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(54) Kit and method and template for forming an arch.

(57) A kit for forming an arch in a partition, comprises template means (13), for use in cutting an arch shape in a piece of plasterboard (19) or the like, a flexible strip of material (14) adapted to be formed into an arch soffit, a plurality of clips (16) each designed to be attached to the arch shaped edge in the cut piece and to attach to such edge the soffit strip, and a beading strip (15) adapted to snap onto the outer corner edges of the clips when attached to said cut edge to form a corner edge of the arch. Once assembled the clips and soffit strip are covered by a layer of plaster (23). One form of template for drawing a selected one of a set of regular curved shapes of different sizes comprises a sheet (50) of material on which the curves (51) are delineated adjacent and at least partially within one another, the curves being defined by the elongate edges of a plurality of cut-out or partially cut-out elongate slots (55), associated slots along a curve being separated by uncut bridge portions (56) of relatively short length, the sheet being marked with an indication of the size of the curve defined by one or each elongate side of associated slots.

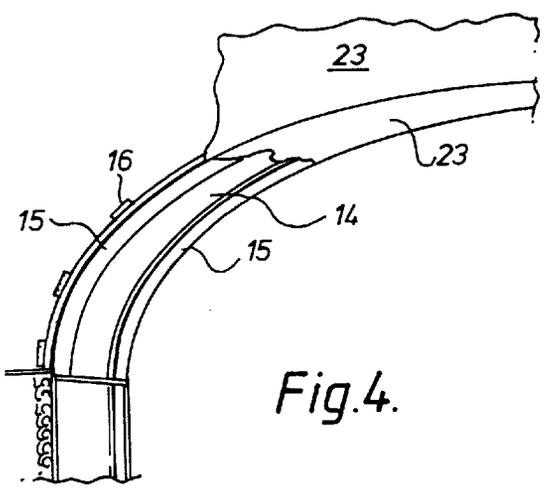

Fig.4.

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This invention relates to a kit, a method and a template for forming an arch in a partition.

It is well known to provide pre-formed angle pieces for use in forming an arch in a masonry wall. The pieces of selected size and shape are fitted to the upper corners of a rectangular opening in a masonry wall and when so fitted define the soffit of the arch over which plaster may be applied. Such pieces are not suitable for use with plasterboard partitions because they expect a thickish layer of plaster to be placed over the masonry wall to cover the pre-formed pieces.

One object of present invention is to provide a kit and method for forming, in a simple manner, an arch in an opening in a partition, the outer surface of which may be formed of plasterboard. However the method can also be used with stud partitioning or brick, concrete or other walls.

Accordingly in one aspect, the invention provides a kit for forming an arch in a partition, comprising a template, for use in cutting an arch shape in a piece of plasterboard or the like, a flexible strip of material, preferably metal or alloy, adapted to be formed into an arch soffit, a plurality of clips each designed to be attached to the arch shaped edge in the cut piece and to firmly attach to such edge the soffit strip, and preferably including a beading strip adapted to snap onto the outer corner edges of the clips to form a corner edge of the arch.

Preferably each clip has a substantially U-sectioned portion having a pair of limbs and a base adapted to receive between them the arch shaped edge of the cut piece, preferably as a spring fit, with an outer one of the limbs lying substantially flat against the outer face of the plasterboard. The inner limb preferably has an upper extension extending away from the outer limb and a lower bendable tab portion adapted to be brought adjacent the upper extension so that in use they are on opposite sides of the soffit strip to hold it in position.

The limbs and base of the clips may be provided with inwardly extended barbs and/or lugs to dig into the surface of the plasterboard and assist the retention of the clips on the plasterboard.

With advantage the outer lower corners of the clips are formed with tabs extending outwardly and downwardly at a diverging angle to one another to be received as a snap fit in a recess in the beading. The beading preferably comprises a strip with a hook shape at one end defining the recess for receiving the tabs. When the beading is attached to the clips it forms a continuous curved outer edge along a corner of the arch.

In another aspect the invention provides a method of forming an arch in an opening in a partition which may be at least partially formed of plasterboard or the like, in which an arch shape is cut in a piece of plasterboard, the piece is attached at the top of the opening in substantially the same plane as the front surface of the partition defining the opening, a plurality of clips are attached to the piece of plasterboard along the arched edge, a soffit strip of a material which will key to plaster is attached along the underside of the arch and held in place using the clips, and finishing plaster is applied over the soffit strip and clips.

Preferably an edge beading is attached along the corner of the outer arch edge or edges over the clips, preferably by a snap fit action before applying the finishing plaster.

Another aspect of the invention is to provide a novel template.

