

"Continuous Conveyor, in particular, Baggage Conveyor"



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Description

The invention relates to a continuous conveyor, in particular, a baggage conveying belt comprising an endless load carrier unit for the transport of objects and/or persons especially for use inside buildings or at locations which, for example, like baggage carroussels at airports, are accessible to limited or unlimited varying groups of persons.

Such continuous conveyors, that is, conveyor systems equipped with a load carrier designed to enable the continuous conveyance of materials (objects and/or persons) on a given transport route from the checking-in point to the delivery point and, in numerous cases also back again (circular conveyor route) and, in particular, the baggage carroussels/baggage conveyor systems at the withdrawal departments of airports, are being watched every day by a multitude of people - while persons are waiting for very particular goods to be delivered, e.g. their personal items of baggage, which are forwarded to them by means of the particular conveying belt/conveyor system.

This time of waiting and watching usually is passing by without any special benefit for anybody and, in general, is experienced as utterly boring by the persons concerned.

On the other hand, it is always a problem on the advertising sector to find hoarding, objects and times for advertising which will arouse or, respectively catch the interest and the attention of as large and as widely spread a group of persons as possible.

The prior art according to the DE 196 49 746 A1 (Mohr) discloses a continuous conveyor provided with a conveyor belt consisting of plate segments. At least one of these plate segments is provided with an "optical information", for example an advertising board, which is an integral element of said plate element, i.e. of a segment of the load carrier unit.



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The "optical information" is placed (vulcanized, engraved, etched, spark machined) either directly onto the plate segment or the load carrier segment, respectively, and in consequence the load carrier itself is the advertising medium. Or the "optical information" is placed within a recess of the plate segment or load carrier, respectively, and is covered by a covering unit which forms a flush border with or slightly borders beneath the surface plane of the load carrier. In the latter case the advertisement is placed either onto a foil which is lying in the recess of the load carrier and is covered by the covering unit, and that is that the foil is the advertising medium/advertising carrier and the combination of recess and covering unit is the holding device for that advertising medium/advertising carrier. Alternatively the optical information/advertisement is placed on the covering unit itself, which means that the covering unit is the advertising medium/advertising carrier and the recess of the load carrier is the holding device for said advertising medium/ advertising carrier.

One important disadvantage of this integral advertising media is the fact, that the advertising area is often covered by objects or subjects actually being transported on the conveyor belt and that it can be seen only by those people watching the conveyor belt, who stand close enough to the conveyor belt to observe the conveyor belt under a relatively large angle of vision.

The present invention is based on the problem to provide a continuous conveyor for the transport of objects and/or persons, which comprises at least one advertising carrier and which does not show the described disadvantages of the prior art.

According to the invention this problem may be solved by a continuous conveyor of the above-described type which distinguishes itself in that it comprises a load carrier which, at one or several of its longitudinal sections, that is, at one or several successive points in longitudinal direction, is provided with at least one holding device to which at least one advertising medium/advertising carrier is attached, and in that this advertising medium/advertising carrier extends over or above, respectively, the surface plane of the load carrier, i.e. extends into the space above the surface plane of the load carrier, thereby having a position between the objects and/or persons being transported on said load carrier.

All the people who are watching the conveying belt while they are waiting for the arrival of an object necessarily look at the advertising media which are continuously passing by during their

waiting time and, according to the general experience of life, they will at least unconsciously take note of the advertising message conveyed by these advertising media.

Thus, the continuous conveyor according to the invention provides an advertising medium/ advertising carrier which above all distinguishes itself in that it is located within the visual field of the groups of market participants addressed and which is being observed with attention practically all the time.

In a preferential form of construction the invented continuous conveyor comprises a load carrier consisting either of a belt, a band or a plate. This type of continuous conveyor is widely used, above all on the sector of baggage conveyance - e.g. as conveyor table or as round-and-round walking or conveying track with any number of turns, upward and downward movements - and to the conveyor's belt, band and mainly to the plate, the holding device(s) which accommodate the advertising media can be attached without any problem; this might even be implemented during the course of retrofitting already existing (installed) conveyors. Particularly in the case of steel-plate conveyors, a retrofit is technically feasible without any problems in that individual common-type plates or lamellas are replaced by plates or lamellas, respectively, which are provided with a holding device according to the invention.

