

(No Model.)

3 Sheets—Sheet 1.

E. KEENAN.

MAIL BAG RECEIVING AND DELIVERY APPARATUS FOR RAILWAY CARS.

No. 387,420.

Patented Aug. 7, 1888.

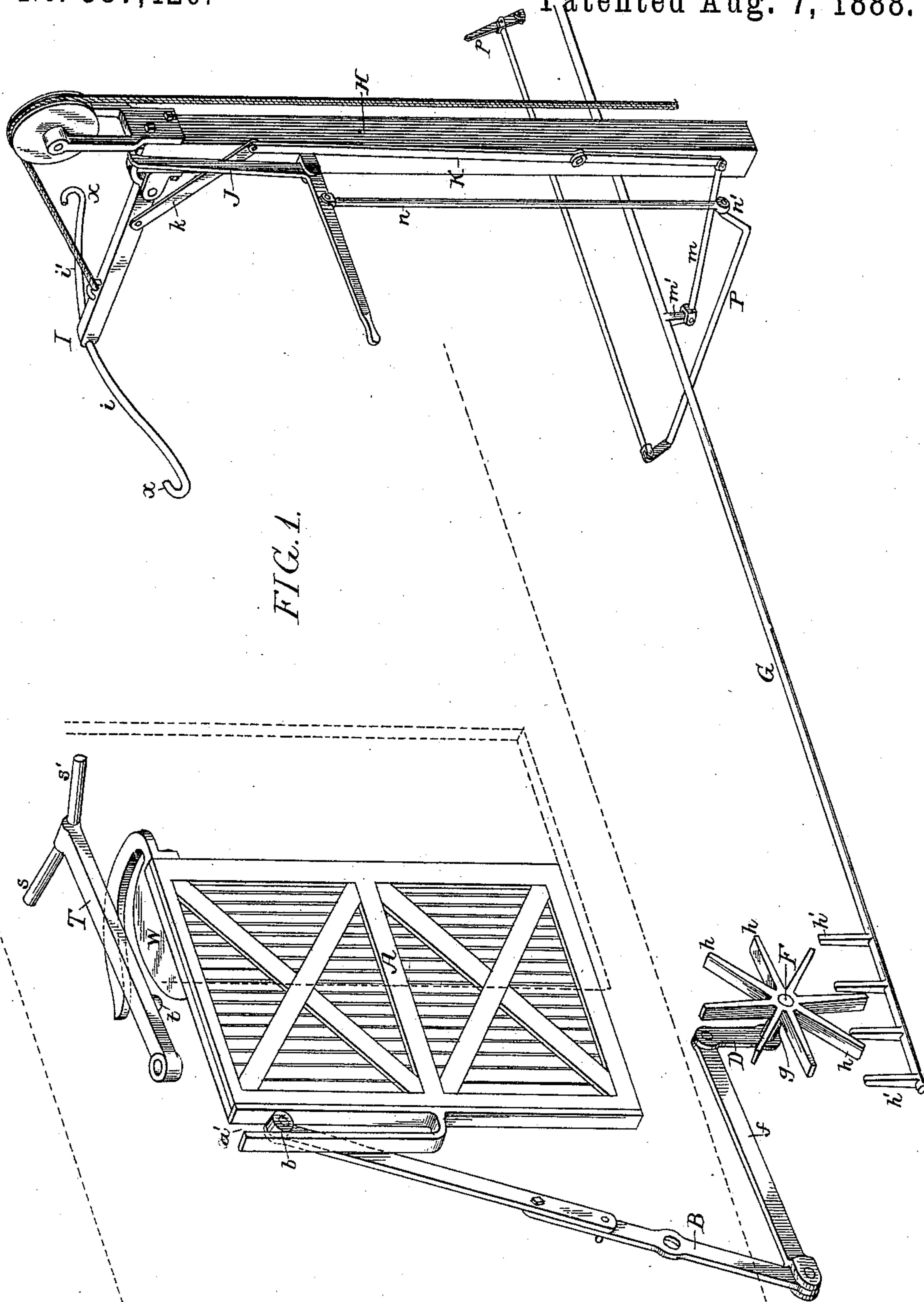


FIG. 1.

