

July 27, 1965

H. S. HARRISON

3,196,804

ENTRANCE SWITCH FOR CONVEYORS

Filed Sept. 3, 1963

6 Sheets-Sheet 1

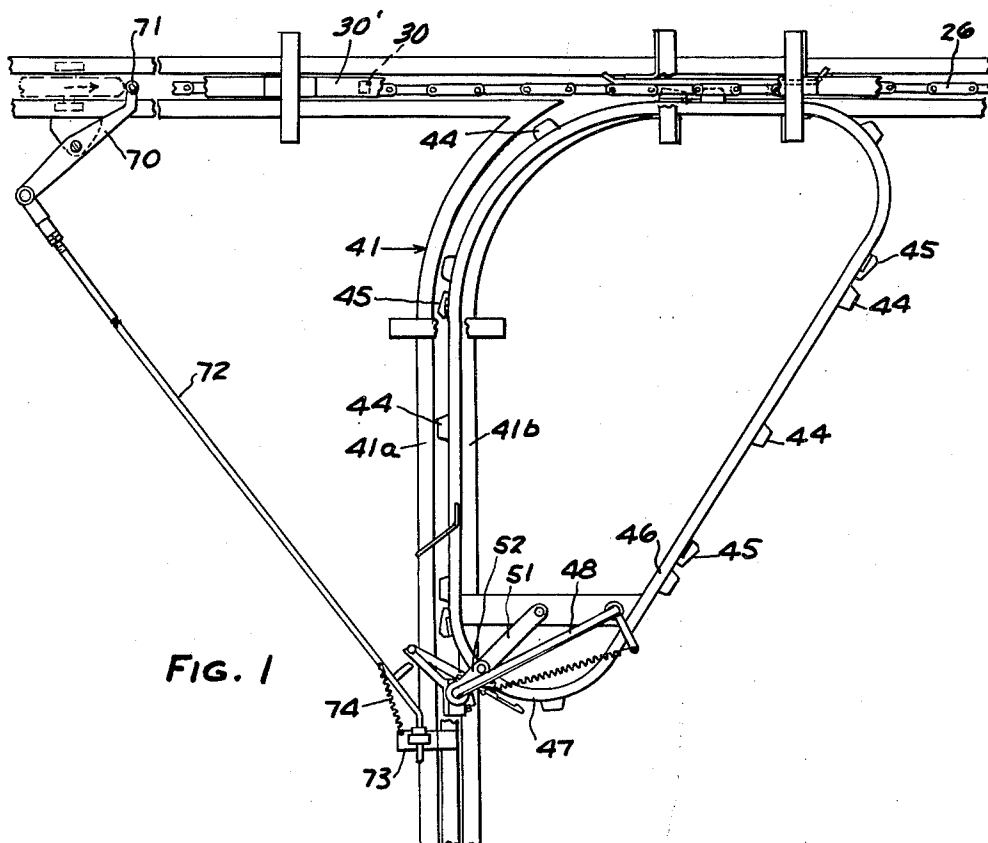


FIG. 1

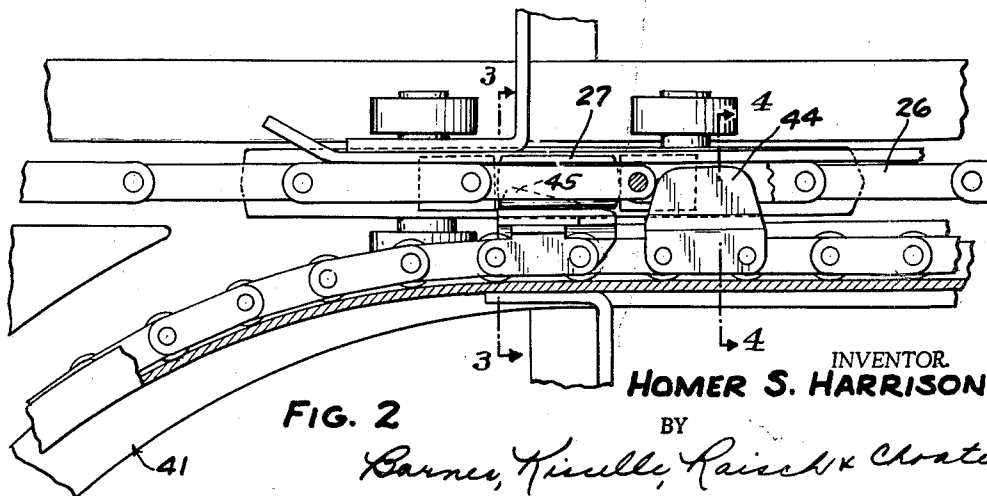


FIG. 2

INVENTOR.
HOMER S. HARRISON

BY

Barner, Kinsell, Raisch & Choate

ATTORNEYS

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H. S. HARRISON

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6 Sheets-Sheet 2

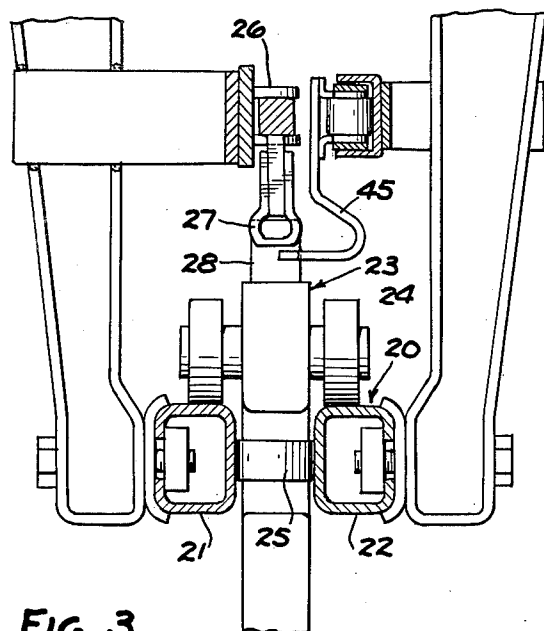


FIG. 3

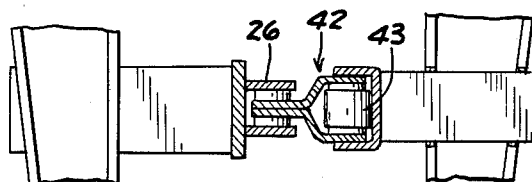


FIG. 4

INVENTOR.

