

A SEALING ARRANGEMENT RELATING TO CABLE AND PIPE TRANSITS

The present invention relates to a sealing arrangement pertaining to cable and pipe transits.

Published European Patent Application 0 429 916 describes a module made of a rubber material, wherein the module includes an axially extending and centrally positioned channel in which a cable or a pipe is intended to run. The module includes radially outside the channel, or passageway, peelable layers of the same material as the remainder of the module. The intention is to enable the channel to be adapted for accommodation of the cable or pipe concerned, by peeling away the necessary number of layers to this end.

The module is intended to be mounted in a frame which, in turn, is mounted in the wall or like structure through which the cable or pipe shall pass. Naturally, the frame must be sealed against the wall to which it is fitted, in order to obtain a tight lead-through or transit. The modules must also lie tightly against the frame, with the module in sealing abutment with the cable or pipe.

The frame is first fitted against the wall together with a sealing means, for instance a rubber packing. A module, or several mutually abutting modules, is/are then fitted in the frame, together with a separate expansion element. After having drawn the cables or pipes through the channels in respective modules, the expansion element is tightened such as to exert pressure on the modules and therewith compress the modules to an extent at which they lie tightly against the cables or pipes.

This procedure thus requires several working steps, and also requires the use of an expansion element in providing a sealed and tight cable or pipe transit.

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**REPLACED SHEETS SG**

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☒ Claim(s)	: paged 7 to paged 8
☒ Drawing(s)	: paged 01 to paged 05
☒ Abstract	: paged 9 to paged -

The present invention provides a highly advantageous cable or pipe transit of the aforescribed kind with which the expansion element is not required, therewith eliminating some of the working steps.

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The present invention thus relates to a sealing arrangement relating to wall-mounted cable and pipe transits that include a frame and one or more modules comprised of compressible material and having an axially extending channel through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are tightly and sealingly fitted relative to the frame, wherein said transit arrangement is characterised in that the frame includes a first part and a second part provided with an opening and intended to be fitted on both sides of a wall in which an opening has been made; in that the arrangement includes between the first and the second frame parts, a third frame-part in the form of a body made of compressible material, such as a rubber material or the like, and having an opening which has essentially the same size as the opening in respective frame-parts, wherein said opening is intended to accommodate said module or modules; in that the first and the second frame-part can be contracted towards one another; and in that the size of the rubber body is such that said body is compressed in the contraction direction as the first and the second frame-parts are drawn together, therewith exerting a sealing pressure on the modules, against said first frame part and said wall.

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The invention will now be described in more detail with reference to exemplifying embodiments thereof and also with reference to the accompanying drawings, in which

35 - Figures 1-3 illustrate three different parts of the inventive arrangement;

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- Figure 4 shows the three parts of Figures 1-3 combined together; and

- 5 - Figure 5 is a cross-sectional view of the arrangement fitted to a cabinet wall.

Figure 5 illustrates a sealing arrangement which relates to wall-mounted cable and pipe transits and which includes a frame 1 and one or more modules 2 comprised of a compressible material and having an axially extending channel 3 through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are fitted and sealed relative to the frame. Figure 5 shows only one such module 2. //OBS!! Should be Figure 5!!!//

According to the invention, the frame includes a first part 4 and ~~a second part 5~~ having an opening ~~6, 7~~ and intended to be fitted on respective sides of a wall 8 in which an opening 34 has been made. These frame-parts are suitably made of sheet metal or are moulded, depending upon dimensions, among other things. The frame-parts may alternatively be made of a plastic material.

25 Provided between the first and second frame-parts 4, 5 is a third frame-part 9 in the form of a body made of compressible material, such as rubber material, and having an opening 10 which has essentially the same size as the opening 6, 7 in respective frame-parts 4, 5. It is preferred to use a rubber material, even though other materials, such as compressible plastic materials, may be used.

35 The opening 10 in the rubber body is intended to receive said module 3 or modules, in accordance with the aforesaid patent specification and as illustrated in Figure 5. The region 11



shown in densely packed lines illustrates the aforesaid peelable layers. Such modules 3 are commercially available and are comprised, e.g., of the rubber material Roxylon with a hardness of $80 \pm 5^\circ$ Shore A.

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The first and the second frame parts 4, 5 can be drawn towards one another, i.e. contracted. The rubber body 9 is dimensioned so as to be compressed in the contraction direction 12 as the first and the second parts are drawn together; see Figure 5.

10

According to one preferred embodiment, the first frame part 4 has a generally U-shaped cross-section. The rubber body has a corresponding shape and is intended to be placed in the U-shaped part and against the wall 8 through which the cable or pipe transit shall be installed. The rubber material from which the body 9 is made has essentially the same hardness as the module material. For instance, the rubber body may be made of a so-called SBR rubber. The rubber body shall have a hardness such as to enable the body to compress the module/modules into sealing abutment with the cable or pipe concerned.