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John E. Parker.
David S. Williams.

Inventor:
Edward Keenan,
by his Attorneys.
Howson & Howson

(No Model.)

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FIG. 3.

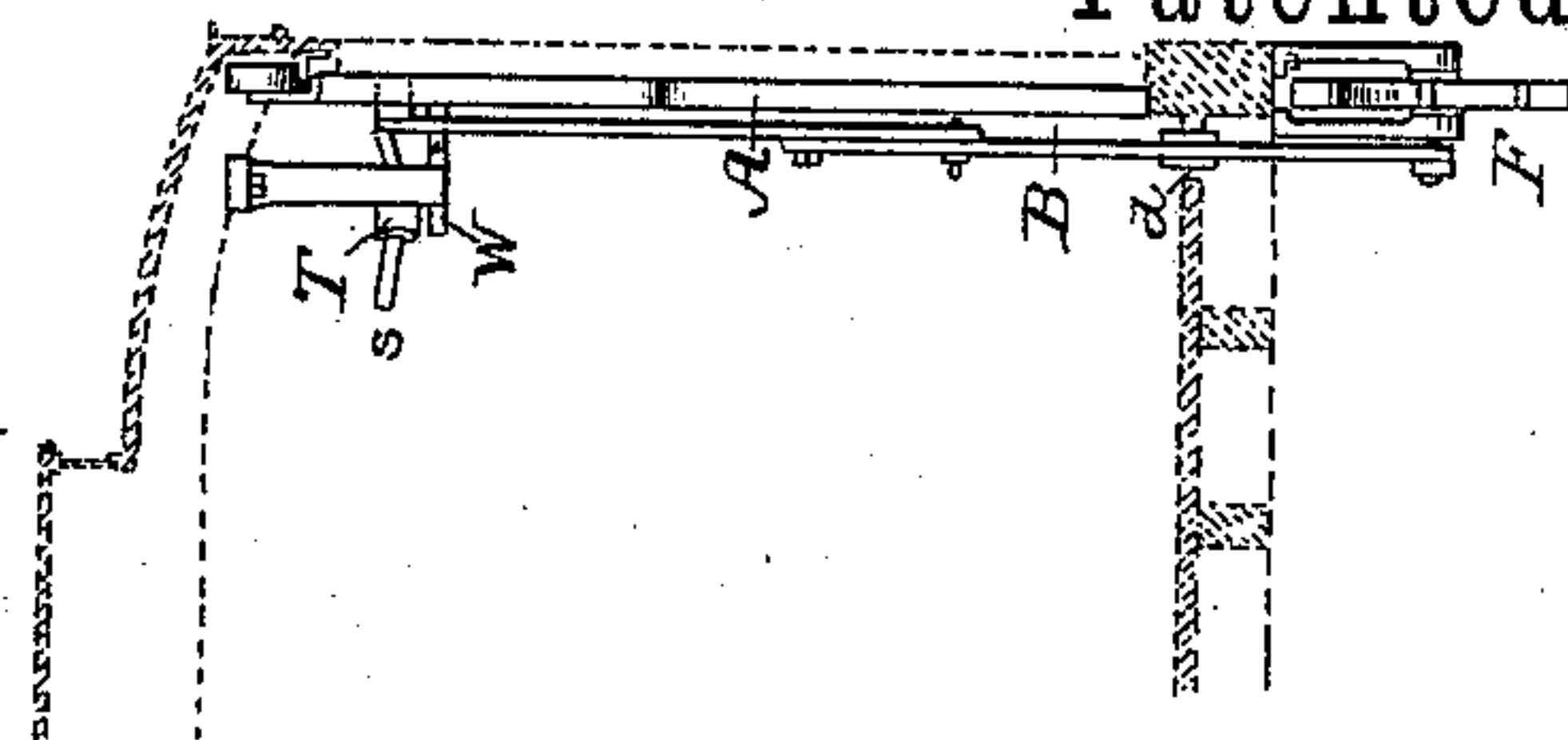
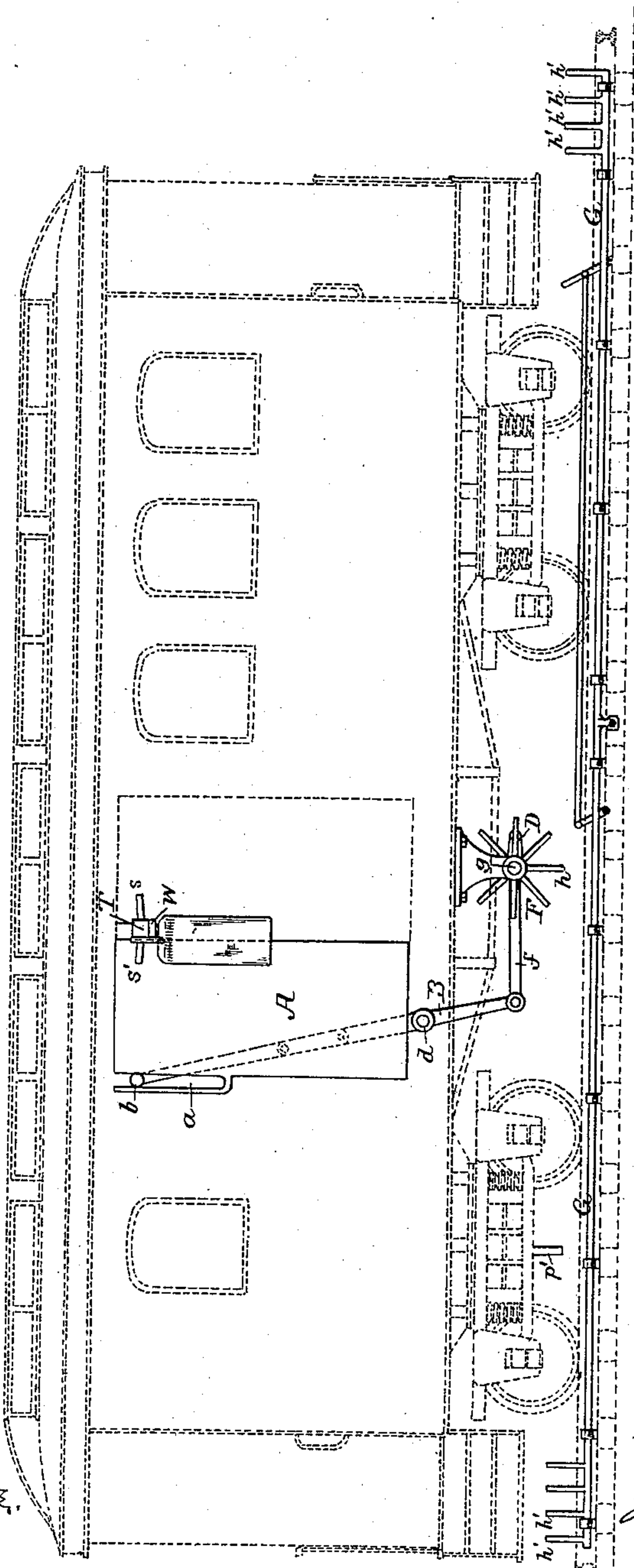