HOMER S. HARRISON

BY

Barner, Kinsell, Kirsch & Choate

ATTORNEYS

July 27, 1965

H. S. HARRISON

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ENTRANCE SWITCH FOR CONVEYORS

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6 Sheets-Sheet 3

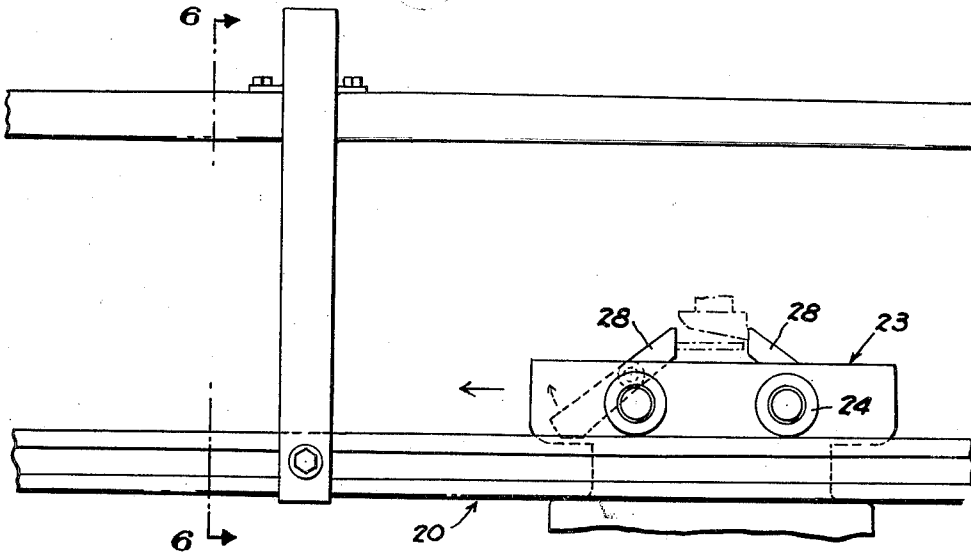


FIG. 5

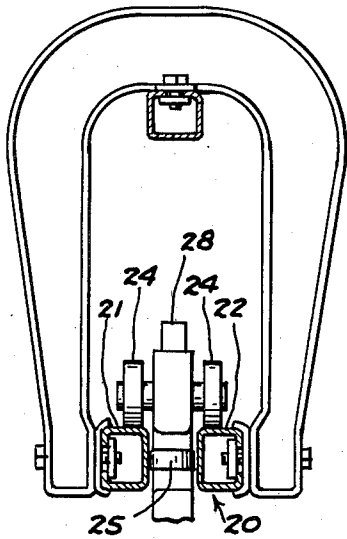


FIG. 6

INVENTOR
HOMER S. HARRISON

BY

Barner, Kieulke, Rains & Choate

ATTORNEYS

July 27, 1965

H. S. HARRISON

3,196,804

ENTRANCE SWITCH FOR CONVEYORS

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6 Sheets-Sheet 4

FIG. 7

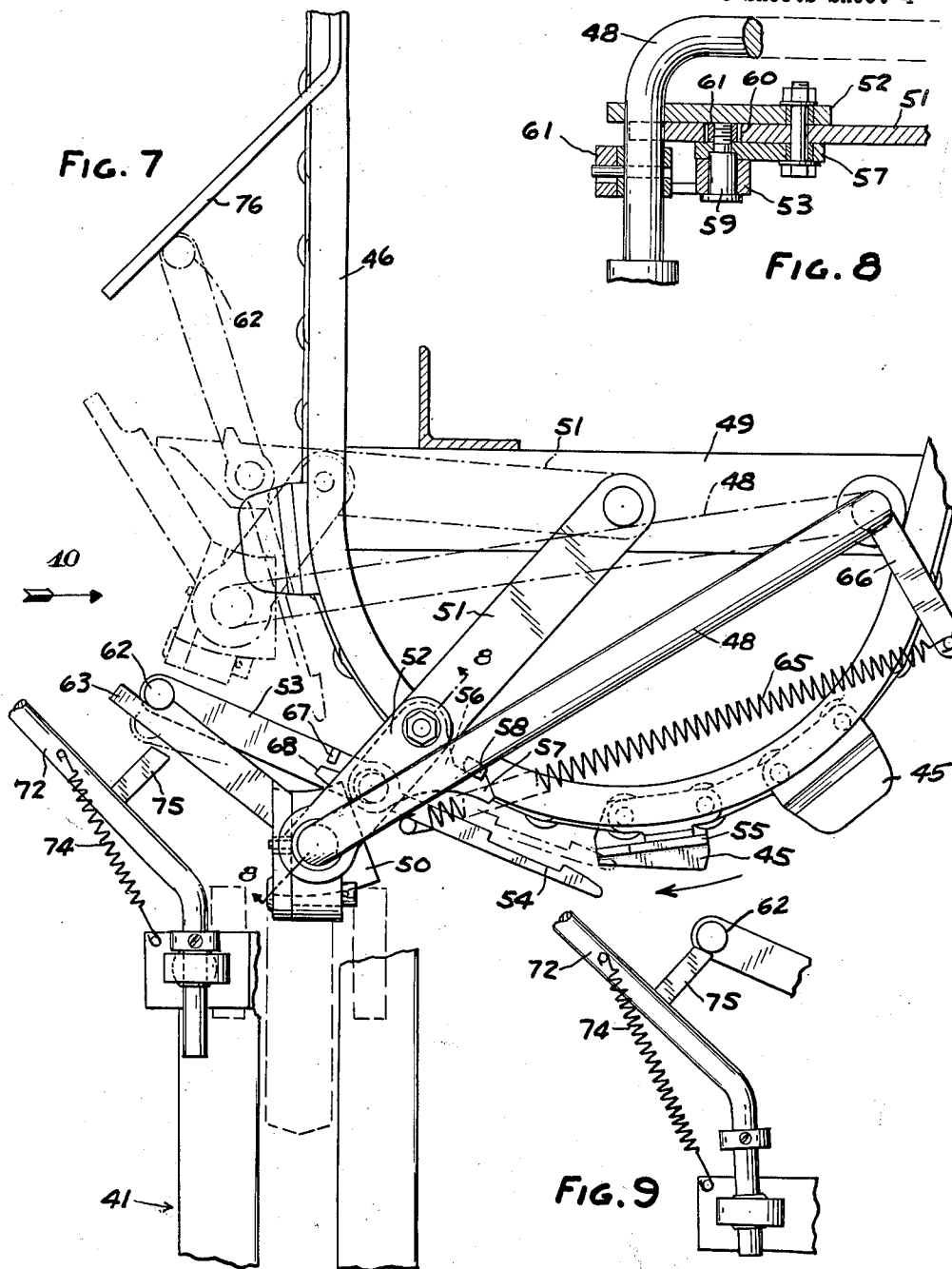
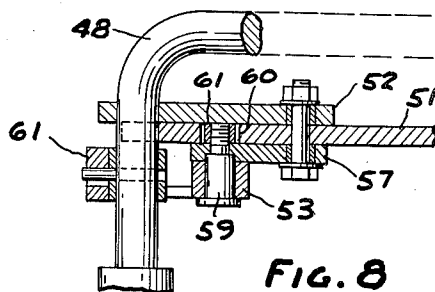


