

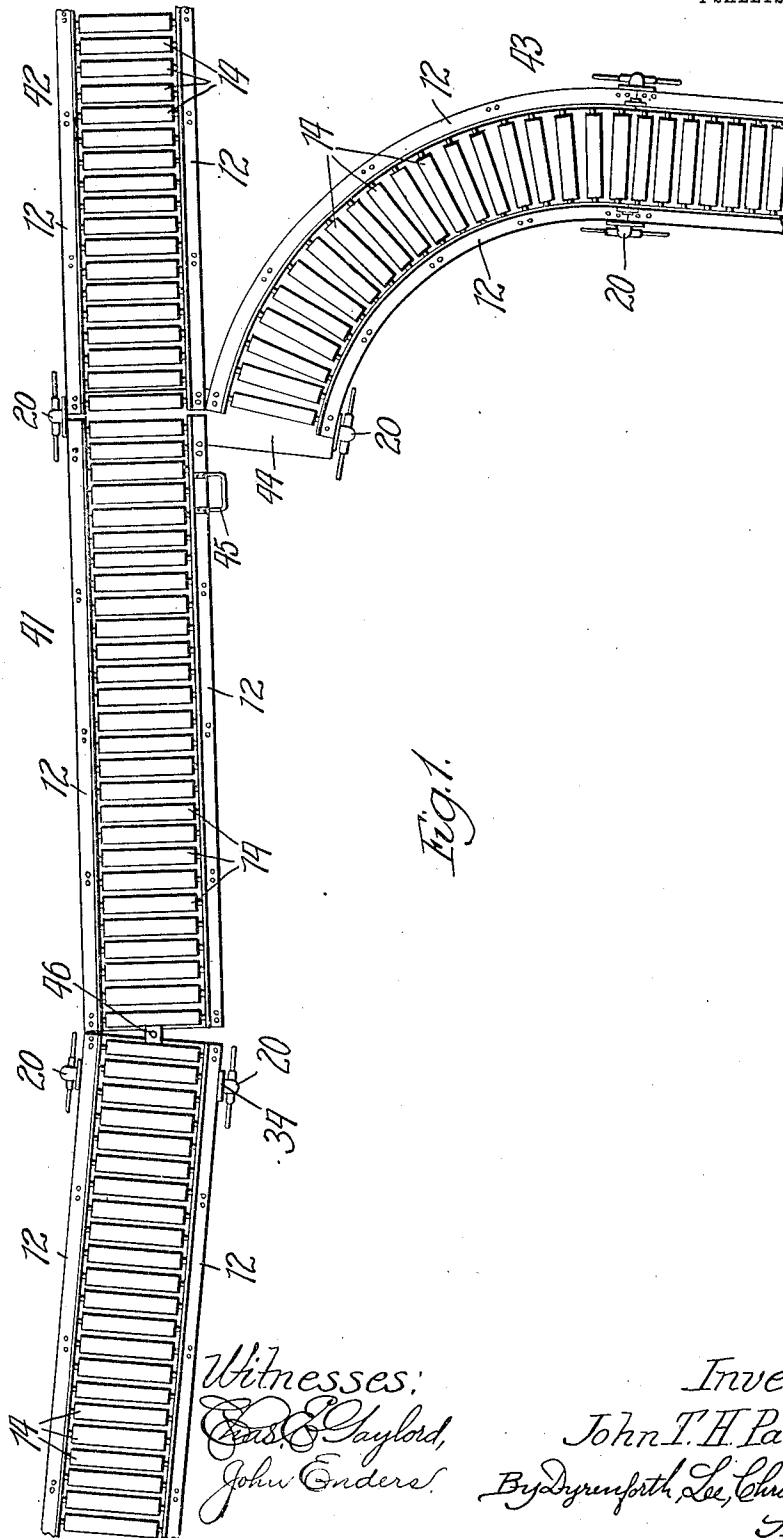
No. 887,421.

