Oct. 21, 1924. 1,512,250

F. R. TAISEY

AUTOMATIC SWITCH FOR CONVEYERS

Filed April 11, 1922 4 Sheets-Sheet 1

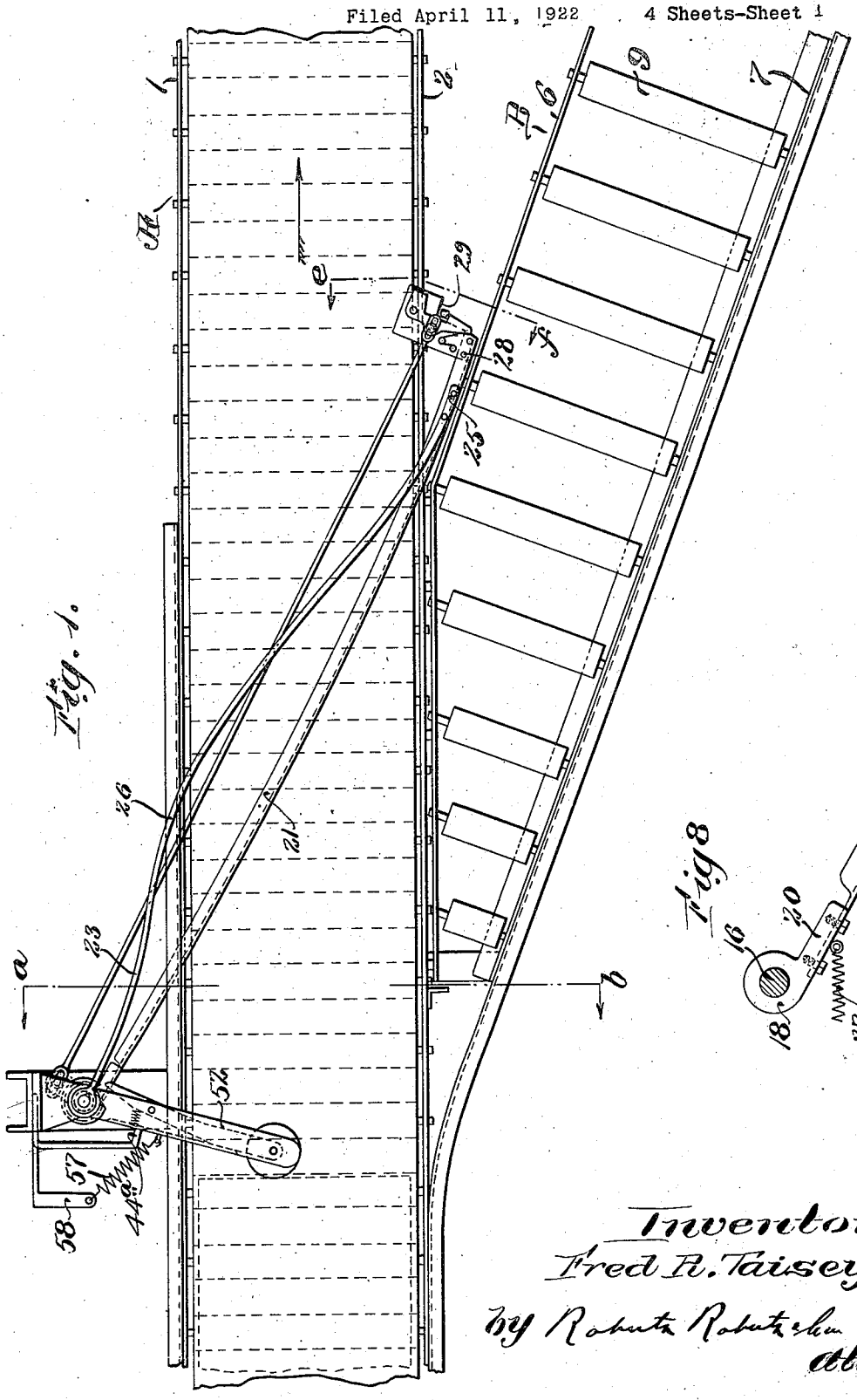


Fig. 1.

Fig 8

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AUTOMATIC SWITCH FOR CONVEYERS