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According to another preferred embodiment, the first frame-part 4 and the rubber body 9 have through-penetrating holes 13-18; 27-32 for receiving screws 19, 20. The second frame-part 5 is provided with threaded screw bushings 21-26 or threaded screw holes which co-act with the screws such as to draw the first and the second frame-parts towards one another.

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The sealing arrangement is assembled in the following way. The second frame-part 5 is placed on the rear side 33 of the wall 8, opposite the wall opening 34. The rubber body 9 and the first frame-part 4 are then placed against the front side

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35 of the wall, whereafter the screws 19, 20 are lightly tightened so as to hold the assembly together.

5 The modules are then placed in the opening in the rubber body. This stage of assembly is shown in Figure 5, although no cable or pipe is shown in the channel 3 in the module 2. Cables or pipes are drawn through respective channels in the modules in this stage of assembly.

10 In the next stage, the screws are firmly tightened, therewith compressing the rubber body in the contraction direction 12. The rubber body will therewith exert pressure on the module in the direction shown by arrows 36. The rubber body also exerts pressure on the sides 37, 38 of the first frame-part
15 in the direction indicated by arrows 39, 40.

As a result of the pressure exerted by the rubber body against the modules, the modules will be compressed into sealing abutment with the cables or pipes concerned.

20 Subsequent to said contraction, the flanges 41, 42 of the first frame-part will abut the flanges 43, 44 of the rubber body.

25 It will be apparent from the foregoing that the first frame-part and the rubber body provide a) a seal between the rubber body and the wall; b) a seal between the rubber body and the first frame-part; c) a seal between the rubber body and the module or modules; and d) a seal between respective modules
30 and the cable or pipe concerned.

The invention thus obviates the need for the expansion element mentioned in the introduction and also certain working steps.



The invention has been described above with respect to an exemplifying embodiment illustrated in the accompanying drawings.

- 5 It will be understood, however, that other types of screw joints or clamping joints can be used. The frame may alternatively have a square or round outer shape, although the opening in the rubber body will preferably be rectangular in shape. The opening in the frame parts and the rubber body
- 10 will, of course, be adapted to accommodate the number and size of the modules to be used. It will also be understood that the shape of the three frame-parts in general can be adapted to suit the application in question.
- 15 The invention shall not therefore be considered restricted to the aforescribed and illustrated embodiments, since variations and modifications can be made within the scope of the following Claims.
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1. A sealing arrangement relating to cable and pipe
transits through a wall (8), and comprising a frame (1) and
one or more modules (2) made of a compressible material and
including an axially extending channel (3) through which a
cable or a pipe is intended to pass in sealing abutment with
respective module channels, and including a frame in which
one or more modules are mounted and sealed relative to the
frame, characterised in that the frame includes a first part
(4) and a second part (5) provided with an opening (6, 7) and
intended to be fitted on both sides of a wall (8) in which an
opening has been made; in that the arrangement includes
between the first frame-part (4) and the second frame-part
(5) a third frame-part (9) in the form of a body comprised of
a compressible material, such as a rubber material or the
like, and having an opening (10) which has generally the same
size as the opening (6, 7) in respective frame-parts (4, 5),
said opening being intended to accommodate said module (2) or
modules; in that the first frame-part (4) and the second
frame-part (5) can be drawn towards one another; and in that
the rubber body (9) has a size whereby said body will be
compressed in the contraction direction as said first frame-
part (4) and said second frame-part (5) are drawn together,
such as to exert a sealing pressure force on the modules (3)
and on said first frame-part (4) and said wall (8).

2. A sealing arrangement according to Claim 1,
characterised in that said first frame-part (4) has a
generally U-shaped cross-section; and in that the rubber body
(9) is intended to be placed in said U-shaped part and
against the wall (8) through which the cable or pipe transit
shall be made.

3. A sealing arrangement according to Claim 1 or 2,
characterised in that said first frame-part (4) and said



rubber body (9) include through-penetrating holes (13-18; 27-32) for screws (19, 20); and in that said second frame-part (5) is provided with threaded screw-bushings (21-26) or threaded holes for co-action with said screws in drawing said
5 first frame-part (4) and said second frame-part (5) together.

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ABSTRACT

The present invention relates to a sealing arrangement relating to cable and pipe transits through a wall (8), and comprising a frame (1) and one or more modules (2) made of a compressible material and including an axially extending channel (3) through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are mounted and sealed relative to the frame.

The invention is characterised in that the frame includes a first part (4) and a second part (5) provided with an opening (6, 7) and intended to be fitted on both sides of a wall (8) in which an opening has been made; in that the arrangement includes between the first frame-part (4) and the second frame-part (5) a third frame-part (9) in the form of a body comprised of a compressible material, such as a rubber material or the like, and having an opening (10) which has generally the same size as the opening (6, 7) in respective frame-parts (4, 5), said opening being intended to accommodate said module (2) or modules; in that the first frame-part (4) and the second frame-part (5) can be drawn towards one another; and in that the rubber body (9) has a size whereby said body will be compressed in the contraction direction as said first frame-part (4) and said second frame-part (5) are drawn together, such as to exert a sealing pressure force on the modules (3) and on said first frame-part (4) and said wall (8).

