S. OLSON.

PACKAGE CONVEYER.

APPLICATION FILED JAN. 5, 1914.

1,197,145.

Patented Sept. 5, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

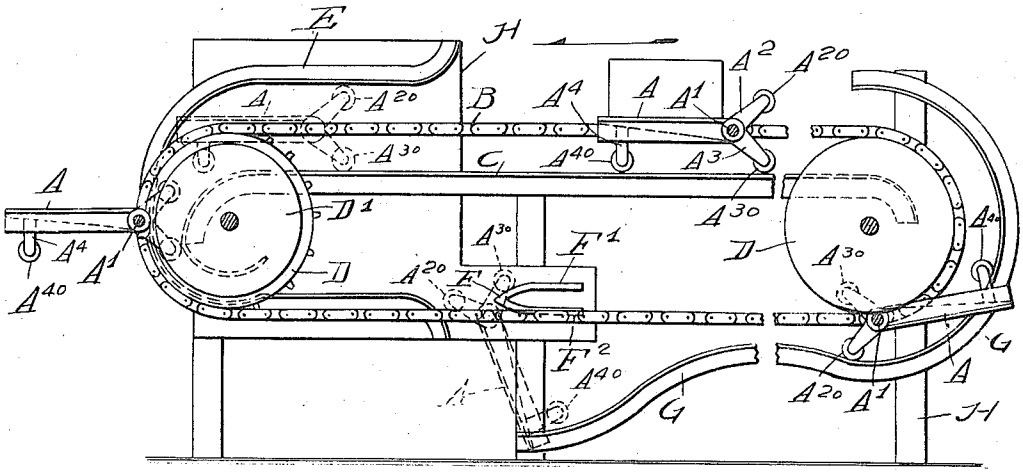


Fig. 2.

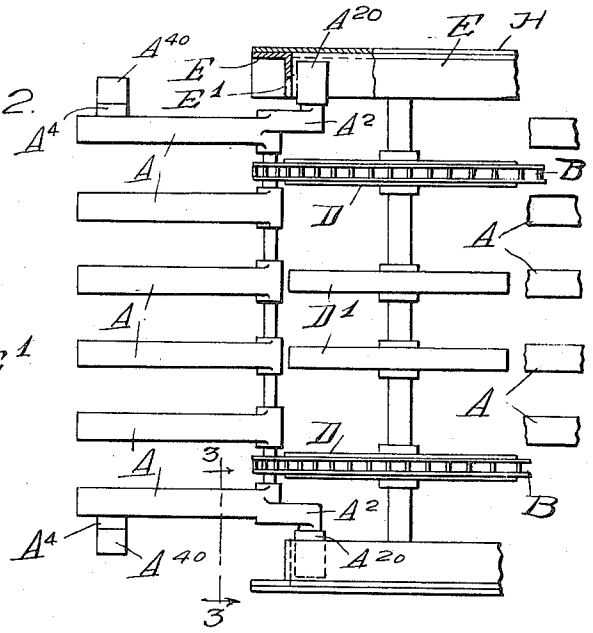
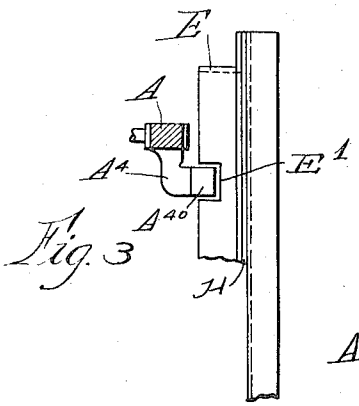


Fig. 3



Witnesses.

O. F. Hunter

Robt. H. Burton.

Inventor.

Samuel Olson.

by Burton & Burton

his Attys.

S. OLSON.

PACKAGE CONVEYER.

APPLICATION FILED JAN. 5, 1914.

1,197,145.

Patented Sept. 5, 1916.

