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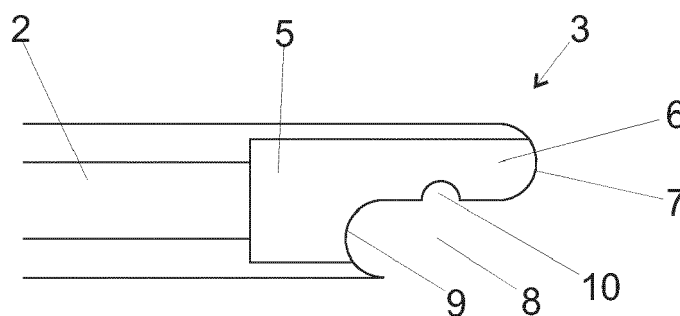
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(54) **TACTILE GUIDANCE STRIP**

(57) Tactile guidance strip piece (1), which guidance strip piece comprises a guidance strip portion (2) with a lower fixing surface (4) and a connection portion (3) formed at least at one end of the guidance strip portion for connecting the guidance strip piece to another similar guidance strip piece, wherein the connection portion (3) has its lower surface at the same level than the lower fixing surface (4) of the guidance strip portion (2), and

smaller height than the height of the guidance strip portion, and that the connection portion has a shape configured to allow insertion of a complementarily shaped connection portion of another guidance strip piece having same height and lower surface at the same level at least partially in the length of the connection portion for forming connected portion with the two connecting portions with uniform height.



**FIG. 2B**

## Description

**[0001]** The present invention relates to tactile guidance strips fixed on a suitable surface, such as an indoor floor, for guiding pedestrians. More precisely the invention relates to an interlocking connection structure for connecting individual tactile guidance strip pieces to each other.

**[0002]** Tactile guidance strips and stripes are typically used to guide or give different types of warnings to pedestrians in public areas. Tactile guidance strips are especially useful for providing guidance to visually impaired people.

**[0003]** There are several different tactile guidance strips and stripes. One of them is a continuous strip which, when fixed to a surface, has a height sufficient for it to be felt when a pedestrian steps on it, for example. Longer continuous tactile guidance strips are typically formed from several suitable guidance strip lengths fixed in a continuous line to a surface typically by gluing. The problem with this solution is that over time the ends of the individual strips forming the longer guidance strip start to come loose, which causes breaks in the longer strip and result in a possible tripping danger for pedestrians. Furthermore, loose ends can quite quickly lead to the whole guide strip section becoming loose, which compromises the guidance or warning effect of the entire strip.

**[0004]** The present invention provides a novel solution for connecting tactile guidance strip pieces to each other to form longer guidance strips wherein the above-mentioned problem can be overcome. Furthermore, when connecting the different shapes and lengths of the guidance strip with the invention, all pieces can be connected quite freely to each other, which significantly decreases the overall amount of required strip pieces for different kinds of implementation locations.

**[0005]** The tactile guidance strip piece of the invention comprises a guidance strip portion with a lower fixing surface and a connection portion formed at least at one end of the guidance strip portion for connecting the guidance strip piece to another similar guidance strip piece, wherein the connection portion has its lower surface at the same level than the lower fixing surface of the guidance strip portion, and smaller height than the height of the guidance strip portion, and that the connection portion has a shape that allows insertion of a complementarily shaped connection portion of another guidance strip piece having same height and lower surface at the same level at least partially in the length of the connection portion for forming connected portion with the two connecting portions with uniform height.

**[0006]** In the tactile guidance strip piece of the invention the connection portion comprises a depression, which depression is configured to form half of a hole through the connection portion when two connection portions are in connection with each other, which hole is configured to receive a part of a cover piece for covering the connection portions in connection with each other.

**[0007]** In the context of the present invention the features "upper surface" and "lower surface", together with similar features, are defined in relation to the surface on to which the tactile guidance strip piece of the invention is to be fixed and to the orientation of the guidance strip piece in the fixing position.

**[0008]** In an embodiment of the tactile guidance strip piece of the invention the shape of the connection portion comprises a form configured to guide connection portion of another guidance strip piece in alignment with the said guidance strip piece. This form can be circular or angular, for example, and it helps to align the guidance strip pieces with each other when the connection portions of these strip pieces are set in close proximity with each other and moved towards each other.