FIG. 2.



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FIG. 4

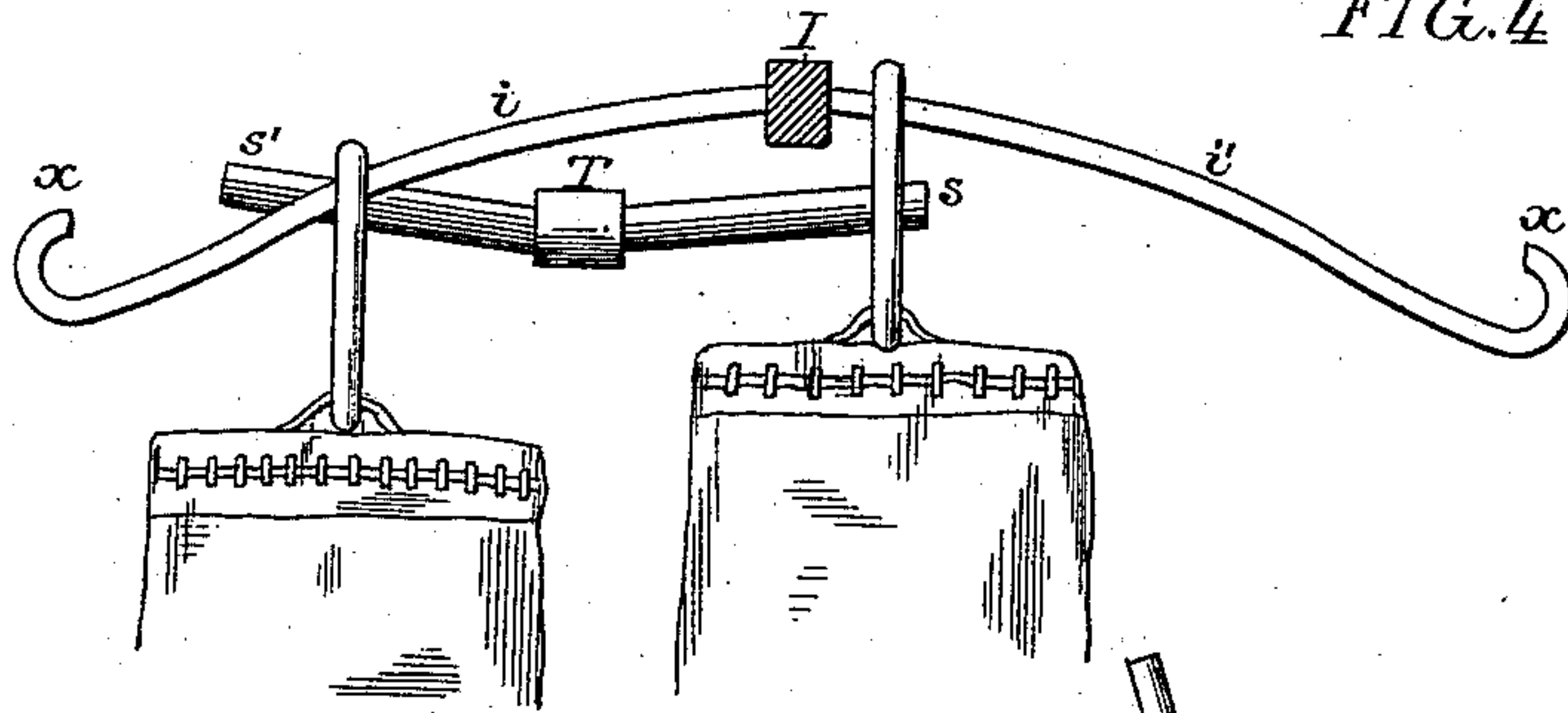


FIG. 5.

