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 new and useful Improvements in Dumping Devices for Package-Conveyers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide improved means applicable to a conveyor having cars in the form of pivotally mounted trays and adapted for tilting such trays at will to gravitationally discharge their loads.

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

In the drawings:—Figure 1 is a sectional elevation of a conveyor and dumping mechanism therefor embodying this invention. Fig. 2 is a partial elevation of the same as indicated at line 2—3 on Fig. 1. Fig. 3 is a detail section taken as indicated at line 3—4 on Fig. 2. Fig. 4 is a sectional elevation similar to Fig. 1 and illustrating a modification.

This invention is illustrated as applied to a conveyor of the type commonly known as a tray elevator, but it is equally well adapted for use with any conveyor of this general type in which there is any considerable vertical run.

The elevator illustrated in the drawings comprises an endless chain, A, carried on head wheels indicated at B, and pivotally supporting a tray, C, which extends entirely to one side of the axis of such support at, C', but is provided with symmetrically disposed arms, C' and C", extending to the opposite side of said axis of support and shod with guide rollers, C' and C", respectively, for the reception of which there is provided a guide channel formed of oppositely facing angle rails, D' and D", at the position at which it is desired to tilt the tray, C, for discharging its load by gravity the forward guide rail, D', is composed of two hinged sections, d' and d'', connected by a link section, d', whose connecting pivots engage elongated or slotted apertures, d'' and d''' in the respective hinged sections. In one position of these parts they will constitute a perfectly straight guide rail rendering the guide channel straight and preventing any tilting of the tray, C, but if the link section, d', be moved away from the guide rail, D', so as to widen the channel at this point, 60 the resulting deflection of the hinged portions, d' and d'', will result in a corresponding deflection of the tray, C, from the horizontal as its guide rollers follow this deflected track and will cause its load to be delivered gravitationally. For moving the link section, d', from one position to the other there is provided a slide, E, to which the section, d', is fixed and which is arranged to be moved by the rotation of a feed screw, F, journaled on the conveyor frame, whose threaded portion engages a nut, E', fixed to the slide, E.

The construction thus far has been described as relating only to one side of the conveyor, but it will be understood from Fig. 2 that this construction is duplicated at the other side and that the two feed screws, F, are connected for simultaneous operation by a shaft, G, carrying bevel gears, G', which mesh, respectively, with similar gears, G", on the feed screws. For the operation of this adjusting means the shaft, G, may be fitted with a bevel gear, G' at one end positioned to mesh with a similar gear, H', on an operating shaft, H, and this shaft may extend to any desired location for control of the track at will.

In the form of the invention shown in Fig. 1 it will be seen that by deflecting the guide rail, D', in the direction in which it is desired to discharge the load the tray, C, itself is caused to move bodily in this direction as it tilts, thus tending to impart to the load an impulse which will assist in its delivery. A similar construction, however, may be applied to the rear rail, D", if preferred, with the result that the tray will be tilted to the required angle, although such tilting will cause a slight movement of the tray opposite to the direction of discharge of the load. This modification of the invention is illustrated in Fig. 4.

I claim:

1. In a conveyor comprising a chain mounted for vertical travel, a tray pivotally engaged therewith extending to one side of the axis of engagement, a guide roller on the tray and a track for said roller having a normally straight portion substantially continuous with the remainder and permanently connected thereto at two longitudi-
nally separated points, said portion being adapted for elongation and flexure, and means for elongating and flexing said portion to provide a cam surface for tilting the tray.

2. In a conveyor, comprising a chain mounted for vertical travel, a tray pivotally engaged therewith and extending to one side of the axis of engagement; vertically separated guide rollers carried by said tray at the other side of said axis, and a guide channel for said rollers, a portion of one wall thereof being flexible, and means for flexing said wall away from the opposite wall of the channel, thus inclining a part of the flexible wall so as to tilt the tray in its travel.

3. In a conveyor, comprising a chain mounted for vertical travel, a tray pivotally engaged therewith extending to one side of the axis of engagement; a guide roller on the tray vertically removed from said axis and a guide rail for said roller having a plurality of pivotally-connected sections with one or more of the pivotal connections comprising elongated apertures to permit longitudinal extension of the rail when flexed, and means for flexing said rail to render a portion thereof inclined for tilting the tray in its travel.

4. In a conveyor, comprising a chain mounted for vertical travel, a tray pivotally engaged therewith extending to one side of the axis of engagement; a guide roller on the tray vertically removed from said axis and a guide rail for said roller, said rail comprising a section guided for movement in the approximate direction of the roller reaction thereon; fixed sections above and below said movable sections and pivotally connected link sections joining the opposite ends of said movable section with the fixed sections, respectively; the adjustment of the movable section being adapted to incline said link sections for tilting the tray in its travel.

5. In a conveyor, comprising a chain mounted for vertical travel, a tray pivotally engaged therewith and extending to one side of the axis of engagement; two rollers 50 carried by the tray separated in the direction of said axis of engagement and vertically removed from said axis and guide rails for said rollers respectively, each of said guide rails having a flexible portion 55 mounted for movement approximately in the direction of the roller reaction; a device adapted for moving the flexible portion of each guide rail, and means operatively connecting said devices to insure simultaneous adjustment of said rails.

6. In a conveyor comprising a chain mounted for vertical travel; a tray pivotally engaged therewith and extending to one side of the axis of engagement; a pair of vertically-separated guide rollers carried by said tray and a guide channel positioned to receive the reactions of the rollers upon its opposite walls respectively; a portion of one wall being flexible, and means for flexing said wall away from the opposite wall of the channel thus inclining a part of the flexible wall for tilting the tray in its travel.

7. In a conveyor comprising a chain mounted for vertical travel; a tray pivotally engaged therewith and extending to one side of the axis of engagement; a pair of vertically-separated guide rollers carried by said tray and a guide channel positioned to receive the reactions of the rollers upon its opposite walls respectively; a portion of the wall which supports the upper roller being flexible, and means for flexing said wall away from the opposite wall of the channel to incline a portion of the flexible wall for tilting the tray in its travel.

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 31st day of December, 1913.

SAMUEL OLSON.

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

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."