

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 January 2006 (12.01.2006)

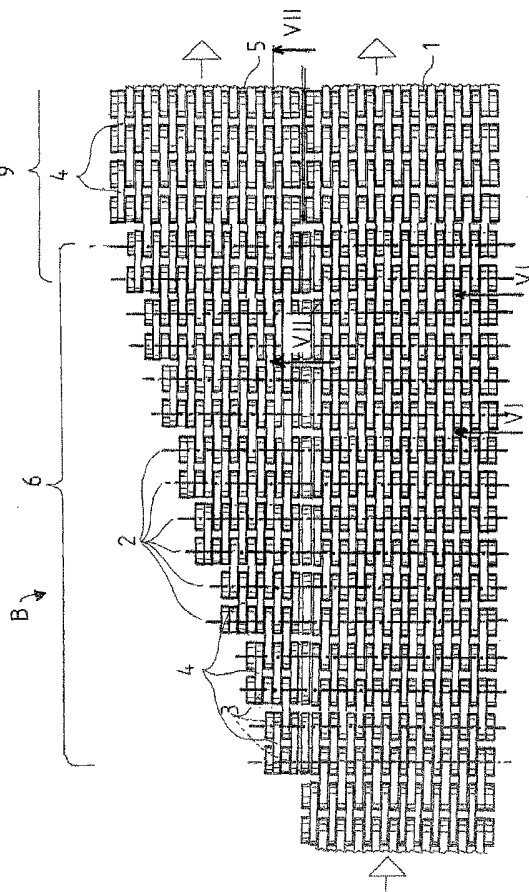
PCT

(10) International Publication Number
WO 2006/003236 A2

- (51) International Patent Classification: Not classified
- (21) International Application Number:
PCT/FI2005/000206
- (22) International Filing Date: 4 May 2005 (04.05.2005)
- (25) Filing Language: Finnish
- (26) Publication Language: English
- (30) Priority Data:
20040907 30 June 2004 (30.06.2004) FI
- (71) Applicant (for all designated States except US): **KONE CORPORATION** [FI/FI]; Kartanontie 1, FI-03300 Helsinki (FI).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MUSTALAHTI, Jorma** [FI/FI]; Raivaajantie 13, FI-05620 Hyvinkää (FI).
AULANKO, Esko [FI/FI]; Käenkatu 6 C 33, FI-04230 Kerava (FI).
- (74) Agent: **KONE CORPORATION**/Patent Department;
P.O.Box 677, FI-05801 Hyvinkää (FI).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: TRAVELATOR SYSTEM



(57) Abstract: The invention relates to a travelator system, which comprises a main conveyor (1), which comprises a number of shafts (2). Connected to each shaft are a number of belt pulleys (3) placed side by side. A number of mutually parallel endless belt loops (4), which form the moving conveying surface of the main conveyor (1). Each belt loop (1) is passed over two belt pulleys on two different shafts in such manner that, of each two closely adjacent belt loops on the same common shaft that are passed over adjacent belt pulleys, one belt loop is passed over a belt pulley on a previous shaft relative to the common shaft while the other belt loop is passed over a belt pulley on a following shaft relative to the common shaft. The travelator comprises a branch conveyor (5), which in a connecting section (6) branches off with respect to the main conveyor (1) to allow passengers to enter from the branch conveyor (5) onto the main conveyor (1) and/or to exit from the main conveyor (1) onto the branch conveyor (5). Like the main conveyor (1), the branch conveyor (5) is also implemented using shafts (2) and belt loops (4). In the connecting section (6) the branch conveyor (5) and the main conveyor (1) have at least one common shaft (2).



Published:

— without international search report and to be republished
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

TRAVELATOR SYSTEM**FIELD OF THE INVENTION**

The present invention relates to a travelator system
5 as defined in the preamble of claim 1.

BACKGROUND OF THE INVENTION

In prior art, travelators intended for transporting
passengers are known e.g. from patent specifications
10 JP 2003-20181, US 1,689,201, US 2,769,522 and US
3,592,139. In these, the conveyor consists of a large
number of adjacent narrow belt loops, several such
belt loops being arranged over the width of the con-
veyor to transport users of the travelator. The con-
15 veyor has a large number of shafts arranged parallel
to each other, at a distance from each other and
transverse to the transport direction of the conveyor.
Connected to each shaft are a number of belt pulleys
placed side by side.

20

Further, the conveyor comprises a number of mutually
parallel endless belt loops, which form the moving
conveying surface of the conveyor. The mutual arrange-
ment of the belt loops is so implemented that they are
25 interlaced with respect to each other in a comb-like
fashion around each shaft. Each belt loop is passed
over two belt pulleys on two successive shafts. Of
each two closely adjacent belt loops on the same com-
mon shaft that are passed over adjacent belt pulleys,
30 one belt loop is passed over a belt pulley on the pre-
vious shaft adjacent to the common shaft while the
other belt loop adjacent to the aforesaid belt is
passed over a belt pulley on the next shaft adjacent
to the aforesaid common shaft.

35

This prior-art type of travelator is designed to convey passengers from end to end, in other words, users board the travelator at one end and leave it at the other end.

