Oct. 10, 1933. J. J. MOJONNIER 1,929,707

CONVEYER

Filed Nov. 27, 1931 3 Sheets-Sheet 1

FIG. 3.

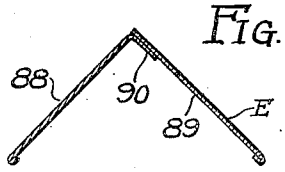
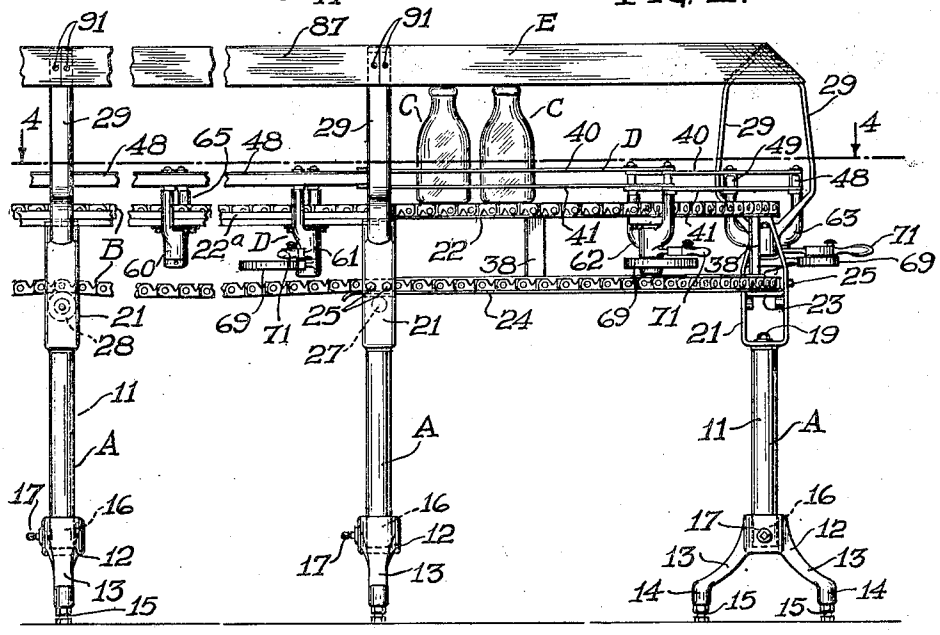


FIG. 1.

FIG. 2.



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CONVEYER

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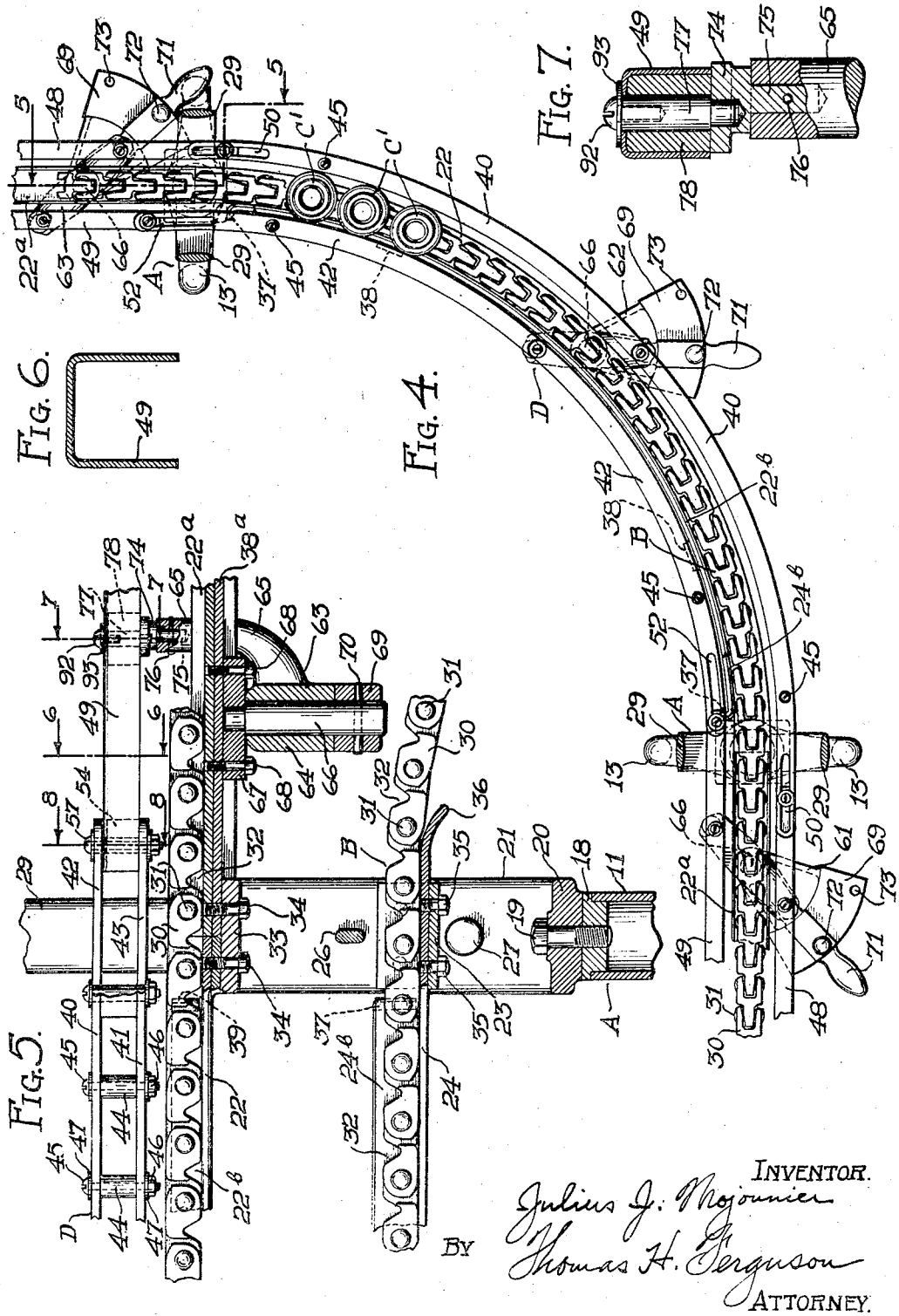


FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

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CONVEYER

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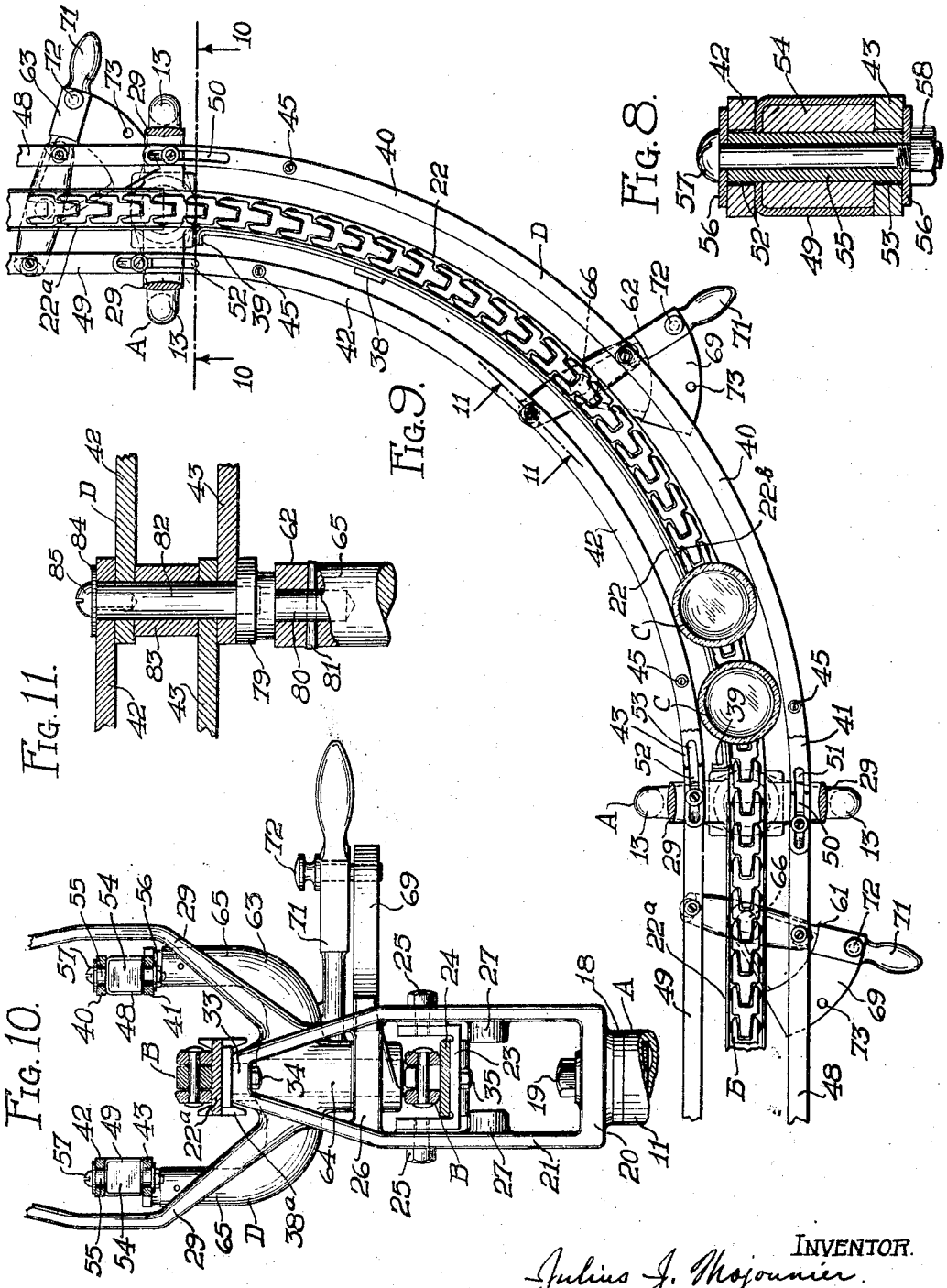