Accordingly in another aspect the invention provides a template for drawing a selected one of a set of regular curved shapes of different sizes, the template comprising a sheet of material on which the curves are delineated adjacent and at least partially within one another, the curves being defined by the elongate edges of a plurality of cut-out or partially cut-out elongate slots, associated slots along a curve being separated by uncut bridge portions of relatively short length, the sheet being marked with an indication of the size of the curve defined by one or each elongate side of associated slots. One embodiment of kit for forming a plasterboard arch will now be described, by way of example only, with reference to the accompanying drawings of which:-

Figure 1 is a perspective view of a kit with its packaging,

Figure 2 shows an initial step in the formation of an arch,

Figure 3 shows a further step in the formation of an arch,

Figure 4 shows a final stage in the formation of an arch,

Figure 5 is a section, on an enlarged scale, of a portion of arch formed using the kit,

Figure 6 is a side view of one clip,

Figure 7 is a back view of the clip of figure 6,

Figure 8 is a front view of the clip of figure 6,

Figure 9 is a plan view of the clip of figure 6,

Figure 10 is an underneath view of the clip of figure 6,

Figure 11 is a view of one template,

Figure 12 is a view of another template, and

Figure 13 illustrates one of the templates in use.

Referring first to figure 1 the kit comprises a slim package 12, one or more templates 13 having at least one, but preferably a plurality of different arch shapes and sizes marked thereon, a length of flexible but strong strip soffit material 14, preferably of metal alloy for example galvanised mild steel, adapted to key plaster thereto, a length of extruded flexible beading material 15, for example of UPVC, formed into a roll, a bag containing a plurality of clips 16 of flexible springy material for example galvanised mild steel

strip, and optionally a cutting tool 17.

The template is used to cut an arch shaped edge 18 in a piece of plasterboard 19 as seen in figure 2 or as described with reference to figures 11 to 13. Preferably two similar pieces are cut. The piece is then fixed in position at the top of an opening 20, formed in a partition frame 21 faced with plasterboard 22, so that the piece 19 is substantially flush with the plasterboard 22. A similar piece 19 is fixed on the other side of the frame 21. Positions to receive the clips 16, are marked on the plasterboard edge, as taken from the template, as indicated at 16A in figure 2.

As seen in figure 3, a plurality of the clips 16 are fixed on the arched edge 18, and are then used to attach to the underside of the arch the length of soffit strip 14, cut to the correct length if necessary.

As seen in figure 4 strips of the beading 15 are then attached as a snap fit along each corner edge of the arch over the outer corners of the clips. Finishing plaster 23 is then applied to cover the clips, beading and soffit strip.

The arrangement and shape of the clips, beading and soffit strip is shown most clearly in figure 5, with further details of a clip seen in figures 6 to 10. Each clip comprises a first, U sectioned portion having opposite limbs 25, 26 and a base 27 to locate, as a spring fit, on the arched edge 18 of the piece 19 of plasterboard. The limb 25 lies substantially flat against the outer surface of the piece 19 while the limb 26 extends inwardly from the base towards limb 25. In the manufactured condition, before use, the narrowest gap between the limbs at position 27 is less than the expected thickness of the plasterboard. The spring in the clip material will accommodate slightly different thicknesses of plasterboard. Approximately at the level of position 27, each limb is provided with an inwardly projecting barb 28 and the base is provided with an inwardly projecting lug 29; these dig into the surface of the plasterboard and help to retain the clips thereon.

The limb 26 has an outward extension 30 forming part of a second portion of the clip for holding the soffit strip. The extension 30 extends first upwardly and outwardly from the position 27, then outwardly and downwardly and then substantially horizontally outwardly. A bendable tab 31 is pushed out from the base and lower part of the limb 26 and forms the other part of the second portion of the clip. In the manufactured condition of the clip, shown in broken chain line in figure 5, the tab 31 extends downwardly from the base. In the working position the tab has been bent upwardly to extend substantially horizontally away from limb 26 and opposite the end of limb 30 so that the tab 31 and limb 30 support between them the edge of the soffit strip 14. After both pieces 19 have been attached to the frame 21 and the clips located on the pieces, the soffit strip is held in position and all the tabs 31 of the clips are bent up to support it.

The lower corners of the outer limbs 25 are formed with two tabs 33, 34 extending outwardly and downwardly at diverging angles to one another. The beading strip 15 comprises a flat strip portion 35 and a hooked end portion 36 defining a recess 37 adapted to receive as a snap fit the diverging tabs 33, 34 of the clips. The beading strip provides a rounded external surface 38 along the corner of the arch. The beading strip is preferably formed along its length with a plurality of slots to act as keys for plaster. The soffit strip 14 may be formed of mesh or other material also adapted to key plaster thereto. As seen in figure 5 the final finishing plaster 23 covers the clips and soffit strip but the layer of plaster on the outer surface of a piece 19 need be no more than 2mm thick (and can be tapered out as per the broken line "a"). The beading may be of the length shown in dark outline in figure 5 or may be extended as shown in broken line at 15A to extend inwardly of the plasterboard piece 19.

