

No. 693,899.

Patented Feb. 25, 1902.

S. R. PATTEN.

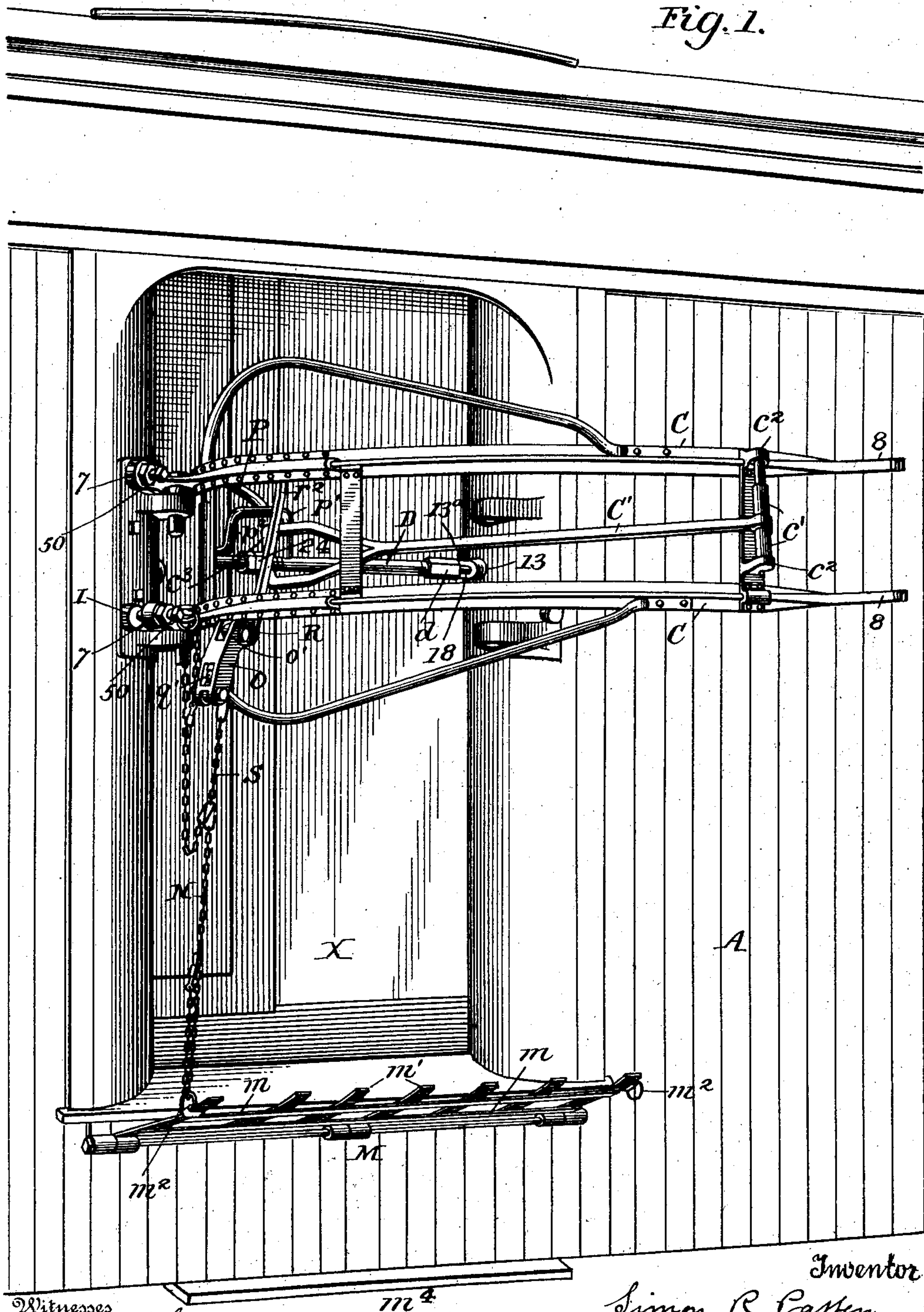
DEVICE FOR GRIPPING AND DELIVERING MAIL BAGS.

(Application filed Sept. 27, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



Witnesses
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Fig. 2.