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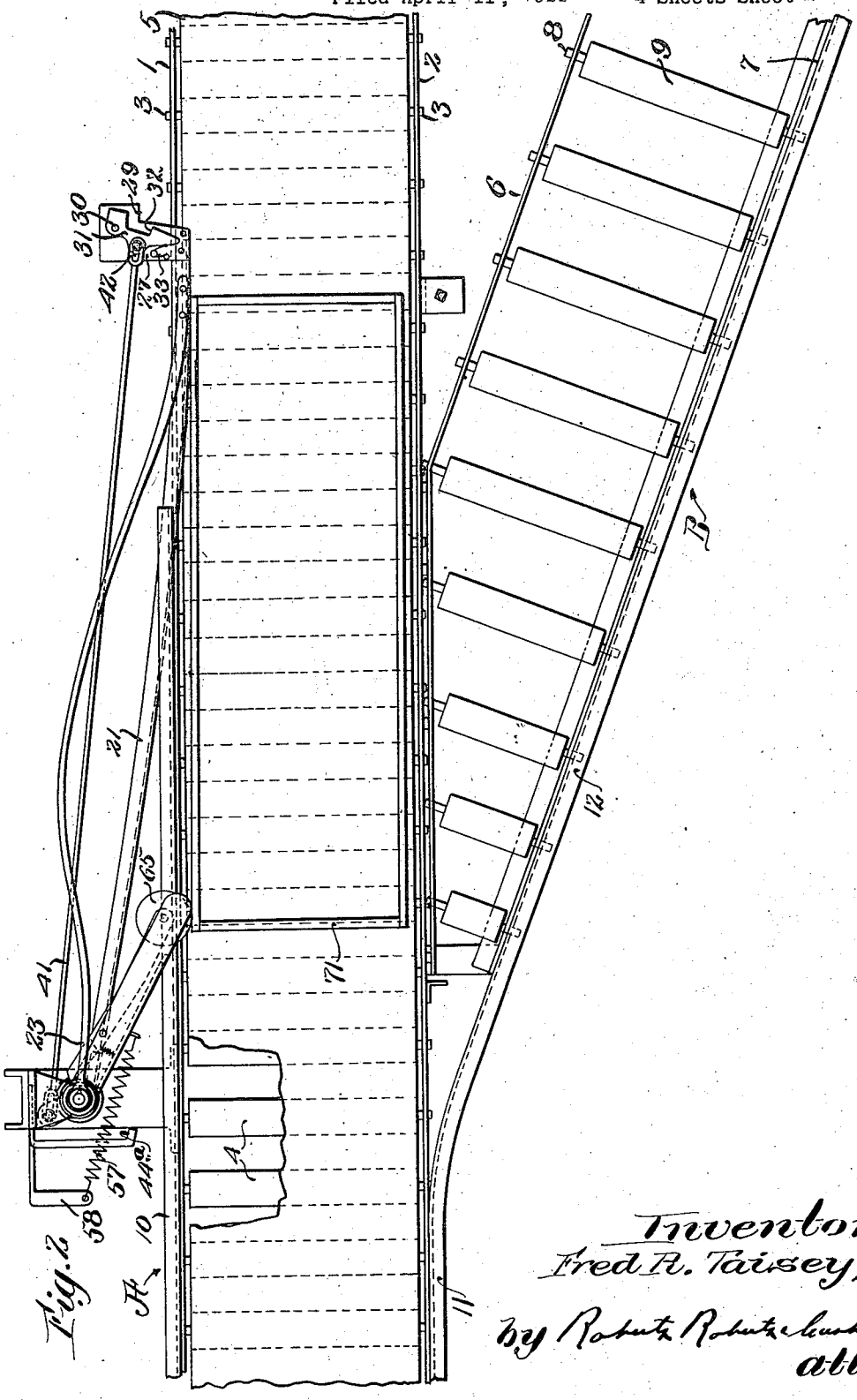


Fig. 2.

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AUTOMATIC SWITCH FOR CONVEYERS

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Fig. 3

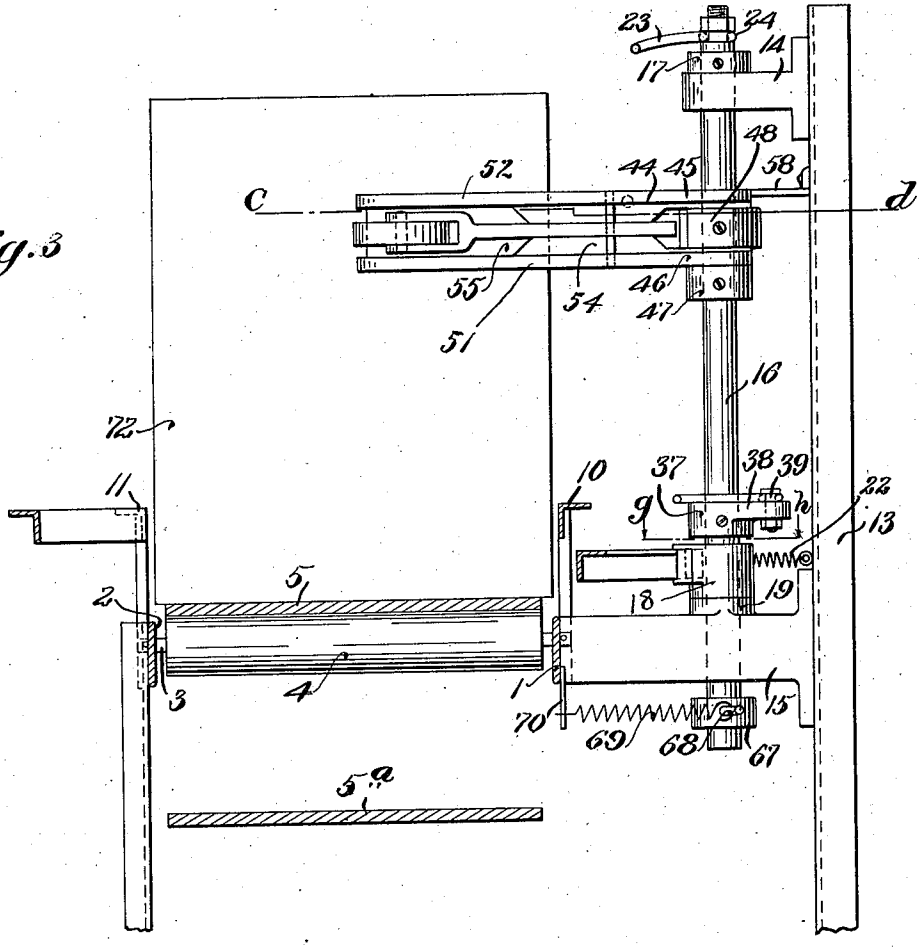
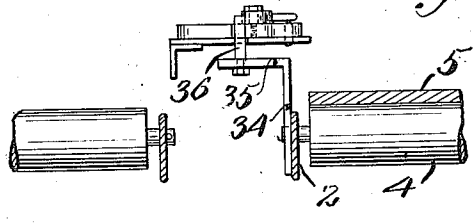


