

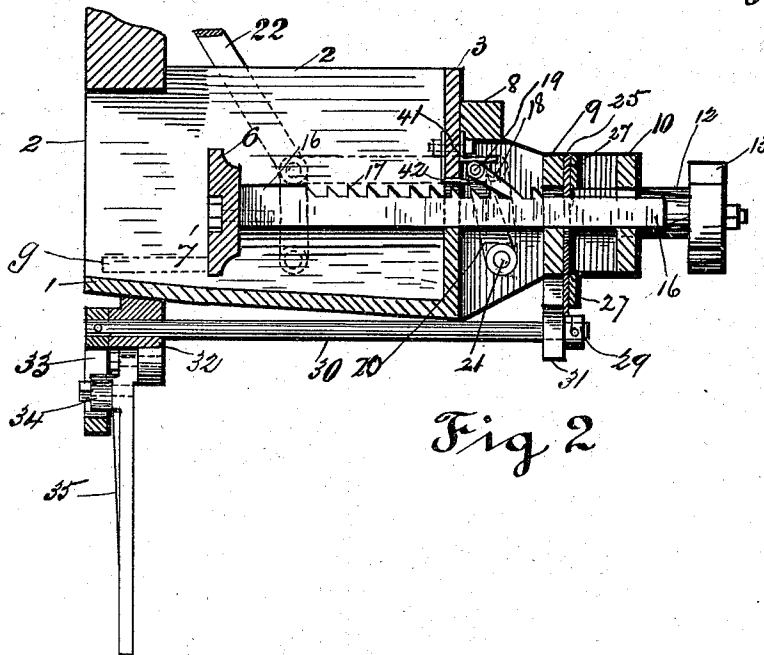
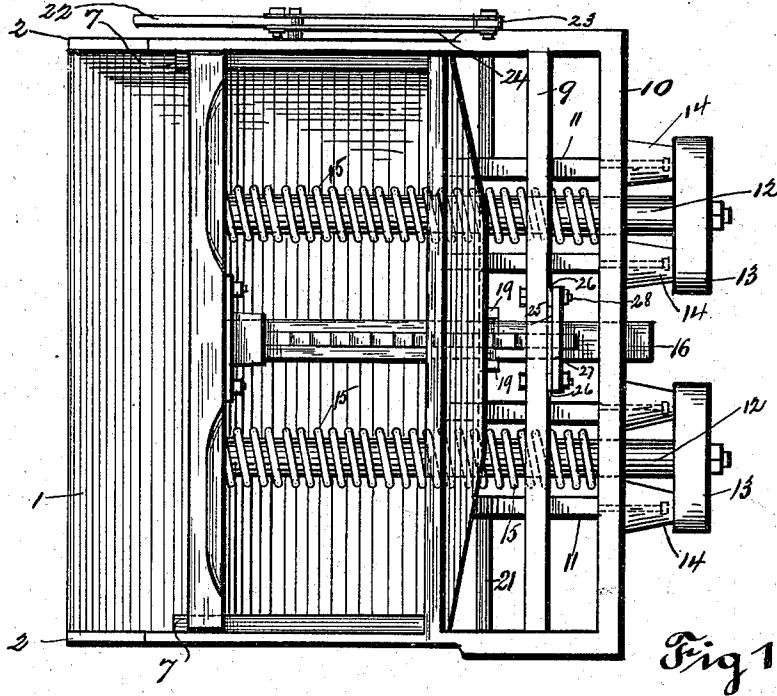
(No Model.)

3 Sheets—Sheet 1.

H. L. HEWITT.
MAIL DISCHARGING APPARATUS.

No. 552,577.

Patented Jan. 7, 1896.