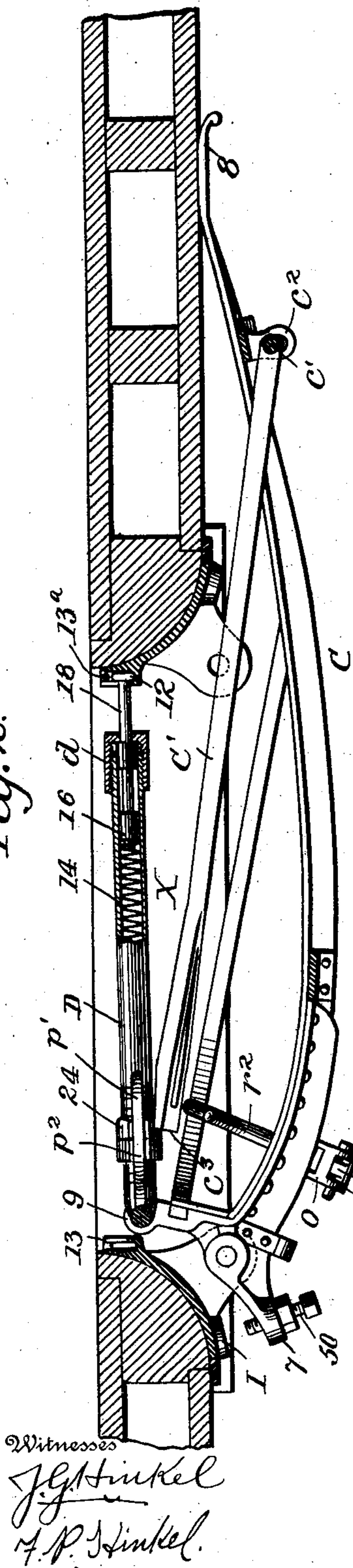
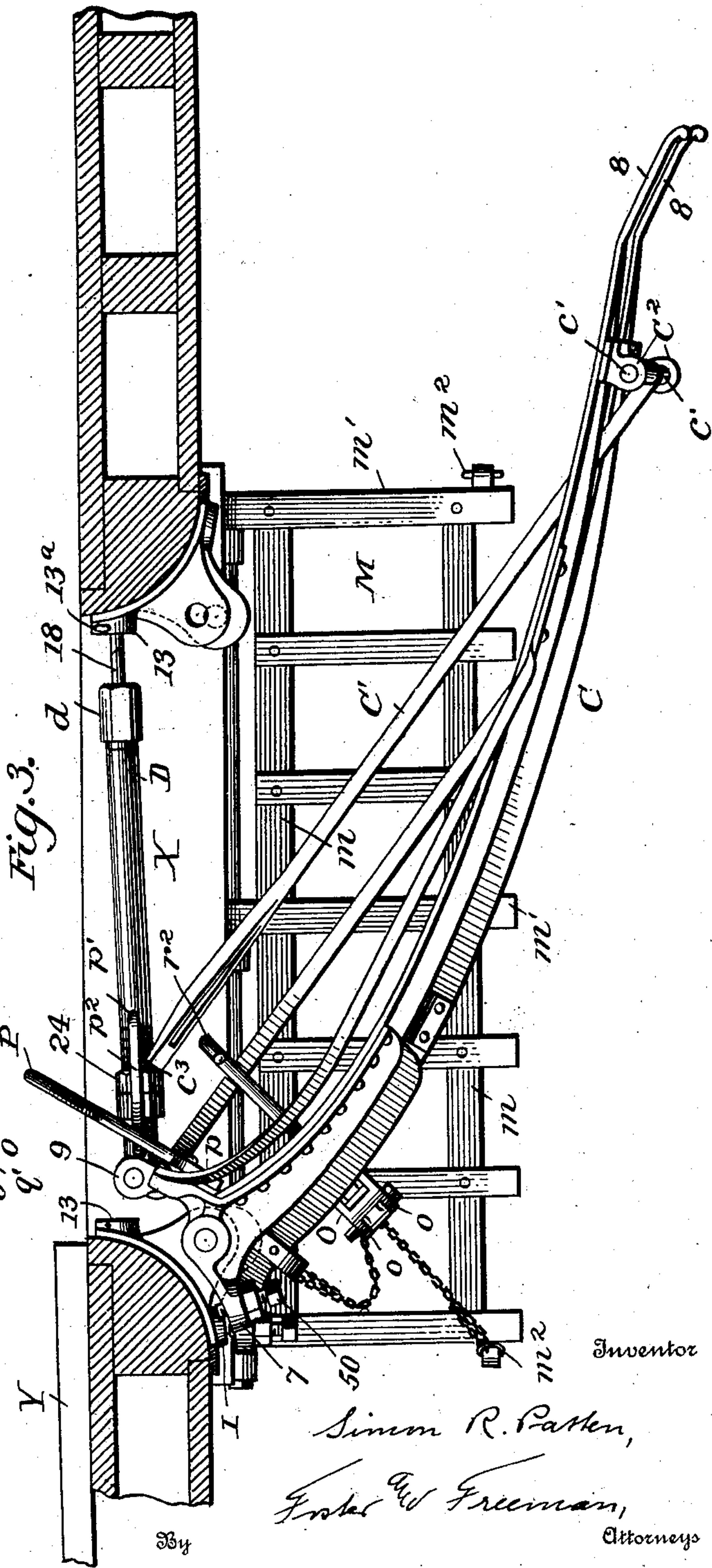


Fig. 3.



