No. 671,987. Patented Apr. 16, 1901.

G. H. WALL.

PNEUMATIC PACKAGE HOLDER.

(No Model.) (Application filed May 31, 1900)

2 Sheets—Sheet 1.

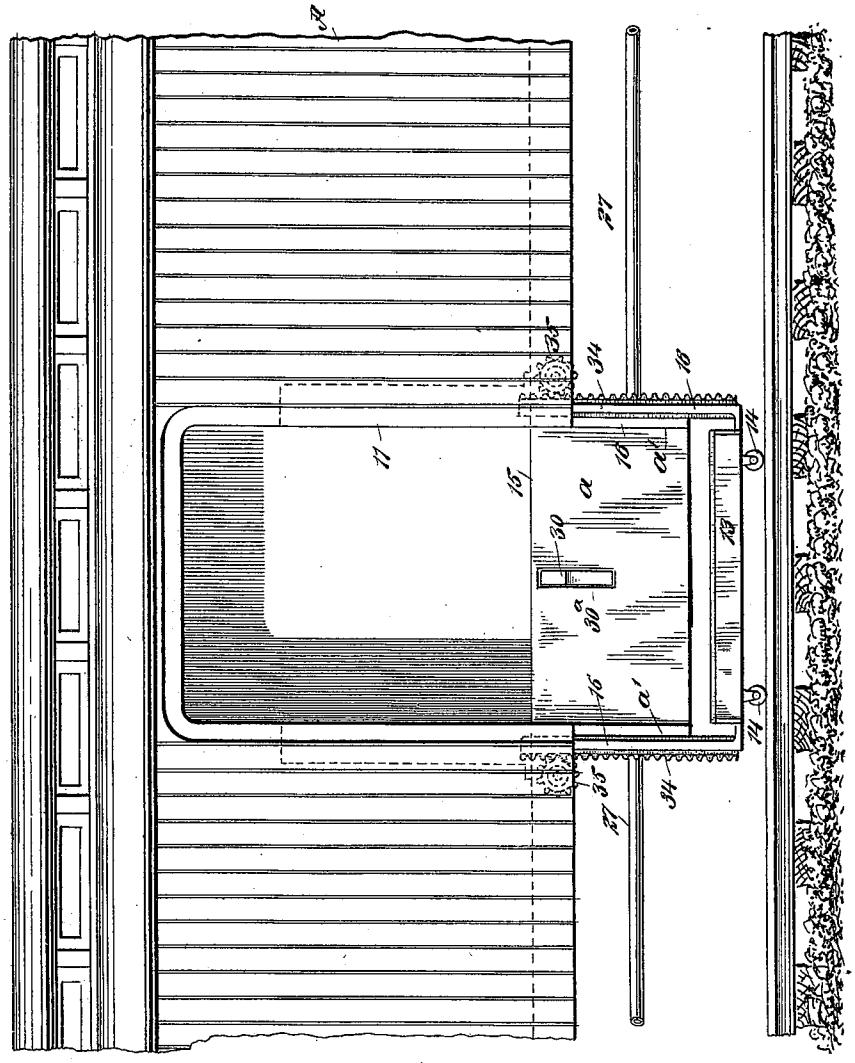


FIG. 1.

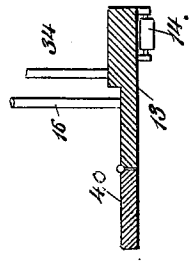


FIG. 2.