2 SHEETS—SHEET 2.

Fig 4

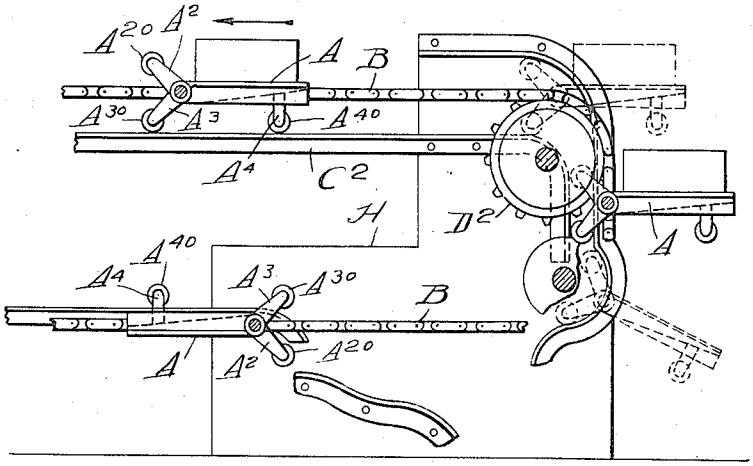
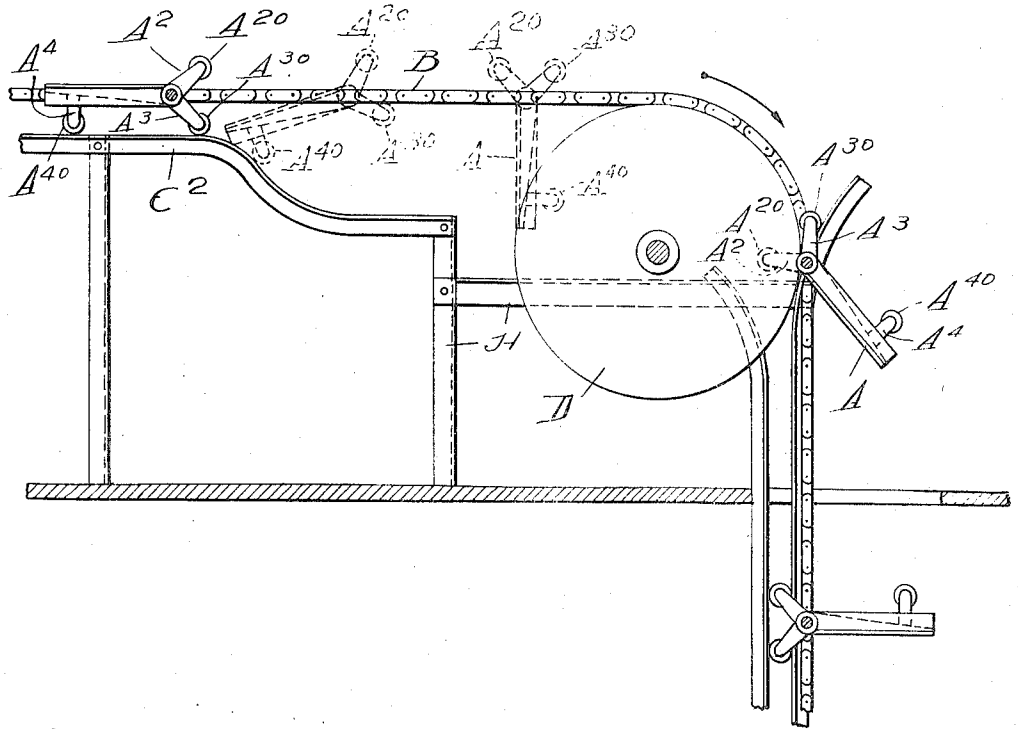


Fig. 5.



Witnesses.

C. A. Plummer

Robt. H. Burton

Inventor.

Samuel Olson.

by Burton & Burton

his Attys.

UNITED STATES PATENT OFFICE.

SAMUEL OLSON, OF CHICAGO, ILLINOIS.

PACKAGE-CONVEYER.

1,197,145. Specification of Letters Patent. Patented Sept. 5, 1916.

Application filed January 5, 1914. Serial No. 810,356.

To all whom it may concern:

Be it known that I, SAMUEL OLSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Package-Conveyers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to package conveyers and is in part a continuation of the matter originally presented in my pending application, Serial Number 758,759, filed April 4, 1913.

It consists of the features and elements described herein and shown in the drawings as indicated by the claims.

In the drawings:—Figure 1 is a vertical section of a package conveyer embodying this invention. Fig. 2 is a partial plan view of the conveyer illustrated in Fig. 1. Fig. 3 is a detail section taken as indicated at line 3—3 on Fig. 2. Fig. 4 is a vertical section of a conveyer embodying the same characteristic features as that shown in Fig. 1. Fig. 5 is a vertical section of another conveyer indicating another mode of use of the features embodied in the conveyers of Figs. 1 and 3, respectively.