Figure 5 for publication.

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Fig 1

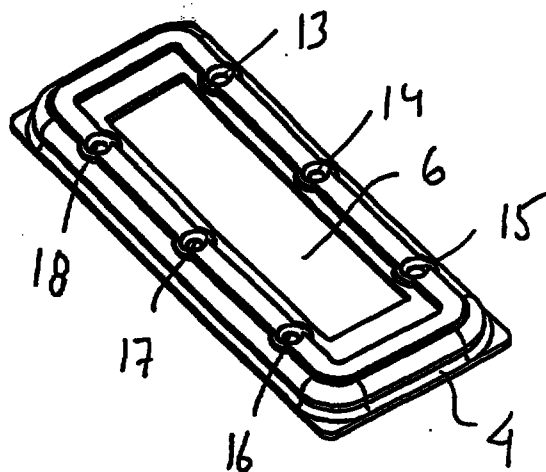


Fig 2

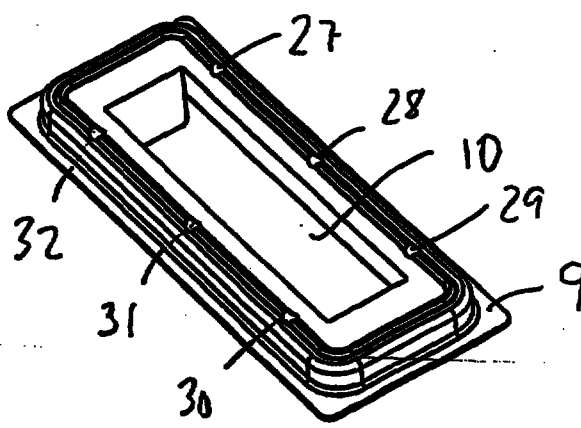
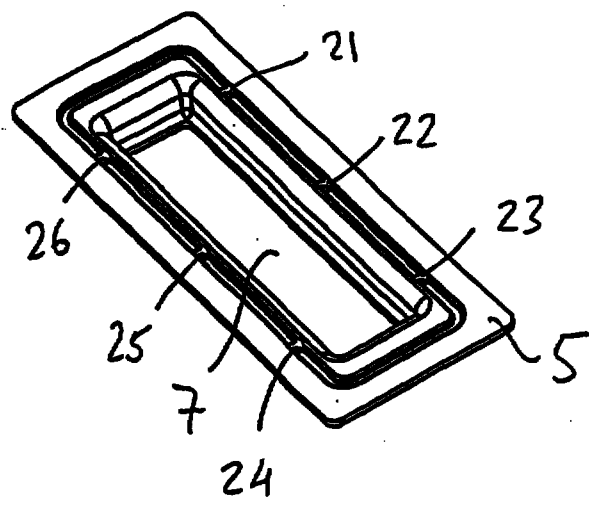
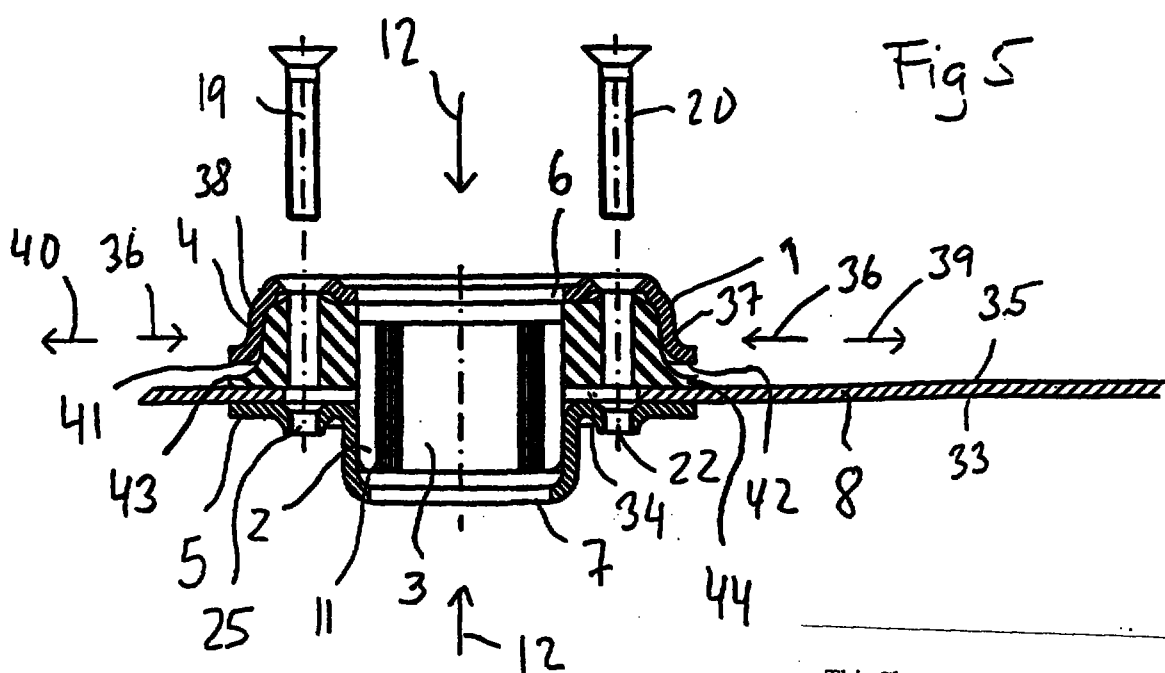
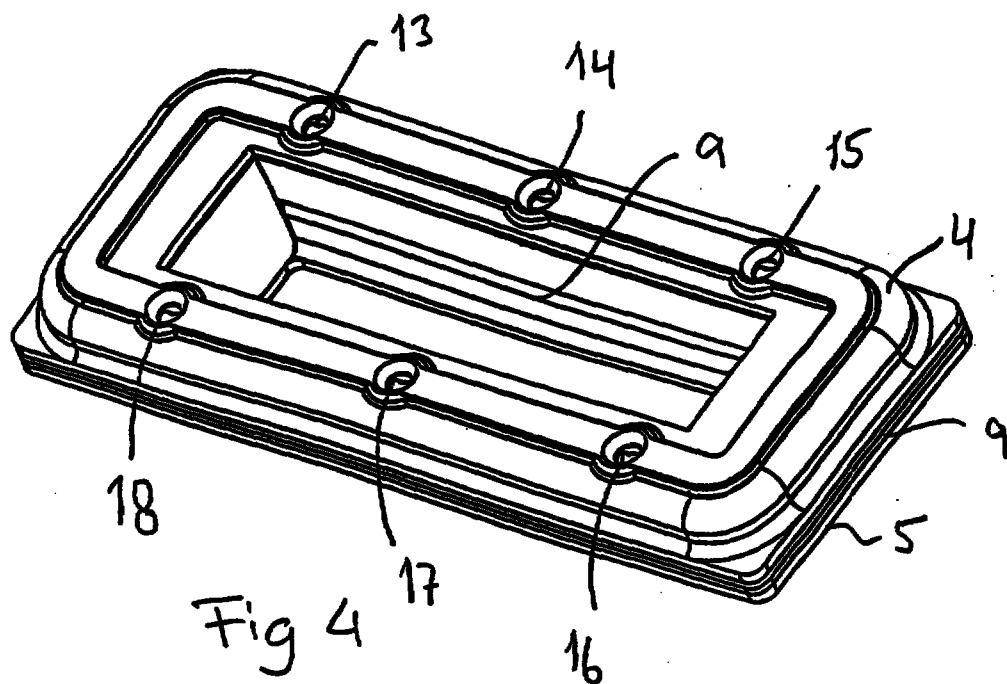


