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MAIL CRANE.

APPLICATION FILED JUNE 19, 1909.

Patented Nov. 16, 1909.  
2 SHEETS—SHEET 1.

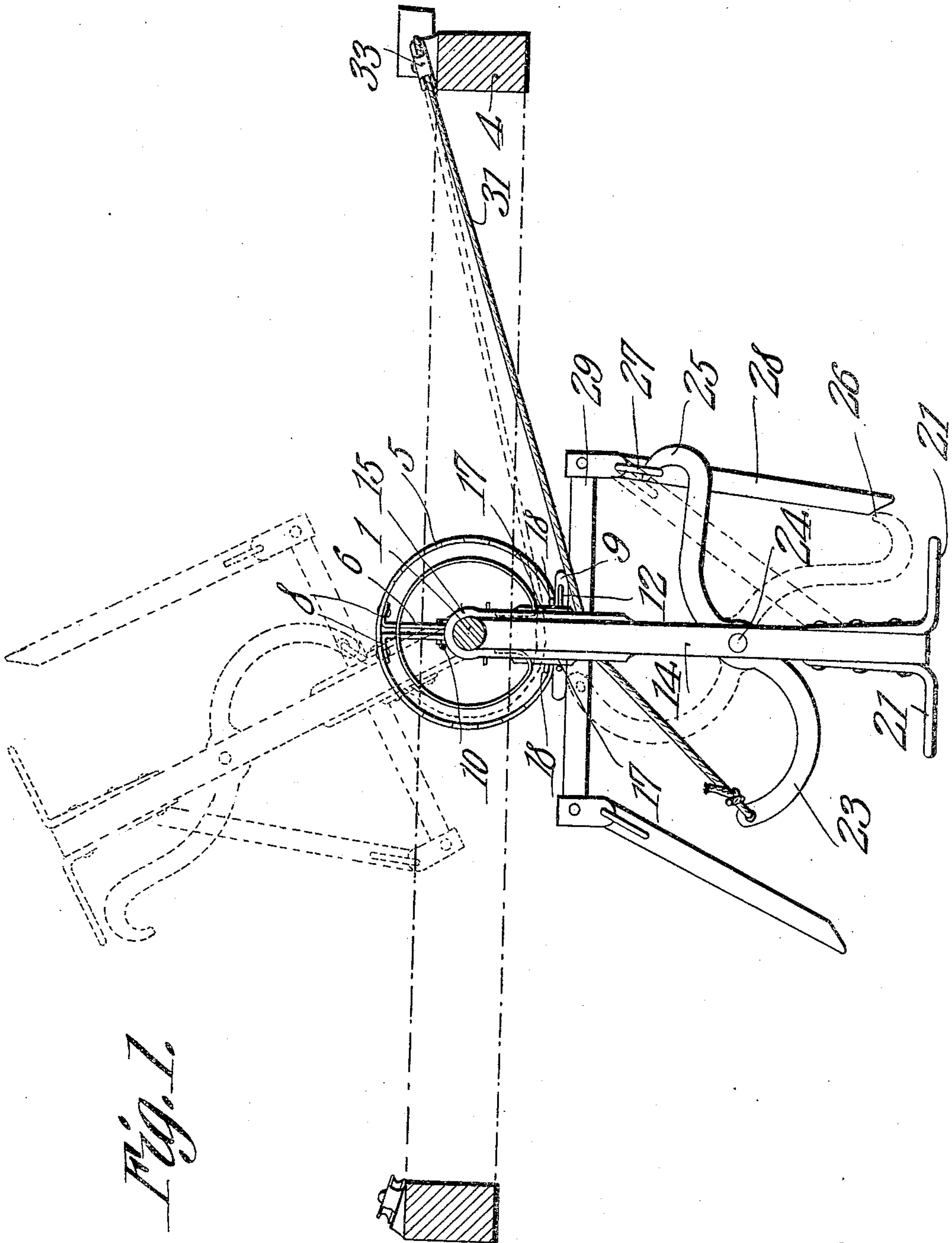


Fig. 1.

Witnesses

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MAIL CRANE.

