CONVEYOR SYSTEM WITH A SHUNT, WHERE TRACKS ARE LOCATED ONE ABOVE THE OTHER

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ABSTRACT

A conveyor system (10) includes a conveyor course (12) with two tracks (22, 24) stacked one above the other, and with a conveyor carriage with two track rollers which are connected to one another by means of a bracketlike mounting element. A first shunt unit (52, 54) is associated with at least one of the two tracks (22, 24) and connects a main portion (22A, 24A) of this track (22, 24) selectively with one of at least two secondary portions (22B, 22C, 24B, 24C) of that track (22, 24). Moreover, a second shunt unit (58) is associated with at least one of the two tracks (22) and selectively opens or closes a through opening (60), provided in that track (22), for the bracketlike mounting element of the conveyor carriage. Regardless of whether the second shunt unit (58) is provided, the first shunt units (52, 54) are embodied as self-locking in directions opposite from one another.
CONVEYOR SYSTEM WITH A SHUNT, WHERE TRACKS ARE LOCATED ONE ABOVE THE OTHER

BACKGROUND OF THE INVENTION

[0001] The invention relates to a conveyor system, including a conveyor course, having at least two tracks, extending one above the other in the upright direction and at a predetermined spacing from one another, in which besides the upright direction, a conveying direction or longitudinal direction, pointing along the conveyor course and extending orthogonally to the upright direction, and a crosswise direction, extending orthogonally to both the conveying direction and the upright direction, can be associated with this conveyor course, and a conveyor carriage having at least two track rollers, each of which is associated with a different one of the two tracks, and having a bracketlike mounting element, which connects the two track rollers to one another.

[0002] Already at this point, particularly the term “upright direction”, but also the other orientation indications maintain their validity even if the conveyor course extends at a predetermined angle to the horizontal. In that case, the “upright direction” also will not run exactly in the direction of the vertical but will form the predetermined angle with it. It should also be remembered that the conveying direction, in curved portions of the conveyor course, extends in the direction of the tangent to the particular place on the conveyor course in question.

[0003] A generic conveyor system is known, for instance, from U.S. Pat. Nos. 5,960,938, 6,062,378, and 6,237,755 B1. The known conveyor system includes a conveyor course, embodied as a profile girder, with a first roller track, whose surface is inclined to the horizontal by a slight angle, so that it can absorb the support load of the conveyor carriage that is transmitted from support rollers. Moreover, two further roller tracks are provided, of which one extends substantially vertically and the other forms a slight angle with the vertical. Via these two roller tracks, track rollers transmit the torque, exerted by a load applied to the conveyor carriage laterally, to the conveyor course. The two further roller tracks are spaced apart from one another not only in the upright direction of the conveyor course but also in the crosswise direction. Overall, the conveyor carriage has two such roller triplets, which are spaced apart from one another in the longitudinal direction of the conveyor course.

[0004] Solely for the sake of completeness, U.S. Pat. Nos. 3,646,656 and 4,331,229 may be mentioned.

[0005] Although it is known per se from European Patent Disclosures EP 0 659 624 A1 and EP 0 109 459 A1, and from German Patent Disclosure DE 1 147 893 B, to provide a shunt in the conveyor course of a conveyor system, the shunt connecting a main path of the conveyor course selectively to one of at least two secondary paths; nevertheless, these references that disclose shunts all pertained only to conveyor courses having two tracks located side by side in the crosswise direction, in the manner known from railway tracks.

[0006] In the aforementioned references, U.S. Pat. No. 5,960,938, U.S. Pat. No. 6,062,378, and U.S. Pat. No. 6,237,755 B1, which pertain to conveyor courses with two tracks located one above the other in the upright direction, conversely, there is not even the least indication of the provision of shunts in the conveyor course.

SUMMARY OF THE INVENTION

[0007] It is therefore the object of the present invention to create the possibility of providing shunts also for a conveyor system of the generic type, that is, a conveyor system whose conveyor course has at least two tracks located one above the other in an upright direction.

[0008] According to the invention, this object is attained by a conveyor system of the generic type, which further includes a shunt assembly, which connects a main path of the conveyor course selectively with one of at least two secondary paths of the conveyor course; wherein a first shunt unit of the shunt assembly is associated with at least one of the two tracks and connects a main portion of this track selectively with one of at least two secondary portions of that track; and furthermore, wherein a second shunt unit of the shunt assembly is associated with at least one of the two tracks and selectively opens or closes a through opening, provided in that track, for the bracketlike mounting element of the conveyor carriage.