PATENTED MAY 12, 1908.

J. T. H. PAUL.
GRAVITY CONVEYER.

APPLICATION FILED JAN. 2, 1908.

4 SHEETS—SHEET 1.



Witnesses:
E. S. Gaylord,
John Enders.

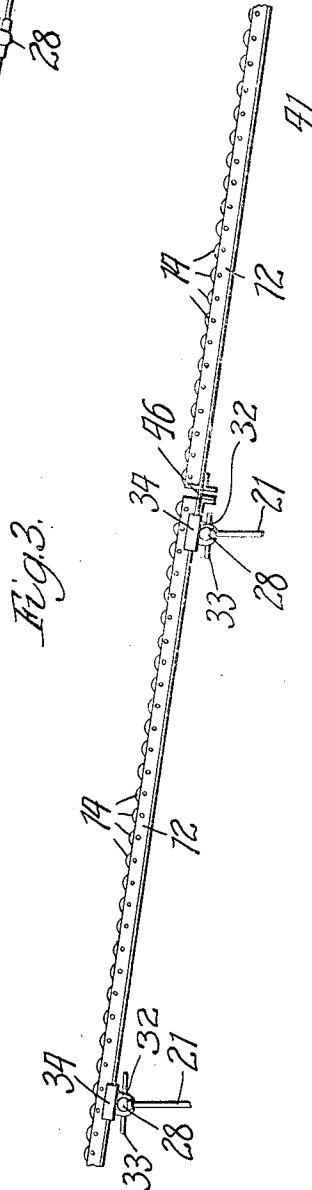
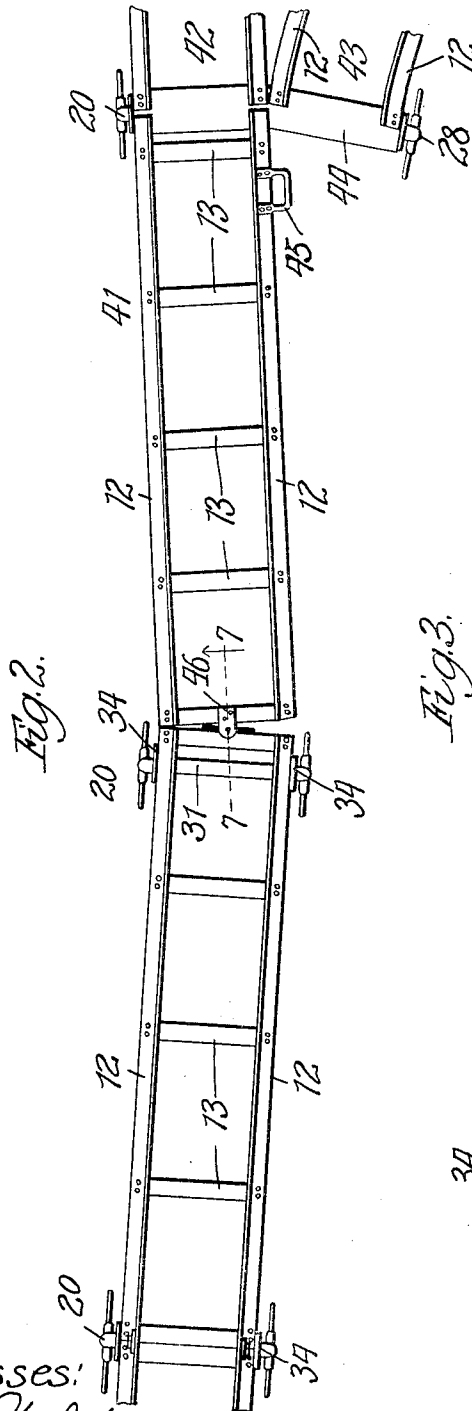
Inventor:
John T. H. Paul,
By *Dyrenforth, Lee, Chittenden & Wicks,*
Attys.