5

A so-called fast travelator has a relatively high transport speed and it may be very long, even hundreds of meters. Such a long travelator provides the best service to areas located near the ends of the travelator. If more closely spaced areas are to be served, then it is necessary to build shorter travelators, and these have to be installed in a chain one after the other. However, in this case a higher speed of the travelator provides no corresponding advantage because time is wasted on accelerations in an acceleration section and on decelerations in a deceleration section. For example, if the nominal speed is 5 m/s, the acceleration and deceleration sections would already have a total length of about 100 m. Acceleration and deceleration require about 20 s extra time plus the time spent on walking between travelators. This type of a travelator system consisting of successive travelators provides no good service to those who travel long distances on them.

25

Further, specification US 3,518,944 discloses a travelator which may be provided with entry and exit branchings. However, this travelator is not of the above-mentioned travelator type in which the conveying surface consists of adjacent belt loops interlaced with respect to each other. Instead, in this specification the conveying surface of the conveyor consists of a large number of adjacently mounted rotatable rollers of small diameter. The conveying surface consisting of separate rollers in the main and branch conveyors is not even and not a very good surface to stand or step on. Moreover, the conveying speed

35

achieved with the construction described in the above-mentioned specification is very low (about 700 mm/s) and does not allow long travelators to be built in an economically reasonable manner.

5

OBJECT OF THE INVENTION

The object of the invention is to overcome the above-mentioned drawbacks.

10 A specific object of the invention is to disclose a travelator system provided with intermediate entry connections and intermediate exit connections, giving new possibilities to make long and fast travelators that will provide good and efficient service to the
15 entire area covered by the conveyor.

A further object of the invention is to disclose a travelator system that will serve people who travel long distances, minimizing their journey time, while
20 at the same time serving people who make short trips, allowing them to board the main conveyor from the side and to leave the main conveyor, which may have a high conveying speed.

25 A further object of the invention is to disclose a travelator system having a conveyor construction that allows the conveying surface to extend substantially continuously and evenly without any discontinuities between the main conveyor and the branch conveyor
30 branching off from it.

BRIEF DESCRIPTION OF THE INVENTION

The travelator system of the invention is characterized by what is disclosed in claim 1. Other embodi-
35 ments of the invention are characterized by what is disclosed in the other claims. Inventive embodiments

are also presented in the description part and drawings of the present application. The inventive content disclosed in the application can also be defined in other ways than is done in the claims below. The inventive
5 content may also consist of several separate inventions, especially if the invention is considered in the light of explicit or implicit sub-tasks or in respect of advantages or sets of advantages achieved. In this case, some of the attributes contained in the claims
10 below may be superfluous from the point of view of separate inventive concepts. Within the framework of the basic inventive concept and/or inventive content, features and details of different embodiments of the invention can be applied in conjunction with other em-
15 bodiments.

According to the invention, the travelator comprises a branch conveyor, which branches off in a connecting section with respect to the main conveyor to allow
20 passengers to enter from the branch conveyor onto the main conveyor and/or to exit from the main conveyor onto the branch conveyor. The construction principle of the branch conveyor corresponds to that of the main conveyor. Thus, the branch conveyor comprises a number
25 of shafts arranged to be parallel to each other, at a distance from each other and transverse to the transport direction of the conveyor, with a number of belt pulleys mounted side by side on each shaft. Further, the branch conveyor comprises a number of mutually
30 parallel endless belt loops, each one of said belt loops being passed over two belt pulleys on two different shafts in such manner that, of each two closely adjacent belt loops on the same common shaft that are passed over adjacent belt pulleys, one belt loop is
35 passed over a belt pulley on a previous shaft relative to the common shaft while the other belt loop is passed over a belt pulley on a following shaft rela-

tive to the common shaft. In the connecting section the branch conveyor and the main conveyor have at least one common shaft.

5 The invention has the advantage that the intermediate entry connections and intermediate exit connections give new possibilities to make long and fast travelators that will provide good and efficient service to the entire area covered by the conveyor.

10

A further advantage of the invention is that the travelator system will serve people who travel long distances, minimizing their journey time, while at the same time serving people who make short trips, allowing them to board the main conveyor from the side and to leave the main conveyor, which may have a high conveying speed.

15 An additional advantage of the invention is a conveyor construction that allows the conveying surface to extend substantially continuously and evenly without any discontinuities between the main conveyor and the branch conveyor.

20 The belt loops comprised in the conveying surface of the travelator system may serve as power transmitting belts or the power transmission to the shafts may be at least partly implemented via external power transmission.

30

In an embodiment of the travelator system, the connecting section between the main conveyor and the branch conveyor comprises a widening area where the main and branch conveyors have several shafts in common and where the main conveyor widens to the width of the branch conveyor. In the widening area the shaft lengths are mutually different in the transport direc-

35

tion and change between the width of the main conveyor and the total width of the main and branch conveyors.

In an embodiment of the travelator system, the main conveyor comprises an acceleration section for accelerating the passenger transport speed from a substantially slow initial speed to a heightened transport speed. Further, the main conveyor comprises a constant-speed section for conveying the passenger at a constant transport speed, and to which section the branch conveyor is connected. In addition, the main conveyor comprises a deceleration section for decelerating the passenger transport speed from the constant transport speed to a decelerated final speed.

In an embodiment of the travelator system, the system comprises a branch conveyor that forms an entrance to the main conveyor. The branch conveyor comprises an acceleration section for accelerating the passenger transport speed from a substantially slow initial speed to a heightened transport speed corresponding to the transport speed of the main conveyor at the point where the branch conveyor is connected to the main conveyor.

In an embodiment of the travelator system, the system comprises a branch conveyor that forms an exit from the main conveyor. The branch conveyor comprises a deceleration section for decelerating the passenger transport speed from the main conveyor's transport speed to a decelerated final speed.

