W. H. ELLIOT.

APPARATUS FOR TRANSFERRING GOODS TO AND FROM CARS.

No. 169,896. Patented Nov. 16, 1875.

Fig. 1.

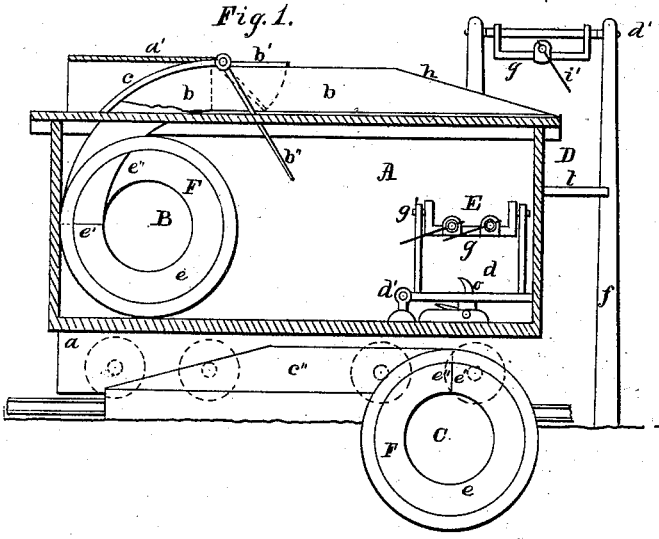


Fig. 2.

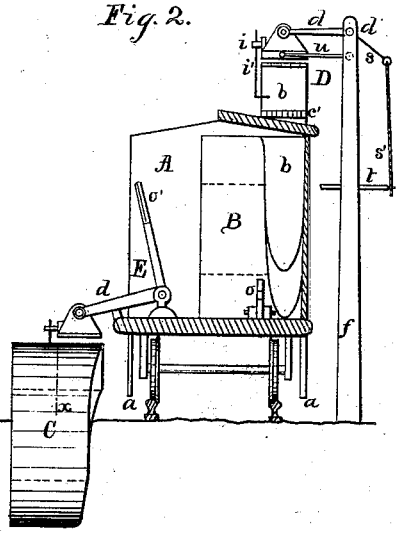


Fig. 3.

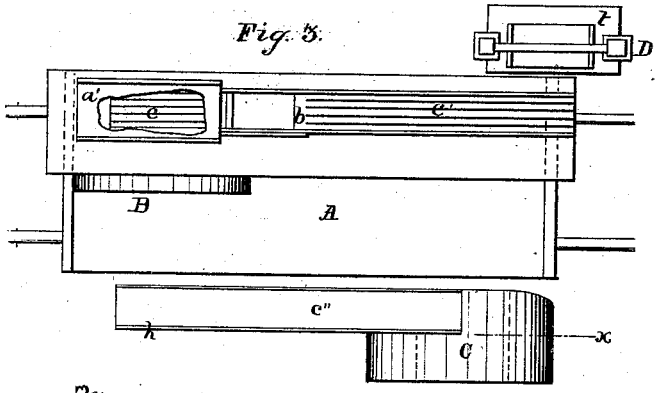


Fig. 4.

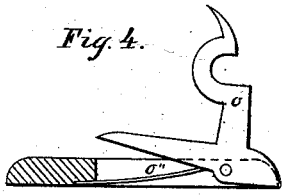


Fig. 5.

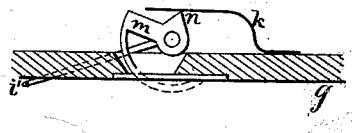


Fig. 6.

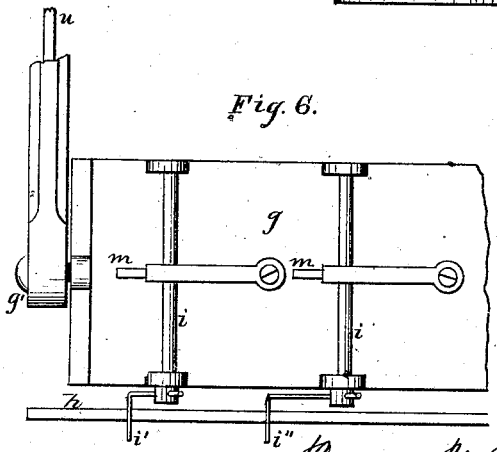
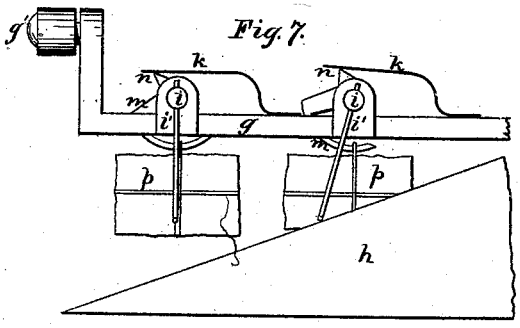


Fig. 7.