Witnesses

C. F. R. Wappenhaus
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Inventor

Hosack Hewitt

By his Attorney

Thompson & Rice

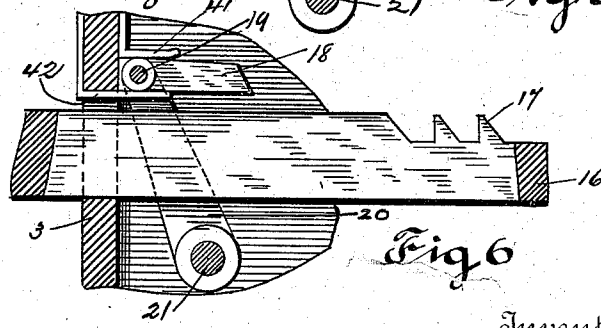
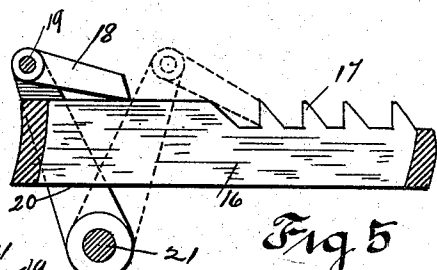
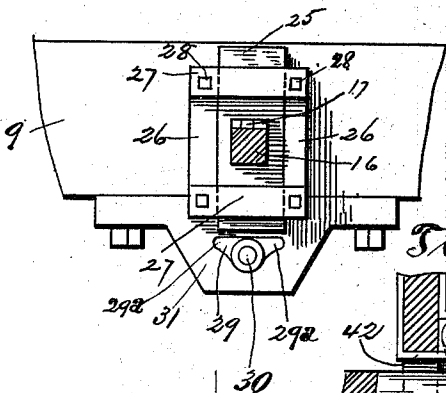
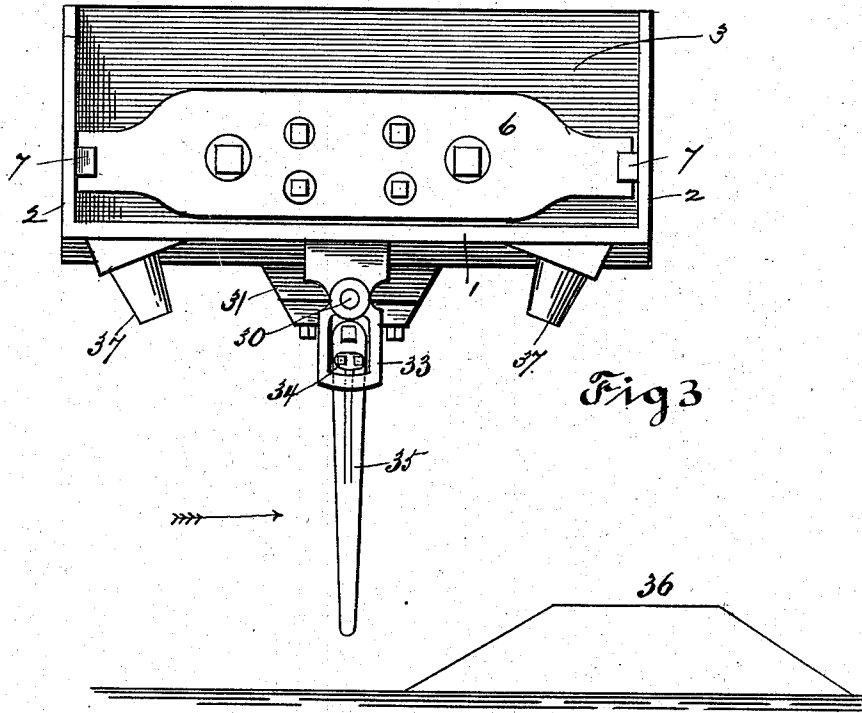
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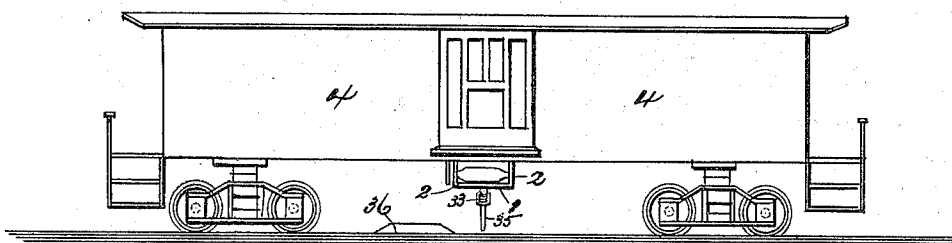


