

April 18, 1933.

H. D. POSEY
SWITCHING CONVEYER

1,904,837

Filed Jan. 3, 1930

4 Sheets-Sheet 1

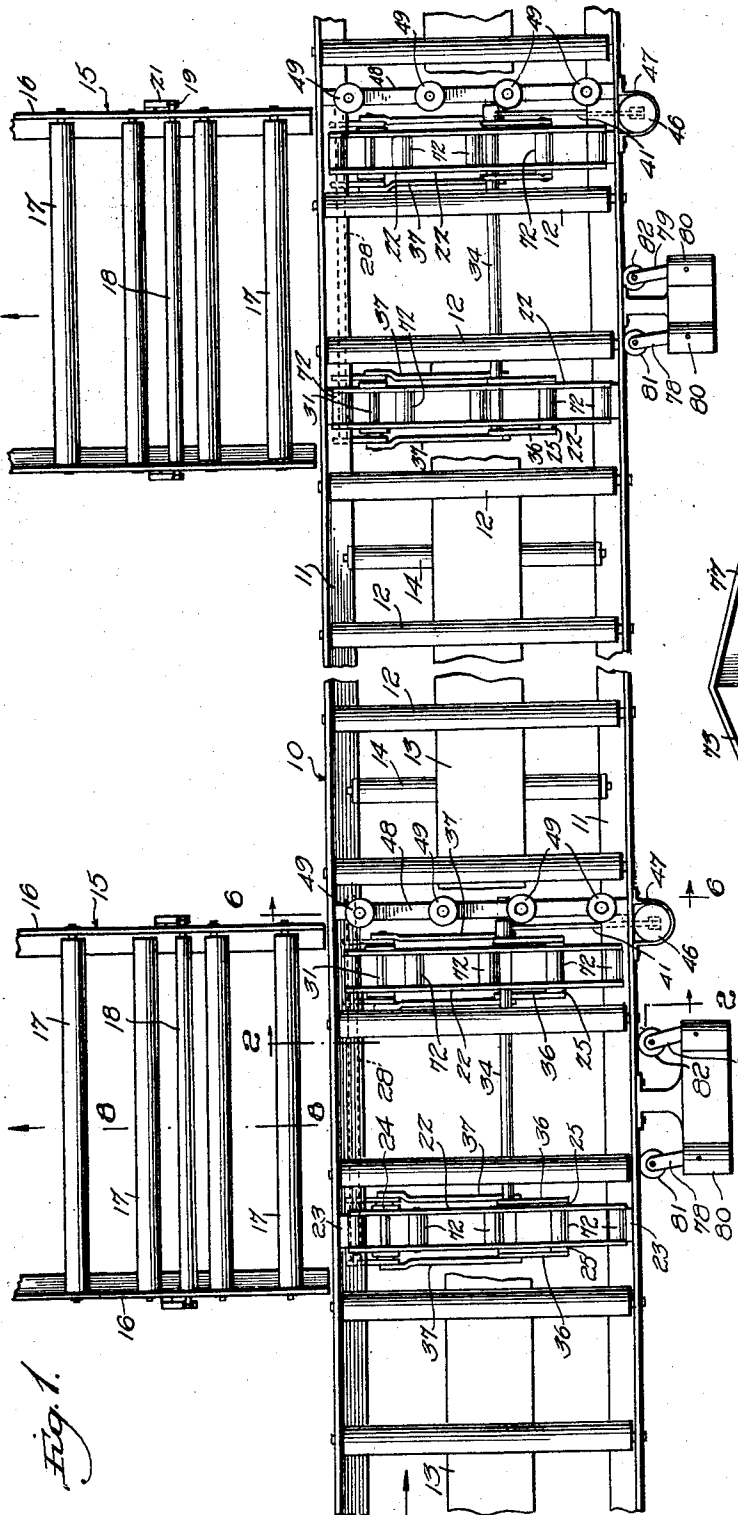


Fig. 1.

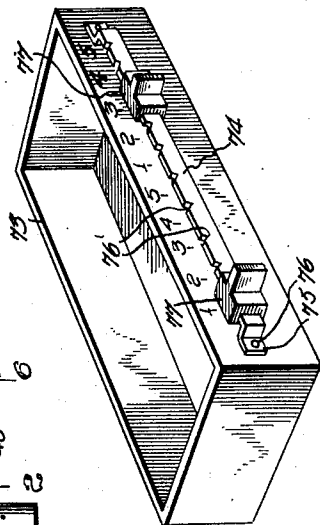


Fig. 2.

Inventor
HERBERT D. POSEY

Ch. Parker, Jr.
Attorney

April 18, 1933.

H. D. POSEY

1,904,837

SWITCHING CONVEYER

Filed Jan. 3, 1930

4 Sheets-Sheet 2

Fig. 2.

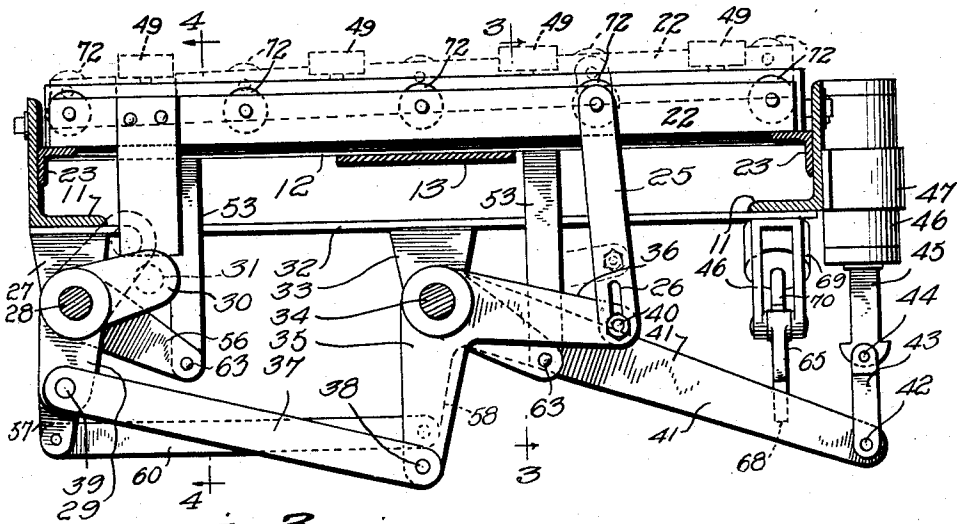


Fig. 3.

