

F. A. EMERICK.
ENDLESS CARRIER.
APPLICATION FILED SEPT. 27, 1906.

940,793.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.

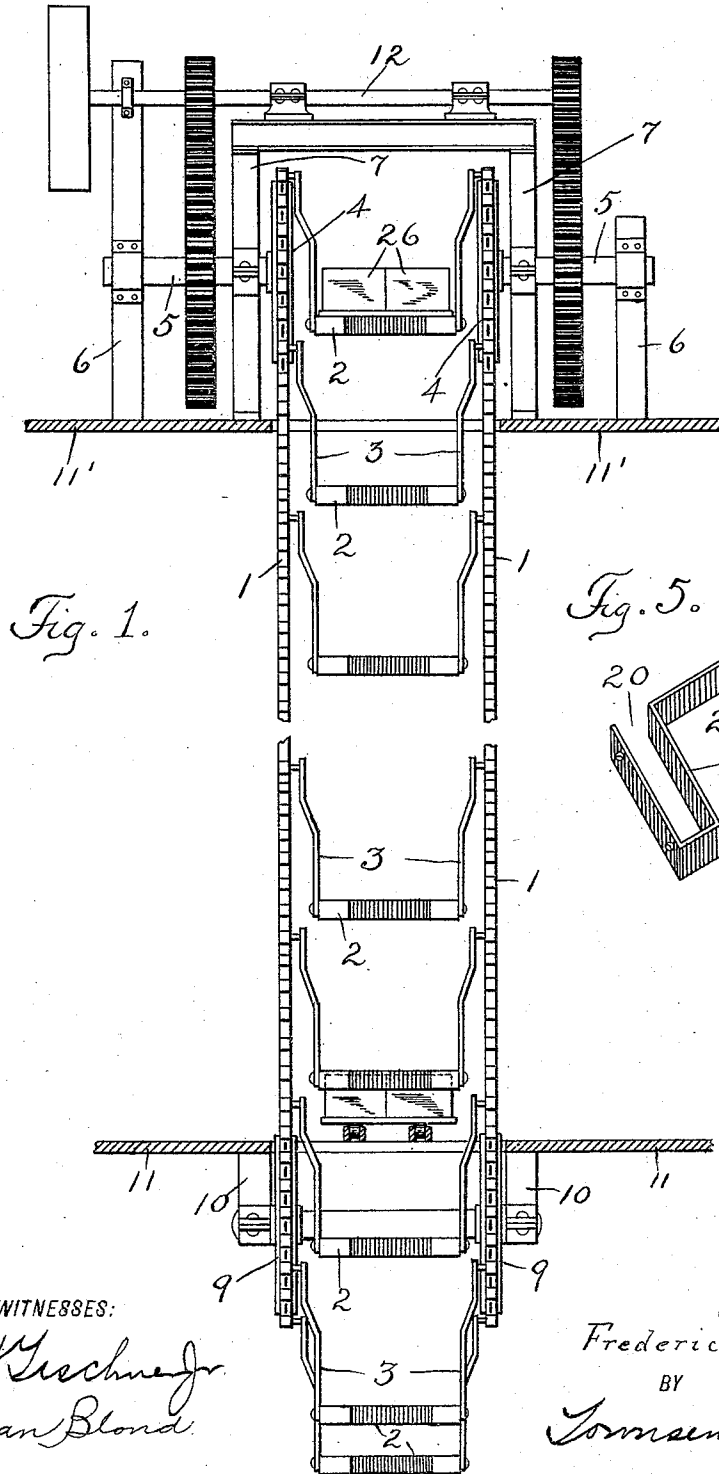


Fig. 1.

Fig. 5.