**[0009]** In an embodiment of the tactile guidance strip piece of the invention the tactile guidance strip piece comprises a second connection portion at another end of the guidance strip piece, which connection portion has the same height and lower surface level than the first connection portion, and the shape of the second connection portion is a mirror image of the first connection portion in relation to a plane extending along length of the connection portion and perpendicularly in relation to the lower surface of the connection portion.

**[0010]** In an embodiment of the tactile guidance strip piece of the invention the material of the tactile guidance strip piece is plastic or metal, preferably steel.

**[0011]** The present invention also provides a connection for tactile guidance strip pieces for connecting two above discussed tactile guidance strip pieces to each other, wherein the connection comprises a cover piece set on top of the connection portions of the guidance strip pieces in the connection covering the upper surfaces of the connection portions in the connection.

**[0012]** The cover piece has width that preferably substantially corresponds to the width of the upper surface of the connection portions of the guidance strips, and height and shape that preferably substantially corresponds to the height and shape of the guidance strip portion above the upper surface of the connection portions. In this way the connection portions, together with the cover piece, form a substantially identical form and shape to that of the guidance strip portion allowing a substantially uniform cross-section through the entire guidance strip formed of multiple guidance strip pieces of the invention.

**[0013]** In the connection of the invention the cover piece comprises a protrusion or part extending from the lower surface of the cover piece, which protrusion or part is set in a hole formed by the connection portions in connection to each other. This allows easy positioning of the cover piece in relation to the upper surfaces of the connection.

**[0014]** In an embodiment of the connection of the invention the cover piece comprises two additional protrusions extending from the lower surface of the cover piece, which protrusions are set in openings formed in the con-

nection portions, one in each of the connection portions. This allows the use of the cover piece in fixing the connection portions of the guidance strip pieces to each other.

**[0015]** The material of the cover piece is preferably the same as used in the guidance strip pieces.

**[0016]** The present invention also provides a tactile guidance strip comprising a plurality of the above discussed guidance strip pieces connected with above discussed connection(s).

**[0017]** The features defining a tactile guidance strip piece in accordance with the present invention are presented more precisely in claim 1, and the features defining a connection in accordance with the present invention are presented in claim 5. Dependent claims present advantageous features and embodiments of the invention.

**[0018]** Exemplifying embodiments of the invention are explained in greater detail below in the sense of example and with reference to accompanying drawings, where

Figure 1 shows schematically an embodiment of a tactile guidance strip piece of the invention,

Figures 2A and 2B show schematically the connection portions of the embodiment of figure 1,

Figures 3A-3C show schematically an embodiment of a cover piece for the connection formed with two connection portions shown in figures 2A and 2B, and

Figures 4 and 5 show schematically alternative embodiments for tactile guidance strip pieces of the invention.

**[0019]** Figure 1 shows schematically an embodiment of a tactile guidance strip piece 1 of the invention, which comprises longitudinally extending guidance strip portion 2 with connection portions 3, 3' formed at both of the longitudinal ends of the guidance strip portion.

**[0020]** The tactile guidance strip piece is fixed to a suitable surface, typically a floor or pavement, via its lower surface with suitable means, such as glue for example.

**[0021]** Figures 2A and 2B show enlargement of the end of the tactile guidance strip piece 1 of figure 1 with the connection portion 3, wherein figure 2A is a side view and figure 2B is a top view of the end of the strip.

**[0022]** As can be seen from figure 2A, the connection section 3 is formed at the end of the guidance strip portion 2, and the connection section has the same lower surface 4 than the guidance strip portion, but is smaller in height. The thickness of the connection section 3 is preferably smaller than half of the thickness of the guidance strip portion 2. Furthermore, the top surface 5 of the connection portion 3 is formed as a level surface.