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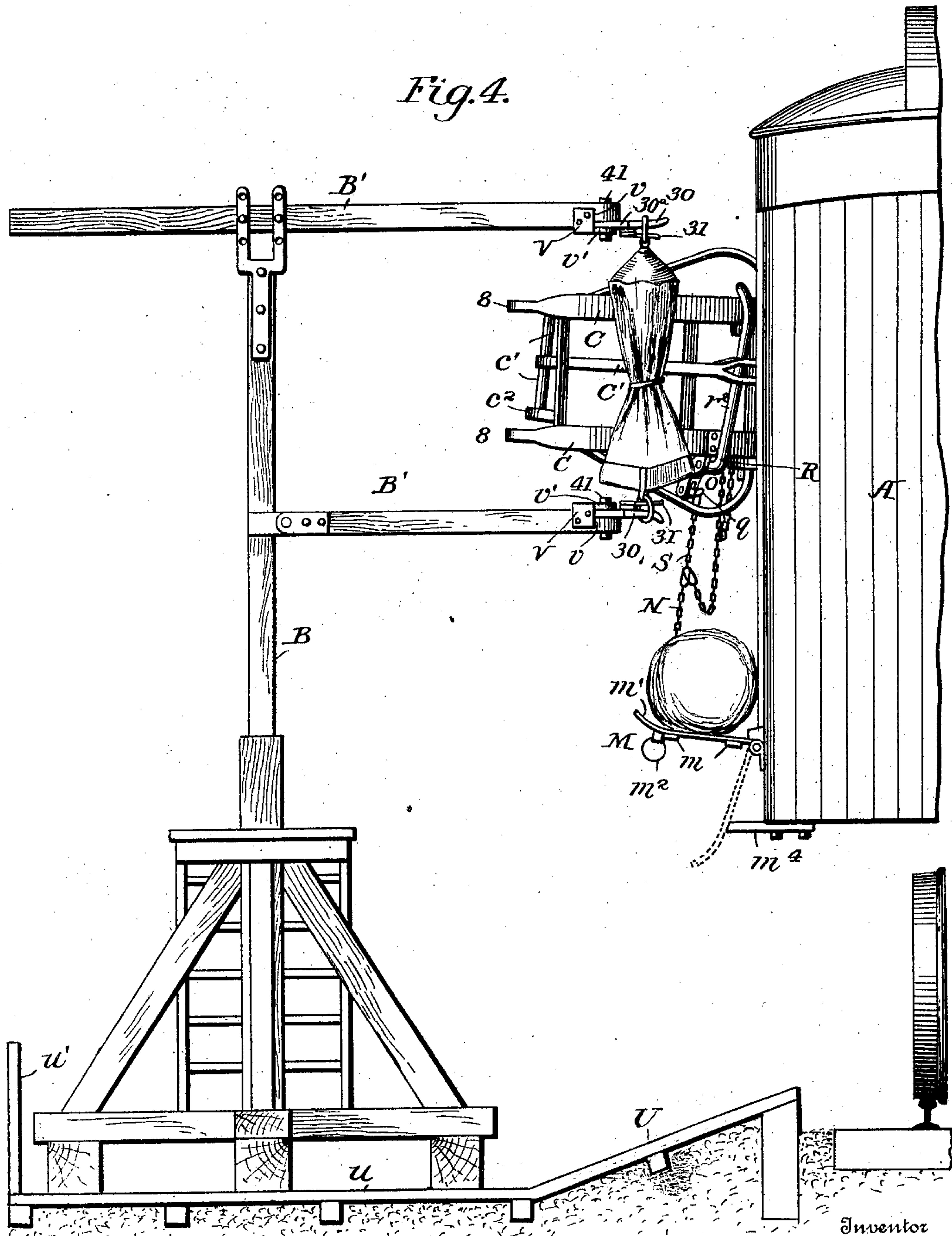
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4 Sheets—Sheet 3.