The holding device(s) is(are) preferably positioned at the top side or, respectively, at the surface of the load carrier and, therefore, will prejudice neither the drive nor the forward or backward movement of the load carrier, nor will it(they) cause problems while passing a possible hollow way or tunnel course (e.g. between closely adjacent limiting walls or through the radiological department).

In a preferential variant of construction the holding device(s) is(are) situated in the lateral area, that is, along one or both longitudinal edge(s) of the load carrier. This has the advantage that at least the central area continues to be available for the transport of goods and/or persons throughout this longitudinal sector.

The holding device(s) preferably comprises(comprise) locking and/or anchoring facilities to which the advertising medium can be attached with free motion at a plane parallel to the conveying plane and/or in perpendicular and/or diagonal direction towards it, that is, at an angle to

the conveying plane. The locking or anchoring with free motion at a plane parallel to the conveying plane, for example, by means of ball-and-socket or walk-along joint(s) ensures that the respective advertising medium may rotate in or, respectively, parallel to the conveying plane and, therefore, can also easily follow the transverse movements of the load carrier, irrespective of its dimensions, in the direction of the longitudinal axis of the load carrier. The - preferably additional - use of locking and/or anchoring facilities with free perpendicular and/or diagonal (at an angle) motion towards the conveying level, for example, in the form of spring (element) joints, creates the respective prerequisites so that the advertising medium can also follow an upward and downward course of the conveying track.

The spring (element) joints can - if necessary also in combination with additional (single) pressure springs (in particular, helical springs) - also be arranged at one or several planes in such a way that they form a buffer or crusher zone at the respective plane(s). This buffer or crusher zone protects the holding device, the advertising media attached to it or contained therein and also the plate(s)/lamella(s) carrying the holding device from bumps and percussive impacts that may occur e.g. when baggage is thrown onto the continuous conveyor.

The holding devices should be equipped with safety appliances against unintentional and/or unauthorized opening or detachment.

The transport face of the advertising continuous conveyor, especially the load carrier itself or its surface, may be arranged in flat, slanted or half-slanted way.

As advertising media both advertising boards and, in particular, also real shape models (that is, the „real“, „true“ standard shape) or mock-ups of a suitcase, of a traveling bag, a knapsack or any other common or uncommon item of baggage may be taken into consideration.

Even the advertised object itself may, however, be used as advertising medium provided that it can be transported on the respective conveyor or conveying system.

It is possible that the advertising carrier/advertising medium or parts from that may be illuminated by means of one or more spinning dynamo(s) which are placed on the surface plane of the conveyor, too, or by means of contact loop(s), or batteries or by similar means.

Furthermore, the advertising carriers/advertising media may be equipped with means for speech transmission in order to be able "to speak".

The advertising carrier/advertising medium on the advertising continuous conveyors may be fitted movable and/or specifically controlled movable by means of a hinge joint mechanism. The actuating and controlling of the movement may occur for example by means of driving contacts which are arranged between the hinge joint mechanism and the running conveyor surface plane.

According to the size of the advertising carrier/advertising medium, its holding device may be fixed at one or more transport plates / transport lamellas / load carrier elements. The fixation at more than one transport plates / transport lamellas / load carrier elements is preferably performed by the help of a joint adapter.

In the following, the invention will be explained more in detail based on the embodiments displayed on the attached illustrations, such as:

Fig. 1: The exploded view of a plate conveyor according to the invention, with holding device and advertising medium;

Fig. 2: The detail rendition of the holding device with advertising medium pursuant to Fig. 1;

Fig. 3: A section through holding device pursuant to Fig. 2 at the focal plane, and pursuant to Fig. 4, from III to III (perpendicular to the focal plane) and

Fig. 4: The view of a holding device pursuant to Fig. 1 and Fig. 2 depicted from underneath.

