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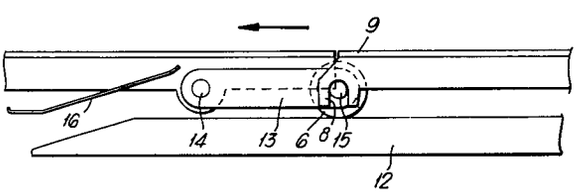
(54) Latch means for walkway.

(57) A dual path moving walkway has recirculating pallets or treadplates which are releasably latched at their outer sides during movement in the passenger-carrying areas between the ends of the walkway. At the ends, the latches are released. The latch means has, on one pallet, a pair of pivotal arms (13) which carry a wheeled axle (15) and on the adjacent pallet a recess (8) to engage the axle (15).

In the passenger-carrying area a transport rail (12) retains the axle (15) in said recess (8); at the end of the carrying area the rail (12) terminates and the axle (15) drops out of engagement, thus releasing the outer side of adjacent pallets.



EP 0 013 792 A1

This invention relates to dual path moving walkways of the type where pallets or treadplates circulate in a single plane.

More particularly this invention relates to latch means which connect adjacent pallets together for movement along the passenger-carrying areas of the walkway and releases them on their outer sides for movement around the return bend area at each end of the walkway.

According to the present invention there is provided a dual path moving walkway having an endless series of pallets forming the floor of each pathway and passing round the ends of the walkway from one pathway to the other, means for moving said pallets round the walkway, latch means for locking adjacent pallets together during movement along the pathways of the walkway and/or releasing adjacent pallets at each end of the walkway and means for controlling actuation of the latch means, said latch means comprising in combination, an assembly mounted on each pallet and a keeper on each adjacent pallet and adapted to engage the assembly, said assembly comprising arm means pivotally connected to the pallet and extending towards the keeper on said adjacent pallet, said arm means mounting an axle carrying ground wheels on which the pallets move along the passenger-carrying areas of the walkway, said axle being located in the keeper.

Preferably, said keeper comprises a bracket having a recess adapted to receive the axle therein, said axle being movable in a vertical direction to engage in or disengage from said recess.

Preferably also, the means for controlling actuation of the latch means comprises a rail located around the walkway and adapted to engage the axle wheels to locate the assembly in a horizontal plane in which said axle is retained in its recess or to permit the axle to move to a lower plane to release from said recess.

Preferably also, said keeper bracket has an inverted U-shaped recess adapted to receive the axle.

Preferably also, said arm means comprises a pair of parallel arms mounting said axle at one end and pivotally mounted on the pallet at the other end.

Preferably also, a down thrust guide plate is provided to engage the axle of each assembly as each pallet passes from a passenger-carrying area through the comb plate, thereby to ensure movement of the assembly to its lower unlatched position.

Preferably also, the latch assembly is mounted at the trailing edge of each pallet and the keeper is on the leading edge of each rearwardly adjacent pallet with reference to the direction of movement of the pallets.

Preferably also, two latch assemblies are mounted on each pallet and two keepers are correspondingly located on each adjacent pallet.

An embodiment of the present invention will now be described by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 ia a part plan view of one end of a dual path moving walkway according to the invention; and

Figs. 2 and 3 are side elevations of a latch means in the raised (latched) and lowered (unlatched) positions respectively.

Referring to the drawings, a dual path moving walkway has two parallel straight portions which form passenger-carrying areas at each end of which is a comb plate 1 under which the pallets pass, and two semi-circular end portions or 'return bends', part of one of which is shown in Fig. 1. An endless series of pallets 2 moves around the walkway; in the passenger-carrying areas these are connected together at their inner and outer sides to form continuous straight moving floors (not shown) while at the return bends the pallets 2 remain connected only at their inner sides to permit movement round the return bend.

The pallets 2 are provided with two pairs of co-axial transport wheels 6 which travel on rails 12 along the passenger-carrying areas; in the return bend areas the pallets are supported by inverted wheels 10 located adjacent to the comb plate 1 and by inverted castors 11.

The pallets are connected at their inner sides by any suitable connecting means 7 which run in guide rails or channels 5.

Latch means 9 releasably connects adjacent pallets at least at the outer sides and also if desirable at a location adjacent the inner connecting means 7. Each latch means comprises in combination an assembly 13-15 at the trailing edge of each pallet relative to its direction of movement and a keeper 8 at the leading edge of each rearwardly adjacent pallet.

