H. J. AMICK.

MAIL BAG CATCHING AND DELIVERING APPARATUS.

APPLICATION FILED AUG. 18, 1908.

909,048.

Patented Jan. 5, 1909.

3 SHEETS—SHEET 1.

Fig. 1

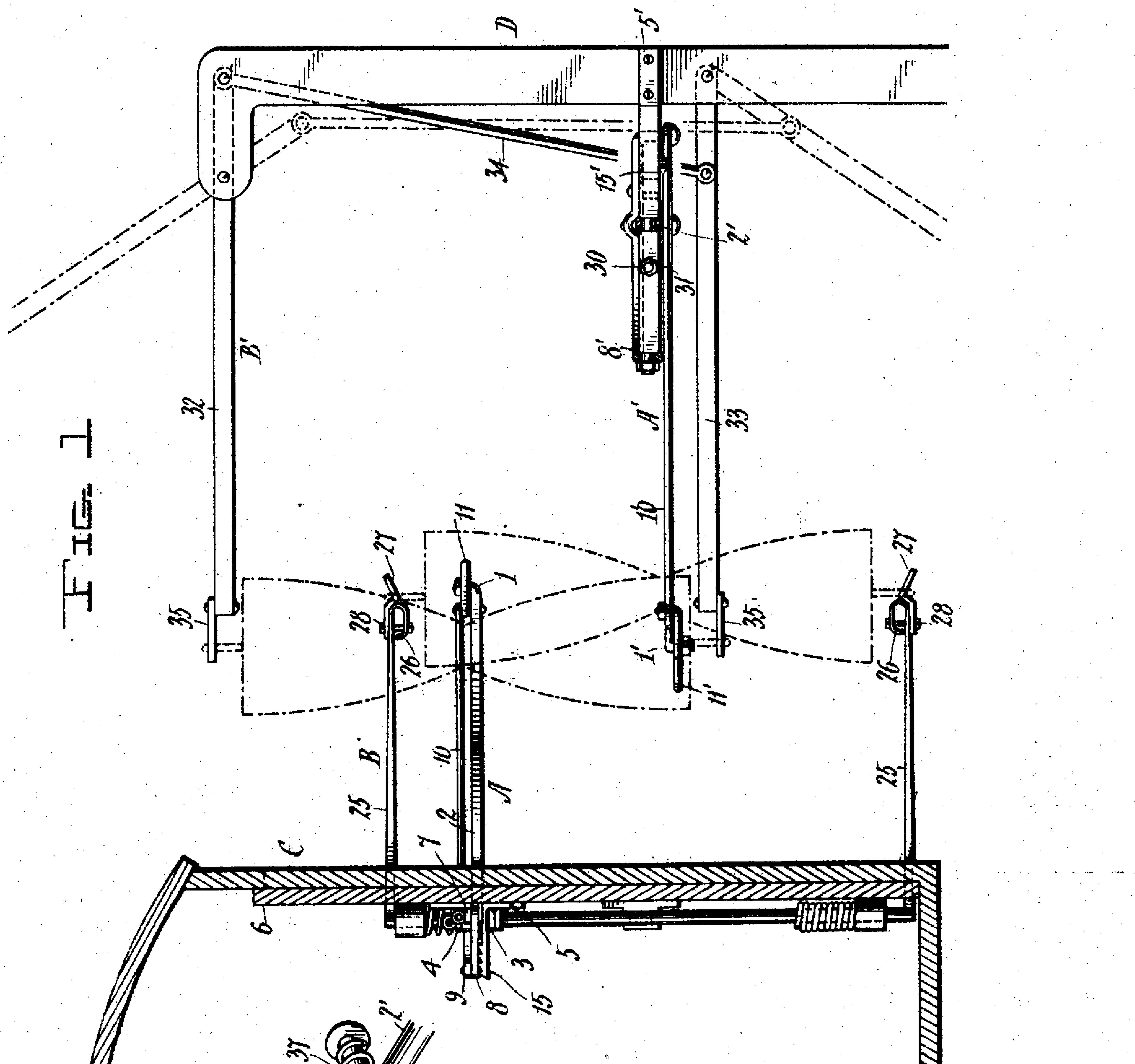
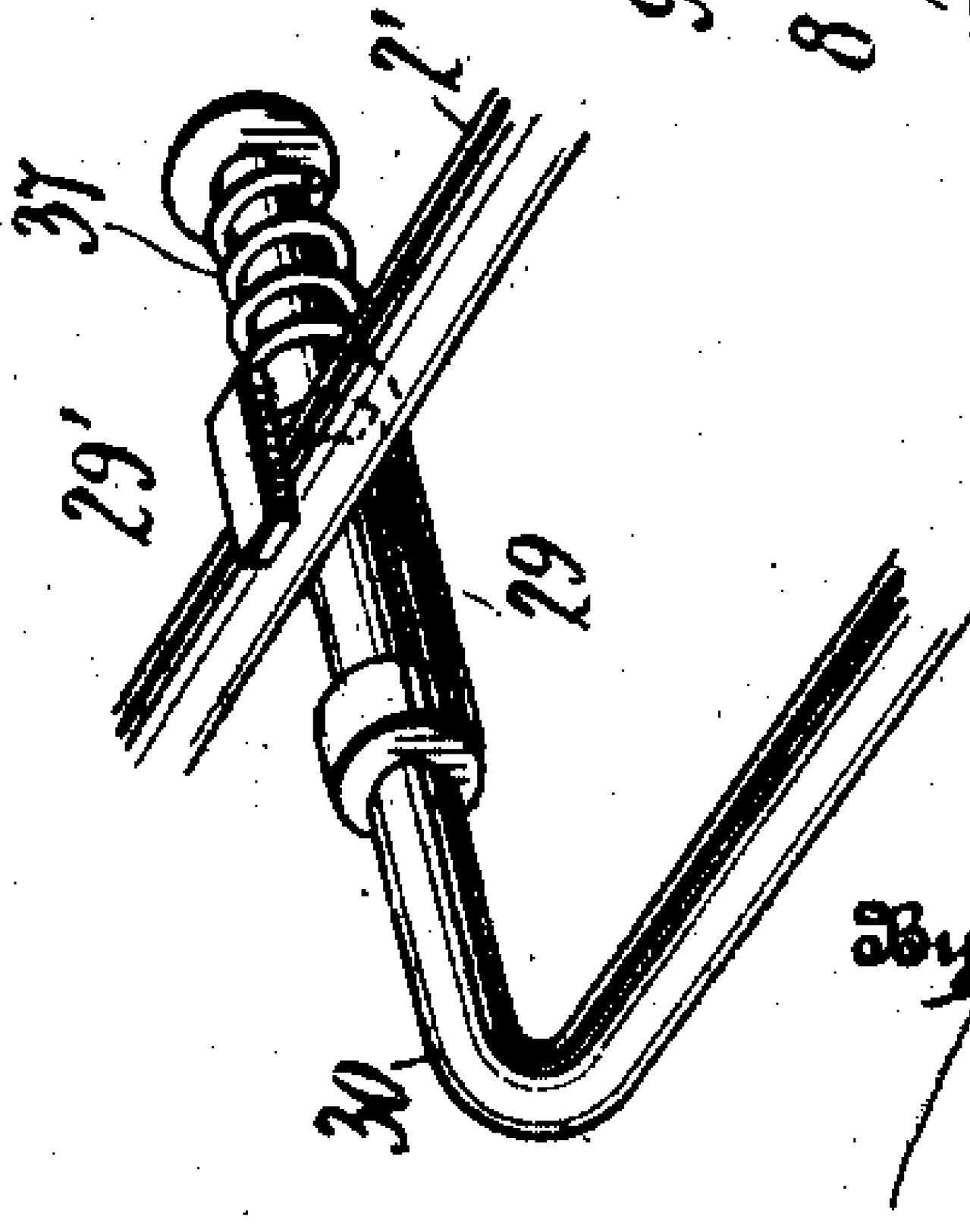


Fig. 6



Witnesses

[signature]

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3 SHEETS—SHEET 2.

