

THE JOINT EXAMINATION BOARD

PAPER P6

INFRINGEMENT AND VALIDITY

13th November 2002

10.00 a.m. – 2.00 p.m.

*Please read the following instructions carefully. Time allowed – **FOUR HOURS**.*

1. Please note the following:
  - Enter the Paper Number and your Examination number in the appropriate boxes at the top of each sheet of paper.
  - Write on one side of the paper only, within the printed margins using a **BLACK** pen.
  - **DO NOT** use coloured pens or highlighters within the answers - they will not photocopy.
  - **DO NOT** staple or join pages together in any way.
  - **DO NOT** state your name anywhere in the answers.
2. **NO** printed matter or other written material may be taken into the examination room. **ALL** mobile phones and electronic aids **must** be switched off and stored away.
3. Answers **MUST** be legible. If the examiners cannot read a candidate's answer no marks will be awarded.
4. **NO WRITING OF ANY KIND WILL BE PERMITTED PRIOR TO COMMENCEMENT OR AFTER THE TIME ALLOTTED TO THIS PAPER HAS EXPIRED. At the end of the examination assemble your answer sheets in order and place in the WHITE envelope provided.**

**14 PAGES INCLUDING THIS PAGE**

1 of 14

## CLIENT'S LETTER

Your new client writes as follows:

Dear Sirs,

5 I filed a patent application myself at the UK Patent Office four years ago and have recently been granted a patent for a unique moving walkway conveyor system. I enclose a copy of my patent. The idea for this conveyor came to me after the experience of Heathrow and Gatwick airports where you have to walk what seems like miles and transfer from escalators to walkways, where they exist, and drag luggage around where  
10 they don't. My idea was to provide a single walkway that would extend the whole length of the building, whatever its shape and however many floors were involved, so that it was possible to step on and step off the walkway at any point along its length and travel in either direction. If the length was too long for the driving machinery required, then it could be subdivided into shorter sections but each working on the same principle of being  
15 able to 'go round corners' and permit movement between floors as well. Shorter walkways would be separated simply by a very short section of floor.

I am now in the final stages of concluding a deal with AB Conveyors plc. to permit them to install a conveyor according to Figures 1 and 2 of my patent, at the new terminal to be constructed at Heathrow.

20 Then came the bombshell. Four days ago, I received a letter from patent agents acting for a rival company, XY Conveyors Inc. who make industrial conveyors for factories, enclosing their client's European patent which extends to the UK. They seem to think my invention falls within the scope of their patent and that my patent is invalid. Apparently I must respond in the next few days or they will take action against my  
25 patent. I am worried XY's patent could jeopardize my licence arrangement.

I'm rather surprised because the UK Patent Office search didn't find XY's patent and it looked like the closest prior art was baggage carousels and normal escalators. These are really common, and I enclose drawings from a couple of long established textbooks for comparison. The UK examiner accepted that my invention was  
30 distinguished because it provides conveyance in three dimensions and not two, as with a

**CLIENT'S LETTER**

horizontal carousel or vertically inclined escalator. In consequence no amendment was needed.

From the attached copy of XY Conveyors' patent you will see that their concept is for conveying materials and products around a factory. That conveyor does admittedly rise and fall and can turn corners but I don't think it is suitable for conveying people because it doesn't provide a continuous flat surface like a walkway type conveyor.

I need an answer urgently to the following questions:

- Is the people conveyor shown in my Figures 1 and 2 within the scope of XY's claims ?
- 10 • Is XY's patent valid ?
- Is my patent still valid ?
- What can XY do ?
- What can I do ?

15 Yours faithfully

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Write notes for a memorandum to your client. You establish that no prior art was cited against the XY patent during prosecution and carry out a search for prior art against XY's patent - but find nothing. You also find that both patents are in force and that all renewal fees have been paid.

Document check list :-

Client's letter (2 pages)

25 Document A: Client's GB Patent

Document B: XY's European Patent

Document C: Extract from Textbook C regarding baggage conveyers. This book was published in 1985.