As seen in figures 6 to 10, the tab 31 may be formed with a hole 40 for use in optionally fixing it to a soffit strip. A slot 41 is formed along the top edge of each limb 26. The clips are preferably formed by bending and punching strip material.

Such a kit provides a simple system for forming an arch in a plasterboard faced partition.

Figures 11 to 13 show two preferred forms of template which will be included as part of the kit, and the way in which one of the templates is used. The template of Figure 11 is for drawing a selected one of a set of oval shaped arches of different sizes and shapes while the template of Figure 12 is for drawing a selected one of a set of part circular shaped arches.

Each of the templates comprises a sheet 50 of stiff paper or card on which a plurality of curves 51 are delineated adjacent and partially inside one another and each forming one half of an arch shape. Each curve is delineated by a series of cuts or partial cuts forming the elongate edges 52 of a set of elongate cut-out pieces 53 extending along the curve. The pieces preferably have their elongate sides 52 cut right through and their ends 54 partially cut through so that they are easily removed to leave elongate slots 55. Alternatively the sheet could be sold with the pieces already removed and containing the slots.

A set of associated pieces/slots 53/55 aligned along a curved shape have their ends separated by uncut bridging pieces 56 of comparatively short length, less than one-third of the length of the slots. For example the slots may be 9 to 21cms in length with the bridging pieces 2 to 2½cms in length. In use, the user preferably removes only those pieces (for example leaving spaces as shown shaded in figure 11) having an edge defining the shape and size of arch which he wishes to make.

The sheet includes indicia 57 indicating the size of arch defined by each edge of a set of associated slots. For example for the oval shapes the following

are included where the first figure is the width of arch and the second figure is the height of arch all in centimetres times 30:-

750/250
775/262.5
800/265
825/277.5
850/277.5
875/290
900/302.5
925/315
950/312.5
975/325
1000/337.5
1025/350
1050/350
1075/362.5

For the circular arch shapes the selectable sizes are 725, 750, 775, 800, 825, 850, 875, 900, 925, 950, 975, 1000, 1025 and 1050.

Adjacent the right-hand vertical edge is drawn a centre line 60 marked additionally by a series of small apertures 61. For the oval arch shapes, each of the lower apertures 61 also marks the lower edge of one arch shape and a horizontally aligned aperture 62 is formed adjacent the bottom left-hand edge of each arch shape and the bottom edge is marked by a line 64.

For the circular arch shapes all shapes start on a single bottom line 65 indicated additionally by apertures 66. All the slots extend slightly beyond the apertures 61, 62 and 66.

In use the shape and size of arch required is selected and the pieces removed to leave a set of slots having edges along the selected curve. The piece of plasterboard 19 to be cut has its vertical centre line marked on it. The line 60 and apertures 61 of the selected template are then placed on the centre line marked on the plasterboard with the selected bottom edge line 64 of the curve located on the bottom 67 of the plasterboard piece or a line drawn on the plasterboard piece to mark the position of the lower edge of the arch shape required. The curve is now drawn on the first half of the plasterboard using as a guide the selected edge of the selected set of associated slots. The template sheet is then turned over and placed on the other half of the plasterboard piece, again with the centre lines and selected bottom edges aligned, and the other half of the curve is drawn.

Each template preferably is formed with a central fold line 68 which does not extend through any of the slots.

The invention may extend in other aspects to the templates or clips per se.

Claims

1. A kit for forming an arch in a partition, comprising template means (13), for use in cutting an arch shape in a piece of plasterboard (19) or the like, a flexible strip of material (14) adapted to be formed into an arch soffit, and a plurality of clips (16) each designed to be attached to the arch shaped cut edge (18) in the cut piece and to attach to such edge the soffit strip.

2. A kit according to claim 1 characterised by a beading strip (15) adapted to snap onto the outer corner edges of the clips (16) when attached to said cut edge to form a corner edge (38) of the arch.

3. A kit according to claim 1 or claim 2 characterised in that each clip has a substantially U-sectioned first portion having a pair of limbs (25, 26) and a base (27) the inner limb (26) being angled inwardly towards the outer limb and the limbs being adapted to receive the edge (18) of the cut piece (19) between them as a spring fit with the outer limb (25) lying substantially flat against the outer face of the piece (19).

4. A kit according to any of claims 1 to 3 characterised in that each clip (16) has a portion (30) extending in use inwardly of the arch and arranged to extend over the top of an edge of the soffit strip (14).

5. A kit according to any of claims 1 to 4 characterised in that each clip (16) includes a bendable tab portion (31) arranged to be bent upwardly after positioning of the soffit strip (14), so as to extend under the soffit strip to support it.