FIG. 9.

FIG. 8.

FIG. 11.

FIG. 10.

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UNITED STATES PATENT OFFICE

1,929,707

CONVEYER

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Application November 27, 1931
Serial No. 577,558

13 Claims. (Cl. 198—137)

The present invention relates to conveyers and has to do more particularly with conveyers which are adjustable in width to suit articles of different widths intended to be conveyed by it. Ordinarily the articles conveyed are carried along in single file, the width of the article being a little less than the width of the channel along which it passes, although, of course, it is obvious that the articles need not always be carried along in this single file fashion.

The invention has been conceived and developed in connection with the production of a commercial conveyer for carrying milk bottles of different sizes and will be described and illustrated in that connection.

One object of the invention is to provide a conveyer of the class mentioned which will convey the articles placed upon it around curves as well as along straight stretches, and will do so, where milk bottles are involved, while holding them upright, with comparatively little friction against them and with a minimum of scratching or other marring of the bottles. And it is desired that this end be attained even where the curves traversed are of small radius. It will be obvious that whatever advantages the structure has with reference to milk bottles will be present, in some degree at least, where other articles are conveyed.

Other objects are to provide a novel structure which will require a minimum of power to drive it, one which will be durable, one which may easily be cleaned to preserve sanitary conditions in the plant where it is employed, one which will be easily and positively adjustable in the width of its conveying channel to suit the articles of different widths and one which can be economically manufactured, installed and repaired.

These and other objects and features of the invention will be more fully understood upon reference to the following detailed description taken in connection with the accompanying drawings and the scope of the invention will be particularly pointed out in the appended claims.

In said drawings, Fig. 1 is a plan view of a portion of a conveyer constructed in accordance with the present invention; Fig. 2 is a side elevation of the same; Fig. 3 is a cross section through the conveyer cover, the plane of section being indicated by the line 3—3 of Fig. 1; Fig. 4 is a plan view of the structure with the cover removed and parts shown in section, the plane of section being indicated by the line 4—4 of Fig. 2; Fig. 5 is a partial sectional elevation taken on a plane indicated by the line 5—5 of Fig. 4; Fig. 6 is a transverse section through a portion of one of the guides, the plane of section being indicated by the line 6—6 of Fig. 5; Fig. 7 is a similar section at a point where one of the guides is connected to a carrier arm, the plane of section being indicated by the line 7—7 of Fig. 5; Fig. 8 is another section taken at a connection point, the plane of section being indicated by the line 8—8 of Fig. 5; Fig. 9 is a view similar to Fig. 4 but illustrating the guides of the conveyer set at a greater distance apart than in Fig. 4; Fig. 10 is a sectional elevation, the plane of section being indicated by the line 10—10 of Fig. 9; and Fig. 11 is a section illustrating one of the joints between guide segments and their supporting carrier, the plane of section being indicated by the line 11—11 of Fig. 9. Throughout these views like characters refer to like parts.

Referring to the drawings in detail, A designates the supporting standards, B the conveying element by which the articles are advanced, C, C' milk bottles which are the articles which the conveyer is designed to carry, D the guiding mechanisms, and E the cover or roof of the structure.

The standards A, by which the conveyer is supported, are preferably of the same construction in each instance and consequently the description of one will suffice for all. Each standard preferably includes a tubular shank 11 provided at its lower end with a base member 12 having legs 13 terminating in feet 14 having adjustable supporting screws 15 by which the standard may be accurately set upon an uneven floor. The member 12 has a receiving pocket 16 of suitable cross section to receive the lower end of the standard 11. The base and shank are held in position by a set screw 17.