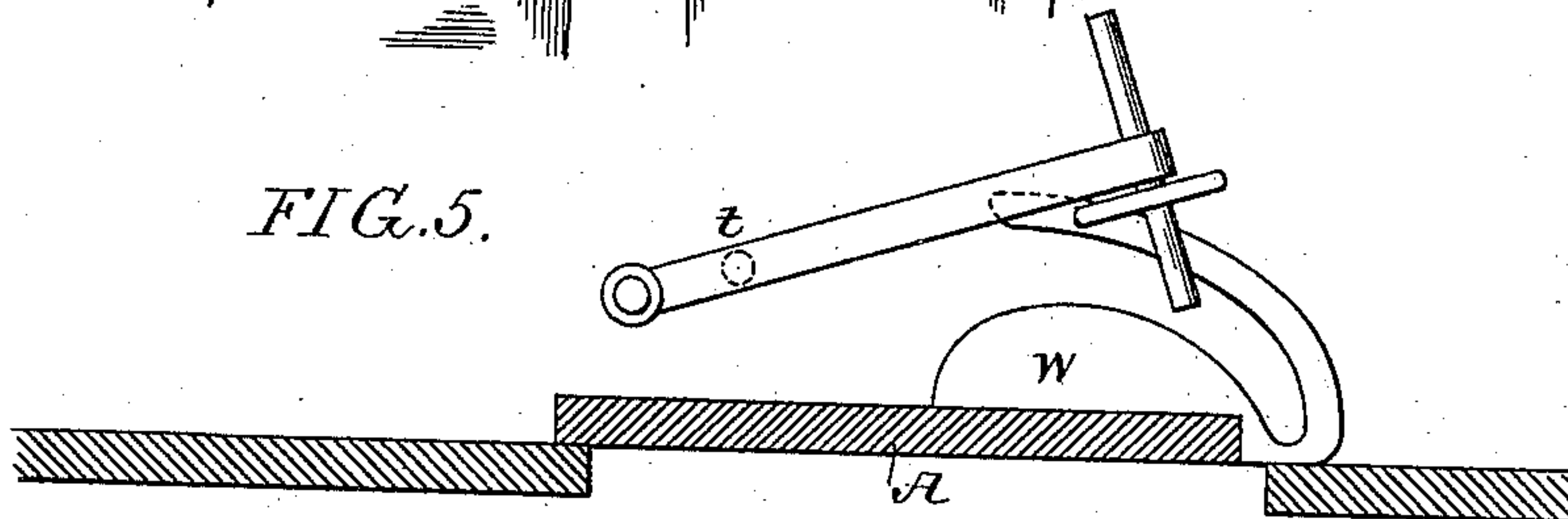


FIG. 6.