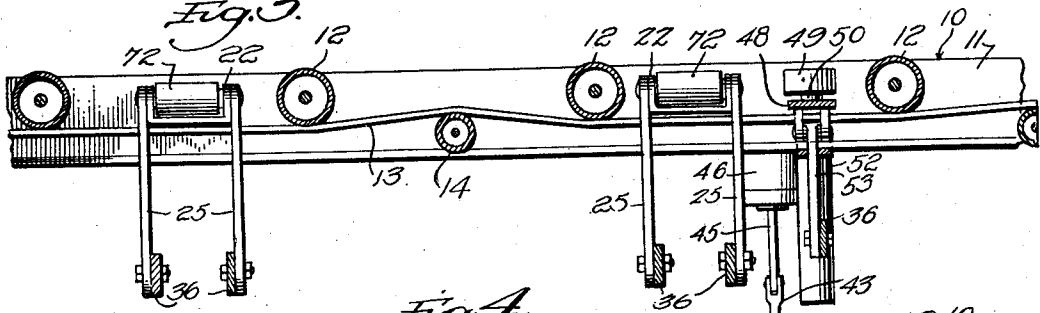


Fig. 4.

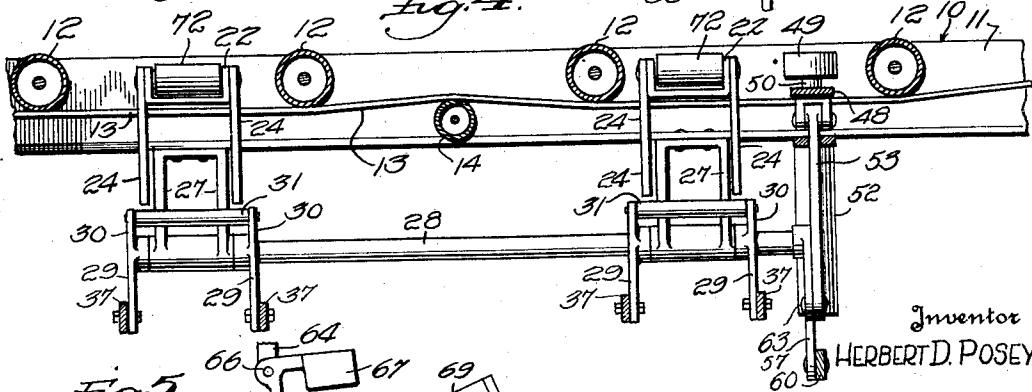
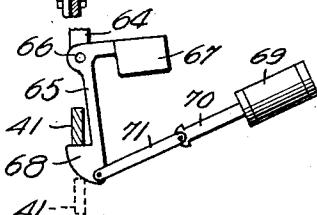


Fig. 5.



Inventor
HERBERT D. POSEY

C. H. Parker Jr.
Attorney

364

April 18, 1933.

H. D. POSEY

1,904,837

SWITCHING CONVEYER

Filed Jan. 3, 1930

4 Sheets-Sheet 3

Fig. 6.

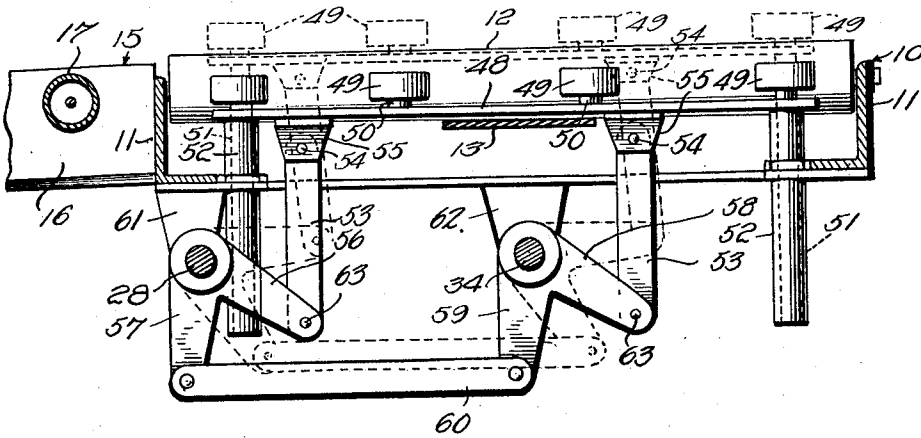
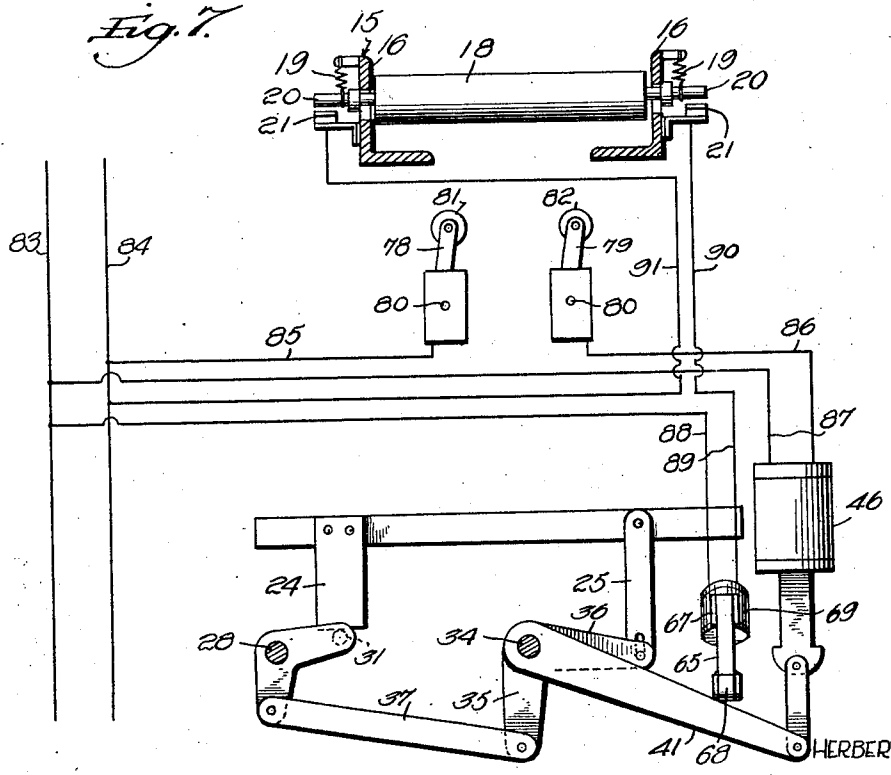