30 Document D: Extract from Textbook D regarding escalators. This book was published in 1978.

**CLIENT'S PATENT**

Filed : 22 July 1998

Granted : 30 August 2002

**PEOPLE CONVEYOR**

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My invention is concerned with conveyors, especially with conveyors for conveying personnel safely over the distances found in typical modern buildings such as airports, railway stations and the like.

10 The typically known public escalator moves only in the vertical plane and has segments providing the steps of the escalator which permit only vertical movement between one step and the next as the steps travel in an ascending or descending motion. There is often a flat section at both the top and bottom of the escalator, which can be extended but it does not curve. The known type of traveller found in large airports is based on exactly the same principles as the escalator except for the fact that it moves 'on  
15 the flat' only.

The familiar typical baggage carousel such as is found at most airports is based on a similar principle. Each segment or slat of the carousel is a flat plate usually of hard wearing rubber material or the like. Each slat lies in partial overlapping relationship with the next such that the overlap reduces when the slats go around a corner.

20 In modern airports, often with more than one terminal, the passenger frequently has to walk considerable distances between the security/passport control desk and the departure/arrival 'gate', with or without luggage. The purpose of this invention is to provide an improved means of conveying people by walkways.

25 Accordingly, my invention is a conveyor for transporting people comprising a plurality of segments arranged in a continuous formation in which each segment has a load-bearing surface, a leading end face and a trailing end face, the leading and trailing end faces being downwardly-extending and each being complementary in shape to the adjacent end face, whereby each segment can move vertically and pivotally relative to the respective end faces of the leading and trailing segments.

## CLIENT'S PATENT

Such a conveyor can provide an endless people carrier in the form of a walkway with escalator comprising a plurality of steps, each step being load bearing and shaped to move both vertically and pivotally relative to adjacent leading and trailing steps to provide both a moving staircase and a flat continuous moving surface as required. The shape of each segment has to be part circular so that adjacent segments can pivot and in one form of the invention can be likened to a crescent moon shape. Also, the segments can be elongated in the direction of travel with one end face curved outwardly and the opposite end face curved inwardly so that adjacent faces can swivel relative to each other.

In order to move vertically, a primary consideration is that individual segments/steps have downwardly extending complementary leading and trailing end faces, i.e., each segment is a part cylinder. By this I mean that both the leading and trailing faces of each segment have a vertical depth sufficient that adjacent end faces of adjacent segments/steps always overlap where they abut when these are rising or descending. In this way, the walkway is able to form a staircase.

The conveyor is mounted on two sets of tracks for support and for guiding the segments horizontally, vertically and around corners. Each segment of the conveyor has two pairs of wheels, the front pair running on a separate set of tracks from the back pair. The conveyor is driven by a chain and sprocket system. The detail of how movement is achieved is not further described as it does not form part of my invention and is well known to the man skilled in the art since it is the same as that for a typical escalator or traveller. Just as with a normal traveller or escalator, sidewalls and handrails can be provided for the convenience of passengers.

The invention will now be described by way of example with reference to the accompanying drawings in which:-

Figure 1 is a schematic side view of a section of a conveyor according to the invention showing the manner in which, in the direction of the arrow A therein, the conveyor segments or steps can travel horizontally and then rise;

Figure 2 is a view from above of Figure 1 showing how the conveyor can negotiate bends and rise from one level to another.

## CLIENT'S PATENT

Figure 1 shows a length of the conveyor comprising, by way of example, twelve segments/steps a to l, as viewed from the side, of a conveyor comprising many more formed in a continuous loop. The conveyor is moving from right to left in the drawing as indicated by the arrow A. Segments/steps a to h are moving in a horizontal plane while segment/step i is about to rise and segments/steps j to l are rising. Obviously, if the direction is reversed, segments/steps j to l would be descending.

In Figure 2, the same segments/steps are shown from above and it is shown that the path while horizontal and ascending is not straight. In fact the segments/steps a to d are following a straight path while e and f are moving to the right as viewed from above while segments h to l are following another straight path including segments/steps j, k and l which are ascending. The arrangement shown in Figures 1 and 2 is only illustrated by way of explanation and it will be obvious to the man skilled in the art that many other arrangements are possible.