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Fig 2

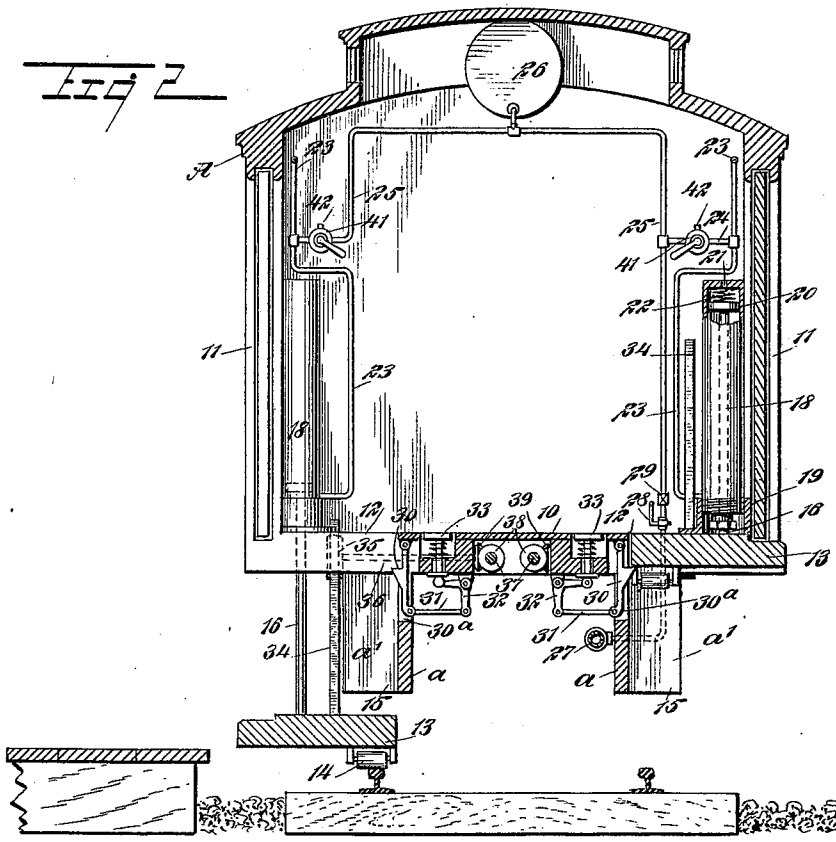
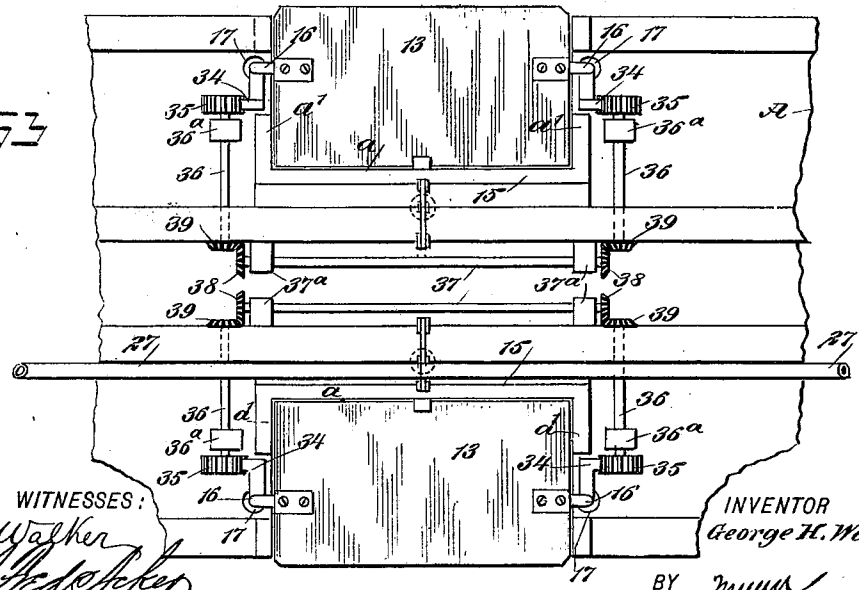


Fig 3



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UNITED STATES PATENT OFFICE.

GEORGE HENRY WALL, OF CADILLAC, MICHIGAN.

PNEUMATIC PACKAGE-HOLDER.

SPECIFICATION forming part of Letters Patent No. 671,987, dated April 16, 1901.

Application filed May 31, 1900. Serial No. 18,558. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HENRY WALL, a citizen of the United States, and a resident of Cadillac, in the county of Wexford and State of Michigan, have invented a new and Improved Pneumatic Package-Handler, of which the following is a full, clear, and exact description.

Our purpose of the invention is to provide a drop-platform for vehicles, especially such as are employed to carry freight-parcels, mail-matter, and the like, and to provide means for raising the platform and locking the same in its raised position, the platform being free to drop when released by the locking device either by its own weight or by the weight of the material placed thereon, the means employed for raising the platform being such that a heavy load on the platform may be raised with it.

Another purpose of the invention is to provide guides for the platform which will insure a direct vertical movement and equalize the movements of the end portions of the platform.

A further purpose of the invention is to provide simple means for pneumatically raising the platform and to so construct the guide devices that they will operate with the least possible friction.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a portion of a car having the improved platform applied, the platform being in its lowered position. Fig. 2 is a transverse section through the car at the side door-openings thereof, the platforms being in vertical section and one of the cylinders being partially broken away, the platform at one side of the car being shown in its lower position and the platform at the opposite side of the car locked in its upper position. Fig. 3 is a bottom plan view of that portion of the car between the side floor-openings, and Fig. 4 is a transverse section through a slightly-modified form of platform.