FIG. 8

FIG. 9

INVENTOR
HOMER S. HARRISON

BY

Barner, Kissell, Raiser & Chate
ATTORNEYS

July 27, 1965

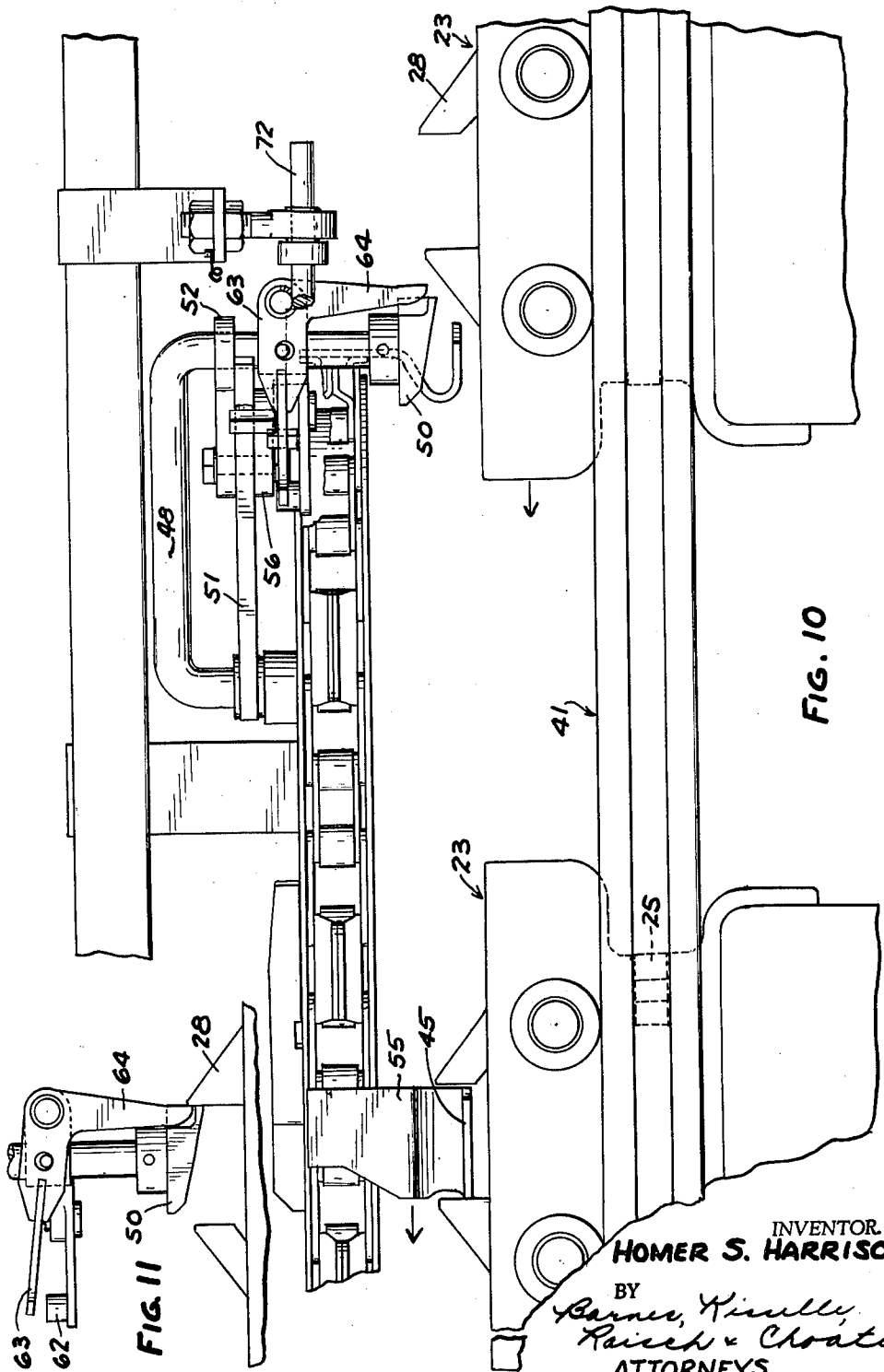
H. S. HARRISON

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ENTRANCE SWITCH FOR CONVEYORS