[0009] The provision of shunts in a conveyor course that has at least two tracks located side by side in the crosswise direction cannot be compared with the provision of a shunt in a conveyor course having two tracks located one above the other in the upright direction. In the latter case, the problem also arises of a possible collision between the conveyor course and the bracketlike mounting element that connects the two track rollers to one another. For solving that problem, there has been no solution whatsoever in the prior art.

[0010] According to the invention, this problem is solved by providing a through opening for the bracketlike mounting element in the conveyor course, and a further shunt type is provided, namely a second shunt unit or pass-through shunt unit, which is not responsible for deflecting a track roller onto whatever secondary path is desired, but rather selectively opens or closes a through opening, provided in the track, for the bracketlike mounting element of the conveyor course.

[0011] As already mentioned above, the conveyor carriage typically has two roller triplets, which are spaced apart from one another in the longitudinal direction or conveying direction. Each of these roller triplets includes a support roller, which passes the weight of the conveyor carriage and of the load placed on it on to the conveyor course, and also includes two track rollers which carry the torque, exerted by the load located laterally on the conveyor carriage, on to the conveyor course. If these rollers, which total four, are designed so stably that the load, or more precisely the torque it generates, can already be absorbed by three of these track rollers and carried on to the conveyor course, then it is fundamentally possible to provide only one of the two tracks, preferably the track in whose vicinity the support track associated with the support rollers extends, with a first shunt unit. As for the second track, the main portion of this track may for instance be connected continuously to one of the secondary portions of that track, while the other secondary portion(s) of that track are brought up to the main portion of this track only up to a distance that slightly exceeds the diameter of the track roller. The crossover of the
track roller from the main portion to this latter-mentioned secondary portion is then assured by the engagement of the other three rollers with the associated track portions and with the shunt unit associated with that one track.

[0012] For the relief of the track rollers, however, it may be advantageous for each of the two tracks to be assigned its own first shunt unit.

[0013] In a refinement of the invention, it is proposed that the track rollers are both supported from above on the bracketlike mounting element. This support in fact makes it possible, in conjunction with a profile of the conveyor course that is open at the top, to place the conveyor carriage onto the conveyor course from above at any arbitrary point along the conveyor course.

[0014] Moreover, this refinement makes it possible to assign a second shunt unit or pass-through shunt unit to only the upper track, since the conveyor carriage, and in particular its bracketlike mounting element, otherwise extends entirely above the lower track and above that part of the conveyor course along which that lower track is located.

[0015] Moreover, the first shunt unit or track shunt unit needs to be able to pass through only the roller diameter of the track rollers, while the pass-through shunt unit has to pass through only the bracketlike mounting element of the conveyor carriage. All the movable shunt elements, therefore, can be made quite small, and the main path and the secondary paths can therefore be brought quite close to one another.

[0016] However, it is also possible for each of the two tracks to be assigned its own second shunt unit.

[0017] To assure that the movable shunt element of a shunt unit will not be unintentionally deflected out of whatever shunt position is desired by the pressure exerted on it by the roller, it is proposed that on a movable shunt element of at least one of the shunt units, a track portion, associated with one of the secondary paths, of the track associated with this shunt unit is provided such that, whenever the shunt assembly connects the main path to this secondary path, the movable shunt element is forced into contact with a support assembly by the cooperation of a track roller with the track portion. As a result, a kind of self-locking state of the movable shunt element is assured; that is, the movable shunt element is forced by the pressure originating in the track roller into precisely the desired shunt position. If all the shunt units are embodied in this way, then the entire shunt assembly is self-locking in any shunt position.

[0018] If in a conveyor system of the generic type each of the two tracks is assigned its own shunt unit, which connects a main portion of the respective track selectively with one of at least two secondary portions of that track, then according to the invention, the force directions in which, by the cooperation of a respectively assigned track roller with the respective track portion, the movable shunt elements are forced into contact against a respective assigned support assembly extend in directions opposite one another; that is, the two shunt units are self-locking in opposite directions. Since this is true regardless of the presence of a shunt unit of the pass-through type, independent patent protection is sought for this feature.

