

June 17, 1952

M. C. FAUST
GRAVITY CONVEYER FOR CARTONS WITH
BOTTOM ADHESIVE APPLIERS

2,600,747

Original Filed April 1, 1947

2 SHEETS—SHEET 1

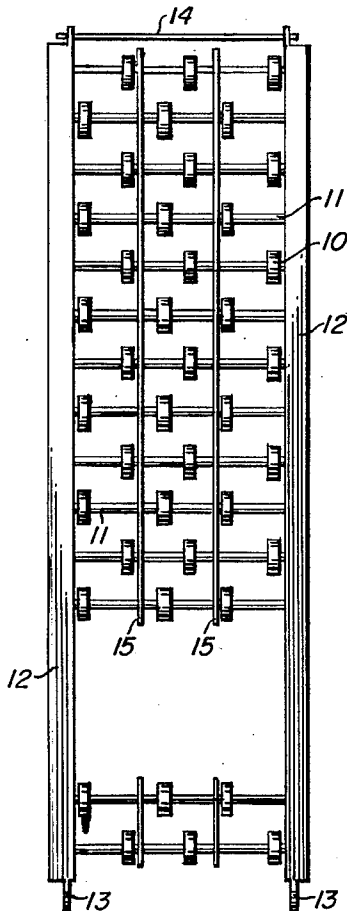


Fig. 1

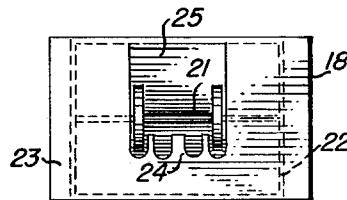
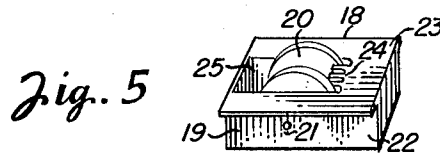


Fig. 3

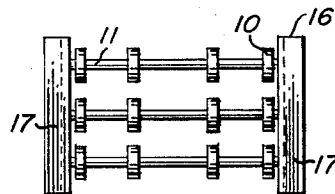


Fig. 2

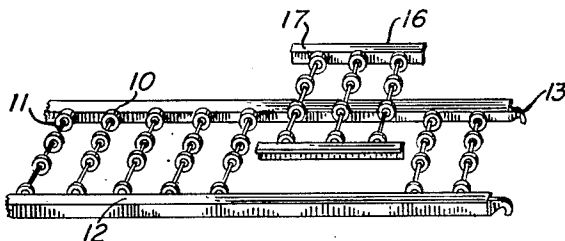


Fig. 4

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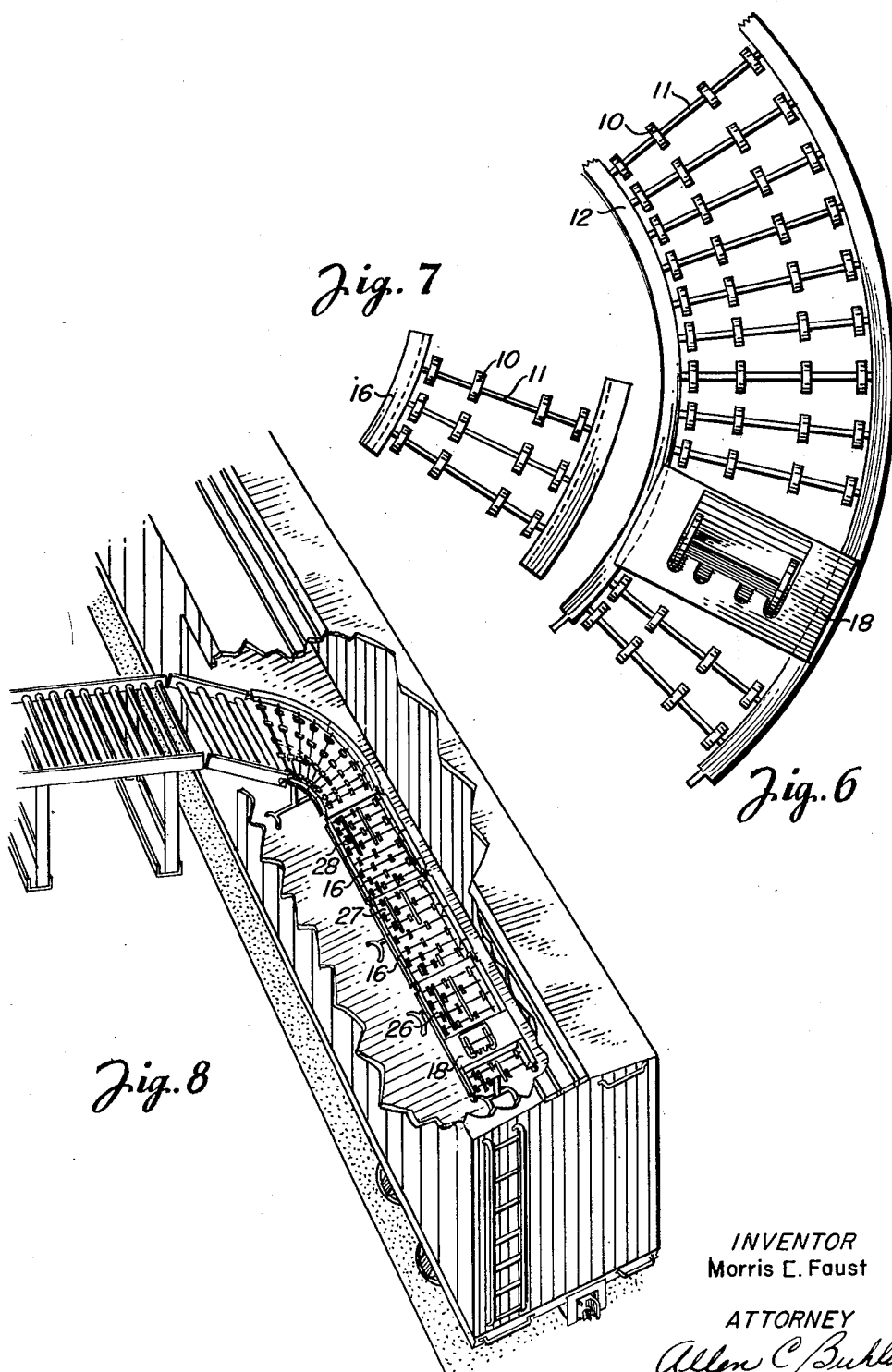
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2 SHEETS—SHEET 2



