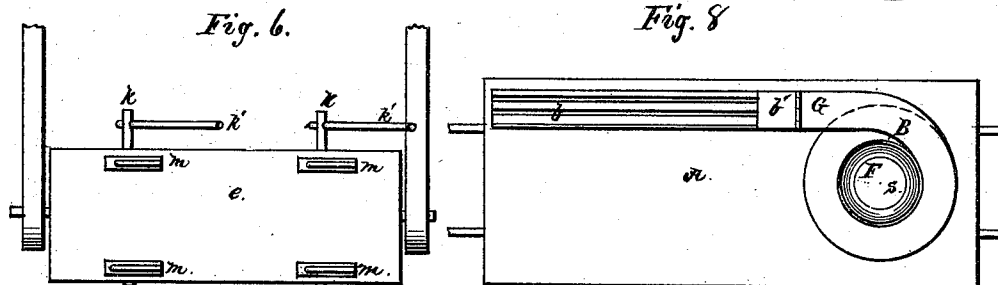
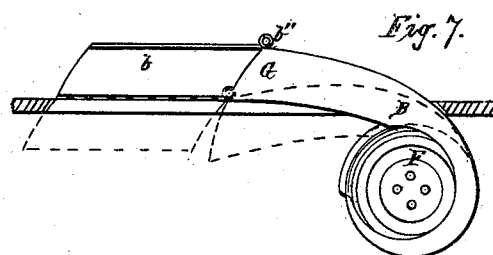
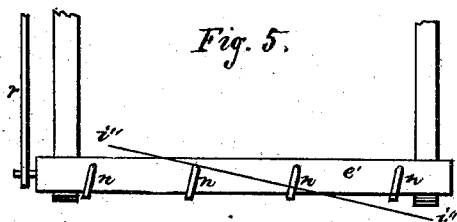
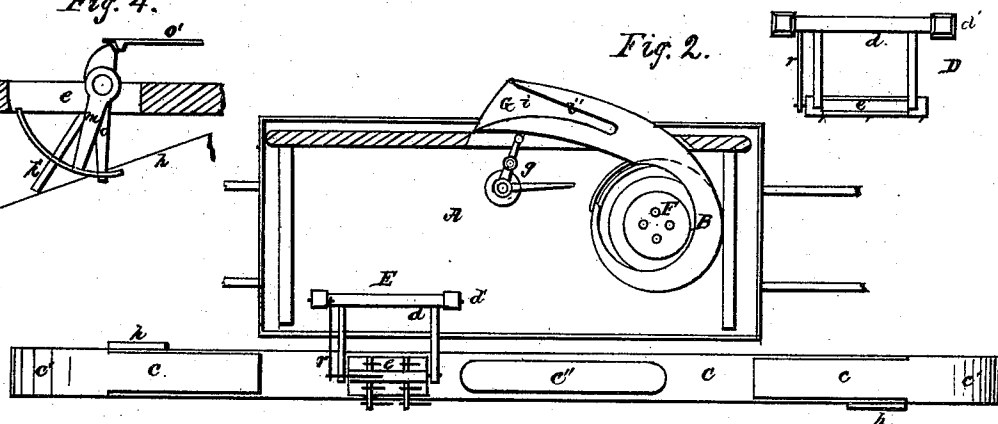
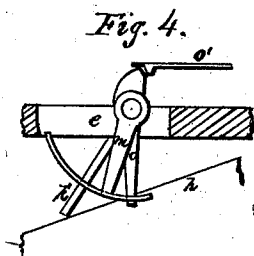
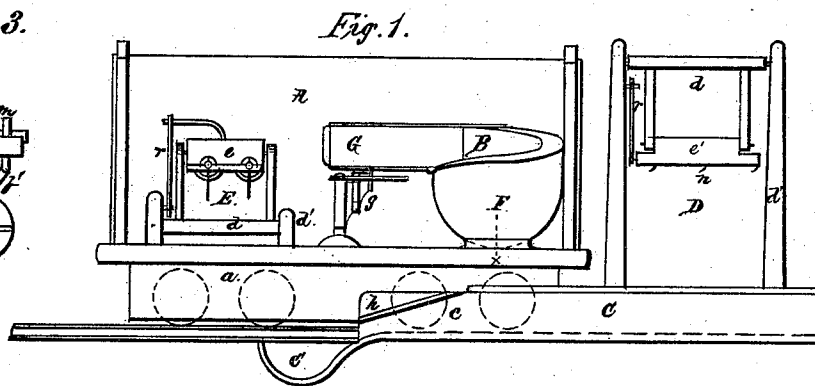
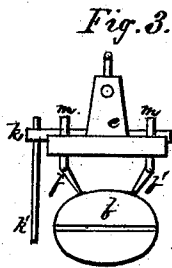


