W. M. CORTHELL.

MAIL DELIVERER.

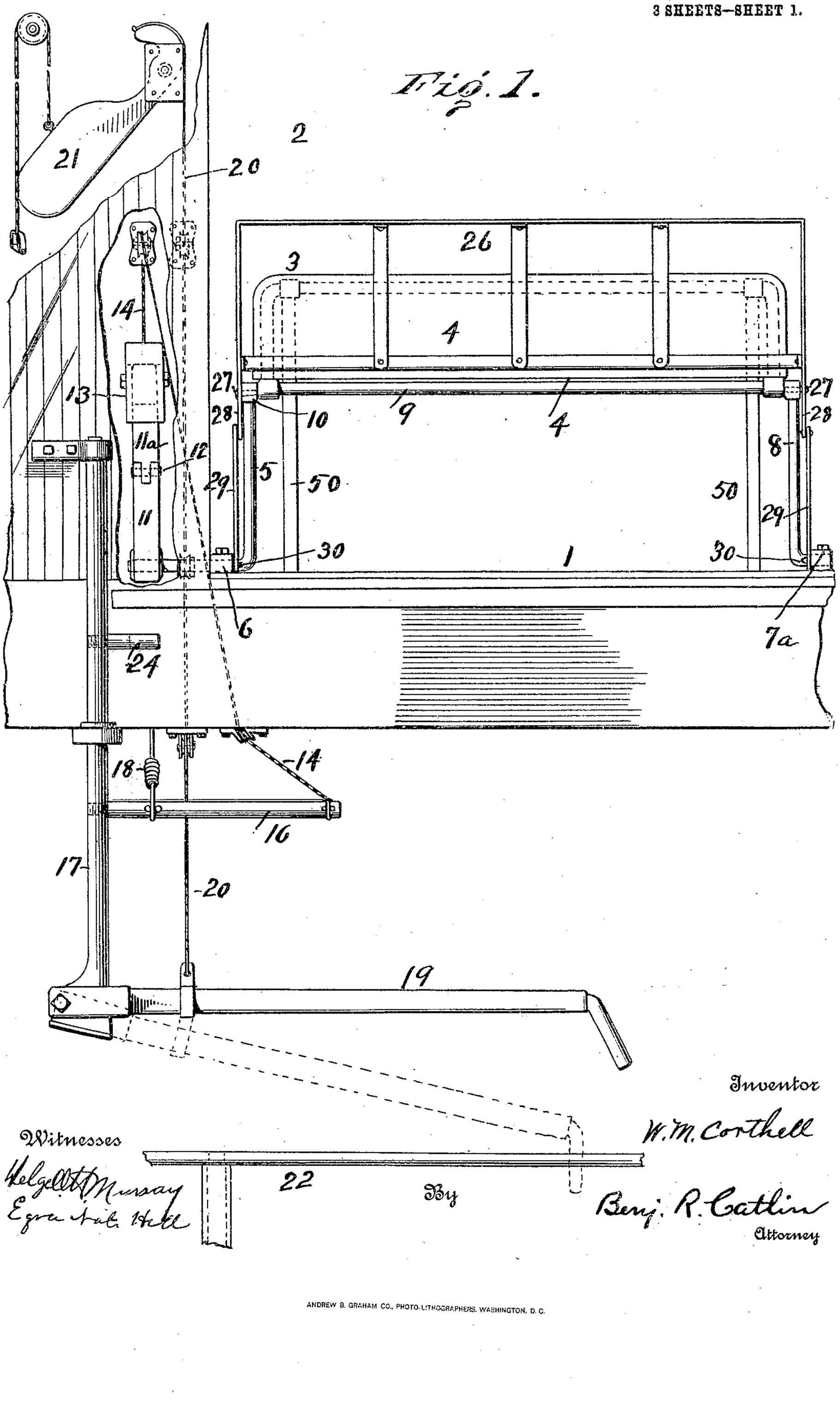
APPLICATION FILED OCT. 6, 1909.