Fig. 7



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AUTOMATIC SWITCH FOR CONVEYERS

Filed April 11, 1922 4 Sheets-Sheet 4

Fig. 4

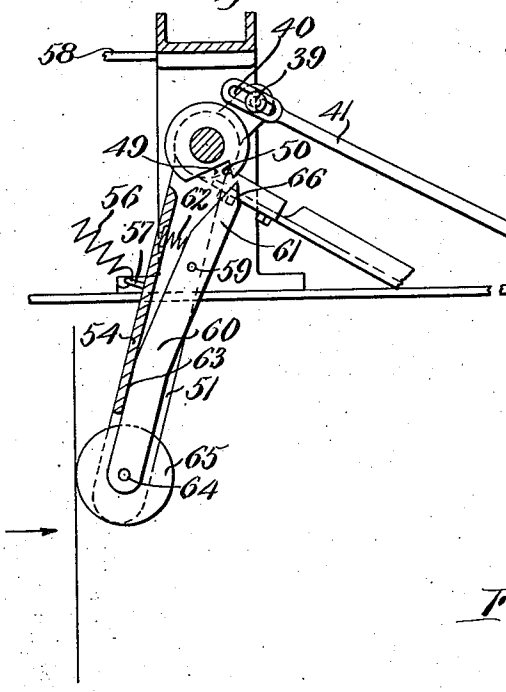


Fig. 5

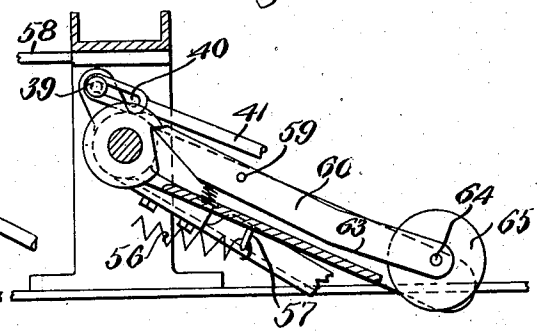


Fig. 6

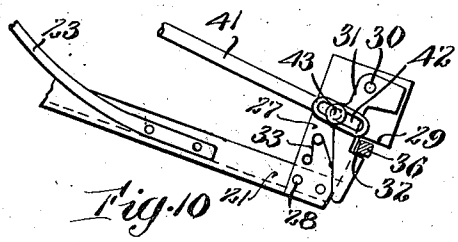


Fig 12

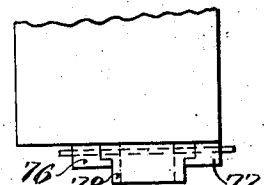


Fig. 9

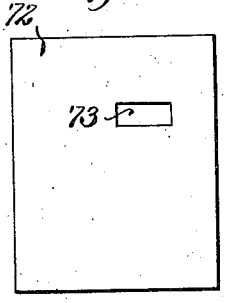
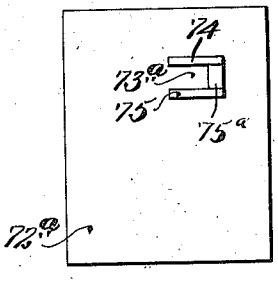


Fig. 10



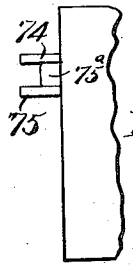
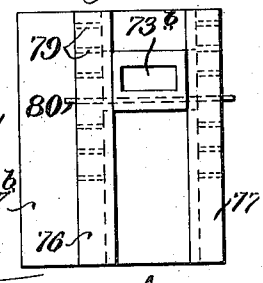


Fig. 11

Fig. 13



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Patented Oct. 21, 1924. 1,512,250

UNITED STATES PATENT OFFICE.

FRED R. TAISEY, OF LOWELL, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE LAMSON COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

AUTOMATIC SWITCH FOR CONVEYERS.

Application filed April 11, 1922. Serial No. 551,517.

To all whom it may concern:

Be it known that I, FRED R. TAISEY, a citizen of the United States of America, and resident of Lowell, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Automatic Switches for Conveyers, of which the following is a specification.

This invention concerns conveyers of the kind commonly employed for loading, unloading and carrying all sorts of objects, packages and materials, and relates more particularly to switch means useful in association with such conveyers, whether of the power driven or gravity type, for diverting selected objects or packages from the main path of travel into a diverging path.

The simplest form of conveyer consists of a single track, straight or curved as circumstances demand, and delivering all objects or packages placed thereon to a common point. While useful in many situations, such simple conveyers are not adequate for all purposes, and thus conveyers have sometimes been constructed with diverging tracks into which approaching objects or packages could be diverted by means of a manually controllable switch or switches, so that selected packages or objects, placed upon the main track, might be delivered at different points. This latter arrangement is satisfactory so long as it is desired only occasionally to vary the point of delivery of objects passing along the conveyer, as, in such case, the proper manipulation of the switch is a matter of minor importance. The use of power driven or gravity conveyers in and about mercantile establishments is, however, constantly increasing and the uses to which they are put are becoming more and more diversified. For example, in large textile mills and other manufacturing plants they are now employed for conveying stock or mechanical parts from one department to another, the track system employed sometimes being highly complex and involving many tracks diverging from the main track. So also in the larger department stores and mail order houses such conveyers are employed for carrying packages or merchandise from the sales departments to the shipping room where it may be desired to deliver them at any of a series of stations corresponding roughly to their points of destination or to the common carriers through whose agency they will be transported to the purchaser. In establishments such as above referred to, the succession of objects or packages moving along the main track of the conveyer may be almost continuous and in order to provide for their proper diversion to the desired delivery points it is thus necessary to employ one or more switch operators who must constantly be alert to note the character of the approaching objects or packages in order to throw the proper switch or switches to insure their delivery at the desired points. As the points of divergence of the various side tracks may be widely separated and out of view of one another, it is difficult in many cases for one switch operator to control more than one or two switches, so that the number of switch operators necessary for the proper operation of the conveyer system may become so large that for economic reasons the use and extension of the system must be limited. Not only is a large number of operators frequently necessary, but the proper operation of the system is entirely dependent upon the vigilance and quickness of the operators, as for example, as frequently happens in department stores, when a special sale is on, the stream of packages moving along the track is almost continuous, so that it is next to impossible for the operator to make the necessary visual differentiation of approaching packages with sufficient rapidity to secure proper selection thereof, especially if the rush period is at all extended so that the fatigue of constant attention lowers the operator's capacity for careful observation.