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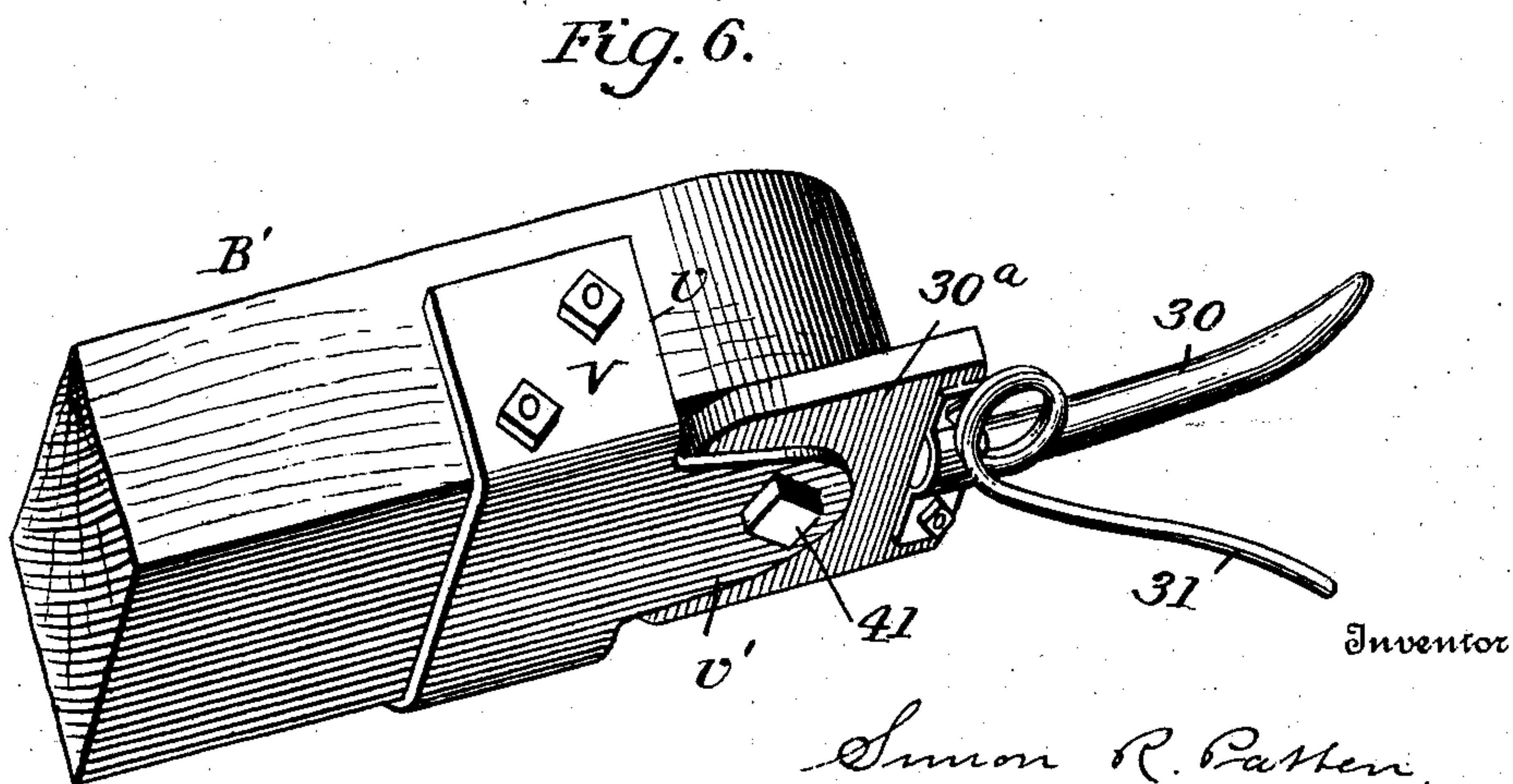
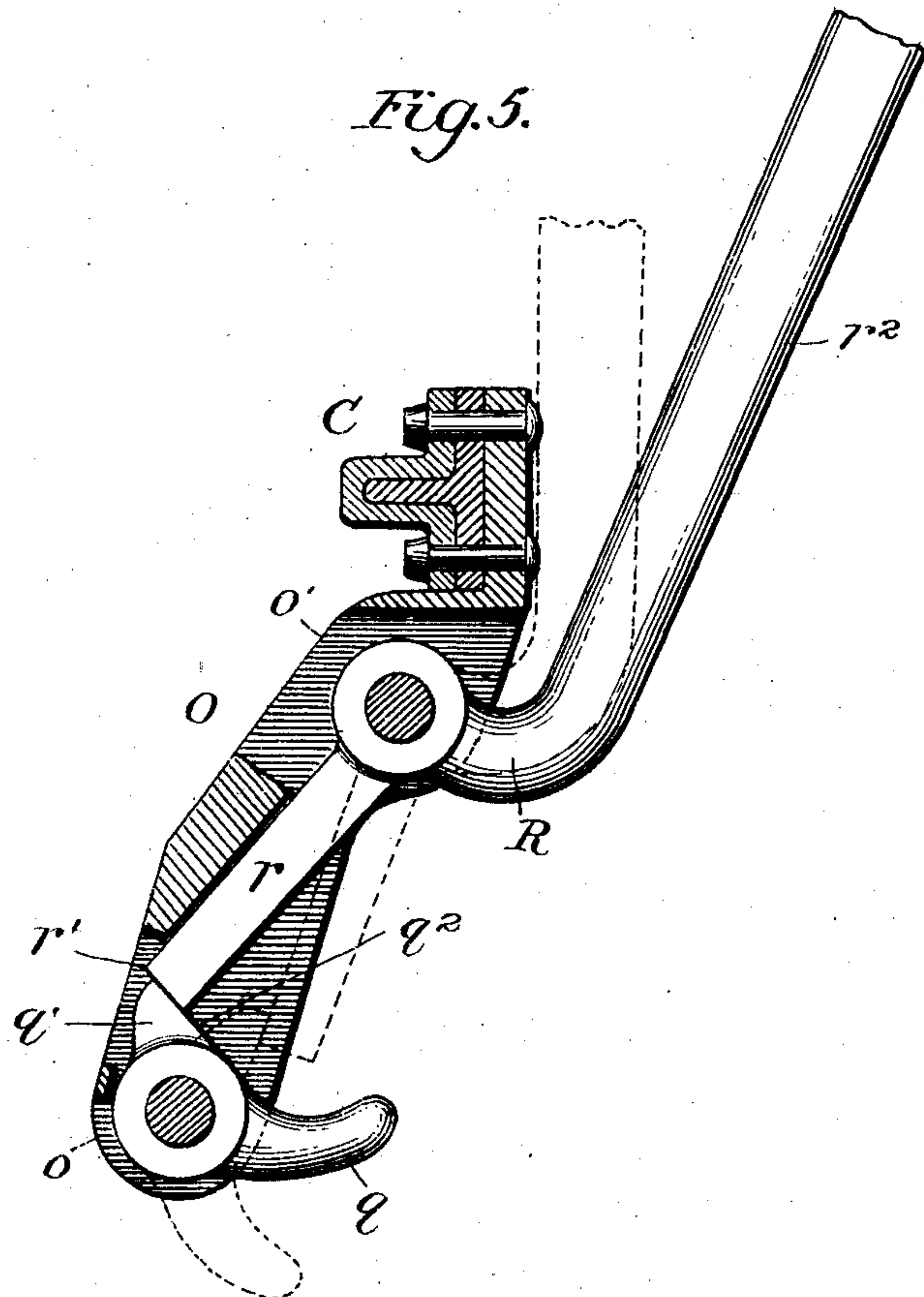
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(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR GRIPPING AND DELIVERING MAIL-BAGS.

