(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 435 427 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
07.07.2004 Bulletin 2004/28

(51) Int Cl.[7]: **E06C 7/08**, E04F 11/16

(21) Application number: **03021919.0**

(22) Date of filing: **29.09.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(30) Priority: **30.12.2002 IT MO20020368**

(71) Applicant: **Lo Scalino S.R.L.**
41056 Savignano sul Panaro (Modena) (IT)

(72) Inventor: **Pastorelli, Luca**
41100 Modena (IT)

(74) Representative: **Crugnola, Pietro**
Luppi Crugnola Bergamini & Partners S.r.l.
Viale Corassori, 54
41100 Modena (IT)

(54) Accident-prevention finishing means

(57) Accident-prevention finishing means comprises friction-promoting means (209) that prevailingly extends in a longitudinal direction and it is suitable for being associated with an item (201; 202; 103) to reduce its slipperiness, supporting means (210) provided with a surface arranged to be associated with said friction-promoting means (211) and with a further surface (212) arranged to be associated with said item (201; 202; 103), said friction-promoting means (229) having a transversal dimension substantially corresponding to the transversal dimension of said supporting means (210).

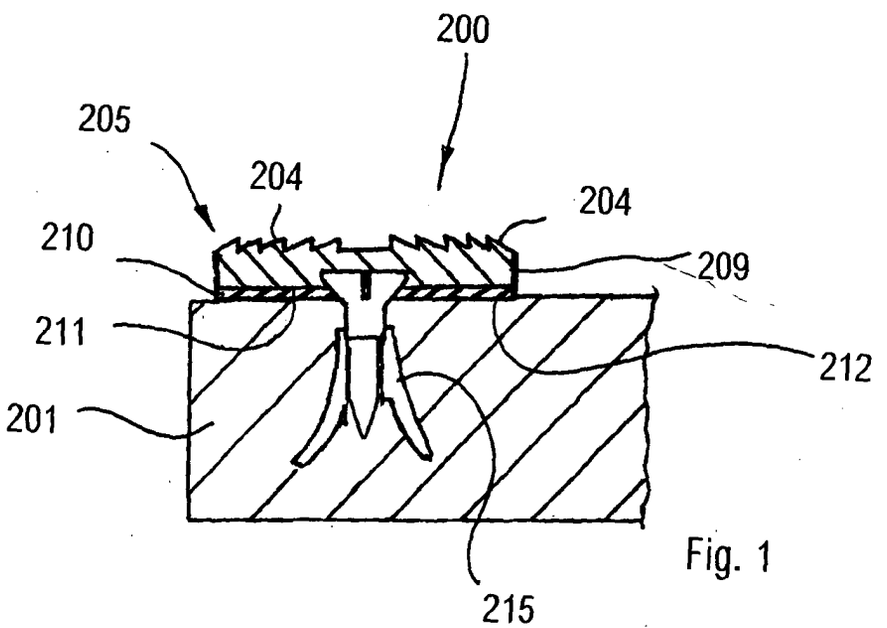


Fig. 1

EP 1 435 427 A1

Description

[0001] This invention concerns finishing means, in particular for building products, such as accident-prevention finishing elements or profiles for cladding corners, preferably steps of stairs or edges of swimming pools.

[0002] Bands of non-slip material, for example plastics material, are already known, and are arranged to be associated with the end zones of steps of stairs, or of thresholds of doors, or of building products in general.

[0003] Said bands may comprise an elongated element, suitable for being placed in contact with said steps, and variously shaped appendages, protruding from said elongated element, and acting as friction-promoting means in order to prevent a user from slipping on said steps.

[0004] The bands are fixed to the steps by means of gluing.

[0005] One drawback of the above-described bands consists of the fact that they tend to become detached from the steps over time because of the stress to which the adhesive material is subjected following prolonged walking over it.

[0006] As said bands are rather flexible, when they are fixed to the steps folds or wrinkles may form that could constitute an obstacle to a user and that therefore makes the removal of said bands and a subsequent new installation necessary.

[0007] Finishing elements for the edges of swimming pools are also known comprising grilles for draining water.

[0008] Near the edge of a swimming pool, a channel is normally created arranged to collect the water that has overflowed from the swimming pool.

[0009] The grilles associated with said channels are normally made of plastic material.

[0010] A drawback of the known grilles consists of the fact that the plastic material tends to have cracks and fissures because of the deterioration due to exposure to the sun's rays and contact with chemical additives eventually current in the water with which the afore said swimming pool is filled.

[0011] Said cracks may give rise to cutting edges as well as constitute receptacles for particles of dirt which, once they enter inside the cracks, are difficult to remove from the grilles.

[0012] From PCT/IB01/00913 angular profiled elements are known having an accident-prevention function, to be associated with steps of stairs or with edges of a swimming pool and comprising a metal anchoring lamina that is suitably fixed to said profiled elements and that projects externally therefrom in such a way as to be interposed, when said profiled elements are mounted on a given structure, between the base of said structure and a possible cover of said base.

[0013] Said profiled elements may be made in rubber that is vulcanised directly on the metal plate and have an external surface provided with a cavity arranged to house inserts arranged to attract the attention of a user.

[0014] However, in the profiled elements above disclosed, the cavities arranged to house the signalling inserts must be made at the moment of construction of each profiled element.

[0015] This involves a certain constructional complexity, and implies the need to decide beforehand whether or not signalling inserts should be present.

[0016] Furthermore, the cavities must be suitably sized for the signalling inserts that must be inserted therein.

[0017] If the requirements of a structure change during construction, because, for example, the need is felt to vary in some way the signalling systems previously provided, or to insert signalling systems that were not provided or vice versa, because there is no longer any need to have signalling systems, the choice of profiled elements that had been envisaged has to be changed.