In an embodiment of the travelator system, the system comprises a branch conveyor that comprises a constant-speed section for conveying the passenger at a constant transport speed.

In an embodiment of the travelator system, the system comprises at least two main conveyors, the constant-speed sections of which intersect each other at different levels. The transport speed of the branch conveyor is substantially the same as the constant transport speed of the main conveyors. The branch conveyor is arranged to interconnect the constant-speed sections of the main conveyors so as to allow passengers to be transferred from one main conveyor onto the other main conveyor.

In an embodiment of the travelator system, the travelator system forms a public transport network comprising a number of mutually intersecting main conveyors at different levels and a number of branch conveyors branching off from them.

In an embodiment of the travelator system, the two belt pulleys provided for each belt loop and placed on different shafts comprise a first belt pulley and a second belt pulley. In the deceleration and acceleration sections, a transmission ratio exists between the first belt pulley and the second belt pulley.

In an embodiment of the travelator system, the transmission ratio is determined by the ratio of the diameters of the first belt pulley and the second belt pulley.

In an embodiment of the travelator system, in the acceleration section the diameter of the first belt pulley is larger than the diameter of the second belt pulley.

In an embodiment of the travelator system, in the deceleration section the diameter of the first belt pulley

ley is smaller than the diameter of the second belt pulley.

In an embodiment of the travelator system, the belt
5 loops are toothed belts. In the deceleration/acceleration section, the first belt pulley and the second belt pulley are toothed belt pulleys having different numbers of teeth, the transmission ratio between the first belt pulley and the second belt pulley
10 being thus determined by the ratio of the numbers of teeth on the belt pulleys.

In an embodiment of the travelator system, in the acceleration section the transmission ratio between the
15 first belt pulley and the second belt pulley is $1 < i \leq 1.1$.

In an embodiment of the travelator system, in the deceleration section the transmission ratio between the
20 first belt pulley and the second belt pulley is $1 > i \geq 0.9$.

In an embodiment of the travelator system, the initial speed and the final speed of the travelator are of the
25 order of about 0.5 - 0.7 m/s.

In an embodiment of the travelator system, the transport speed in the constant-speed section is of the order of about 2.5 - 7 m/s, suitably about 3 - 6 m/s and
30 preferably about 5 m/s.

In an embodiment of the travelator system, the change in transport speed in the acceleration section is so adapted that the average acceleration experienced by
35 the passengers is of the order of about 0.3 m/s^2 .

In an embodiment of the travelator system, the change in transport speed in the deceleration section is so adapted that the average deceleration experienced by the passengers is of the order of about 0.3 m/s^2 .

5

In an embodiment of the travelator system, the travelator system is composed from conveyors designed to be mounted on a fixed base, such as a floor, the ground or some other support.

10

LIST OF FIGURES

In the following, the invention will be described in detail with reference to embodiment examples and the attached drawing, wherein

15

Fig. 1 presents a diagrammatic top view of a first embodiment of the travelator system of the invention,

20 Fig. 2 presents detail A from Fig. 1,

Fig. 3 presents a diagrammatic side view of a second embodiment of the travelator system of the invention,

25 Fig. 4 presents a diagrammatic top view of a third embodiment of the travelator system of the invention,

Fig. 5 presents detail B from Fig. 2,

30 Fig. 6 presents a diagrammatic section VI-VI from Fig. 5, and

Fig. 7 presents a diagrammatic section VII-VII of the main conveyor in Fig. 5.

35

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 presents a travelator system formed from low-construction conveyors 1 and 5 designed to be mounted
5 on a fixed base, such as a floor, the ground or some other support.

The main conveyor 1 has at its beginning an acceleration section 7, which accelerates the passenger transport speed from a substantially slow initial speed corresponding to walking speed to a heightened transport speed. The initial speed is preferably 0.5 - 0.7 m/s. After the acceleration section in the transport direction, the conveyor has a constant-speed section 8
15 for conveying the passenger at a relatively high constant transport speed. The transport speed in the constant-speed section 8 is of the order of about 2.5 - 7 m/s, suitably about 3 - 6 m/s and preferably about 5 m/s. After the constant-speed section 8 the main conveyor has a deceleration section 9 for slowing down
20 the passenger transport speed from the constant transport speed back to a decelerated final speed corresponding to walking speed. The final speed is preferably of the order of about 0.5 - 0.7 m/s. In the acceleration section 7 the change in transport speed is preferably so adapted that the average acceleration experienced by the passengers is of the order of about 0.3 m/s². In the deceleration section 9 the change in transport speed is so adapted that the average deceleration experienced by the passengers of the order of
30 about 0.3 m/s².

The travelator presented in Fig. 1 comprises two branch conveyors 5, of which the first branch conveyor
35 5, which is the one on the left in the figure and is shown as detail A in Fig. 2, is arranged to branch off in the connecting section 6 from the fast constant-

speed section 8 of the main conveyor 1 and allows passengers to exit from the main conveyor 1 onto the branch conveyor 5 and thus to dismount from the travelator. The branch conveyor 5 extends alongside the main conveyor 1 in a direction substantially parallel to it. The first branch conveyor 5 providing an exit route comprises a deceleration section 9, which may begin immediately after the connecting section 6, or already in the connecting section 6, or alternatively some distance after the connecting section 6, in which case the branch conveyor 5 has after the connecting section 6 a constant-speed section 8 of some length. If the branch conveyor is very long, it may also comprise constant-speed portions.