Fig. 7.



Inventor
HERBERT D. POSEY

284

C. H. Parker, Jr.
Attorney

April 18, 1933.

H. D. POSEY

1,904,837

SWITCHING CONVEYER

Filed Jan. 3, 1930

4 Sheets-Sheet 4

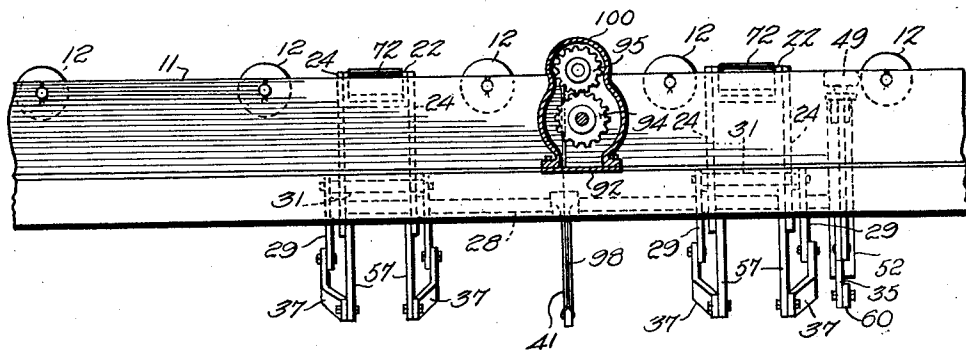
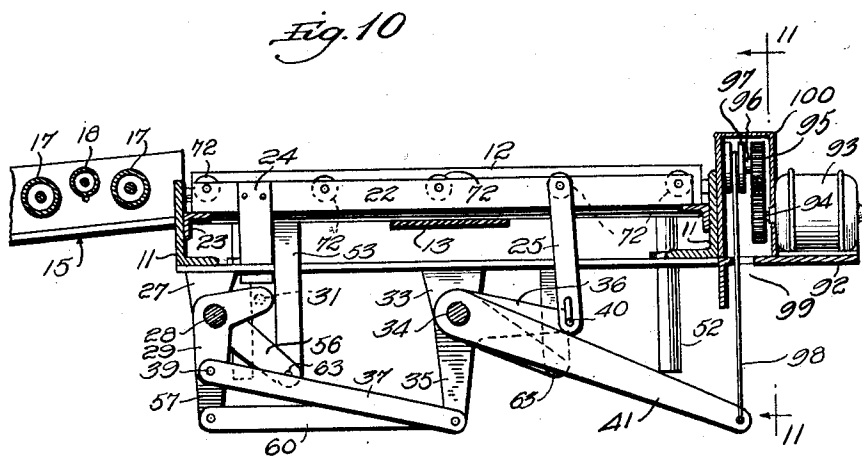
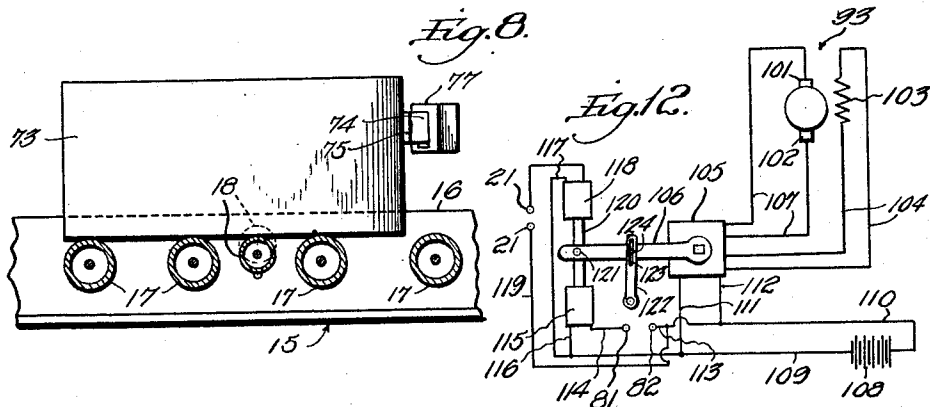


Fig. 11.

Inventor
HERBERT D. POSEY

384

C. H. Parker Jr.

Attorney

UNITED STATES PATENT OFFICE

HERBERT D. POSEY, OF CLEVELAND, OHIO, ASSIGNOR TO LOGAN CO., INC., OF LOUISVILLE, KENTUCKY, A CORPORATION OF KENTUCKY

SWITCHING CONVEYER

Application filed January 3, 1930. Serial No. 418,295.