Fig 3





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A SEALING ARRANGEMENT RELATING TO CABLE AND PIPE TRANSITS

The present invention relates to a sealing arrangement pertaining to cable and pipe transits.

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Published European Patent Application 0 429 916 describes a module made of a rubber material, wherein the module includes an axially extending and centrally positioned channel in which a cable or a pipe is intended to run. The module includes radially outside the channel, or passageway, peelable layers of the same material as the remainder of the module. The intention is to enable the channel to be adapted for accommodation of the cable or pipe concerned, by peeling away the necessary number of layers to this end.

15

The module is intended to be mounted in a frame which, in turn, is mounted in the wall or like structure through which the cable or pipe shall pass. Naturally, the frame must be sealed against the wall to which it is fitted, in order to obtain a tight lead-through or transit. The modules must also lie tightly against the frame, with the module in sealing abutment with the cable or pipe.

20

The frame is first fitted against the wall together with a sealing means, for instance a rubber packing. A module, or several mutually abutting modules, is/are then fitted in the frame, together with a separate expansion element. After having drawn the cables or pipes through the channels in respective modules, the expansion element is tightened such as to exert pressure on the modules and therewith compress the modules to an extent at which they lie tightly against the cables or pipes.

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This procedure thus requires several working steps, and also requires the use of an expansion element in providing a sealed and tight cable or pipe transit.

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The present invention provides a highly advantageous cable or pipe transit of the aforescribed kind with which the expansion element is not required, therewith eliminating some of the working steps.