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6 Sheets-Sheet 5



July 27, 1965

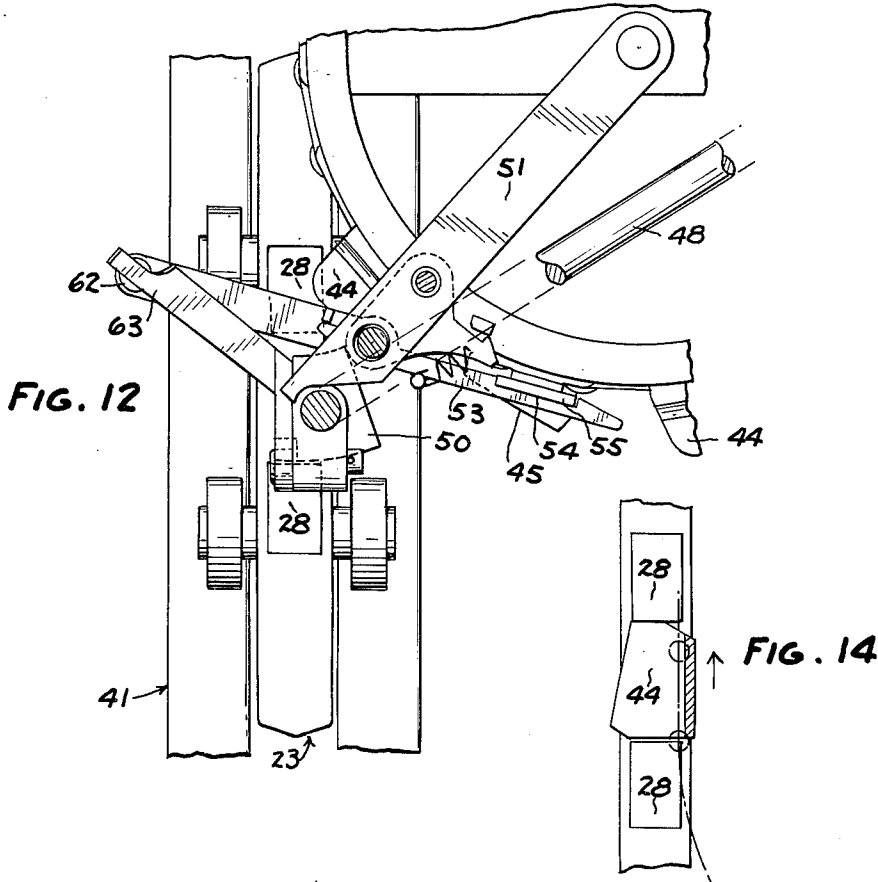
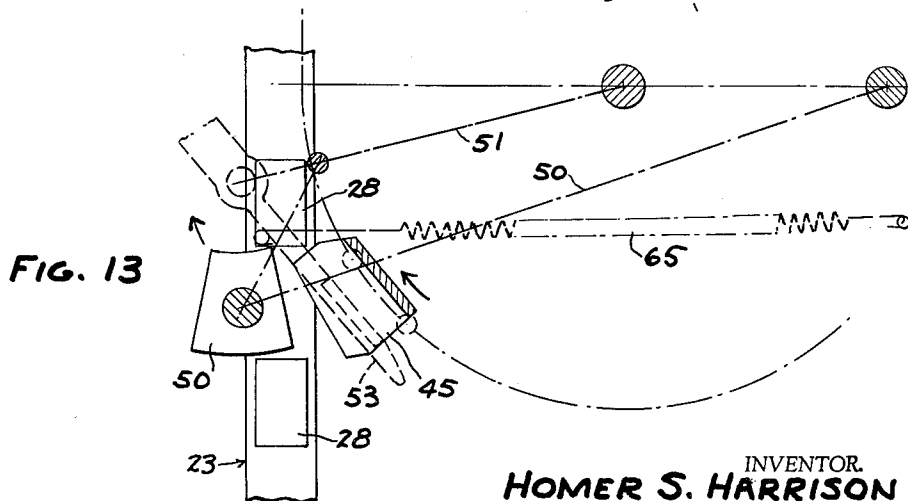
H. S. HARRISON

3,196,804

ENTRANCE SWITCH FOR CONVEYORS

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6 Sheets-Sheet 6



INVENTOR.
HOMER S. HARRISON

BY

Barnes, Kisselle, Raich & Choate

ATTORNEYS

1

3,196,804

ENTRANCE SWITCH FOR CONVEYORS

Homer S. Harrison, Detroit, Mich., assignor to Mechanical Handling Systems, Inc., Detroit, Mich., a corporation of Michigan

Filed Sept. 3, 1963, Ser. No. 305,985

33 Claims. (Cl. 104-96)

This invention relates to conveyors such as power and free conveyors.

In conveyor systems wherein a carrier or trolley unit is movable along a track, and wherein main and branch tracks are provided, it is essential to provide for a positive movement of the trolley unit into register as it moves from the branch track to the main track.

It is an object of this invention to provide a novel entrance switch for permitting the controlled movement of a trolley unit from a branch track to a main track.

It is a further object of the invention to provide such an entrance switch wherein the movement of the trolley unit is positively controlled from a position at rest, accelerated without shock into movement and registry with a transfer conveyor which then positively transfers the carrier unit to the main track.

It is a further object of the invention to provide such an entrance switch that utilizes a minimum number of parts, is relatively easy to maintain and is reliable.

In the drawings:

FIG. 1 is a fragmentary plan view of a conveyor system embodying the invention.

FIG. 2 is a fragmentary view on an enlarged scale of a portion of FIG. 1 showing the movement of a trolley unit from the branch track to the main track.

FIG. 3 is a fragmentary sectional view taken along the line 3-3 in FIG. 2.

FIG. 4 is a fragmentary sectional view taken along the line 4-4 in FIG. 2.

FIG. 5 is a fragmentary elevational view of a portion of the track of the conveyor system.

FIG. 6 is a fragmentary sectional view taken along the line 6-6 in FIG. 5.

FIG. 7 is a fragmentary plan view of the entrance switch embodying the invention, parts being broken away.

FIG. 8 is a fragmentary sectional view taken along the line 8-8 in FIG. 7.

FIG. 9 is a fragmentary plan view of a portion of the switch shown in FIG. 7 in a different operative position.

FIG. 10 is a fragmentary elevational view in the direction of the arrow 10 in FIG. 7.

FIG. 11 is a fragmentary elevational view of a portion of the apparatus shown in FIG. 10 in a different operative position.

FIG. 12 is a fragmentary plan view similar to FIG. 7 showing the parts in a different operative position.

FIG. 13 is a diagrammatic plan view of a portion of the entrance switch.

FIG. 14 is a diagrammatic view similar to FIG. 13 showing the parts in the different operative position.