The conveyer shown in Fig. 1 is arranged for transporting packages horizontally, and for this purpose is provided with cars in the form of trays, A, which project to one side of their point of engagement at A^1, with the endless conveyer belt, B, and which are provided with arms, A^2 and A^3, extending to the other side of such point of engagement and carrying guide rollers, A^{20} and A^{30}, respectively. Near the projecting end of the tray there are also provided rollers, A^{40}, journaled in brackets, A^4, in position to rest upon a carrying rail, C, which extends throughout the greater portion of the working travel of the tray.

In passing around the belt-carrying wheels, D, at the delivery end of the conveyer the tray, A, is carried vertically partway around the wheels, D, in its horizontal position in order to facilitate the removal of its load; this may be accomplished by hand or if desired the fingered construction of the tray indicated in Fig. 2 may be taken advantage of in the use of an intermembering fingered receiving platform, not shown. In approaching the vertical portion of the travel the rollers, A^{40}, of the tray would run off from the horizontal portion of the rail, C, leaving the tray inadequately supported against tipping; for under the reaction of the rollers, A^{20}, against the guide rail, E, the belt, B, would be easily forced downward out of line at its point of connection with the tray at A^1, allowing the arm, A^2, to swing about the center at A^1, and permitting the tray to tip down. But the axle of the belt wheels, D, is provided also with auxiliary supporting wheels, D^1, positioned to register with certain fingers of the tray, A, as they move forward over the axis of the wheels, and thus to support the tray and prevent it from tipping. As the belt, B, runs on to its belt wheel, D, it is, of course, prevented from sagging out of line and furnishes a positive support for the tray at A^1, while the downwardly curving portion of the guide rail, E, supplies a rigid track for the guide roller, A^{20}; as the tray approaches a lower position at which it might tend to pry the belt, B, off from the belt wheel, D, a curved end of the rail, C, engages the guide roller, A^{30}, and thus relieves the belt itself of all guiding strain.

The constructions shown in Figs. 4 and 5 illustrate further the utility of the two sets of guide rollers, A^{20} and A^{30}, reacting against oppositely facing guide rails in situations where the tray, A, travels vertically for any considerable distance. The Y-shaped design of the tray with its symmetrically disposed arms, A^2 and A^3, thus becomes valuable both in the guiding of the loaded tray from a horizontal to a vertical track, and for supporting the tray in a vertical track in position to retain or receive a load. The latter case is illustrated in Fig. 4 in which the tray travels upward in its vertical track and is maintained in positions parallel to itself as it rounds the belt wheels, D^2, and proceeds along the horizontal track, C^2.

Referring again to the construction of Fig. 1 there is shown a wedge-like cam guide, F, associated with the lower ply of the belt, B. After the tray has discharged its load in rounding the belt wheel, D, it is permitted to depend vertically from the belt, B, until reaching the wedge guide, F. At this point the upper surface, F^1, of the guide engages the first roller, A^{30}, tilting the tray so that the second roller, A^{20}, runs on to the lower surface, F^2, of the guide an instant later, with the result that the depend-

ing end of the tray is swung upward bringing the supplemental rollers, A^{40}, on to a track, G, by which the tray is thereafter retained in proper relation to its direction of travel so as to return to the upper ply of the belt with the proper end forward.

As indicated in the plan view (Fig. 2) the guiding means (consisting of various guide rails, and the rollers, A^{20}, A^{30} and A^{40}, carried by the tray) are positioned laterally outside the load-supporting area of the tray and outside the belts, B; preferably the guide rails are for the most part formed of lengths of angle iron secured to frame plates or other tie members as at H. In this connection it will be noted that the rollers, A^{40}, are made to extend only about one-half as far as the rollers, A^{20} and A^{30}; this allows the guide rail, E, to be notched, as indicated in Fig. 3, so as to permit the horizontal travel of the tray by which the rollers, A^{40}, are carried outside the guide rail, E, as the tray rounds the belt wheel, D. These notches, E^1, are only just deep enough to accommodate the wheels, A^{40}, so that sufficient material is left in the rail to furnish a track for the longer wheels, A^{20}.