Fig 7

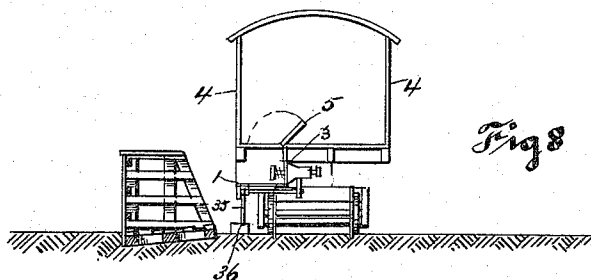


Fig 8

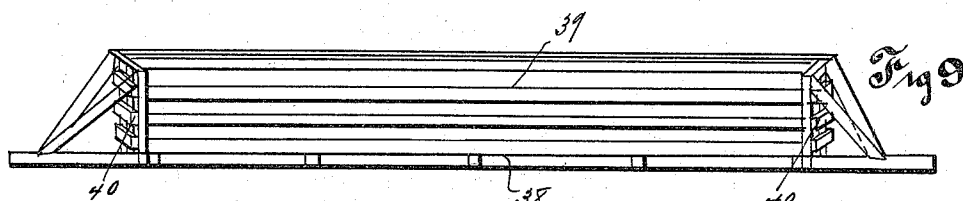


Fig 9

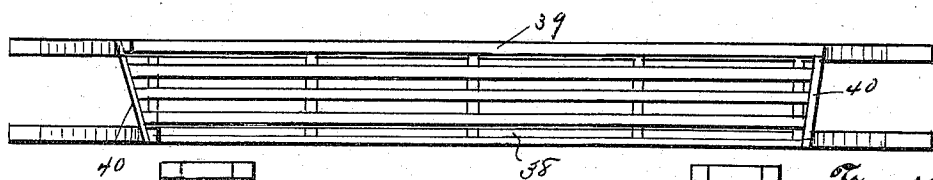


Fig 10

Witnesses

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UNITED STATES PATENT OFFICE.

HORACE L. HEWITT, OF INDIANAPOLIS, INDIANA.

MAIL-DISCHARGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 552,577, dated January 7, 1896.

Application filed January 23, 1895. Serial No. 535,962. (No model.)

To all whom it may concern:

Be it known that I, HORACE L. HEWITT, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Mail-Discharging Apparatus, of which the following is a specification.

My invention relates to an apparatus for discharging mail-sacks from a moving mail-car; and it consists in a mail-sack chute secured to the floor or floor-framing of the mail-car in which a traversing automatically-actuated piston operates to discharge the mail-sack, and will be hereinafter more fully set forth.

The object of my invention is, first, to provide a positive means whereby a mail-sack will be instantly discharged from a moving train into a suitable repository arranged to receive it; second, to provide means whereby power is stored in a suitable accumulator and released when required to operate the mail-sack-discharging piston positively and instantaneously; third, to provide a suitable trip mechanism whereby the power stored up in the accumulator may be instantaneously released without a loss of power by friction. I attain these objects by means of the apparatus illustrated in the accompanying drawings, in which similar numbers of reference designate like parts throughout the several views.

Figure 1 is a plan view of the mail-sack chute. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a front elevation of the same, showing the trip mechanism thereof. Fig. 4 is a detail view of the rack-catch and the releasing-cam. Fig. 5 is a detail view of the rack of the ejecting-piston and the feed-pawl and showing the said rack-bar in its end position or rear stroke. Fig. 6 is a similar detail view showing the position the pawl assumes when out of engagement with the rack-bar. Fig. 7 is a side elevation of a mail-car, showing my mail-discharging apparatus applied thereto. Fig. 8 is an end elevation of the same, showing the mail-car in section and the position of the receiving-platform. Fig. 9 is a front elevation of the receiving-platform, and Fig. 10 is a plan of the same.

The mail-sack-discharging chute is com-

posed of the upwardly inclined or sloped bottom 1, the sides 2, and the vertical back 3, said chute being firmly secured to the floor or frame-work of the car on the under side thereof and with its open end at or nearly flush with the side of the car, access being had to the chute by means of the trap-door 5 hinged to the bottom of the car 4 or floor thereof.