[0019] The forces involved in the self-locking are introduced by the movable shunt elements directly into the support structure, that is, the conveyor course, and need not be absorbed by the respective shunt actuator. The shunt actuators therefore need to be capable of moving only the mass of the movable shunt element in the unloaded state back and forth between shunt positions, and can therefore be less powerful and thus more economical.

[0020] In the case of a first shunt unit or track shunt unit, the support assembly may be formed by a portion of the track that is associated with the respective other secondary path. In the case of the second shunt units or pass-through shunt units, the support assembly can conversely be formed by shoulder portions of the track that define the through opening.

[0021] If each movable shunt element is assigned a separate actuator, for instance a separate cylinder-piston assembly, which displaces it between the various shunt positions, then as a result, because the mass to be moved by a particular actuator is only slight, the switching time of the respective shunt unit can be shortened. Moreover, the individual actuators can be embodied as less powerful and hence more economical.

[0022] Moreover, less-powerful actuators are typically smaller than more-powerful actuators, and in practice it is simpler to provide adequate installation space for a plurality of small actuators than for a single large actuator.

[0023] In principle, however, it is also possible that the movable shunt elements of the two shunt units associated with the same track are adjustable by means of a common actuator. In one portion of its actuation course, an actuator element of the actuator can act solely upon the movable shunt element of one of the shunt units, while in a further portion of its actuation course, it acts on the movable shunt elements of both shunt units. This makes it possible, if needed, to pivot the two movable shunt elements about a different pivot angle. For example, the movable shunt element of the pass-through shunt unit may be pivoted by a greater angle than the movable shunt element of the track shunt unit.

[0024] This can be achieved for instance by providing that a pivot axis of the actuator is operationally fixedly connected to the movable shunt element of the one shunt unit, while a slaving element, provided on the pivot axis, enters into slaving engagement with the movable shunt element of the other shunt unit only in the course of the pivoting motion. It is furthermore possible for the slaving element not to enter into slaving engagement with the movable shunt element of the other shunt unit, in both directions of reciprocation, until the second portion of the pivoting travel. For example, the movable shunt element of the other shunt unit may have a longitudinal slot, in which the slaving element of the pivot shaft slides.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. 1 is a perspective front view of a conveyor system of the invention;

[0026] FIG. 2 is a perspective back view of the conveyor system of FIG. 1, seen in the direction of the arrow II in FIG. 1;

[0027] FIG. 3 is a side view of the conveyor system of FIG. 1, seen in the direction of the arrow III in FIG. 1;
FIGS. 4 and 5 are perspective views of two different shunt positions of a shunt assembly of the conveyor system of the invention; and

FIG. 6 is an enlarged fragmentary top view, in the direction of the arrow VI in FIG. 5, of an adjusting mechanism for adjusting movable shunt elements.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. 1, a conveyor system of the invention is identified in general by reference numeral 10. It includes a conveyor course 12 and a conveyor carriage 14. It is self-evident that many such conveyor carriages 14 may move along the conveyor course 12.

The conveyor course 12 includes two profile element component groups or conveyor course units 16 and 18, embodied separately from one another, on which a plurality of tracks 20, 22 and 24 are provided (see also FIGS. 2 and 3), along which rollers to be described hereinafter in further detail of the conveyor carriage 14 can move. The conveyor course units 16 and 18 are formed of lightweight metal profile elements, for instance aluminum profile elements, or assembled from such profile elements and are secured independently of one another on posts 26, which are likewise embodied as lightweight metal profile elements.

The conveyor carriage 14 includes two roller assemblies 28, which are spaced apart from one another in the longitudinal or conveyor direction L. Each of these roller assemblies 28 includes one bracketlike mounting unit 30, on which a support roller 32, an upper track roller 34 (see FIGS. 2 and 3), and a lower track roller 36 (see FIG. 3) are mounted rotatably. As shown in FIG. 3, a transport table 38 is also located on the bracketlike mounting units 30, and a load 40 represented by dashed lines in FIG. 3 can be placed on this table.

Since the load 40, via the conveyor carriage 14, is located laterally of the conveyor course 12, the weight load originating at it is, for the most part, carried onward to the conveyor course 12 in the form of a torque exerted by the conveyor carriage 14 on the conveyor course, and to a lesser extent also in the form of a weight force exerted by the conveyor carriage 14.

