(No Model.) 2 Sheets—Sheet 1.

J. F. DOWNING.

CARRIER APPARATUS.

No. 305,060. Patented Sept. 16, 1884.

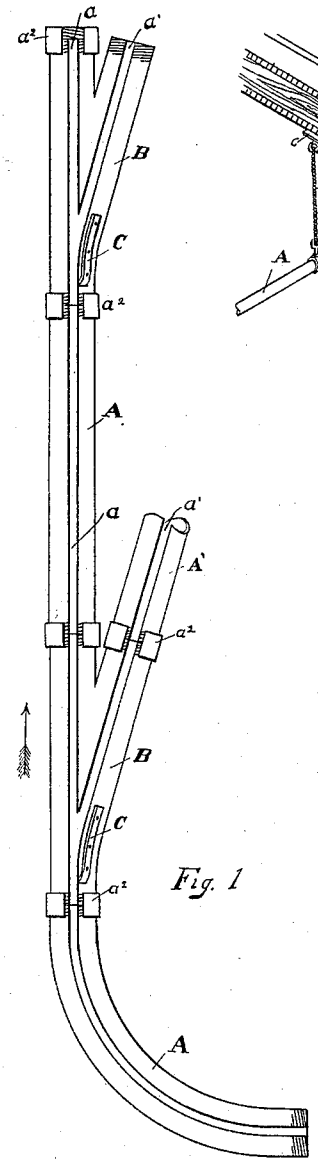

Fig. 1

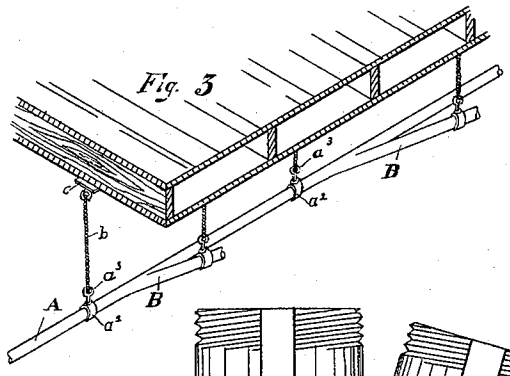

Fig. 3

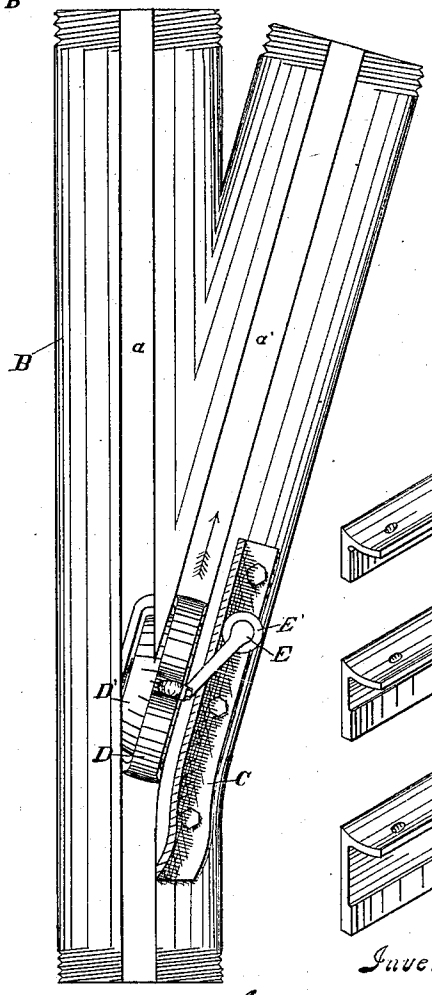

Fig. 2

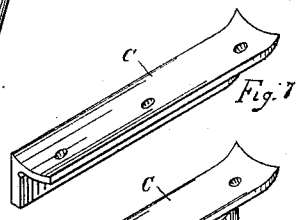

Fig. 7

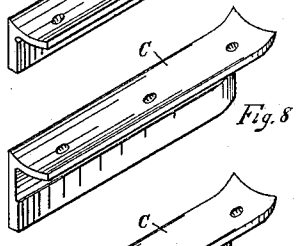

Fig. 8

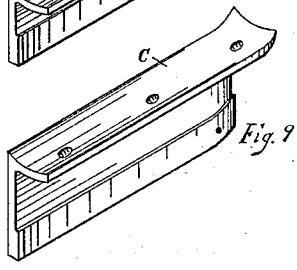

Fig. 9

Witnesses
L. D. Hanford
George Dalcott

Inventor
Jerome F. Downing

N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

J. F. DOWNING.

CARRIER APPARATUS.

