mechanism of the class described, 20 the combination, with a car, of a vertical post located at one side of the doorway; supporting members carried by said post at its opposite ends and pivotally connected to the roof and floor of the car to permit the post 25 to be moved bodily from inoperative position within the interior of the car into operative position in the doorway; a latch adapted for engagement with one of said members, to retain the post in operative position; and 30 resilient means connected with said member for automatically returning the post to inoperative engagement with said supporting member.

13. In a mechanism of the class described, 35 the combination, with a car, of a vertical post carried at one side of the doorway; a crank arm secured to each end of said post, one of said crank arms being pivoted to the roof and the other to the floor of the car, to 40 permit the post to be moved bodily from inoperative position within the interior of the car into operative position in the doorway; a latch adapted for engagement with one of said crank arms, to retain the post in operative 45 position; and resilient means connected with said member for automatically returning the post in inoperative engagement with said supporting member.

14. In a mechanism of the class described, 50 the combination, with a car having bearing plates secured to its roof and floor, one of said bearing plates having a sleeve extension, of a vertical post located at one side of the doorway; a crank arm secured to each end of the 55 post and pivotally connected to the adjacent bearing plate, to permit the post to be moved bodily into operative position in the doorway; a latch adapted for engagement with one of said crank arms, to retain the post in 60 operative position; and resilient means disposed within said sleeve extension and connected with the adjacent crank arm for automatically returning the post to inoperative 65 engagement with said crank arm.

15. In a mechanism of the class described, the combination, with a car having bearing plates secured to its roof and floor, the lower plate having a depending sleeve formed integral therewith, of a vertical post located at 70 one side of the doorway; a crank arm secured to each end of said post and pivotally connected to the adjacent plate, to permit the post to be moved bodily from inoperative position within the car into operative position 75 in the doorway; a latch adapted for engagement with the lower crank arm, to retain the post in operative position; and a coil spring disposed within the said sleeve and connected thereto and to the lower crank 80 arm, for automatically returning the post to inoperative position when said latch is released from engagement with said crank arm.

16. A mail-bag supporting member comprising a pair of peripherally-connected 85 rings, one of said rings having a greater diameter than the other, and a metal sleeve secured in the opening in the smaller ring and projecting on opposite sides thereof.

17. A mail-bag supporting member comprising a pair of peripherally-connected 90 rings, a metal sleeve secured in the opening in one of said rings and projecting on opposite sides thereof, and a depending snap-hook carried by said ring. 95

18. A mail-bag supporting member comprising a pair of peripherally-connected rings of different diameters, a metal sleeve secured in the opening in the smaller ring and projecting on opposite sides thereof, and 100 a depending snap-hook carried by the smaller ring.

19. The combination, with a vertical post, and a laterally-projecting arm carried thereby for supporting the upper end of a mail- 105 bag, of a receptacle carried by the post and disposed directly below said arm, for supporting the lower end of the bag.

20. The combination, with a vertical post and a laterally-projecting arm carried thereby for supporting the upper end of a mail- 110 bag, of a scoop-shaped receptacle carried by the post and disposed directly below said arm for supporting the lower end of the bag.

21. The combination, with a vertical post 115 and a laterally-projecting arm carried thereby for supporting the upper end of a mail-bag, of a member carried by the post and disposed directly beneath the said arm for supporting the lower end of the bag, said 120 member including an upwardly-extending clip adapted for positive engagement with said bag end.

22. The combination, with a vertical post and a laterally-projecting arm carried thereby for supporting the upper end of a mail- 125 bag, of a scoop-shaped receptacle carried by the post and disposed directly beneath the said arm, for supporting the lower end of the bag, said receptacle being provided with an 130

upwardly-extending clip adapted for positive engagement with said bag end.

23. The combination, with a vertical post and a laterally-projecting arm carried thereby, for supporting the upper end of a mail-bag, of a scoop-shaped receptacle carried by the post and disposed directly below said arm, for supporting the lower end of the bag, the back of said receptacle being formed of fibrous material, to prevent injury to the bag from contact therewith.

24. In a mail-bag catching and delivering mechanism, the combination, of a series of vertical supports located adjacent the track-rails; a platform slidable upon the tops of said supports towards and from the track-rails; means for operating the platform; and means for retaining the platform in its forward position.

25. In a mail-bag catching and delivering mechanism, the combination of a series of vertical supports located adjacent the track-

rails; grooved guides mounted upon said supports; a platform slidably mounted upon said guides and engaged therewith; means for moving the platform forwards and from the track-rails; and means for retaining the platform in its forward position.

26. In a mail-bag catching and delivering mechanism, the combination of a series of vertical supports located adjacent the track-rails; grooved guides mounted upon said supports; a rack carried by each guide; a shaft mounted upon the platform and provided with pinions adapted for engagement with the racks, to move the platform, towards and from the track-rails; and means for retaining the platform in its forward position.

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

JOHN C. DAYTON.

Witnesses:

H. C. McCARTENEY,
I. L. JENKINS.