For carrying the aforementioned torque onward, the track 22 located on the upper conveyor course unit 16 and the track 24 located on the lower conveyor course unit 18 are both embodied with a track surface extending in the upright direction H and the longitudinal direction L; the upper track 22 points toward the support elements 26, while the lower track 24 points away from the support elements. That is, the surface normals N1 and N2 of the tracks 22 and 24 both extend essentially in the crosswise direction Q, but point in opposite directions from one another.

The rollers 34 and 36 of the conveyor carriage 14 that are associated with these tracks 22 and 24 accordingly have a respective axis of rotation A and B, extending essentially in the upright direction H. Since in the view in FIG. 3 the upper track roller 34 rests from the left against the track 22, while the lower track roller 36 rests from the right against the track 24, the torque, originating in the load 40 and pointing clockwise in FIG. 3, can readily be transmitted to the tracks 22 and 24 of the conveyor course 12 via the rollers 34 and 36.

Moreover, the two track rollers 34, 36 are each supported from above on the bracketlike mounting unit 30; that is, in the view in FIG. 3, they are each located below the arms 30a and 30b of the bracketlike mounting unit 30. This support, in conjunction with the embodiment of the upper conveyor course unit 16 open at the top, makes it possible for the conveyor carriage 14 to be placed from above onto the conveyor course 12 at any arbitrary point along the conveyor course 12. It should furthermore be noted that the lower arm 30b of the bracketlike mounting unit 30 extends entirely above the lower conveyor course unit 18. This will be addressed again in conjunction with FIGS. 4 and 5.

The weight force of the load 40 that still remains is transmitted, via support rollers 32 that have an axis of rotation C extending essentially in the crosswise direction Q, to the support track 20 of the upper conveyor course unit 16. The support track extends not only in the longitudinal direction L but also essentially in the crosswise direction Q.

As can be seen particularly well in FIG. 2, the support roller 32 is assigned as a trailing roller to the respective associated upper track roller 34, that is, a bearing element 32a rotatably supporting the axis of rotation C of the support roller 32 is in turn rotatably supported about the axis of rotation A of the track roller 34. At this point, it should also be remembered that the support roller 32, and the track rollers 34 and 36 as well, may be embodied not only as disk-type rollers with a fixed axis of rotation but also as ball rollers, whose actual axis of rotation in each case is established automatically as a consequence of the rolling engagement with the respective roller track.

According to the invention, the upper track roller 34 and the lower track roller 36 are located on the conveyor carriage 14 in such a way that their axes of rotation A and B extend in alignment with one another, as can be seen especially well in FIG. 3. Because of this aligned disposition of the axes of rotation A and B in the two roller assemblies 28 of the conveyor carriage 14, the conveyor carriage 14 has excellent cornering properties in curved portions 12A of the conveyor course 12 (see FIG. 4, for instance), since as a consequence of the aligned location of their axes of rotation A and B, both track rollers, namely the upper track roller 34 and the lower track roller 36, are always moving on the same curve radius. It is self-evident that this is true not only for a curved portion 12A in the region of a shunt assembly 50 but also quite generally in curved portions 12A, with which an axis of curvature that extends essentially in the upright direction H can be associated.

It should also be noted that in the upright direction H between the upper conveyor course unit 16 and the lower conveyor course unit 18, a profiled drive element 42 is secured to the posts 26. A drive element, for instance a flat-plate chain 44 known per se, runs within this profiled drive element 42. Moreover, each of the roller assemblies 28 of the conveyor carriage 14 has a slaving element 46, which is in friction-locking engagement with the flat-plate chain 44.

Alternatively, however, it is possible to provide a link chain as the drive element 44 that is in form-locking engagement with slaving elements 46 of the conveyor carriage 14. In each case, however, it must be assured that the slaving engagement between the drive element 44 and
the slaving element 46 can be undone without problems, if the conveyor carriage 14 meets an obstacle, such as a separator.

[0042] As can be seen particularly from FIGS. 1 and 2, the slaving elements 46 are embodied with a round frictional engagement face and are located such that an axis D extending through the center of the rounding is likewise aligned with the axes of rotation A and B of the track rollers 34 and 36. As a result, even in curved portions of the route, a reliable slaving engagement can always be assured between the conveyor carriage 14 and the drive element 44.