W. H. ELLIOT.
APPARATUS FOR TRANSFERRING GOODS TO AND FROM
MOVING CARS.
No. 174,357. Patented March 7, 1876.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN APPARATUS FOR TRANSFERRING GOODS TO AND FROM MOVING CARS.

Specification forming part of Letters Patent No. 174,357, dated March 7, 1876; application filed January 4, 1876.

To all whom it may concern:

Be it known that I, WM. H. ELLIOT, of the city, county, and State of New York, have invented a new and Improved Apparatus for Transferring Goods to and from Moving Cars; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in the finding out of several valuable improvements upon the apparatus for transferring mail matter and goods to and from moving cars, all of which are fully set forth in the following specification and claims.

Figure 1 is an elevation of a car with the roof and one side removed, showing a train deliverer and receiver, and also a station deliverer and receiver, in elevation. Fig. 2 is a plan of the same. Fig. 3 is an end view of a suspending-cover. Fig. 4 is a section of a suspending-cover, showing a suspending-hook with a stripper. Fig. 5 is a view of the under side of a suspending-bar. Fig. 6 is a view of the under side of a suspending-cover. Fig. 7 is a plan of a receiver having a vertical axis, and provided with a conducting-passage at the side of the car. Fig. 8 is the same, having a conducting-passage on the roof of the car.

A is the body of the car; B, the train-receiver; C, the station-receiver; D, the station-deliverer; E, the train-deliverer; F, cylindrical chamber, and G the entrance-passage of the train-receiver; *a*, guard to prevent packages from getting under the train; *b*, conducting-passage to a train-receiver; *b'*, valve to the entrance-passage; *b''*, hinge between conducting and entrance passage; *c*, conducting-passage to station-receiver; *c'*, wells at each end of the station-receiver; *c''*, openings in the top of the station-receiver; *d*, swinging frame, composed of a rock-shaft and two arms. This is pivoted to the uprights *d'*; *e*, suspending-cover, which carries sus-

pending-hooks, and is pivoted to the free ends of the arms of the frame *d*. These are called "covers" because they form temporary covers to the conducting-passages. *e'*, suspending-bars, which are also pivoted to the arms of the swinging frame *d*; *f*, mail-bag or package; *f'*, suspenders or loops which suspend mail-bag or package; *g*, jointed arm for supporting the free end of the receiving-passage, and for operating the same; *h*, inclined plane attached to the side of the station-receiver; *i*, cut in the upper plate of the receiving-passage, into which the suspender passes before it lets fall the package; *i'*, diagonal edge of the upper plate, which crowds the suspenders off the stationary hooks on bar *e'*; *i''*, line showing the position of edge *i'* in relation to the bar *e'* and hooks *n*; *k*, rock-shaft, which carries hooks *m*; *k'*, lever which operates shaft *k*; *o*, stripper which forces the loop off the hook *m*; *o'*, spring of the same; *r*, parallel bar, which holds the suspending devices attached to the swinging frame, horizontally, in one position; *s*, opening for packages through the bottom of the cylindrical chamber; *x*, axis of the cylindrical chamber.

