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AUTOMATIC SELECTIVE CONVEYER SWITCH DEVICE

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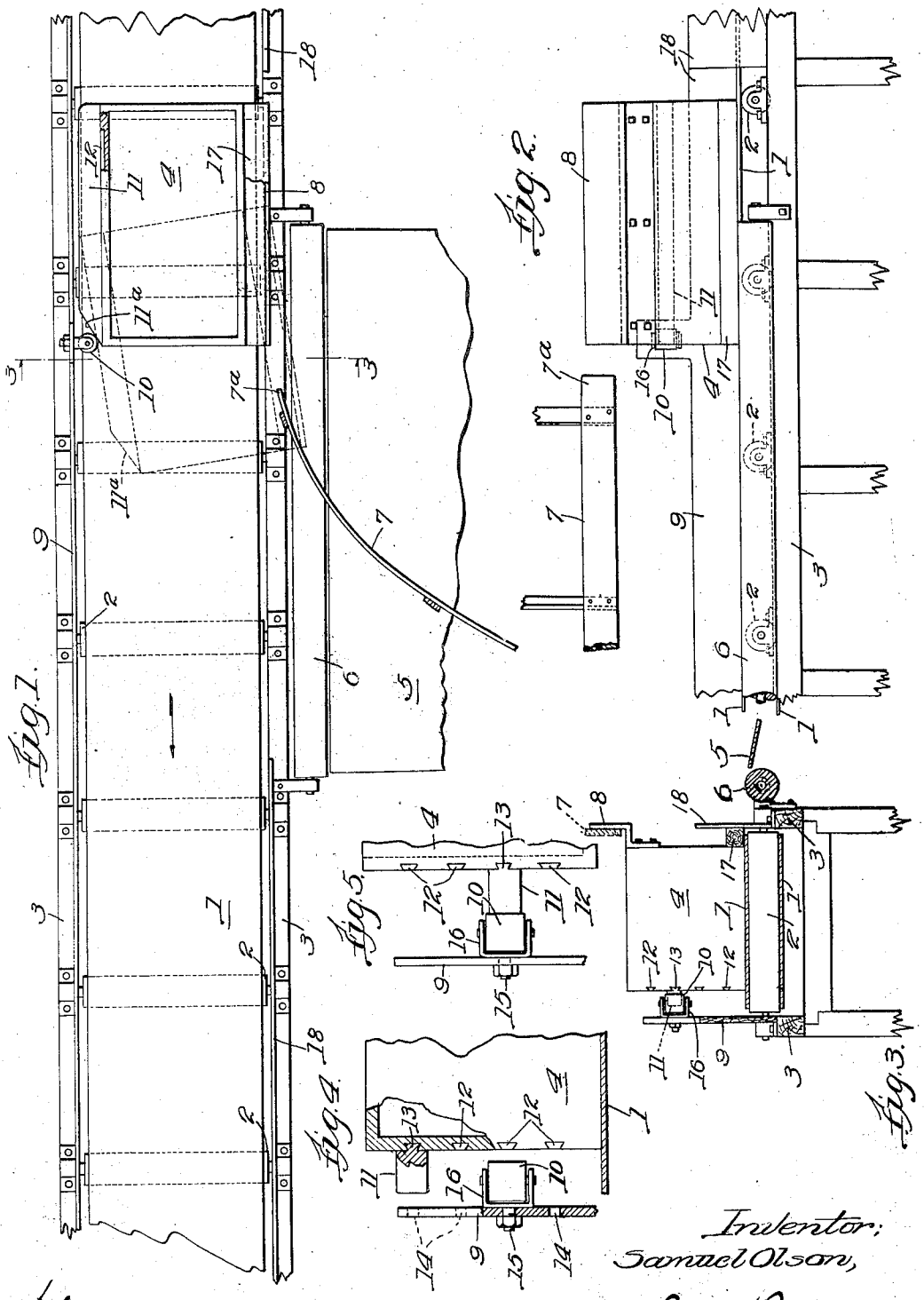


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Witness:

Inventor:
Samuel Olson,
by Burton & Burton
his Attys.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC SELECTIVE CONVEYER SWITCH DEVICE.