[0043] In FIGS. 4 and 5, a region of the conveyor course 12 of the conveyor system 10 of the invention is shown that is provided with a shunt assembly 50. In the shunt position of the shunt assembly 50 shown in FIG. 4, a conveyor carriage 14, arriving from a main path 12A of the conveyor course 12, is moved onward straight ahead to a first secondary path 12B, while in the shunt position shown in FIG. 5, it is turning toward a second secondary path 12C. In accordance with the main path 12A and the two secondary paths 12B and 12C of the conveyor course 12, the upper track 22 located on the upper conveyor course unit 16 has one main portion 22A and two secondary portions 22B and 22C, and lower track 24, located on the lower conveyor course unit 18, has one main portion 24A and two secondary portions 24B and 24C.

[0044] In the embodiment shown in FIGS. 4 and 5, each of the two tracks 22 and 24 is assigned its own respective shunt unit 52 and 54, which each have a movable shunt element 52a and 54a, respectively, and an associated actuator 52b and 54b, such as a fluidically actuable cylinder-piston assembly. The actuators 52b and 54b are pivotally connected by one end to the associated conveyor course unit 16 and 18, respectively, and by their other end they are each pivotally connected to a lever 56 (see FIG. 6), connected to the pivot shaft 52a1 of the movable shunt element 51a, and directly to the movable shunt element 54a, respectively.

[0045] Moreover, the upper conveyor course unit 16, that is, the upper track 22, is assigned a further shunt unit 58, whose movable shunt element 58a, in the shunt position shown in FIG. 4, opens a through opening 60, provided in the track 22, for the bracketlike mounting unit 30 of the conveyor carriage 14, so that the conveyor carriage 14 can move without problems from the main path 12A of the conveyor course 12 to the first secondary path 12B of the conveyor course. In the shunt position shown in FIG. 5, the movable shunt element 58a conversely closes the through opening 60 and assures a continuous course of the upper track 22 from the main path 12A of the conveyor course 12 to the second secondary path 12C.

[0046] In this shunt position, the movable shunt element 58a is forced by the upper track roller 34 of the conveyor carriage 14 against two shoulder portions 60a and 60b of the through opening 60, which are embodied on the upper track 22 and introduce the forces, originating in the torque of the conveyor carriage 14, directly into the upper conveyor course unit 16. The actuator 52b, which not only assures the displacement of the movable shunt element 52a of the shunt unit 52 but is also simultaneously responsible for the displacement of the movable shunt element 58a of the further shunt unit 58, therefore need not be capable of withstanding the forces originating in the conveyor carriage 14 and can therefore be embodied as correspondingly less powerful and with a small structural size.

[0047] The movable shunt elements 52a and 54a are analogously embodied as self-locking. Specifically, the movable shunt element 52a, in the shunt position shown in FIG. 4, connecting the paths 12A and 12B of the conveyor course 12, presses against the main portion 22A of the upper track 22, while the movable shunt element 54a, in the shunt position shown in FIG. 5, in which the paths 12A and 12C of the conveyor course 12 are connected to one another, presses against the main portion 24A of the lower track 24.

In both cases, the forces exerted by the respective track roller 34 and 36 are introduced directly into the upper conveyor course unit 16 and the lower conveyor course unit 18, respectively, and hence need not be absorbed by the respective actuators 52b and 54b.

[0048] It should also be pointed out that because of the fact that the lower arm 30b of the bracketlike mounting unit 30 extends entirely above the lower conveyor course unit 18 (see FIG. 3), no through opening corresponding to the through opening 60 of the upper conveyor course unit 16 and having an associated pass-through shunt unit needs to be provided in the lower conveyor course unit 18.

[0049] As has already been indicated above, the two movable shunt elements 52a and 58a are assigned a single common actuator 52b. However, it is readily apparent from a comparison of FIGS. 4 and 5 that the pivot angle by which the movable shunt element 52a must rotate about the pivot shaft 52a1 in order to enable to the upper track rollers 34 of the conveyor carriage 14 to pass from the main portion 22A of the upper track 22 to the secondary portion 22C, is considerably smaller than the pivot angle by which the movable shunt element 58a must rotate about the pivot shaft 52a1 in order to allow the bracketlike mounting units 30 of the conveyor carriage 14 to move from the main path 12A of the conveyor course 12 to the secondary path 12B.