My improved train-receiver is composed of an entrance-passage, G, and a cylindrical chamber, F. This chamber is arranged upon a vertical axis, *x*, and is rounded or globular-shaped on the lower side, so as to represent, in some degree, the lower half of a globe, and is provided with openings through the bottom for the escape of water and cinders that may be blown into it through the receiving-passage.

The upper plate of the receiving-passage has a cut, *i*, in the central portion of its outer end, into which the suspenders pass, so that the package is inclosed on all sides by the receiving-passage before the diagonal edge *i'* crowds the suspenders off the hooks *n*. The entrance-passage and the cylindrical chamber swing together as one piece upon axis *x*, and by means of jointed arms *g* and its lever the free end of the receiving-passage is carried out through the side of the car for the reception of packages, or brought entirely within the car when not in use, the two positions being shown in Fig. 7 by full and open lines.

The cylindrical chamber may be made stationary, and the receiving-passage hinged to

it, in which case the mouth of the receiving-passage could be made by the same means to swing out and in through the side of the car. This receiver may be provided with a conducting-passage, *b*, as shown in Fig. 7, which would operate in substantially the same manner as the apparatus shown in my patent of November 16, 1875, except that the packages would be received into the car through the side instead of through the roof.

This conducting-passage should be jointed to the receiving-passage of the receiver, as shown at *b''*, and it should also be carried out and in through the side of the car by jointed arms in the same manner that the receiving-passage is operated.

Another modification of my invention is shown in Fig. 8, in which case the conducting-passage *b* and valve *b'* upon the roof of the car are the same as those shown in the above-mentioned patent; but the receiving-passage curves horizontally and spirally down one turn into a cylindrical chamber, which is arranged upon a vertical axis, and which is suspended from the under side of the roof of the car, and is provided with a large opening, *s*, in the bottom, through which the packages fall upon a table placed there for their reception after they have been brought to a stand-still by the cylindrical chamber.

The employment of a cylindrical chamber which is arranged upon a vertical axis has decided advantages over one arranged upon a horizontal axis. When the former is employed the package runs quietly around, meeting with uniform friction, neither rising nor falling within the chamber; but when the latter is employed the package meets with very uneven friction, rises and falls with great rapidity, and is very likely, as the motion subsides, to get an injurious tumble.

My improved station-receiver is composed of a long box, *c*, adapted to receive packages at both ends, having two conducting-passages, one at each end, with their necessary inclined planes, and provided also with wells *c'* at each end, for the reception and arrest of the packages should they have any force left after passing through the whole length of the receiver. This receiver is also provided with long openings *c''* in its top, for convenience of removing packages therefrom that do not pass entirely through it. These openings should have water-tight covers, provided with bolts for fastening them down. Instead of a conducting-passage, the cover of my station-receiver may have a cut in the central portion of the top, at each end, like that shown at *i*, Fig. 2. In that case the train-deliverer should be constructed like the station-deliverer *D*, but the violent agitation of the atmosphere at the side of the car near the ground makes it desirable to have a method of suspending packages which will hold them steadier than they can be held by single loops. For this purpose I construct and arrange the suspending cover and its loops as shown in Figs. 3 and

6. These loops and their suspending-hooks are attached to the cover in pairs, each pair being arranged in a line at right angles to the line of the movement of the car, and so attached to the package that they brace it against the various lateral currents of the atmosphere.

For a station-deliverer which operates at a point where the currents of the atmosphere are steadier and less violent, I prefer that shown in Figs. 1, 2, and 5, on account of the simplicity of its construction and operation. In this deliverer the suspending-bar is provided with a single line of hooks, which are so arranged as to project in a direction at right angles, or nearly so, to the diagonal edge *i'* on the receiving-passage, by which the loops are gradually crowded off the hooks as the car passes along, after the package has entered the mouth of the receiving-passage.

By the employment of the parallel bar *r* and the swinging frame, with the suspending-bar pivoted to its arms, I keep the suspending-bar, with its hooks, from rolling upon its axis. Without this combination, hooks that are arranged to point across the axis of the swinging frame could not be made to operate in the different positions of that frame.