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The present invention thus relates to a sealing arrangement relating to wall-mounted cable and pipe transits that include a frame and one or more modules comprised of compressible material and having an axially extending channel through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are tightly and sealingly fitted relative to the frame, wherein said transit arrangement is characterised in that the frame includes a first part and a second part provided with an opening and intended to be fitted on both sides of a wall in which an opening has been made; in that the arrangement includes between the first and the second frame parts, a third frame-part in the form of a body made of compressible material, such as a rubber material or the like, and having an opening which has essentially the same size as the opening in respective frame-parts, wherein said opening is intended to accommodate said module or modules; in that the first and the second frame-part can be contracted towards one another; and in that the size of the rubber body is such that said body is compressed in the contraction direction as the first and the second frame-parts are drawn together, therewith exerting a sealing pressure on the modules, against said first frame part and said wall.

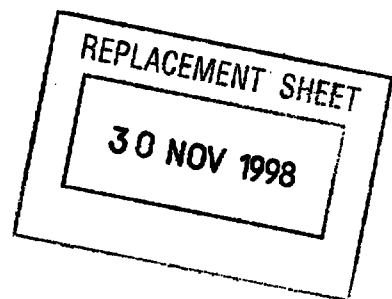
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The invention will now be described in more detail with reference to exemplifying embodiments thereof and also with reference to the accompanying drawings, in which

35 - Figures 1-3 illustrate three different parts of the inventive arrangement;

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- Figure 4 shows the three parts of Figures 1-3 combined together; and

5 - Figure 5 is a cross-sectional view of the arrangement fitted to a cabinet wall.

10 Figure 5 illustrates a sealing arrangement which relates to wall-mounted cable and pipe transits and which includes a frame 1 and one or more modules 2 comprised of a compressible material and having an axially extending channel 3 through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are fitted and sealed
15 relative to the frame. Figure 5 shows only one such module 2.
//OBS!! Should be Figure 5!!!//

20 According to the invention, the frame includes a first part 4 and a second part 5 having an opening 6, 7 and intended to be fitted on respective sides of a wall 8 in which an opening 34 has been made. These frame-parts are suitably made of sheet metal or are moulded, depending upon dimensions, among other things. The frame-parts may alternatively be made of a plastic material.

25 Provided between the first and second frame-parts 4, 5 is a third frame-part 9 in the form of a body made of compressible material, such as rubber material, and having an opening 10 which has essentially the same size as the opening 6, 7 in
30 respective frame-parts 4, 5. It is preferred to use a rubber material, even though other materials, such as compressible plastic materials, may be used.

35 The opening 10 in the rubber body is intended to receive said module 3 or modules, in accordance with the aforesaid patent specification and as illustrated in Figure 5. The region 11



shown in densely packed lines illustrates the aforesaid peelable layers. Such modules 3 are commercially available and are comprised, e.g., of the rubber material Roxylon with a hardness of $80 \pm 5^\circ$ Shore A.

5

The first and the second frame parts 4, 5 can be drawn towards one another, i.e. contracted. The rubber body 9 is dimensioned so as to be compressed in the contraction direction 12 as the first and the second parts are drawn together; see Figure 5.

10

According to one preferred embodiment, the first frame part 4 has a generally U-shaped cross-section. The rubber body has a corresponding shape and is intended to be placed in the U-shaped part and against the wall 8 through which the cable or pipe transit shall be installed. The rubber material from which the body 9 is made has essentially the same hardness as the module material. For instance, the rubber body may be made of a so-called SBR rubber. The rubber body shall have a hardness such as to enable the body to compress the module/modules into sealing abutment with the cable or pipe concerned.

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According to another preferred embodiment, the first frame-part 4 and the rubber body 9 have through-penetrating holes 13-18; 27-32 for receiving screws 19, 20. The second frame-part 5 is provided with threaded screw bushings 21-26 or threaded screw holes which co-act with the screws such as to draw the first and the second frame-parts towards one another.

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The sealing arrangement is assembled in the following way. The second frame-part 5 is placed on the rear side 33 of the wall 8, opposite the wall opening 34. The rubber body 9 and the first frame-part 4 are then placed against the front side

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35 of the wall, whereafter the screws 19, 20 are lightly tightened so as to hold the assembly together.

5 The modules are then placed in the opening in the rubber body. This stage of assembly is shown in Figure 5, although no cable or pipe is shown in the channel 3 in the module 2. Cables or pipes are drawn through respective channels in the modules in this stage of assembly.

10 In the next stage, the screws are firmly tightened, therewith compressing the rubber body in the contraction direction 12. The rubber body will therewith exert pressure on the module in the direction shown by arrows 36. The rubber body also exerts pressure on the sides 37, 38 of the first frame-part
15 in the direction indicated by arrows 39, 40.

As a result of the pressure exerted by the rubber body against the modules, the modules will be compressed into sealing abutment with the cables or pipes concerned.

