EUROPEAN PATENT APPLICATION

Method of installing conduit and conduit means suitable therefor.

In a method of installing conduit such as the plumbing for central heating, rectangular conduit pipe (7) is laid on top of the flooring and adjacent a wall (8). Carpet fitting means in the form of a channel (1) is secured over the conduit pipe (7) and carries a series of teeth (6) enabling carpet to be fitted over the channel to conceal the pipe. The channel (1) is comparable in height with conventional carpet fitting strips and the pipe is thus effectively concealed.
This invention relates to the installation of conduit in buildings, an example being the plumbing required for central heating.

It is conventional practice when installing central heating in buildings having wooden flooring, to install the bulk of the pipework beneath the floor-boards. This procedure keeps to a minimum the amount of unsightly pipework which is visible after completion of the installation, but is necessarily time-consuming and disruptive of the decor. In cases where solid flooring rather than wooden floorboards is encountered, the procedure is obviously impractical unless channels for the pipework are to be excavated from the solid floor. It is known to provide a box around exposed pipework to present a neater appearance, but in such cases the box itself may still be considered unsightly. Furthermore, boxes of this type have usually been difficult to mount and expensive.

It is an object of this invention to provide an improved method of installing conduit which is both simple and quick, yet which does not result in unsightly conduit remaining on display.

Accordingly, the present invention consists in one aspect in a method of installing conduit in a building, wherein the conduit is laid on top of the flooring and adjacent a wall, floor covering fitting means being provided adjacent the conduit to enable fitting of floor covering in a manner so as substantially to conceal the conduit.
Advantageously, the conduit comprises pipe of rectangular cross section which is laid flat on the flooring.

Preferably, the floor covering fitting means comprises teeth adapted to grip carpet fitted over the conduit.

In another aspect, the present invention consists in conduit means comprising a channel of generally rectangular uniform cross-section having therein two parallel conduits and adapted to be laid flat on flooring adjacent a wall; and floor covering fitting means provided along the length of the channel to enable fitting of floor covering in a manner as substantially to conceal the channel.

The invention will now be described by way of example with reference to the accompanying drawings in which:

Figures 1, 2 and 3 are perspective views of various embodiments of conduit means according to this invention,

Figure 4 illustrates the installation of conduit pipe according this invention,

Figures 5 to 11 are perspective views of various pipe fittings for use in methods according to the present invention,

Figures 12 and 13 are perspective views of further forms of conduit means according to this invention,

Figures 14 and 15 are plans of respectively the ground and upper floors of a building showing the path of pipe work laid according to this invention, and

Figure 16 is a diagrammatic view showing the use of conduit means as shown in Figure 13.

Referring to Figure 1, there is shown a channel 1 formed preferably of aluminium, the channel comprises a top plate 2, side portions 3 and 4 and, connected to side portion 4, a mounting portion 5 which is provided at intervals with screw
holes. The top plate 2 is formed by, for example, stamping with a series of teeth 6. Within the channel 2 there are provided two lengths of rectangular pipe 7, this pipe being outwardly dimensioned as a complementary fit within the channel 2.

The manner in which the described conduit means is used can best be described with reference to Figure 4. The two lengths of rectangular pipe 7, being respectively the flow and return lines of a central heating system are laid on the floor adjacent the skirting board 8. The channel 2 is then positioned over the pipe and nailed or screwed to the floor so holding the pipe in position. A connector 9 (shown also in Figure 8) is used to connect the rectangular pipe to conventional round pipe 10 leading to a conventional radiator shown generally at 11. When installation of the pipe work is complete, carpet is fitted in the room using the channel 1 in place of the usual carpet gripping strip. As will be understood by those skilled in the art, the carpet underlay extends only to the inner edge of the channel 1 and the carpet itself is stretched over the top plate 1 so as to be gripped by the upstanding teeth 6.

The vertical height of the channel 1 is of the same order as the height of strip normally used to grip carpet and once carpet has been fitted the pipe work fitted according to the invention is substantially concealed.

In certain situations, it may be desirable to use the conduit means shown in either Figures 2 or Figure 3 in place of the Figure 1 embodiment. Thus for example the arrangement shown in Figure 2 may be used where the carpet does not extend
fully up to the wall and the arrangement in Figure 3 is useful where pipe work is required to cross a doorway. The conduit means shown in Figure 3 is in fact used in place of conventional doorway carpet fitting strips and differs only from such conventional strips in that it has a hollow interior through which pipes 7 can extend.

The lengths of rectangular pipe 7 are joined as appropriate with male or female couplings. Thus Figure 5 shows a female elbow joint, Figure 7 shows a female connector and Figure 10 shows a male T-piece. Where it is required to connect vertically and horizontally disposed pipes, joints such as that shown in Figure 6 can be employed. As noted above it will in certain circumstances be necessary to connect rectangular pipe as used in accordance with this invention with conventional round pipe leading to radiators, boilers or other appliances. For this purpose it is possible to use a joint such as that shown in Figure 8 or a compression joint such as that shown in Figure 9. Figure 11 illustrates a T-joint enabling one run of pipe to intersect another.

The joints illustrated in the drawings and described briefly above can be formed of copper and connected to the copper pipe with conventional techniques. Alternatively it is possible to employ plastics pipe work and joints with, for example, solvent welding techniques. An alternative embodiment of conduit means according to this invention particularly suited to the use of plastics material is shown in Figure 12. The channel 20 is formed as an extrusion of plastics material and includes two parallel conduits 21 separated by a mounting portion 22 through which extend screw holes 23. A top plate 24, preferably formed of metal, is placed over the channel 20 before screws are passed through
the holes 23 securing the assembly to the floor. The plate 24 is formed with teeth 25 and carpet is fitted over the installed conduit as described above.