The principal object of the present invention is to provide automatically operated switch mechanism for use in conveyer systems, whether of the power driven or gravity type, such that the necessity for employing switch operators is entirely obviated, the character of the object approaching along the main track determining the proper actuation of the switch. A further object is to provide an automatic switch mechanism of such character as to permit of its use in conveyer systems of the most complex character, having many and successively diverging tracks, the controlling devices being so arranged as to permit an object moving along the track to throw any

number of successive switches necessary to insure its arrival at its proper destination. A further object is to provide such mechanism of a simple, durable and dependable character and which may be installed in conveyer systems of usual type without difficulty or substantial change therein.

Referring to the accompanying drawings illustrating a species of the genus comprising the invention,—

Fig. 1 is a fragmentary plan view of a conveyer, comprising a main track and a diverging track, together with the switch mechanism of the present invention, such mechanism being shown in normal position;

Fig. 2 is a view similar to Fig. 1, but showing the switch mechanism as set to permit movement of bodies along the main track without diversion therefrom;

Fig. 3 is a vertical cross section, partly in elevation, taken on a line such as *a*—*b* of Fig. 1;

Fig. 4 is a fragmentary horizontal section on a line such as *c*—*d* of Fig. 3;

Fig. 5 is a view similar to Fig. 4 but showing the parts as moved from normal position to permit the passage of a body along the main track;

Fig. 6 is a fragmentary plan view of a portion of the switch mechanism, showing a releasable latch employed in connection therewith;

Fig. 7 is a fragmentary, vertical cross section on a line such as *e*—*f* of Fig. 1;

Fig. 8 is a fragmentary, horizontal section on a line such as *g*—*h* of Fig. 3;

Fig. 9 is a front elevation of the advancing end of a receptacle such as may be employed with the conveyer system herein illustrated;

Fig. 10 is a front elevation of a modified form of receptacle;

Fig. 11 is a fragmentary side elevation of the same;

Fig. 12 is a fragmentary plan view of a further modified form of receptacle; and

Fig. 13 is a front elevation of the same.

Referring to the drawings the conveyer system is shown as comprising a main track A, having the side rails 1, 2, such rails being provided with series of journal openings for the reception of the axles 3 of rollers 4. Resting upon the several rollers is the upper run 5 of an endless belt, whose lower run 5^a is shown in Fig. 3, such belt being driven from any suitable source of power, not indicated. Diverging from the main track is a second track B, comprising the side rails 6, 7, having journal openings for the axles 8 of a series of rollers 9. This second track may or may not be provided with an endless belt, as desired, being herein illustrated as unprovided with power driven impelling means, and representing merely a storage spur, or the upper end of a downwardly inclined, gravity conveyer track. Extending along the main track, adjacent to the junction point of the diverging track, is a guide rail 10 suitably supported by the rail 1, and upon the opposite side of the main track is a second guide rail 11 which merges into a guide rail 12 extending for a suitable distance along the diverging track. These guide rails are arranged somewhat above the corresponding track rails and are adapted to engage the sides of a body moving along the conveyer to prevent such body from being thrust sidewise from off the conveyer tracks by the action of the switch bar hereinafter to be described.

Adjacent to the junction point of the diverging track B, and substantially opposite the point at which rail 7 unites with rail 2, a supporting post 13 is provided, this post having a pair of vertically spaced brackets 14, 15 secured thereto. These brackets are provided with journal openings in which is mounted a substantially vertical rock shaft 16, having a fixed collar 17 which rests upon the upper surface of the bracket 14, thus retaining the shaft in position. At a point immediately above the bracket 15, a casting 18 is journalled to turn freely upon the shaft 16, this casting preferably resting upon a boss 19 upstanding from the bracket 15, The casting 18, as shown in Fig. 8, is provided with an outstanding arm 20, to which an elongate switch bar 21 is secured. This bar is preferably somewhat convex or bowed in the direction of a body approaching along the main track, for a purpose hereinafter to be described. One end of a tension spring 22 is secured to the arm 20, the other end of such spring being connected to a fixed part of the bracket 15, or to any other convenient member.

The bar 21 is of a length to extend obliquely across the entire width of the main conveyer track and when in normal position aligns with the side rail 6 of the branch track B, and for supporting the free end of such bar while swinging in a plane substantially parallel to that of the track, a brace rod 23 is provided, this rod being journalled at 24 upon the upper end of the shaft 16 and being secured at its opposite end at the point 25 to the outer end of the bar 21. This brace rod is bowed outwardly at its central portion, as indicated at 26, for a purpose herein to be described. The switch bar 21 is preferably of angle iron, providing an upper horizontal flange and a vertical flange, the latter being so disposed that it may be engaged by bodies approaching along the conveyer track.