The travelator in Fig. 1 also comprises a second branch conveyor 5, which is the one on the right in the figure. The second branch conveyor 5 is connected in the connecting section 6 to the fast constant-speed section 8 of the main conveyor 1 and allows passengers to enter via the acceleration section of the branch conveyor 5 onto the fast constant-speed section of the main conveyor 1.

In the connecting section 6 between the branch conveyor 5 and the main conveyor 1, their transport speeds are substantially the same.

Referring to Fig. 2, when a passenger is approaching on the main conveyor 1 and wishes to exit via the branch conveyor 5, he/she will move to the left on the connecting section 6 to the widening area between the main conveyor 1 and the branch conveyor 5, from where he/she then continues on the branch conveyor 5, whose speed begins to slow down in the deceleration section 8 after the connecting section 6. Passengers continuing straight forward on the travelator remain on the

main conveyor 1 and go on traveling at the same speed all the time. Thus, those who continue straight forward do not lose any time on extra decelerations, accelerations and walking portions.

5

Fig. 3 presents an embodiment in which the entry and exit ends of the branch conveyor 5 are situated at different levels, in this example at a higher level relative to the level of the main conveyor 1. In this case, the branch conveyors are inclined moving ramps.

10

Fig. 4 illustrates a travelator system that forms a public transport network comprising a number of mutually intersecting main conveyors 1 situated at different levels and a number of branch conveyors 5 branching off from them. The system presented in the figure comprises two main conveyors 1, whose constant-speed sections 8 intersect at different levels. One branch conveyor 5 connects the constant-speed sections 8 of the main conveyors 1 to each other to transfer passengers from one main conveyor 1 onto the intersecting other main conveyor 1. In this case the transport speed of the branch conveyor 5 is substantially the same as the constant transport speed in the constant-speed sections 8 of the main conveyors 1.

15

20

25

Fig. 5 visualizes the intersection between the main conveyor 1 and the branch conveyor 5 when the branch conveyor 5 constitutes an exit route. The figure shows a detailed view of the structure of the main and branch conveyors.

30

Both the main conveyor 1 and the branch conveyor 5 comprise a number of shafts 2 so arranged that they are parallel to each other at a distance from each other and transverse to the transport direction of the conveyor 1, 5. Mounted side by side on each shaft 2

35

- are a number of belt pulleys 3. Further, the main conveyor 1 and the branch conveyor 5 comprise a number of parallel endless loops 4, which form the conveying surface of the conveyors 1 and 5. The belt loops 4 are preferably toothed belts. Correspondingly, the belt pulleys 3 are toothed belt pulleys, a large number of such pulleys being mounted side by side on the same shaft 2.
- 10 As is also seen from the sectional views in Fig. 5-7, each one of the belt loops 1 is passed over two belt pulleys on two different shafts in such manner that, of each two closely adjacent belt loops on the same common shaft that are passed over adjacent belt pul-
- 15 leys, one belt loop is passed over a belt pulley on a previous shaft relative to the common shaft while the other belt loop is passed over a belt pulley on a following shaft relative to the common shaft.
- 20 In the widening area between the main conveyor 1 and the branch conveyor 5 in the connecting section 6, the main conveyor 1 and the branch conveyor have a number of common shafts 2, the lengths of which shafts as seen in the transport direction are mutually differ-
- 25 ent, changing between the width of the main conveyor and the total width of the main and branch conveyors. These shafts 2 are mounted with bearings at either end on the frame structure of the conveyor.
- 30 Fig. 6 shows a part of the constant-speed section of the main conveyor 1. The two belt pulleys provided for each belt loop 4 and placed on different shafts 2 comprise a first belt pulley 3-1 and a second belt pulley 3-2. In the constant-speed section 8 of the main conveyor 1 in Fig. 5, the first belt pulley 3-1 and the
- 35 second belt pulley 3-2 have a transmission ratio of $i=1$, i.e. no transmission between them. The transmis-

sion ratio i is determined by the ratio $D1/D2$ of the diameters of the first belt pulley 3-1 and the second belt pulley 3-2, the diameters being equal in this case.

5

Fig. 7 shows a part of the connecting section 6 and of the branch conveyor 5. The deceleration section 9 begins some distance before the end of the connecting section 6. In the deceleration section 9, the diameter $D1$ of the first belt pulley 3-1 is smaller than the diameter $D2$ of the second belt pulley 3-2. In the deceleration section 9, the transmission ratio between the first belt pulley 3-1 and the second belt pulley 3-2 is $1 > i \geq 0.9$.

15

In the acceleration section 7 (not shown), the diameter $D1$ of the first belt pulley 3-1 is larger than the diameter $D2$ of the second belt pulley 3-2. In the acceleration section 7, the transmission ratio between the first belt pulley 3-1 and the second belt pulley 3-2 is $1 < i \leq 1.1$.

20

The invention is not limited to the embodiment examples described above; instead, many variations are possible within the scope of the inventive concept defined in the claims.