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GRAVITY CONVEYER FOR CARTONS WITH
BOTTOM ADHESIVE APPLIERSMorris C. Faust, Racine, Wis., assignor to S. C.
Johnson & Son, Inc., Racine, Wis.Continuation of application Serial No. 738,580,
April 1, 1947. This application August 13, 1951,
Serial No. 241,584

3 Claims. (Cl. 118--221)

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This invention relates to a gravity conveyor system. More particularly, it relates to a gravity conveyor system comprised of several component units having portions readily replaceable by a gluing mechanism.

This application is a continuation of my co-pending application, S. N. 738,580, filed April 1, 1947 and entitled "Gravity Conveyor," and now abandoned.

It is common commercial practice to convey cartons or boxes from the production line to freight cars for shipment by means of a portable gravity conveyor. The conveyor is usually composed of a series of standard conveyor units 5 or 10 feet in length and varying from 12 to 18 inches in width. The units may be straight or curved, so that the conveyor may be extended into the freight car in as close proximity as possible to the point of loading, so as to eliminate unnecessary handling of the boxes or cartons. As the loading of the car progresses the end units of the conveyor are removed.

Products packed in glass jars or bottles are susceptible to considerable breakage if the freight car is "humped" during transit. Even though the products may be packed in tin containers, if the car is roughly handled in transit, many of the tins are dented or marred—seriously detracting from their sales appeal when they are displayed for sale.

It has been proposed to apply a ribbon of glue to the bottom of the cartons or boxes as they leave the conveyor line, the glue being intended to bind the cartons together and reduce the damage during shipment. It is obviously most desirable to position the gluing mechanism near the end of the conveyor, the usual practice being to locate it at the entrance to the freight car, thus necessitating the manual carrying of the cartons for considerable distances into the car. This materially increased the labor and time involved in loading a car.

Briefly, my invention comprises a gravity conveyor system comprising a series of conveyor units, each of the units being detachably secured to the preceding unit. The terminating unit has a removable gluing mechanism horizontally installed therein, each of the preceding conveyor units having a horizontally removable roller section. These sections are adapted to be readily replaced by the gluing mechanism.

Therefore, the primary object of my invention is to provide a gravity conveyor employing a gluing mechanism in conjunction therewith, which may be employed at close proximity to the loading point.

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It is a further object of my invention to provide a gravity conveyor whereby the gluing mechanism can be positioned at the end of the conveyor line and readily interchangeable with a removable roller section as the detachable conveyor units are progressively removed from the conveyor line.

Another object of my invention is to provide a gravity conveyor having removable horizontal roller sections installed in each unit, which can be readily interchanged with a gluing mechanism and which is simple to operate and inexpensive to manufacture.

These and other objects and advantages will appear more fully in connection with the accompanying drawings in which:

Fig. 1 is a top plan view of a straight unit of the gravity conveyor with the horizontal roller section removed.

Fig. 2 is a top plan view of a removable horizontal roller section.

Fig. 3 is a top plan view of the gluing mechanism which may be positioned in the conveyor unit of Fig. 1.

Fig. 4 is a perspective view, partially broken away, of another embodiment of a straight unit of a gravity conveyor with the horizontal section removed, but positioned directly above the opening into which it fits.