Referring to the drawings, the invention is shown and described in connection with a power and free conveyor system of conventional construction comprising a main track 20 formed by spaced channels 21, 22 for supporting carrier or trolley units 23 for movement therealong (FIGS. 5, 6). Each trolley unit 23 includes rollers 24 which ride on the upper surfaces of the channels 21, 22 and a guide roller 25 which rides between the channels 21, 22 to guide the trolley unit. The trolley units 23 are moved along the track by an endless power chain 26 having pushers 27 at longitudinally spaced points thereon for engaging spring loaded dogs 28 on the carrier units 23 (FIG. 3). The chain 26 is suspended at longitudi-

2

nally spaced points from a beam 30' by hanger units 30.

As shown in FIGS. 1 and 2, a branch track 41 comprising spaced channels 41a, 41b has a portion thereof which converges into the main track 20. A transfer conveyor 42 comprising an endless chain 43 is mounted on a frame 46 positioned along converging portions of the main track 20 and branch track 41. Transfer conveyor 43 includes lugs 44 which mesh with the chain 26 of the main conveyor and thereby power the transfer conveyor 42 (FIG. 2). In addition, the transfer conveyor includes transfer lugs 45 at longitudinally spaced points thereon which are adapted to engage between the dogs 28 of trolley units to transfer the trolley units from the branch track 41 to the main track 20, as presently described.

Referring to FIGS. 1 and 2, the frame 46 which supports the transfer chain 42 has a portion thereof 47 which converges with the branch track 41. The entrance control switch is positioned in this area.

As shown in FIGS. 1 and 7, a pivot arm 48 has one end thereof pivoted to a crossbar 49 and the other end thereof being bent downwardly and supporting a pusher dog 50. The pusher dog is movable from a position shown in FIG. 1 in a swinging motion along the path of the branch track 41 and thereafter laterally outwardly of the path of the track. In the first position, the dog 50 is in position to engage between the dogs 28 of a trolley unit and stop the trolley unit in position in advance of the transfer conveyor 42. In accordance with the invention, mechanism is provided for positively moving a trolley unit 23 by means of the pusher dogs 50 from this position into a position where it is positively engaged and picked up by a transfer lug 45 on the transfer conveyor 42. This positive movement of the trolley unit 23 occurs only if a transfer lug 45 on the transfer conveyor 42 is in proper position and only if there is an empty space on the main conveyor.

As shown in FIG. 7, an accelerator arm 51 has one end thereof pivoted to cross bar 49 at a point in line transversely with the pivot of arm 48. A link 52 has one end thereof pivoted to the accelerator arm 51 and the other end thereof pivoted on the swinging end of pivot arm 48.

A latch 56 is pivoted to arm 51 at the point of pivot of arm 51 and link 52 and has a notch 57 which engages a fixed lug 58 on the transfer conveyor track 46. An accelerator dog lever 53 is pivoted to latch 56. Dog lever 53 includes a notch 54 which is adapted to be moved into position as shown in dotted lines in FIG. 7, for engagement by the upstanding portion 55 of transfer lug 45.

Accelerator arm 51 has an opening 60 therein through which end of pivot pin 59, which pivots the accelerator dog 53 to the latch 56, extends (FIG. 8). The opening 60 has a larger diameter than the bushing 61 that is threaded on the pin 59 so there is some permissible movement of the latch 56 relative to the accelerator arm 51.

Accelerator dog 53 includes an upstanding pin 62 at its other end which is adapted to be engaged by a release lever 63 to prevent the counterclockwise swinging movement of the accelerator dog 53. Release lever 63 includes a vertical downwardly extending portion 64 (FIG. 10) which is adapted to be engaged by the rearmost dog 28 on a trolley unit 23 to swing the release lever 63 upwardly. This is achieved when a trolley unit 23 is moved into position on the pusher dog 50, either manually or in some other fashion. A tension spring 65 extends between the accelerator dog 53 and an arm 66 on the frame. When the trolley unit 23 is present on the pusher dog 50, as having been moved by hand or a branch conveyor, the release lever 63 is rotated counterclockwise by engagement of the rear dog 28 with arm 64 to swing the release lever 63 out of engagement with the pin 62, permitting

3

the spring 65 to swing the accelerator dog 53 counterclockwise, as shown in FIG. 7, into position where the notch portion 54 can be engaged by the upright portion of the lug 45 on the transfer conveyor 42.

The amount of swinging movement of the accelerator dog 53 is limited by engagement of a lug 67 with a lug 68 on the accelerator arm 51. If a trolley unit 23 is in position on the pusher dog 50 and a transfer lug 45 approaches, it engages the notched portion 54 of the accelerator dog 53 and begins to move the accelerator dog 53 in a clockwise fashion. During the initial movement, the pin 59 rotates the latch 56 clockwise relative to the accelerator arm 51 due to the space between the opening 60 and the bushing 61, releasing the engagement of the notch 57 with the lug 58. Continued movement of the transfer conveyor 42 swings the pusher dog 50 and accelerates it without shock along the path of the conveyor and thereafter laterally outwardly to the dotted line position shown in FIG. 7.

The timing movement of the pusher dog 50 and transfer dog 45 is such that there is a positive control of the trolley unit. This is shown diagrammatically in FIGS. 13 and 14 wherein the pusher dog 50 is not moved out of engagement with the dogs 28 of the trolley unit 23 until the transfer lug 45 is in engagement. In this manner, the trolley unit is accelerated from the at rest position and is moved along positively until the transfer conveyor lug 45 engages therewith.

The transfer conveyor 42 then carries the trolley unit 23 along the branch track 41 into position as shown in FIG. 2 for engagement by a pusher dog 27 on the main conveyor with the carrier unit. The relationship of the transfer dog 45 and pusher dog 27 is such that the control by the transfer conveyor dog 45 is not released until the pusher dog 27 on the main conveyor is in register with and picks up the trolley unit 23. As the pusher dog continues its movement and swings laterally out of engagement with the dog 28 of trolley unit 23, pin 62 engages a fixed cam surface 76 which swings accelerator dog 53 clockwise to release accelerator dog 53 from engagement with upstanding portion 55 of transfer lug 45. This permits spring 65 to return the dog 50 to its original position wherein latch 56 engages lug 58 so that the entrance switch is in position for controlling the movement of a succeeding trolley 23.