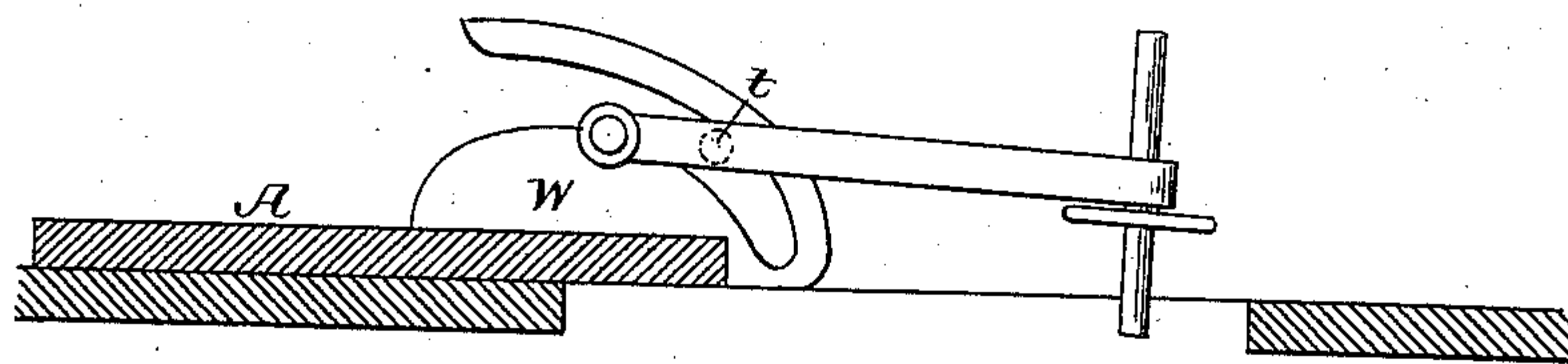
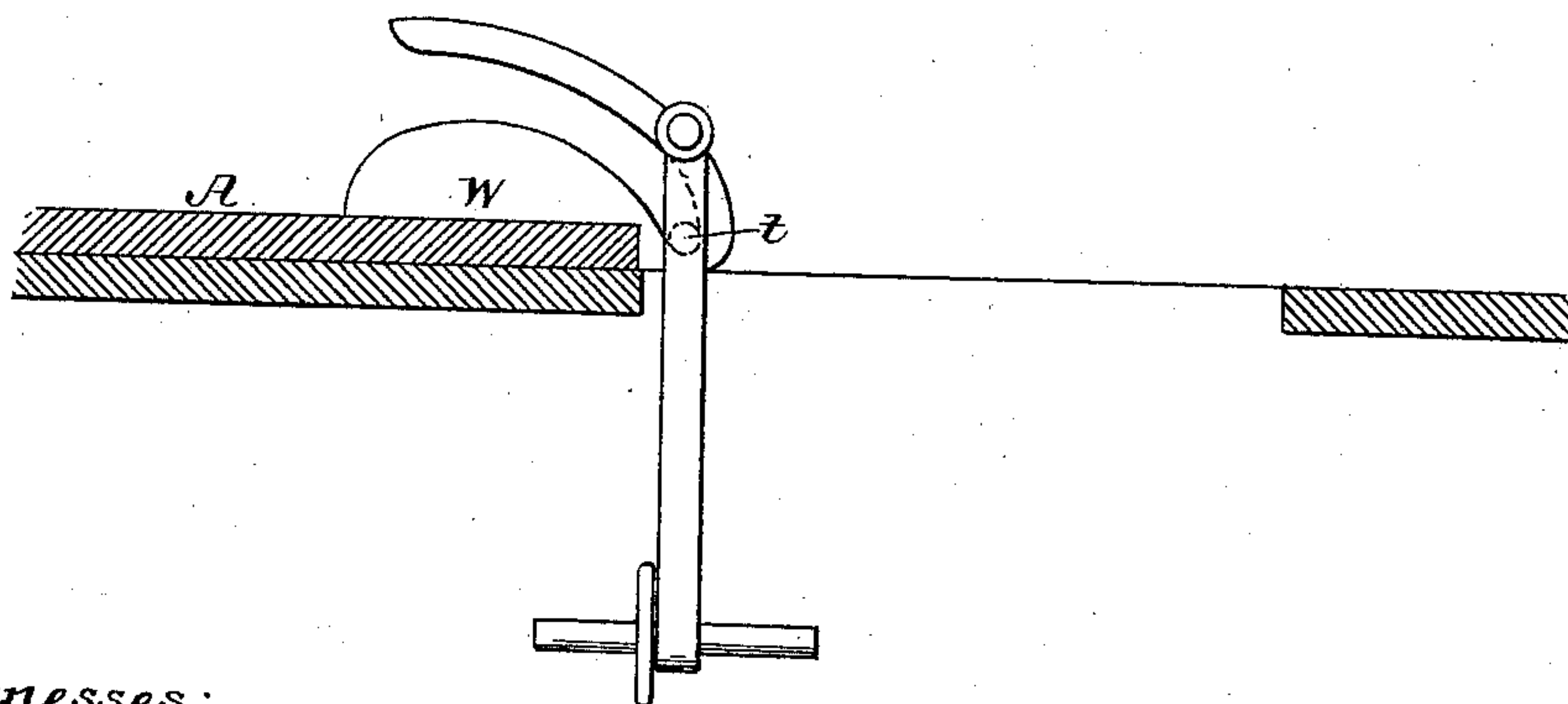


FIG. 7.



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UNITED STATES PATENT OFFICE.

EDWARD KEENAN, OF PHILADELPHIA, PENNSYLVANIA.

MAIL-BAG RECEIVING AND DELIVERY APPARATUS FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 387,420, dated August 7, 1888.

Application filed March 19, 1888. Serial No. 267,712. (No model.)