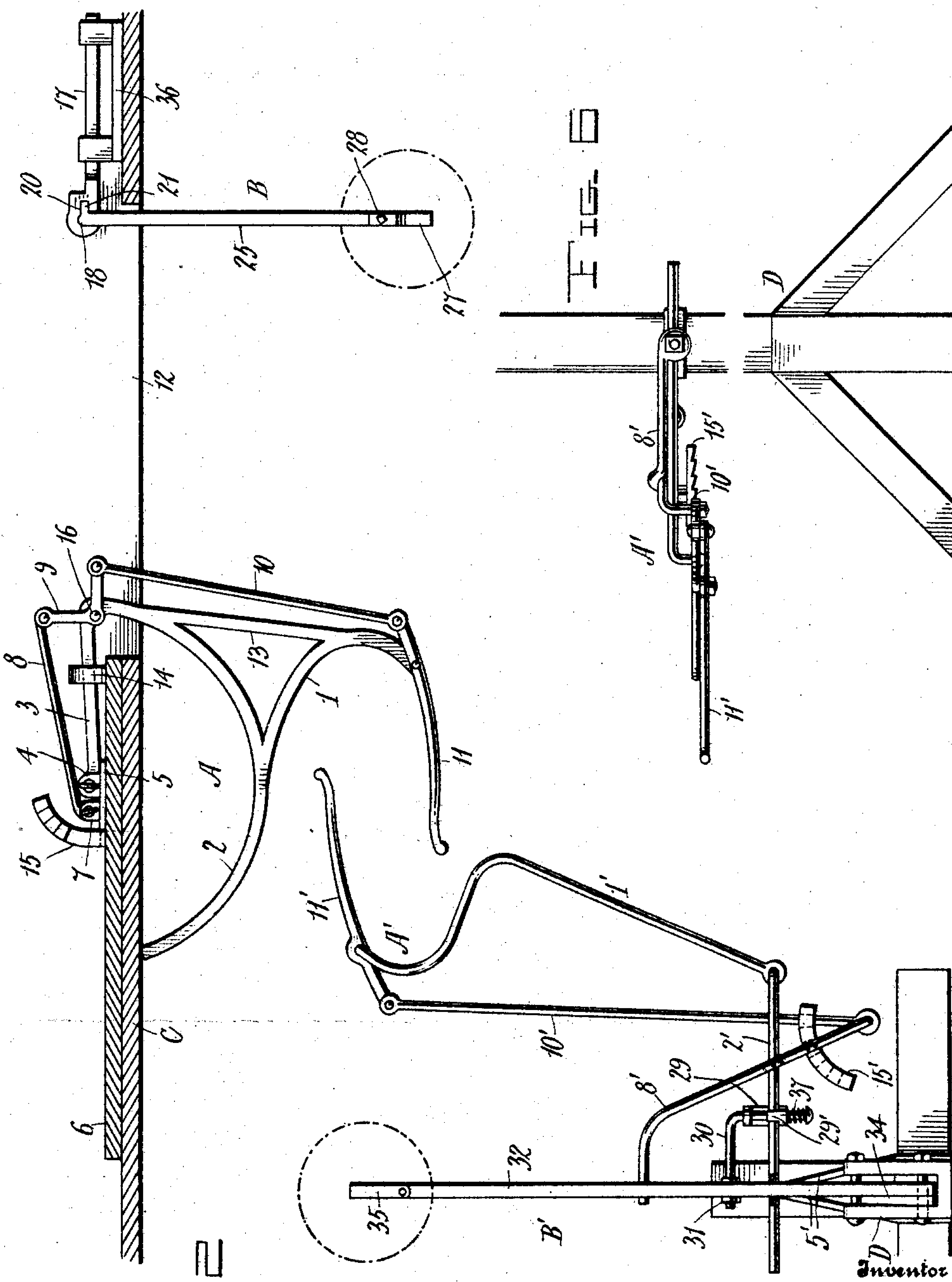

Fig. 6

Fig. 2

Witnesses

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3 SHEETS—SHEET 3.

