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(51) **International Patent Classification (Int.CL7):** F16L 47/00

(54) **Title:** Pipe Fitting

(57) **Abstract:** A pipe fitting which is made from a thermoplastic material and which has a tubular body with a smooth internal surface and an outer surface which includes a plurality of reinforcing formations which are spaced from each other, each formation extending partially around the circumference of the body.

BACKGROUND OF THE INVENTION

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This invention relates to a pipe fitting which is made from a thermoplastic material. This type of pipe fitting is used, in particular, together with suitable pipes for the reticulation of sewerage.

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The injection moulding of uPVC sewerage fittings is a well established process carried out according to prescribed specifications. The sewer fittings are used as an integral part of a buried sewerage reticulation system and must conform to dimensional specifications to ensure that optimal hydraulic performance is achieved. Another requirement is that the buried pipes and the fittings must withstand superimposed loads exerted by soil and vehicular traffic.

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SUMMARY OF THE INVENTION

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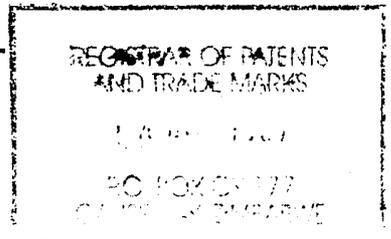
The invention provides a pipe fitting which includes a tubular body with a plurality of external reinforcing ribs around only a portion of the circumference of the body.

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If the body is curved the ribs are preferably located at least on an outer radius of the curvature thereof.

The ribs may be tapered in thickness and in width, decreasing in cross section towards an inner radius of curvature thereof.

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The inner surface of the body is preferably smooth.

5 The portion of the body between each pair of adjacent ribs is controlled in dimension so that the internal surface of the body is smooth. This is necessary in order to maintain hydraulic efficiency.

10 According to a different aspect of the invention there is provided a pipe fitting which includes a tubular body with a plurality of external reinforcing ribs positioned on an outer surface of the body in an area of the body where reinforcing is most required.

BRIEF DESCRIPTION OF THE DRAWINGS

15 The invention is further described by way of example with reference to the accompanying drawings in which:

Figure 1 illustrates a fitting according to one form of the invention which is terminated with sockets;

Figure 2 is a cross sectional view of the fitting shown in Figure 1; and

20 Figure 3 illustrates a fitting which is similar to the fitting of Figure 1 but which is terminated with reduced length sockets.

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DESCRIPTION OF PREFERRED EMBODIMENTS

5 Figure 1 of the accompanying drawings illustrates a pipe fitting 10 according to one form of the invention which is formed from a suitable thermoplastic material such as uPVC using an injection moulding process which is known in the art and which, for that reason, is not further described herein.

10 The fitting 10 includes a body 12 which, in this example, curves through an extended angle 14 of 45°. The body is terminated in sockets 16 and 18 respectively which are formed in a known manner and which are known in the art.

15 The body has an inner radius 20 of curvature and an outer radius 22 of curvature.

20 A plurality of reinforcing formations or ribs 24 are formed at spaced intervals around a portion of the circumference of the body. As is evident from an inspection of Figures 1 and 2 the ribs are at their thickest in those areas where the ribs lie on the outer radius 22 of curvature, in this example at the central regions of the ribs. From this position as the ribs extend on opposed outer surfaces of the body, the ribs taper in width and in thickness and merge at their extremities with the outer surface of the

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body, on the side of the inner radius 20 of curvature, to provide a substantially smooth and continuous surface 28.

5 Each portion 30 of the body between each adjacent pair of ribs 24 is in the form of a groove and is controlled in dimension such that the internal surface 32 of the wall in the interior of the body is smooth. The smooth inner wall surface maintains hydraulic efficiency.

10 The reinforcement which is provided by the ribs is provided in the area of the wall of the body where it is most required. For example if the pipe fitting, in an installed reticulation system, is to be cleaned then the rods which are inserted into the interior of the pipe and which are thereby brought into contact with an inner wall surface of the fitting, impact against the outer radius of curvature which, as has been noted, is reinforced. The reinforcing ribs also enable the fitting to withstand the effects of soil and vehicular loads when buried.

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20 Another point to be noted is that the portions 30 have reduced cross sectional dimensions and this leads to a decrease in the amount of material needed to make a fitting.

The fitting 38 shown in Figure 3 is substantially the same as the fitting shown in Figure 1 except that, as has been noted, the ends of the fitting

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in Figure 3 are terminated in reduced length socket formations, 40 and 42 while, in Figure 1, the fitting is terminated with sockets.

5 The principles which have been described hereinbefore can be used with fittings of different shapes and sizes and these principles are not limited to being used only with bends, but can clearly be used with junctions, T-pieces and the like.

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CLAIMS:

5 1. A pipe fitting which includes a tubular body with a plurality of external reinforcing ribs around only a portion of the circumference of the body.

10 2. A pipe fitting according to claim 1 wherein the tubular body is curved and the ribs are located at least on an outer radius of the curvature thereof.