6. A kit according to any of claims 1 to 5 in which the template means (13) comprises one or more templates (50) delineating a plurality of arches (51) of different shapes and/or sizes, curves (51) being delineated substantially adjacent one another and partially within one another, characterised in that each of the curves is defined by a plurality of cut-out slots (55), or partial cut-outs defining easily removably pieces (53) to form such slots, the slots being elongate with their elongate cut sides (52) extending along respective ones of the curves and associated slots along a curve being separated by uncut bridge portions (56) of relatively short length, the sheet being marked with an indication (57) of the size of the curve defined by one or each elongate side of associated slots and preferably each curve extends only over half an arch shape and the sheet is formed with first apertures (61) aligned with the centre line of the

arch shape and second apertures (66) aligned with the bottom of an arch shape.

7. A method of forming an arch in an opening in a partition (21), in which an arch shape (18) is cut in a piece of plasterboard (19) or the like, the piece is attached at the top of the opening to substantially align with a surface of the partition defining the opening, a plurality of clips (16) are attached to the piece of plasterboard or the like along the arched edge, a soffit strip (14) of material which will key to plaster is attached along the underside of the arch and held in place using the clips, and finishing plaster (23) is applied over the soffit strip and clips.

8. A method according to claim 7 characterised in that the partition is partially formed of plasterboard (22) and in which the piece (19) is attached to the top of the opening in substantially the same plane as the plasterboard (22) of the partition.

9. A method according to claim 7 or claim 8 characterised in that an arch shape (18) is cut in two pieces (19) of plasterboard which are attached at either side of the partition (21) in the opening, with the soffit strip (14) extending between them.

10. A template for drawing a selected one of a set of regular curved shapes of different sizes, the template comprising a sheet of material (50) on which the curves (51) are delineated adjacent and at least partially within one another characterised in that each curve is defined by the elongate edges (52) of a plurality of cut-out or partially cut-out elongate slots, associated slots along a curve being separated by uncut bridge portions (56) of relatively short length, the sheet being marked with an indication (57) of the size of the curve defined by one or each elongate side of associated slots.

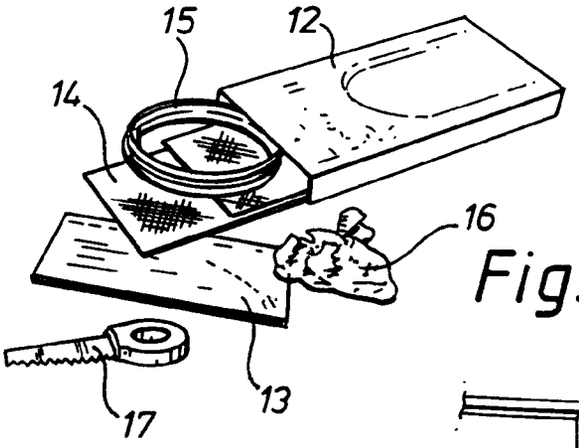

Fig.1.

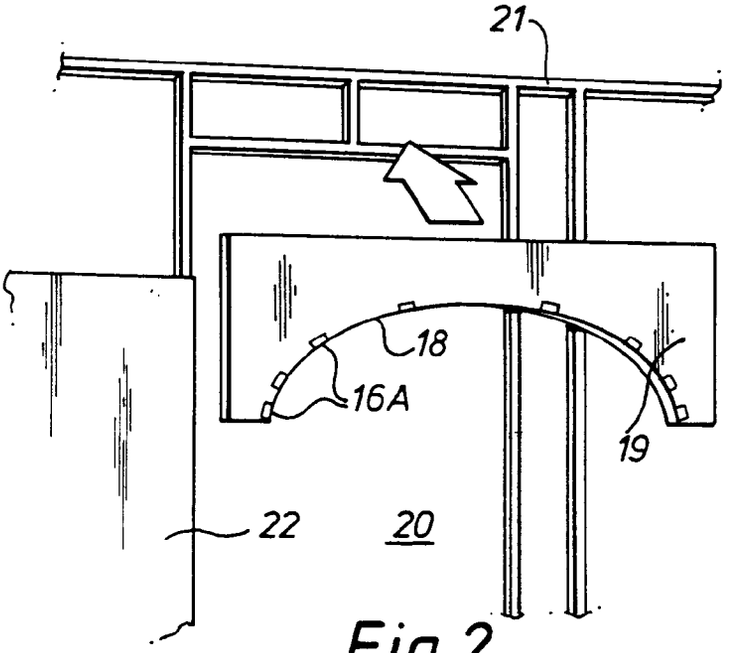

Fig.2.