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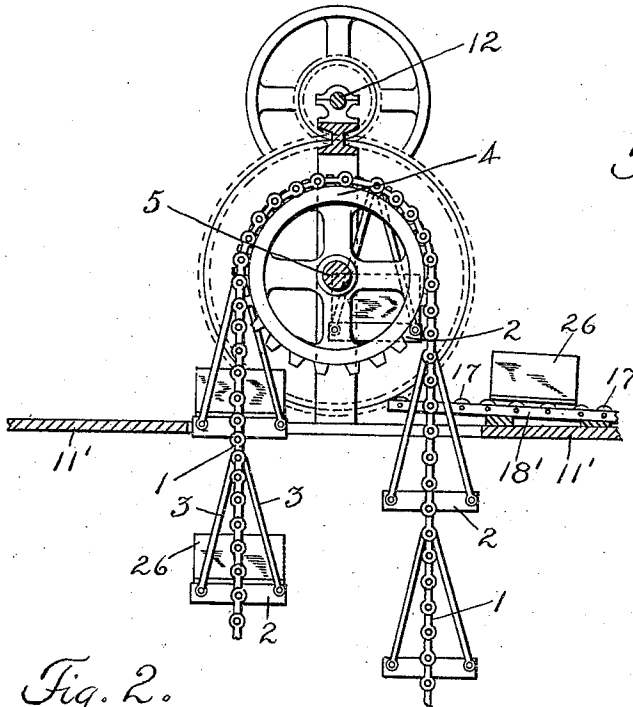


Fig. 2.

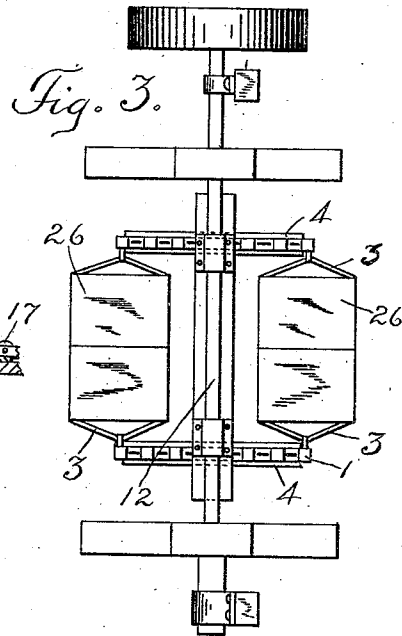


Fig. 3.