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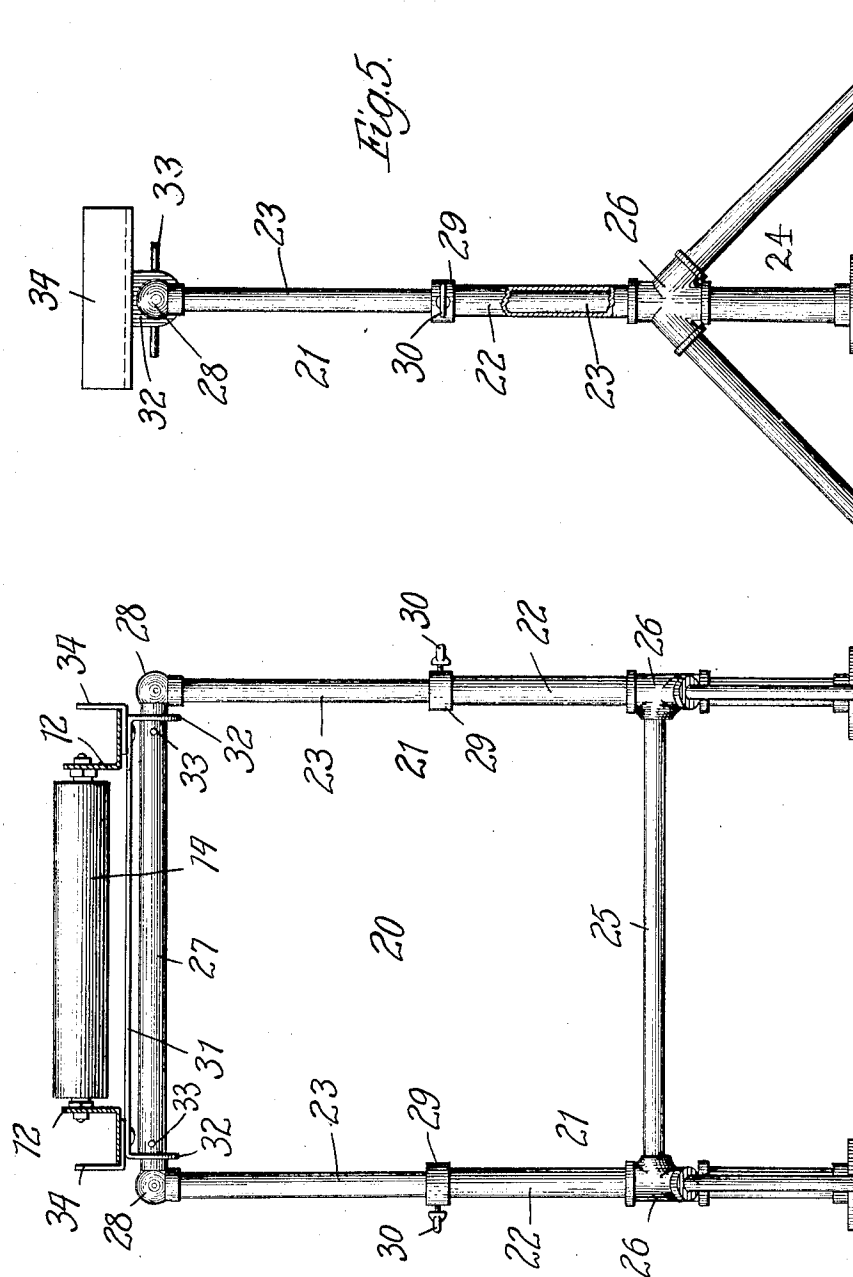
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Witnesses:

Wm. Gaylord,
John Enders

Fig. 4.