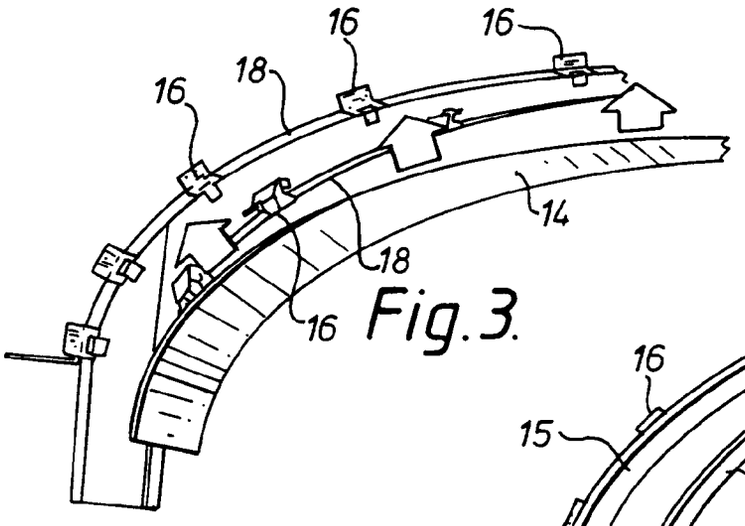

Fig.3.

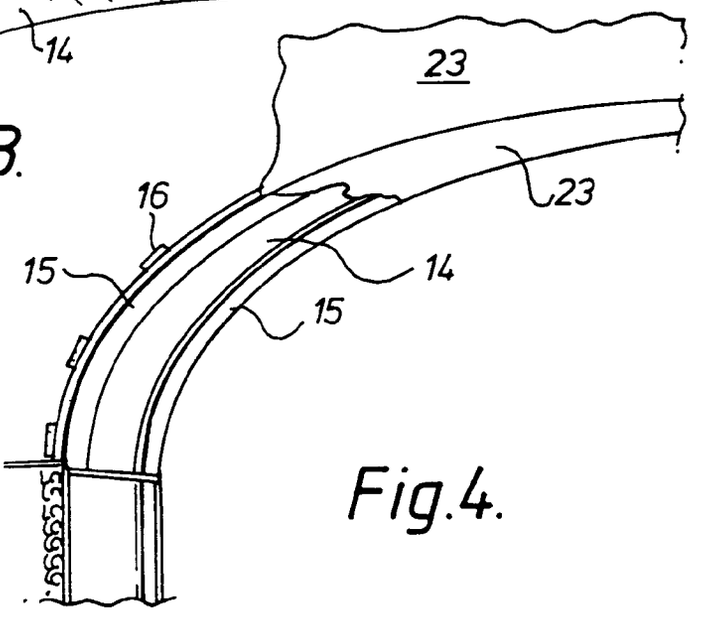

Fig.4.