In order to prevent transfer of a trolley unit 23 when a space is filled on the main track, means are provided for preventing the release of the pusher dog 50. As shown in FIGS. 1, 7 and 9, this comprises a control lever 70 which is pivoted along the main track and has one end thereof adapted to project into the path of the trolley units. Thus, if a trolley unit is on the main track, the lever 70 will be swung clockwise as viewed in FIG. 1. The other end of the lever 70 is connected by a link 72 and extends to a bracket 73. A spring 74 yieldingly urges the link 72 into the bracket, thereby urging the lever 70 in a counterclockwise relationship, as viewed in FIG. 1. If a trolley unit is present and the lever 70 is swung clockwise, the link 72 is moved upwardly, as viewed, to a position such as shown in FIG. 9, moving a projection 75 into the path of the pin 62 on the accelerator dog 53 and thereby preventing the accelerator dog from swinging to the dotted line position even though the accelerator dog is released by the presence of the trolley unit 23 on the pusher dog 50. In this manner, the transfer of a trolley unit to a filled position on the main track is prevented.

I claim:

1. In a conveyor system, the combination comprising a main track,
- a plurality of trolley units adapted to be moved along the main track,
- a main conveyor adapted to engage said trolley units and move them along the main track,
- a branch track for guiding similar trolley units,
- said main track and branch track having portions there-

4

of converging to guide the trolley units from the branch track to the main track,

an endless transfer conveyor positioned adjacent said main track and deriving power directly therefrom, said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,

means on said transfer conveyor for engaging a trolley unit on the branch track,

and an entrance switch for controlling the movement of the trolley units into position for engagement by said transfer conveyor,

said entrance switch comprising a pusher dog adapted to engage a trolley unit and move it in the direction of the branch track toward the main track,

and means responsive to the movement of said means on the transfer conveyor into position for engagement with a trolley unit on the branch track for moving and accelerating the pusher dog to thereby move the trolley unit positively in position for engagement by said means on the transfer conveyor.

2. The combination set forth in claim 1 including means responsive to movement of a trolley unit on the main conveyor indicating a filled space on the main conveyor for disabling the entrance switch and preventing the pusher dog from being moved and accelerated.

3. In a conveyor system, the combination comprising a main track,

a plurality of trolley units adapted to be moved along the main track,

a main conveyor adapted to engage said trolley units and move them along the main track,

a branch track for guiding similar trolley units,

said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track,

an endless transfer conveyor positioned adjacent said main track and deriving power directly therefrom, said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,

means on said transfer conveyor for engaging a trolley unit on the branch track,

and an entrance switch for controlling the movement of a trolley unit from the branch conveyor into position for engagement by said means on the transfer conveyor comprising

a pusher dog,

means for mounting the pusher dog for movement from a first position in the path of a trolley unit on the branch track along said track and thereafter laterally out of the path of said track to disengage the trolley unit,

means for holding the pusher dog in said first position, and means responsive to the movement of said means on the transfer conveyor into position for engaging the trolley unit being held on the branch conveyor,

said last-mentioned means releasing said pusher dog and accelerating and moving said pusher dog along said path along the branch track and thereafter laterally out of the path of said track,

thereby moving said trolley units into position to be engaged by said means on said transfer conveyor before the pusher dog is moved laterally out of engagement with the trolley unit.

4. The combination set forth in claim 3 including means responsive to the movement of a trolley on the main conveyor indicating a filled space on the main conveyor for preventing the release of the pusher dog positioned adjacent the branch conveyor.

5. In a conveyor system, the combination comprising a main track,

a plurality of trolley units adapted to be moved along the main track,

5

a main conveyor adapted to engage said trolley units and move them along the main track,
 a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track,
 an endless transfer conveyor positioned adjacent said main track and deriving power directly therefrom, said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,
 means on said transfer conveyor for engaging a trolley unit on the branch track,
 and an entrance switch for controlling the movement of a trolley unit from the branch conveyor into position for engagement by said means on the transfer conveyor comprising
 a pusher dog,
 means for mounting the pusher dog for swinging movement from a first position in the path of a trolley unit on the branch track along said track and thereafter laterally out of the path of said track to disengage the trolley unit,
 means for holding the pusher dog in said first position, and means responsive to the movement of said means on the transfer conveyor into position for engaging the trolley unit being held on the branch conveyor to release said pusher dog and accelerate and move said pusher dog along said path along the branch track and thereafter laterally out of the track,
 thereby moving said trolley unit into position to be engaged by said means on said transfer conveyor before the pusher dog is moved laterally out of engagement with the trolley unit.

6. In a conveyor system, the combination comprising
 a main track,
 a plurality of trolley units adapted to be moved along the main track,
 a main conveyor adapted to engage said trolley units and move them along the main track,
 a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track,
 an endless transfer conveyor positioned adjacent said main track and deriving power directly therefrom, said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,
 means on said transfer conveyor for engaging a trolley unit on the branch track,
 and an entrance switch for controlling the movement of a trolley unit from the branch conveyor into position for engagement by said means on the transfer conveyor comprising
 a pusher dog,
 means for mounting the pusher dog for swinging movement from a first position in the path of a trolley unit on the branch track along said track and thereafter laterally out of the path of said track to disengage the trolley unit,
 means for holding the pusher dog in the first position, and means responsive to the movement of said means on the transfer conveyor into position for engaging the trolley unit being held on the branch conveyor to release said pusher dog and engage said pusher dog with said transfer conveyor to accelerate and swing said pusher dog along said path along the branch track and thereafter laterally out of the track, thereby moving said trolley unit into position to be engaged by said means on said transfer conveyor before the pusher dog is moved laterally out of engagement with the trolley.

7. In a conveyor system, the combination comprising
 a main track,

6

a plurality of trolley units adapted to be moved along the main track,
 a main conveyor adapted to engage said trolley units and move them along the main track,
 a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track,
 a frame,
 an endless transfer conveyor positioned on said frame adjacent said main track and deriving power directly therefrom,
 said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,
 said transfer conveyor having transfer lugs thereon for engaging trolley units and moving them along said branch track,
 and an entrance switch mechanism for controlling the movement of a trolley unit into said converging portion of the branch track which is adjacent the transfer conveyor for engagement by a transfer lug on the transfer conveyor which comprises
 a pivot arm mounted for swinging movement adjacent the converging portion of the transfer conveyor and branch track,
 a pusher dog mounted on the end of said pivot arm and adapted to move from a first position in register with the path of the branch track along the branch track and thereafter laterally out of the path of the branch track,
 an accelerator arm pivoted for swinging movement adjacent the converging portion of the transfer conveyor and the branch track,
 interconnecting means between said pivot arm and said accelerator arm,
 means for locking said pusher dog in said first position, and means responsive to the movement of a lug on said transfer conveyor for releasing said locking means and engaging said accelerator arm with said transfer conveyor to accelerate and swing said pusher dog.