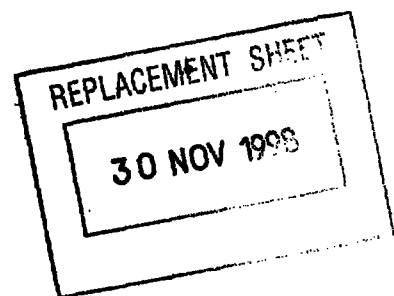
20 Subsequent to said contraction, the flanges 41, 42 of the first frame-part will abut the flanges 43, 44 of the rubber body.

25 It will be apparent from the foregoing that the first frame-part and the rubber body provide a) a seal between the rubber body and the wall; b) a seal between the rubber body and the first frame-part; c) a seal between the rubber body and the module or modules; and d) a seal between respective modules
30 and the cable or pipe concerned.

The invention thus obviates the need for the expansion element mentioned in the introduction and also certain working steps.

The invention has been described above with respect to an exemplifying embodiment illustrated in the accompanying drawings.

- 5 It will be understood, however, that other types of screw joints or clamping joints can be used. The frame may alternatively have a square or round outer shape, although the opening in the rubber body will preferably be rectangular in shape. The opening in the frame parts and the rubber body
10 will, of course, be adapted to accommodate the number and size of the modules to be used. It will also be understood that the shape of the three frame-parts in general can be adapted to suit the application in question.
- 15 The invention shall not therefore be considered restricted to the aforescribed and illustrated embodiments, since variations and modifications can be made within the scope of the following Claims.



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CLAIMS

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REPLACEMENT SHEET
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1. A sealing arrangement relating to cable and pipe
transits through a wall (8), and comprising a frame (1) and
one or more modules (2) made of a compressible material and
including an axially extending channel (3) through which a
cable or a pipe is intended to pass in sealing abutment with
respective module channels, and including a frame in which
one or more modules are mounted and sealed relative to the
frame, characterised in that the frame includes a first part
(4) and a second part (5) provided with an opening (6, 7) and
intended to be fitted on both sides of a wall (8) in which an
opening has been made; in that the arrangement includes
between the first frame-part (4) and the second frame-part
(5) a third frame-part (9) in the form of a body comprised of
a compressible material, such as a rubber material or the
like, and having an opening (10) which has generally the same
size as the opening (6, 7) in respective frame-parts (4, 5),
said opening being intended to accommodate said module (2) or
modules; in that the first frame-part (4) and the second
frame-part (5) can be drawn towards one another; and in that
the rubber body (9) has a size whereby said body will be
compressed in the contraction direction as said first frame-
part (4) and said second frame-part (5) are drawn together,
such as to exert a sealing pressure force on the modules (3)
and on said first frame-part (4) and said wall (8).

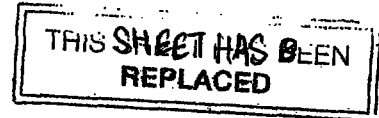
2. A sealing arrangement according to Claim 1,
characterised in that said first frame-part (4) has a
generally U-shaped cross-section; and in that the rubber body
(9) is intended to be placed in said U-shaped part and
against the wall (8) through which the cable or pipe transit
shall be made.

3. A sealing arrangement according to Claim 1 or 2,
characterised in that said first frame-part (4) and said



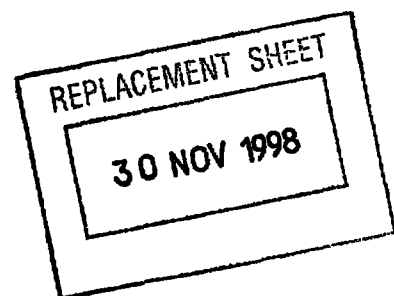
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rubber body (9) include through-penetrating holes (13-18; 27-32) for screws (19, 20); and in that said second frame-part (5) is provided with threaded screw-bushings (21-26) or threaded holes for co-action with said screws in drawing said
5 first frame-part (4) and said second frame-part (5) together.



A SEALING ARRANGEMENT RELATING TO CABLE AND PIPE TRANSITS

ABSTRACT

The present invention relates to a sealing arrangement relating to cable and pipe transits through a wall (8), and comprising a frame (1) and one or more modules (2) made of a compressible material and including an axially extending channel (3) through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are mounted and sealed relative to the frame.

The invention is characterised in that the frame includes a first part (4) and a second part (5) provided with an opening (6, 7) and intended to be fitted on both sides of a wall (8) in which an opening has been made; in that the arrangement includes between the first frame-part (4) and the second frame-part (5) a third frame-part (9) in the form of a body comprised of a compressible material, such as a rubber material or the like, and having an opening (10) which has generally the same size as the opening (6, 7) in respective frame-parts (4, 5), said opening being intended to accommodate said module (2) or modules; in that the first frame-part (4) and the second frame-part (5) can be drawn towards one another; and in that the rubber body (9) has a size whereby said body will be compressed in the contraction direction as said first frame-part (4) and said second frame-part (5) are drawn together, such as to exert a sealing pressure force on the modules (3) and on said first frame-part (4) and said wall (8).