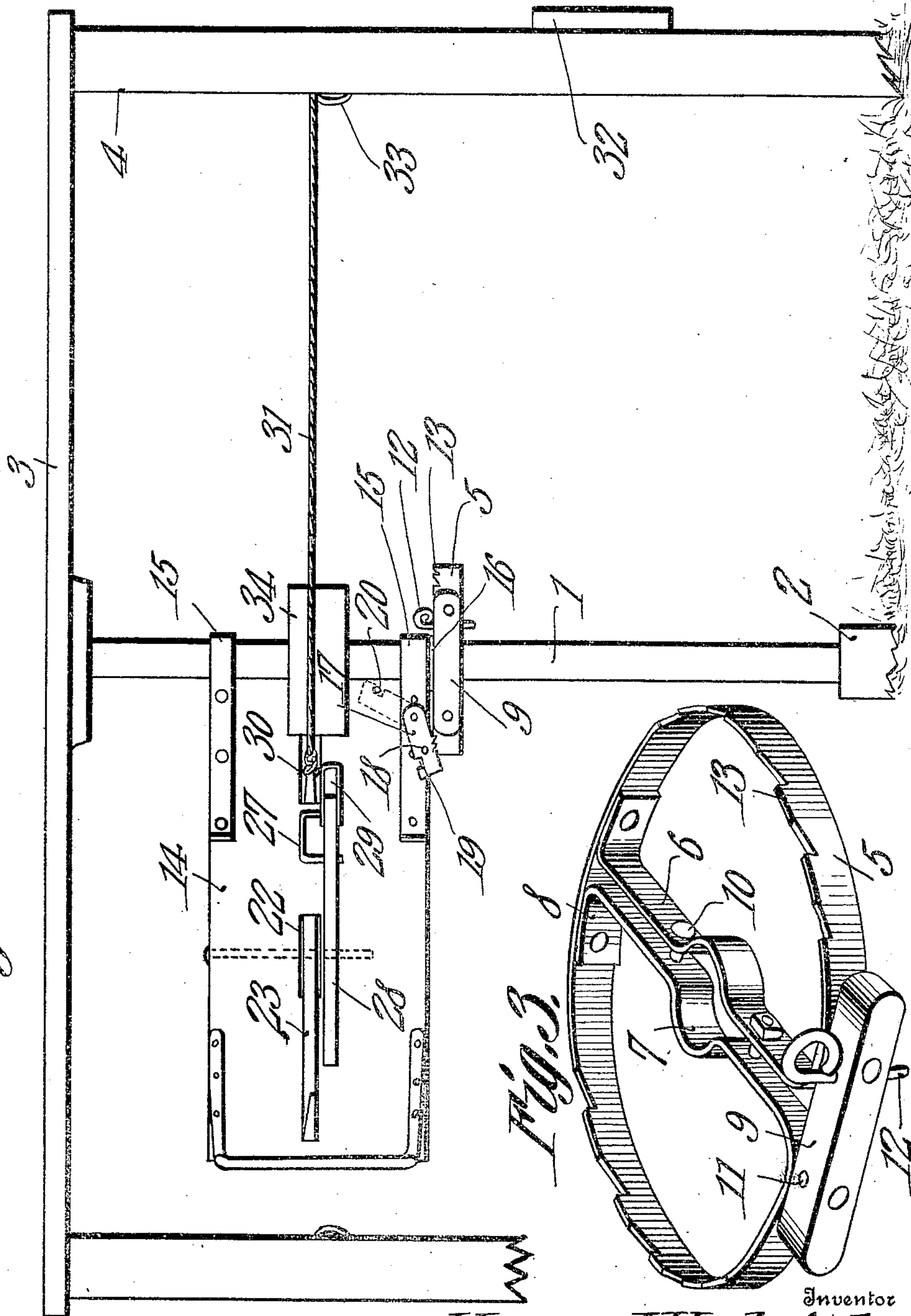
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Fig. 2.



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# UNITED STATES PATENT OFFICE.

HENRY J. HEDRICK, OF LACON, ILLINOIS.

MAIL-CRANE.

940,152.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed June 19, 1909. Serial No. 503,194.

*To all whom it may concern:*

Be it known that I, HENRY J. HEDRICK, a citizen of the United States, residing at Lacon, in the county of Marshall and State of Illinois, have invented a new and useful Mail-Crane, of which the following is a specification.

This invention relates to mail cranes of that type designed to receive bags or sacks of mail from moving cars.

The invention is more particularly designed as an improvement upon the crane disclosed in Patent No. 887,799, granted to me on May 19th, 1908.

The object of the present invention is to simplify and improve upon the construction of the crane referred to and to provide improved means for holding the bag-gripping arm against movement while the apparatus is set.

Another object is to provide improved means for limiting and controlling the swinging movement of the radial arm of the crane.

Another object is to provide means whereby an increased leverage may be obtained upon the radial arm during the shifting thereof into operative position.

A still further object is to provide a crane, the working parts of which can be readily reversed so as to receive mail from trains traveling in opposite directions.