This invention relates to switching conveyers, and more particularly to a main conveyer having switch sections extending laterally therefrom to which articles from the main conveyer are adapted to be selectively deflected.

It is the usual practice to provide means for deflecting articles or carriers from a main conveyer, and such a conveyer apparatus usually employs branch conveyers extending from the main conveyer at acute angles. A deflecting device, operated by various means, is employed at each branch section for deflecting articles from the main conveyer to said section to determine the destinations of the articles.

Switching conveyers of the character referred to possess a disadvantage in that it is impossible to divert articles at right angles with respect to the main conveyer to a branch conveyer arranged at right angles to the main conveyer. For this reason, considerable valuable floor space must be utilized for the branch conveyers, and it is highly desirable from the standpoint of economy and floor space to provide branch conveyers at right angles to the main conveyer to which articles on the main conveyer can be directly transferred.

An important object of the present invention is to provide novel means for moving articles transversely of the main conveyer at one or more desired points to discharge the articles from the main conveyer.

A further object is to provide a main conveyer having a plurality of branch conveyers extending at right angles therefrom, and to provide novel selectively operable means for transferring articles from the main conveyer to the branch conveyers.

A further object is to provide an apparatus of the character above referred to having means operable by an article on the main conveyer to automatically determine the point along the main conveyer from which the article is to be discharged.

A further object is to provide a main conveyer having a plurality of discharge points from which articles on the conveyer are adapted to be removed from the main con-

veyer laterally with respect thereto, and to provide novel means for arresting the progress of an article along the main conveyer and then effecting the removal of the article from the conveyer at any of the desired points.

A further object is to provide separate means for arresting the progress of an article along the main conveyer and for removing the article from the main conveyer, and to provide common means for operating the separate means referred to.

A further object is to provide an apparatus of the character above referred to which readily may be made fully automatic in operation, and wherein the movement of the article itself from the main conveyer may be utilized for returning to normal position the means employed for discharging the article from the main conveyer.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown several embodiments of the invention. In this showing,

Figure 1 is a plan view of a portion of the apparatus,

Figure 2 is a section on line 2—2 of Figure 1,

Figure 3 is a similar view on line 3—3 of Figure 2,

Figure 4 is a similar view on line 4—4 of Figure 2,

Figure 5 is a detail view of a latch device,

Figure 6 is a transverse sectional view on line 6—6 of Figure 1,

Figure 7 is a diagrammatic view illustrating one form of wiring system for the apparatus,

Figure 8 is a detail section on line 8—8 of Figure 1 showing an article carrier in position,

Figure 9 is a detail perspective view of one of the article carriers,

Figure 10 is a sectional view similar to Figure 2 showing a modified form of the device,

Figure 11 is a section on line 11—11 of Figure 10, and,

Figure 12 is a diagrammatic representation

50 adapted to be removed from the main con-

100

of one form of wiring system for the modified form of conveyer.

Referring to Figures 1 to 9 inclusive, the numeral 10 designates a main conveyer as a whole including spaced side rails 11 between which are journaled conveyer rollers 12. In the present instance the conveyer is illustrated as being of the live roller type in which a belt 13 contacts with the lower portions of the rollers 12 and is supported by idler rollers 14 arranged between the rollers 12. As will become apparent, however, the invention is not in any way limited to use in connection with live roller conveyers, but may be utilized with any type of conveyer such, for example, as the type employing gravity rollers.

The main conveyer 10 is provided at spaced points therealong with branch conveyers indicated as a whole by the numeral 15, and the branch conveyers may be of any desired type. In the drawings, branch conveyers of the gravity type have been illustrated, and each includes side rails 16 between which are journaled gravity rollers 17. The branch conveyers extend at right angles from the main conveyer, as clearly shown in Figure 1, and means to be described are provided for transferring articles laterally from the main conveyer to either of the branch conveyers 15.

At a point slightly spaced from the main conveyer, each of the branch conveyers is provided with a floating roller 18 which normally lies slightly above the plane of the tops of the rollers 17, as indicated in Figure 8. The floating roller 18 of each branch section is adapted to be depressed by the passage of an article thereover to complete electric circuits to be described, and one form of mounting for the floating rollers and the switches associated therewith is illustrated in Figure 7. The floating roller normally may be urged upwardly by springs 19, and may be depressed against the tension of such springs whereby contacts 20 on the ends of the roller may engage stationary contacts 21.

Means are employed for transferring articles from the main conveyer to either of the branch conveyers 15, and since such means are identical for the various branch conveyers only one need be referred to in detail.

Referring to Figures 1 to 4 inclusive, the numeral 22 designates a pair of spaced substantially U-shaped supporting frames arranged between certain of the main conveyer rollers 12 and parallel thereto. These frames may be supported on small angle irons 23 carried by the rails 11. Each of the frames 22 is provided near the end thereof adjacent the corresponding branch conveyer with a pair of depending arms 24 as shown in Figures 2 and 4. At a point spaced a substantial distance from the last named end of each frame 22, each of the latter is provided with a rigid depending arm 25 slotted

at its lower end as at 26 for a purpose to be described.

A bearing bracket 27 is secured against the rail 11 adjacent the take off side of the conveyer beneath each of the frames 22, and a shaft 28 extends between these bearing brackets to be rotatably supported thereby. The shaft 28 is provided adjacent each end thereof with a pair of bell crank levers having arms 29 and 30 respectively, and each pair of arms 30 is connected by a pin 31 lying beneath and adapted to operate against one pair of the depending arms 24. The rails 11 are connected at points substantially beneath the frames 22 by cross members 32 each of which carries a depending bearing bracket 33, similar to the brackets 27 previously described, and rotatably supporting a shaft 34.