SPECIFICATION forming part of Letters Patent No. 693,899, dated February 25, 1902.

Application filed September 27, 1901. Serial No. 76,801. (No model.)

To all whom it may concern:

Be it known that I, SIMON RICE PATTEN, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Devices for Gripping and Delivering Mail-Bags, of which the following is a specification.

My invention relates to devices for gripping and delivering mail bags or pouches of that class illustrated and described in my Letters Patent Nos. 643,529 and 659,098; and my invention consists in certain improvements and details of construction fully set forth hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a car with my improved gripping and delivering devices attached thereto. Fig. 2 is a longitudinal sectional plan showing the devices in one position. Fig. 3 is a similar view showing the devices in another position. Fig. 4 is an elevation transverse of the track, showing part of the car, the gripping and delivering devices, and the crane and its adjuncts. Fig. 5 is a sectional view of the tripping devices for the mail-delivering rack. Fig. 6 is a perspective view of the pouch-supporting devices on the crane-arm.

The mail-car A is provided with the side opening X, opposite which is the gripper, which is shown as an open frame C, hinged outside of the opening and supported in operation at an angle to the side of the car by a suitable detent C', the hinges of the gripper-frame being out of line, the lower hinge being farther from the face of the car than the upper one, so that the gripper-frame tends to close against the car by gravity. As shown, the frame has projecting arms 8 8, which serve to engage and deflect the pouch toward the detent C'. There is a spring suitably arranged to throw the frame inward when the detent is displaced by contact with the bag. As shown, the said spring 14 is arranged within a hollow or tubular bar D, pivoted at one end to a bracket 9 at the inside of the gripper-frame. The outer end of the bar is threaded to receive a cap d, and the outer end of the spring 14 bears against a rod 16, fitted to slide freely in the hollow bar D and having a reduced portion 18, which extends through an opening in the cap d and is pro-

vided with a flat head 12, adapted to fit in a T-shaped socket in a stud 13 at the edge of the opening X. The head 12 may be held in the socket by a detachable pin 13^a. The bar D, arranged as described, extends across the opening, and when the gripper is swung outward the spring 14 is compressed within the bar and exerts a power tending to close the gripper-frame against the side of the car.

To permit the bar D to be swung out of the way, it is only necessary to remove the pin 13^a and screw up the cap d sufficiently to take the pressure of the spring 14, which pressure normally tends to press the head 12 against the inner wall of the socket in the stud 13. The cap d also serves as an adjusting means for adapting the bar D for use in side openings which may be of a little more or a little less than the standard width.

