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(54) **Tile holder for holding a tile in a drain and method for manufacturing the same**

(57) The invention relates to a method for manufacturing a tile holder for a drain, the method comprising the steps of:

- providing a strip of flexible material such as strip steel;
- shortening the formed U-profile in order to provide a tile

holder of a desired length;

- rolling a channel on either side in longitudinal direction of the strip; and
- rolling the strip to form a U-profile.

The invention further relates to a tile holder.

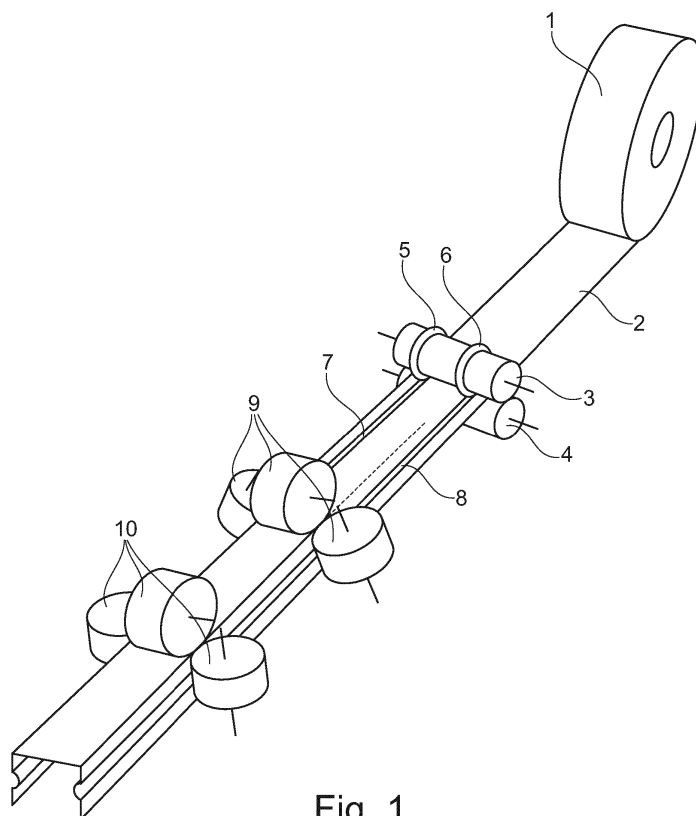


Fig. 1

Description

[0001] The invention relates to a method for manufacturing a tile holder for a drain.

[0002] DE 202006019809 describes a shower drain in which a tile holder is arranged. This tile holder has a sheet bent to form a U-profile in which a tile can be arranged. The U-profile has a bottom and upright walls. Provided in these upright walls are openings in which protrusions of a support foot can engage.

[0003] DE 202006014745 likewise shows a shower drain with a tile holder arranged therein. In this embodiment the tile holder consists of two sheets which are formed into U-profiles and arranged back to back and which rest on adjusting means arranged in the drain.

[0004] In the known tile holders use is made of sheet steel bent into a U-profile. Upright walls are in this case provided on both outer ends of the U-profile so that a tile-enveloping holder is obtained.

[0005] The known tile holders have the drawback that they are made of relatively thick sheet material. This thickness is necessary in the case of the known tile holders in order to provide sufficient stability for the tile and to prevent the tile breaking due to sagging or outward bending of the tile holder. Were the known tile holder to be made of thinner material it would be necessary to arrange more supports under the tile holder in order to keep the holder stable. These additional supports however impede the throughflow of the water, and hairs can catch thereon.

[0006] Known tile holders are often bent from a stainless steel sheet. The differences in stress in stainless steel can cause undesired curvatures after bending of the tile holder. It is therefore often necessary to post-straighten thus formed tile holders.

[0007] There is the additional problem with these tile holders that the tile is difficult to position in the tile holder. It is desirable to arrange a mastic layer between the tile and the upright walls of the U-profile. The tile has to be placed precisely in the tile holder for this purpose, wherein the tile lies clear of the upright walls. A mastic layer can subsequently be arranged using for instance a mastic gun. Because the tile lies loosely however, the tile may be displaced by the mastic gun.