I claim:—

1. A conveyer comprising a continuous belt having a horizontal run, a belt wheel at one limit of said horizontal run; a tray pivotally engaged with the belt and extending to one side of the axis of engagement; a supporting rail extending below the horizontal portion of the belt substantially to the vertical plane of the belt wheel axis; means extending down from the tray to engage said rail, and a support positioned directly above the belt wheel axis to engage the under side of the tray for maintaining its horizontal position beyond the extent of said rail.

2. A conveyer comprising a belt mounted for horizontal travel and passing around a pulley at one end of its horizontal run, a tray pivotally engaged by said belt and adapted to extend horizontally to one side of the point of engagement as it passes over the said pulley, two guide rollers associated with said tray at the opposite side of its point of engagement with the belt, said rollers being vertically separated, a guide channel positioned to receive the reaction of said rollers upon its opposite walls, respectively, as the tray passes over the pulley, a carrying rail extending throughout the upper horizontal run of the belt, and a support positioned to engage the tray directly above the pulley axis intermediate the vertical and horizontal portions of its travel as the belt passes over said pulley.

3. A conveyer comprising a belt mounted for horizontal travel and passing around a pulley at one end of its horizontal run, a tray pivotally engaged by said belt and adapted to extend horizontally to one side of the point of engagement as it passes over the said pulley, two guide rollers associated with said tray at the opposite side of its point of engagement with the belt, said rollers being vertically separated, a guide channel positioned to receive the reaction of said rollers upon its opposite walls, respectively, as the tray passes over the pulley, a carrying rail extending throughout the upper horizontal run of the belt, and a wheel mounted for rotation about the pulley axis and dimensioned to engage the under side of the tray intermediate the vertical and horizontal portions of its travel as the belt passes over said pulley.

4. A conveyer comprising a continuous belt having a horizontal run, a belt wheel at one limit of said horizontal run, a tray pivotally engaged with the belt and extending to one side of the axis of engagement, said tray having an arm extending to the other side of said axis, a member carried on said arm and a guide rail disposed above the horizontal run of the belt adjacent to the belt wheel for engaging said member to support the tray in horizontally extending position as it passes over the belt wheel axis.

5. A conveyer comprising a continuous belt having a horizontal run, a belt wheel at one limit of said horizontal run, a tray pivotally engaged with the belt and extending to one side of the axis of engagement, said tray carrying a guide member at the other side of said axis, at a distance less than the radius of the belt wheel, and a guide rail disposed above the axis of said belt wheel for engaging said guide member to support the tray in horizontally extending position as it passes over said belt wheel axis.

6. A conveyer comprising a continuous belt mounted for horizontal travel over pulleys which rotate about horizontal axes, a horizontal track extending throughout the upper course of the belt, a car adapted for travel on said track pivotally engaged with the belt and extending forwardly in the direction of travel from the point of engagement, two guide rollers carried by said car rearwardly of the point of engagement and positioned, respectively, above and below said point when the car is horizontal, said car being permitted to depend from the belt after passing over the pulley at the forward end, and means for righting the car with respect to the direction of travel, comprising a wedge-shaped guide associated with the lower course of the belt, and having upper and lower faces which diverge oppositely from the direction of travel of the belt, and are positioned to engage the respective rollers successively as the car approaches said wedge in depending position.

7. A conveyer comprising a traveling belt, a tray pivotally engaged therewith and extending to one side of the axis of engage-

ment, two guide rollers carried rigidly with the tray at the opposite side of said axis and separated transversely of the plane of the tray, and a supplemental roller on the tray near its extending end.

8. A conveyer comprising a traveling belt having a horizontal run, a belt wheel at one limit of said horizontal run, a tray pivotally engaged with the belt and extending to one side of the axis of engagement, said tray having an arm extending to the other side of said axis, a roller on said arm extending laterally from the tray and away from the belt, a guide rail disposed above the horizontal run of the belt and curving downwardly adjacent to the belt wheel to engage the roller for supporting the tray in horizontally extending position as it passes over the belt wheel, a supporting rail extending below the horizontal portion of the belt, and a roller on the tray projecting laterally therefrom and away from the belt into the plane of the upper guide rail, said roller being less in lateral extent than the roller which engages said upper guide rail, and said guide rail being notched to permit the passage of said roller as the tray travels horizontally past the down-curved portion of said rail.

In testimony whereof I have hereunto set my hand at Chicago, Illinois, this 30th day of December, 1913.

SAMUEL OLSON.

Witnesses:
ROBT. N. BURTON,
EDNA M. MACINTOSH.