15 3. A pipe fitting according to claim 1 or 2 wherein the ribs are tapered in thickness and in width, decreasing in cross section towards an inner radius of curvature thereof.

20 4. A pipe fitting according to any one of claims 1 to 3 wherein the internal surface of the body is smooth.

5. A pipe fitting which includes a tubular body with a plurality of external reinforcing ribs positioned on an outer surface of the body in an area of the body where reinforcing is most required.

6. A pipe fitting according to any one of claims 1 to 5 wherein the ends of the body are terminated by respective sockets.

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7. A pipe fitting according to any one of claims 1 to 5 wherein the ends of the body are terminated by respective sockets of extended lengths.

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8. A pipe fitting which is made from a thermoplastic material and which has a tubular body with a smooth internal surface and an outer surface which includes a plurality of reinforcing formations which are spaced from each other, each formation extending partially around the circumference of the body.

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9. A pipe fitting according to claim 8 wherein the formations comprises ribs which are separated from each other by grooves.

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10. A pipe fitting according to claim 9 wherein the ribs are relatively thick at their central regions and are of reduced thickness at their extremities.

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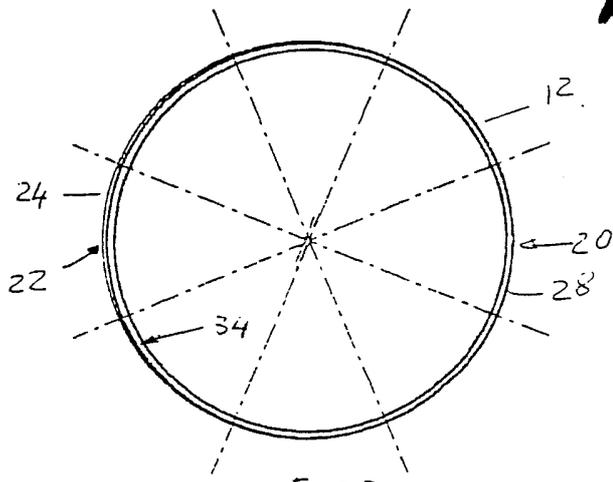