By reference to Fig. 5 the relative positions of the suspending-bar, with its hooks, and the diagonal edge may readily be understood.

Fig. 4 represents a suspending-hook provided with a stripper, which will force the loop off the end of the hook, and then retire with the hook and lever above the lower surface of the suspending-cover, out of the way of the receiving-passage. In this modification the stripper remains stationary until the loop is off the hook, when, by the continued action of the lever, the hook and stripper are caused to rise together.

The operation of my improved apparatus is as follows: Preparatory to transferring packages to the train the swinging frame of the station-deliverer is brought to a vertical position, as seen in Fig. 1. The packages are then suspended upon the hooks by loops of suitable lengths. The swinging frame is then brought to a horizontal position, as seen in Fig. 2. As the train approaches the station the open end of the receiving-passage is caused to swing outward through the side of the car by means of the double arm, in which position it is held immovably by the position of the joint of the arm. As the mouth of the receiving-passage passes under the deliverer the loops or suspenders pass into the cut *i*, and are gradually crowded off the hooks by the diagonal edge *i'*. After the package has passed safely into the mouth of the receiving-passage, the package then passes around within the cylindrical chamber till its force is spent in friction, when it may readily be reached and taken out. The rounded or globular form of the bottom of the cylindrical chamber makes it impossible for any package passing into it either by a slow or quick move-

ment to receive a violent concussion. If the package enter by a rapid movement it will pass around the chamber; if by a very slow movement, it will drop from the entrance-passage upon the covered or rounded bottom of the chamber, so that whatever the speed may be, the package will in all cases be received upon a curve. In transferring packages from the cars to the station, they are fastened to the suspending-cover by double loops, as seen in Fig. 3; the swinging frame is then lowered, as seen in Fig. 2, and as the car passes the station-receiver, the lever *h'* passes up inclined plane *h*, releasing the package which then passes into the receiver, and, if it have force enough, through the receiver into the well at the opposite end, where its motion is arrested. The station-receiver is placed between double tracks, so as to receive packages from the car on one track going one way, and from the same car on the other track going the other way.

The most reliable way of transferring goods to or from cars is to put everything into leather or canvas bags provided with suitable loops. The bags may be saturated with grease to prevent friction and heating, or they may be protected by means of buttons of hard metal, or ribs of wood, as trunks are protected. Neither the conducting-passages nor the cut *i* in the upper plate of the entrance-passage are essential to the working of the receiver, as they do not in any way assist in the performance of its functions, which are to bring the package from a fixed position at the station to a fixed position within the car, and vice versa; but they do assist, in connection with certain suspending devices, in safely placing the package within the mouth of the receiving-passage.

Having described my invention, I desire to have secured to me by Letters Patent of the United States—

1. The receiver B, consisting of an entrance-passage and a cylindrical chamber arranged upon a vertical axis, substantially as and for the purpose set forth.

2. The receiver B, consisting of an entrance, G, a cylindrical chamber arranged upon a vertical axis, and provided with a globular or rounded bottom, whereby violent concussions are avoided, substantially as specified.

3. The receiver B, adapted to swing upon the axis of the cylindrical chamber, to carry the mouth of the entrance-passage out of and into the car through the side of the same, substantially as and for the purpose specified.

4. The station-receiver C, provided with conducting passages and inclined planes at each end, whereby it is adapted to receive packages at both ends, substantially as set forth.

5. The station-receiver C, provided with wells *c'* at each end, whereby the packages are arrested after passing through the entire length of the receiver, substantially as specified.

6. The station-receiver C, provided with openings *c''*, for convenience in removing packages therefrom, substantially as specified.

7. The parallel bar *r*, in combination with hooks *n*, when said hooks are arranged to stand across the axis of the swinging frame, and of the suspending-bar, substantially as and for the purpose set forth.

8. The arrangement of the hooks *n* on the suspending-bar *e'*, whereby they stand at right angles, or nearly so, to the diagonal edge *i'*, substantially as and for the purpose specified.

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Witnesses:

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M. LOWELL ELLIOT.