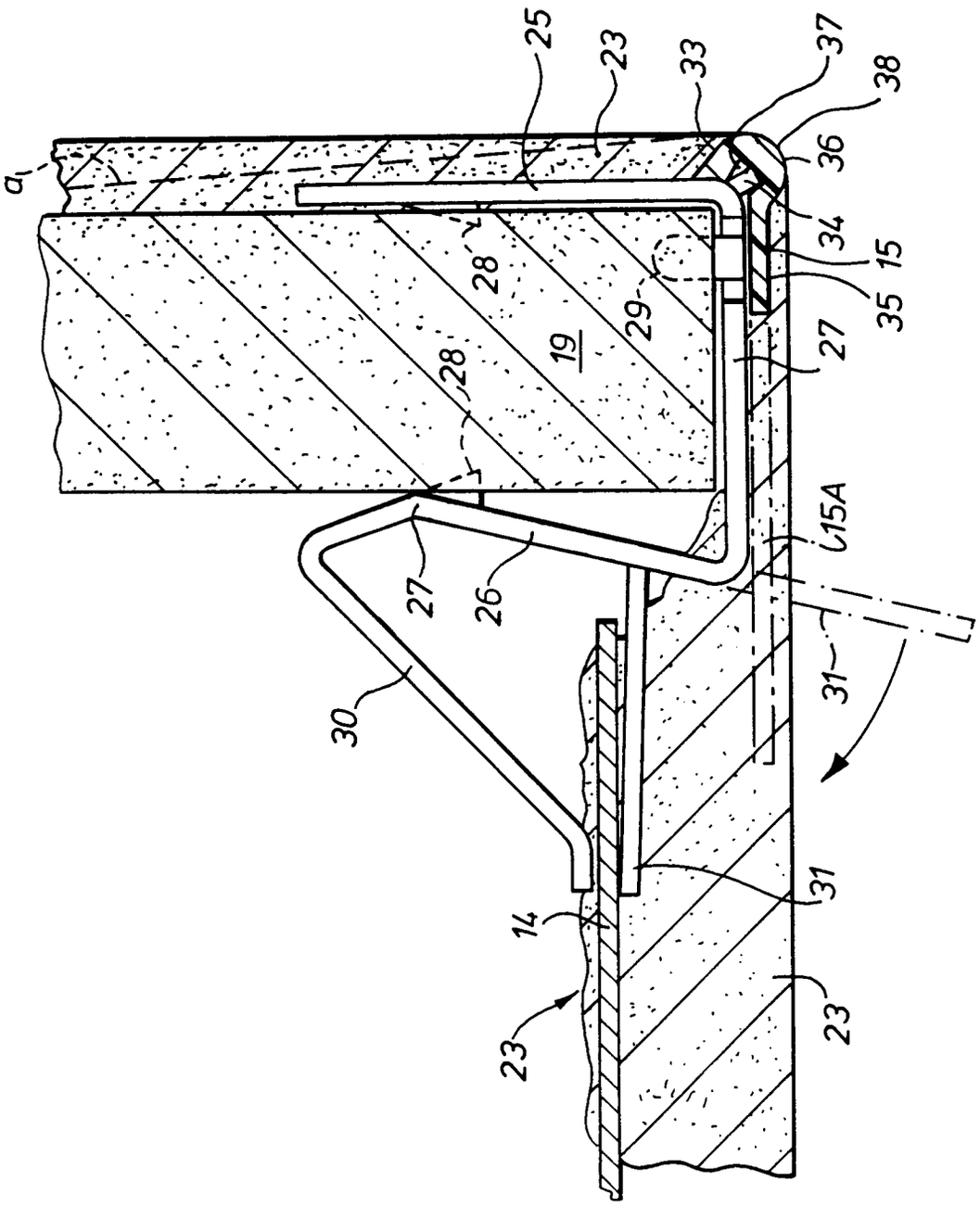

Fig.5.

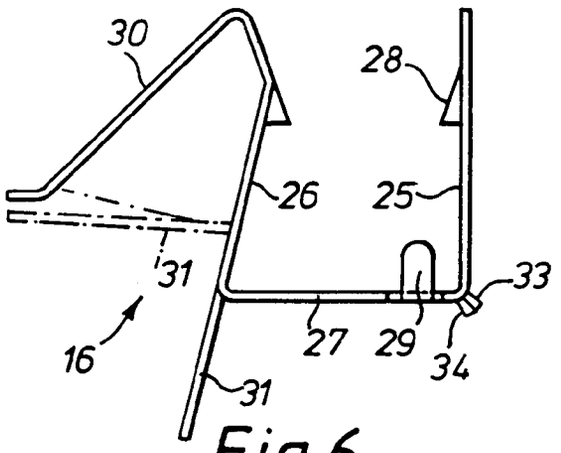

Fig.6.

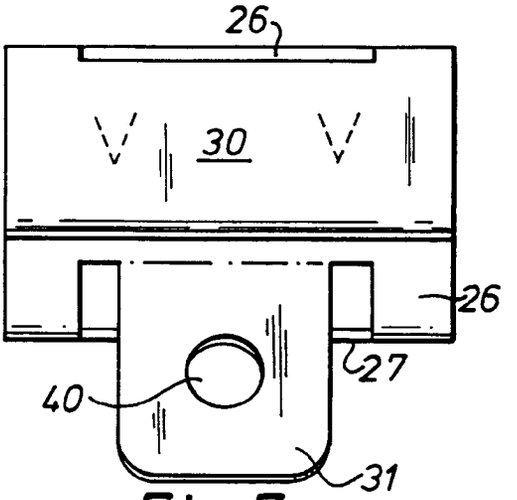

Fig.7.

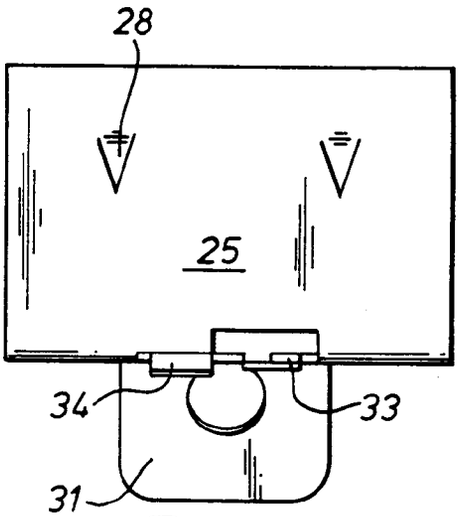

Fig.8.

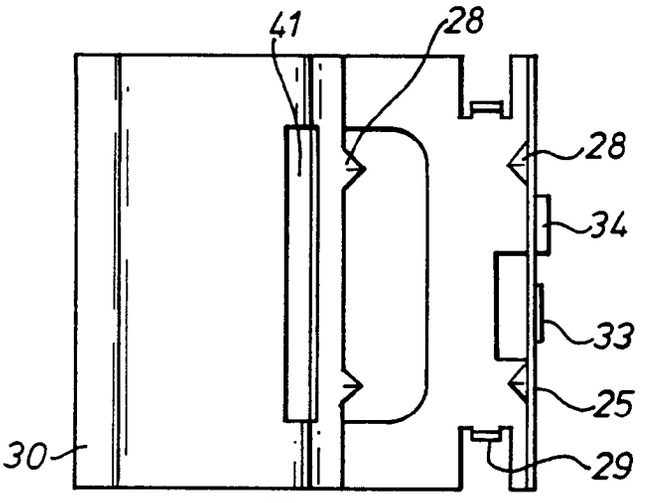

Fig.9.