959,468.

Patented May 31, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

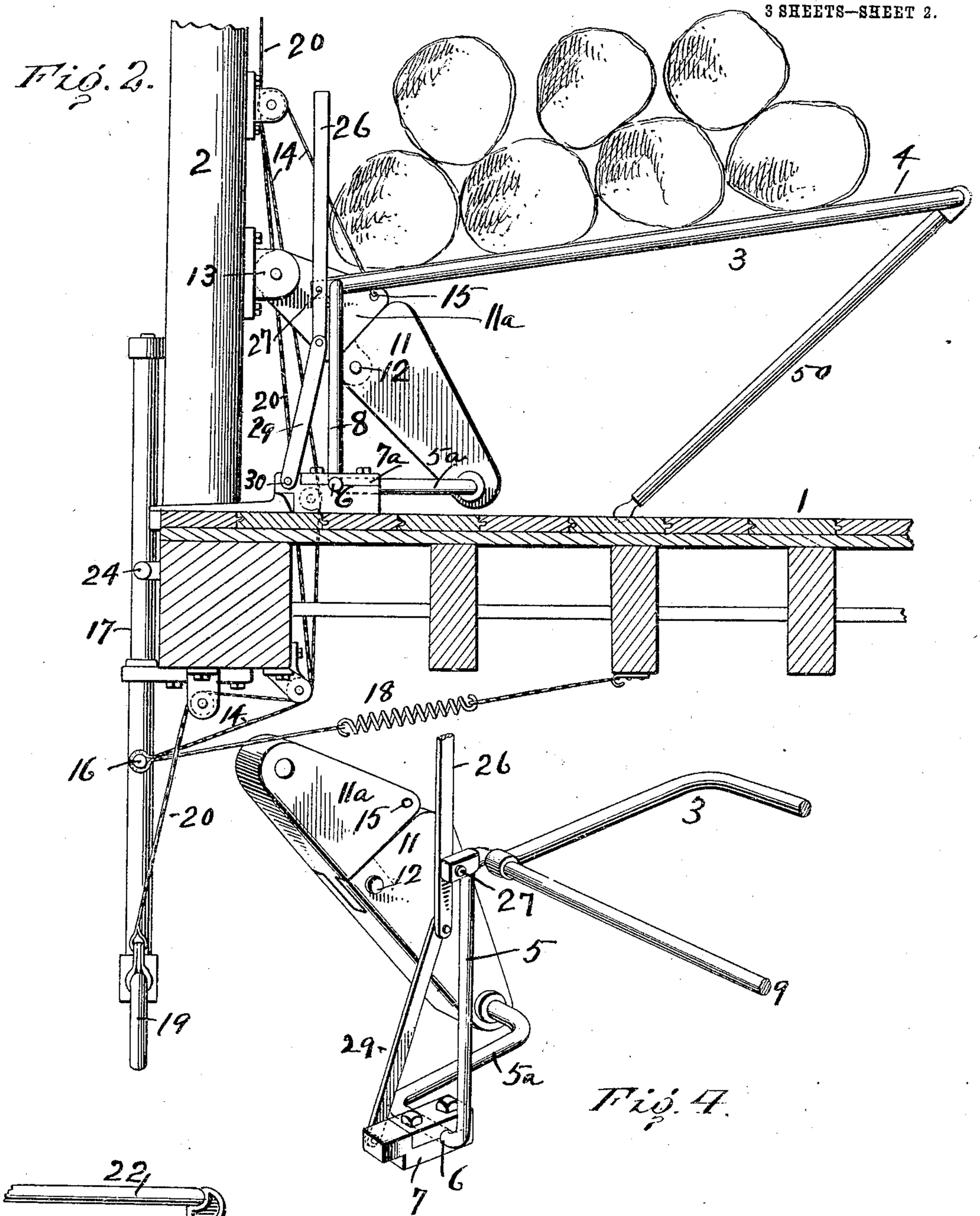

Fig. 4.