The upper end of the standard 11 is preferably closed by a cap 18 provided with a threaded opening for the admission of a threaded bolt 19. The latter passes through an opening in the horizontal portion 20 of an open frame 21 which extends upward from the top of the standard 11. The open frame 21 has a narrow upper end which serves as a bearing for the upper chain carrying members 22, 22a of the conveyer structure. The frame 21 is also bridged at an intermediate point by a bridge 23 which carries the lower chain carrying member 24. The bridge 23 is provided at its ends with uprights which are secured to the vertical walls of the main frame 21 by screw bolts 25. The open space within the

upper portion of the frame 21 is also bridged by a strut 26 which preferably forms part of the frame casting. The frame 21 is also provided with inwardly extending bosses 27 which are bored out in some instances to provide bearings for the journals of supporting rollers 28. In this connection it may be noted that these rollers are used only where the lower chain supporting members 24 are omitted. In other words, portions of the conveying structure may be provided with the rigid supporting members 24 and other portions with the rollers 28, located at intervals along the conveyer.

The frame 21 is also provided with upward extending arms 29 which serve as supports for the roof or cover E. These arms extend high enough to provide proper clearance between the roof E and the articles being carried.

The conveying element B consists essentially of the conveying chain and the supports for it. The chain is preferably a simple link chain of the type disclosed in my prior United States Patent No. 1,804,701, granted May 12, 1931. It consists of metal blocks 30 having interleaved ends which are secured together by transverse pins 31. The blocks in this instance are preferably quite short and the connections are, as in the case of the patent, loose enough to allow the chain to travel along horizontal curves of comparatively short radius as well as around curves in a vertical plane, such as are encountered when the chain passes over the driving and guiding wheels. The latter are sprocket wheels which engage tooth openings 32 in the links, after the manner fully disclosed in my aforesaid patent. These vertical flanges of the supporting members 22 and 24 are preferably provided with wear plates 22*b* and 24*b*, respectively, which fit against them on the chain side and extend their entire lengths and have turned ends fitting upon the corresponding ends 37 and 39 of these flanges, all as clearly illustrated.

The chain is operative to travel along beneath the articles in the conveying channel without injuring them, even though they become jammed or are held against advance by some extraneous force. The chain links have only frictional engagement with the articles and consequently slip along under them whenever the resisting force becomes too large. Obviously, in some instances other article advancing means than herein disclosed might be used to advantage and that without departing from the scope of the present invention.

The supporting members 22, 22*a* upon which the upper stretch of the chain travels extends in sections from standard to standard and rest upon the upper end 33 of the standard frame 21. Where the members 22, 22*a* are jointed the abutting ends come together over the member 33 and connection is made by machine bolts 34, as illustrated more particularly in Fig. 5. The abutting members 22, 22*a* provide a passageway along which the upper stretch of the chain travels.

Obviously, with the particular construction shown, the conveying chain may be made to travel in either direction.

Similarly, the lower stretch of the chain travels along the member 24 carried upon the bridges 23 of the supporting standards. In this instance the member 24 is preferably secured to the standards in the same way as the members 22, 22*a*, the machine screws 35 serving as the connecting means. The bottom of the member 24 is also preferably cut away from its vertical flange for a short distance from its ends and there turned down to form guiding lips 36. This may be done at both ends, or, if desired, only at the end where the chain enters. The ends of the vertical flange constituting the side wall of the channel bar member 24 are preferably bent outward to form rounded corners and non-interfering ends 37. At intervals between the standards the supporting members 22 and 24 are connected by vertical braces 38. The vertical flange of the upper chain carrying member 22 is also treated in the same way as the flange of the member 24 and has the rounded outturned ends 39.

Obviously, the chain supporting members may be curved, or straight, or both, according to the requirements of the particular installation. In the instance illustrated, a portion of the conveyer is the quadrant of a circle and other portions joining it at either end are rectilinear. Where the direction of travel is laterally curved as is the case where the chain travels over the quadrant, then curved supporting members 22 and 24 are employed. However, where the chain is traveling along a rectilinear course then the upper guideway 22*a* only need be employed, although, of course, if desired, a straight guideway similar to the curved lower guideway 24 might also be used. However, instead of using a continuous support for the lower part of the chain on the straight-a-way stretches, it will suffice to run that portion of the chain over the rollers 28 journaled in the bearings provided by the bosses 27, as heretofore pointed out.

In brief, then, the upper member 22 and the lower member 24 are located in the quadrant and the upper members 22*a* and the rollers 28 take care of the straight stretches of the chain. The curved members 22 and 24 are preferably angle irons with their upright webs on the inside of the circle. They thus guide the chain stretches as they are drawn around the quadrant. The straight guide members 22*a*, on the other hand, are preferably channel irons, thus providing inner and outer walls for the chain passageway. The members 22*a* are preferably reinforced by supporting channel bars 38*a* which have their channels opening downward. These are added primarily for strength. These bars 38*a* are fitted at their ends beneath the bars 22*a* and upon the standard frame ends 33 and the same bolts which secure the latter in place secure the former.