FIG 2

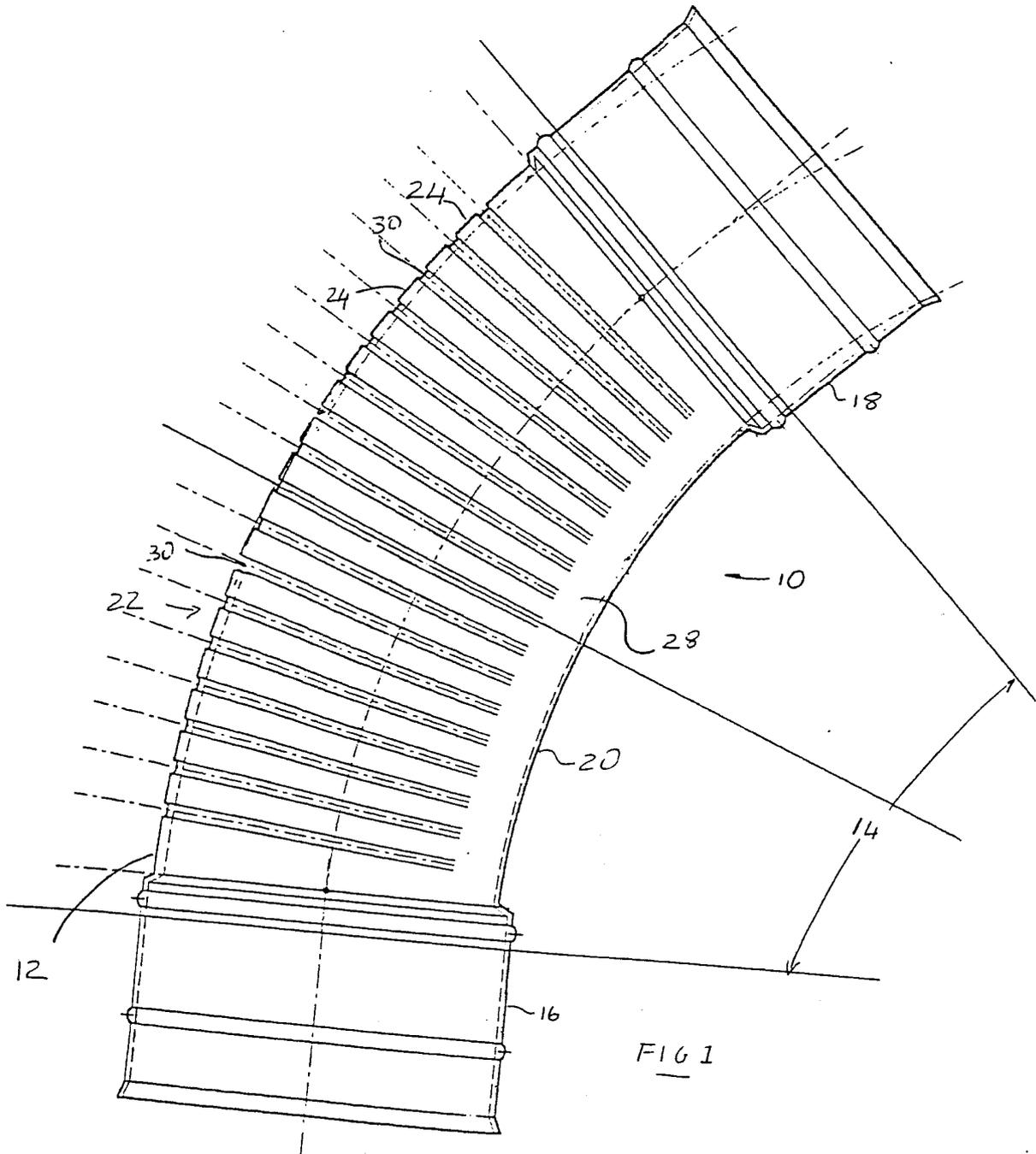
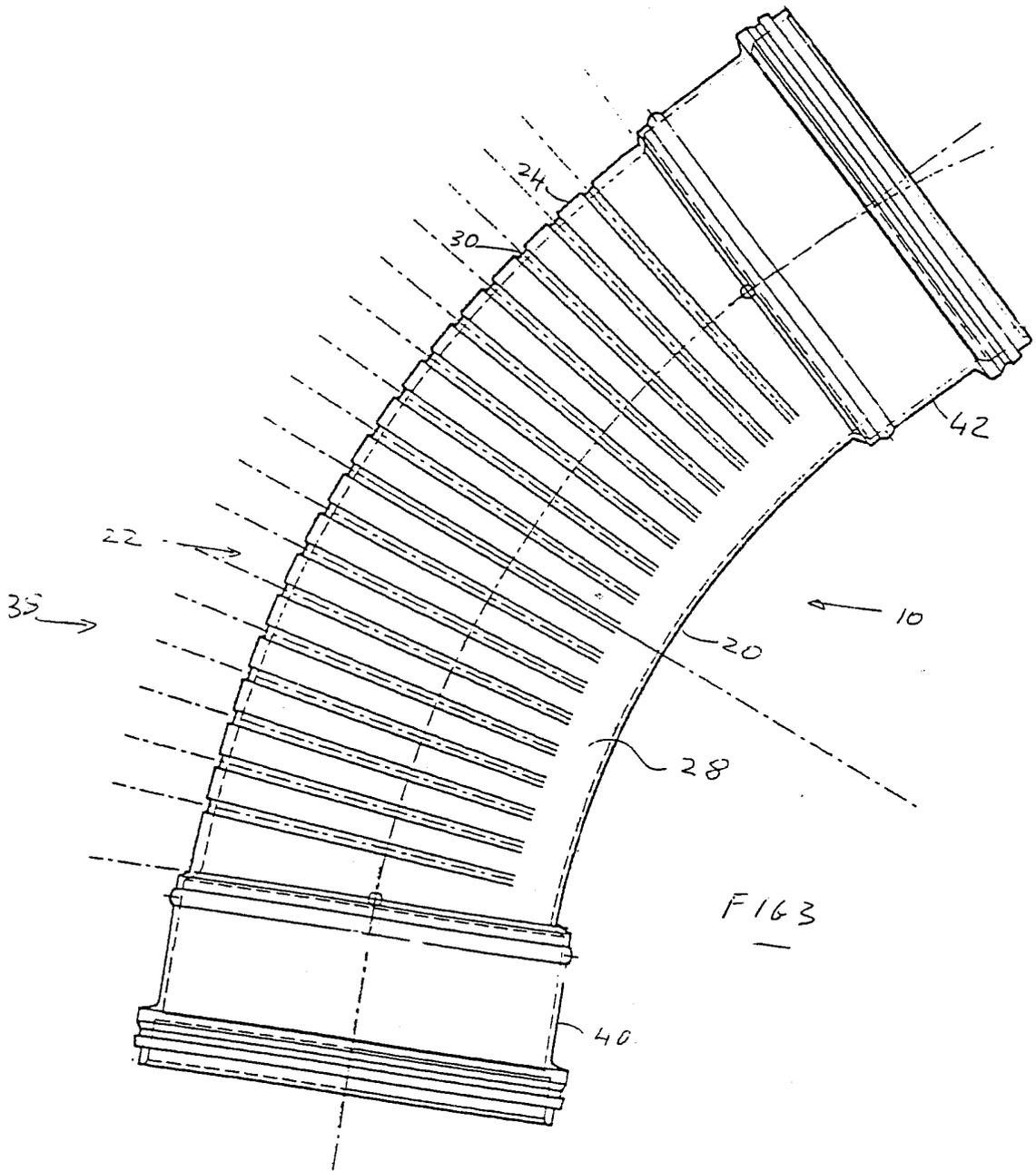


FIG 1

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