At its free extremity the switch bar 21 is provided with a plate 27 secured to the horizontal flange of such bar by means of

bolts or rivets 28. This plate has a stop shoulder 29 and is provided with a pivot pin 30 upon which is mounted a latch lever 31. This latch lever is furnished with a latch shoulder 32 normally lying substantially parallel to and spaced from the stop shoulder 29. A spring 33 normally retains the latch lever 31 in the position shown in Fig. 6. Secured to the rail 2 of the main conveyer is a bracket 34 (Fig. 7) having a horizontal arm 35 upon which is mounted an abutment pin 36, such pin normally occupying the space between stop member 29 and the latch shoulder 32. This abutment pin thus serves as a stop to prevent excess movement of the switch bar 21 under action of the spring 22, and also cooperates with the latch to prevent swinging of the bar 21 in opposition to such spring, except upon disengagement of the latch.

Secured to the shaft 16 at a point immediately above the casting 18 is a collar 37 provided with a latch actuating crank arm 38 having a crank pin 39. This crank pin passes freely through a slot 40 in the end of a link or bar 41, the opposite end of such link having a slot 42 through which passes a pin 43 secured to the latch member 31. The slots 40 and 42 provide for lost motion between the crank arm 38 and the latch lever 31 so that the crank arm is permitted to turn through a substantial angle before the latch lever 31 is moved sufficiently to release the latch shoulder 32 from the abutment member 36.

Associated with the shaft 16 is suitable feeler mechanism comprising a lever arm 44 journaled at one end upon the shaft 16. The end of the lever arm which is journalled upon the shaft 16 is bifurcated to provide spaced members 45, 46, the lower of such members resting upon a collar 47 adjustably fixed upon the shaft 16. By adjustment of this collar 47, the position of the arm 44 vertically of the shaft 16 may be varied. Between the members 45 and 46 a collar 48 is adjustably secured to the shaft 16, such collar having a recess 49 providing an abutment shoulder having a substantially radial surface 50. The lever arm 44 is preferably of channel section, having the lower flange 51, the upper flange 52, and the vertical side member 54, such side member being so disposed that it may be engaged by a body moving along the conveyer track. When in normal position the arm 44 extends across the path of bodies moving along the conveyer being properly positioned by a stop member 44a. A spring 56 is provided for maintaining the arm in normal position, this spring being secured to a member 57 outstanding from the part 54 of such lever, the opposite end of the spring being secured to a bracket 58 projecting from the supporting post 13.

A feeler lever, comprising arms 60 and 61, is arranged within the channel of lever arm 44, being journalled upon a pin 59. A spring 62 is interposed between the arm 61 and the inner surface of the member 54 of the lever 44, such spring tending to move the feeler lever out of parallelism with the lever arm 44. The arm 60 of the feeler lever normally contacts, at a point such as 63, with the inner surface of the member 54, the latter constituting a stop element for such feeler lever. The outer end of the arm 60 is provided with a pivot pin 64 upon which is journalled a contact roll 65, which normally projects through an elongate slot 55 in the member 54 of the lever 44. The arm 61 of the feeler lever is provided with a tooth 66 which may be caused to engage with the abutment surface 50 of the collar 48, as will hereinafter more fully be described.

To the lower end of the shaft 16 a collar 67 is secured having the outstanding pin 68 to which is connected a spring 69, whose opposite end is secured to a bracket 70 projecting downwardly from the rail 1. The spring 69 is so arranged that it tends to turn shaft 16 in a clockwise direction.

At 71, Fig. 2, is indicated a box-like receptacle which may serve to contain any material which it is desired to move along the conveyer. The forward end of this receptacle comprises the element 72, which element may or may not be provided with an opening or recess such as 73, indicated in Fig. 9. While in Fig. 9 such opening or recess is indicated as formed directly in the element 72, the latter having no forwardly outstanding projections, it is contemplated that such recess may be formed in other ways. For example, referring to Fig. 10, the end of the receptacle is indicated at 72^a, such end being provided with a pair of parallel, outstanding members 74, 75 spaced apart vertically to provide a recess 73^a therebetween, one end of such recess being preferably defined by a block or lug 75^a. A further modification is illustrated in Figs. 12 and 13, wherein the advancing end 72^b of the receptacle is shown as provided with a pair of vertical guide members 76, 77 providing ways in which slides a block 78. This block may be provided with an opening or recess 73^b, and for securing such block in adjusted position the members 76, 77 are provided with a series of openings 79 with which may engage a bar or pin 80 passing through a suitable opening in the block.

The operation of the apparatus previously described is substantially as follows, it being assumed that the switch mechanism normally occupies the position shown in Fig. 1, wherein the switch bar 21 extends diagonally across the main track A, and the shoulder 32 of the latch lever 31 engages the abutment member 36 for holding the switch