The particular conveyer illustrated is designed to carry milk bottles of the quart and pint size. These are designated, respectively, C and C′ in the drawings. Preferably the bottle engaging surfaces of the chain blocks 30 are flat instead of being rounded as in my aforesaid patent. Although this flat structure is preferable yet it will be understood that in some instances the rounded engaging surfaces might be employed. Obviously, these engaging surfaces might be variously shaped. These variations are largely matters of judgment to be determined by the designer or manufacturer.

The guiding mechanism D, used to provide the conveying channel and to vary its width to suit articles of different sizes, as the quart and pint milk bottles C, C′ include guides and shiftable carriers for them, for both the rectilinear and curved portions of the conveyer. These guides extend longitudinally along the conveying channel on opposite sides of its center line. They

are composed of segments suitably joined together at their ends.

For the curved portions of the conveyer the segments 40 and 41 are provided on the outside of the curve and the segments 42 and 43 on the inside. The segments 40 and 42 are positioned above the segments 41 and 43 respectively. There are two sets of bars 40, 41 and two sets of bars 42, 43, and each set is provided with a connection by which the bars are firmly held in spaced relation as a single bar. This connection in each case includes a spacing collar 44, a retaining bolt 45, a nut 46 and washers 47. The spacing connection thus provided is preferably located in each case near the ends of quadrant, as shown in Figs. 4 and 9.

Along the straight stretches of the conveyer, the guides preferably take the form of inverted channel bars, the bars 48 being on the one side of the conveying channel and the bars 49 on the other side.

Along the curved portions of the conveying channel the members 40, 41 on the one side and the members 42, 43 on the other, are the only parts of the conveyer which engage the sides of the articles being conveyed. Along the rectilinear portions the bars 48 and 49 constitute the sole means for engaging the sides of the articles. These several members thus constitute the wall members of the conveying channel and are the only members which engage the sides of the articles. While they thus act upon the sides of the articles, the endless chain travelling along the bottom of the conveying channel is the only part of the conveyer which engages the under side of the articles. This engagement on the sides and bottom is what I have termed a three-point contact, one point below, a second point on one side, and a third point on the other. Of course, it is apparent that on the curves a single bar on each side might be used as the sole article side engaging means. With this different construction the term (three point contact) would be strictly accurate for all parts of the conveying channel but it is intended that this language shall cover the double side bar construction as well as the single side bar construction.

Besides the spacing connections of the guide bars 40, 41 on the one hand and 42, 43 on the other, provided by the bolts 45 and associated parts, these bars are connected to each other by lost motion pivotal connections in the form of pin and slot connections, the latter being necessary since the bars on opposite sides of the conveying channel are to be moved toward and from each other at points where curves are involved. Each of the guide bars associated with the curve has its outer end slotted, the bars 40 having the slots 50; the bars 41, the slots 51; the bars 42, the slots 52; and the bars 43, the slots 53. The slotted ends of these segmental guide bars are connected to the rectilinear guide bars 48, 49, the outer bars 40, 41 and 48 being connected on the one hand and the inner bars 42, 43 and 49 being connected on the other. The lost motion connection at each of these points is made up in the same way and it will suffice to describe the connection shown in Fig. 8 wherein bars 42 and 43 are connected with bar 49. As there shown, the upper bar 42 is provided with the slot 52, and the lower bar 43 with the slot 53. The single guide member 49 which is throughout its greater length an inverted channel is at this point provided with a solid block 54 which is firmly secured in place by welding or otherwise. A central opening extends through the member 49 and block 54 and through this opening extends a tube 55. This tube is of sufficient length to extend slightly beyond the upper surface of the member 42 and the lower surface of the member 43. Washers 56 bear against the ends of the tube 55 and a bolt 57 extending through the washers and the tube cooperates with a nut 58 to complete the connection. The completed connection necessarily leaves the members 42 and 43 freely movable with reference to the member 49 and the other parts which are rigidly secured to it. With this construction at each of the slots 50, 51, 52, 53 it will be apparent that the associated guide members may be freely moved relative to each other in a longitudinal direction.

To properly support the various guide bar segments along both the rectilinear and curved portions of the conveying channel and to provide means for shifting them toward and from each other to vary the width of the channel, I provide a number of shiftable pivotally mounted carriers. These, in the embodiment illustrated, include a carrier 60 located in a rectilinear portion of the conveyer, an outer carrier 61 located at one end of the quadrant or curved portion, an intermediate carrier 62 located near the center of the quadrant, and a second outer carrier 63 located at the other end of the quadrant. In any particular installation these carriers should be positioned to suit the requirements of the installation in hand. What is shown in the drawings is merely fragmentary and illustrative.