The detent C' may be of any suitable shape and arrangement, but preferably consists, as shown, of a bar having arms c' extending at substantially a right angle therefrom at its outer end. These arms are hinged in ears c², projecting outwardly from the frame C, the lower ear extending out farther than the upper one, so that the inner free end of the detent tends to swing toward the bar D by gravity. The inner end of the bar is provided with a wide bearing edge c³, such being obtained by forking the inner end of the detent and connecting the ends of the prongs by a plate, which latter is adapted to engage a collar 24, adjustably mounted on the bar D. Obviously the inner end of the bar might be flattened or drawn out to get the wide bearing edge c³. The advantages of making the hinges of the detent out of line are that the inner end of the detent will automatically engage the collar 24 when the frame C is swung outwardly, and, furthermore, should the frame C from any cause swing or be strained outwardly beyond its normal position, and thereby draw the end of the detent away from the collar 24, such end will still maintain contact with the bar D and move back into engagement with the collar when the frame resumes its normal open position.

Some means must be provided to limit the outward movement of the frame C and also to vary the extent of such outward movement. To accomplish this, I prefer to provide the frame with outwardly-projecting lugs

7 7 at its hinged end and to mount a set-screw 50 in each lug adapted to engage a plate I at the edge of the opening X. By adjusting the set-screws 50 the extent of the outward movement of the gripper-frame may be varied, and the contact of the screws with the plate I will limit such movement. The collar 24 may also be adjusted to correspond to any adjustment of the set-screws 50 in order that the detent 10 C' may properly engage it.

In order to swing the gripping-frame C to its open or outward position, I provide a hand-lever P, pivoted on the hinged end of the frame C and having a short arm p projecting 15 beyond its pivot and lying against a part of the frame C. Normally this lever lies in an inclined plane and in such position that a door Y for closing the opening X may slide past it, and in order to swing the frame C outwardly the door must be opened, when the long arm of the lever may be lifted to substantially a horizontal position and pulled toward the outer end of the frame C, which results in swinging the frame to its open position. 25

It sometimes happens that when the frame C is set in operative position to take a mail-package from a crane there will be no package on the crane, and consequently the frame 30 remains in its operative position and the operator may neglect to close it before closing the door Y, and should an obstruction be met before the next crane is reached the frame is liable to be torn from the car. To prevent accidents of this character, I provide means for preventing the lever P from returning to its normal position until after the frame C has been moved to its closed position. Various means may be provided for this purpose, and a simple device is a support p' , 40 upon which the long arm of the lever will rest when the frame is in its outward position, and when so supported said arm will lie in the path of the door and prevent the latter from being closed. As shown, the support p' is attached to the bar D a short distance from its hinged end, and the horizontal portion p^2 forms the support for the long end of the lever when the frame C is in operative 50 position, and as the frame closes the arm will move off the portion p^2 and drop down onto the bar D, when it will be out of the path of the door.

With the mail-receiving devices it is desirable to provide devices for automatically delivering mail-packages from the car, and preferably the delivering devices should be operated by the receiving devices, so that all the operator has to do is to set the gripper-frame 60 in position to receive the mail-package and place the outgoing mail upon the delivering device. Various means have been heretofore devised for this purpose which are more or less objectionable, and in the devices to be 65 now described I have sought to obviate such objectionable features. In carrying out this part of my invention I employ a rack M,

hinged to the outer side of the car-sill and which normally lies in an inclined position against a block m^4 , projecting beyond the face 70 of the car. A chain or equivalent device N is connected at one end to the gripper-frame C near its hinged end and at its other end to one side of the rack near its front edge. The chain will be substantially taut when the rack 75 is swung down against the block m^4 . An arm O projects downwardly and slightly outwardly from the frame C and is provided at its lower end with spaced ears $o o$, between which a detent or pin q is pivoted, said pin 80 projecting rearwardly from the arm in a generally horizontal plane and being slightly curved. The pin is provided with a tailpiece q' , which extends upwardly from it above the pivot and is provided with a bearing-surface 85 q^2 . The arm O is also provided with spaced ears $o' o'$ at its upper end, between which a lever R is pivoted at a point between its ends, and the lower short arm r of the lever has an end bearing-surface r' to cooperate with the 90 bearing-surface q^2 of the tailpiece q' . The long arm r^2 of the lever is offset from the short arm and extends upwardly between the detent C' and the frame C in position to be struck by the former when it is tripped by an incoming mail-package. The long arm r^2 of the lever being to the rear of the pivot and greatly preponderating in weight over the short arm 95 throws the outer end of the short arm forward and maintains the engagement of the bearing-surfaces r' and q^2 , and the parts are so proportioned and arranged that the tailpiece cannot at any time become disengaged from the arm r . Normally the lever R holds the detent or pin q in substantially a horizontal 100 plane, and in such position it will receive and hold a link of a short chain S, connected to the chain N in such position that it may be easily reached by the operator on the car. The chain S is so proportioned that when it is engaged with the pin q the rack will be held up 110 in position to receive and support packages of mail to be delivered. When the detent C' is struck by an incoming package and released, it will be thrown against the long arm of the lever R, which results in moving the outer end of the short arm rearwardly, and the pin or detent q will swing downwardly and release the chain S and permit the rack M to fall and discharge the mail supported on it. As soon as 115 the detent C' releases its pressure on the long arm of the lever R the latter will by gravity return to its normal position, and thereby return the pin q to operative position. In the event the detent C' is not actuated, as may 125 sometimes be the case when no package is on the crane, the lever R may be actuated by hand to dump the rack M.