A represents a portion of a baggage-car having the usual side openings 11 and doors for closing the said openings. The floor 10 of the car at each side opening 11 is cut away, forming recesses 12 the full width of the door-openings 11, and a platform 13 is adapted to fill each of the recesses 12 and constitute a continuation of the floor, the platforms having suitable grooves or depressions therein to permit the side doors to move freely. Each platform 13 when used in connection with a railway-car is provided with a roller 14 at its bottom adapted to engage with a rail when the platform is lowered, so that the platform in its lowered position will not be subjected to wear should the car be in motion when the platform is lowered or previous to the platform being raised.

A casing 15 is located at each recess 12. These casings extend down a suitable distance below the floor 10 of the car and serve as guides for the baggage or parcels, preventing the same from striking the bottom of the car when the platforms are raised. These casings consist, preferably, each of a back member *a* and outwardly-extending side members *a'*. The width of these casings, however, is preferably less than the width of the platforms, as shown in Fig. 2.

A rod 16 is attached to each platform at each end. These rods extend through openings 17 in the floor of the car and into the interior of the car, and each rod of each platform 13 enters a cylinder 18, two of these cylinders being placed at each side of the car, one adjacent to each jamb of the side openings in the car. The rods 16 are virtually piston-rods and are provided at their upper ends with heads 20, as shown at the right in Fig. 2. The cylinders 18, which are adapted to receive compressed air, are shown mounted in bearings 19, attached to the floor-section 10 of the car; but the cylinders may be supported by brackets or sockets secured to the sides of the car, if desired. Each cylinder is provided at its upper end with a vent 21 for the escape of air when the piston-head 20 ascends, and a spring 22 is preferably located between the upper head of each cylinder 18 and the piston 20 in the said cylinder. These springs serve a dual purpose. They act as cushions for the piston-heads 20 when

the said heads reach the end of their upper stroke, and the springs also act to start the piston heads and rods downward when a platform is to be lowered.

Air-delivery pipes 23 enter the cylinders 18 at their lower ends, the cylinders at each side of a car being connected by one pipe which is usually arched over or carried above the upper sill of a side door-opening. These air-delivery pipes 23 are connected by branch pipes 24 with an air-supply pipe 25, and this air-supply pipe is usually in its turn connected with an air-reservoir 26, located at any convenient point in the car, and the supply-pipe 25 is carried down through the bottom 10 of the car and is connected with a drain-pipe 27; but within the car the air-supply pipe 25 is provided with a stop-cock 28 and a check-valve 29, the stop-cock being closed when the reservoir 26 has been supplied and opened when the said reservoir is to be recharged.

The platforms are held in their upper positions by means of locking devices operated from the interior of the car. In the drawings these locking devices consist of an arm 30, pivoted to the bottom portion of the car and having a spur with an inclined longitudinal edge, which spur at its upper edge is adapted to engage with the under surface of a platform, the spur extending through an opening 30^a in the casing 15. The arm 30 at its lower end is pivotally connected by a link 31 with a member of a bell-crank lever 32, the other end of which bell-crank lever is connected with a spring-controlled rod which extends up through the floor into the car and is preferably provided at its upper end with a foot-plate 33. When this foot-plate 33 is pressed downward, the locking-arm 30 is carried away from the platform with which its spur was in engagement, and the platform is thus free to drop. When the platform is raised, it strikes the inclined surface of the spur on a locking-arm 30 and forces the said arm out of its path until the upper position of the platform is reached, when the straight upper surface of the spur will engage with the under surface of the platform as the locking-arm automatically readjusts itself.