[0050] In FIG. 6, one possible embodiment is shown that makes these different pivot angles upon actuation possible by means of a single actuator 52b.

[0051] The pivot shaft 52a1 is connected to the actuator 52b via a lever 56 and can be pivoted back and forth by means of it over a predetermined pivot angle. The movable shunt element 58a is rigidly connected to this pivot shaft 52a1 and thus also executes the pivoting motion of the pivot shaft 52a1 over the entire pivot angle of this pivot shaft. Conversely, the movable shunt element 52a is supported rotatably on the pivot shaft 52a1 relative to it via a bearing bush 52a2. A pin 52a3, which is operationally fixedly connected to the pivot shaft 52a1, engages an oblong slot 52a4, extending in the circumferential direction of the bearing bush 52a2, specifically in such a way that upon pivoting of the pivot shaft 52a1 counterclockwise in terms of FIG. 6, only after traversing the pivot angle α does it enter into contact with the bearing bush 52a2 and as a consequence then also carries along the movable shunt element 52a with it over the remaining pivoting course. Upon a rotation of the pivot shaft 52a1 clockwise in terms of FIG. 6 as well, the pin 52a3 first traverses the free angle α before it comes into contact and hence into slaving engagement with the bearing bush 52a2 of the movable shunt element 52a and then again carries it along over the further pivoting course.
The total pivot angle of the pivot shaft 52a1 and hence of the movable shunt element 52a is limited, upon counterclockwise pivoting in terms of FIG. 6, by the cooperation of a stop face 52a5 of the bearing bush 52a2 with a conveyor-course-specific stop element 62 and, upon pivoting clockwise, by the cooperation of a stop face 52a6 with the stop element 62.

Although this cannot be seen in the views shown in FIGS. 4 and 5, a portion of the support track 20 is also embodied on the movable shunt element 52a associated with the upper track 22.

It should also be noted that the roller tracks, namely the support track 20 and the tracks 22 and 24, may either be embodied directly as surfaces of the profile elements of the upper conveyor course unit 16 and lower conveyor course unit 18, or may be provided as separate roller track elements on these profile elements, as is shown in the drawings.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the types described above.

While the invention has been illustrated and described herein as a conveyor system with a shunt with tracks located above another, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

1. A conveyor system, comprising:

   a conveyor course, having at least two tracks, extending one above the other in the upright direction and at a predetermined spacing from one another, wherein, in addition to the upright direction, a conveying direction, pointing along the conveyor course and extending orthogonally to the upright direction, and a crosswise direction, extending orthogonally to both the conveying direction and the upright direction, are associated with the conveyor course;

   a conveyor carriage having at least two track rollers, wherein each of said at least two track rollers is associated with a different one of the two tracks, and having a bracketlike mounting element, wherein said bracketlike mounting element connects the at least two track rollers to one another;

   a shunt assembly, wherein said shunt assembly connects a main path of the conveyor course selectively with one of at least two secondary paths of the conveyor course, wherein a first shunt unit of the shunt assembly is associated with at least one of the at least two tracks and connects a main portion of said at least one of the at least two tracks selectively with one of at least two secondary portions of said at least one of the at least two tracks, and

   wherein a second shunt unit of the shunt assembly is associated with at least one of the at least two tracks and selectively opens or closes through opening, provided in said at least one of the at least two tracks, for the bracketlike mounting element of the conveyor carriage.

2. The conveyor system as recited in claim 1, wherein a first shunt unit is associated with each of the at least two tracks.

3. The conveyor system as recited in claim 1, wherein the rollers are both supported from above.

4. The conveyor system as recited in claim 1, wherein a second shunt unit is associated with each of the at least two tracks.

5. The conveyor system as recited in claim 1, wherein on a movable shunt element of at least one of the shunt units, a track portion is provided, wherein the track portion is associated with one of the secondary paths of a track of the at least two tracks associated with the at least one of the shunt units, wherein whenever the shunt assembly connects the main path to said secondary path, the movable shunt element is forced into contact with a support assembly by cooperation of a track roller with the track portion.