The rack M may be a plate, but preferably it will be made up of a series of longitudinally-extending bars m , to which a series of 130 transverse bars m' are riveted or otherwise secured. The outer ends of the bars m' are curved upwardly to prevent a mail-package

from rolling or being blown off before the rack is dumped. Also the corners of the upwardly-curved ends of the bars m' will tend to embed in large mail-packages, and so resist the tendency of strong air-currents to blow the packages off. Small packages can lie between two of such curved ends. I provide a ring m^2 at each side of the rack, to either of which the chain N may be connected, according to the direction the gripping-frame C is set to operate. As shown, the rack M when lying against the block m^1 does not occupy a vertical plane, but inclines outwardly toward its front edge, and this is important, inasmuch as the mail-packages in sliding off the rack are given an impetus away from the car, and this outward impetus is further increased by the curvature of the outer ends of the bars m' , and the mail-packages are not liable to be thrown under the car and injured by the car-wheels. To still further insure against accidents of this character, I propose to provide an inclined surface at delivery-points upon which the mail will drop from the rack, the incline being away from the track, and the packages will roll down the incline. Such an inclined surface is indicated by U and may be formed of planking or metal. Also, preferably, I shall form a level surface u , extending from the bottom of the inclined surface, and a fence u' to arrest the movement of the packages. Such specially-built receiving-surfaces will preferably be provided where it may be necessary to keep the mail-packages off of muddy ground; but in some cases the ground itself may form the receiving-surfaces, and when this is the case the ground will be covered with cinders or other material which does not readily form mud and also permits free drainage of surface water.

The crane B, of any suitable construction, is arranged adjacent to the track and is provided with arms B' , having pins 30 for receiving the rings upon the ends of the bag which is to be delivered to the car.

To insure a free delivery when the bag makes contact with the gripper-frame of the car, the pins 30 are pivoted by vertical bolts 41 to the arms B' of the crane, so that the said pins 30 will swing freely laterally to a limited extent. It is necessary to limit the lateral swing of the pins, as otherwise they might sometimes move to such position as to carry the pouch out of the path of the gripping-frame, and I therefore provide means for limiting this swing. As shown, the pins 30 are provided with a plate portion 30^a , which rests against the arms B' and through which the pivot-bolts extend. To limit the lateral swinging movement of the pins, I provide on each arm B' a strap V, against the front side edges v of which the side edges of the plate portion 30^a will contact when the pin swings laterally, and thus the pins cannot swing toward the rear end of the arms B' to such an extent as to carry the pouch out of the path of the gripping-frame. It is also desirable to

provide some means to prevent the mail-pouch from being shifted out of proper position by the action of the wind, and while various means may be provided for this purpose I prefer to provide a forward projection v' on the strap V, which overlies the plate portion 30^a of the pin, and the pivot-bolt may also pass through this projection. When the pouch is properly placed upon the pins 30, there is a downward strain upon the upper pin and an upward strain upon the lower one, and these strains cause sufficient friction between the plate portions 30^a and the projections v' to prevent the pouch being blown out of position; but such friction will be overcome by the positive force applied when the pouch enters the gripping-frame. It is extremely desirable, however, to prevent the bag from delivering too readily upon the pins, in order that it may not be blown off or otherwise improperly removed, and I therefore combine with each pin a yielding finger 31, shown in the form of a rod provided with a spring-coil and diverging from the pin 30, so that the finger can be carried down parallel to the pin and the ring on the end of the bag can only be applied to the pin after the spring-finger has been pressed toward the pin, and the ring can only be removed by a force sufficient to press the finger toward the pin as the ring slides off. The spring-finger may be vertically in line with the pin, but is preferably at one side of a vertical plane passing through the pin, so as not to bear upon and wear away the strap which connects the ring to the bag.

Without limiting myself to the precise construction and arrangement of parts shown and described or to the combination of all of the parts in one apparatus, I claim as my invention—

1. The combination with a car having a side opening, of a bar extending across said opening, a gripping-frame opposite said opening, and a detent hinged at one end to the gripper-frame to engage said bar with its other end, the hinges being arranged out of line, substantially as and for the purposes set forth.