8. In a conveyor system, the combination comprising
 a main track,
 a plurality of trolley units adapted to be moved along the main track,
 a main conveyor adapted to engage said trolley units and move them along the main track,
 a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track,
 a frame,
 an endless transfer conveyor positioned on said frame adjacent said main track and deriving power directly therefrom,
 said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,
 said transfer conveyor having transfer lugs thereon for engaging trolley units and moving them along said branch track,
 and an entrance switch mechanism for controlling the movement of a trolley unit into said converging portion of the branch track which is adjacent the transfer conveyor for engagement by a transfer lug on the transfer conveyor which comprises
 a pivot arm mounted for swinging movement adjacent the converging portion of the transfer conveyor and branch track,
 a pusher dog mounted on the end of said pivot arm and adapted to move from a first position in register with the path of the branch track along the branch track and thereafter laterally of the path of the branch track,

7

an accelerator arm pivoted for swinging movement adjacent the converging portion of the transfer conveyor and the branch track,
a link pivoted to said accelerator arm and said pivot arm,

an accelerator dog pivoted to said accelerator arm and adapted to be engaged by a transfer lug on said transfer conveyor for moving said accelerator dog and in turn, said accelerator arm to accelerate and swing said pivot arm with said transfer conveyor,
and latch means between said frame and said accelerator arm for preventing movement of said accelerator arm and, in turn, said pivot arm.

9. The combination set forth in claim 8 including means responsive to the presence of a trolley unit at said first position for moving said accelerator dog in position to be engaged by said transfer conveyor.

10. The combination set forth in claim 8 including means responsive to movement of a trolley unit along the main conveyor indicating a filled space on the main conveyor for preventing said accelerator dog from movement into position to be engaged by said transfer conveyor.

11. The combination set forth in claim 8 including means in the path of said accelerator dog as it moves along when released for disengaging said dog from said transfer conveyor to permit the return of said accelerator arm, pivot arm, pusher dog and accelerator dog to their original positions.

12. The combination set forth in claim 8 including spring means for returning said accelerator arm, pivot arm, pusher dog and accelerator dog to their original positions.

13. In a conveyor system, the combination comprising a main track,
a plurality of trolley units adapted to be moved along the main track,
a main conveyor adapted to engage said trolley units and move them along the main track,
a branch track for guiding similar trolley units,
said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track,

a frame,
an endless transfer conveyor positioned on said frame adjacent said main track and deriving power directly therefrom,
said transfer conveyor having portions thereof positioned and traveling adjacent the converging portion of said branch track,
said transfer conveyor having transfer lugs thereon for engaging trolley units and moving them along said branch track,
and an entrance switch mechanism for controlling the movement of a trolley unit into said converging portion of the branch track which is adjacent the transfer conveyor for engagement by a transfer lug on the transfer conveyor which comprises

a pivot arm mounted for swinging movement adjacent the converging portion of the transfer conveyor and branch track,
a pusher dog mounted on the end of said pivot arm and adapted to move from a first position in register with the path of the branch track along the branch track and thereafter laterally of the path of the branch track,

an accelerator arm pivoted for swinging movement adjacent the converging portion of the transfer conveyor and the branch track,

a link pivoted to said accelerator arm and said pivot arm,
a latch pivoted to said accelerator arm and adapted to engage said frame to lock said arm,
an accelerator dog pivoted to said latch and adapted to be engaged by a transfer lug on said transfer con-

8

veyor for moving said accelerator dog and, in turn, said accelerator arm to accelerate and swing said pivot arm with said transfer conveyor.

14. The combination set forth in claim 13 including lost motion means between said latch and said acceleration arm to permit disengagement of said latch.

15. The combination set forth in claim 14 including means responsive to the presence of a trolley unit at said first position for moving said accelerator dog in position to be engaged by said transfer conveyor.

16. The combination set forth in claim 13 including means responsive to movement of a trolley along the main conveyor indicating a filled space on the main conveyor for preventing said accelerator dog from movement into position to be engaged by said transfer conveyor.

17. The combination set forth in claim 13 including means in the path of said accelerator dog as it moves along and, when released, for disengaging said dog from said transfer conveyor to permit the return of said accelerator arm, pivot arm, pusher dog and accelerator dog to their original position.

18. The combination set forth in claim 13 including spring means for returning said accelerator arm, pivot arm, pusher dog and accelerator dog to their original position.

19. In an entrance switch for a conveyor system comprising a main track, a plurality of trolley units adapted to be moved along the main track, a main conveyor adapted to engage said trolley units and move them along the main track, a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track, the combination comprising,

an endless transfer conveyor adapted to be positioned adjacent said main track and deriving power directly therefrom,

means on said transfer conveyor for engaging a trolley unit on the branch track,

a pusher dog adapted to engage a trolley unit and move it in the direction of the branch track toward the main track,

and means responsive to the movement of said means on the transfer conveyor into position for engagement with a trolley unit on the branch track for moving and accelerating the pusher dog to thereby move a trolley unit positively in position for engagement by the means on the transfer conveyor.

20. The combination set forth in claim 19 including means adapted to be positioned along the main track responsive to movement of a trolley unit on the main conveyor indicating a filled space on the main conveyor for disabling the entrance switch and preventing the pusher dog from being moved and accelerated.

21. In an entrance switch for a conveyor system comprising a main track, a plurality of trolley units adapted to be moved along the main track, a main conveyor adapted to engage said trolley units and move them along the main track, a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track, the combination comprising

an endless transfer conveyor adapted to be positioned adjacent said main track and deriving power directly therefrom,

means on said transfer conveyor for engaging a trolley unit on the branch track,

a pusher dog,

means for mounting the pusher dog for movement from a first position in the path of a trolley unit on the branch track along said track and thereafter laterally out of the path of said track to disengage the trolley unit,

means for holding the pusher dog in said first position,

9

and means responsive to the movement of said means on the transfer conveyor into position for engaging the trolley unit being held on the branch conveyor, said last-mentioned means releasing said pusher dog and accelerating and moving said pusher dog along said path along the branch track and thereafter laterally out of the path of said track, thereby moving said trolley units into position to be engaged by said means on said transfer conveyor before the pusher dog is moved laterally out of engagement with the trolley unit.