What I claim is:

1. A conveyor for transporting people comprising a plurality of segments in which each segment has a leading end face and a trailing end face, each face being downwardly-extending and complementary in shape to the adjacent end face, whereby each segment can move vertically and pivotally relative to the respective cooperating end faces of the leading and trailing segments.
2. A conveyor according to claim 1 in which segments of the conveyor are formed with a convex face and an opposed concave face.

CLIENT'S PATENT

FIG. 1

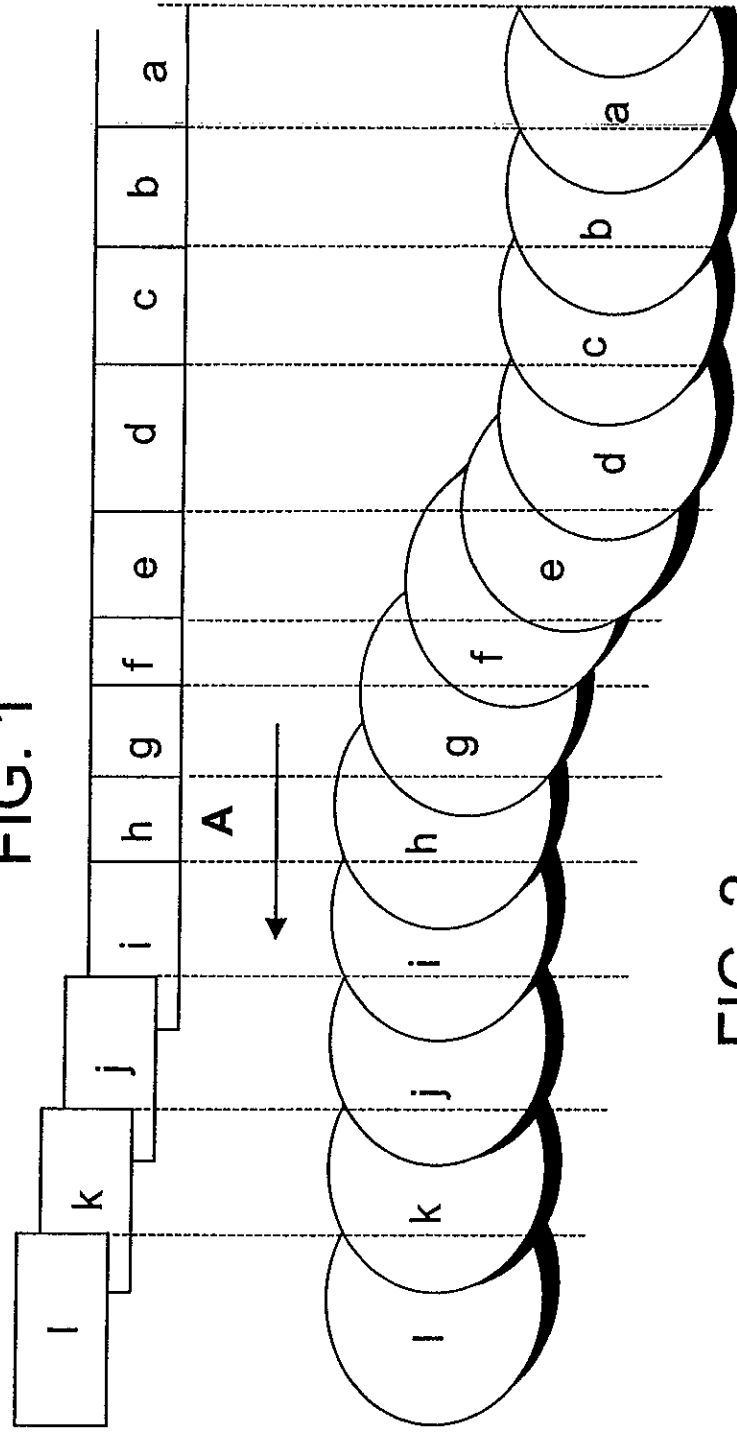


FIG. 2

**XY's EUROPEAN PATENT**

Filed : 10 January 1990

Granted : 30 September 1994

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**IMPROVEMENTS IN OR RELATING TO CONVEYORS.**

This invention is concerned with improvements in or relating to conveyors and is particularly though not exclusively concerned with conveyors for moving discrete products such as packaged materials and manufactured goods around a facility such as a factory complex or the like.

