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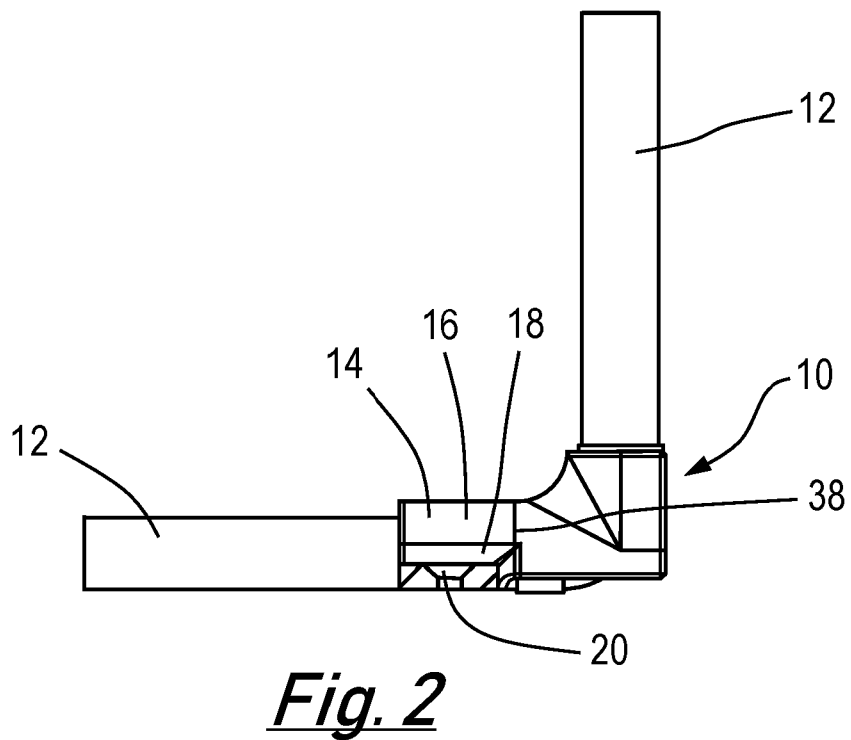
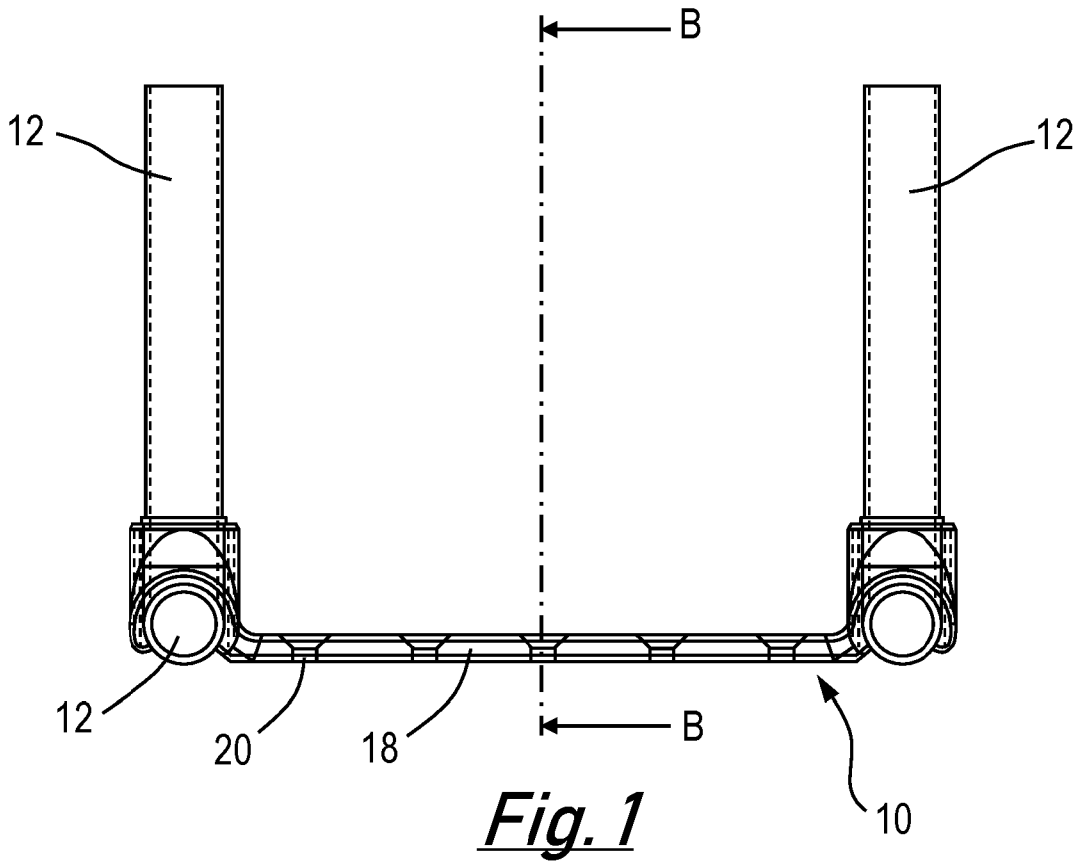