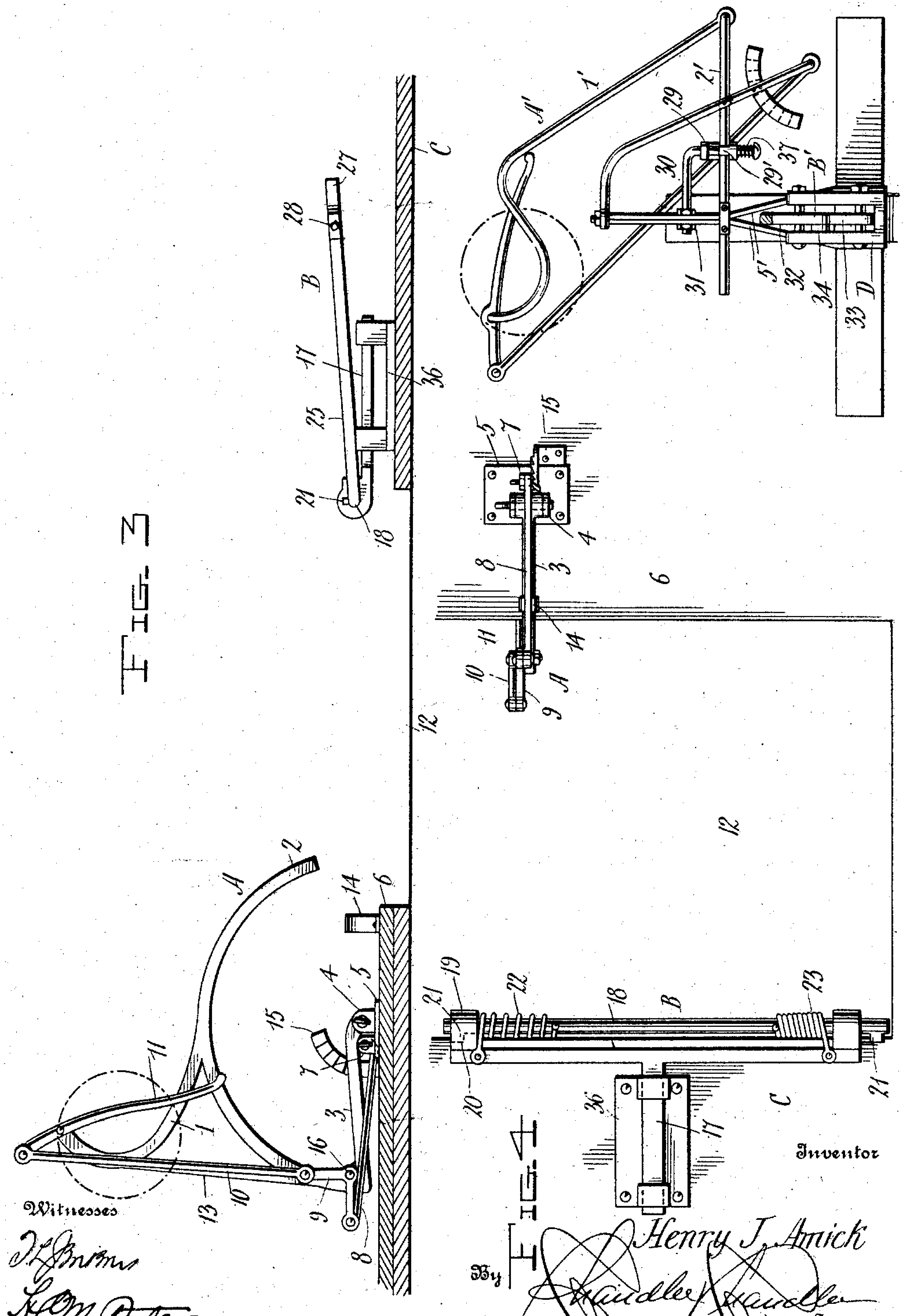

Fig. 3

Fig. 4

Witnesses

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UNITED STATES PATENT OFFICE.

HENRY J. AMICK, OF HANDLEY, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO VAN A. HEFFNER, OF DIVIDE, WEST VIRGINIA.

MAIL-BAG CATCHING AND DELIVERING APPARATUS.

No. 909,048. Specification of Letters Patent. Patented Jan. 5, 1909.

Application filed August 18, 1908. Serial No. 449,053.

To all whom it may concern:

Be it known that I, HENRY J. AMICK, a citizen of the United States, residing at Handley, in the county of Kanawha, 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 relates to improvements in mail bag catching and delivering apparatus, and it has for its principal object the production of an exceedingly simple and effective apparatus, by means of which the transfer of a mail bag from a moving train to the crane at the receiving station, and vice versa, is accomplished automatically and in the safest possible manner as the train passes the station. More especially, however, the invention resides in the particular construction of the catcher, which latter, in both instances, is in the form of a swinging frame, the catcher arm proper serving as one member of the frame and having its hooked outer end or bag-receiving portion connected with a pivoted locking lever arranged for movement into position to hold a bag received by the catcher against displacement, the movement of the lever being effected by that of the catcher arm, while the movement of the last mentioned element is caused by the impact of the mail bag against its hooked end.

The invention further resides in the provision of means for retaining the catchers in their inoperative position after the transfer of the mail bags has been effected, and it still further resides in the particular disposition and arrangement of said retaining means or devices, with respect to the catchers to which they are connected.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is an end elevation of the complete invention, the various elements being shown in their operative position, the car appearing in section. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a plan view illustrating the position of the various elements of the invention after the transfer of the mail-bags has been effected. Fig. 4 is a view taken from within the interior of the car, the elements of the car-carried mechanism appearing in their operative position. Fig. 5 is a fragmental front elevation of the crane, showing the catcher in its operative position. Fig. 6 is an enlarged detail perspective view of the latch which forms one element of the crane-carried mechanism.

Referring more particularly to the drawings, A and B designate, respectively, in a general manner, the catching and supporting mechanisms carried by the car C, and A′ and B′ the corresponding mechanisms carried by the crane D, which latter is located at the receiving station adjacent the track rails over which the car travels.

The catcher A consists, as shown in Fig. 2, of a hook-shaped rod 1, which is formed integral with and extends tangentially from a semi-circular rod 2, whose right-hand end is provided with an inwardly extending arm 3, the free end of which is pivoted between a pair of spaced ears 4 formed upon a plate 5 which is bolted or otherwise secured to the inner face of the car door 6, said door being shown in the present instance as of the sliding type. The plate 5 is formed with a second pair of spaced ears 7, which are located to the left of the ears 4, and have pivoted thereto the inner end of a rod 8, whose outer end has pivoted thereto, one arm of a bell crank lever 9, the other arm of said lever being connected in a similar manner by a link 10 with the rear end of a locking lever 11, this last mentioned lever being pivoted intermediate its ends to the free end of the bill of the hooked rod 1. The rods 1 and 2, and the locking lever 11 thus form the catcher proper, while said elements, together with their various connections with the base plate 5, form a frame which is arranged for bodily movement in a horizontal plane through the door opening 12, the above mentioned plate being located sufficiently close to the adjacent side of the door opening, to permit such movement. The rod 1 is preferably connected with the right-hand portion of the curved rod 2 by a brace 13, which may or may not be formed integral with said rod, as desired.