Application filed May 27, 1922. Serial No. 564,016.

To all whom it may concern:

Be it known that I, SAMUEL OLSON, a citizen of the United States, and having residence at Chicago, in the county of Cook and the State of Illinois, have invented certain new and useful Improvements in Automatic Selective Conveyer Switch Devices, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to automatic switching devices for conveyer systems, and its object is to provide means associated with each load carrier or car of the system for causing it to be automatically diverted from the conveyer at a selected station thereof. It consists of the features and elements of construction and their combination hereinafter described and shown in the drawings, as indicated by the claims.

In the drawings:—

Figure 1 is a plan view of a part of a conveyer showing the station and the load carrier associated therewith embodying this invention.

Figure 2 is a side elevation of the conveyer, as viewed at the station, showing the relation of the switching means to the load carrier.

Figure 3 is a transverse section taken as indicated at line, 3—3, on Figure 1.

Figure 4 is a fragmental view taken as a section at the same plane as Figure 3, showing the arrangement of switching devices to avoid diverting a given carrier at a particular station.

Figure 5 is a view similar to Figure 4, showing the relation of the selective switching devices at the station at which the load carrier is to be diverted.

In the drawings the conveyer is shown as a horizontally travelling belt, 1, supported on the usual rollers, 2, which are journaled upon side frames, 3, 3. It may be understood that for the purposes of this invention the loads carried by the conveyer are in all cases disposed in containers or load carriers in the form of boxes, 4, of uniform dimensions. Disposed at any desired points along the path of travel of the belt, 1, are receiving stations such as that indicated by the platform, 5, extending laterally from the belt, 1, preferably with a roller, 6, interposed for facilitating the lateral movement of the boxes or carriers, 4, from the belt onto the platform. Associated with each station platform, 5, is an overhead switch rail, 7, fixed permanently in position and extending with its inner end, 7^a, adjacent the path of travel of the boxes on the belt, 1, but not intersecting the normal path which the boxes will follow in passing the station, 5.

However, as shown in Figure 3, each box or carrier, 4, is provided with an up-standing lug or flange, 8, at the side which travels adjacent the station, 5, so that if the box, 4, be slightly diverted in this direction, this up-standing flange, 8, will engage the curved switch rail, 7, at 7^a, and by further travel will be swung away from the direction of movement of the belt, 1, over the roller, 6, and onto the platform, 5. The initial engagement of the flange, 8, with the switch rail at 7^a, is effected when desired by mounting on the lateral guard wall, 9, a projection in the form of a roller, 10, and then fitting the box, 4, with a laterally projecting rail or bar, 11, preferably beveled at its forward end as shown at 11^a, and positioned at such a height on the side wall of the box that it will encounter the projection, 10, and be laterally shifted upon the belt, 1, just in time for engagement of its flange, 8, with the rail, 7.

At each station the projecting roller, 10, will occupy a different elevation so that if a given box has its projecting bar, 11, arranged at a different height, it will not coact with the roller, 10, and the box will pass by said roller as indicated in Figure 4, without being diverted from its straight line course on the belt, 1. But if the bar, 11, is disposed at an elevation to register with the projecting roller, 10, at a given station, the bar will engage the roller as indicated in Figure 5, and the box, 4, will presently assume the position shown in dotted lines in Figure 1 with its flange, 8, engaged with the switch rail, 7.