25

LIST OF REFERENCE NUMBERS:

	main conveyor	(1)
	shaft	(2)
5	belt pulley	(3)
	first belt pulley	(3-1)
	second belt pulley	(3-2)
	belt loop	(4)
	branch conveyor	(5)
10	connecting section	(6)
	acceleration section	(7)
	constant-speed section	(8)
	deceleration section	(9)
15		
20		
25		
30		

CLAIMS

1. A travelator system, which comprises a main conveyor (1) for conveying passengers, and which main
5 conveyor comprises
- a number of shafts (2) arranged to be parallel to each other, at a distance from each other and transverse to the transport direction of the main conveyor (1), with a number of belt pulleys (3) connected
10 side by side to each one of said shafts,
 - a number of mutually parallel endless belt loops (4), which form the moving conveying surface of the main conveyor (1), each one of said belt loops (1) being passed over two belt pulleys on two different
15 shafts in such manner that, of each two closely adjacent belt loops on the same common shaft that are passed over adjacent belt pulleys, one belt loop is passed over a belt pulley on a previous shaft relative to the common shaft while the other belt loop is
20 passed over a belt pulley on a following shaft relative to the common shaft, characterized in that
- the travelator comprises a branch conveyor (5), which in a connecting section (6) branches off
25 with respect to the main conveyor (1) to allow passengers to enter from the branch conveyor (5) onto the main conveyor (1) and/or to exit from the main conveyor (1) onto the branch conveyor (5);
- that the branch conveyor (5) comprises
- 30 - a number of shafts (2) arranged to be parallel to each other, at a distance from each other and transverse to the transport direction of the conveyor, with a number of belt pulleys connected side by side to each one of said shafts, and
 - 35 - a number of mutually parallel endless belt loops (4), each one of said belt loops being passed over two belt pulleys on two different shafts in such

manner that, of each two closely adjacent belt loops on the same common shaft that are passed over adjacent belt pulleys, one belt loop is passed over a belt pulley on a previous shaft relative to the common shaft while the other belt loop is passed over a belt pulley on a following shaft relative to the common shaft; and that in the connecting section (6) the branch conveyor (5) and the main conveyor (1) have at least one common shaft (2).

10

2. A travelator system according to claim 1, characterized in that the connecting section (6) between the main conveyor (1) and the branch conveyor (5) comprises a widening area where the main conveyor and the branch conveyor have several common shafts (2) whose lengths are mutually different in the transport direction and change between the width of the main conveyor and the total width of the main and branch conveyors.

20

3. A travelator system according to claim 1 or 2, characterized in that the main conveyor (1) comprises

- an acceleration section (7) for accelerating the passenger transport speed from a substantially slow initial speed to a heightened transport speed,

- a constant-speed section (8) for conveying the passenger at a constant transport speed, the branch conveyor (5) being connected to said section, and

- a deceleration section (9) for decelerating the passenger transport speed from the constant transport speed to a decelerated final speed.

4. A travelator system according to any one of claims 1 - 3, characterized in that the system comprises a branch conveyor (5) that forms an entrance to

the main conveyor (1); and that the branch conveyor (5) comprises an acceleration section (7) for accelerating the passenger transport speed from a substantially slow initial speed to a heightened transport speed corresponding to the transport speed of the main conveyor at the point where the branch conveyor (5) is connected to the main conveyor (1).

5. A travelator system according to any one of claims 1 - 4, characterized in that the system comprises a branch conveyor (5) that forms an exit from the main conveyor (1); and that the branch conveyor (5) comprises a deceleration section (9) for decelerating the passenger transport speed from the main conveyor's (1) transport speed to a decelerated final speed.

6. A travelator system according to any one of claims 1 - 4, characterized in that the system comprises a branch conveyor (5) that comprises a constant-speed section (8) for conveying the passenger at a constant transport speed.

7. A travelator system according to any one of claims 1 - 6, characterized in that the system comprises at least two main conveyors (1) the constant-speed sections (8) of which intersect each other at different levels; that the transport speed of the branch conveyor (5) is substantially the same as the constant transport speed of the constant-speed sections (8) of the main conveyors (1); and that the branch conveyor (5) is arranged to interconnect the constant-speed sections (8) of the main conveyors (1) so as to allow passengers to be transferred from one main conveyor onto the other main conveyor.

8. A travelator system according to any one of claims 1 - 7, characterized in that the travelator system forms a public transport network comprising a number of mutually intersecting main conveyors (1) at
5 different levels and a number of branch conveyors (5) branching off from them.

9. A travelator system according to any one of claims 1 - 8, characterized in that the two belt pulleys provided for each belt loop (4) and placed on
10 different shafts (2) comprise a first belt pulley (3-1) and a second belt pulley (3-2); and that in the deceleration and acceleration sections (7, 9), a transmission ratio (i) exists between the first belt pulley
15 (3-1) and the second belt pulley (3-2).

10. A travelator system according to claim 9, characterized in that the transmission ratio (i) is determined by the ratio ($D1/D2$) of the diameters of
20 the first belt pulley (3-1) and the second belt pulley (3-2).

11. A travelator system according to claim 10, characterized in that in the acceleration section (7) the diameter ($D1$) of the first belt pulley
25 (3-1) is larger than the diameter ($D2$) of the second belt pulley (3-2).

12. A travelator system according to 10 or 11, characterized in that in the deceleration section (9) the diameter ($D1$) of the first belt pulley
30 (3-1) is smaller than the diameter ($D2$) of the second belt pulley (3-2).

35 13. A travelator system according to any one of claims 9 - 12, characterized in that the belt loops (4) are toothed belts; that in the decelera-

tion/acceleration section the first belt pulley (3-1) and the second belt pulley (3-2) are toothed belt pulleys having different numbers of teeth (Z_1 , Z_2), the transmission ratio between the first belt pulley and the second belt pulley being thus determined by the ratio (Z_1/Z_2) of the numbers of teeth on the belt pulleys.