Each carrier includes a hub 64 and two horns or arms 65 which extend outwardly and upwardly on opposite sides of the conveying portion of the conveying element B. The hub 64 is rotatably mounted upon the vertical pivot pin 66 located centrally below this same portion of the conveying chain. Preferably the pin 66 is secured by a rigid connection of some sort to a base 67 and the latter is secured to the under side of the guideways by machine screws 68, or other suitable means. Obviously in the case of the carrier 62 the supporting block 67 will be secured to the under side of the guide member 22, while in the case of the other carriers it will be secured to the channel bars 22*a* and 38*a* in the manner clearly illustrated in Fig. 5. Obviously, in all these cases these various parts provide a suitable support for the traveling element and the guide carriers.

The hub 64 in each case is held on the pivot pin 66 by a segment 69, which is fitted over the end of the pin 66 and firmly secured to it by a cross pin 70 or other suitable means. The hub 64 is provided with an outwardly extending handle 71 which is adapted to be moved back and forth over the segment 69 and to be secured in adjusted positions by a pin 72 which passes through an opening in the handle and into suitable openings 73 in the segment. By shifting the handle 71 back and forth, the carrier may be rocked about its pivot pin 66 to bring the ends of its arms 65 nearer to or farther from the center line of the conveyer. Ordinarily but two positions of the handle 77 will be used since the particular conveyer disclosed is intended for the handling of milk bottles of but two sizes. The position of the parts illustrated in Fig. 4 is that required for handling the pint size bottles C^1, while that shown in Fig. 9 is the adjustment required for the quart size

bottles C. It will be noted that it will not always be necessary to provide each of the carriers with a handle and segment. Thus in the embodiment illustrated the carrier 60 is not provided with a handle, while the other carriers are.

The upper ends of the carrier arms 65 are connected to the guide bars in different ways. One case is illustrated in Fig. 7, where the inverted channel guide bar 49 is connected to the carrier arm 65. To meet the requirements of this connection, the upper end of the arm 65 in each case is provided with a pin carrying member 74 which has a downwardly extending pin 75 on its under side which passes into an opening in the arm 65 and is held therein by a cross pin 76, or other suitable means. The member 74 also carries an unstanding pivot pin 77 which passes through aligned openings in the block 78 and the upper part of the channel member 49 into which the block 78 is fitted and suitably held by brazing or the like. A screw 92 and washer 93 hold the member 49 upon the pin 77 in pivotal relation thereto. All the carriers 60, 61 and 63 are provided with these pivotal connections.

When it comes to the carrier 62, the segmental guide bars 40, 41 on the one hand, and 42, 43 on the other, must be connected to the associated carrier arms 65. For this purpose, as clearly illustrated in Fig. 11, a fitting member 79, similar to the member 74, is used. This member 79 rests upon the end of the carrier arm 65 and has its downwardly extending pin 80 entering the opening in the arm, the cross pin 81 holding the same in place. The upstanding pin 82 on the member 79 serves as a pivot pin for the adjacent bars 42, 43, the latter being the bars illustrated in this particular figure. The pin 82, after receiving the ends of the adjacent bars 43, has a spacing or sleeve 83 slipped over it and then the ends of the adjacent bars 42 are brought into place. Finally a washer 84 and a retaining screw 85 are put into position. When the parts are thus assembled, there is sufficient leeway between the under side of the washer 84 and the upper side of the base of the member 79 and around the pin 82 to allow the guide bars to rotate freely about the pin 82. Obviously, the connection for the bars 40 and 41 to the other arm 65 of the carrier 62 would be the same as just described.

From these descriptions of the carriers, it will be seen that they may be severally moved into the "pint position" of Fig. 4, or into the "quart position" of Fig. 9. The movement of the carriers into these different positions will cause the cooperating guide bars to move toward and from the center line of conveying channel of the conveyer.

The cover E is preferably formed of sheets of metal, such as stainless steel or the like. The straight sections 87 of the cover may be formed by pressing a single sheet into the shape shown so as to prvoide an angular roof. When it comes to the curved portion, it is preferable to form one section 88 and then a second section 89 to fit against it. Preferably, the section 88 is given a narrow flange 90 which underlies the edge of the section 89 at the ridge of the roof and provides material for spot welding the two sections 88, 89 together. The roof sections may be secured to the upright frame members 29 in any suitable way, as by welding, or by screws 91, as illustrated.

From what has been said it will be seen that the conveying channel may be readily adjusted widthwise by manipulating the handles 71 to rotate the carriers to move the guides toward and from the center line of the channel, both along the longitudinal and curved portions of the conveyer. Each adjustment setting will suit the conveyer to carry articles of a corresponding width. Ordinarily, as would be the case with milk bottles, the articles move along the channel in single file, but of course such need not always be the case.