[0008] It is moreover difficult with the known tile holders to apply the correct quantity of tile adhesive. If too much adhesive or mastic is used, adhesive will move upward between the tile and the upright walls during placing of the tile. The space necessary for a sealing layer will hereby already be filled by the tile adhesive.

[0009] There is further no space available in the usual tile holders to arrange a trade name or logo of for instance the manufacturer. This is because an attempt is made particularly with a tile holder to merge the drain into the surrounding tile floor.

[0010] It is now an object of the invention to reduce or even obviate the above stated drawbacks.

[0011] This object is achieved according to the inven-

tion with a method comprising the steps of:

- providing a strip of flexible material such as strip steel;
- shortening the formed U-profile in order to provide a tile holder of a desired length;
- rolling a channel on either side in longitudinal direction of the strip; and
- rolling the strip to form a U-profile.

[0012] A tile holder can be produced in simpler and less expensive manner with the method according to the invention. The channels arranged in the strip together with the rolling to a U-profile provide a stable tile holder, while it is possible to opt for a relatively thin starting material. In addition, this method according to the invention ensures that the starting material in the form of a roll of strip steel can be transported in simple manner and easily processed only at the last moment into a tile holder of a desired length.

[0013] The formed tile holder with U-shaped cross-section has the advantage that it can be easily shortened. The tile holder can be easily shortened even when, in the case of a drain clamped between walls, the wall tiles are replaced with thicker tiles during renovation.

[0014] In a preferred embodiment of the method according to the invention, after the strip has been rolled to form a U-profile the channels arranged on either side are arranged in the upright walls of the U-profile.

[0015] By providing the channels in the upright walls these upright walls are reinforced and possible outward bending is counteracted. In addition, these channels provide the option of serving as fixing point for a support to be arranged under the tile holder. The support can engage here round the tile holder and snap with for instance a protrusion into the channels. An advertising element can in this case be further arranged on the part of the support located outside the tile holder. It is thus possible to arrange an unobtrusive indication of for instance the manufacturer of the tile holder in the gap between the tile holder and the walls of the drain.

[0016] The advertising element can also be snapped separately round the tile holder. It can hereby be displaced and easily removed if the advertising is not wanted.

[0017] Owing to the extra strength provided by the channels in the side walls it is further possible to suffice with fewer supports than if the tile holder were embodied without channels. It is hereby also possible to make the tile holder from a thinner material, such as for instance spring steel.

[0018] The channels moreover provide additional strength when the tile holder according to the invention is for instance shortened on site by means of sawing. Without these channels there is a greater chance of the upright walls bending outward during the sawing. The thickness of the sheet material can moreover be reduced owing to the increased stiffness, whereby it is easier to

saw the tile holder to length.

[0019] A further embodiment of the method according to the invention further comprises the step of arranging an end cover on either side of the formed U-profile.

[0020] The end cover provides for a neat finish to the tile holder, such as a possible burr resulting from sawing of the tile holder, and for a finish to the tile arranged in the tile holder. The end cover can further be provided for instance with a trade name, such as a logo, by which the manufacturer of the tile holder can be identified.

[0021] The end cover can be pushed into the tile holder but can also be arranged round the outer ends of the tile holder. The end covers can hereby also be used as spacer for the tile holder in the drain. The end covers can moreover serve as protection in the case the tile holder is taken out of the drain and placed on a surrounding tile floor.

[0022] In addition, it is possible to connect two tile holders to each other using an end cover. With a suitable design of the connecting end cover two tile holders can be connected mutually in line or, conversely, at an angle to each other.

[0023] The invention further relates to a tile holder for holding a tile in a drain, the tile holder comprising a U-profile with a bottom surface and upright walls arranged in longitudinal direction on either side of the bottom surface, wherein a longitudinal channel is arranged in each wall.