As illustrated in Figs. 2 and 3, the rearward pair of transport wheels 6 are mounted on an axle 15 which is carried on a pivoting pair of arms 13, which extend forwardly to a pivot 14. These arms constitute a transport wheel mounting, and are able to move through a small vertical arc after they leave the rails outside of the transport area.

The keeper 8 comprises a bracket mounted on the underside of each pallet and having an inverted U-shaped recess at its leading end into which the axle of the latch assembly can locate.

Within the passenger-carrying area, the wheel mountings are firmly located because the top portion nearest the pallet provides a firm support for the pallet, while the fact that the wheels 6 rest on the transport rails 12 completes the pallet support in a rigid manner.

After a pallet 2 has passed the comb plate 1 and the transport wheel rail is terminated, space is left so that the pivoting arms 13 drop down permitting the wheel axle 15 to disengage and clear the recess of keeper 8, thus permitting the pallets to divide on the outer periphery.

As there is a possibility that gravity alone would not be adequate to cause the axle to disengage, the axle 15 is extended and locates in the critical area with a down thrust guide plate 16 which ensures that separation of axle and recess takes place.

As the inner guide wheels 7 are completely trapped within the guide rail 5, the pallets must continue to traverse the turnaround area.

The turning pallet will maintain correct horizontal orientation because flat surfaces are provided on the underside of each pallet and these ride on the inverted wheels 10 and inverted castors 11.

As the pallets 2 complete the turn the guide wheels 7 will direct the pallet back into proximity and parallelism with the one in front, and they are pressed close together by means of a suitably located linear motor or drive wheel not shown.

The transport wheels 6 are now approaching the ramp at the beginning of the transport rail 12, and as the wheels 6 rise up this ramp the axle 15 will lock into the recess of the keeper 8.

The guide wheel 7 is equipped with a substantial rib or annulus and if the rising transport wheel 6 tries to displace the pallet this rib on the guide will counteract the thrust and maintain the correct pallet orientation in the horizontal plane.

The connected pallet now moves through the comb plate 1 into the transport area on the four transport wheels 6, and become what is in effect part of a continuous moving platform located accurately between the guide wheels 7 in the guide channels 5.

The pallets may be driven by rotary toothed drive members spaced along the walkway, and engaging co-operating toothed bars on the pallets, e.g. power may be provided by a series of rack and pinion drives at calculated spaces along the lengths of the paths or by caterpillar drives.

Alternatively, it may be provided by linear motors spaced out to correspond with the power requirement and the input of the power unit with reaction plates mounted on each pallet.

The latch means hereinbefore described may be used in conjunction with connecting means for coupling the inner sides of the pallets which means is described and claimed in our co-pending Application filed August, 1978 under Application No. 33143/78

CLAIMS

1. A dual path moving walkway having an endless series of pallets forming the floor of each pathway and passing round the ends of the walkway from one pathway to the other, means for moving said pallet round the walkway, latch means for locking adjacent pallets together during movement along the pathway of the walkway and/or releasing adjacent pallets at each end of the walkway and means for controlling actuation of the latch means, characterised in that said latch means (9) comprises in combination,an assembly (13 to 15) mounted on each pallet and a keeper (8) on each adjacent pallet adapted to engate the assembly, said assembly comprising arm means (13) pivotally connected to the pallet (2) and extending towards the keeper on said adjacent pallet, said arm means mounting an axle (15) carrying the ground wheel (6) on which the pallets move along the passenger-carrying areas of the walkways, said axle being locatable in the keeper (8).

2. A walkway as claimed in Claim 1, characterised in that said keeper (8) comprises a bracket having a recess adapted to receive the axle (15) therein, said axle being movable in a vertical direction to engage in or disengage from said recess.

3. A walkway as claimed in Claim 1 or 2, characterised in that the means for controlling actuation of the latch means comprises rail (12) locked around the walkway and adapted to engage the wheels (6) to locate the assembly in a horizontal plane in which said axle (15) is retained in its recess (8) or to permit the axle to move to a lower plane to release from said recess.

4. A walkway as claimed in Claim 2, characterised in that the bracket of said keeper (8) has an inverted U-shaped recess adapted to receive the axle.

5. A walkway as claimed in any one of Claims 1 to 4, characterised in that said arm means (13) comprises a pair of parallel arms mounting said axle (15) at one end and pivotally mounted (at 14) on the pallet (2) at the other end.