No. 305,060. Patented Sept. 16, 1884.

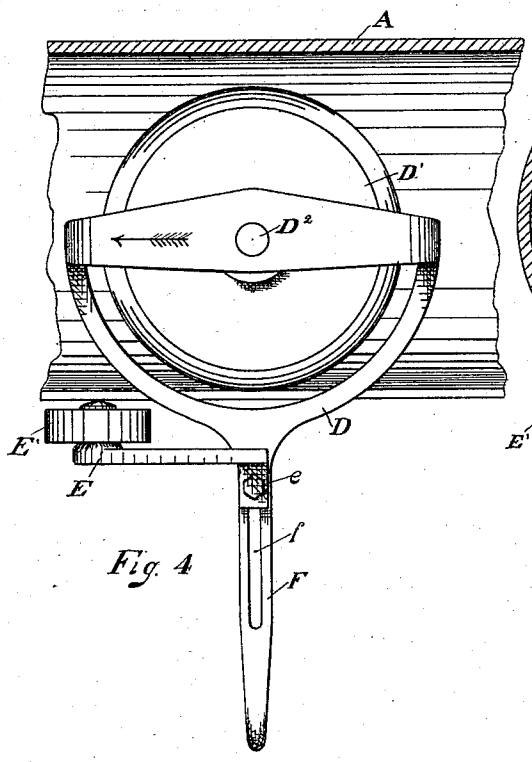

Fig. 4

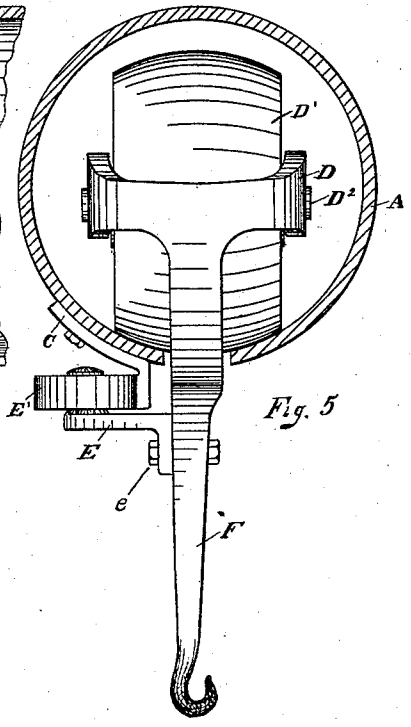

Fig. 5

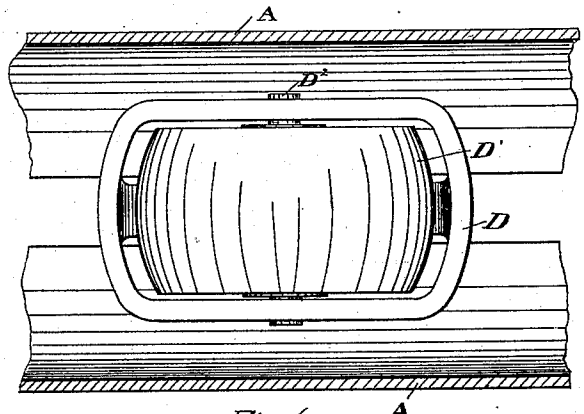

Fig. 6

Witnesses

L. D. Hanford

George Dalcott

Inventor

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UNITED STATES PATENT OFFICE.

JEROME F. DOWNING, OF ERIE, PENNSYLVANIA.

CARRIER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 305,060, dated September 16, 1884.

Application filed August 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, JEROME F. DOWNING, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Carrier Apparatus; 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 appertains to make and use the same.