bar in normal position. With the parts as thus arranged, a receptacle such as 71, in passing down the main track of the conveyer, will actuate the feeler mechanism comprising the lever 44 and the contact roller 65. If the approaching end of the receptacle be unprovided with a recess such as 73 or its equivalent, it will first contact with the roller 65, thereby swinging the feeler lever relatively to the lever arm 44 and causing the tooth 66 of the feeler lever to enter the recess 49. Immediately thereafter, an element of the advancing end of the receptacle will strike the outer surface of the member 54 of the lever 44, thereby swinging the lever 44 about the axis of shaft 16. As the tooth 66 has already been positioned within the recess 49, the swinging of the lever 44 causes the tooth to engage the surface 50 of the recess. The lever 44 is thus locked to the collar 48 and the shaft 16 is thereby compelled to turn with the lever arm 44. As the receptacle continues to move downwardly along the track, further turning of the arm 44 and the shaft 16 swings the crank arm 38, with the crank pin 39, to an extent sufficient to take up the lost motion provided by the slots 40 and 42 and then transmit any further movement of the arm 44, through the link 41, to the latch lever 31. The latter is thereby swung about its pivot 30 sufficiently to release the shoulder 32 from the abutment member 36. The normal relation of the feeler mechanism and the switch bar 21 is such that the feeler mechanism is moved substantially out of the path of the advancing receptacle at the instant the latch is released, and prior to contact of the receptacle with the switch bar. After the holding latch has been released, the receptacle strikes the bar 21 and by its impact therewith swings the latter about the axis of shaft 16 until the bar occupies a position substantially such as shown in Fig. 2, thereby permitting the receptacle to pass freely along the main track A of the conveyer. As the switch bar is convex toward the approaching receptacle, the latter can engage the former at but a single point at any one time, so that the movement of the receptacle along the track is not substantially impeded, nor is it deflected from its normal path to an appreciable extent. The brace rod 23, being bowed outwardly as at 26, is not engaged by the receptacle as the latter moves downwardly along the conveyer track so that there is no danger of the jamming of the receptacle beneath such brace rod.

If the approaching receptacle be provided with a recess or opening so positioned that the roller 65 enters the same as the receptacle approaches the feeler mechanism, the advancing receptacle will first contact with the member 54, and the feeler lever will not be moved relatively to the lever arm 44. As the tooth 66 now stands in the position shown in Fig. 4, the swinging of the lever arm 44 under impact of the receptacle merely moves the feeler lever bodily about the axis of shaft 16 without locking the arm 44 to the collar 48. The feeler mechanism thus moves freely out of the path of the advancing receptacle without actuating the shaft 16 and without releasing the latch lever 31. The bar 21 thus remains locked in normal position, and as the advancing receptacle comes into contact therewith, it is diverted from its normal path of movement and compelled to pass on to the branch track B of the conveyer. It is thus evident that the latch 31 may either be released, or allowed to remain in holding position in accordance with the type of indication with which the advancing receptacle is provided, so that selected receptacles may be caused to continue along the main track or to pass into the divergent track automatically and without any attention on the part of the operator.

While the arrangement shown in Fig. 9 is perhaps the simplest which may be devised for securing the desired selection, it is evident that other arrangements, such as those shown in Figs. 10 and 13 may be employed for selectively controlling the feeler mechanism in the same manner as described with respect to the device of Fig. 9. It is also evident that by arranging the arm 44 at different heights, the feeler mechanism may be made to cooperate with indications arranged at different positions upon the advancing face of the receptacle. Thus, if the conveyer system comprise a series of tracks diverging from the main track, it is possible, by providing the receptacles with indications arranged at different points, and by arranging the feeler mechanisms at the respective junctions to cooperate with such differently positioned indications, to cause selected receptacles moving along the main track to turn into any of the diverging tracks in accordance with such predetermined arrangement. Furthermore, a single receptacle may be provided with various indications cooperable with successive switches, if the conveyer system comprise a series of tracks diverging from one another in succession, so that a given receptable can be caused to pass from the main track on to a diverging track, and thence selectively to pass on to further diverging tracks.

The arrangement shown in Figs. 12 and 13 provides ready means whereby the indication recess may be adjusted in accordance with the track along which it is desired the receptacle to pass and if the conveyer system be at all complex, avoids the necessity of keeping on hand a large assortment of receptacles having differently disposed, fixed indications.

While as herein disclosed the conveyer

system is of that type having an endless belt or a belt resting upon rollers, it is evident that the switch mechanism herein shown is not in any manner restricted in its use to such form of conveyer, but might well be employed with any form of conveyer along which bodies are caused successively to travel. It is also to be understood that while the part 71 is hereinabove referred to as a "receptacle," this term has been used merely as a matter of convenience, as suitable indications capable of cooperation with the feeler mechanism might be provided upon any object traveling along the conveyer. It is also to be understood that while certain specific detail structure has herein been illustrated, various changes and rearrangements of parts, together with modifications of the elements employed may well be made without departing from the spirit of the present invention.

What I claim and desire to secure by Letters Patent of the United States is:

1. A conveyer having a main track and a branch track, and an elongate switch bar cooperable therewith and normally in substantial alignment with one side of the branch track, said switch bar being pivotally supported to swing about a point at one side of the main track and having a convex surface opposed to bodies approaching along said track.

2. A switch mechanism for conveyers comprising an elongate bar pivotally supported adjacent to one of its extremities, and means acting upon the free extremity of the bar for releasably holding said bar in normal position, said bar being bowed from end to end and presenting a convex surface for contact with bodies approaching along the conveyer.

3. In combination with a conveyer system having a main track comprising an endless supporting belt, a fixed track diverging therefrom, a switch mechanism comprising a switch bar and relatively movable elements engageable respectively with cooperating elements upon the advancing end of a body carried along said main track by the belt automatically to determine the position of said switch bar and the diversion thereby of such body into the diverging track or its continuing movement along the main track.

4. A switch mechanism for use with conveyer tracks, comprising a switch bar pivoted to swing transversely of the track, a latch mounted upon the free extremity of the bar and engageable with a fixed abutment for holding the bar in predetermined position, a feeler movable in a plane substantially parallel to the plane of movement of the bar, and means for transmitting movement from the feeler to the latch.