Inventor,

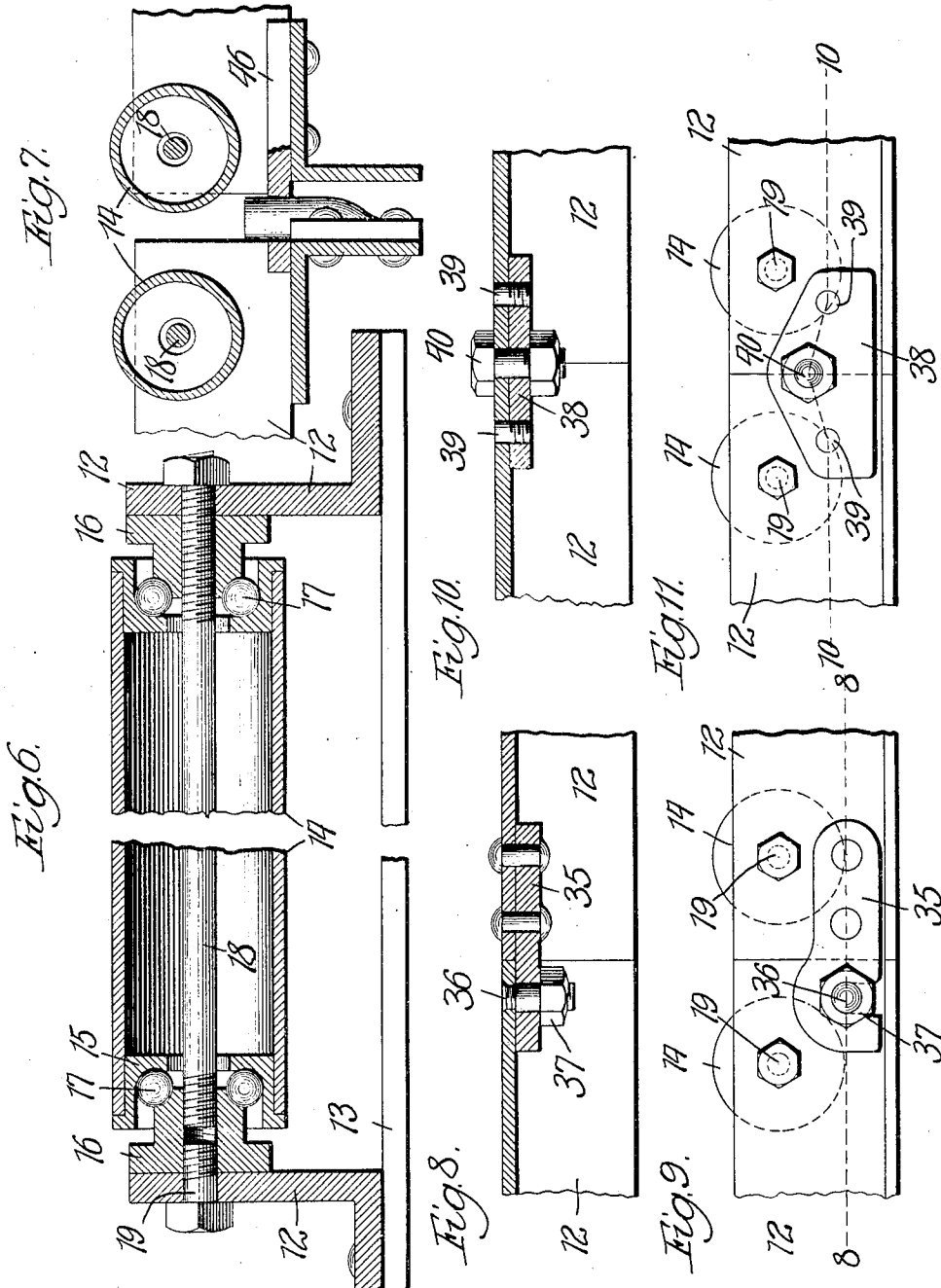
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Witnesses:
E. P. Gaylord,
John Enders

Inventor:
John T. H. Paul,
By Devereux, Lee, Christen & Mills,
Attys

UNITED STATES PATENT OFFICE.