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IMPROVEMENT IN APPARATUS FOR TRANSFERRING GOODS TO AND FROM CARS.

Specification forming part of Letters Patent No. **169,896**, dated November 16, 1875; application filed October 21, 1875.

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 Transporting Goods on a Continually-Moving Train; 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 novel devices for receiving goods or mail-matter upon, and delivering them from, a continually-moving train of cars, all of which are fully set forth in the following specifications and claims.

Figure 1 is a vertical longitudinal section of a car, showing the delivering and receiving devices in elevation. Fig. 2 is a vertical cross-section of the same, showing the same devices in elevation. Fig. 3 is a plan of the same, showing a part of the roof of the car removed. Fig. 4 is a latch for holding one of the swinging frames. Fig. 5 is a vertical section of the delivering-cover, showing a hook for suspending the packages, and a lever for operating the same. Fig. 6 is a plan of a portion of the same. Fig. 7 is a side elevation of the same.

A is the body of the car; B, the train-receiver; C, the station-receiver; D, the station-deliverer; E, the train-deliverer. F are the cylindrical chambers which make a part of each receiver. These chambers are formed between an outer and an inner cylinder of hard metal, the front being partially closed by an annular plate, as seen in Fig. 1. *a* is a guard, attached to the car-body outside of the wheels; *a'*, a housing, which covers the open or grated portion of the entrance-passage *b*. This passage, in Fig. 1, is shown with the front wall removed. *b'*, a valve for closing the passage *b*; *c*, a grate over the passage *b*, and under the housing *a'*; *c'*, an open floor of the passage *b*; *c''*, entrance-passage to the station-receiver. *d* is a swinging frame, which makes a part of each deliverer, and is pivoted at *d'*; *e*, circular plate in the rear of the circular or cylindrical chamber. The end *e'* is joined to, and is continuous with, the back wall of the passage *b c''*, while the end *e''* is joined to, and is continuous with, the front wall of the passage. This plate is, therefore, spiral in form, and is the rear wall of the spiral passage to the cylindrical chamber. *f* are the upright supports of the station-deliver; *g*, covers of the receiving-passages, which make a part of the delivering devices; *g'*, pivot, which joins the cover to the swinging frame, and upon which the cover swings; *h*, inclined plane, which acts upon rock-shaft *i* through lever *i'*, to disengage the packages from the hooks or jaws *m*; *k*, spring which acts upon the projection *n*, to hold the hook *m* either in an open or closed position; *o*, latch which takes hold on lever *o'*, to hold the train-deliverer stationary within the car; *o''*, spring of latch *o*; *p*, packages, one of which is being released from hook *m*; *s*, lever of the swinging frame of the station-deliverer; *s'*, chain which operates lever *s*; *t*, table, supported by uprights *f*; *u*, parallel rod, which holds the covers *g* in a horizontal position.

The two principal features of my invention are the two deliverers and receivers of packages, one of each being carried upon a car, and one of each being located at each station.

The train-receiver B is composed of an entrance-passage, *b*, which leads into a cylindrical chamber, F. This passage, for some distance, is left open on the top, and the part left open is provided with an open floor, as seen at *c'*, Fig. 3. This floor is composed of strips of hard wood set up edgewise, so that water or cinders collecting there will find their way through and fall upon the roof of the car. The entrance to the train-receiver is provided with a valve, *b'*, which is operated by a lever, *b''*. This valve, during a storm, may be closed, to prevent rain and cinders from being driven into the receiver. It is also provided with a grating, *c*, in the covering of the passage, so that the air-blast which is created by the

movement of the train may pass out of the passage in a direct line without being driven down into the car. To prevent falling rain from entering the passage at the grating, the housing *a'* is placed over it. The station-receiver is also composed of a passage or entrance leading to a cylindrical chamber. In this neither the open floor, the valve, nor the grating is employed; nor are they indispensably necessary to the successful operation of the train-receiver, but they are conducive to the comfort of the operatives. The passages of both receivers should be made somewhat bell-mouthed. The entrance-passage of the station-receiver is also left open for some distance on the top, the object of which will be explained in connection with the deliverers. In the train-receiver the entrance-passage curves downward into the car, and then curves spirally into the cylindrical chamber. In the station-receiver the entrance-passage curves spirally into the cylindrical chamber. That portion of the receivers which is in front of dotted line *x* I term the "cylindrical chamber." That portion in the rear of line *x* I term the "entrance-passage."