5. Switch mechanism for conveyers comprising a pivoted switch lever, a latch for positively holding said lever in normal position, a member normally extending into the path of a body moving along the conveyer and movable out of such path independently of the switch lever, a feeler element upon said member, said feeler element being constructed and arranged to lock said member to a movable part, and means for transmitting movement from said part to the latch whereby to release the switch lever.

6. Switch mechanism for conveyers comprising a switch bar and a retaining latch therefor, a pivoted lever arm, spring means normally holding said arm in a position to be struck by a body moving along the conveyer but permitting the arm to be swung to one side by such body in passing, a feeler element mounted upon said arm to swing therewith, means actuable by said feeler element for locking said arm to a rotary element whereby to turn the latter with the arm, and connections between said element and the latch.

7. Switch mechanism of the class described having a movable switch bar and releasable latch means for holding said bar in normal position, and releasing devices for said latch means comprising a rock shaft, a lever pivoted to swing freely thereon, a feeler element carried by said lever, means actuable by the feeler element for locking said lever to the shaft, and means for transmitting movement from the shaft to said latch means.

8. Apparatus of the class described comprising a latch member, a rock shaft, a lever pivoted upon said shaft to swing freely about the axis thereof, a feeler element movably supported upon the lever, an abutment member fixed upon the shaft, a member movable with the feeler element and engageable with the abutment whereby to lock the lever to the shaft, and means for transmitting movement from the shaft to the latch.

9. Apparatus of the class described comprising a latch member, a rock shaft having a crank arm fixed thereon, means connecting said crank arm to the latch for transmitting movement from the shaft to the latch, a collar fixed to the shaft, said collar having a substantially radial abutment surface, a lever pivoted to swing upon the shaft, a feeler element pivotally supported upon the first lever to move relatively thereto, and a tooth moving with said feeler element and engageable with the said abutment surface for locking the lever to the shaft.

10. Apparatus of the class described comprising a movable latch member, a rock shaft, a collar fast to said shaft and having a crank arm, a crank pin carried thereby, link means connecting the crank pin with the latch, a second collar fast to the shaft, said latter collar having a peripheral recess

providing a substantially radial face, a lever pivoted upon the shaft adjacent to said second collar, and a feeler element pivotally supported upon the lever, said feeler element having a tail member provided with a tooth engageable with the radial face of the recess for locking the lever to the shaft.

11. Switch mechanism of the class described comprising a switch bar pivoted to swing about a fixed axis, latch means associated with said bar for holding it in predetermined position, a feeler device pivoted coaxially with said bar, and a rod for transmitting movement from the feeler device to said latch for releasing the latter.

12. Switch mechanism for use with a gravity conveyer track comprising a switch bar pivotally supported at one end at a point adjacent to one side of the track, a pivoted latch carried by said bar adjacent to its opposite end, an abutment member adjacent to the opposite side of the track for engagement by said latch, a movable feeler device arranged for engagement by a body moving along the track, and a link for transmitting movement from the feeler device to the latch.

13. A switch mechanism of the class described comprising a switch bar pivotally supported adjacent to one of its ends, a spring pressed latch mounted upon said bar adjacent to its free extremity and engageable with a fixed abutment for holding the bar in predetermined position, a pivotally supported feeler, and means, including lost motion connections, for transmitting movement from the feeler to the latch.

14. Switch mechanism for conveyers comprising a pivotally mounted switch bar, a spring pressed latch pivotally supported upon the free end of said bar, a fixed abutment for engagement with said latch, a movable feeler member, a pin movable thereby, and a link, having a slot at one end with which said pin engages, and connected at its opposite end to said latch.

15. Switch mechanism of the class described comprising a switch bar pivoted at one end to swing about a fixed axis, a latch pivotally mounted upon the free extremity of said bar, a feeler device mounted to swing about the axis of said bar, a pin movable by said feeler device, a pin carried by said latch, and a link having an elongate slot at either end, said slots respectively being constructed and arranged to receive the respective pins.

16. Switch mechanism for conveyers comprising a movable switch member and a retaining latch therefor, a lever arm normally occupying a position such as to be struck by a body moving along the conveyer, and thereby to be swung to one side to permit such body to pass, a feeler element supported upon said lever arm and having a portion projecting therefrom in the direction of approach of a body along the conveyer, and means actuable by movement of the feeler element relatively to the arm for operatively connecting the latter to the latch.

17. Switch mechanism for conveyers comprising a movable switch member and a retaining latch therefor, a member normally standing transversely of the path of a body moving along the conveyer and movable out of such path by a body in passing, a lever pivotally supported upon said member for bodily movement therewith, said lever being provided at one end with an element normally projecting from said member in the direction of approach of a body along the conveyer and having a tooth at its opposite end, an actuator connected with the latch, and an abutment element fixed relatively to said actuator and engageable by said tooth upon movement of the lever relatively to the member upon which it is mounted.

18. In a device of the class described a movable switch element, and controlling devices therefor comprising a main lever, a feeler lever pivotally supported thereon, a contact element carried by said feeler lever, and spring means interposed between said main lever and feeler lever so constructed and arranged as normally to maintain said feeler lever with its contact element projecting beyond the edge of the main lever.

19. A device of the class described comprising a lever pivotally supported adjacent to one of its ends, a fixed stop member, spring means normally maintaining said lever in contact with the stop member, an elongate feeler element pivotally supported upon the lever, a contact roll journalled upon one end of the feeler element, a spring normally tending to turn said feeler element out of parallelism with the lever, and stop means for limiting such turning movement.