**[0023]** The connection portion 3 is shaped so, that it comprises in its first half a protruding portion 6 with a convex end edge surface 7 and in its second half a cut-out portion 8 with a concave edge surface 9. The width

of the protruding portion 6 and the cut-out portion 8 are substantially same, and the shape of convex edge surface 7 corresponds to the shape of the concave edge surface 9 as a mirror image, so that aligned connection between the connection portion 3 and another connection portion 3', which is the mirror image of the connection portion 3, is formed when the other connection portion 3' is set against connection portion 3.

**[0024]** In the side surface of the protruding portion 6 is formed a depression 10, which is in the form of a half-circle. The depression 10 forms half of an opening through the connection portions 3, 3'. This opening is formed when complementing connecting portion 3' is set against connection portion 3.

**[0025]** Figures 3A-3C show schematically an embodiment of a cover piece 11 for the connection formed with two connection portions shown in figures 2A and 2B. Figure 3A shows a three-dimensional view, figure 3B shows a side view and figure 3C shows a top view of the cover piece 11.

**[0026]** The cover piece 11 has length that corresponds the length of the connection portions 3, 3' in connection with each other, height that corresponds the height difference between height of the guidance strip portion 2 and the connection portions 3, 3' of the guidance strip 1 shown in figures 1-2B. The cross-sectional shape of the cover piece 11 also substantially corresponds the cross-sectional shape of the guidance strip portion 2 above the upper level of the connection portions 3, 3'. This way the cover piece, when located on top of the connection portions 3, 3' in connection with each other, makes the connection between guidance strip pieces substantially identical in form with the guidance strip portions of the pieces.

**[0027]** The cover piece 11 has a part or protrusion 12 extending from the lower surface of the cover piece, which is set in the opening formed with depressions 10 when the connection portions 3, 3' are in connection with each other. The protrusion 12 allows and helps this way the correct positioning of the cover piece 11 on the upper surfaces of the connection portions.

**[0028]** The cover piece 11 also comprises depressions 13 and 14 formed on the sides of the cover piece, which depressions allow and helps in detachment of the cover piece from the connection if/when need for that arises.

**[0029]** Figure 4 shows schematically an alternative embodiment for a tactile guidance strip piece 21 of the invention for forming corners in a guidance strip, wherein the guidance strip portion 2' is formed substantially L-shaped and the connection portions 3, 3' are formed at the ends of the guidance strip portion.

**[0030]** Figure 5 shows schematically another alternative embodiment for a tactile guidance strip piece 31 of the invention, wherein the guidance strip portion 2" is formed substantially T-shaped and three connection portions 3, 3', 3" are formed at the ends of the guidance strip portion.

**[0031]** The specific exemplifying embodiments of the invention shown in figures and discussed above should

not be construed as limiting. A person skilled in the art can amend and modify the embodiments described in many evident ways within the scope of the attached claims. Thus, the invention is not limited merely to the embodiment described above.

## Claims

1. Tactile guidance strip piece (1), which guidance strip piece comprises a guidance strip portion (2) with a lower fixing surface (4) and a connection portion (3) formed at least at one end of the guidance strip portion for connecting the guidance strip piece to another similar guidance strip piece, **characterized in that** the connection portion (3) has its lower surface at the same level than the lower fixing surface (4) of the guidance strip portion (2), and smaller height than the height of the guidance strip portion, and that the connection portion has a shape configured to allow insertion of a complementarily shaped connection portion of another guidance strip piece having same height and lower surface at the same level at least partially in the length of the connection portion for forming connected portion with the two connecting portions with uniform height, and that edge of the connection portion (3) comprises a depression (10), which depression is configured to form half of a hole through the connection portion when two connection portions are in connection which each other, which hole is configured to receive a part (12) of a cover piece (11) for covering the connection portions in connection with each other.
 

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2. Tactile guidance strip piece (1) of claim 1, wherein the shape of the connection portion (3) comprises a form (9) configured to guide connection portion of another guidance strip piece in alignment with the said guidance strip piece (1).
 

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3. Tactile guidance strip piece (1) of claim 1 or 2, wherein the tactile guidance strip piece (1) comprises a second connection portion (3) at another end of the guidance strip piece, which connection portion has the same height and lower surface level than the first connection portion, and the shape of the second connection portion is a mirror image of the first connection portion in relation to a plane extending along length of the connection portion and perpendicularly in relation to the lower surface of the connection portion.
 