The train-deliverer of packages is composed of swinging frame *d*, which is pivoted to the car at *d'*, and of a cover, *g*, which is fastened to the swinging frame at *g'*. This cover carries in suitable bearings the rock-shaft *i*, hooks *m*, and levers *i'*. The station-receiver is the same, except that it is pivoted to the upright posts *f*, instead of the car.

The covers may be fastened in a fixed position to the frames *d*, or they may be pivoted, as seen at *g'*, Figs. 6 and 7. If pivoted, they should be held in a horizontal position by parallel rod *u*, as seen in Fig. 2. The cover in the train-deliverer may be held at a proper distance above the passage by means of a suitable stop on the car. In the station-deliverer it is held by lever *s* and chain *s'*, fastened at its lower end to the table *t*.

To attach packages to the cover of the train-deliverer, the end of the lever *o'* is brought down into the latch *o*, which holds the swinging frame in a vertical position within the car.

To attach packages to the cover of the station-deliverer, the chain *s'* is released from the pin on table *t*, when the swinging frame at once falls down to a vertical position, when the packages, which for convenience have previously been placed upon the table, may be fastened to the hooks *m*.

The inclined plane *h* may be, as shown in Fig. 1, one of the walls of the passage, cut to a suitable form, or it may be a separate device, as shown in Figs. 6 and 7.

The station-deliverer, being placed between double tracks at equal distances from each other, will serve cars on both tracks.

The operation of my apparatus for the transfer of mail-bags or other articles to or from moving trains is as follows:

The packages to be transported are first placed on the table *t*, and then each one attached to a hook on the cover *g;* and this is done by first bringing the hook *m* and lever *i'* to the position shown in Fig. 5. The package is then pressed up against the under side of the cover, and the lever brought to the position shown in Fig. 7, when it will be found that the hook has passed under the packing-twine. In this position the cover protects the packages from falling rain, and also prevents them from being disturbed by the wind of the passing train. The cover, with the packages attached, is then brought to the position for delivering them into the receiver by means of the swinging frame *d*. As the train approaches a station, the lever *i'* is raised as it passes over the inclined plane *h*, gradually releasing the packages without violence, as seen in Fig. 7, and by the time the package has passed into the passage, and is completely closed in on all sides by the cover *g*, it is let fall by the hook, and it passes through the entrance-passage into the cylindrical chamber with a velocity equal to that of the train. Once in the cylindrical chamber it passes around until its force is expended in friction, and it stops without once making an angular movement, or receiving a jar. It is the operation of the sling reversed.

In delivering the packages at the station, the train-deliverer is brought to the position shown in Fig. 1, when the same work is performed in the same way, and by substantially the same means, as when the packages were put on board the train.

When from any cause the packages carried on the train-deliverer fail to enter the station-receiver, the guards *a*, suspended from the body of the car, prevent such packages from being thrown under the wheels.

The entrance-passage of the station-receiver, instead of terminating in a cylindrical chamber, may curve around under the track, and terminate in the station-house.

The cylindrical chamber of the train-receiver may be supported upon bearings, and caused to revolve by a belt-connection with the car-axle. The packages would then be received into a revolving cylinder, and would revolve with it until stopped, with perhaps less violence than if the cylinder were stationary.

Mail-bags should have loops of leather on their sides for one or more hooks, so as to hold them snugly up against the under side of the cover.

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

1. The receiver B, consisting of an entrance-passage, *b*, and a cylindrical chamber, F, substantially as and for the purpose specified.

2. The package-deliverer, consisting of swinging frame *d*, cover *g*, and hooks *m*, whereby the packages are protected from wind and rain while they are held in proper position over the receiver, substantially as set forth.

3. In combination with levers *i'* and hooks

m, the inclined plane h, whereby the packages are gradually released from the suspending-hooks, substantially as specified.

4. The cover g and hooks m, in combination with the entrance-passage b, open at the top, whereby the packages are inclosed in the passage before they are released from the hooks, substantially as specified.

5. The guards a, in combination with the train-deliverer E, substantially as and for the purpose specified.

6. The parallel bar u, in combination with the upright posts f, the swinging frame d, and cover g, substantially as and for the purpose specified.

7. In a train-deliverer, E, the swinging frame d, latch o, and lever o', substantially as and for the purpose set forth.

8. The entrance b, when left uncovered or open on the top, and provided with an open floor, substantially as and for the purpose set forth.

9. The valve b' and lever b'', in combination with entrance-passage b, substantially as and for the purpose set forth.

10. The housing a', in combination with the entrance-passage b, provided with a grating, c, substantially as and for the purpose set forth.

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Witnesses:

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