The mail-discharging chute is provided with the piston 6, which has its reduced or guiding ends formed with guideways adapted to freely fit and to slide on the guides 7 secured to the sides 2 of the chute intermediate between the top and bottom edges thereof. The rear or back wall 3 of the chute is reinforced by the back brace 8 and the cross-bars 9 and 10 are firmly secured at their ends to the reduced prolonged ends of the sides 2, which are further stiffened by the distance braces 11. Intermediate between the center and the guiding ends of the piston 6 are secured the parallel spring-retaining rods 12, which extend rearwardly through the rear wall 3 and the cross-brace bars 9 and 10, in the openings of which latter bar 10 said rods accurately fit and slide longitudinally therein. On the ends of each of the bars 12 are secured the bumper-heads 13, which are adapted to contact with the rubber bumper-cushions 14 secured on the bar 10, said bumpers being provided for the purpose of absorbing the inertia of the ejecting-piston and the moving parts secured thereto. Each of the rods 12 is surrounded by a suitable coiled spring 15, which springs freely fit over the said rods and pass through the rear wall 3 and the enlarged opening formed in the cross-brace 9 and bear at their ends against the back of the piston 6 and the brace 10.

The rack-bar 16 has the rack 17 either firmly secured on the top side thereof or the said rack may be formed integral with the said bar, said rack-bar being firmly secured to the back of the piston 6 in any suitable manner and extending rearwardly through suitable apertures formed in the rear wall 3 and the cross-braces 9 and 10, in which apertures the said bar freely fits and slides longitudinally therein.

The pawl 18 is adapted to engage the rack 17, and is pivoted between the oscillating levers 20 on the pin 19 secured on the ends of said oscillating levers, said levers being firmly

secured at their bottom ends to the oscillating shaft 21 on opposite sides of the rack-bar 16. The shaft 21 is journaled at its ends to the sides 2 of the chute and is operated by the
 5 hand-lever 22 fulcrumed on the side of said mail-sack chute, said lever being connected to the rocking-shaft lever 23 by the connecting-rods 24.

The rack-engaging plate-catch 25 is formed
 10 with a central rectangular opening through which the rack-bar 16 and the rack 17 pass freely, said plate being adapted to slide vertically in and between the vertical guiding-bars 26 and held in position by the cross-bars or
 15 cap-guides 27 secured to the cross-bar 9 by the securing-bolts 28, which pass through said caps and the vertical guide-bars 26.

The sliding plate 25 is operated to move vertically to disengage the rack 17 by means of
 20 the cam 29 secured on the trip-shaft 30 journaled in the bearings 31 and 32, said cam 29 being formed with double cam-toes 29^a for the purpose of actuating the plate 25 to move vertically, no matter what the direction of the
 25 rotation of the cam-shaft 21 may be.

On the outer end of the shaft 30 is firmly secured the slotted or open lever 33, in which the cam 34 (which may be either removably secured to the trip-lever 35 or may be formed
 30 integral thereon) loosely fits and by which the said slotted lever 33 is actuated to oscillate or rock the shaft 30 to operate the cam 29 and thereby cause the plate 25 to move vertically to disengage the rack-bar 17 to permit the accumulator-springs 15 to immediately actuate the piston 6 to eject the mail-sack from the chute.

The trip-lever 35 is actuated by contacting with the fixed trip or cam 36 secured to either
 40 the ties of the permanent way or to some other permanently-fixed structure.

Owing to the rapid movement of the train or the car to which the apparatus is attached, the sudden concussion of the trip-lever 35
 45 against its actuating-cam 36 said trip-lever would be moved violently against the bottom of the mail-sack chute which would soon damage it. In order to avoid its breaking I provide the cushions 37 secured to the bottom of
 50 said chute in a plane with the oscillation of the trip-lever 35 and against which the latter contacts to absorb the force of the blow. In some cases it is found necessary to provide a floor or platform extending out at right angles from the face of the piston shown in
 55 dotted lines, Fig. 2, on which to place the sack, thereby subjecting the sack to less wear due to friction on the bed of the chute; but this friction I have found to be so very slight as to
 60 obviate the necessity of the platform. I do not confine myself to the special form of accumulator-springs illustrated in the drawings and previously described, as any suitable form of spring may be used, or air-cylinders may be used in connection with the
 65 traversing piston 6 to actuate it, without de-

parting from the spirit of my invention. I prefer, however, to use the type of accumulator-springs herein described, for the reason that the said springs are less liable to get out
 70 of order through weather conditions than the said air or other fluid-actuated cylinders, which are often in such cases rendered inoperative in cold weather by their working parts being clogged with frozen moisture.