JOHN T. H. PAUL, OF CHICAGO, ILLINOIS, ASSIGNOR TO E. GOLDMAN & CO., INC., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GRAVITY-CONVEYER.

No. 887,421.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed January 2, 1908. Serial No. 409,069.

To all whom it may concern:

Be it known that I, JOHN T. H. PAUL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gravity-Conveyers, of which the following is a specification.

My invention relates to an improvement in the class of conveyers used in buildings for conveying packages from one part of, or elevation in, the building to another, the generally-stated construction of conveyer in this class consisting of an inclined roller-track, the inclination being such as to cause the packages to move by their own gravity upon the rollers.

The object of the present invention is to improve the construction of such a conveyer in matters of detail to the ends of facilitating its erection and taking-down, the adjustment of the parts for attaining readily the proper degree of inclination, and of enhancing the efficiency of the device.

In the accompanying drawings—Figure 1 is a broken plan view of the conveyer showing a switch for deflecting packages to a straight or a curved branch; Fig. 2, a similar view of the skeleton of the track; Fig. 3, a broken view in side elevation of the conveyer, showing its inclination; Fig. 4, a view in cross-sectional elevation of the conveyer on a larger scale than that observed in the preceding figures and showing the telescoping construction of the track-supporting stands; Fig. 5, a view in side-elevation, slightly broken, of one of these stands; Fig. 6, an enlarged broken section through one of the track-rollers, showing its ball-bearing construction; Fig. 7, a broken enlarged section taken through the switch-pivot at the line 7—7 on Fig. 2; Fig. 8, a section taken at the line 8—8 on Fig. 9, through the hook-form of connection between sections of the track; Fig. 9, a view showing said hook-connection in elevation; Fig. 10, a section taken at the line 10—10 on Fig. 11, through a permanent form of connection to be used, in instances, instead of the hook-form thereof, and Fig. 11, a view showing the said permanent form of connection in elevation.

The track consists of a series of sections each made up of a pair of angle-irons 12, 12 connected at suitable intervals in parallel relation by tie-bars 13, and anti-friction rollers 14 journaled in close proximity to each other

in the vertical web-portions of the rails 12. Each roller is a cylindrical tube with ball-cups 15 (Fig. 6) confined in its opposite ends and cones 16, 16 coöperating with them to form the races for balls 17, each roller being supported by a rod 18 passing centrally through it longitudinally to permit the cones to be screwed on its threaded end-portions, and the rollers are secured in position on the rails 12 by a nut on the projecting end of the rod and a cap-screw 19 passing through the opposite vertical rail-web and screwing into the outer end of the adjacent cone. Thus, by loosening the cap-screw and screwing the cones on the threaded ends of the rods, the ball-bearings may be adjusted according to requirement; and when adjusted, by tightening the cap-screw, the roller is securely fastened in place. The cup 15 is a solid piece, either drop-forged or turned, shrunk or pressed into place, thereby insuring full contact throughout their contacting surfaces and a tight fit, without any need for riveting them.

Each stand 20 for supporting the track consists of a pair of upright legs 21 formed of telescoping sections 22 and 23 supported on an expanded base 24, preferably of the form shown, and the legs are reinforced by a tie-rod 25 extending between the heads 26 of the bases, and by a cylindrical tie-rod 27 extending between coupling-heads 28 on the upper ends of the sections 23. The sections 23 carry stops in the form of collars 29 fastened by set-screws 30 for supporting the sections 23 in any position to which they are raised or lowered in the sections 22 for adjusting the track to the desired degree of inclination. On the tie-rod 27 of each stand is journaled a bar 31 by having its ends 32 bent to extend at right-angles and loosely surround the tie-rod near its ends, beyond stop-pins 33 extending transversely through this tie-rod for a purpose hereinafter explained. On the top of each end of the rock-bar 31 is fastened a short angle-bar 34 to afford seats for the rails 12.