A pair of bell crank levers is secured to the shaft 34 adjacent opposite ends thereof, and each pair of these levers includes depending arms 35 and laterally projecting arms 36. Links 37 are pivotally connected at one end as at 38 to the arms 35 and at their opposite ends, as at 39, to the bell crank lever arms 29. It will be apparent that since the various bell crank levers referred to are secured to their respective shafts, operation of the shaft 34 will operate all of the bell crank levers, and this movement is utilized for a purpose to be described. The bell crank lever arms 36 are connected to the depending arms 25 by pins 40 operating in the slots 26.

An operating crank 41 is fixed at one end to the shaft 34 whereby movement of the free end of the arm 41 is adapted to impart a turning movement to the shaft 34. The free end of the arm 41 is pivotally connected as at 42 to the lower end of a link 43, the upper end of which is pivotally connected as at 44 to the lower end of an armature 45 operating in a solenoid 46. This solenoid may be secured to the adjacent rail 11 by a suitable bracket 47.

A bar or plate 48 extends transversely of the main conveyer adjacent and parallel to one of the frames 22, as shown in Figure 1. This bar is provided with a series of spaced rollers 49 rotatable on vertical axes and normally arranged somewhat below the plane of the tops of the conveyer rollers 12, as shown in Figure 3. Fixed stub shafts 50 may be provided to rotatably support the rollers 49, and the stub shafts for the outermost rollers 49 may extend downwardly as indicated at 51 for sliding movement within guide tubes 52 carried by the side rails 11.

A pair of links 53 is pivotally connected as at 54 to brackets 55 carried by the plate 48. A bell crank lever including arms 56 and 57 is secured to the shaft 28 to rotate therewith, while a similar bell crank lever including arms 58 and 59 is mounted freely on the shaft 34. The arms 57 and 59 of the

bell crank levers referred to are connected by a link 60, as clearly shown in Figure 6. It will be apparent that since the bell crank levers are identical, a given turning movement of the arm 57 of the first bell crank lever will effect an equal turning movement of the other lever. The bell crank levers referred to are supported by bearing brackets 61 and 62. The lower ends of the links 53 are pivotally connected as at 63 to the free ends of the respective lever arms 56 and 58.

From the foregoing it will be apparent that upward movement of the free end of the lever 41 (see Figure 2) is adapted to effect operation of all of the bell crank levers and associated parts previously described, and means is provided for latching the arm 41 in its upper position to retain the elements controlled thereby in their operative positions. Referring to Figures 2 and 5, the numeral 64 designates a depending bracket carried by one of the rails 11, and a bell crank lever 65 is pivotally connected to this bracket as at 66. One arm of the bell crank lever projects laterally and is weighted as at 67, while the other arm is provided adjacent its lower end with a latch 68 adapted to engage beneath the operating lever 41. The latch is adapted to be moved to unlocked position in a manner to be referred to upon energization of a solenoid 69 having its armature 70 connected to the bell crank lever by a link 71.

Each of the frames 22 constitutes a support for a plurality of small conveyer rollers 72 which are journaled in the sides of the frame members. The rollers 72 have their axes arranged horizontally and at right angles to the axes of the rollers 12. It will be apparent that the tops of the rollers 72 are normally arranged below the plane of the tops of the rollers 12 and accordingly when the frame members 22 are in normal position packages or articles are adapted to move over the rollers 72 without contacting therewith. Either pair of frames 22 may be elevated to the dotted line position indicated in Figure 2 to pick up an article on the conveyer and discharge it to the corresponding branch conveyer 15.

Means are provided for determining to which of the branch conveyers 15 an article on the main conveyer shall be discharged.

Referring to Figure 9, the numeral 73 designates an article carrier preferably in the form of a rectangular wooden or similar box corresponding generally in width to the width of the main conveyer. One side of the article carrier is provided with a metallic bar 74 spaced throughout the greater portion of its length from the carrier and having feet 75 at its ends secured to the side of the carrier as at 76. The outer face of the bar 74 is provided with suitable indicia for a purpose to be described. If desired, the

upper edge of the bar 74 may be notched as at 76', and a pair of key members 77 is slidable on the bar 74. Each of the key members 77 may be provided with a lip adapted to engage in any of the notches 76' to fix the key members in desired selected positions.

Referring to Figures 1 and 7, the numerals 78 and 79 designate a pair of switch arms pivotally supported at their outer ends as at 80. The inner ends of the arms are provided with rollers 81 and 82 respectively. Referring to Figure 7, the numerals 83 and 84 designate line wires leading from any suitable source of current and the switch arm 78 is connected to one of the line wires, such as the wire 84, by a wire 85. The switch arm 79 is connected to one terminal of the solenoid 46 by a wire 86, while the other terminal of this solenoid is connected by a wire 87 to the line wire 83.

The two terminals of the solenoid 69 are connected to wires 88 and 89 respectively, the former of which is connected to the line wire 83. The wire 89 is connected as at 90 to one of the contacts 21 of the floating roller 18, while the other contact 21 is connected by a wire 91 to the line wire 84.

In Figures 10 to 12 of the drawings, a somewhat modified form of the invention is shown. In the modified embodiment of the apparatus, substantially all of the operating elements are identical with the form previously described except for the power means for operating the moving parts of the apparatus, and accordingly the latter need not be described in detail.

Referring to Figures 10 and 11 it will be noted that a motor is substituted for the solenoid operating means previously described. A support 92 projects outwardly from one of the rails 11 and carries a motor 93 thereon having a driving pinion 94 carried by its armature shaft. This pinion meshes with a gear 95 carried by a shaft 96, as shown in Figure 10, and the latter shaft also carries a small drum 97 about which passes a cable 98. This cable is secured at its lower end to the free end of the lever 41. The cable 98 extends through an opening 99 formed in the support 92, and the gears 94 and 95 and the drum 97 are preferably covered by a casing 100.