[0024] In a highly preferred embodiment of the tile holder according to the invention the convex part of the two channels is directed inward.

[0025] Because the convex part of the two channels is directed inward, a spacer is formed which ensures that a tile placed in the tile holder cannot lie against the upright walls and that there is sufficient distance between a tile and the upright wall to arrange a mastic layer.

[0026] If too large a quantity of adhesive is arranged in the tile holder, the adhesive will no longer move upward along the upright wall during placing of a tile because the adhesive is blocked by the inward directed channels. The adhesive will then be urged toward the outer ends of the U-shaped holder, where the excess adhesive can be easily removed.

[0027] A tile is preferably arranged in the U-profile and the tile preferably lies on either side against the convex part of the two channels. The tile is hereby centered in the tile holder and there is sufficient space between the tile and the upright walls for finishing purposes.

[0028] It is usual to arrange a mastic layer in the space between the tile and the upright wall, although it is also possible to arrange a small element bearing for instance the name of the manufacturer.

[0029] Although it is recommended to manufacture the tile holder according to the invention using the method according to the invention, such a tile holder can also be manufactured by means of bending.

[0030] In a preferred embodiment of the tile holder according to the invention an end cover is arranged on both

ends of the U-profile. The tile holder is finished and the tile enclosed in the holder using the end covers. In addition, the end covers can serve for arranging a trade name or logo.

5 **[0031]** The end cover preferably protrudes at least partially into the U-profile. The end cover can hereby be clamped fixedly in the U-profile.

10 **[0032]** Yet another embodiment of the tile holder according to the invention further comprises support means for supporting the tile holder in a drain, wherein the support means engage on the channels arranged in the side walls.

15 **[0033]** A separate element can optionally be arranged in the tile holder, for instance centered with a tile on either side. A trade name can for instance be arranged on the separate element.

20 **[0034]** The tile holder can also be used in reversed position, where it forms a closed grating. Supports can then engage here on the channels on the inner side of the U-profile, optionally against the upper surface of the reversed tile holder. Because the side walls of the U-profile lie at right angles to the bottom surface and the channels are arranged in the side walls, a relatively stiff construction is obtained. The supports are in this way
25 moreover concealed from view.

[0035] These and other features of the invention are further elucidated with reference to the accompanying drawings.

30 Figure 1 shows a perspective view of an embodiment of the method according to the invention.

Figure 2 shows a perspective view of a tile holder according to the invention.

35 Figure 3 shows a cross-sectional view of a tile holder according to the invention arranged in a drain.

Figure 1 shows a perspective view of a schematic representation of an embodiment of the method according to the invention.

40 **[0036]** A strip 2 is unrolled from a roll of strip steel 1. Strip 2 is made to length, after which this strip 2 is carried between two rollers 3, 4. Two ribs 5, 6 are arranged on the surface on upper roller 3, while two corresponding channels (not shown) are arranged in roller 4.

45 **[0037]** When strip 2 is now carried between the two rollers 3, 4, two channels 7, 8 are rolled into the strip of strip steel 2.

[0038] The strip 2 with channels 7, 8 is then carried along two sets of rollers 9, 10, whereby strip 2 is rolled
50 to form a U-profile.

[0039] Figure 2 shows a perspective view of a tile holder 11 according to the invention. Tile holder 11 has a bottom surface 12 and upright walls 13, 14. Channels 7, 8 are arranged in upright walls 13 and 14.

55 **[0040]** End covers 15, 16 are provided on the longitudinal ends of tile holder 11 for the purpose of finishing the tile holder 11. A logo 17 can be provided in these end covers 15, 16.

[0041] A tile 18 can subsequently be placed in the thus formed tile holder 10 (see also figure 3). Further arranged under tile holder 10 are supports 19 which support tile holder 10 in a drain 20. Drain

[0042] 20 is further provided with a siphon 21 connected to an outlet pipe 22. Supports 19 engage round tile holder 10 and have protrusions 23 which engage in channels 7, 8.