The purpose of the conveyor is to transport goods in straight and curved lines and to rise and fall between different levels in the factory. Such a production line facility can be more compact and flexible than conventional straight line conveyors permit. Thus an assembly plant itself can be more compact by simply making the conveyor follow a continuous path.

Accordingly, the present invention comprises an endless conveyor comprising a plurality of units each carrying a load-bearing plate which co-operates with the plate of the adjacent unit to provide a continuous conveyor surface, each unit being mounted to run along tracks or guides which support the conveyor and are adjustable to permit rising/falling and linear/non-linear movement thereof.

Forward and rearward abutting edges of the plates are each substantially part-circular so that forward and rearward edges co-operate when the conveyor follows a curved path without disrupting the continuity of the surface of the conveyor.

Each unit is mounted on wheels, rollers or the like that run along tracks to support the conveyor along its entire path in conventional manner. The conveyor is powered by a motor that is coupled to the conveyor by linkages such as are common in the conveyor art, e.g. chain-and-toothed-wheel arrangements. The tracks or guides can be arranged to run wherever they are needed and can be made of flexible material so that they can be readily adjusted in the event that change of layout on a factory floor is desired. The tracks or guides also can be adjusted to maintain the platforms of individual units in a



**XY's EUROPEAN PATENT**

horizontal attitude by having a set of tracks for the front wheels and a set of tracks for the back wheels and adjusting the relative attitude of the respective sets of tracks. The units are then linked together so as to provide a continuous conveyor surface and can be propelled along the tracks so as to follow the track whether it remains horizontal or rises and falls.

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An example of the invention is shown in the accompanying drawings of which:

Figure 1 is a plan view of adjacent units such as can be used in the conveyor of Figure 2;

Figure 2 is a schematic side view showing how the tracks for the conveyor can be arranged to permit rise and fall of the conveyor; and

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Figure 3 is a schematic side view, similar to Figure 2, but showing slightly more detail as to the arrangement of the tracks whereby a unit can rise and descend in inclined or horizontal attitude.

As can be seen from Figure 1, a unit of the conveyor 1 is in the form of a flat plate 2 mounted on wheels 3, 4, one adjacent each corner. One pair of wheels 3 is arranged to run on a first set of tracks 5 and the other pair of wheels 4 is arranged to run on a second set of tracks 6. Plate 2 of each conveyor unit is of slightly tapered shape as can be seen in Figure 1, but has curved end portions 7 and 8. The curvature of end portion 7 is convex which is to say it curves out from the body of the unit while the curvature of the end portion 8 is concave in that it curves into the body of the unit. Each plate may be formed as a single piece of rigid material such as steel or it may be formed of slightly more flexible material such as a rubber or synthetic composition, provided that the dimensions are sufficient to withstand whatever load is placed upon it. To be universally useful, the units can be constructed so that they can support loads of 150kgs or more which is considerably more than the weight of the average person. To this extent, the plate may be supported by an underlying framework and the supporting wheels 3, 4 may then be secured to the framework itself.

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When assembled, the conveyor 1 comprises an endless train of units, one length of which is shown from the side in Figures 2 and 3. The endless conveyor can be operated to move in either clockwise or anticlockwise direction and clearly includes more

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**XY's EUROPEAN PATENT**

units than shown in the Figures. Furthermore, as shown diagrammatically in Figure 2 and 3, the conveyor may be constructed so that it is either operating in a single horizontal plane or can rise and fall to match the requirements of the environment in which it operates. This can be particularly useful in assembly plants or production lines.

5           In a preferred form of the invention, the relative spacing of the tracks can be adjusted as shown in Figure 3 to permit a unit 2a to remain horizontal as it rises or falls during travel, where horizontality of the conveyed product is essential.

          In another embodiment of the invention, individual units can be provided with slot-in frames to prevent movement of loads, which would otherwise fall off the conveyer  
10       or get trapped under an adjacent plate on ascending or descending sections.