It will be apparent that rotation of the shaft of the motor 93 in one direction will elevate the lever 41, while reverse rotation of the motor shaft will permit the parts to return to normal position by gravity. Means are provided for effecting rotation of the motor in the manner referred to. Referring to Figure 12, the operating circuit for one deflecting station is shown. The motor 93 is shown as being provided with brushes 101 and 102, and a field 103, and opposite ends of the field are connected by wires 104 to a reversing switch 105 having an operating lever

106. The brushes are connected to the reverse switch by wires 107.

A source of current 108 has its terminals connected to wires 109 and 110 which, in turn, are connected to the reversing switch by wires 111 and 112. The contact rollers 81 and 82 previously described are designated in Figure 12 as a pair of contacts one of which is connected by a wire 113 to the wire 110. The other contact 81 is connected by a wire 114 to a solenoid 115. The other terminal of the solenoid is connected by a branch wire 116 to a line wire 117 connected at one end to the wire 109.

The other end of the wire 117 is connected to one terminal of the solenoid 118. The other terminal of the solenoid 118 is connected to one of the pair of contacts 21 previously described, while the other contact of this pair is connected by a wire 119 to the wire 110. The solenoids 115 and 118 are provided with a common armature bar 120 having a pin 121 engaging the operating handle 106 of the reversing switch 105. It will be apparent that movement of the handle 106 in opposite directions from the neutral position illustrated in Figure 12 is adapted to cause opposite rotation of the shaft of the motor 93.

A switch control link 122 is connected at one end to any suitable portion of the operating mechanism of the associated discharge station, such as a portion of the lever 41. The opposite end of the link 122 is slotted as at 123 to receive a pin 124 carried by the handle 106.

The operation of the form of the apparatus illustrated in Figures 1 to 9 inclusive is as follows:

All of the frames 22 normally occupy a position wherein the rollers 72 occupy a position below the plane of the tops of the main conveyer rollers 12, and the same is true of the bumper rollers 49. Articles or packages on the main conveyer accordingly are adapted to travel throughout the length of the conveyer in the usual manner.

Articles intended for discharge at a particular branch station are placed in one of the article carriers 73, and the slides 77 are placed in the desired positions on the guide 74 according to the branch conveyer to which it is desired to discharge the carrier. In this connection, it will be noted that the contact rollers 81 and 82 are arranged different distances apart for each of the discharge stations, and the slides 77 obviously will be placed on the guide 74 a distance apart corresponding to that of the pair of contact rollers 81 and 82 at the desired discharge station.

In this connection attention is invited to the fact that where it is desired to provide a large number of discharge stations, different slides and their associated guides may be arranged at different levels on the carrier 73, and the contact rollers 81 and 82 of the

different discharge stations may be similarly arranged.

Assuming that articles on the main conveyer travel in the direction of the arrow indicated in Figure 1, and it is desired to discharge a carrier at the first discharge station, the slides 77 of the carrier will be arranged on the guide 74 in such a position to correspond to the arrangement of the contact rollers 81 and 82. As the carrier travels along the conveyer it will reach a point where the projecting portions of the slides 77 will contact with the rollers 81 and 82, and an electrical connection will be established between these rollers through the slides 77 and guide 74. In this connection it will be noted that the arms 78 and 79 of the contact rollers 81 and 82 are mounted to swing about their pivots 80 as the contact rollers are engaged by the slides 77, and springs (not shown) are preferably provided for lightly resisting the turning movement of the arms 78 and 79 to insure proper contact between the slides 77 and the rollers 81 and 82, and to insure that the electrical connection between the rollers 81 and 82 be maintained a sufficient length of time to permit the operation of the parts depending thereon.

Referring to Figures 2 and 7, it will be apparent that when electrical connection is established across the rollers 81 and 82, current will be supplied to the solenoid 46 through wires 85 and 86 and back through wire 87, the wires 85 and 87 being connected to the line wires 83 and 84, as will be apparent. Accordingly the solenoid 46 will be energized to elevate its armature and thus move the operating lever 41 upwardly to rotate the shaft 34 about its axis. As clearly shown in Figure 2, this movement will be transmitted to the shaft 28 through the bell crank lever arms 29 and 35 and the link 37.

The action referred to obviously will swing the bell crank lever arms 30 and 36 about their axes, and it will be apparent that the lever arm 36 will swing through a greater arc than the arm 30 due to the difference in the lengths of these arms and the lever arms 29 and 35. The movement thus transmitted to the frames 22 will cause them to swing upwardly to the angular dotted line position illustrated in Figure 2. It will be noted that the pin 31 is normally arranged a slight distance beneath the lower end of the arm 24, while the pin 40 is normally arranged in the lower end of the slot 26. Turning movement of the lever 41 accordingly will not immediately transmit lifting movement to the frames 22, but will effect movement of these frames only after the lever arm 41 and the elements connected thereto have moved an appreciable distance from normal position.

Referring to Figure 6 it will be noted that rotation of the shaft 28 in the manner previously described will effect turning movement

of the bell crank lever arms 56 and 57, and this movement will be transmitted to the lever arms 58 and 59 through the link 60, the latter lever arms being mounted freely on the shaft 34 due to the fact that this shaft has a differential turning movement with respect to the shaft 28. The link connection 60 obviously effects equal turning movement of the bell crank levers associated therewith.

It will be apparent that turning movement of these levers will be transmitted to the plate 48 to effect upward movement thereof and accordingly the rollers 49 will be elevated above the conveyer rollers 12 and will arrest movement of the carrier which has caused the previously described energization of the solenoid 46.