The mail-sack when discharged is delivered into a long receiving-platform 38, which is inclosed at its back and ends by the railing 39 and the end railing 40, which is inclined inwardly from the back railing to prevent the
 80 mail-sack from rebounding out of the receiving-platform and falling under the cars of the moving train.

The apparatus is operated as follows: The accumulator-springs are first compressed to
 85 their fullest extent by the hand-lever 22 to cause the pawls 18 to engage the rack 17 to move the rack-bar 16 and the ejecting-piston 6 connected thereto rearwardly its fullest extent of travel—that is, when the pawl 18
 90 has moved the rack-bar 16 and the rack 17 into the position shown in Fig. 5, in which position, it is seen, the pawl 8 cannot be further operated to cause the bar 16 to recede and at which point of the stroke the springs
 95 15 have attained their maximum degree of compression. The hand-lever 22 is now permitted to fall forward to its extreme out-gear position, which causes the pawls 18 to enter between the gripper-springs 41 and 42, be-
 100 tween which said pawl is held out of engagement with the rack 17, thereby permitting the free travel of the piston 6 when the rack is freed by disengaging the rack-plate 25. The piston 6 being now moved to and held in
 105 its extreme rear position by the rack-plate 25 the trap-door 5 is now opened and the mail-sack is deposited into the chute. The moving car 4 now causes the trip-lever 35 to contact with the fixed trip-cam 36 to cause the toe or
 110 cam 34 of the trip-lever 35 to instantaneously contact or strike the slotted lever 33, thereby causing the oscillation of the shaft 30 to which said lever is firmly secured. The cam 29 being also firmly secured on the opposite end of
 115 the same shaft also oscillates to cause either of the cam-toes 29^a to contact with the rack-engaging plate 25 to slide it upwardly to disengage the top edge of the lip or opening formed therein from the rack-teeth 17, thereby
 120 permitting the instantaneous movement of the ejecting-piston 6 to discharge the mail-sack from the said chute into the receiving-platform 38.

Having thus fully described the nature and operation of my invention, what I claim as new and useful, and desire to cover by Letters Patent of the United States therefor, is—

1. In a mail discharging apparatus, the combination with a sack discharging chute,
 130 a traversing piston within the same, rearwardly and parallel guide bars secured to the

said piston, and actuating springs surrounding said bars, of a rack bar secured to said piston intermediate between said guide bars, an oscillating pawl adapted to engage said
5 rack to move the same in one direction only, a retaining catch by which said piston is held in any position of its stroke and means for holding said pawl out of engagement with
10 said rack when said springs are fully compressed and for automatically releasing said retaining catch, substantially as and for the purpose set forth.

2. In a mail sack discharging apparatus, the combination with a sack receiving and
15 discharging chute, an ejecting piston adapted to traverse in said chute, and means for actuating said piston, of a rack bar secured to said piston and extending rearwardly therefrom, a pawl adapted to engage said rack
20 when moved in one direction only, oscillating levers on opposite sides of said rack bar, a pawl pivoted on the top ends of said pawls, top and bottom gripping springs extending backwardly from said back wall of the chute
25 and between which said pawl is held from disengagement with said rack when said pawl is

not in operation, substantially as and for the purpose set forth.

3. In a mail sack discharging apparatus, the combination with a mail sack receiving
30 and discharging chute, an ejecting piston adapted to traverse in said chute, and means for actuating said piston, of a rack bar extending backwardly from said piston and an engaging catch adapted to retain said piston
35 in its rear position, a pawl adapted to move said catch plate vertically out of engagement, a shaft whereon said pawl is mounted a slotted or open lever on the opposite end of said shaft, a cam projecting into the opening of
40 said lever, a trip lever whereto said cam is secured and means whereby said lever is automatically thrown or tripped, substantially as set forth.

In testimony whereof I have hereunto set
45 my hand in the presence of two subscribing witnesses.

HORACE L. HEWITT.

Witnesses:

THOMPSON R. BELL,
FRANK C. PORTER.