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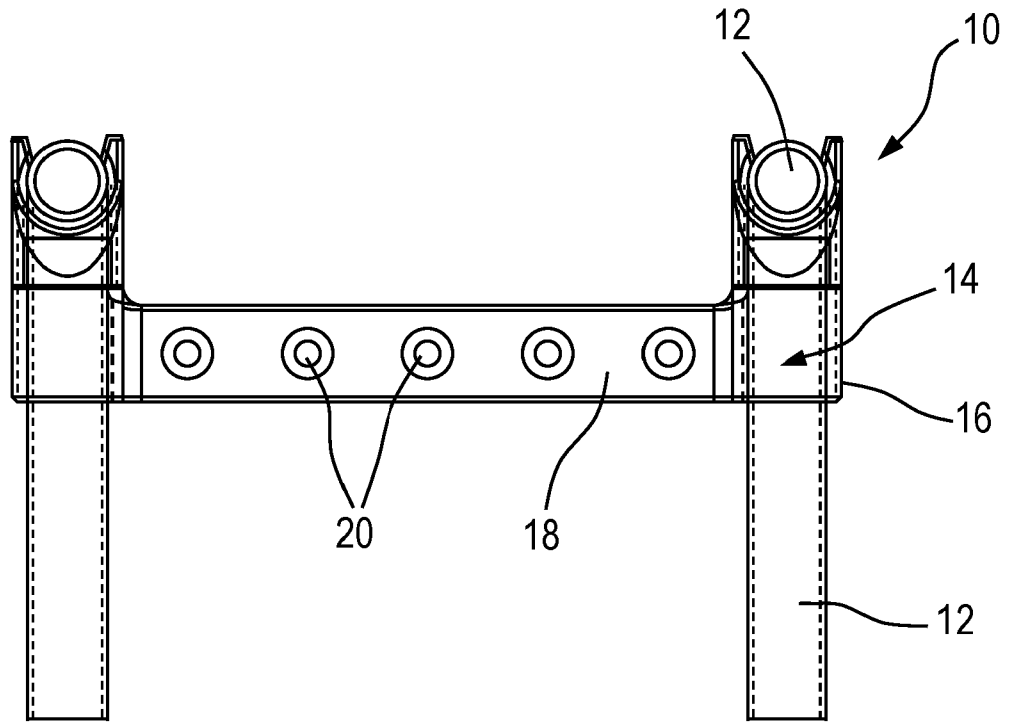
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