It is evident that different boxes may be provided corresponding to each station and having control bars, 11, mounted on their side walls at different elevations corresponding to the respective positions of the rollers or projections, 10, at the stations; but if preferred, the boxes or carriers, 4, may be made all alike, each having a plurality of longitudinal dove-tail grooves, 12, in its side wall to receive the key or feather, 13, of the control bar, 11. Preferably these grooves, 12,

may be closed near the rear ends of the box so that the bars, 11, will be held against longitudinal sliding movement therein. Then by setting the bar, 11, of any box, 4, in a given one of the grooves, 12, the destination of the box may be determined, and it will be automatically diverted from the conveyer belt, 1, at the station whose projecting roller, 10, is arranged at the corresponding height. As a preferred construction I have also shown the guard wall, 9, in Figure 4 provided with a plurality of holes, 14, any one of which may receive the securing stud, 15, of the bracket, 16, in which the roller, 10, is journaled; this permits of uniform construction in manufacturing the parts while allowing any desired arrangement of the switch controlling devices after the conveyer is set up.

I claim:

1. In a conveyer a load carrier to travel thereon, a fixed switch member positioned out of the normal path of the load carrier, means on the carrier adapted for engagement with the switch member and fixed means adjacent the normal path of the load carrier adapted to divert the carrier from said normal path for engagement and control of the switch member.

2. In a conveyer, a load carrier to travel thereon, a station laterally adjacent the path of travel, a fixed switch member associated with the station, fixed means adjacent the conveyer arranged to divert the load carrier laterally from its normal path, and means on the carrier to engage the switch member when the carrier is so diverted, so that further advance of the carrier shall cause it to be shunted off the conveyer toward the station.

3. In the combination defined in claim 1, said switch member comprising a laterally directed switch rail mounted above the level of the top of the carrier, and said carrier being provided with an upstanding follower, to engage the rail.

4. In the combination defined in claim 1, the diverging means comprising a device projecting laterally for encounter with the carrier at one side of the conveyer.

5. In the combination defined in claim 2, said diverting means comprising a device projecting laterally for encounter with the carrier at the side of the conveyer opposite the switch member, and a cooperating projection on the carrier extending from its side wall.

6. In the combination defined in claim 2, said diverting means comprising a device projecting laterally for encounter with the carrier at the side of the conveyer opposite the station and a co-operating projection on the carrier extending from its side wall, one of said projections being beveled or tapered at one end for wedgelike encounter with the other.

7. In the combination defined in claim 2, said diverting means comprising a device projecting laterally for encounter with the carrier at the side of the conveyer opposite the station and a co-operating projection on the carrier extending from its side wall, one of said projections being beveled or tapered at one end for wedgelike encounter with the other and the other projection being a roller journaled in a fixed mounting.

8. In a belt conveyer, a plurality of load carriers to travel on the belt, a plurality of stations laterally adjacent the path of belt travel, a fixed switch member associated with each station at one side of the normal path of the load carriers on the belt, and means to divert a load carrier laterally from its normal path toward the switch member of a station comprising a device projecting laterally for encounter with the carrier at the side of the belt opposite the station, and a cooperating projection extending from the side wall of the carrier, said projections of the respective carriers being disposed at different heights, and the projections at the respective stations extending at different heights from the belt plane to adapt the carriers to be selectively switched off at the various stations.

9. In the combination defined in claim 8, the projection on each carrier being vertically adjustable to adapt the carrier to encounter the projection at any selected station.

10. In the combination defined in claim 8, the projections at the several stations being vertically adjustable for the purpose indicated.

11. In a belt conveyer as defined in claim 1, lateral guides co-operative with the belt to center the load carrier thereon, one of said guides being interrupted immediately in advance of the switch member to permit lateral shifting of the carrier for engagement with the switch.

12. In a belt conveyer, a load carrier to travel on the belt, a station laterally adjacent the path of belt travel, a fixed switch member at the station at one side of the normal path of the load carrier on the belt, fixed means adjacent the belt arranged to divert the load carrier laterally from its normal path toward said switch member, and means on the carrier to engage the switch member when the carrier is so diverted, whereby further advance of said carrier will cause it to be carried off the belt toward the station.

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 22d day of May, 1922.

SAMUEL OLSON.