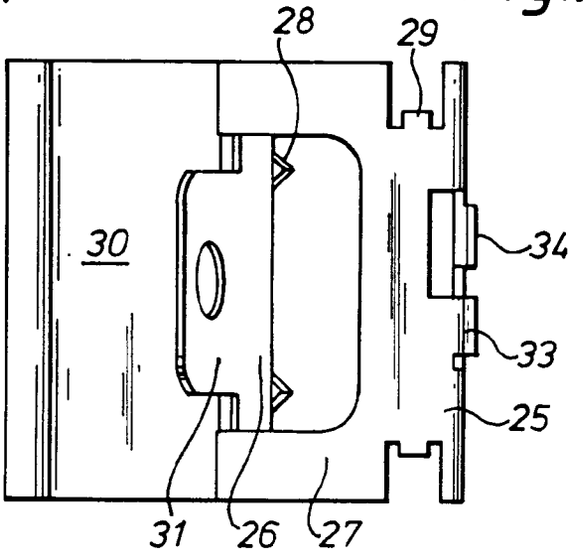

Fig.10.

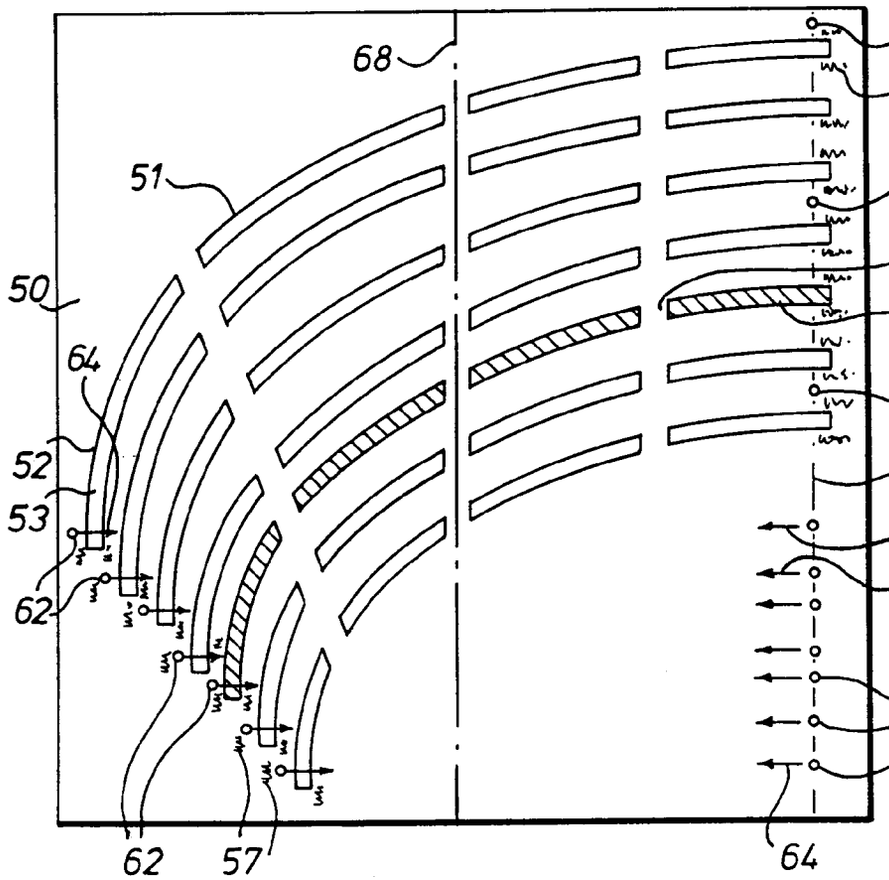
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Fig.11.