6. A walkway as claimed in any one of Claims 1 to 5, characterised in that a down thrust guide plate (16) is provided to engage the axle (15) of each assembly as each pallet (2) passes from a passenger-carrying area through the comb plate (1) thereby to ensure movement of the assembly (13 to 15) to its lower unlatched position.

7. A walkway as claimed in any one of the preceding claims, characterised in that the latch assembly (13 to 15) is mounted at the trailing edge of each pallet (2) and the keeper (8) is on the leading edge of each rearwardly adjacent pallet with reference to the direction of movement of the pallets.

8. A walkway as claimed in any one of the preceding claims, chracterised in that two latch assemblies (13 to 15) are mounted on each pallet (2) and two keepers (8) are correspondingly located on each adjacent pallet.

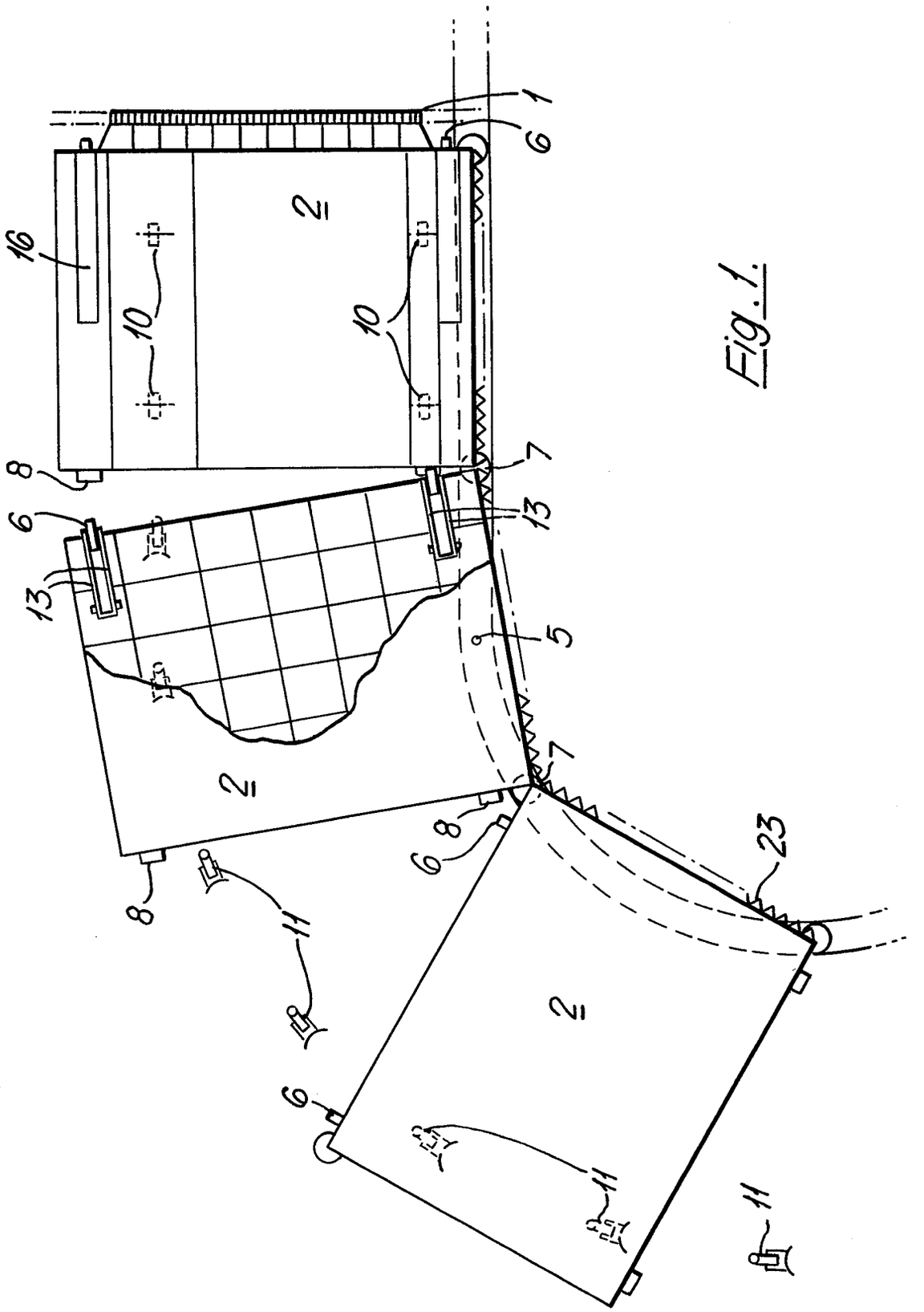


Fig.1.