14. A travelator system according to any one of claims 9 - 13, characterized in that in the acceleration section (7) the transmission ratio i between the first belt pulley (3-1) and the second belt pulley (3-2) is at least 1 and smaller than 1.1.

15. A travelator system according to any one of claims 9 - 14, characterized in that in the deceleration section (9) the transmission ratio between the first belt pulley (3-1) and the second belt pulley (3-2) is at most 1 and greater than 0.9.

20

16. A travelator system according to any one of claims 1 - 15, characterized in that the initial speed and the final speed of the travelator are of the order of about 0.5 - 0.7 m/s.

25

17. A travelator system according to any one of claims 1 - 16, characterized in that the transport speed in the constant-speed section (8) is of the order of about 2.5 - 7 m/s, suitably about 3 - 6 m/s and preferably about 5 m/s.

30

18. A travelator system according to any one of claims 1 - 17, characterized in that the change in transport speed in the acceleration section is so adapted that the average acceleration experienced by the passengers is of the order of about 0.3 m/s^2 .

35

19. A travelator system according to any one of claims
1 - 18, characterized in that the change in
transport speed in the deceleration section is so
adapted that the average deceleration experienced by
5 the passengers is of the order of about 0.3 m/s^2 .

20. A travelator system according to any one of claims
1 - 19, characterized in that the travelator
system is composed from conveyors designed to be
10 mounted on a fixed base, such as a floor, the ground
or some other support.

21. A travelator system according to any one of the
preceding claims, characterized in that the
15 travelator system comprises at least one shaft driven
by a drive apparatus and a number of shafts on which
the belt pulleys receive the driving power needed to
rotate them via the belt loops comprised in the convey-
ing surface from the belt pulleys on the shaft driven
20 by the drive apparatus.