[0043] Drain 20 is provided with horizontal flanges 24 on which a sealing membrane 25 can be arranged. A tile floor 26 is then arranged on this sealing membrane 25, whereby drain 20 with tile holder 10 and tile 18 merge into each other.

9. Tile holder as claimed in claim 8, wherein the end cover protrudes at least partially into the U-profile.

10. Tile holder as claimed in any of the foregoing claims 4-9, further comprising support means for supporting the tile holder in a drain, wherein the support means engage on the channels arranged in the side walls.

Claims

1. Method for manufacturing a tile holder for a drain, the method comprising the steps of:

- providing a strip of flexible material such as strip steel;
- shortening the formed U-profile in order to provide a tile holder of a desired length;
- rolling a channel on either side in longitudinal direction of the strip; and
- rolling the strip to form a U-profile.

2. Method as claimed in claim 1, wherein after the strip has been rolled to form a U-profile the channels arranged on either side are arranged in the upright walls of the U-profile.

3. Method as claimed in claims 1 and 2, further comprising the step of arranging an end cover on either side of the formed U-profile.

4. Tile holder for holding a tile in a drain, the tile holder comprising a U-profile with a bottom surface and upright walls arranged in longitudinal direction on either side of the bottom surface, wherein a longitudinal channel is arranged in each wall.

5. Tile holder as claimed in claim 4, wherein the convex part of the two channels is directed inward.

6. Tile holder as claimed in claim 5, wherein a tile is arranged in the U-profile and wherein the tile lies on either side against the convex part of the two channels.

7. Tile holder as claimed in claim 6, wherein a mastic layer is arranged between the upright walls and the tile.

8. Tile holder as claimed in any of the claims 4-7, wherein an end cover is arranged on both ends of the U-profile.

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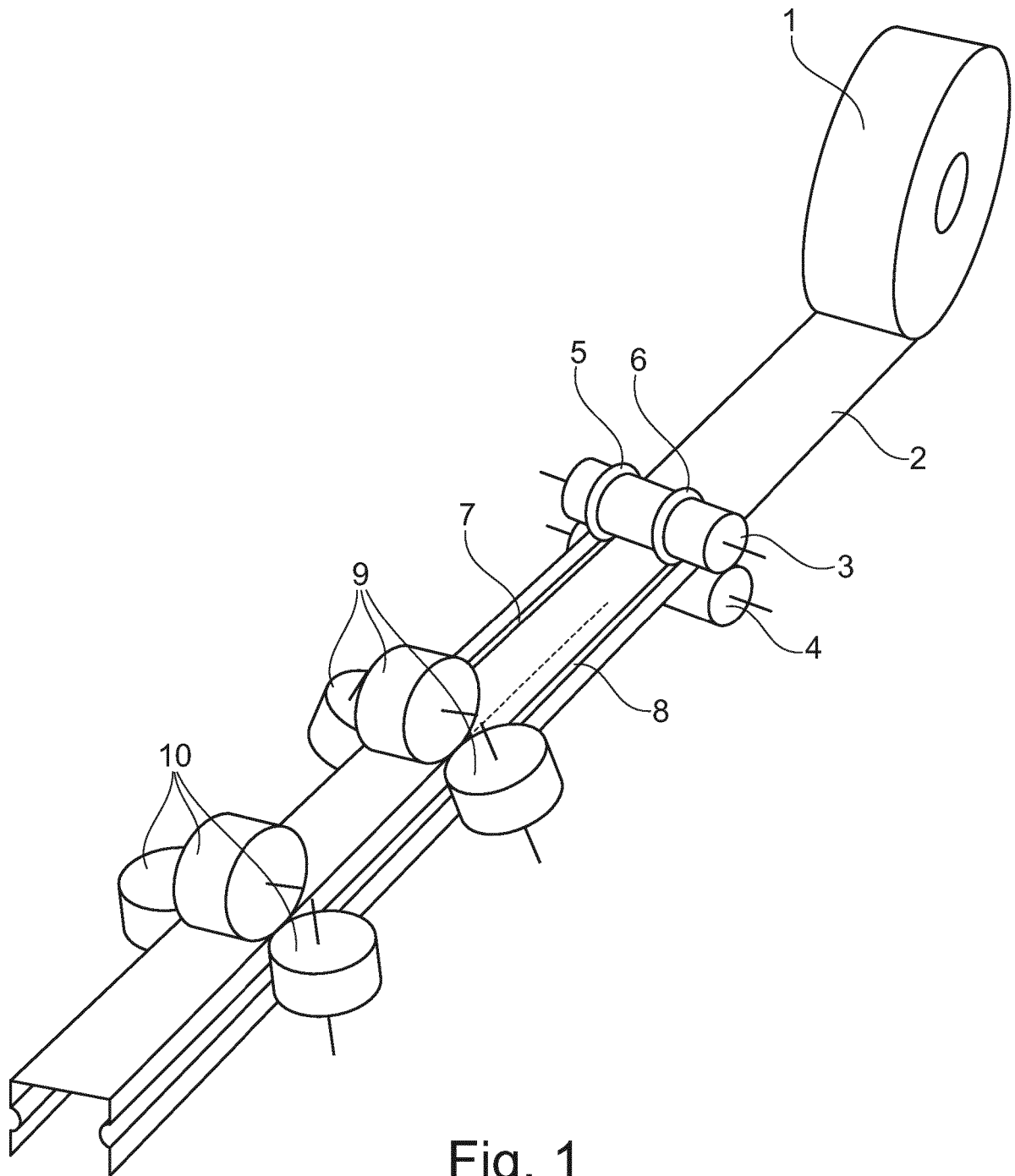