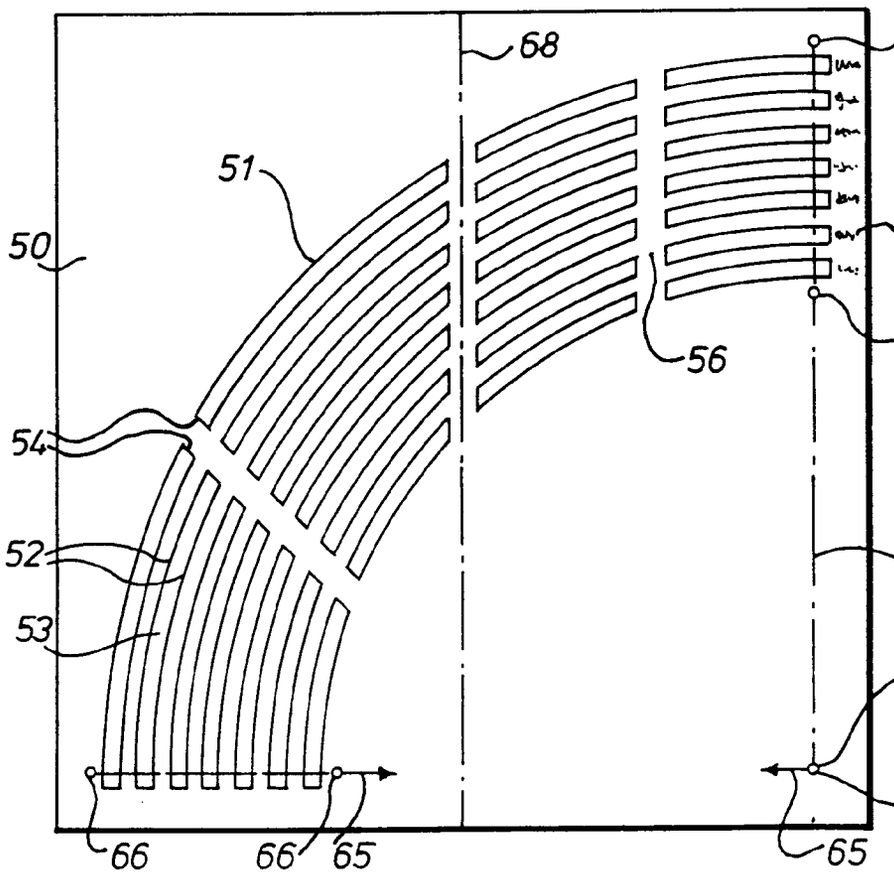
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Fig.12.

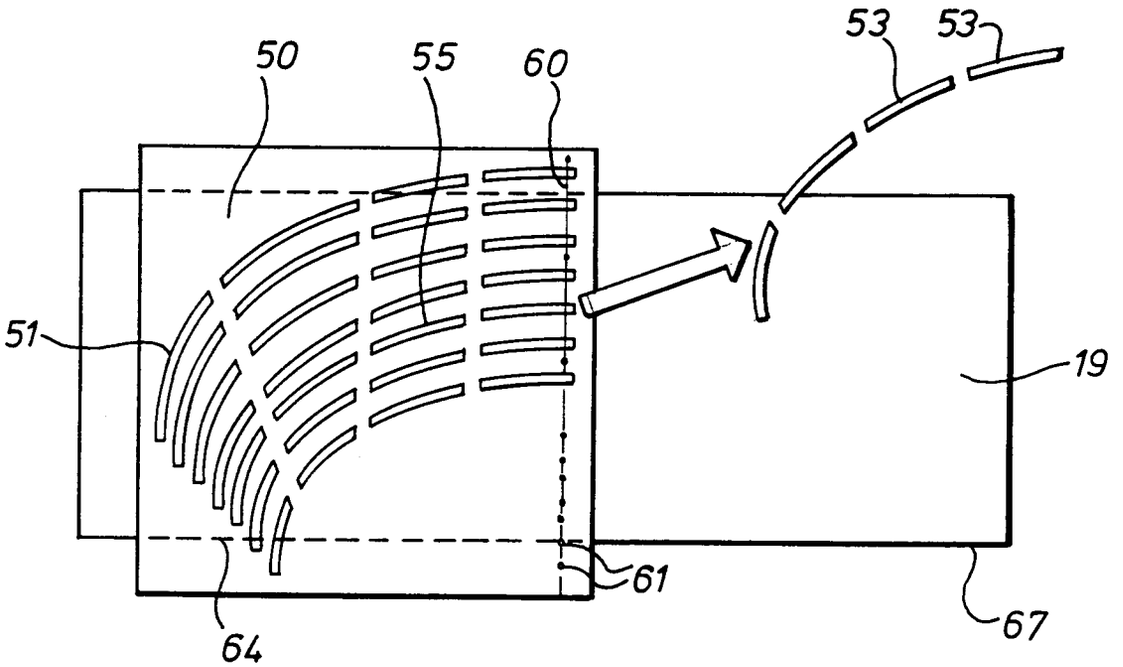

Fig.13.

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EUROPEAN SEARCH REPORT

Application Number
EP 95 30 1837

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	GB-A-2 200 392 (THE EXPENDED METAL COMPANY LTD.) * page 4, line 24 - page 6, line 25; figures 1-3 *	1,2,7-9	E04F13/06 E06B1/00
A	US-A-2 064 704 (VASS) * page 1, left column, line 37 - page 2, left column, line 41; figures 1-5 *	1,6-9	
A	US-A-4 955 168 (BARRY) * column 3, line 47 - column 5, line 3; figures 1-5 *	1,6,7,10	
A	US-A-2 258 574 (LEARY) * page 4, left column, line 1 - right column, line 72; figures 3-5 *	1-3,7	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

E04F
E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	7 July 1995	Ayiter, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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