When the catcher, as a whole, has been swung outwardly through the door opening, the arm 3 is arranged for engagement be-

tween the legs of a U-shaped spring clip 14, which is bolted to the door 6 and is designed to prevent retrograde movement of the catcher. The above mentioned arm is likewise designed to be engaged by the teeth formed upon the upper face of an arcuate strap 15 constructed of heavy spring steel, such engagement taking place during the movement of the catcher from operative to inoperative position.

The bell crank lever 9, above referred to, is pivoted at its apex upon an upstanding pin 16 carried by the curved rod 2 and located adjacent the inner end of the arm 3, owing to which construction and to the connections between said lever and the base-plate and locking lever, the last mentioned lever will be swung upon its pivot into and out of operative position when the movement of the catcher takes place.

The supporting mechanism B carried by the car consists, essentially, of a T-shaped member 17 and a rotatable C-shaped member 18, the minor arm or stem of the member 17 being secured to the inner face of the car wall upon the opposite side of the door opening from the catcher A, said arm being disposed in a horizontal plane, while the major arm of said member occupies a vertical plane and has its ends formed with enlarged eyes 19, the opening in each eye communicating with a key-seat 20. The ends of the vertical arm or body portion of the member extend through the eye openings in question and are formed with laterally-projecting keys 21, arranged for movement into and out of the corresponding key-seats during the vertical sliding movement of said member. The body portion of this member is connected with the major arm of the member 17 by upper and lower coil springs 22 and 23, respectively, the first mentioned spring normally holding the member 18 at the limit of its upward movement, while the second named spring, whose tension is less than that of said first mentioned spring, is arranged to impart a rotary movement to said member, so as to swing the horizontally-disposed arms thereof inwardly through the door opening from operative position, into which position, they have been moved previously by manually rotating or swinging the member in question after the mail bag to be delivered to the station crane has been engaged with said arm. These arms, which are each designated by the numeral 25, have their free ends turned inwardly towards each other and then rearwardly, as indicated by the numeral 26, each bent end being provided with a spring finger 27 attached thereto by means of a bolt 28, the bending of said ends permitting them to yield slightly and thus exercise a spring pressure against the heads of the bolts, thus clamping the fingers against said arms. These fingers are arranged for engagement with the rings secured to the ends of the mail bag.

Owing to the provisions of the two springs 22 and 23, above referred to, it will be apparent that after the mail bag to be delivered to the crane catcher, has been supported from said arms by engaging its rings with the fingers 27, the bag and said arms may be swung outwardly into position for engagement by the above mentioned catcher, the weight of the bag causing the upper key 21 to move into the adjacent key-seat as soon as it is brought into alinement therewith during such rotary movement, the reception of said key in its seat holding the swinging member 18, as a whole, against retrograde movement.

The catcher A′, which is similar in the main, to the catcher A, already described, includes a hooked rod 1′ pivoted at its inner end to a horizontally-disposed bar 2′, which is in turn, secured pivotally to the forward portion of a pair of converging straps 5′ bolted to the sides of the crane post D, the bar 2′ being held in horizontal position by the engagement therewith of a lip 29′, formed upon the rear end of a sliding latch 29 fitted upon one arm of an angular brace 30, whose other arm is formed with a collar 31, arranged to fit upon the reduced forward ends of the straps 5′, any preferred devices being employed for holding the brace itself in horizontal position.