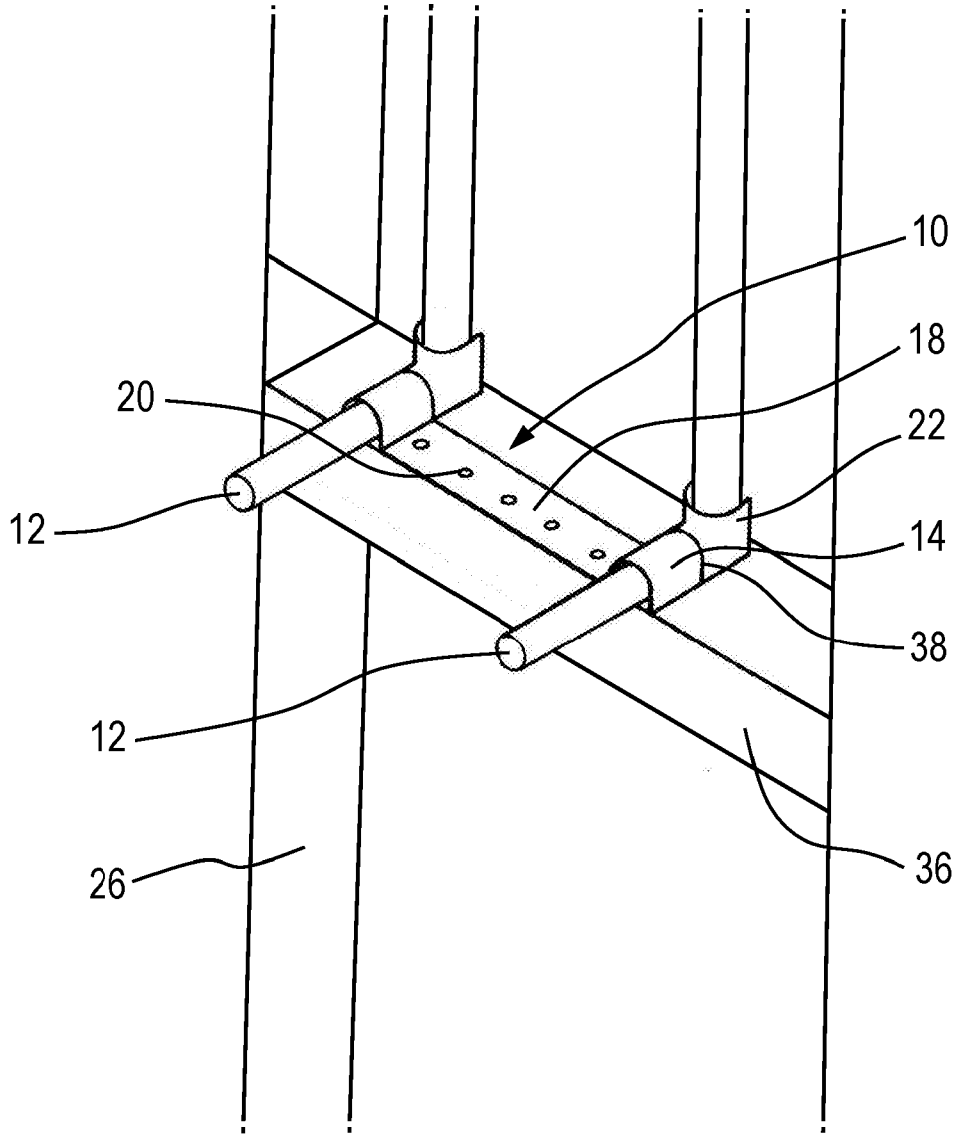
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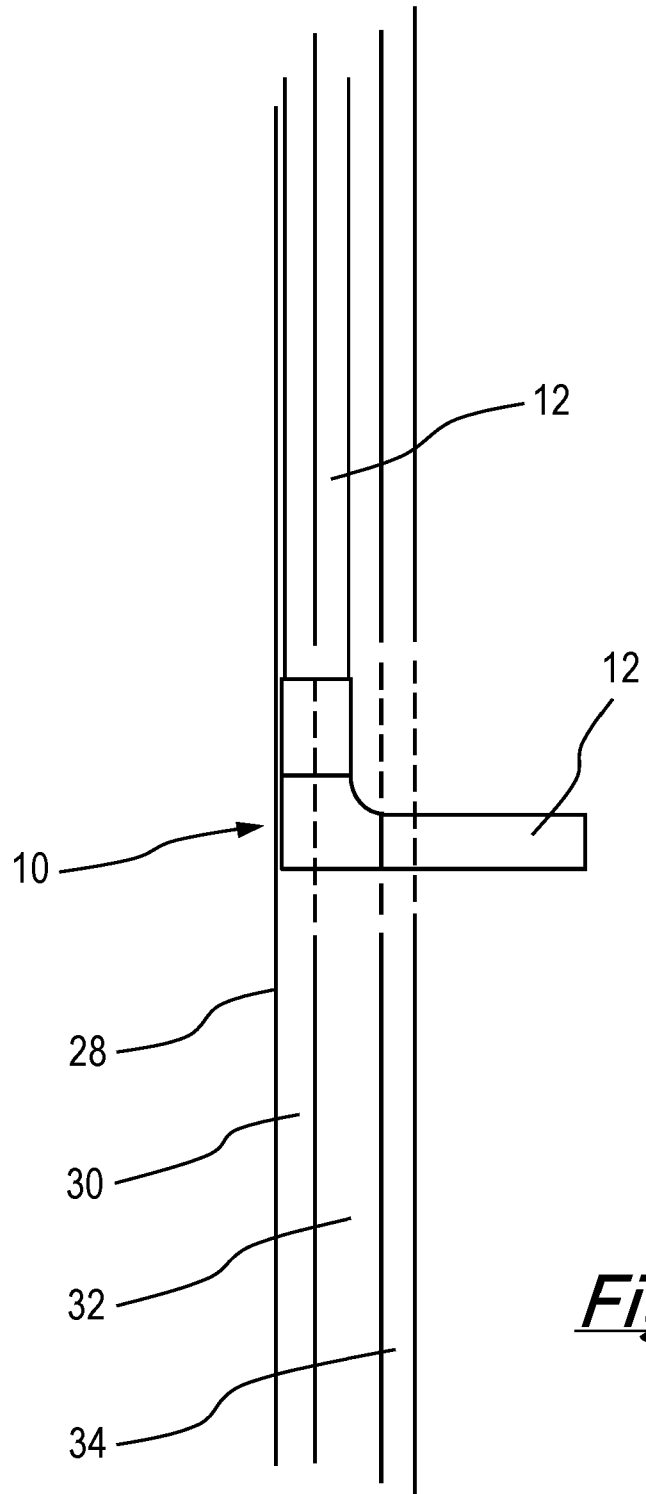