20. Switch mechanism for conveyers comprising a switch member and a retaining latch therefor, an actuator for the latch, a lever normally extending across the conveyer and in the path of bodies moving along the same, a feeler element pivotally supported upon the lever, said element having a contact roll at one end, the peripheral surface of which normally projects beyond the edge of the lever in the direction of approach of bodies along the conveyer, and a tooth at the opposite end of said feeler element, said tooth being operatively engageable with a part fixed relatively to the latch actuator upon movement of the feeler element relatively to the lever, whereby to lock said lever and actuator together.

21. In combination with a conveyer, a movable switch member, and means for determining movement of such member comprising a lever of channel section pivotally supported to swing across said conveyer and

in a plane substantially parallel thereto, the closed side of said lever being normally so positioned as to oppose bodies moving along the conveyer, said closed side having an elongate slot therein, a feeler lever pivoted within the channel of the first lever, a compression spring interposed between the inner surface of the first lever and one end of the feeler lever, and a contact roll journalled at the other end of the feeler lever and normally projecting through the slot in the first lever.

22. In combination with a conveyer, receptacles movable along the same, feeler mechanism normally extending across the path of such receptacles, such feeler mechanism comprising relatively movable contact members, the advancing faces of the several receptacles being provided with elements constructed and arranged respectively for selective contact with one or the other of said feeler members, and a switch member, movable independently of said feeler mechanism, but normally controlled thereby, for selectively diverting receptacles from their normal path in accordance with indications carried by the receptacles.

23. In combination with a conveyer having a main track, a diverging track, receptacles movable along said conveyer, feeler mechanism comprising a plurality of relatively movable members, certain of which normally project beyond others in the direction of approach of said receptacle, selected receptacles having elements arranged to contact with a certain one or said feeler members, prior to contact of an element of such receptacle with the other of said members, and a switch member, movable independently of such feeler mechanism, but normally controlled thereby, for determining diversion of selected receptacles to the branch track.

24. In combination with a conveyer having diverging tracks, receptacles movable along said conveyer, feeler mechanism comprising a plurality of relatively movable members, selected receptacles having elements arranged to contact with one of said members prior to contact of elements of the receptacles with the other of said members, and other receptacles having elements arranged first to contact with the latter of said members, and a switch device, movable independently of said feeler mechanism but normally under control of the latter.

25. In combination with a conveyer, receptacles movable along said conveyer, feeler mechanism comprising relatively movable parts one of said parts projecting beyond the other in the direction of approach of receptacles along said path, the advancing ends of selected receptacles having elements constructed and arranged to engage the other of said movable parts prior to engagement with said projecting part, and a switch member movable independently of said feeler mechanism, but normally under control of the latter, for diverting certain of the receptacles from their normal path.

26. In combination with a conveyer having a pivoted switch bar, a receptacle movable along said conveyer, and switch controlling feeler mechanism comprising relatively movable members, one of said members projecting beyond the other in the direction of approach of receptacles along the conveyer, said receptacle having a recess into which such projecting feeler member may enter.

27. In combination with a conveyer having a switch, a receptacle movable along said conveyer, and switch controlling feeler mechanism comprising relatively movable members, one of said members projecting beyond the other in the direction of approach of receptacles along the conveyer, and a vertically adjustable part carried by said selected receptacles, said part having an element engageable with the second of said feeler members prior to engagement of the projecting member with any portion of the receptacle.

28. In combination with a conveyer having a feeler controlled switch, a receptacle movable along the conveyer, said receptacle having a guideway upon its advancing end, a block having a recess therein slideable along said guideway, and means for securing said block in adjusted position.

29. A conveyer system including a conveyer for carriers, a station comprising a track diverging from said conveyer and automatic means for switching carriers into said station, said means comprising an arm for engaging said carriers before they reach the junction of said conveyer and track, said arm being mounted to swing into either an operative or inoperative position, and means comprising a second arm, coaxial with the first arm, for determining movement of said first arm.

30. A conveyer system including a conveyer for carriers, a station comprising a track diverging from said conveyer, and automatic means for switching carriers into said station, said means comprising an arm for engaging said carriers before they reach the junction of said conveyer and track, said arm being normally positioned diagonally across the path of movement of the carriers, and releasable latch means carried by the free extremity of the arm for holding it in normal position on said conveyer but mounted for movement out of said position.

31. A conveyer system including a conveyer for carriers, a station comprising a track diverging from said conveyer, and automatic means for switching carriers into said station, said means including a pivoted arm normally positioned in the path of

movement of the carriers on said conveyer and arranged to be moved out of its operative position by certain of said carriers, and releasable latch means carried by the free extremity of the arm for holding it in normal position.

32. In a conveyer system having diverging ways for carriers, the combination of a pivoted switch element normally in position to divert carriers from one of said ways into another, said switch element being mounted to be moved out of said position by the carriers, means for locking said switch in its normal position, and mechanism comprising a pivoted part coaxial with said switch element and arranged to be actuated by the carriers for operating said locking means.

33. In a conveyer system, the combination of a main conveyer for carriers, a branch conveyer diverging from said main conveyer, a switch bar pivoted to turn about a fixed axis normally lying across said main conveyer in position to divert carriers therefrom on to said branch conveyer, supporting means for said switch enabling it to be moved out of said position by the contact therewith of said carriers whereby the carriers are allowed to continue along said first conveyer, a lock for holding said switch in said normal position, a feeler element in the path of travel of said carriers before they reach said switch, means supporting said element for bodily swinging movement independently of the switch bar when struck by one of said carriers, means for returning said element to its initial position after it has been moved away from said position by a carrier, and connections between said element and lock for utilizing the movement of said element to operate the lock.

Signed by me at Boston, Massachusetts, this twenty-first day of March, 1922.

FRED R. TAISEY.