Obviously in putting my invention into practice various alterations and modifications may be made in the details shown. It will also be apparent that the novel features disclosed may be used in conveyers intended for the handling of very different articles than milk bottles. I therefore do not wish to be unduly limited either in respect to the uses to which the conveyer is to be put, or in respect to the details of construction. It is my aim to cover the various modifications both as to uses and details by the terms of the appended claims.

I claim:

1. A conveyer adjustable in width to convey articles of different widths along a conveying channel in single file, each adjustment setting corresponding to a particular article width, said conveyer comprising an underneath traveling element at the bottom of the conveying channel, longitudinal guides positioned on the opposite sides of the conveying channel, shiftable carriers for said guides, supporting means for said traveling element and carriers, each carrier being pivoted to said supporting means at a point centrally below the conveying portion of said traveling element and extending upward in two arms on opposite sides of said conveying portion, and pin and slot connections between the arms of said shiftable carriers and said longitudinal guides, whereby the shifting of said carriers moves said guides toward and from each other to vary the width of the conveying channel of the conveyer.

2. A conveyer adjustable in width to convey articles of different widths along a conveying channel in single file, each adjustment setting corresponding to a particular article width, said conveyer comprising an underneath traveling element at the bottom of the conveying channel, longitudinal guides positioned on the opposite sides of the conveying channel, shiftable carriers for said guides, supporting means for said traveling element and carriers, each carrier being pivoted to said supporting means at a point centrally below the conveying portion of said traveling element and extending upward in two arms on opposite sides of said conveying portion, pin and slot connections between the arms of said shiftable carriers and said longitudinal guides, handles on said carriers for rocking them about their central pivots, and means for securing said carriers in different positions to provide corresponding width adjustments for the conveying channel to suit the articles of different widths upon which the conveyer is to operate.

3. A curved conveyer adjustable in width to convey articles of different widths along a curved conveying channel in single file, each adjustment setting corresponding to a particular article width, said conveyer comprising an underneath traveling element at the bottom of the curved conveying channel, curved longitudinal

segmental guides positioned along the opposite sides of the curved conveying channel, shiftable carriers for said guides, supporting means for said traveling element and carriers, each carrier being pivoted to said supporting means centrally beneath the conveying portion of said traveling element and extending upward in two arms on opposite sides of said conveying portion, pivoted connections between the arms of one of said carriers and the ends of segments of said guides, and lost motion connections between carriers on opposite sides of said one carrier and the ends of the same and other guide segments.

4. A curved conveyer adjustable in width to convey articles of different widths along a curved conveying channel in single file, each adjustment setting corresponding to a particular article width, said conveyer comprising an underneath traveling element at the bottom of the curved conveying channel, curved longitudinal segmental guides positioned along the opposite sides of the curved conveying channel, shiftable carriers for said guides, supporting means for said traveling element and carriers, each carrier being pivoted to said supporting means centrally beneath the conveying portion of said traveling element and extending upward in two arms on opposite sides of said conveying portion, pivotal connections between the arms of one of said carriers and the ends of segments of said guides, lost motion connections between carriers on opposite sides of said one carrier and the ends of the same and other guide segments, handles on certain of said carriers for rocking them about their central pivots, and means for securing said carriers in correspondingly adjusted positions to suit the entire channel to the conveying of articles of corresponding widths.

5. A curved conveyer adjustable in width to convey articles of different widths along a curved channel in single file, each adjustment setting corresponding to a particular article width, said conveyer comprising an underneath traveling element at the bottom of the curved conveying channel, two sets of segmental guides extending oppositely along the curved channel from an intermediate point in its length, an intermediate guide carrier at said intermediate point, and outer guide carriers on opposite sides of said intermediate point, supporting means for said traveling element and carriers, each carrier being shiftable about a central pivotal connection with said supporting means, and having upwardly extending arms for connection to guides on opposite sides of the conveying channel, pivotal connections between the arms of said intermediate carrier and the inner ends of said sets of segmental guides, and lost motion connections between the arms of said outer carriers and the outer ends of said sets of segmental guides.

6. A conveyer having straight and curved portions adjustable in width to convey articles of different widths along its straight and curved conveying channel, each adjustment setting corresponding to a particular article width, said conveyer comprising an underneath traveling element at the bottom of the conveying channel, sets of segmental guides extending along opposite sides of the straight and curved portions of the channel, an intermediate guide carrier at an intermediate point in the curved portion of the channel, outer guide carriers near the ends of said curved portion, other guide carriers along the straight portion of the channel, supporting means for said traveling element and carriers, each carrier being shiftable about a central pivotal connection with said supporting means and having upwardly extending arms for connection to guide segments on opposite sides of the channel, pivotal connections between the arms of said intermediate carrier and the inner ends of guide segments extending in opposite directions along the curved portion of the conveying channel, similar connections between the arms of said outer and other carriers and adjacent guide segments, and lost motion connections between the adjacent ends of straight and curved guide segments.