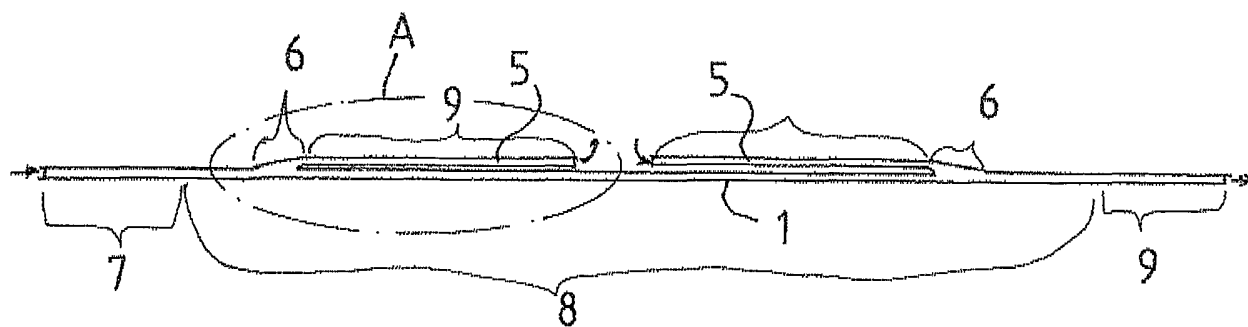


Fig 1

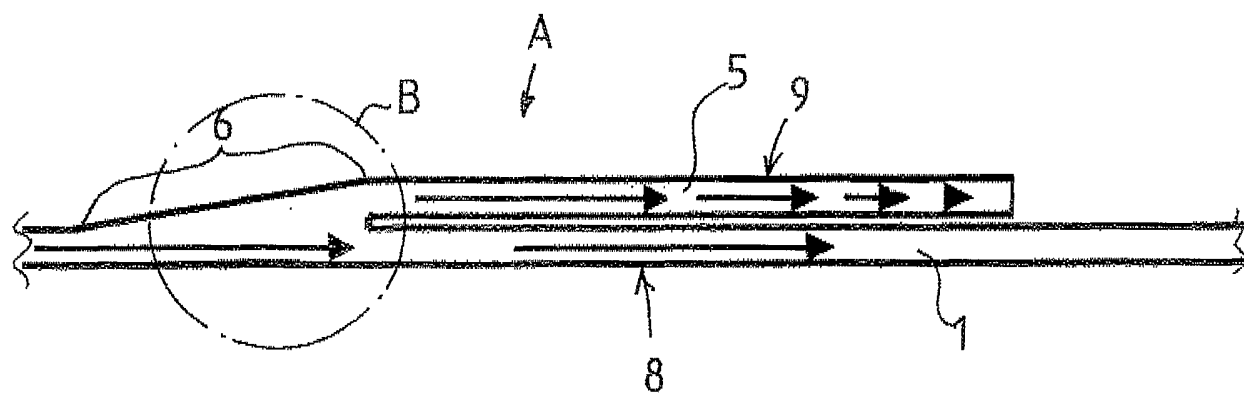


Fig 2

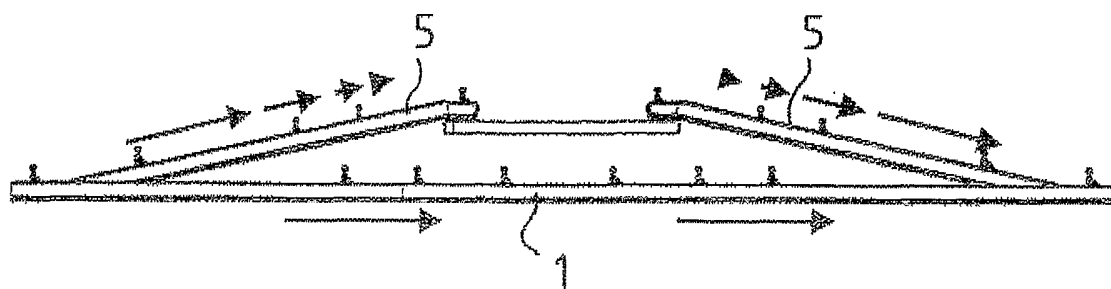


Fig 3

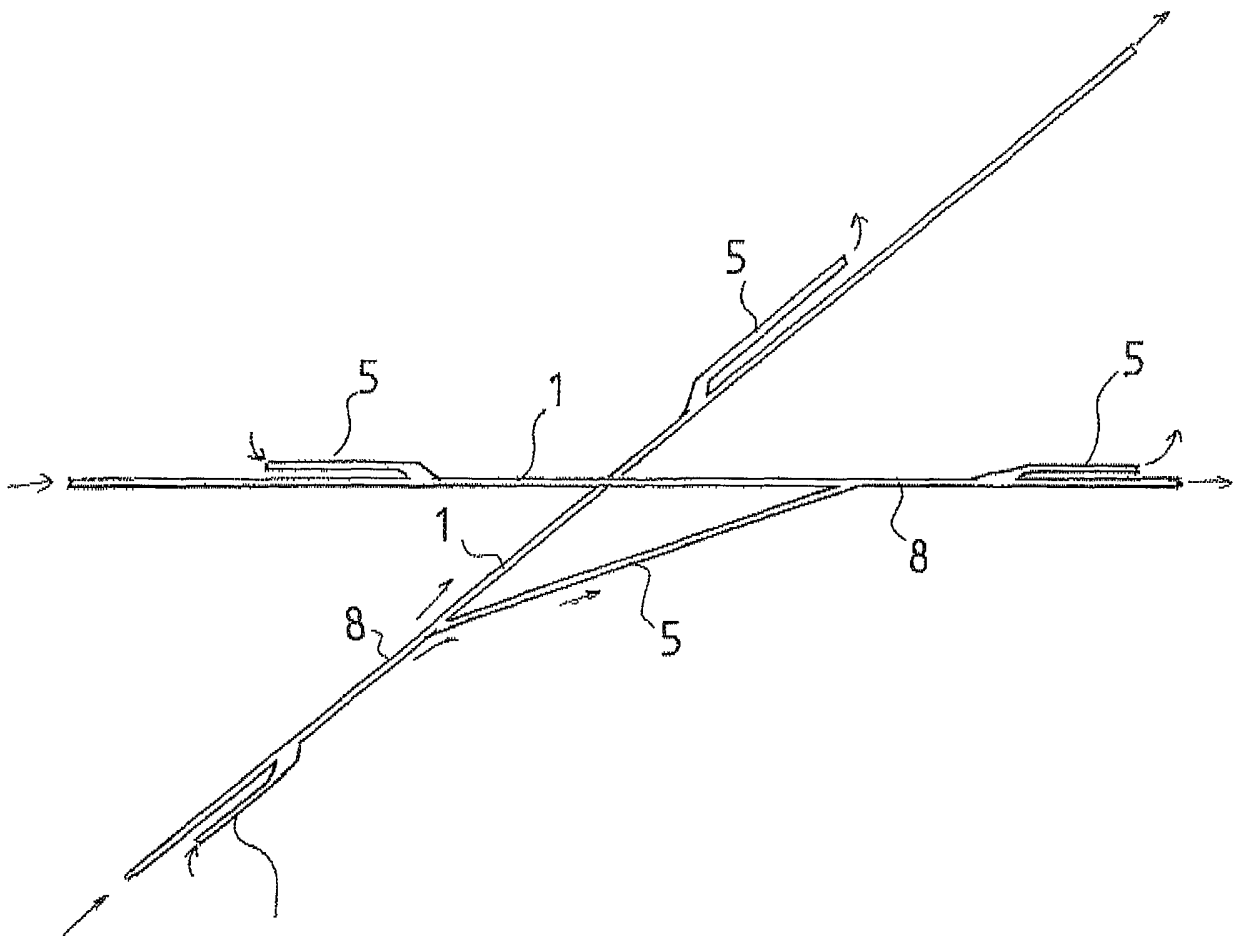