Fig. 5: A plate conveyor in accordance with a further embodiment of the invention, having a slanted transport face

Fig. 1 displays a typical baggage conveyor of the type which is generally known mainly from baggage delivery points at airports. The baggage conveyor system is provided with a load

carrier, here a so-called plate band (2) consisting of uniform rectangular flat plates (4) or lamellas, respectively, arranged in consecutive order along the longitudinal direction of the band with their longitudinal sides running transversely to the longitudinal direction of the band. The section of the plate band (2) presented here - an enlargement of which is shown in Fig. 2 - is provided with a holding device (6) for an advertising medium (8) arranged along the longitudinal side (10) of the plate band (2), that is, on the side which is facing the observer. The advertising medium (8) used in this example is the original form of a suitcase carrying an advertising slogan on its upper side.

In the Figures 3 and 4, the design of the holding device (6) of this embodiment is shown more in detail. The holding device (6) consists of a base plate (12) of rectangular layout which is anchored to a plate/lamella (4) of the plate band (2) by means of two spring joint elements (14, 14'). The base plate (12) is oriented in such a way that its longitudinal sides (16, 16') run transversely to the longitudinal sides (10, 10') of the plates/lamellas (4) of the plate band (2) (cf. Fig. 1).

On the one side, the two spring joint elements (14, 14') are fastened in a way which is not described more in detail to the bottom side (18) of the base plate (12) almost in dead center, that is, approximately at the level of the longitudinal median line, in practically mirror-inverted arrangement facing each other. On the other side, the spring joint elements (14, 14') are attached to the plate/lamella (4) in a base fixture (50) which extends from the upper side (52) right through the plate/lamella (4) to its bottom side (54) and is fixed there.

Equally on the bottom side (18) of the base plate (12), however, opposite each other in the marginal areas of the two short sides, that is, the front side (20) and the rear side (22), two rollers (24) are positioned in each case which support the front side (20) and the rear side (22) against the plate band (2). At the leading edges of front side (20) and rear side (22) and the longitudinal sides (16, 16') as well as on the top side (26) of the base plate (12) several shock-absorber springs (28) are provided which support the base plate (12) against a support (frame) construction (30) for the advertising carrier/advertising medium (8).

This support (frame) construction (30) consists of a bearing surface (32) which exceeds the base plate (12) in length and width, as well as of a front wall (34), a rear wall (36) and two side walls (38, 38'), said walls are jutting out beyond the bearing surface (32) at its upper side (40) and its lower side (42) like a frame.

At the wall sections jutting out beyond the upper side (40), bore holes with fastening screws (44) are provided by which the advertising carrier/advertising medium (8) can be fastened to or, respectively, inside this support (frame) construction (30) in a such manner that it cannot be removed.

In the embodiment displayed here, the support (frame) construction (30), in addition, is provided with a rubber lip (48) at its rear wall (36) and its front wall (34), in each case at the lower edge area facing the plate band (2) which serves as injury protection while the system is in operation

The springs (28) and the spring joint elements (14, 14') arranged in a way like or similar to that of the present embodiment represent a buffer or crusher zone which protects both the holding device (6) and the advertising medium (8) attached to it or contained therein as well as the plate(s)/lamella(s) (4) carrying the holding device (6) from blows and percussive effects such as may occur when items of baggage are thrown onto the continuous conveyor.

Fig. 5 illustrates an embodiment of the continuous conveyor according to the present invention with a load carrier unit – here a plate band 2 - in a slanted arrangement. In this example the transport face, that is the surface of the single plates/lamellas of the plate band 2 of the advertising continuous conveyor, in particular the load carrier itself or its surface, is arranged in a slanted direction. The advertising carriers/ advertising media 8, here in this example realforms of suitcases with printed advertising text are fixed on the holding devices of the load carrier in such way that they are transported in an upright or nearly upright position and therefore are visible or may be watched in an optimal manner.