2. The combination with a car having a side opening, of a bar extending across said opening, an adjustable stop on said bar, a gripping-frame opposite said opening, and a detent hinged at one end to the gripping-frame to engage said bar and stop with its other end, the hinges being arranged out of line, substantially as and for the purposes set forth.

3. The combination with a car having a side opening, of a bar extending across said opening, a gripping-frame opposite said opening with hinges arranged out of line, and a detent hinged at one end to the gripping-frame to engage said bar with its other end, the hinges being arranged out of line, substantially as and for the purposes set forth.

4. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening and extending

across said opening, and adjustable stops on the hinged end of the frame to limit its opening movement, substantially as described.

5 The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening, lugs projecting from the frame at its hinged end, and set-screws adjustable in said lugs to engage the car at the edge of the opening, substantially
10 as set forth.

6. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening, and a hand-lever connected to the frame and operative to swing
15 the frame on its hinges, substantially as set forth.

7. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening, and a hand-lever
20 pivoted to the frame near its hinged end and having a projection beyond its pivot engaging the frame, substantially as and for the purpose set forth.

8. The combination with a car having a side opening, and a door to close said opening, of a gripping-frame hinged to the car at one side
25 of the opening, a hand-lever pivoted to the frame and operative to swing the frame on its hinges, said lever normally lying out of the path of the door, and a support for said lever
30 to hold the latter in the path of the door, substantially as set forth.

9. The combination with a car having a side opening and a door to close said opening, of
35 a bar extending across said opening, a gripping-frame hinged to the car on one side of the opening, a hand-lever pivoted to the frame and operative to swing the frame on its hinges, said lever normally lying in an inclined plane and resting on said bar out of
40 the path of the door, and an elevated support on the bar to support said lever in the path of the door, substantially as set forth.

10. The combination with a car, of mail-bag-gripping devices, a delivery-rack hinged
45 to the car, means to hold said rack in its elevated position, and means actuated by the gripping devices to release said holding means, substantially as set forth.

11. The combination with a car, of a hinged gripping-frame, a detent to hold said frame
50 in operative position, a delivery-rack hinged to the car, means to hold said rack in its elevated position, and devices actuated by said detent when tripped to release said holding
55 devices, substantially as set forth.

12. The combination with a car, of a hinged gripping-frame, a detent to hold said frame
60 in operative position, a delivery-rack hinged to the car, a pivoted pin on the frame, a chain connected to the rack and engageable with the pin to hold said rack in elevated position, and a lever pivoted on the frame in position to be struck by the detent, and normally engaging said pin to hold the latter in operative
65 position to support the rack, substantially as set forth.

13. The combination with a car having a side opening, of a mail-delivery rack hinged to the car adjacent to said opening, and means
70 to prevent the rack from swinging down into a vertical plane, substantially as set forth.

14. The combination with a car having a side opening, of a mail-delivery rack hinged to the car adjacent to said opening, the front
75 edge of said rack being curved, substantially as and for the purpose specified.

15. The combination with a car having a side opening, of a mail-delivery rack hinged to the car adjacent to said opening, the front
80 edge of said rack being curved, and means to prevent said rack from swinging down into a vertical plane, substantially as set forth.

16. A mail-delivery rack, consisting of a series of longitudinally-extending bars, and a
85 series of cross-bars secured thereto, the outer ends of said cross-bars being curved, substantially as set forth.

17. The combination with a car, of mail-bag-gripping devices, a delivery-rack hinged
90 to the car, means to hold said rack in its elevated position, means actuated by the gripping devices to release said holding means, and an inclined surface independent of the car and rack to receive the mail discharged
95 from the rack, substantially as described.

18. The combination with a car, of a mail-bag-delivery rack hinged thereto, a pivoted pin supported by the car, a pivoted lever also
100 supported by the car in position to engage said pin to hold it in operative position and movable to release the pin to permit the latter to move to inoperative position, and a connection attached at one end to the rack and
105 engageable with the pin to hold the rack in its elevated position, substantially as set forth.

19. A tripping device comprising a support, a pin pivoted on said support and provided with a tailpiece, and a lever pivoted to said
110 support and having a long and a short arm, the short arm engaging the said tailpiece and the long arm offset from the short arm and holding the latter in engagement with the tailpiece by gravity, substantially as set forth.

20. The combination with a car having a
115 side opening, of a mail-delivery rack hinged to the car near the bottom of said opening to project outwardly from the car, releasable devices to hold said rack in a substantially horizontal plane outside the car, and a stop
120 to limit the downward swing of the rack when released, substantially as set forth.

21. The combination with the crane-arms, of the pivoted fingers 30 having plate portions resting against the arms, and friction-plates
125 secured to the arms and overlying the plate portions, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIMON RICE PATTEN.

Witnesses:

H. G. OGDEN, Jr.,

W. CLARENCE DUVALL.