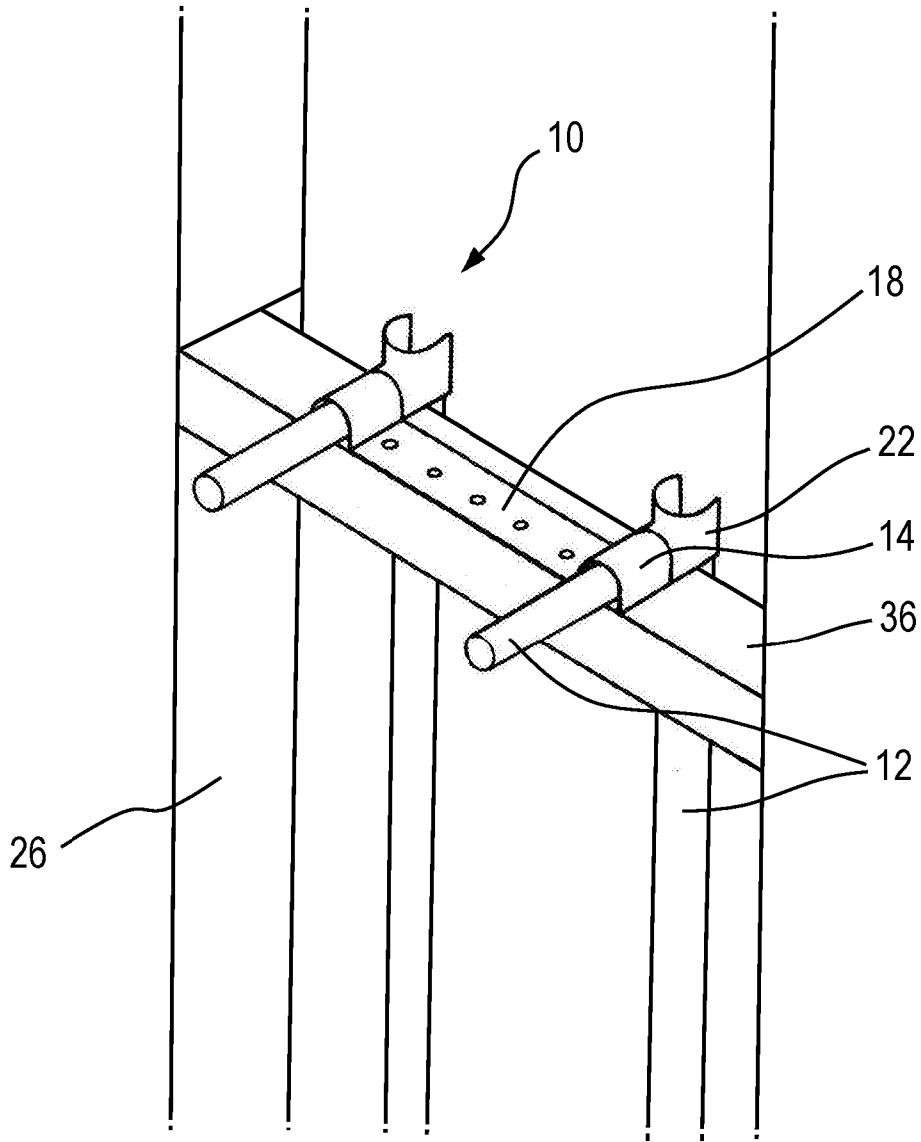
***Fig. 3***



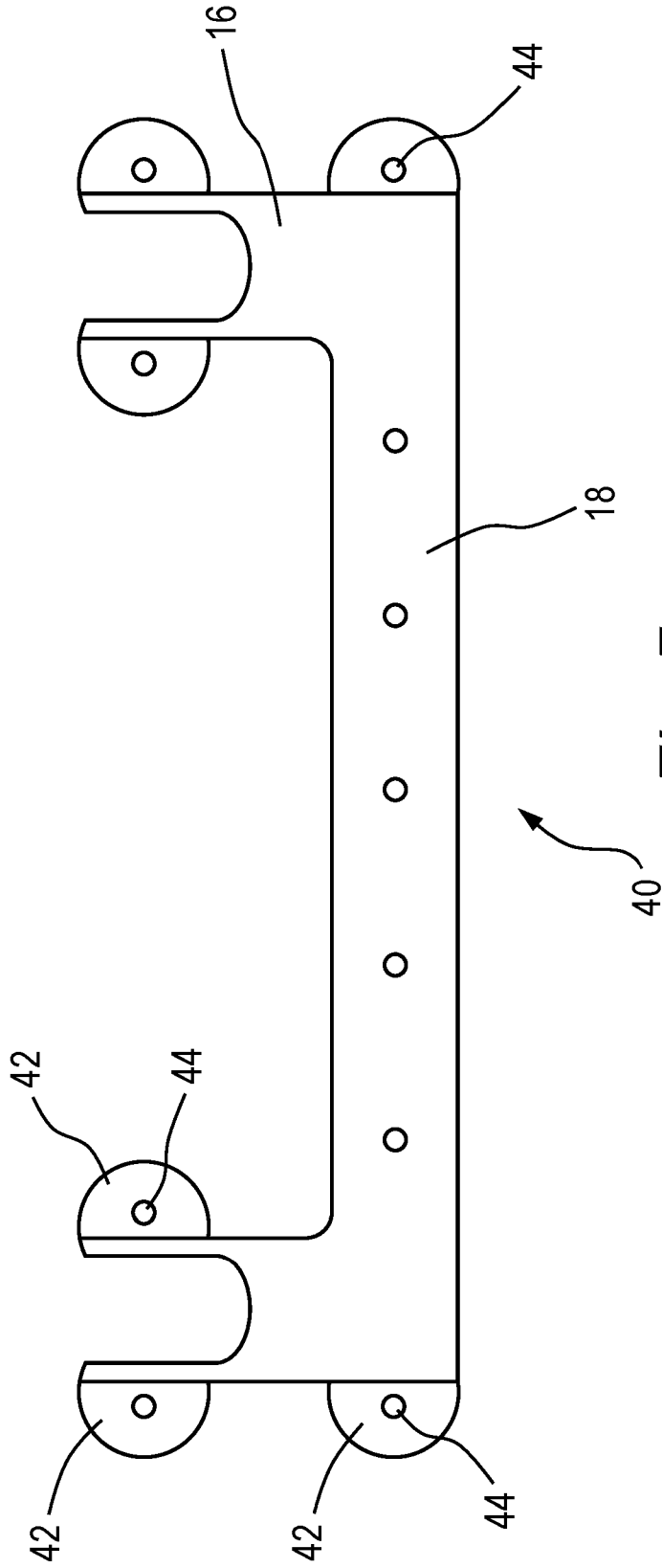
***Fig. 4***



***Fig. 5***



***Fig. 6***



***Fig. 7***

## **Alignment Apparatus**

This invention concerns alignment apparatus, and especially alignment apparatus usable to ensure and maintain correct spacing of pipework.

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In a number of instances in buildings and especially domestic residences, it is very important to maintain correct spacing of pipework, and to retain the correct spacing even after one or more building or decorating operations have been carried out. One such example of required spacing of pipes is with a bar mixer shower where it is required that the hot and cold water supply pipes are provided at a standard spacing, which is typically 150mm. The supply pipes should also be at the same height so that the bar mixer can extend horizontally.