With these and other objects in view, the invention consists in certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a plan view of a crane embodying the present improvements, the upper portion of the main standard thereof and the adjoining standards being shown in section, and one position of the arm, latch and gripping bar being indicated by dotted lines. Fig. 2 is a front elevation of the crane, the same being shown out of operative position. Fig. 3 is a detail view of the retaining ring used in connection with the swinging arm.

Referring to the figures by characters of reference 1 designates a supporting standard mounted at its lower end within a block 2, while its upper end is secured to a cross-beam 3 supported at its ends by posts 4. The standard 1 does not rotate and has a

controlling ring secured thereto as indicated in Fig. 3. This ring is formed of a continuous strip of metal as indicated at 5, the terminal portions of the strip being extended diametrically within the ring and along parallel lines, as shown at 6, the middle portions of these arms being bulged outwardly in opposite directions as at 7 to form clamping jaws designed to receive the standard 1 therebetween. Ears 8 are formed by the extremities of these arms 6 and are riveted or otherwise secured to the middle portion of the strip 5. A coupling block 9 is riveted or otherwise secured to the strip 5 at points diametrically opposite the ears 8 and serves to prevent the ring from spreading at this point. Bolts 10 extend transversely through the arms 6 and constitute means for clamping the jaws 7 upon the standard 1. Openings 11 are formed within the block 9 and either one of them is designed to receive a stop pin 12. The upper edge of the ring 5 has ratchet teeth formed thereon, two sets of these teeth being provided, and said sets being located at opposite sides of the arms 6. As indicated in Fig. 3 the teeth of the two sets are oppositely disposed. A broad arm 14 extends radially from the standard 1, this arm being provided at its inner end with eyes 15 which extend loosely around said standard and thus permit the arm to swing upon the standard. The arm is located above the ring 5 and is spaced therefrom by a collar 16, on which the lower eye 15 rests. Dogs 17 are pivotally connected to opposite sides of the arm 14 close to the lower edge thereof, each dog being provided with a knob or projection 18, whereby it can be conveniently manipulated. A notch 19 is also preferably formed in one edge of the dog, this notch being designed to receive a stop pin 20 when the dog is raised upwardly out of engagement with the ring 5.

A bail-like jaw 21 extends laterally from each side face of the arm 14 at the outer or free end thereof, and, extending transversely within the arm at a point between the jaw 21 and the standard 1, is a slot 22, having a centrally fulcrumed curved lever 23 mounted therein, the pivot pin 24 of said lever being readily removable from the arm when it is desired to remove said lever for the purpose of reversing or replacing it. A hook 25 is formed at one end of the lever 23 and has a terminal lip 26 designed to project into and engage one wall of an eye 27, up-



standing from a trigger 28. This trigger is pivotally connected to an arm 29 extending perpendicularly from one side of the arm 14.

A slot 30 is formed within the arm 14 at a point above the arm 29, and a cable, chain or other flexible element 31 extends loosely through this slot and is secured at one end to one end of the lever 23, while its other end has a weight 32 attached to it. This cable 31 extends over a supporting pulley 33 carried by one of the posts 4, and the arm 14 is provided with a circular band 34 which extends around the standard 1 and is concentric therewith, although separate therefrom. The elevation of this band is such that the same will constitute a bearing for the cable 31 when the arm 14 is swung in either direction about the standard 1.

It is to be understood that an arm 29 is located about each side of the arm 14 and that both of the arms 29 have triggers 28 attached to them. These triggers are provided so that by reversing the lever 23 and the direction of the cable 31, the crane can be used for receiving mail from trains traveling in opposite directions.

When it is desired to set this apparatus so as to receive a mail sack from a moving train, the lever 23 is so mounted within the arm 14 that the hooked end thereof will extend in the direction from which the train is approaching. The cable 31 is then extended through the arm 14 and placed upon the proper pulley 33, after which the hook 25 of the lever 23 is placed in engagement with the eye 27 of the adjoining trigger 28. The free end of said trigger will thus be moved from the arm 14 as indicated in full lines in Fig. 1. The arm 14 is then swung outwardly against the stop pin 12 and will be thus held by the weighted cable 31. When a train reaches the point of delivery the bag to be delivered, and which is supported in the usual or any preferred manner beyond the side of the mail-car, is brought violently in contact with the trigger 28 and causes it to swing toward the arm 14. The hook 25 is thus promptly released, and the lever 23 is therefore free to swing about its pivot 24, the weight 32 serving to move the hooked end of said lever against the sack and thus hold it firmly against the arm 14 and the adjoining jaw 21. At the same time the impact of the bag against the arm 14 will be sufficient to cause said arm to swing back between the posts 4 and against the action of the weight 32, this swinging action causing the advancing lowered dog 17 to slide over the teeth 13 upon the ring 5. The lowered dog is designed to engage one of the teeth 13 of the set so as to prevent the arm 14 from swinging back to its initial position. It will be apparent therefore that the arm and the parts connected thereto will be

swung laterally away from the train, and there is therefore no danger of anything upon the train coming into contact with the crane and being injured thereby. By removing the pin 24 and reversing the lever 23 and by extending the cable 31 in the opposite direction through the arm 14 the crane can be set to receive mail from a train traveling in the opposite direction.