6. The conveyor system as recited in claim 5, wherein the support assembly is formed by a portion of the track that is associated with a respective other secondary path.

7. The conveyor system as recited in claim 5, wherein the support assembly is formed by shoulder portions defining the through opening of the track.

8. The conveyor system as recited in claim 1, wherein a separate actuator in the form of a separate cylinder-piston assembly is associated with at least one movable shunt element.

9. The conveyor system as recited in claim 7, wherein the at least one movable shunt element of each of the two shunt units associated with a common track are adjustable by means of a common actuator.

10. The conveyor system as recited in claim 9, wherein in one portion of an actuation course, an actuator element of the actuator acts solely upon the at least one movable shunt element of one of the shunt units, while in a further portion of the actuation course, the actuator element acts on the at least one movable shunt elements of both shunt units.

11. The conveyor system as recited in claim 9, wherein a pivot axis of the actuator is operationally fixedly connected to the at least one movable shunt element of the one shunt unit, while a slaving element provided on the pivot axis enters into slaving engagement with the at least one movable shunt element of the other shunt unit only in the course of the pivoting motion.

12. The conveyor system as recited in claim 5, wherein a shunt unit of the shunt assembly is associated with each of the at least two tracks and connects a main portion of said respective of the at least two tracks selectively with one of at least two secondary portions of said respective of the at least two tracks, and

   wherein on a movable shunt element of each of the shunt units, a track portion is provided, respectively, wherein the track portion is associated with one of the secondary paths of a track of the at least two tracks associated...
with the respective of the shunt units, wherein whenever the shunt assembly connects the main path to said secondary path, the movable shunt elements are forced in directions opposite one another into contact with a respectively assigned support assembly by cooperation of a respectively assigned track roller with the respective track portion.

13. A conveyor system, comprising:

a conveyor course, having at least two tracks, extending one above the other in the upright direction and at a predetermined spacing from one another, wherein, in addition to the upright direction, a conveying direction, pointing along the conveyor course and extending orthogonally to the upright direction, and a crosswise direction, extending orthogonally to both the conveying direction and the upright direction, are associated with the conveyor course;

a conveyor carriage having at least two track rollers, wherein each of said at least two track rollers is associated with a different one of the two tracks, and having a bracketlike mounting element, wherein said bracketlike mounting element connects the at least two track rollers to one another, and

a shunt assembly, wherein said shunt assembly connects a main path of the conveyor course selectively with one of at least two secondary paths of the conveyor course, wherein a first shunt unit of the shunt assembly is associated with each of the at least two tracks and connects a main portion of said respective of the at least two tracks selectively with one of at least two secondary portions of said respective of the at least two tracks, and wherein a movable shunt element of each of the shunt units, a track portion is provided, respectively, wherein the track portion is associated with one of the secondary paths of a track of the at least two tracks associated with the respective of the shunt units, wherein whenever the shunt assembly connects the main path to said secondary path, the movable shunt elements are forced in directions opposite one another into contact with a respectively assigned support assembly by cooperation of a respectively assigned track roller with the respective track portion.

14. The conveyor system as recited in claim 13, wherein the rollers are both supported from above.

15. The conveyor system as recited in claim 13, wherein a second shunt unit is associated with each of the at least two tracks.

16. The conveyor system as recited in claim 13, wherein the support assembly is formed by a portion of the track that is associated with a respective other secondary path.

17. The conveyor system as recited in claim 13, wherein the support assembly is formed by shoulder portions defining the through opening of the track.

18. The conveyor system as recited in claim 13, wherein a separate actuator in the form of a separate cylinder-piston assembly is associated with at least one movable shunt element.

19. The conveyor system as recited in claim 17, wherein the at least one movable shunt element of each of the two shunt units associated with a common track are adjustable by means of a common actuator.

20. The conveyor system as recited in claim 19, wherein one portion of an actuation course, an actuator element of the actuator acts solely upon the at least one movable shunt element of one of the shunt units, while in a further portions of the actuation course, the actuator element acts on the at least one movable shunt elements of both shunt units.

21. The conveyor system as recited in claim 19, wherein a pivot axis of the actuator is operationally fixedly connected to the at least one movable shunt element of the one shunt unit, while a slaving element provided on the pivot axis enters into slaving engagement with the at least one movable shunt element of the other shunt unit only in the course of the pivoting motion.

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