No play is provided in the operating connections between the shaft 28 and the plate 48, and accordingly initial operation of the lever 41 immediately elevates the rollers 49 into the path of travel of the carrier to arrest movement thereof. The interval of time occurring during the upward movement of the rollers 49 and the point at which initial upward movement of the frames 22 takes place is utilized to permit the carrier to assume a positive position in engagement with the rollers 49, and hence in alignment with the branch conveyer 15. It will be apparent that when the frames 22 are elevated to the dotted line position illustrated in Figure 2, these frames and their associated rollers 72 act as an auxiliary take-off conveyer, and the package or article carrier arranged on the roller 72 will be caused to move transversely from the main conveyer to the branch conveyer 15.

The latch mechanism illustrated in Figure 5 is provided as means for holding the operating elements in operative position until the carrier is discharged from the auxiliary conveyer, and when the article moves along the branch conveyer, it depresses the auxiliary roller 18, thus establishing electrical connection across the contacts 21. Current will then flow from the line wire 83 through wire 88, solenoid 69, wires 89 and 90, and thence across the contacts 21, through the roller 18, to the wire 91, and back to the source through the wire 84. This action energizes the solenoid 69 (see Figure 5) thus attracting the armature of the solenoid to release the latch 68 from the lever 41. The parts then will be permitted to return to normal position by gravity. All of the parts will be restored to normal position ready for operation by a subsequent carrier, and in a position to permit such carrier to pass over the discharge station if the carrier is destined for delivery to a different branch conveyer.

The operation of the form of the device illustrated in Figures 10, 11 and 12 is identical with the form previously described so far as the mechanical connections are con-

cerned between the operating lever 41 and the frames 22 and rollers 49. Such operation accordingly need not be referred to. In the modified form of the invention, a motor is employed for operating the lever 41, and the operating handle 106 of the reversing switch 105 normally occupies the neutral position illustrated in Figure 12.

When an article carrier reaches a station from which it is destined to be delivered, electrical connection will be established across the contacts 81 and 82 to energize the solenoid 115 and thus attract the armature 120 to move the switch arm 106 into one of its operative positions. Operation of the motor will then start, and the drum 97 will be driven through the gears 94 and 95 to wind the cable 98 and thus elevate the arm 41. The link 122 operates somewhat in the nature of a limit switch, and when the parts of the apparatus have reached operative position, the link 122 will move the switch arm 106 back to normal position, the pin 124 having been moved to the lower limit of the slot 123 by the previous movement of the switch arm. Accordingly the motor will stop and the parts will remain in operative position until the package has been discharged to the branch conveyer and has depressed the floating roller 18.

When the roller 18 is depressed, electrical connection will be established across the contacts 21, and thus the solenoid 118 will be energized to attract the armature 120 and move the switch arm 106 to reverse position, in which position the pin 124 will be arranged in the upper end of the slot 123. Reverse operation of the motor obviously will unwind the cable 98 to permit the parts of the apparatus to return to normal position, and when such position is reached, movement of the link 122 through its connection with an operating part of the apparatus, will return the switch arm 106 to neutral position and thus stop the motor.

From the foregoing it will be apparent that the present apparatus provides a novel switching conveyer wherein the branch conveyers extend at right angles from the main conveyer and the articles are moved transversely from the main conveyer instead of at an acute angle as in the usual constructions. It is the usual practice to slide the articles from the main conveyer at an acute angle, thus introducing substantial friction, and the angularity of the branch conveyers constitutes a waste of floor space in a building in which such an apparatus is employed. The waste of space is minimized with the present apparatus and articles are moved transversely of the conveyer with less friction than is present with the ordinary constructions. In this connection it will be noted that the rollers 49 and 72 are freely rotatable with the articles as the latter are discharged from the

main conveyer, and when such action takes place, the articles are wholly free from the main conveyer rollers 12 and accordingly do not slide thereon.

5 It also will be apparent that an article carrier may be keyed for delivery at any desired station, and common operating means is employed for elevating the bumper rollers to arrest progress of the article on the conveyer, and for elevating the auxiliary transverse conveyers to deliver the carriers to the branch conveyers.

10 It is to be understood that the forms of the invention herewith shown and described are to be taken as preferred examples of the same and that various changes in the shapes, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the sub-joined claims.

I claim:

1. A switching conveyer comprising a main conveyer, normally inoperative means movable to operative position for arresting the progress of an article moving along said main conveyer at a predetermined point intermediate the length thereof, means operative for discharging an article from said main conveyer after its progress therealong has been arrested by said first named means, a common device for rendering both of said means operative, and means carried by the article for determining the operation of said actuating device.

2. A switching conveyer comprising a main conveyer, a stop device normally arranged below the path of articles moving along said main conveyer and movable upwardly to operative position in such path of movement for arresting the progress of an article moving along said main conveyer, means operative for discharging the article from said main conveyer after its movement has been arrested by said stop device, a common actuating device for said stop device and said means, and means carried by the article for determining the operation of said actuating device.

3. A switching conveyer comprising a main conveyer, normally inoperative means movable to operative position for arresting the progress of an article moving along said main conveyer at a point intermediate the length thereof, and an auxiliary conveyer normally inoperative and movable upwardly to elevate the article from said main conveyer and discharge it laterally therefrom after progress of the article along said main conveyer has been arrested by said means, and means carried by the article for determining operation of said first named means and said auxiliary conveyer.

4. A switching conveyer comprising a main conveyer, a stop device normally arranged below the path of articles moving

along said main conveyer and movable upwardly to operative position in such path of movement for arresting the progress of an article moving along said main conveyer, an auxiliary conveyer normally arranged below the path of articles moving along said main conveyer and disposed adjacent said stop device, and common means for moving said stop device and said auxiliary conveyer to operative positions whereby the latter elevates the article from said main conveyer and discharges it laterally therefrom after progress of the article along said conveyer has been arrested by said stop device.