The free end of the bill of the hooked portion of the rod 1 has likewise pivoted thereto a locking lever 11′, whose rear end is connected by a link 10′ with the rear end of the rod 8′, the forward end of said rod being formed with an eye which likewise fits loosely upon the reduced forward portion of the strap 5′. Said rod is secured intermediate its ends to the bar 2′, and has secured thereto towards its rear end an arcuate toothed strap 15′ with which the link 10′ is arranged for engagement. The rods 1′ and 8′, the lever 11′, and the bar 2′, thus constitute the frame of the catcher A′, while the first mentioned rod and its locking lever serve as the catcher proper, said frame being capable of movement in a horizontal plane under the force of the blow struck the catcher hook by the mail bag delivered thereto from the supporting mechanism B carried by the car, such movement effecting the movement of the locking lever 11′ into operative position.

The supporting mechanism B′ carried by the crane post includes upper and lower arms 32 and 33, pivoted at their rear ends to the post and connected together by a rod 34, whose upper end is pivoted to the extreme rear end of the arm 32, and whose lower end is connected in a similar manner to the arm 33, the pivot bolt which affords the con-

nection between the last mentioned arm and the adjacent end of said rod, being located forwardly of the pivot bolt which connects said arm to the crane post. By reason of this construction, it will be apparent that when no mail bag is suspended from the crane arms, they will swing in opposite directions into the position shown in dotted lines in Fig. 1, while on the other hand, the engagement of the mail bag with said arms will hold them in operative or horizontal position, the free end of each arm being provided with a ring engaging finger 35.

The operation of the complete apparatus may be described as follows. The mail bag to be transferred to the catcher B′ is engaged by means of its rings with the fingers 27 carried by the arms 25 of the T-shaped member 18, after which said member is rotated, so as to swing the bag and said arm outwardly through the door opening into operative position, its retention in such position being effected by the engagement of the upper key 21 into the corresponding key-seat 20 under the weight of the bag. The catcher A is then swung outwardly into operative position and retained by the engagement of the rod arm 3 with the spring clip 14, the outward movement of the catcher effecting the movement of the locking lever into operative position. At the same time, the mail bag to be transferred to the car from the receiving station is supported from the arms 32 and 33 of the crane, and the catcher rod 1′ likewise swung into operative position. As the train passes the station, the car-carried bag will be removed from the supporting mechanism B, while the bag carried by the crane arms will be caught by the catcher rod 1, and removed from said arms, which latter then swing into the position shown in dotted lines in Fig. 1. The impact of the mail bag against the catcher A is sufficient to swing the latter bodily through the door opening, during which movement the bag is held against displacement by the locking lever 11, which has been caused to assume the position shown in Fig. 3 by the movement of the catcher, the retention of the bag engaged by the catcher B′ being accomplished by the locking lever 11′ in a similar manner. The member 18 of the mechanism B is then rotated in the opposite direction, *i. e.*, backwardly into the interior of the car, under the influence of the spring 23, shown in Fig. 1.

The arrangement of each of the several mechanisms is such that it can be readily reversed, so as to operate irrespective of the direction in which the car is traveling, the base-plate 5, as well as the plate 36, which carries the member 17 being designed to be removed and their positions interchanged, while the catcher A′ is adapted to be swung bodily upon the reduced ends of the straps 5′ as a pivot to one side or the other of the supporting mechanism B′, the bar 2′ being engaged by the lip 29′ of the latch 29, which latter is held normally in engagement with said bar by means of an expansible coil spring 37, interposed between said latch and the headed end of that arm of the brace 30 upon which said latch slides.

What is claimed is:

1. A mail bag catcher, comprising in combination, a swinging frame including a hooked rod; a locking lever pivoted thereto; and connections between said lever and the frame for operating the lever during the movements of said frame.

2. A mail bag catcher, comprising in combination, a swinging frame including a hooked rod, said frame being arranged for movement into inoperative position by the impact thereagainst of a bag delivered to said rod; a locking lever pivoted to said rod; and connecting devices between the lever and the frame, for operating the lever during the movements of said frame.

3. A mail bag catcher, comprising in combination, a swinging frame arranged for movement into and out of operative position, said frame including a hooked rod; a locking lever pivoted intermediate its ends to the free end of the bill of the hook and arranged for movement into and out of position to engage the bag caught by said hook; and connecting devices between the lever and the frame, for automatically effecting the movements of said lever, during the movements of said frame.