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During formation for instance of a shower cubicle, after installation of the pipework a number of operations often require to be carried out. These can include fitting plasterboard, subsequently applying plaster onto the plasterboard, and thereafter tiles will usually be mounted on the plaster. It is important to maintain the correct spacing and alignment of the pipes throughout these operations such that the bar mixer can be mounted extending horizontally once all of these operations have been completed. Previously it has often been the case that the alignment of the pipework has changed after one or more of these operations. This can lead to remedial work being required, which can for instance potentially damage decorative items such as tiles, and is obviously time consuming and hence incurs extra cost.

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According to a first aspect of the invention there is provided alignment apparatus, the apparatus comprising a spacer member and a pair of sleeves extending parallel to each other from adjacent respective ends of the spacer member at a required spacing from each other, the sleeves being locatable on a respective pipe, with the pipe extending through the respective sleeve.



The sleeves may have a part circular profile, which may extend for just greater than 180°, and may extend for less than 210°. The sleeves may provide a snap fit on a pipe.

5           The sleeves may turn through 90° so as to be locatable on a pipe which turns through 90°.

10           The spacer member may extend between a first parallel part of the sleeves, which first part connects to a second part which defines the turn through 90°. A formation may be provided between the first and second parts to permit the first and second parts to be separated from each other.

The spacer member may be in the form of a base plate.

15           One or more openings may be provided in the base plate, to permit the base plate to be mounted on an object, a wall or other surface, with fastening means extending through the or at least some of the openings.

20           One or more mounting formations may be provided on the apparatus to permit mounting of the apparatus on an object, wall or other surface. The mounting formations may include openings through which fastening means can extend. The mounting formations may extend from the sleeves.

25           The spacing of the sleeves may be substantially 150mm.

Part or all of the apparatus may be made of plastics material. The apparatus may be integrally formed.

30           An embodiment of the present invention will now be described by way of example only and with reference to the accompanying drawings, in which:-

Fig. 1 is a diagrammatic front view in use in a first orientation of alignment apparatus according to the invention;

5 Fig. 2 is a diagrammatic sectional side view along the line B-B of the apparatus of Fig. 1;

Fig. 3 is a diagrammatic view from above of the apparatus of Fig. 1 in use;

10 Fig. 4 is a diagrammatic perspective front view of the apparatus of Fig. 1 in use;

Fig. 5 is a diagrammatic cross-sectional side view of the apparatus of Fig. 1 in use;

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Fig. 6 is a diagrammatic perspective view in a second orientation of the apparatus of Fig. 1 in use; and

20 Fig. 7 is a diagrammatic view from above of modified alignment apparatus according to the invention.

The drawings show alignment apparatus 10 usable to confirm or establish correct spacing of for instance two water supply pipes 12. Such pipes 12 may provide for example a hot and cold water supply to a bar mixer  
25 for a shower. In such an instance it is important that the water pipes 12 are parallel to each other, at the same height and extend horizontally. With such an orientation confirmed, the bar mixer can readily be fitted to extend in a correct horizontal alignment.

30 The alignment apparatus 10 comprises a first part 14 with two spaced sleeves 16 which extend parallel to each other. The sleeves 16 each define a downwardly facing in use, part circular channel, which extends for a little over

180°. The channels are formed such that they are a snap fit on the pipes 12 as shown in the drawings.

5 A spacer member in the form of a base plate 18 extends between the sleeves 16 of the first part from lower inner side edges of the sleeves 16, to provide a correct spacing therebetween, which in this instance may for example be 150mm. The base plate 18 is in the form of an elongate strip with five countersunk mounting holes 20.

10 The alignment apparatus 10 also includes a second part 22 in the form of a further pair of spaced profiled sleeves 24, which again are a snap fit on the pipes 12 as shown. The profiled sleeves 24 turn through 90°, and as shown for instance in Fig. 1 turn upwardly.

15 As can be seen, the alignment apparatus 10 can be snap fitted onto two pipes 12, and over right angle bends in the two pipes 12 as shown. The alignment apparatus 10 provides for a correct spacing and alignment of the pipes 12, and if the alignment apparatus 10 is aligned horizontally, the pipes 12 will be at the same height relative to each other.