To all whom it may concern:

Be it known that I, EDWARD KEENAN, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Mail-Bag Receiving and Delivering Apparatus for Railway-Cars, of which the following is a specification.

The object of my invention is to provide means for effecting the automatic collection and delivery of bags of mail-matter as the mail-car passes the stations; and this object I attain in the manner and by the means hereinafter specified, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view illustrating those parts to which my invention relates, part of the side of the car being shown. Fig. 2 is a side view of the car, its attachments, and the operating mechanism therefor. Fig. 3 is a transverse section of part of the car with its attachments. Fig. 4 is a view of part of the device, illustrating the operation of delivering one mail-bag and catching another; and Figs. 5, 6, and 7 are diagrams illustrating the operation of part of the device carried by the car.

The parts of the car shown in Figs. 1, 2, and 3 are represented in dotted lines, so as not to detract from the prominence of those parts to which the invention relates.

In Fig. 1, A represents the door of the car, which is mounted so as to be free to slide longitudinally in the car, as usual, this door having at the rear a slot, *a*, to which is adapted an anti-friction roller, *b*, carried by one arm of a lever, B, which is hung at *d* to a suitable fulcrum-pin within the car and projects through an opening in the bottom of the latter, the projecting arm of the lever being connected by a rod, *f*, to a crank, D, secured to a rock-shaft, *g*, adapted to suitable bearings on the under side of the car. This shaft also carries a wheel, F, having a number of tappets, *h*, which are adapted to engage with tappets *h'* on a rock-shaft, G, adapted to bearings on the permanent way or road-bed, and free to turn in these bearings, so that the tappets *h'* may either be elevated to such position as to engage with those of the wheel F, or may be thrown down so as to clear the same.

On the station-platform is a post, H, to a suitable bearing near the upper end of which

is hung an arm, I, which has at the outer end oppositely-projecting fingers *i*, both of these fingers being preferably bent downward at the outer ends and terminating in hooks *x*.

The arm I may be retained in the elevated position shown in Fig. 1 by means of a catch-lever, J, hung to a bearing on the side of the post H, a rope and pulley serving as the means of elevating the arm prior to its retention by the catch-lever. The arm I is connected by a link, *k*, to a lever, K, hung to the post H, and the lower end of this lever is connected by a rod, *m*, to an arm, *m'*, on the rock-shaft G, so that as the arm I is elevated the rock-shaft G will, through the medium of the connections described, be turned so as to raise the tappets *h'* into position for engagement with those of the wheel F; but when the arm I is lowered the rock-shaft G will be turned so as to throw its tappets down out of engagement with those of the wheel.

The catch-lever J is connected by a rod, *n*, to an arm, *n'*, on a transverse rock-shaft, P, another arm on which is connected to an arm, *p*, located at some distance from the arm *n'*, and adapted to be struck by a suitable projection, *p'*, on the car truck as the latter moves forward.

Hung within the car is an arm, T, which has at the free end opposite projecting pins *s s'*, and on the under side an anti-friction roller, *t*, and on the inner side of the car-door is a cam-plate, W, adapted to engage with said roller *t*.

The operation of the device is as follows: The door of the car is normally closed and the arm T adjusted to its position inside the car, and the arm I of the station apparatus is normally down or in the inoperative position. On the approach of a train to which mail is to be delivered, or from which mail is to be received, however, the attendant raises the arm I, the bag to be delivered to the car being hung upon the delivery-finger *i'* of said arm. The same movement effects such a rocking of the shaft G as to elevate the tappets *h'* of the same into position for engagement with the tappets of the wheel F of the car; hence as the latter approaches the station the wheel F is operated so as to impart a half-turn to the crank D, and thus