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4. Tactile guidance strip piece (1) of any of claims 1-3, wherein the material of the tactile guidance strip piece (1) is plastic or metal, preferably steel.
 

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5. Connection for tactile guidance strip pieces for connecting two tactile guidance strip pieces (1) of claims 1-4 to each other, wherein the connection comprises a cover piece (11) set on top of the connection portions (3) of the guidance strip pieces (1) in the connection covering the upper surfaces (5) of the connection portions in the connection, and wherein the cover piece (11) comprises a protrusion or part (12) extending from the lower surface of the cover piece, which protrusion or part is set in a hole formed by the connection portions (3) in connection to each other.
 

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6. Tactile guidance strip comprising a plurality of guidance strip pieces (1) of claims 1-4 connected with connections of claim 5.

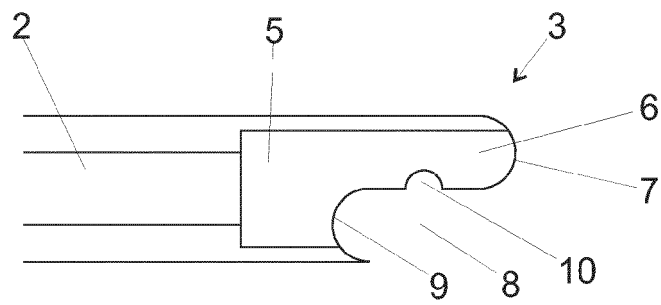
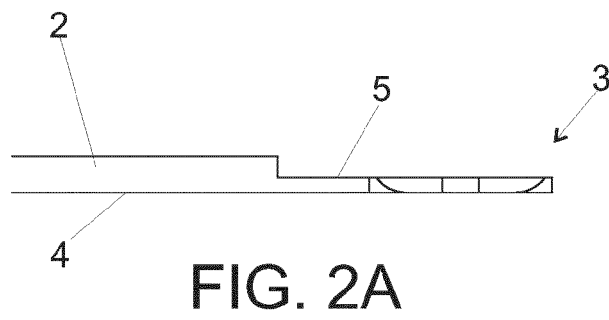
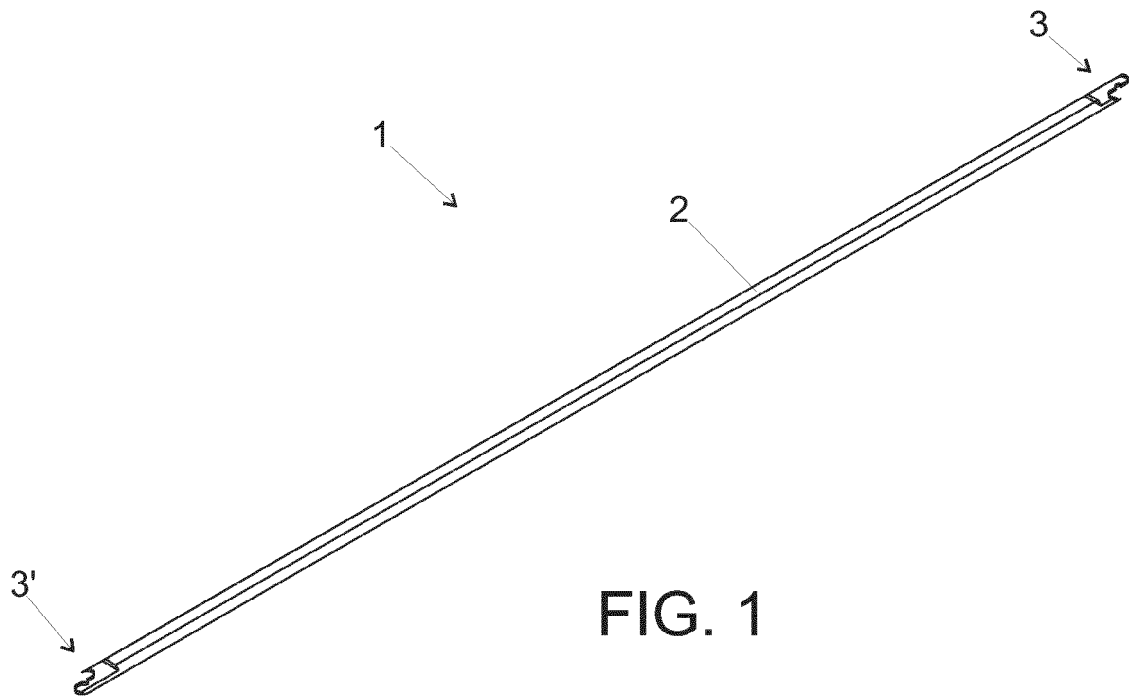