My invention relates to that class of carrier devices wherein the track or "way" is elevated or suspended and the receptacle for the articles to be conveyed hangs dependent from the car or conveyer; and it consists in the following improvements: First, in the construction of the track or ways; second, in the construction of branches or switch-tracks; third, in the construction of the cars or conveyers; and, fourth, in the means for switching or diverting the cars automatically from the main to the switch tracks or branches.

My device may be used for any of the well-known purposes to which carrier apparatuses of this class are employed—such, for example, as package or parcel and cash carriers for stores often called "store service" or for moving heavy boxes, bales, &c., in warehouses or heavy parts of machinery in machine-shops, and commonly called "warehouse service," or for carrying hay, &c., in barns, and commonly called "hay-carriers."

The objects of my invention are, first, to make a cheap, strong, serviceable, and easily-erected track or way, from which the car or carriage cannot be thrown or derailed under any circumstances, and which will require no flanges upon the car-wheels; second, to provide a track or way with branches or switches which will have no movable tongues, and to connect with the cars and the track the means for diverting the cars into their proper or destined switches automatically.

To accomplish the first of the above objects, I make the track or way in the form of a tube with a longitudinal slot or opening in its lower side and provide a car with a running-gear which will traverse the inside of the tube with its stem or pendant running in the said slot or opening, the body or receptacle of the car being attached to the stem or pendant of the running-gear below the tubular track. It will at once be seen that such a track can be made very light, and yet be very strong by reason of its tubular form. It may be made of common gas-pipe, or of thin copper or brass tubing, or of wood or paper. It will be seen that such a track may be easily erected, as it can be suspended from the ceiling. It will further be seen that it will be impossible for the car running-gear to become derailed.

I accomplish the second of the above objects by providing at the point of juncture of a switch or branch a specially-constructed section or joint of tubing which has a branch properly slotted, to which the branch track can be attached, and I attach on the outside of this opposite the point where the branch slot opens out from the main slot a diverting-flange, and upon the car frame or stem I put an arm with a friction-roller, which will come in contact with the diverting-flange and thus guide the car into the branch slot. The arrangement of these parts will be such that cars not destined to be switched off at any given branch will pass by without the diverting-flange and guide-arm coming in contact. All the above will be fully understood from the following general description.

My device is illustrated in the accompanying drawings, as follows:

Figure 1 is a plan view of the under side of the track. Fig. 2 is a like view of one of the branch sections enlarged, and showing the car being diverted into the branch slot. Fig. 3 is perspective view, and shows the manner of suspending the track. Fig. 4 is a vertical longitudinal section of the track with the car running-gear and pendant or stem in elevation. Fig. 5 is a transverse vertical section of the track with the same parts of the car in elevation. Fig. 6 is a horizontal longitudinal section of the track and a top view of the running-gear of the car. These last three views are about full size of such an apparatus as would be used for store service. Figs. 7, 8, and 9 are perspective views of the diverting-flanges C, showing variations in width.

A represents the main track or way; A′, the branch or switch track; B, the specially-constructed branch connection or section; *a*, the main slot, and *a′* the branch slot; a^2, the con-

necting thimbles or collars by which the tube sections are joined together. a^3 are eyes or loops formed on the collar a^2, for suspending the track. *b* are the suspending rods or chains which connect with hooks *c* in the ceiling. C marks the diverting-flanges. D is the yoke of the frame-work of the running-gear of the car; D′, the wheel of the car; D^2, the axis or journal of the car-wheel; F, the stem or pendant of the car-frame; E, the guide-arm, and E′ the friction-roller on said arm. *f* is a slot in the pendant F, through which the binding-screw *e*, which connects the arm E to the pendant F, passes, and by which the said arm can be adjusted at various heights.