It will be seen that the mechanism herein described is very simple and durable in construction, and will operate to efficiently grip a sack and support it at a point removed from the train. There are no parts which can readily get out of order, and the trigger mechanism is of such a simple character as to render the gripping operation positive under all conditions.

Obviously, various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. A mail crane including an arm mounted for swinging movement, a gripping lever fulcrumed upon the arm, a trigger pivotally connected to the arm and arranged for engagement with one end of the lever, said trigger and lever being movable in parallel planes, and means for automatically actuating the lever independently of the arm and subsequent to the disengagement of the trigger and lever.

2. A mail crane including an arm mounted for swinging movement, a jaw upon the arm, a gripping lever fulcrumed upon the arm, a pivotally supported trigger carried by the arm, said trigger and lever being movable in parallel planes, cooperating means upon the trigger and lever for holding the lever against movement, means for automatically actuating the lever when released to clamp an object between the lever and jaw.

3. A mail crane including an arm mounted for swinging movement, a gripping lever fulcrumed thereon, a trigger pivotally connected to the arm, said trigger and lever being movable in parallel planes, cooperating means upon the lever and trigger for holding said lever against movement, means for automatically actuating the lever to grip, between the lever and arm, an object movable against the trigger to release the lever.

4. A mail crane including an arm mounted for swinging movement, a gripping lever fulcrumed thereon and having a hooked end, a trigger pivotally supported by and movable with the arm, said trigger and lever being movable in parallel planes, means upon the trigger for engaging the hook to hold the lever against movement, means for automatically actuating the lever when unlocked, said trigger being disposed in the



path of an object to be gripped by the lever and arm, and means for limiting the swinging movement of the arm.

5. A mail crane including a standard, an arm mounted for swinging movement thereon, bag-gripping means carried by the arm, means for automatically actuating said means, a trigger for holding said means against movement, said trigger and arm being disposed to be actuated by an object to be engaged by said gripping means, and means for preventing return movement of the arm subsequent to such actuation.

6. A mail crane including a standard, an arm mounted for swinging movement thereon, means carried by the arm for automatically gripping the bag to move it against the arm, said arm being movable under the impact of a bag brought thereagainst, means for retarding the movement of the arm, and means movable with the arm and against said retarding means to facilitate the movement of the arm in one direction by the retarding means.

7. A mail crane including a standard, an arm mounted to swing thereon, means upon the arm for automatically engaging a bag brought against said arm, said arm being shiftable by the impact of said bag, a toothed ring carried by the standard, and means upon the arm and coöperating with the ring for limiting the movement of the arm upon the standard.

8. A mail crane including a standard, an arm mounted to swing thereon, means upon the arm for automatically engaging and supporting a bag brought against the arm, said arm being shiftable by said bag, a toothed ring secured to the standard, and separate means carried by the arm and coöperating with the ring for limiting the

movement of the arm in one direction and preventing the return of said arm, respectively.

9. A mail crane including a standard, an arm mounted for swinging movement thereon, bag-gripping means carried by the arm, means for holding the gripping means in set position, said holding means being disposed to be released by the bag to be gripped, a toothed ring secured to the standard, separate means upon the arm and coöperating with the ring for limiting the movement of the arm in opposite directions respectively, and a removable and adjustable stop pin carried by the ring and in the path of the arm.

10. A mail crane including a standard, an arm mounted to swing thereon, means upon the arm for automatically engaging and supporting a bag brought against the arm, dogs pivotally connected to opposite sides of the arm, and a ring secured to the standard and coöperating with the dogs for limiting the swinging movement of the arm in opposite directions, said ring including a marginal toothed portion, said teeth being arranged in series and the teeth of the two series being oppositely disposed for engagement with the respective dogs, and parallel diametrically disposed arms within the ring, each arm having an intermediate bowed portion constituting a standard-engaging jaw, and means connecting the arms for binding the jaws upon the standard.

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

HENRY J. HEDRICK.

Witnesses:

EDWARD BRENNEKE,  
FANNIE A. GRAY.