22. In an entrance switch for a conveyor system comprising a main track, a plurality of trolley units adapted to be moved along the main track, a main conveyor adapted to engage said trolley units and move them along the main track, a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track, the combination comprising

an endless transfer conveyor adapted to be positioned adjacent said main track and deriving power directly therefrom,

means on said transfer conveyor for engaging a trolley unit on the branch track,

a pusher dog,

means for mounting the pusher dog for swinging movement from a first position in the path of a trolley unit on the branch track along said track and thereafter laterally out of the path of said track to disengage the trolley unit,

means for holding the pusher dog in the first position, and means responsive to the movement of said means on the transfer conveyor into position for engaging the trolley unit being held on the branch conveyor for releasing said pusher dog and accelerating and moving said pusher dog along said path along the branch track and thereafter laterally out of the track, thereby moving said trolley units into position to be engaged by said means on said transfer conveyor before the pusher dog is moved laterally out of engagement with the trolley.

23. In an entrance switch for a conveyor system comprising a main track, a main conveyor adapted to engage said trolley units and move them along the main track, a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track, the combination comprising

a frame,

an endless transfer conveyor positioned on said frame adjacent said main track and deriving power directly therefrom,

said transfer conveyor having transfer lugs thereon for engaging trolley units and moving them along said branch track,

a pivot arm mounted for swinging movement adjacent the converging portion of the transfer conveyor and branch track,

a pusher dog mounted on the end of said pivot arm and adapted to move from a first position in register with the path of the branch track along the branch track and thereafter laterally of the path of the branch track,

an accelerator arm pivoted for swinging movement adjacent the converging portion of the transfer conveyor and the branch track,

interconnecting means between said pivot arm and said accelerator arm,

means for locking said pusher dog in said first position, and means responsive to the movement of a lug on said transfer conveyor for releasing said locking means and engaging said accelerator arm with said transfer conveyor to accelerate and swing said pusher dog.

24. In an entrance switch for a conveyor system com-

10

prising a main track, a plurality of trolley units adapted to be moved along the main track, a main conveyor adapted to engage said trolley units and move them along the main track, a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track, the combination comprising

a frame,

an endless transfer conveyor positioned on said frame adjacent said main track and deriving power directly therefrom,

said transfer conveyor having transfer lugs thereon for engaging trolley units and moving them along said branch track,

a pivot arm mounted for swinging movement adjacent the converging portion of the transfer conveyor and branch track,

a pusher dog mounted on the end of said pivot arm and adapted to move from a first position in register with the path of the branch track along the branch track and thereafter laterally of the path of the branch track,

an accelerator arm pivoted for swinging movement adjacent the converging portion of the transfer conveyor and the branch track,

a link pivoted to said accelerator arm and said pivot arm,

an accelerator dog pivoted to said accelerator arm and adapted to be engaged by a transfer lug on said transfer conveyor for moving said accelerator dog and, in turn, said accelerator arm to accelerate and swing said pivot arm with said transfer conveyor,

latch means between said frame and said accelerator arm for preventing movement of said accelerator arm and, in turn, said pivot arm.

25. The combination set forth in claim 24 including means responsive to the presence of a trolley at said first position for moving said accelerator dog in position to be engaged by said transfer conveyor.

26. The combination set forth in claim 24 including means adapted to be positioned along the main conveyor responsive to movement of a trolley along the main conveyor indicating a filled space on the main conveyor for preventing said accelerator dog from movement into position to be engaged by said transfer conveyor.

27. The combination set forth in claim 24 including means in the path of said accelerator dog as it moves along when released for disengaging said dog from said transfer conveyor to permit the return of said accelerator arm, pivot arm, pusher dog and accelerator dog to their original position.

28. The combination set forth in claim 24 including spring means for returning said accelerator arm, pivot arm, pusher dog and accelerator dog to their original position.

29. In an entrance switch for a conveyor system comprising a main track, a plurality of trolley units adapted to be moved along the main track, a main conveyor adapted to engage said trolley units and move them along the main track, a branch track for guiding similar trolley units, said main track and branch track having portions thereof converging to guide the trolley units from the branch track to the main track, the combination comprising,

a frame,

an endless transfer conveyor positioned on said frame adjacent said main track and deriving power directly therefrom,

said transfer conveyor having transfer lugs thereon for engaging trolley units and moving them along said branch track,

a pivot arm mounted for swinging movement adjacent the converging portion of the transfer conveyor and branch track,

11

a pusher dog mounted on the end of said pivot arm and adapted to move from a first position in register with the path of the branch track along the branch track and thereafter laterally of the path of the branch track,
 an accelerator arm pivoted for swinging movement adjacent the converging portion of the transfer conveyor and the branch track,
 a link pivoted to said accelerator arm and said pivot arm,
 a latch pivoted to said accelerator arm and adapted to engage said frame to lock said arm,
 an accelerator dog pivoted to said latch and adapted to be engaged by a transfer lug on said transfer conveyor for moving said accelerator dog and, in turn, said accelerator arm to accelerate and swing said pivot arm with said transfer conveyor.
 30. The combination set forth in claim 29 including lost motion means between said latch and said accelerator arm to permit disengagement of said latch.
 31. The combination set forth in claim 29 including means responsive to the presence of a trolley at said first

12

position for moving said accelerator dog in position to be engaged by said transfer conveyor.

32. The combination set forth in claim 29 including means in the path of said accelerator dog as it moves along when released for disengaging said dog from said transfer conveyor to permit the return of said accelerator arm, pivot arm, pusher dog and accelerator dog to their original position.

33. The combination set forth in claim 29 including spring means for returning said accelerator arm, pivot arm, pusher dog and accelerator dog to their original position.

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20 EUGENE G. BOTZ, *Primary Examiner*.
 ARTHUR L. LA POINT, *Examiner*.