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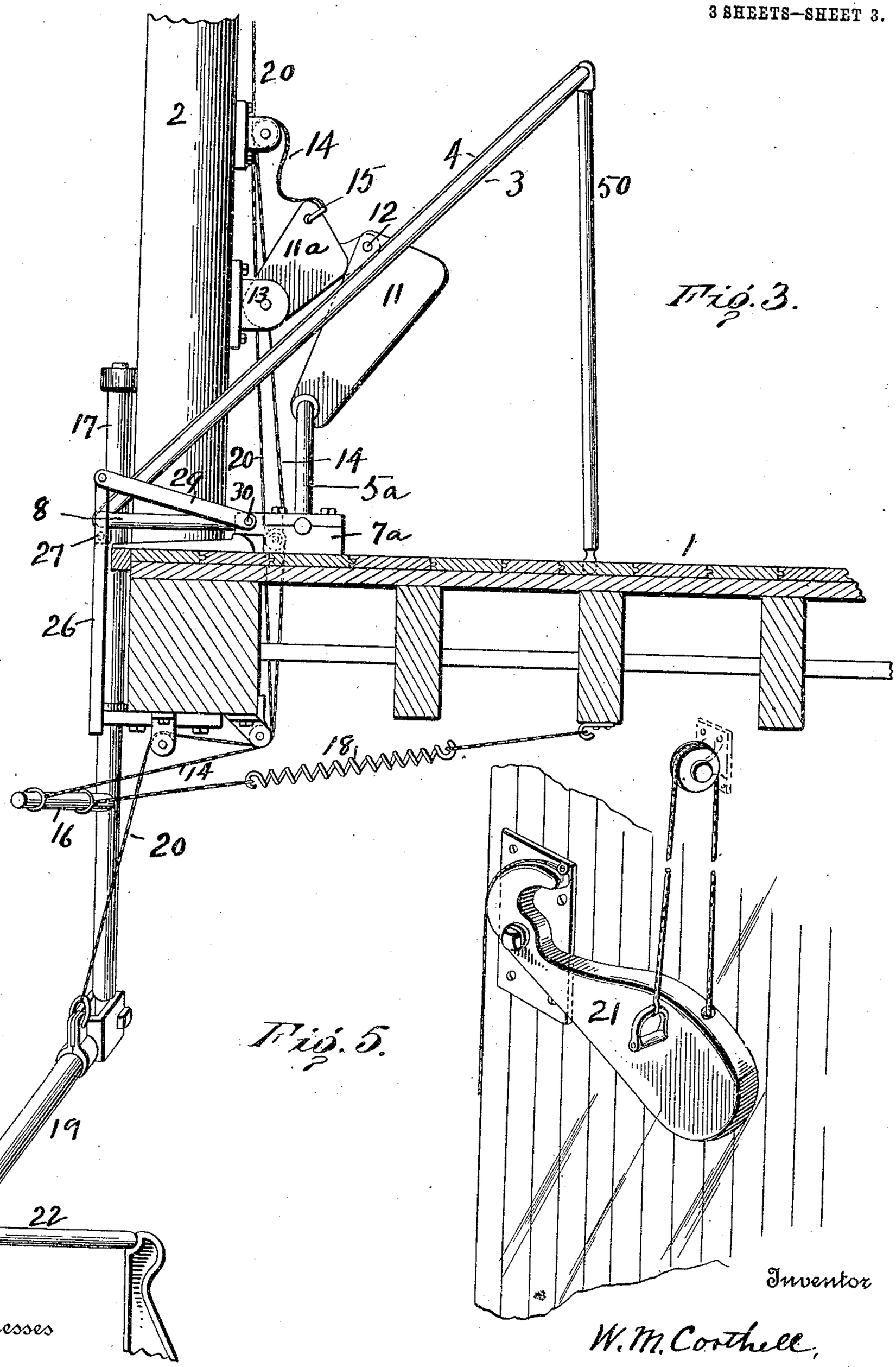

Fig. 3.

Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM M. CORTHELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO RAILWAY AUTOMATIC MAIL DEVICE CO., A CORPORATION OF ILLINOIS.

MAIL-DELIVERER.

959,468. Specification of Letters Patent. Patented May 31, 1910.

Application filed October 6, 1909. Serial No. 521,304.

To all whom it may concern:

Be it known that I, WILLIAM M. CORTHELL, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mail-Deliverers; 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 pertains to make and use the same.

This invention relates to mail delivering apparatus for moving cars, and especially to apparatus for delivering bulky mail, such as newspapers and packages in bags or the like.

The object of the invention is to provide improved means whereby heavy or numerous bags may be easily and safely delivered automatically from a car, and the invention consists in the construction hereinafter described and particularly pointed out.

In the accompanying drawing which illustrates the invention and forms part of the specification, Figure 1 is a side view, partly broken away, of the device on a car; Fig. 2 is a view at right angles to Fig. 1, the device being set for operation; Fig. 3 is a like view after operation; Fig. 4 is a partial perspective view of the frame and locking and operating connections; Fig. 5 shows means for controlling the operating arm.

It is sometimes desirable to provide mail cars with a special apparatus, distinct from that used to catch and deliver first class mail, for throwing from the car the more bulky mail matter, and is such an apparatus which is to be described, though if desired first class mail may be delivered by it also.

Numeral 1 denotes the floor of a car, and 2 a side doorway which may be at the middle of the car, or if the same car is to have also a catcher and deliverer for first class mail, there may be two side doorways at opposite ends of the side of the car for the two devices respectively.

Inside the doorway is a platform or bag-support which preferably consists of a metal frame 3 on the upper side of which is secured a wood or other floor 4 on which the bags to be delivered may be laid. The outer edge of the bag-support is connected to the end of one arm 5 of an angle-lever, which is pivoted at the angle, at 6, in a bearing 7 secured to the floor. This arm 5 is connected by the front bar or tube 9 of the bag-support to an arm 8 having a bearing 7^a. If tube 9 is rigid with the rest of frame 3, as it may be, arms 5 and 8 will be connected to the tube 9 by sleeves 10 in which the tube can turn. But if tube 9 is not rigid with the frame but is loosely sleeved thereto, arms 5 and 8 will be rigidly fixed to tube 9, it being only necessary to have a pivotal or hinge connection between said parts.

In normal position when set to deliver arms 5 and 8 stand upright and form a strong support, holding the front of the platform elevated, say eighteen inches above the floor. The other arm 5^a of the angle-lever is sleeved to the free or lower end of one member 11 of a toggle or knuckle lever, the other member 11^a of which is pivoted to member 11 at its lower edge, at 12, and to a fixed bearing and abutment 13 on the inner wall of the car at one side of the doorway. As shown, the proximate ends of said members are enlarged, and are of corresponding shape so as to bear directly against each other and thus be rigid when in set position.

14 denotes a rope or chain connected to one of said members, at 15, extending over pulleys to an arm 16 to which it is fastened. Arm 16 is rigid with a vertical shaft 17 having bearings on the outside of the car wall at one side of the doorway. The shaft is preferably supported by a collar above the lower bearing, as shown. A spring 18 is connected between arm 16 and the bottom of the car to return the shaft after it has been moved to effect a delivery of mail.