Fig. 5 is a perspective view of the gluing mechanism.

Fig. 6 is a top plan view of a curved unit, partially broken away, with the gluing mechanism in operating position.

Fig. 7 is a top plan view of a removable horizontal roller section which may be interchanged for the gluing mechanism shown in Fig. 6.

Fig. 8 is a top plan view of a series of conveyor units extending into a freight car, the terminating unit having the gluing mechanism installed therein, each of the preceding units having a horizontal removable roller section installed therein.

Similar numerals refer to similar parts throughout the several views.

Referring especially to Fig. 1, it will be seen that one embodiment of a gravity conveyor unit has a plurality of rollers 10 positioned on axles 11, which are permanently supported by side rails 12. The rollers 10 are preferably high grade, self-aligning ball-bearing wheels, which are free-running and which are grease-packed, when assembled, for permanent lubrication. If desired, however, the rollers or wheels 10 may be replaced by elongated tubular-shaped rollers (not shown). The number of wheels 10 per square foot may be varied. Generally, in a 12 inch wide conveyor the number of rollers or wheels will vary from 8

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to 12, and in an 18 inch wide conveyor, from 12 to 18. The axles 11 may be welded to the side rails 12, but if preferred they may be threaded and inserted in holes in the side rails 12 and secured thereto by means of nuts (not shown). The side rails may be straight or (as shown in Fig. 6) curved and are preferably of high carbon-formed steel, but may be made of other metal. The ends of the side rails 12 may terminate in hooks 13, so as to form a coupling when attached to the rod 14. If desired, a plurality of bar supports 15 may be used to strengthen the conveyor.

In Fig. 2 there is illustrated a removable roller section 16, wherein a plurality of wheels 10 are positioned on axles 11, and the axles are affixed to angle supports 17. The angle supports are so shaped as to fit over and be supported by the side rails 12 when the removable roller section is positioned in the conveyor.

The gluing mechanism 18 is composed of a vessel 19 in which a plurality of distributing wheels 20 are carried by an axle 21. The axle 21 is affixed to the sides 22 of the vessel 19. A cover 23 is positioned on the vessel 19 and is provided with a plurality of openings 24 for the wheels 20 and an opening 25 for charging glue into the vessel. The cover 23 extends over the sides 22 to form a support when positioned on the side rails 12 of the conveyor. If desired, the wheels 20 may be positioned in whichever of the openings 24 desired.

In operation, referring to Fig. 8, a series of conveyor units, detachably fastened together, extend from the production line to the inside of the freight car. In the last, or terminating unit 26, the gluing mechanism 18 is installed. In each of the preceding units, extending from the entrance of the freight car, a removable horizontal roller section 16 is positioned. As the loading of the freight car progresses, the end unit of the conveyor is detached and the gluing mechanism 18 removed from that unit and substituted for the removable roller section 16 in the unit 27. As loading of the car continues, the gluing mechanism 18 will be removed from the unit 27 and used to replace the removable roller section in the conveyor unit 28. This operation is continued until the car is fully loaded.

Thus by constructing the conveyor unit with a removable roller section 16, each adapted to receive the gluing mechanism 18, I have facilitated the gluing operation at the point of loading. Many apparently widely different embodiments of this invention may be made without departing

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from the principle, breadth and spirit thereof, and it is to be understood, therefore, that this invention is not limited to the specific embodiments thereof, except as encompassed by the following claims.

I claim:

1. A gravity conveyor comprising a series of conveyor units, each of said units being detachably secured to the preceding unit, the terminating unit of said series having a removable gluing mechanism horizontally installed therein, each of the preceding conveyor units having a horizontal removable roller section installed therein, each of said removable roller sections adapted to be readily replaced by said gluing mechanism.

2. A gravity conveyor comprising a series of conveyor units, each of said units being detachably secured to the preceding unit, the terminating unit of said series having a removable gluing mechanism horizontally installed therein, said gluing mechanism consisting of glue-containing vessel, an axle permanently affixed to the sides of said vessel and carrying a plurality of glue-distributing wheels, the lower portion of the periphery of said wheels contacting the glue in said vessel, each of the preceding conveyor units having a horizontal removable roller section installed therein, each of said removable roller sections adapted to be readily replaced by said gluing mechanism.

3. A gravity conveyor comprising a series of conveyor units, each of said units being detachably secured to the preceding unit and consisting of a plurality of rollers permanently positioned between side rails, the terminating unit of said series having a removable gluing mechanism horizontally installed therein, said gluing mechanism consisting of a glue-containing vessel, an axle permanently affixed to the sides of said vessel and carrying a plurality of glue-distributing wheels, the lower portion of the periphery of said wheels contacting the glue in said vessel, the upper portion of the periphery of said wheels positioned above the longitudinal plane of said side rails, each of the units preceding said terminating unit having a horizontal removable roller section installed therein, each of said removable roller sections adapted to be readily replaced by said gluing mechanism.

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No references cited.