It goes without saying that this embodiments of the invention constitutes only examples and that the invented continuous conveyor and, in particular, the invented holding device for the advertising carrier / advertising medium which is attached to the continuous conveyor may also have a different detail construction.

References

2	plate band	46	marginal edge area
4	plate / lamella	48	rubber lip
6	holding device	50	base anchoring
8	advertising carrier /advertising medium	52	top side of plate/lamella
10	longitudinal side of the plate/lamella	54	bottom side of plate/ lamella
12	bottom plate		
14	spring joint element		
16	longitudinal side of the bottom plate		
18	lower side of the bottom plate		
20	front side of the bottom plate		
22	rear side of the bottom plate		
24	rollers		
26	top side of the bottom plate		
28	shock-absorber spring		
30	support (frame) construction		
32	bearing surface		
43	front wall		
36	rear wall		
38	side wall		
40	top side of the bearing surface		
42	bottom side of the bearing surface		
44	fastening screw		

Claims

1. Continuous conveyor with endless load carrier for the transport of objects and/or persons, characterized in that the load carrier, in one or several of its longitudinal sections, is provided with at least one holding device 6 to which at least one advertising medium/advertising carrier 8 is attached, and that this advertising medium/advertising carrier 8 extends over or above, respectively, the surface plane of the load carrier.
2. Continuous conveyor according to claim 1, characterized in that the load carrier consists of a belt, a band or a plate band 2.
3. Continuous conveyor according to claim 1 or 2, characterized in that the holding device(s) 6 is(are) arranged at the top side/surface of the load carrier.
4. Continuous conveyor according to either of the claims 1 to 3, characterized in that the holding device(s) 6 is(are) arranged in one or both longitudinal marginal areas of the load carrier.
5. Continuous conveyor according to either of the claims 1 to 4, characterized in that the holding device(s) 6 comprise locking or anchoring facilities which enable free motion at a plane parallel to the plane of conveyance and/or perpendicular and/or at an angle to the plane of conveyance.
6. Continuous conveyor according to claim 5, characterized in that the locking or anchoring facilities are realized as ball-and-socket joint(s) and/or walk-along joint(s) and/or spring elements 14.
7. Continuous conveyor according to either of the claims 1 to 6, characterized in that the holding device(s) is(are) provided with safety appliances against unintentional and/or unauthorized opening or removal.

8. Continuous conveyor according to either of the claims 1 to 7, characterized in that the holding device(s) 6 comprises(comprise) spring(element)s which are arranged in one or several planes thus forming a buffer or crusher zone.
9. Continuous conveyor according to either of the claims 1 to 8, characterized in that the advertising medium 8 is an advertising board.
10. Continuous conveyor according to either of the claims 1 to 9, characterized in that the advertising carrier/advertising medium 8 is the real shape or mock-up of a suitcase, a traveling bag, a knapsack or any other customary item of baggage.
11. Continuous conveyor according to either of the claims 1 to 10, characterized in that the advertising medium 8 is the advertised object itself.
12. Continuous conveyor according to either of the claims 1 to 11, characterized in that the transport face of the advertising continuous conveyors may be arranged in flat, slanted or half-slanted way.
13. Continuous conveyor according to either of the claims 1 to 12, characterized in that the advertising carrier /advertising medium 8 on the advertising continuous conveyors is fitted movable by means of hinge joint mechanism and/or is fitted specifically movable by means of a control system.
14. Continuous conveyor according to either of the claims 1 to 13, characterized in that the advertising carrier /advertising medium 8 or parts from that may be illuminated by means of one or more spinning dynamo(s), contact loop(s), battery(batteries) or by similar means.
15. Continuous conveyor according to either of the claims 1 to 14, characterized in that the holding device 6 is fixed at one or more transport plates / transport lamellas / load carrier elements 4, said fixation being preferably performed by the help of a joint adapter.