To the bottom of shaft 17 is pivoted an operating-arm 19, free to swing in a vertical direction, but rigid with the shaft transversely. Arm 19, when not set for operation, is held up (in full line position Fig. 1) by a rope or chain 20 under control of an operator on the car. Said rope 20 may, for example, extend over pulleys to a lever 21, pivotally mounted at a convenient height on the inside of the car. When approaching a place where mail is to be delivered the operator in the car raises the weighted handle-end of the lever, thereby lowering arm 19 so that its outer bent end is in position to contact with, and be turned horizontally by, a long cam rail 22 supported beside the track at an angle thereto. After passing the cam rail arm 21 is released and falls to normal position and raises the operating arm 19 to safety position. Although the spring 18

is shown for returning the shaft 17, said spring may be omitted when the cam rail is arranged to turn arm 19 first away from the track and then back toward the same. A stop arm projecting from shaft 17 is denoted by 24, and normally rests against the outside of the car under action of the spring 18.

At the front edge of the bag-support is a guard 26, preferably an open frame, to prevent accidental falling of bags from the platform. Said frame is pivoted to the bag-support at 27, the ends of the frame extending below the pivots to form short arms 28, which are pivoted to links 29, the lower ends of which have fixed pivotal bearings 30. The rear or inner edge of the bag-support has two (or other suitable number) legs 50, the upper ends of which are pivotally connected to the inner side of frame 3 of the bag-support, and the lower ends of which are adapted to rest loosely in suitable sockets or depressions in the car floor, as shown. Legs 50 are longer than legs 5 and 8, and when in "set" position incline from their pivotal connection downwardly and forwardly, and hold the bag-support at an angle with the floor about as shown. When the bag-support is operated by the cam rail, arm 19, etc., it moves bodily forward in the doorway (as distinguished from a mere movement around a fixed pivot) and its outer edge moves toward the car floor, while at the same time the inner edge of said support moves away from the floor, whereby the inclination of the bag-support is rapidly and easily increased, and whereby when the bag-support is suddenly arrested by the car floor an outward throw is given to the mail. Movement of the bag-support as just described operates the guard frame 26 through connection 27, arms 28, and links 29, to swing said frame 26 outwardly so that it comes to rest in inverted position against the outside of the car below the doorway. This guard only moves out of the way when it is time for the mail bags to leave the platform, and instantly passes into position where it does not project from the car to an objectionable extent. The bag-support may be left in its forward inclined position until wanted for the next delivery. Or by swinging its rear legs from under it, may be laid flat on the floor to permit loading; and when required for use moved to "set" or raised position, which is done manually by raising it, adjusting the rear legs, and straightening the knuckle joint to lock the parts. Or if desired, when not in use frame 3 may be raised vertically against the inside of the car door and there held out of the way.

By providing opposite cam rails, that is, rails the far ends of which are near the track rail, and the near ends of which are farther from the track rail, the described device is adapted to deliver on the same side of the car whichever way the car is moving.

The work required to be done by the cam rail and the operating-arm, and connected parts, is merely to bend or "break" the knuckle joint, and to start the bag-support forward, and this is not greatly affected by the amount of weight on the platform.

The pivoted lever 21 may be raised by a cord and pulley, as shown, or by other suitable means. The short arm of lever 21 is curved eccentrically to the pivot, and cord 20 is connected to the extreme outer end in such manner that the cord laps around the curved part as the lever moves. The curve varies the leverage as the lever moves. When the lever hangs in normal position it is nearly counterbalanced by arm 19. After arm 19 is arrested by the stop flange at the foot of shaft 17 the entire weight has to be held by the cord and handle, and when arm 19 passes off the cam rail, and lever 21 is released, the connection is in position of greatest efficiency to raise arm 19. When arm 19 is operated by the cam rail cord 20 can yield the necessary amount.

Having described the invention what I claim as my invention is,—

1. The combination with a car having a doorway, of a bag-support in the car at a distance above the floor, and means whereby said support is moved bodily forward in the doorway and simultaneously its outer edge is lowered and its rear edge is raised to eject a bag from the support.

2. The combination with a car, of a bag-support, pivoted arms adapted to hold the front of said support above the car floor and to swing forwardly and downwardly therewith, and legs supporting the rear edge of said bag-support, said legs inclining forward from said rear edge to the car floor, whereby forward movement of the bag-support raises its rear edge and lowers its front or outer edge.