The construction is as follows: The main sections of the ways A or A′ are simply plain tubes of such material as may be desired, formed with the slots therein, as above stated. The slots may be formed in the tubes after they are made—as, for instance, common gas-pipe may be slotted on an iron-planing machine, or by a milling-machine—or the slot may be formed in the tube when it is made. The branch connections B will be specially molded or cast. It may be made of sheet metal or of cast metal, as desired. If made of cast metal, the flange C may be cast with it; or, preferably, it may be bolted or riveted to it after it is formed, as shown. The collars or couplings a^2 may be of wrought or cast metal, and they may connect the parts of the way by screwing upon them in the same manner as gas or water pipe are coupled, or they may be clamped upon them, or the connection may be effected by what is called a "bayonet slot and lug." The car, as I have shown it, is provided with only one wheel, which is journaled within the yoke D; but of course a car may be used with two wheels. The wheel is provided with a wide arched face, which conforms to the curve of the pipe. The wheel, being wide on its face, will pass over the openings of the branch slots *a′* without jarring or jolting. The car may only be diverted into a switch by so turning the yoke D that its forward part will enter the switch-slot. This is effected by means of the switching-lever E coming in contact with the guide-flanges C. These flanges, as shown in Figs. 7, 8, and 9, are of varying widths and on a line. The narrowest flange will be placed at the first switch from the central shipping-point, and the next widest at the next switch, and so on through the line. The levers E on the cars destined for any particular switch will be adjusted, as to height in the slot *f*, in the pendant F, so as to miss coming in contact with all preceding flanges in the line, but so as to come in contact with the flange C at its destined switch. When the lever E does come in contact with a flange the roller E′ strikes and runs along the flange. This turns the yoke D so that its forward end is diverted into the branch slot *a′*, and thus the car is made to run off onto the switch or branch.

It will be observed that the switching of the cars is entirely automatic, and that a number of cars may be running close together along the line and not interfere with the proper switching of each car into its proper switch, and that no car will be diverted into a switch where it does not belong.

The details necessary to incorporate the above-described devices into a perfect system for store service, such as devices for raising the car to the track and placing it upon the same, and on receiving a car either at the central station, or at a way station, are not here shown, and will constitute the subject-matter of a future application for a patent.

What I have here shown may be applied to any service, as stated above. Where the service will be for heavy-weight objects, the pipes or tubes will be strong and perhaps larger than shown here, so as to be properly adapted to that service; but where the service is for light, small packages, &c., the tubes will be made about as here shown, and will be made as light as possible.

What I claim as new is—

1. In a conveyer apparatus of the class herein-named, a way or track consisting of a tube with a longitudinal slot in its lower side, substantially as described.

2. In a conveyer apparatus of the class herein named, a way or track, and branches or switches, consisting of the combination of tubes A A′, having longitudinal slots in their under sides, and branch-connecting pieces B B, with branching longitudinal slots in their under sides, substantially as described.

3. In a conveyer apparatus of the class herein named, the combination of a tubular track having a longitudinal slot in its under side, and a car or carrier consisting of a running-gear, which traverses the interior of said tube, and a frame or pendant which extends down through said slot and supports the article to be carried below said tubular track.

4. In a conveyer apparatus of the class herein named, the combination, substantially as described, of a tubular track slotted in its lower side longitudinally, a car running in said tube, having its wheel-face wide and arched to conform to the curve of said tube, and a pendant or frame extending from said car down through said slot, and adapted, substantially as described, to support the article to be carried.

5. In a carrier apparatus of the class herein named, the combination, substantially as described, of the following elements: a main or direct track, consisting of a tube slotted longitudinally in its under side, a switch-track, consisting of like slotted tubes, which branches obliquely from said main track, a car running-gear adapted, as described, to travel within said tube, a pendant connected with said running-gear, which extends down through said slot and supports the article to be carried, a guide-lever attached to said

pendant, and a diverting-flange placed on the outside of said tube adjacent to the opening of the branch slot, and in position to come in contact with the said guiding-lever, and of such a form, as described, as to cause said lever to divert the said pendant from the slot in the main track into the slot into the branch track.

6. In a carrier apparatus of the class herein described, the combination, with a tubular track slotted longitudinally in its under side, of a carrier consisting of the wheel D′, yoke D, and pendant F, which extends through the slot in the track and supports the article to be carried.

7. In a carrier apparatus of the class herein described, the combination, with the track A A′ B, and diverting-flanges C on said part B, of the car, consisting of the wheel D′, yoke D, pendant F, and lever E.

In testimony whereof I affix my signature in presence of two witnesses.

JEROME F. DOWNING.

Witnesses:

GEORGE TALCOTT,

JNO. K. HALLOCK.