operate the lever B and effect the sliding back of the door A of the car, the same movement, owing to the engagement of the cam W and roller *t*, effecting the projection of the arm T, to the delivery-finger *s'* of which has been previously hung the mail-bag to be delivered to the station about to be passed. When the arm is thus projected, the ring of the mail-bag is held in position to engage with the receiving-finger *i* of the station apparatus, while the receiving-finger *s* of the arm T is in position to enter the ring of the mail-bag hung upon the delivery-finger *i'* of said apparatus; hence as the car passes the station one bag will be caught by the receiving-finger *i* and the other bag will be taken from the delivery-finger *i'*, and as the car passes the station the wheel F will be actuated by the tappets *h'* at the opposite end of the rod G, so as to impart a second half-turn to the crank D, thus effecting a reverse movement of the lever B and the closing of the door, the arm T being operated by the cam W so as to be swung into the car in advance of the closing of the door. The bag deposited upon the finger *i* is prevented from slipping from the same by reason of the hook *x* at the outer end of the finger.

The final operation is the rocking of the shaft P, by reason of the contact of the projection *p'* on the car with the arm *p*, thus effecting the movement of the ratchet-lever J, so as to release the arm I and permit it to drop, thereby again throwing the parts out of operative position. The rock-shaft G should be of such length as to insure ample time for the opening of the door of the car and the projection of the arm T before the latter reaches the receiving and delivery apparatus on the platform, and for the retraction of the arm and closing of the door after passing said apparatus, and the relation of the arm *p* in respect to the projection *p'* on the car should always be such that there will be no release of the arm I of the platform apparatus until the car has passed the same to such distance as to cause the closing of the door.

On roads in which the car always passes the platform apparatus in the same direction the delivery-finger *i'* of the arm I may be straight; but in cases where cars pass the station in both directions it should be bent and hooked, the same as the finger *i*, as in such cases it sometimes serves as the receiving-finger and at other times as the delivery-finger.

The lever B is made in two parts, pivoted together at *y* and locked in position by a pin, *y'*, on the withdrawal of which the upper part of the lever is at liberty to move independently of the lower part, so that the door may be opened without affecting the position of the device for automatically operating the same.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the sliding door of the car and the pivoted receiving and delivery

arm with a cam, whereby said arm is projected and retracted as the door is opened and closed.

2. The combination of the pivoted receiving and delivery arm, the sliding door of the car, having an operating-cam for said arm, a lever connected to the door, a tappet-wheel hung to the car, means for transmitting the movement of said wheel to the lever, and tappets on the road-bed for actuating said tappet-wheel.

3. The combination of the pivoted receiving and delivery arm, the sliding door of the car, having an operating-cam for said arm, a lever connected to the door, a tappet-wheel hung to the car, means for transmitting the movement of said wheel to the door-operating lever, and tappets on the road-bed movable into and out of engagement with said tappet-wheel.

4. The combination of the car, having a pivoted bag receiving and delivery arm, a tappet-wheel hung to the car, mechanism whereby the movement of said tappet-wheel is transmitted to the bag receiving and delivery arm, a platform-post having a movable bag receiving and delivery arm, tappets for acting upon the tappet-wheel of the car, and means for connecting the said tappets to the arm of the platform-post, whereby the movement of the latter effects the movement of the tappets into and out of operative position, all substantially as described.

5. The combination of the platform-post and its bag receiving and delivery arm, a catch for retaining said arm, a car having a pivoted bag receiving and delivery arm, a projecting tappet-wheel hung to the car, mechanism whereby the movement of said tappet-wheel is transmitted to the pivoted arm on the car, tappets for operating the tappet-wheel, means for connecting said tappets to the arm of the platform-post, a tripper-arm connected to the catch-lever, and a projection on the car for operating said tripper, all substantially as described.

6. The combination of the platform-post with an arm having oppositely-projecting receiving and delivery fingers, one or both of which are bent downward and hooked at the outer end, as set forth.

7. The combination of the pivoted bag receiving and delivery arm, the door of the car having a cam for operating said arm, door-operating mechanism beneath the car, a lever made in two parts, one connected to the door and the other to the operating mechanism beneath the car, and means for locking together and unlocking the two parts of the lever.

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

EDWARD KEENAN.

Witnesses:

WILLIAM D. CONNER,
HARRY SMITH.