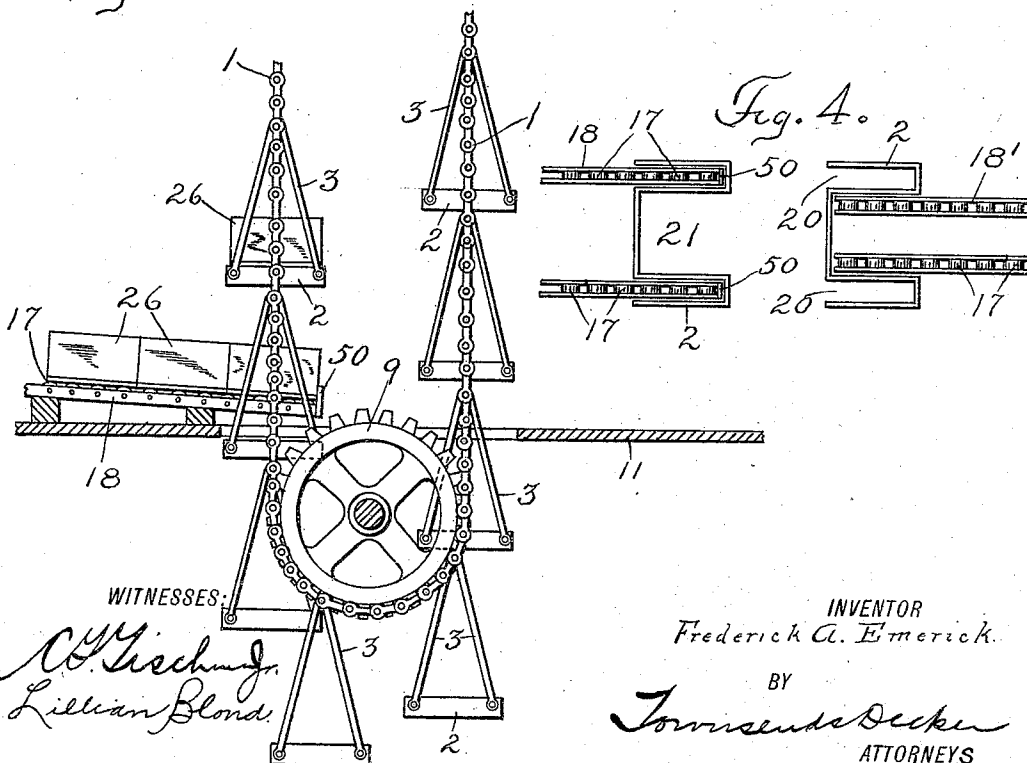


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ENDLESS CARRIER.

940,793.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Original application filed November 9, 1905, Serial No. 286,469. Divided and this application filed September 27, 1906. Serial No. 336,417.

To all whom it may concern:

Be it known that I, FREDERICK A. EMERICK, a citizen of the United States, and a resident of Oswego, in the county of Oswego and State of New York, with post-office address Oswego, New York, have invented certain new and useful Improvements in Endless Carriers, of which the following is a specification.

My invention relates to endless carriers or elevators of the type in which an endless chain or set of chains is provided with pendulous trays which are employed to receive and discharge packages or objects of any kind at different levels.

My invention is particularly useful for that form of apparatus in which the cable or chain carrying the pendulous trays travels in a vertical or approximately vertical plane and in which the object or articles are fed automatically to position where they will be picked up by the moving trays by means of suitable ways or conveyers and discharged at the proper level to other ways or conveyers on which they move away from the line of travel of the trays.

The invention relates mainly to the construction of the trays and the manner of combining or disposing the conveyer tracks or ways with relation to said trays, the object being, briefly, to insure the proper presentation of the box or other article to the trays at the point where they are picked up so that it will be squarely under the center of suspension of the pendulous tray and will be properly picked up so as not to be in danger of being dropped therefrom through the tilting or canting of the tray during transfer, as well as to cause the article or object being conveyed to be squarely deposited upon the tracks or ways at the delivery point.

To these ends my invention consists mainly in a novel construction of pendulous tray provided with openings extending from its opposite sides across the vertical line of suspension and in so disposing the feed and discharge tracks that they shall extend into the path of the trays and across such line of suspension.

The invention consists further in the special combinations of devices and details of construction as more particularly herein-

after described and then specified in the claim.

In the accompanying drawings, Figure 1 is a vertical front elevation of an apparatus embodying my invention. Fig. 2 is a side elevation of the same showing the feed and discharge chutes, conveyers or ways for feeding the articles to be transported to the carriers so that they shall be picked up and for conveying them away when they are set down at the discharge point. Fig. 3 is a plan of the apparatus. Fig. 4 shows the relative location of the feed and delivery ways of the tracks to the trays at the point where the said trays pass the tracks for the purpose of picking up and dropping the objects. Fig. 5 is a perspective view of the preferred form of skeleton tray which I employ.

1 indicates the chains or belts of an endless carrier from which the trays 2 are suspended by a pivotal suspension or connection of the hangers 3 connected to the trays at their opposite sides and edges as shown better in Fig. 2, and pivotally connected with the belts or chains 1 of the endless carrier. Said belts pass over suitable drive wheels 4 which are carried by shafts 5. The journal bearings of said shafts are provided with posts 6 sustained by the floor of a building or by other means and by journal bearings carried by hangers 7 supported in any suitable manner. At the bottom the endless belts or chains pass around other wheels 9 as well understood in the art which may be mounted on shafts sustained by hangers 10 on a lower floor 11 of the building. Said floor 11 has suitable openings to permit the passage of the trays and endless belts as indicated more fully in Fig. 2.