20 In Figs. 4 and 5 the alignment apparatus 10 is shown mounted on a wooden formwork 26, with the pipes extending downwardly parallel to a wall 28, or a wall to be formed. Plasterboard 30 is mounted on the wall 28 and plaster 32 can be applied on to the plasterboard 30. A finish 34 such as  
25 ceramic or other material tiles can then be fitted on the plaster 32.

The base plate 18 is mounted on a horizontal beam 36 of the formwork 26 by two or more screws passing through respective ones of the holes 20. The alignment apparatus 10, assuming the horizontal beam 36 of the  
30 formwork 26 is truly horizontal, provides the pipes 12 at a correct spacing, parallel to each other, and extending horizontally.

Fig. 6 shows an arrangement where the apparatus 10 is again mounted on a horizontal beam 36. In this instance the pipes 12 extend upwardly from the floor before turning outwardly. Again the pipes 12 are a snap fit on the apparatus 10.

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A groove 38 is provided between the first and second parts 14, 22 to permit these to readily be separated to use the apparatus 10 for instance when the pipes do not turn through 90°.

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Fig. 7 shows a modified alignment apparatus 40 which is similar to the apparatus 10 except that it includes a plurality of mounting formations 42 in the form of semi circular webs with a through hole 44 through which a screw or other fastening means can extend. Mounting formations 42 are provided on either side of the sleeves 16 at their ends away from the base plate 18, and coplanar with the base plate 18. Mounting formations 42 are also provided on each end of the base plate 18.

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The mounting formations 42 permit securing of the apparatus 10 by screws or other fastening means on a wooden formwork, a wall, or elsewhere. It is to be realised that apparatus with just some of the mounting formations 42 illustrated can be provided as required.

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There is thus described alignment apparatus usable to ensure that through various operations the spacing and alignment of the pipes is retained so as to prevent the requirement for any remedial work, and ensure that once for instance a shower bar mixer is ready to be fitted, the pipes are in a correct position and alignment for the bar mixer to be attached thereto.

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The apparatus is of relatively straightforward construction and can thus be inexpensively and robustly manufactured for long term use. The apparatus may be made partially or wholly of plastics material, and may be integrally formed, particularly for instance by moulding a plastics material.

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Various modifications may be made without departing from the scope of the invention. For instances apparatus may be produced for maintaining and confirming a different alignment of pipes, which may be at a different relative alignment, spacing and/or with a different number of pipes. A different arrangement of openings and holes may be provided in the base member.

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

**CLAIMS**

1. Alignment apparatus, the apparatus comprising a spacer member and a pair of sleeves extending parallel to each other from adjacent respective ends of the spacer member at a required spacing from each other, the sleeves being locatable on a respective pipe, with the pipe extending through the respective sleeve.  
5
2. Alignment apparatus according to claim 1, in which the sleeves have a part circular profile.  
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3. Alignment apparatus according to claim 2, in which the sleeves have a part circular profile, which extends for just greater than 180°.
4. Alignment apparatus according to claims 2 or 3, in which the sleeves have a part circular profile, which extends for less than 210°.  
15
5. Alignment apparatus according to any of the preceding claims, in which the sleeves provide a snap fit on a pipe.  
20
6. Alignment apparatus according to any of the preceding claims, in which the sleeves turn through 90° so as to be locatable on a pipe which turns through 90°.
7. Alignment apparatus according to claim 6, in which the spacer member extends between a first parallel part of the sleeves, which first part connects to a second part which defines the turn through 90°.  
25
8. Alignment apparatus according to claim 7, in which a formation is provided between the first and second parts to permit the first and second parts to be separated from each other.  
30

9. Alignment apparatus according to any of the preceding claims, in which the spacer member is in the form of a base plate.
10. Alignment apparatus according to claim 9, in which one or more openings are provided in the base plate, to permit the base plate to be mounted on an object, a wall or other surface, with fastening means extending through the or at least some of the openings.
11. Alignment apparatus according to any of the preceding claims, in which one or more mounting formations are provided on the apparatus to permit mounting of the apparatus on an object, wall or other surface.
12. Alignment apparatus according to claim 11, in which the mounting formations include openings through which fastening means can extend.
13. Alignment apparatus according to claims 11 or 12, in which the mounting formations extend from the sleeves.
14. Alignment apparatus according to any of the preceding claims, in which the spacing of the sleeves is substantially 150mm.
15. Alignment apparatus according to any of the preceding claims, in which part or all of the apparatus is made of plastics material.
16. Alignment apparatus according to any of the preceding claims, in which the apparatus is integrally formed.