3. The combination with a car, of a bag-support inside the car and adapted to be inclined toward the car doorway, and means comprising a vertical shaft, a cam rail and an operating arm connected to said shaft and moved by said rail for moving said bag-support forward and increasing its inclination.

4. In apparatus of the character described, the combination of an elevated bag-support adapted to be placed in a car inside a doorway, pivoted supports for the bag-support, means temporarily locking the supports in position to hold the bag-support elevated, and means comprising a vertical shaft, an operating arm, and a cam rail, for releasing the supports and starting the bag-support forward.

5. The combination of a bag-support

adapted to be placed inside the doorway of a car, pivoted supports for the bag-support, and means including knuckle-levers temporarily locking the pivoted supports in position to hold the bag-support above the car floor, and means including a cam rail and an arm operated thereby for bending said levers and starting the bag-support forward.

6. The combination with a car, of an elevated bag-support, means supporting the bag-support and including an angle lever pivoted at the angle of a bearing on the car floor, an arm of the angle lever being connected to the front of the bag-support, and operating means connected to the other arm of said angle lever whereby said bag-support will be swung outwardly and downwardly.

7. The combination with a car, of a bag-support inside a side doorway, an angle-lever-support for the forward edge of the bag-support, said lever being pivoted at its angle, a knuckle-lever connected to one end of the angle-lever and normally locking it in position to operate, and automatic means for bending the knuckle-joint, whereby the angle-lever is unlocked and moved to carry the bag-support outwardly.

8. The combination with a car, of an elevated bag-support, an angle-lever pivoted at its angle, an arm thereof supporting the bag-support, another arm thereof supporting an end of one member of a knuckle-lever, a fixed bearing for an end of the other member of said knuckle-lever, whereby when said members are in set position the bag-support is locked in raised position, and means for bending the joint between said members.

9. The combination with a car, of an elevated bag-support, an angle-lever pivoted at its angle, an arm thereof supporting the bag-support, another arm thereof supporting an end of one member of a knuckle-lever, a fixed bearing for an end of another member of said knuckle-lever, and means for bending the joint between said members comprising a cord operatively connected to a shaft mounted on the car, an operating arm fixed to the shaft, and a cam rail.

10. The combination with a car, of an elevated movable bag-support in the car, a body at the outer edge of the bag-support and connected thereto to prevent accidental discharge therefrom, and means operated by movement of the bag-support for moving said body out of the path of the bag to be delivered.

11. The combination of a bag-support movable forwardly and downwardly, an upwardly extending guard at the front of said support, and means operated by such movement of the bag-support to swing said guard downwardly out of the way.

12. The combination with a car, of a bag-support in the car and movable forwardly and downwardly, into the car doorway, an upwardly extending guard pivoted at the front of said support, and means operated by such movement to swing said guard to inverted position against the outside of the car.

13. In a device of the character described, a mail-holding platform, means comprising legs for supporting the platform at a distance above the floor of a car, such means permitting the platform in use to swing bodily forwardly and downwardly in the doorway, and when not in use to be moved to a position flat on the floor of the car, whereby it will not obstruct such doorway.

14. In a device of the character described for delivering mail from a moving car, a mail-holding platform, means for supporting the platform at a distance above the floor of a car, said platform being pivoted at its outer edge adjacent the car doorway, the inner edge being free to rise whereby the platform may be swung up against the inside of the car out of the way.

15. The combination with a mail-handling device for a car comprising a shaft and a cam-operated-arm, of a weighted lever pivoted in such car, and a connection between said lever and arm of varying radius.

16. The combination with a shaft and operating arm, of a weighted lever, the short arm of the lever having an eccentric curve at its bearing end, and a flexible connection between said operating arm and the curved end of the lever, as set forth.

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

WILLIAM M. CORTHELL.

Witnesses:
C. IRENE CLOCKER,
H. L. FRANC.