Fig.2.

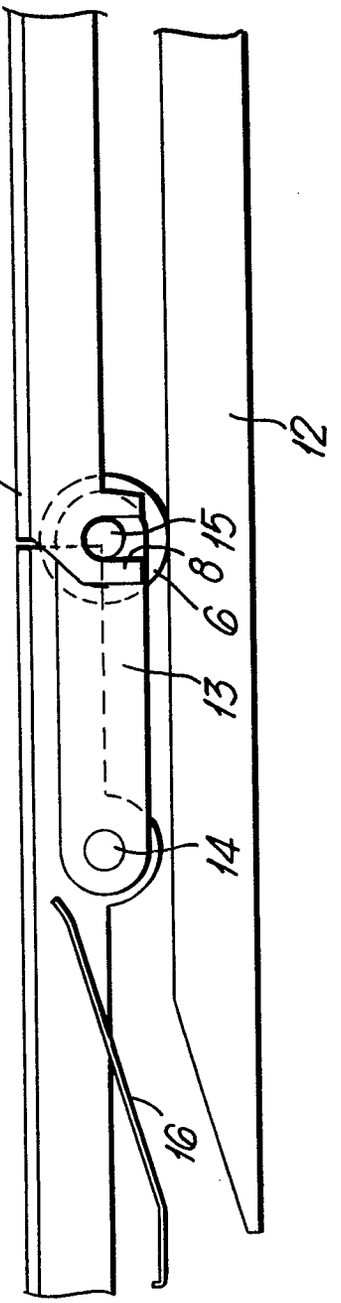
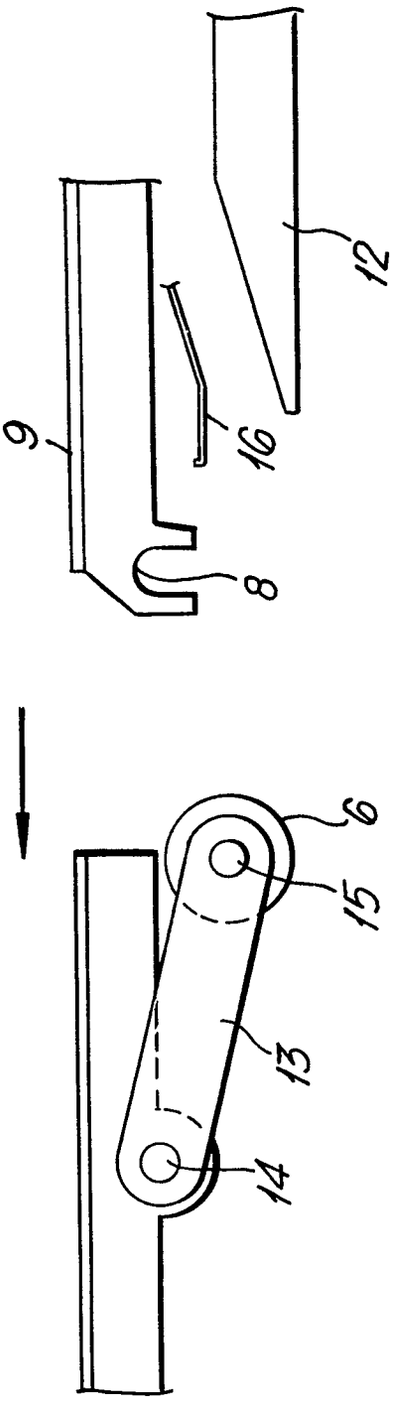


Fig.3.



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EUROPEAN SEARCH REPORT

0013792
Application number

EP 79 301 632.0

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	DE - A1 - 2 542 262 (SCHMID) * page 13, lines 1 to 30 * --	1
A	GB - A - 1 463 461 (ORENSTEIN & KOPPEL) * page 1, lines 9 to 86 * --	1
A	DE - B2 - 2 255 222 (RATHGEBER) * fig. 1 * --	1
A	US - A - 3 811 385 (JOHNSON et al.) * fig. 7 * --	1
A	FR - A - 2 101 049 (COMPAGNIE GENERALE D'AUTOMATISME) * complete document * ----	1

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

B 61 B 13/14
B 65 G 17/22

TECHNICAL FIELDS SEARCHED (Int.Cl.³)

B 61 B 13/00
B 65 G 17/00
B 66 B 9/12

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

Y The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	12-11-1979	SIMON

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