7. A curved conveyer adjustable in width comprising an underneath traveling element at the bottom of a curved conveying channel, curved longitudinal segmental guides positioned along the opposite sides of the curved conveying channel, shiftable carriers for said guides, supporting means for said traveling element and carriers, each carrier being pivoted to said supporting means centrally beneath the conveying portion of said traveling element and extending upward in two arms on opposite sides of said conveying portion, pivotal connections between the arms of one of said carriers and the ends of segments of said guides, and lost motion connections between carriers on opposite sides of said one carrier and the ends of the same and other guide segments.

8. A curved conveyer adjustable in width comprising an underneath traveling element at the bottom of a curved conveying channel, curved longitudinal segmental guides positioned along the opposite sides of the curved conveying channel, shiftable carriers for said guides, supporting means for said traveling element and carriers, each carrier being pivoted to said supporting means centrally beneath the conveying portion of said traveling element and extending upward in two arms on opposite sides of said conveying portion, pivotal connections between the arms of one of said carriers and the ends of segments of said guides, lost motion connections between carriers on opposite sides of said one carrier and the ends of the same and other guide segments, handles on certain of said carriers for rocking them about their central pivots, and means for securing said carriers in correspondingly adjusted positions.

9. A conveyer having straight and curved portions adjustable in width comprising an underneath traveling element at the bottom of a straight and curved conveying channel, two sets of segmental guides extending oppositely along the curved channel from an intermediate point in its length, an intermediate guide carrier at said intermediate point, and outer guide carriers on opposite sides of said intermediate point, supporting means for said traveling element and carriers, each carrier being shiftable about a central pivotal connection with said supporting means and having upwardly extending arms for connection to guides on opposite sides of the conveying channel, pivotal connections between the arms of said intermediate carrier and the inner ends of said sets of segmental guides, and lost motion connections between the arms of said outer carriers and the outer ends of said sets of segmental guides.

10. A conveyer having straight and curved portions adjustable in width comprising an underneath traveling element at the bottom of the

conveying channel, sets of segmental guides extending along opposite sides of the straight and curved portions of the channel, an intermediate guide carrier at an intermediate point in the curved portion of the channel, outer guide carriers near the ends of said curved portion, other guide carriers along the straight portion of the channel, supporting means for said traveling element and carriers, each carrier being shiftable about a central pivotal connection with said supporting means and having upwardly extending arms for connection to guide segments on opposite sides of the channel, pivotal connections between the arms of said intermediate carrier and the inner ends of guide segments extending in opposite directions along the curved portion of the conveying channel, similar connections between the arms of said outer and other carriers and adjacent guide segments, and lost motion connections between the adjacent ends of straight and curved guide segments.

11. A conveyer adjustable in width comprising an underneath traveling element at the bottom of the conveyer channel, longitudinal guides positioned on opposite sides of the conveying channel, shiftable carriers for said guides, each having a hub located beneath said traveling element and a plurality of arms which extend outward and upward from said hub into positions on opposite sides of the conveying channel, pin and slot connections between said arms and said longitudinal guides, supporting means for said traveling element, and suitably supported pivot pins, one for each carrier located centrally below the conveying portion of said traveling element, the hub of each carrier being pivotally mounted upon the associated pivot pin, whereby the shifting of said carriers moves said guides toward and from each other to vary the width of the conveying channel.

12. A conveyer adjustable in width comprising an underneath traveling element at the bottom of the conveyer channel, longitudinal guides positioned on opposite sides of the conveyer channel, shiftable carriers for said guides, each having a hub located beneath said traveling element and a plurality of arms which extend outward and upward from said hub into positions on opposite sides of the conveying channel, pin and slot connections between said arms and said longitudinal guides, supporting means for said traveling element, suitably supported pivot pins, one for each carrier located centrally below the conveying portion of said traveling element, the hub of each carrier being pivotally mounted upon the associated pivot pin, and means for securing said carriers in different rotary positions to provide corresponding width adjustments for the conveyer channel.

13. A conveyer adjustable in width comprising an underneath traveling element at the bottom of the conveyer channel, longitudinal guides positioned on opposite sides of the conveyer channel, shiftable carriers for said guides, each having a hub located beneath said traveling element and a plurality of arms which extend outward and upward from said hub into positions on opposite sides of the conveying channel, pin and slot connections between said arms and said longitudinal guides, supporting means for said traveling element, suitably supported pivot pins, one for each carrier located centrally below the conveying portion of said traveling element, the hub of each carrier being pivotally mounted upon the associated pivot pin, handles on said carriers for rocking them about their respective pivot pins, and means for securing said carriers in different rotary positions to provide corresponding width adjustments for the conveying channel.

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