Fig 4

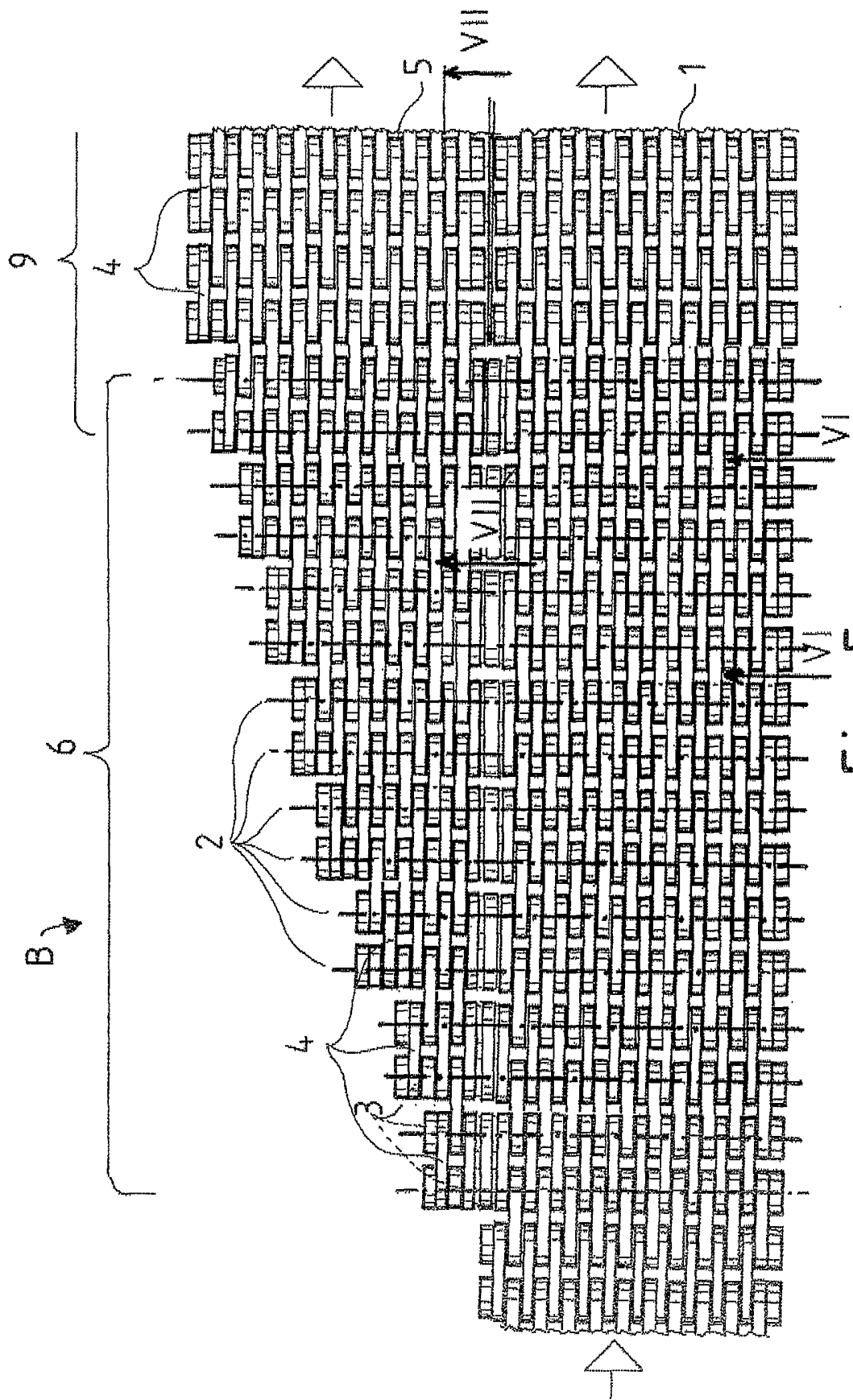


Fig 5

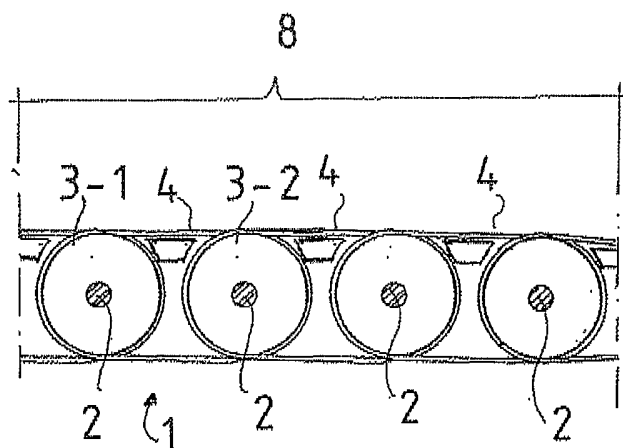


Fig 6

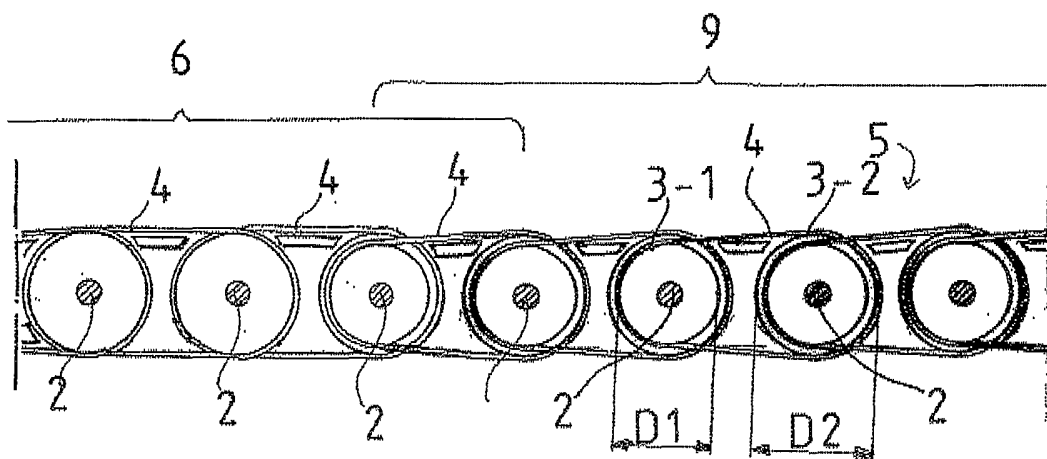


Fig 7