To erect a conveyer with the stands 20 and sections of roller-tracks, the stands are placed at desired intervals apart to coincide with the junctions of meeting track-sections, which are preferably of uniform length, say of eight feet, more or less. With the stands set in position their upper sections 23 are adjusted telescopically to extend the seats 34

to the proper relative heights to produce the required inclination of the conveyer, and the roller-track sections are placed on the seats, adjusting themselves longitudinally with relation to each other by the turning of the seats through the rocking manner of supporting their sustaining bars 31, which cannot turn unduly before the track-sections are placed in position, because of encountering, in either direction, the projecting ends of the stop-pins 33. Contiguous track-sections may be tied endwise together either by a hook 35 (Figs. 8 and 9) secured on one section near its end to engage a stud 36 on the adjacent end of the other section and be releasably fastened by a nut 37 screwing on the stud, or by a plate 38 (Figs. 10 and 11) crossing the joint between sections and securely fastened near its ends by studs 39 with a bolt 40 passing centrally through it at the joint and clamping the two contiguous rail-ends of the adjacent track-sections together by a nut on its outer end. The hook is more suitable for a temporary connection, rendering the track-sections readily separable where it is desired to adapt the conveyer to be taken down from one position to be erected in another; while the plate-connection is particularly adapted for a permanent erection of the conveyer.

At any desired point in the gravity-conveyer a switch 41 may be provided for directing packages moving on the roller-track of the conveyer to branch-track 42 shown in straight form, or to a branch-track 43, shown in curved form, though both branches may be either straight or curved. Excepting that one of the branch-tracks may be curved, the construction of each is like the remainder of the conveyer, though at the point from which they extend they are fastened to a head-plate 44 supported at its ends on either one adequately wide stand 20, or on two such stands of the same width as the stands at other points along the track, as will be readily understood. The free end of the switch 41, which is a track-section like the others and is provided with a handle 45, by which to move it, is supported to slide on the plate 44, and at the center of its opposite end it carries a tongue 46, extending from a cross-bar 13 and pivotally connected with the cross-bar of the adjacent end of the main conveyer-track.

It will be understood that the bases of the stands may be of any suitable kind other than that shown, depending on the character of the floor on which the conveyer is supported, and they may be stationary or movable on rollers or casters.

What I claim as new and desire to secure by Letters Patent is—

1. A gravity-conveyer comprising, in combination, a roller-track formed in sections, and stands on which said sections are supported at intervals, each stand consisting of a pair of braced upright tubular sections rising from an expanded base and a pair of braced upper tubular sections telescoping said first-named sections, with means for securing the upper sections in adjusted position.

2. A gravity-conveyer comprising, in combination, a plurality of telescopic stands each having its side-members connected by upper tie-bars, bars pivoted to said tie-bars and stops for preventing undue turning of said pivotal bars, track-seats on the ends of the pivotal bars, and a roller-track consisting of sections supported on said seats.

3. The roller-track of a gravity-conveyer, consisting of connected sections composed of rails connected at intervals by tie-bars, and rollers formed of cylindrical tubes having solid ball-cups pressed into and thereby rigidly fastened in their opposite ends, a rod extending centrally through the ball-cups in each roller with cones screwed upon the ends of the rod to form the ball-races, and bolts passing through a rail of each track-section into the cones adjacent to such rail for securing the cones in adjusted position on the rod.

4. A gravity-conveyer comprising, in combination, a plurality of telescopic stands carrying pivotal rail-seats on their upper ends, a roller-track formed in sections supported on said seats, branch-sections in said track, a switch-section pivotally connected at one end with the main track, and a slide-plate on which the opposite movable end of the switch-section is supported to meet the adjacent ends of the branches.

JOHN T. H. PAUL.

In presence of—

L. HEISLAR,
R. SCHAEFER.