4. The combination of a pivotally-mounted rod formed with a hook and arranged for swinging movement in one direction under the impact of a mail bag caught by said hook; a locking lever pivoted to said hook; and means connected with said lever for automatically moving the same into position to engage the bag during the movement of said rod.

5. The combination of a base member; a rod pivoted thereto for swinging movement in one direction under the impact of a mail bag caught by said hook; a locking lever pivoted intermediate its ends to the bill of the hook; and connecting devices between the base and said lever, for automatically moving the latter into position to engage the bag during the movement of said rod.

6. The combination of a base member; a rod pivoted thereto for swinging movement in one direction under the impact of a mail bag caught by said hook; a locking lever pivoted intermediate its ends to the bill of the hook; means connected with said lever for automatically moving the same into position to engage the bag during the movement of said rod; and means connected with the base and arranged for engagement

with the first mentioned means during the movement of said rod, to check such movement.

7. The combination of a base member; a rod pivoted thereto for swinging movement in one direction under the impact of a mail bag caught by said hook; a locking lever pivoted intermediate its ends to the bill of the hook; means connected with said lever for automatically moving the same into position to engage the bag during the movement of said rod; a toothed spring strap connected with the base and arranged for engagement with said means during the movement of said rod, to check such movement.

8. The combination of a pivotally-mounted rod formed with a hook and arranged for swinging movement backward and forward; a locking lever pivoted to the hook; and means connected with said lever for automatically moving the same into position to engage a mail bag caught by said hook during the backward movement of the rod, and out of such position during the forward movement thereof.

9. The combination, with a car having a door opening formed in one of its sides, of a frame arranged for bodily movement through said opening, said frame including a catcher arm formed with a hook; a locking lever pivoted to the hook; and connections between said frame and said lever for automatically moving the latter into operative position during the movement of the frame outwardly through said opening, and into inoperative position when said frame is moved outwardly through said opening.

10. The combination of an arcuate rod formed at one end with an inwardly-extending arm; a base member to which said arm is pivoted for swinging movement; a rod formed integral with the arcuate rod and provided with a hook; a locking lever pivoted to the hook; and connections between said arcuate rod and said lever for automatically moving the same into and out of position, to engage a mail-bag caught by said hook during the movements of said rods.

11. The combination of an arcuate rod formed at one end with an inwardly-extending arm; a base member to which said arm is pivoted for swinging movement; a rod formed integral with the arcuate rod and provided with a hook; a locking lever pivoted intermediate its ends to the hook; a rod pivoted to said base; a link pivoted to said lever; and a bell-crank lever pivoted to said arcuate rod and having its arms pivoted to the last-mentioned rod and to the link, whereby said lever will be automatically moved into position to engage a mail-bag caught by said hook when said arcuate and hooked rods are swung in one direction, and out of such position when said rods are swung in the other direction.

12. The combination, with a car having a door opening formed in one of its sides, of mail-bag catching and supporting mechanisms located at opposite sides of said opening, the catching mechanism including a swinging arm, and the supporting mechanism including a vertically-movable rotatable C-shaped member, said member and said arm being arranged for movement through said opening into and out of operative position.

13. The combination, with a car having a door opening formed in one of its sides, of mail-bag catching and supporting mechanisms located at opposite sides of said opening, the catching mechanism including a swinging arm, and the supporting mechanism including a vertically-movable rotatable C-shaped member, said member and said arm being arranged for movement through said opening into and out of operative position; means connected with said member for yieldingly holding the same in raised position; yielding means for imparting to said member a tendency to rotate in one direction; and means for holding said member against rotation when the same is in its lowered position.

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

HENRY J. AMICK.

Witnesses:
VAN A. HEFFNER,
H. C. MCCARTENEY.