5. A switching conveyer comprising a main conveyer, a stop device including a plurality of rollers mounted to rotate on vertical axes and normally arranged below the path of articles moving along said main conveyer, said stop device being movable upwardly to operative position to arrange said rollers in the path of movement of articles moving along said main conveyer, and an auxiliary conveyer normally arranged below the path of articles moving along said main conveyer and disposed adjacent said stop device and movable upwardly to elevate the article from said main conveyer and discharge it laterally therefrom, said auxiliary conveyer including a pair of frames extending transversely of said main conveyer, and a plurality of rollers journaled in said frames and having their axes arranged substantially parallel to the direction of movement of articles on said main conveyer.

6. Apparatus constructed in accordance with claim 5 provided with common actuating means for said stop device and said auxiliary conveyer, said actuating means being operative to move said stop device to operative position in advance of said auxiliary conveyer.

7. Apparatus constructed in accordance with claim 5 provided with a common actuating lever for said stop device and said auxiliary conveyer, positive connections between said lever and said stop device, and means connecting said lever to said auxiliary conveyer whereby movement will be transmitted to the latter to move it to operative position after the rollers of said stop device have been moved into the path of articles on said main conveyer.

8. A switching conveyer comprising a main conveyer, a stop device normally arranged below the path of articles moving along said main conveyer and movable upwardly to operative position in such path of movement, an auxiliary conveyer normally arranged below the path of articles moving along said main conveyer and disposed adjacent said stop device, a pair of shafts, means for operating said shafts, connections between said shafts and said auxiliary conveyer to move the latter upwardly to elevate

the article from said main conveyer and to cause it to assume an angular position with respect to said main conveyer to discharge the article therefrom laterally thereof, and connections between at least one of said shafts and said stop device to move the latter to operative position in advance of the transmission of movement to said auxiliary conveyer.

9. Apparatus constructed in accordance with claim 8 wherein the means for operating said shafts includes an electrical power device, means controlled by the article as it reaches a position substantially over said auxiliary conveyer for actuating said power device, and means operated by the article upon its discharge from said auxiliary conveyer for returning said stop device and said auxiliary conveyer to normal positions.

10. Apparatus constructed in accordance with claim 8 wherein said shaft operating means includes a solenoid, a lever operated thereby, means controlled by the article for energizing said solenoid, a latch for said lever, and means operated by the article upon its discharge from said auxiliary conveyer for releasing said latch.

11. A switching conveyer comprising a main conveyer, a plurality of discharge stations arranged at intervals along said main conveyer, each discharge station including a stop device arranged below the path of articles moving along said main conveyer and movable upwardly to operative position in such path of movement for arresting the progress of an article moving along said main conveyer, an auxiliary conveyer normally arranged below the path of articles moving along said main conveyer and disposed adjacent said stop device and common means for moving said stop device and said auxiliary conveyer to operative positions whereby the latter elevates the article from said main conveyer and discharges it laterally therefrom after progress of the article along said conveyer has been arrested by said stop device, the common means for each discharge station including a power device having an incomplete circuit, and means carried by the article for determining which of said circuits shall be completed.

12. Apparatus constructed in accordance with claim 11 wherein each of said incomplete circuits includes a pair of contacts arranged adjacent said main conveyer, the means carried by the article comprising a device adapted to establish electrical connection across one of such pairs of contacts.

13. A switching conveyer comprising a main conveyer, means for arresting the progress of an article moving along said main conveyer at a point intermediate the length thereof, actuating means for said last named means, control means carried by the article traveling on the conveyer for deter-

mining the operation of said actuating means, and means operative in conjunction with said arresting means for discharging the article from the main conveyer at such point substantially at right angles to said main conveyer, said last named means being rendered operative by said actuating means.

14. A switching conveyer comprising a main conveyer, means normally arranged out of the path of travel of articles moving along said main conveyer and movable into such path for arresting the progress of the article along said main conveyer, actuating means operative for rendering said arresting means operative, control means carried by the article on the conveyer for determining the operation of said actuating means, and means rendered operable by said actuating means after said arresting means has been actuated for discharging the article from said main conveyer.

15. A switching conveyer comprising a main conveyer, means normally arranged out of the path of articles moving along said main conveyer and movable to operative position in such path for arresting the progress of an article moving along said main conveyer without disturbing the relative position of the article with respect to the conveyer, means for actuating said first named means, control means carried by the article moving along said conveyer for determining the operation of said actuating means, and means operative by said actuating means after progress of the article has been arrested by said first named means for transmitting movement to an article thereon and for discharging the article from the main conveyer substantially at right angles thereto and without changing the relative position of the article.

16. A switching conveyer comprising a main conveyer, means operative for arresting the progress of an article moving along said main conveyer at a point intermediate the length thereof, mechanical connections for effecting operation of said arresting means, electrical operating means for said mechanical means adapted to be rendered operative by an article moving along the main conveyer, means operative for discharging an article from said main conveyer after its progress therealong has been arrested by said first named means, and means connected between said mechanical means and said discharging means for rendering the latter operative by said electrical means.

17. A switching conveyer comprising a main conveyer, a branch conveyer extending from said main conveyer intermediate the ends thereof, normally inoperative means adapted to be rendered operative for arresting movement of an article on the main conveyer at a point in alinement with said branch conveyer, an actuating device for said arrest-

ing means, transfer means adapted to be operated for transferring an article from the main conveyer to the branch conveyer when movement of the article has been arrested
5 by said arresting means, connections between said actuating means and said transfer means operable after movement of the article on the main conveyer has been arrested, and means carried by the article for
10 determining operation of said actuating means.

In testimony whereof I affix my signature.
HERBERT D. POSEY.

15

20

25

30

35

40

45

50

55

60

65