**CLAIMS**

15           1.       An endless conveyor comprising a plurality of units each carrying a load-bearing plate which co-operates with the plate of the adjacent unit to provide a continuous conveyor surface, each unit being mounted to run along tracks or guides which support the conveyor and are adjustable to permit rising/falling and linear/non-linear movement thereof.

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2.       A conveyor according to Claim 1 wherein abutting edges of the plates are each substantially part-circular such that when the conveyor follows a curved path, adjacent plates co-operate without disrupting the continuity of the surface of the conveyor.

25       3.       A conveyor according to Claim 1 or 2 wherein the plates of individual units can be maintained in a horizontal attitude by adjusting the relative attitude of the tracks or guides.

XY'S PATENT

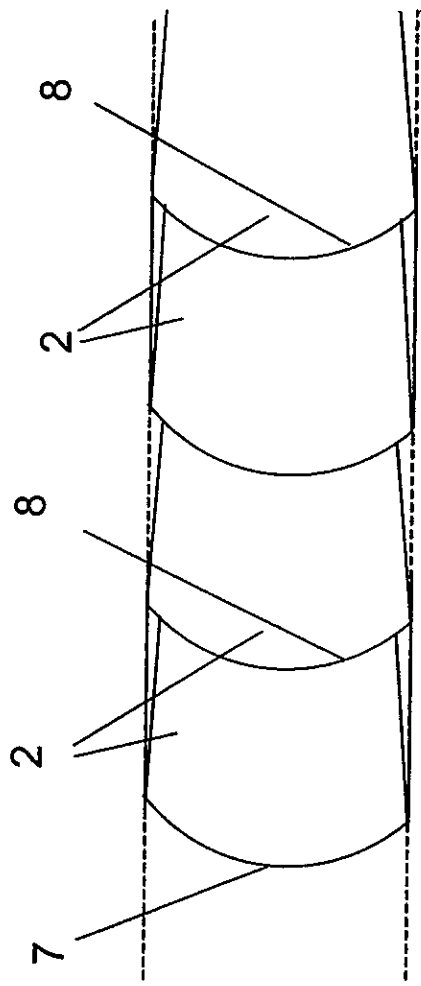
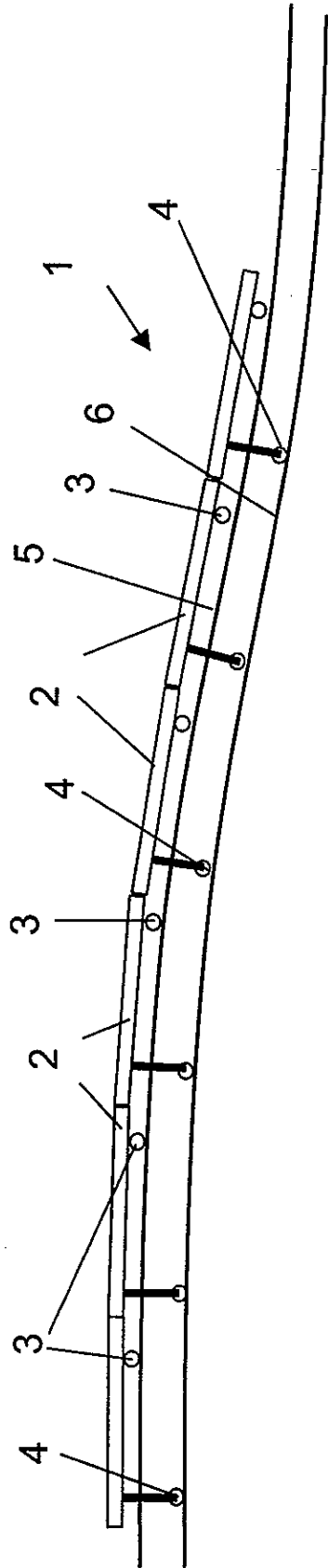