Fig. 1

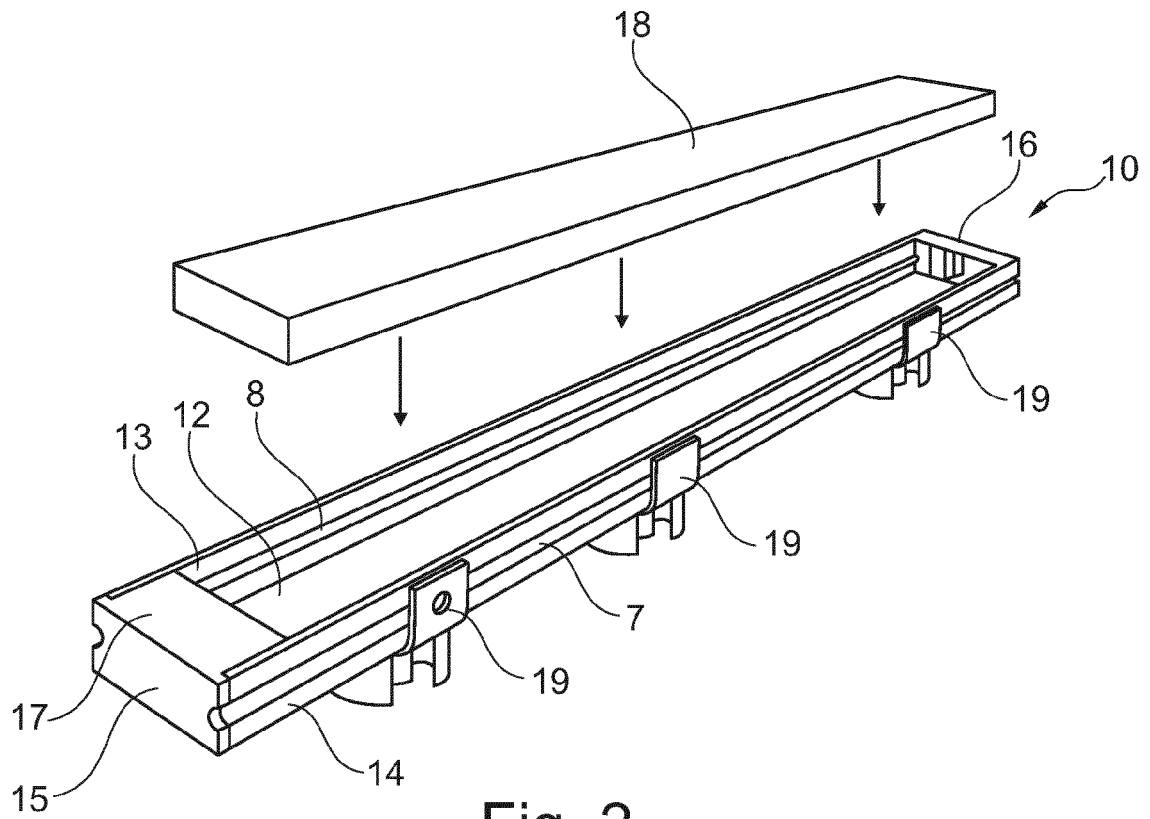


Fig. 2

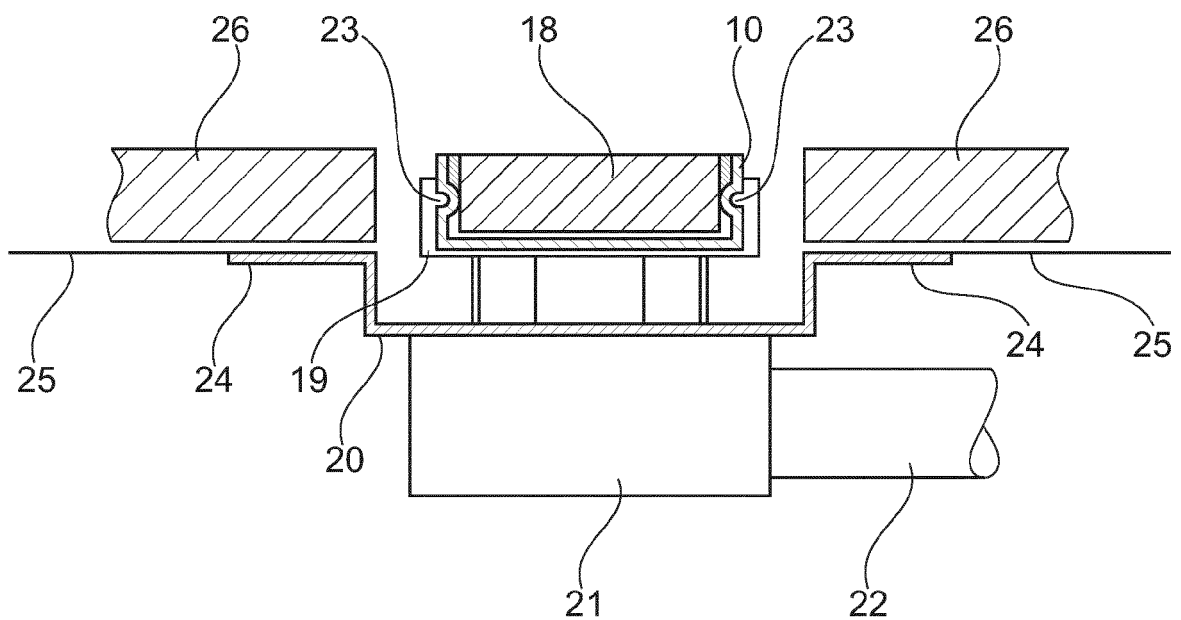


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 13 19 6253

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E03F
Place of search		Date of completion of the search	Examiner
The Hague		4 April 2014	De Coene, Petrus
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			

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EPO FORM 1503 03/82 (P04C01)

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

EP 13 19 6253

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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04-04-2014

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