In order that the movement at each end of the platform shall be uniform no matter what weight is carried by the platform, a rack 34 is attached to each platform at each end, and these racks extend up through suitable openings in the bottom 10 of the car or vehicle. The teeth of the racks 34 engage with pinions 35. These pinions are secured on parallel shafts 36, located at the bottom of the car at each side of a casing 15, as shown in Fig. 3, the shafts being mounted in suitable bearings 36^a. The shafts 36 are placed in communication and operate together through the medium of connecting-shafts 37, journaled in suitable bearings 37^a, usually attached to the inner sill of the car, as is also shown in Fig. 3, and the connecting-shafts 37 are provided with a bevel-pinion 38 at each end, arranged to mesh with corresponding pinions 39, carried by the inner ends of the shafts 36. Thus it will be observed that a platform when raised or lowered has perfect vertical movement with little friction and that a platform may be manipulated conveniently and expeditiously. In manipulating a platform if the platform be in its lower position (shown at the left in Fig. 2) and said platform is to be raised with or without a load a three-way valve 41 is brought into play, one of which valves is located in each branch pipe 24, and each of these valves is provided with a vent 42. The valve belonging to the platform to be raised is opened to admit compressed air to the cylinders 18, also belonging to the platform to be elevated, and the platform will be immediately carried upward and locked automatically in its upper position flush with the floor of the car. The valve is then turned to shut off the supply of compressed air and is further turned to open the vent 42 and permit the air that is in the cylinders 18 below the piston-heads 20 to escape. When the platform is to be lowered, it is therefore simply necessary to disengage the platform from its locking device, whereupon the weight of the platform or the accumulated weight on the platform will cause it to descend, guided or directed by the rack-and-pinion mechanism above mentioned.

In Fig. 4 I have illustrated a slight modification in the construction of the platform, in which the platform is provided with an extension-leaf 40, hinged to the bottom of the platform and capable of being folded on the upper surface of the platform when not needed. When this extension-leaf is used, the platform is recessed to receive the leaf when folded, so that the upper surface of the leaf when folded on the platform will be flush with the upper surface of the main or body portion of the platform. I desire it to be also understood that any form of scale attachment may be permanently attached to or removably connected with the platform, so that baggage or other articles to be raised or lowered by the platform to or from a car may be weighed and the weight accurately read.

The construction above described is an improvement upon the construction set forth in Letters Patent granted to me, No. 565,711, dated August 11, 1896, and No. 584,800, dated June 22, 1897.

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

1. In a package or baggage handler, a platform having vertical movement, guides for the packages and baggage placed on the platform, and a regulating rack and pinion at opposite sides of the platform, which regulating devices hold the platform in a true horizontal position when said platform is dropped or elevated, without interfering with the vertical movement of the platform.

2. In a package or baggage handler, a vehicle, a platform having movement to and from the floor of the vehicle, a locking device for the platform, a release for the locking device, and an equalizing mechanism at opposite sides of the platform, carried partially by the platform and partially by the vehicle.

3. In a package or baggage handler, a vehicle, a source of air-supply, a cylinder located within the vehicle and connected with the source of air-supply, and means for regulating the flow of air to the cylinder, a platform forming a portion of the floor of the car, a guide for the material on the platform, a piston-rod attached to the platform, which piston-rod enters the cylinder and is provided with a head within the cylinder, the air-supply to the cylinder being at a point below the head, and a regulating mechanism for the platform, consisting of racks attached to the platform, pinions carried by the vehicle and engaging with the said rack, and means for establishing communication between the pinions, for the purpose set forth.

4. In a package or baggage handler, the combination, with a vehicle, air-cylinders located within the vehicle, pistons located in the cylinders and extending beyond one end, means for supplying air to the cylinders at a point below the piston-heads, devices for controlling the air-supply, and a cushion between a head of the cylinder and the head of the piston, of a platform forming a portion of the floor of the vehicle and capable of vertical movement, a positive connection between the pistons of the cylinders and the platform, a locking device for the platform, adapted to hold it in an upper position, a release for the locking device, and a regulating mechanism located at opposite sides of the platform and serving to hold the platform in a horizontal position during its vertical movement, as set forth.

5. In a package or baggage handler, the combination, with a vehicle, air-cylinders located within the vehicle, pistons located in the cylinders and extending beyond one end, means for supplying air to the cylinders at a point below the piston-heads, devices for controlling the air-supply, and a cushion between the head of a cylinder and the head of a piston, of a platform forming a portion of the floor of the vehicle, capable of vertical movement, a guide for the material on the platform, a positive connection between the pistons of the cylinders and the platform, a locking device for the platform, adapted to hold it in an upper position, a release for the locking device, racks secured at opposite sides of the platform, which racks pass through the floor of the vehicle, shafts mounted on the vehicle at opposite sides of the platform, pinions carried by said shafts, and engaging with the said racks, and shafts arranged to connect the pinion-shafts, for the purpose specified.

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

GEORGE HENRY WALL.

Witnesses:
LOUIS R. BISHOP,
ELMER E. TRAUTMAN.