Figure 5 for publication.

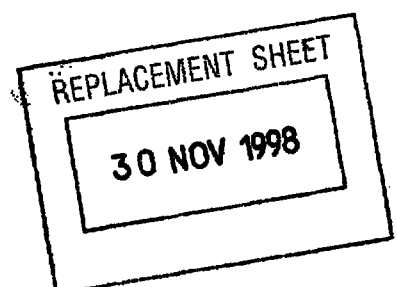


Fig. 1

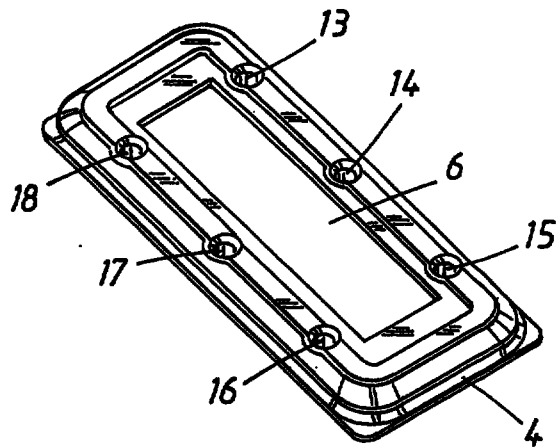


Fig. 2

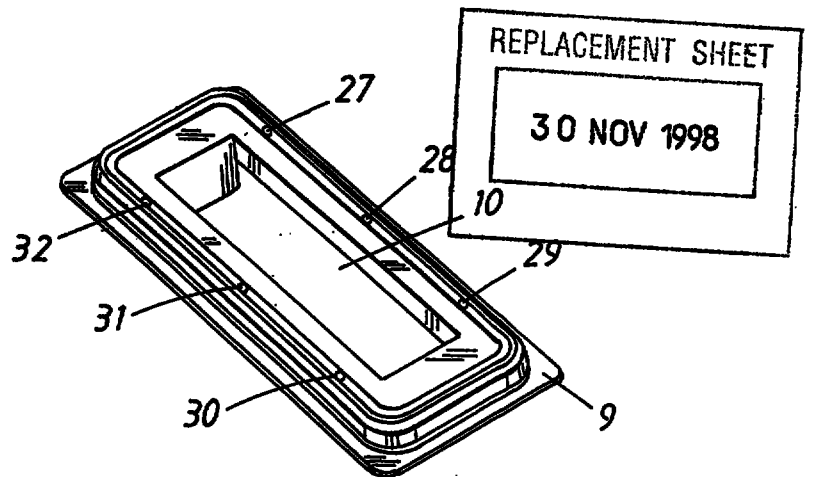


Fig. 3

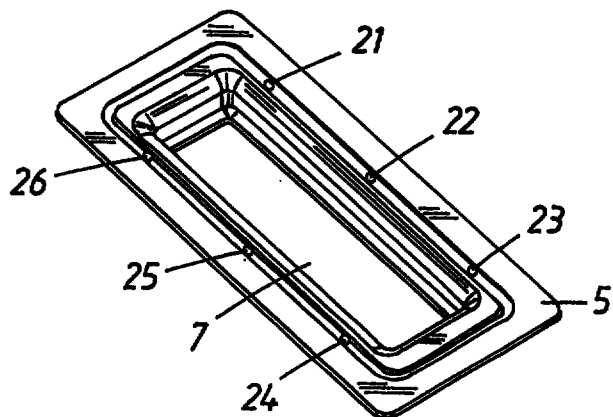


Fig. 4

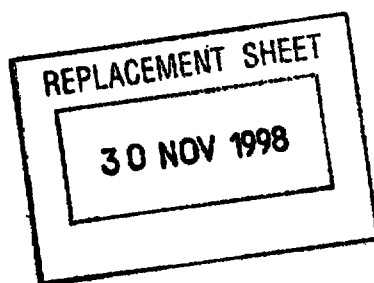
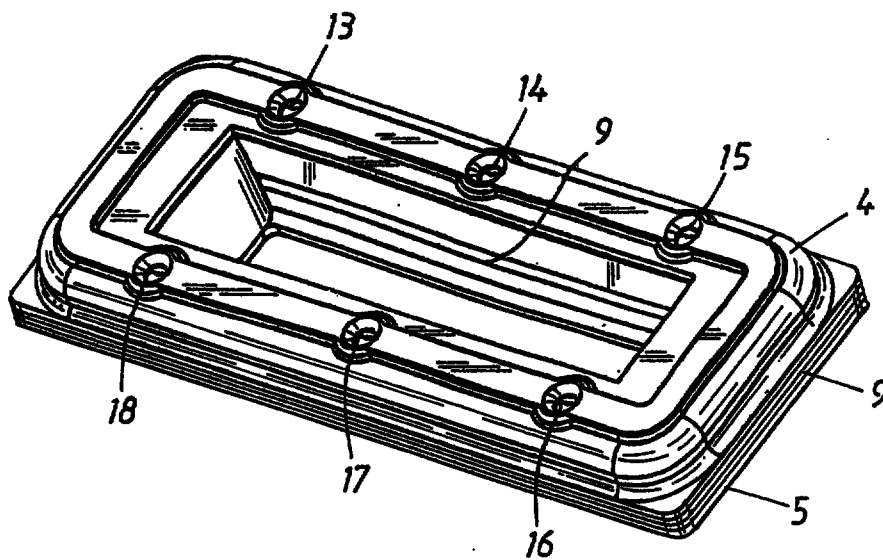
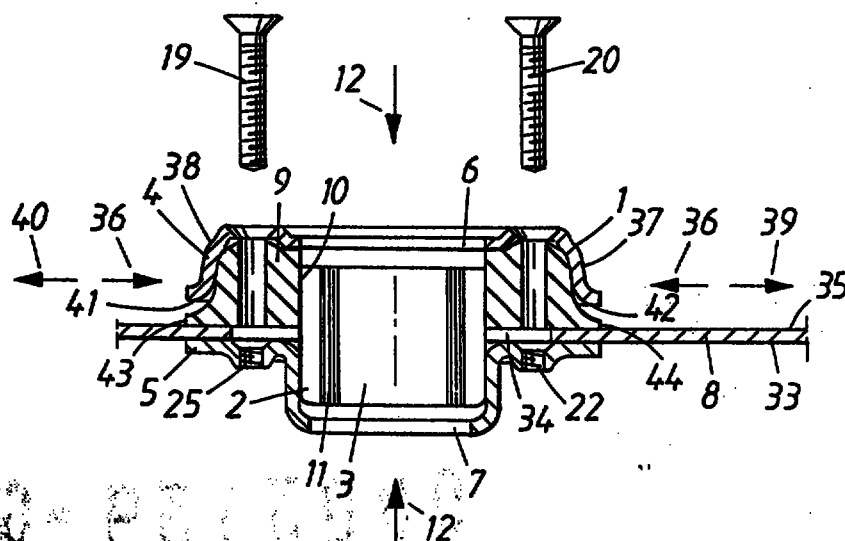
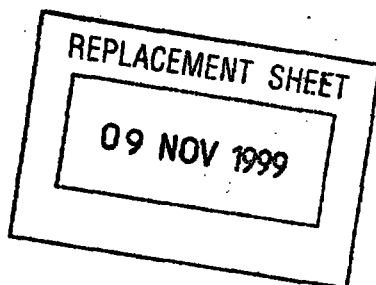


Fig. 5





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CLAIMS

REPLACEMENT SHEETS		SG
☐	Description : paged	to paged
☒	Claim(s) : paged 7	to paged 8
☐	Drawing(s) : paged	to paged
☐	Abstract : paged	to paged
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1. A sealing arrangement relating to cable and pipe transits through a wall (8), and comprising a frame (1) and one or more modules (2) made of a compressible material and including an axially extending channel (3) through which a cable or a pipe is intended to pass in sealing abutment with respective module channels, and including a frame in which one or more modules are mounted and sealed relative to the frame, where the frame includes a first part (4) and a second part (5) provided with an opening (6, 7) and intended to be fitted on both sides of a wall (8) in which an opening has been made, where the arrangement includes between the first frame-part (4) and the second frame-part (5) a third frame-part (9) in the form of a body comprised of a compressible material, such as a rubber material or the like, and having an opening (10) which has generally the same size as the opening (6, 7) in respective frame-parts (4, 5), said opening being intended to accommodate said module (2) or modules and where the first frame-part (4) and the second frame-part (5) can be drawn towards one another; characterized in that the rubber body (9) has a size whereby said body will be compressed in the contraction direction as said first frame-part (4) and said second frame-part (5) are drawn together, to exert a sealing pressure force on the modules (3) and on said first frame-part (4) and said wall (8).

2. A sealing arrangement according to Claim 1, characterized in that said first frame-part (4) has a generally U-shaped cross-section; and in that the rubber body (9) is intended to be placed in said U-shaped part and against the wall (8) through which the cable or pipe transit shall be made.

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3. A sealing arrangement according to Claim 1 or 2, characterised in that said first frame-part (4) and said rubber body (9) include through-penetrating holes (13-18; 27-
5 32) for screws (19, 20); and in that said second frame-part (5) is provided with threaded screw-bushings (21-26) or threaded holes for co-action with said screws in drawing said first frame-part (4) and said second frame-part (5) together.

REPLACEMENT SHEET

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