FIG. 2B

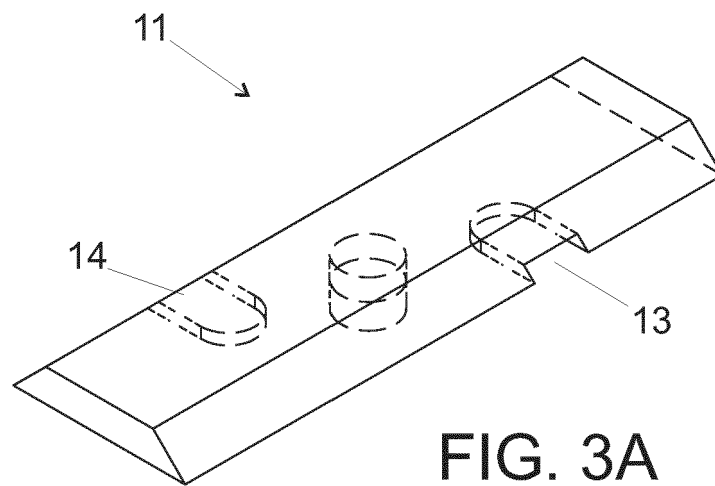


FIG. 3A

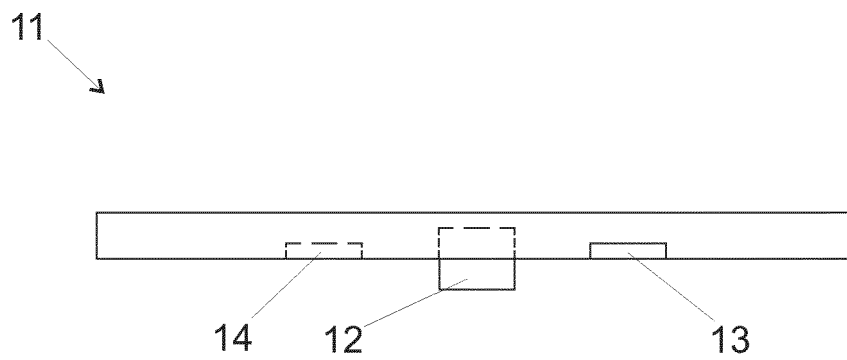


FIG. 3B

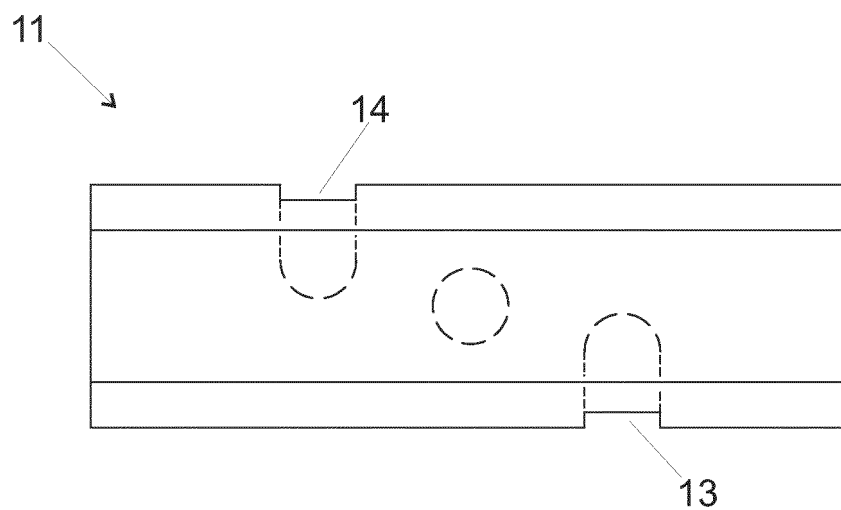


FIG. 3C

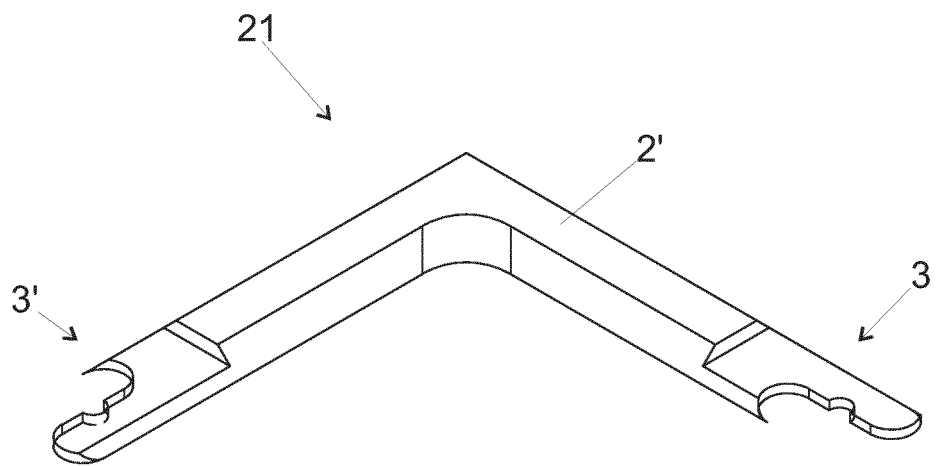


FIG. 4

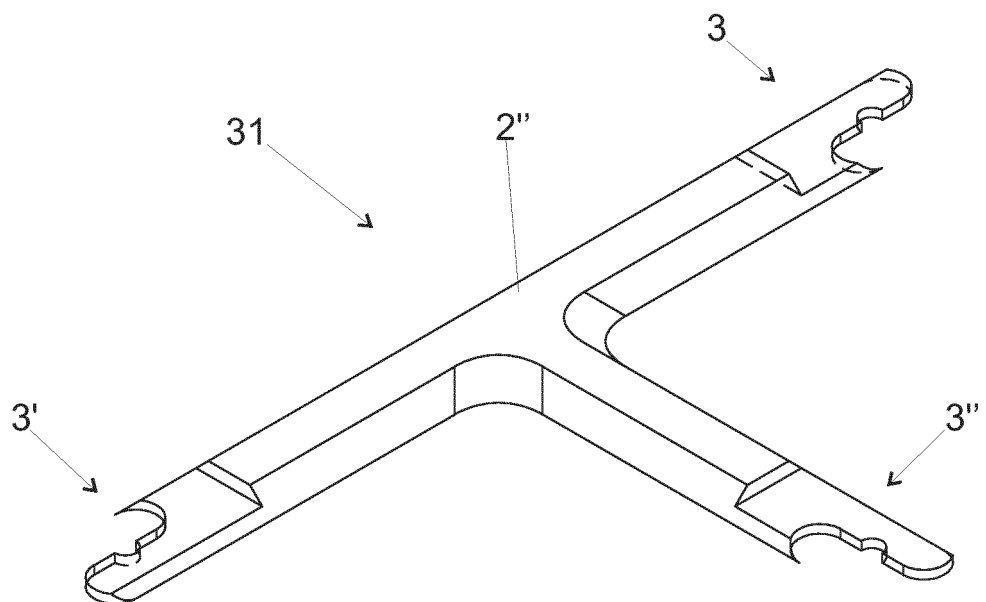


FIG. 5



## EUROPEAN SEARCH REPORT

Application Number

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The present search report has been drawn up for all claims			
Place of search <b>Munich</b>		Date of completion of the search <b>11 May 2023</b>	Examiner <b>Turmo, Robert</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	



# ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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