According to a further aspect of this invention a method is provided for installing the vertical pipe work which is usually necessary to complete the central heating system in a house. According to the invention the vertical lengths of conduit are directed, so far as possible, adjacent either a wall or a door. Conduit such as that shown in Figure 13 is employed and is mounted in place of portions of the existing architrave. It will be noted that the conduit shown in Figure 13 is outwardly shaped to resemble the architrave conventionally used in modern houses and the conduit once installed is therefore inconspicuous. The moulding shown in Figure 13 may be a plastics extrusion and inserts may be provided to cover screw holes 23 once the conduit has been screwed in place.

Referring to Figures 14 and 15, the manner in which central heating would be installed in a typical house is illustrated. The flow and return pipes from the boiler are taken to radiators in the hall, kitchen, dining room and lounge using conduit as shown in Figure 1 and, where the conduit is required to cross doorways, conduit as shown in Figure 3. Similarly, on the upper floor the pipe work is directed so far as possible around the perimeter of the rooms using conduit as shown in Figure 1.

The described methods according to the present invention have numerous advantages. There is no necessity for floorboards to be lifted and the method can indeed be employed with the solid floors. There is little or no structural damage to the building and the method is generally more convenient for both the installer and the user. Since the pipes are disposed above the floor all available heat is directed into the rooms and there is no necessity for insulation
of pipes. The method is ideally suited for DIY as should lead to cheap installation costs as compared with conventional under-floor installations.

This invention has been described by way of examples only and it should be appreciated that numerous modifications are possible without departing from the scope of the invention. Thus although the invention has been illustrated throughout with rectangular pipe work the smaller cross-sectional dimension of which is approximately 1 cm, other shapes are possible. If it is desired to achieve a conduit of smaller overall height, the pipe can be made thinner although in order to achieve the necessary flow rates the width of the pipe would probably have to be increased correspondingly. Surprisingly, it has been discovered that the use of rectangular pipe, which offers the considerable advantages discussed above, does not impair the efficiency of the central heating system and in fact the characteristics of rectangular pipe can compare favourably with those of conventional circular pipe. In other modifications, carpet fitting means other than the described toothed strip could be used and suitable configurations will be obvious to those skilled in the art of fitting carpets. The invention is also applicable to floor coverings other than carpet, such as for example vinyl floor covering. It should also be understood that although this invention has been described using the example of central heating, it is applicable to conduits of all kinds including gas pipes, air lines, water supply pipes and conduits intended to house electrical wiring.
CLAIMS

1. A method of installing conduit in a building, wherein the conduit is laid on top of the flooring and adjacent a wall, floor covering fitting means being provided adjacent the conduit to enable fitting of floor covering in a manner as substantially to conceal the conduit.

2. A method according to Claim 1, wherein the conduit comprises pipe of rectangular cross section which is laid flat on the flooring.

3. A method according to Claim 1 or Claim 2, wherein the floor covering fitting means is provided on top of the conduit to enable fitting of floor covering over the conduit.

4. A method according to any one of Claims 1 to 3, wherein the floor covering fitting means comprises teeth adapted to grip carpet.

5. A method according to any one of Claims 1 to 4, wherein the conduit comprises two rectangular pipes laid flat and side by side on the flooring.

6. A method according to Claim 1, wherein conduit required to extend vertically is directed so far as possible adjacent a door or a window.

7. A method according to Claim 6, wherein prior to mounting of said vertical conduit, appropriate portions of architrave are removed, the conduit being mounted in place of the removed portions of architrave and being outwardly shaped to resemble the removed architrave.

8. Conduit means comprising a channel of generally rectangular uniform cross-section having therein two parallel conduits and adapted to be laid flat on flooring adjacent a wall; and floor covering fitting means provided along the length of the channel to enable fitting of floor covering in a manner as substantially to conceal the channel.
9. Conduit means according to Claim 8, wherein the floor covering fitting means is arranged to grip floor covering laid over the channel.

10. Conduit means according to Claim 8 or Claim 9, wherein the floor covering fitting means comprises teeth arranged to grip carpet.

11. Conduit means according to any one of Claims 8 to 10, wherein the smaller cross sectional dimension of the channel is approximately 1 cm.

12. Conduit means according to any one of Claims 8 to 11, wherein said channel comprises a metallic strip providing a housing for two rectangular pipes, the floor covering fitting means being formed integrally with the strip.

13. Conduit means according to any one of Claims 8 to 11, wherein said channel comprises an integral plastics structure.

14. Conduit means comprising a channel adapted to replace a section of architrave and outwardly shaped to resemble the architrave, said channel having therein two parallel conduits.
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<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
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<td>DE - B - 1 149 510 (RIETSCHEL &amp; HENNEBERG) * fig. 2 *</td>
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**Classification of the application (Int.Cl.)**

**Technical fields searched (Int.Cl.)**

**Category of cited documents**

X: particularly relevant  
A: technological background  
O: non-written disclosure  
P: intermediate document  
T: theory or principle underlying the invention  
E: conflicting application  
D: document cited in the application  
L: citation for other reasons

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X
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The present search report has been drawn up for all claims

Place of search: Berlin

**Date of completion of the search:** 20-11-1979

Examiner: WITTKE