FIG. 1

FIG. 2



2a

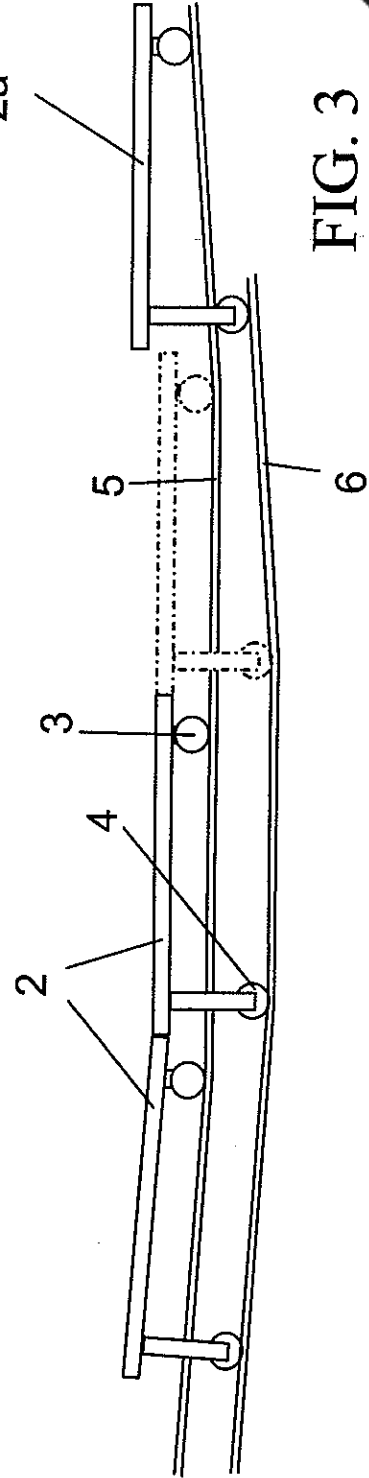


FIG. 3

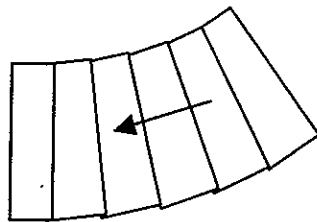
## Extract of Textbook C

## BAGGAGE CONVEYOR

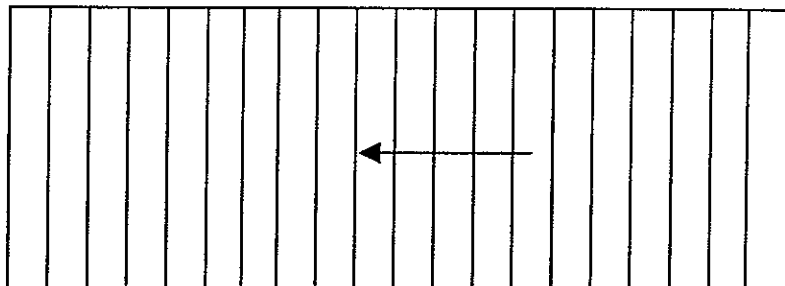
Overlapping slats



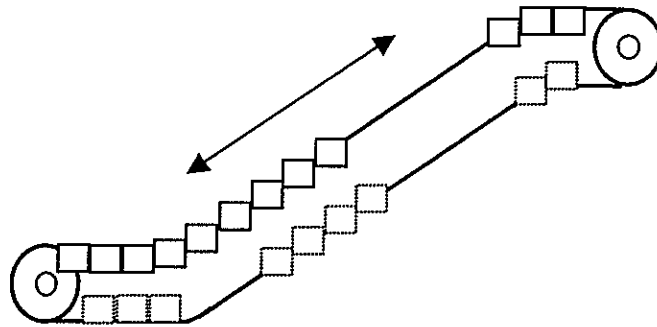
Part of curved path of conveyor



Top view of straight conveyor length



The typical baggage conveyor or carousel has a number of overlapping slats which are supported on an underlying flexible framework that allows the slats to follow a straight path, curving at each end to form a return path. The slats are usually formed of hardwearing rubber composition material and the edges of each slat are slanted to enable the slats to co-operate with each other, especially when extending around corners.

**Extract of Textbook D****THE ESCALATOR**

The escalator is a form of conveyor used for carrying people between one level and another and consists of a number of steps which are linked together by an endless drive system with each step having wheels mounted on rails in an endless loop as shown diagrammatically.

Each step is shaped as a substantially rectangular box and not only co-operates with the step in front and behind in a vertical plane, but in a horizontal plane, so that an escalator can extend both between two levels and can include horizontal sections as well.