A counter shaft 12 driven in any suitable manner and geared to the shafts 5 operates the endless carrier.

As illustrative of one of the uses of my invention, I show the same applied to lifting the objects which may be boxes or other packages from the level of a floor 11 and depositing them at a different level, as for instance, that of the floor 11' which may be above or below the floor at which the boxes or other objects to be transported are fed to the trays. The conveyers, tracks or ways which deliver or feed the boxes or other arti-

cles into position where they will be taken up by the upwardly traveling trays and for receiving said articles as they are deposited at another level from the downwardly traveling trays may be of any suitable construction, but are preferably of such character or so arranged that the articles will be fed and discharged or carried away by gravity.

It is preferable to employ tracks or ways having anti-friction rollers 17; said tracks having a slight inclination, preferably on both the feed and delivery sides. Said tracks or ways for the feed or delivery side are indicated at 18 and for the discharge side at 18'. Referring to the drawings, it will be seen that these tracks or ways on both sides extend into the path of the traveling trays so as to bring the object 26 fully into position where it will be properly picked up by the tray, or in other words, will be fully under the center of suspension of said tray which will, therefore, not be in danger of canting or tilting and with consequent danger of the tray dropping the article supported by it. In the same manner on the delivery side the tracks or ways extend back across practically the whole space or path embraced by the descending tray so as to fully receive the descending object.

In order to permit the trays to pass the tracks or ways or other conveying device, and to fully receive and properly deposit their load, I construct said trays with vertical openings which extend from their opposite sides across the line of suspension as more fully indicated in Figs. 4 and 5. In these figures, these openings, which permit the tray to pass the feed tracks or ways 18, are indicated at 20. The opening which extends across the tray in the opposite direction to permit it to pass the delivery tracks 18' is indicated at 21. It is obvious that the shape of the tray to provide openings for this purpose may be greatly varied. I prefer, however, to make the tray in the form of a skeleton tray of metal as shown, proper provision being made at the sides for attachment of the hangers 3 as indicated. The objects or articles are fed by gravity or in any other suitable way to position for being picked up by the ascending trays as indicated in Fig. 2. A suitable stop 50 brings them to rest in position for being picked up. When the load or object is picked up by the ascending tray, it frees

the next one which is then fed into position to be picked up by the next ascending tray. On the descending side each object is received by the delivery ways or tracks 18' and immediately passes away by gravity from position where it will interfere with the load on the descending tray above.

In the operation of this apparatus, it will be seen that the labor is confined to simply placing the objects in line upon the feed tracks 18 and to disposing of the objects as they are fed away from the delivery point onto the tracks 18'. It will also be seen that inasmuch as the ascending and descending trays with their loads will balance one another, the power required will be a minimum.

I do not limit myself to any particular construction or material for the pendulous trays or to any particular devices for attaching or suspending them from the endless chain or chains.

My present application, so far as concerns the features claimed herein, constitutes a division of my prior application filed Nov. 9th, 1905, S. N. 286,469.

What I claim as my invention is:

In an endless carrier, the combination of pendulous trays having vertical openings extending respectively from opposite sides or edges of the tray across the line of suspension, inclined feed tracks inclined toward and extending into the path of the trays on their one side and entirely across the line of suspension of the trays but in line with the vertical openings extending from one edge or side thereof, said tracks being adapted to feed a line of objects in succession to said trays by gravity, a suitably fixed stop secured to the end of the tracks for halting the objects in position to be picked up by the ascending trays and discharge or delivery tracks extending into the path of the trays on the opposite side but entirely across the line of suspension of the trays and in line with vertical openings extending from the opposite side or edge of said trays, as and for the purpose described.

Signed at Oswego in the county of Oswego and State of New York this 22d day of September A. D. 1906.

FREDERICK A. EMERICK.

Witnesses:

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B. MORSE.