[0018] Lastly, the profiled elements above disclosed are not suitable for being fixed to metal structures, in particular to structures with grilles, such as, for example, those used to obtain the steps of fire escape stairs.

[0019] From EP 0784132 a profiled element is furthermore known for cladding corners of steps comprising a metal anchoring lamina suitably fixed to said profiled element and externally projecting therefrom.

[0020] Owing to their particular shape, the prior-art profiled elements can house only a limited corrugated or knurled zone with a non-slip function.

[0021] Nevertheless, for certain particular uses, it may be necessary to provide non-slip surfaces with greater extension.

[0022] One object of this invention, is to improve the finishing elements of building products.

[0023] Another object is to obtain non-slip finishing means that can be firmly fixed to a building product, in any zone of said product.

[0024] A further object is to obtain grilles for draining fluids, particularly for channels for swimming pools that can be easily cleaned and are hardly subjected to wear.

[0025] Another object is to obtain profiled elements for angular structures that are characterised by great versatility.

[0026] A further object is to obtain profiled elements for angular structures enabling stable anchoring of the accident-prevention means or signalling means associated therewith.

[0027] Yet another object is to obtain accident-prevention means fixed in a stable and precise way to the structure with which it is associated.

[0028] Yet another object is to obtain profiled elements with which can be freely associated decorative or finishing elements of the structure on which said profiled elements are mounted.

[0029] Yet another further object is to obtain profiled elements for structures that are suitable for being associated with grille structures.

[0030] Yet another object is to obtain grille structures suitable for stably receiving profiled elements.

[0031] In a first aspect of the invention, accident-prevention finishing means is provided comprising friction-promoting means prevailingly extending in a longitudinal direction and suitable for being associated with an item to reduce its slipperiness, supporting means provided with a surface arranged to be associated with said friction-promoting means and with a further surface arranged to be associated with said item, characterised in that said friction-promoting means has a transversal dimension substantially corresponding to the transversal dimension of said supporting means.

[0032] In one embodiment, the supporting means is suitable for receiving fixing means arranged to fix the accident-prevention finishing means to said item.

[0033] In another embodiment, the friction-promoting means is made of plastic material that is vulcanised directly on the supporting means.

[0034] Owing to this aspect of the invention, it is possible to obtain an accident-prevention finishing means having no tendency to get detached from an item, in particular a building product, to which it is fixed.

[0035] The accident-prevention finishing means is further provided with certain rigidity and during mounting it does not have the tendency to form kinks or folds.

[0036] In a second aspect of the invention, grille means is provided suitable for being associated with drainage channels for fluids, which drainage channels comprise slab means, supporting means for supporting said slab means, slit means being provided in said slab means and in said supporting means for the passage of said fluids, and gluing means interposed between said slab means and said supporting means and arranged to fix said slab means to said supporting means.

[0037] In one embodiment, the slab means comprises ceramic slab means.

[0038] In a further embodiment, the slab means is made of, or clad with, an elastomeric material resisting to atmospheric agents and to any chemical agents current in said fluids.

[0039] The grille means comprises a first portion - comprising the slab means - that faces the outside of said drainage channels, and a further portion - comprising the supporting means - that faces the inside of said drainage channels.

[0040] In this way, owing to the presence of the supporting means, the grille means is provided with high mechanical resistance and, owing to the presence of the slab means, the grille means is hardly subjected to wear and ensures a good level of hygiene.

[0041] In a third aspect of the invention, a profiled element is provided for cladding a structure, in particular a corner zone, comprising anchoring means externally projecting from said profiled element and suitable for anchoring said profiled element to said structure, external surface means arranged to envelope said corner means, first internal surface means arranged to be coupled with a first portion of said structure, second internal surface means arranged on the opposite side of said anchoring means in relation to said first internal surface means, characterised in that said second internal surface means is arranged in an intermediate position between said first internal surface means and said external surface means.

[0042] In one embodiment, said second internal surface means cooperates with said anchoring means to delimit recess means arranged to house a finishing element of said structure.

[0043] Owing to this aspect of the invention, it is possible to insert into the recess means of the profiled element any finishing element, without any limitation due to the particular element or to the dimensions of said element, thereby conferring the desired appearance and/or function to the structure.

[0044] In a fourth aspect of the invention, an intermediate finishing product is provided comprising anchoring means arranged to anchor said intermediate finishing product to a desired structure, and characterised in that it further comprises a finishing element stably associated with an intermediate portion of said anchoring means.

[0045] Owing to these aspects of the invention, products of great versatility are obtained, which during the phase of construction of a structure can be associated with any finish of said structure without this being necessarily envisaged during the production phase of said products.

[0046] The finishing elements may be made of any material, such as for example glass, iron, wood or even mosaics.

[0047] In one embodiment, said finishing element comprises accident-prevention finishing means.

[0048] Owing to these aspects of the invention, a structure provided with a high degree of safety for a user can be obtained.

[0049] In a fifth aspect of the invention, is provided profiled accident-prevention means for structural elements, in particular for metal steps, comprising body means and fixing-promoting means arranged to fix said profiled element to said structural elements, and characterised in that said fixing-promoting means is surrounded by said body means.

[0050] In a sixth aspect of the invention, a method is provided for obtaining finishing in a corner zone of a structure comprising fixing to said structure a profiled element provided with anchoring elements that externally project from said profiled element, further fixing to said structure a cladding element of said structure, and characterised in that it further comprises interposing a finishing element of said structure between said cladding element and said profiled element.

[0051] The invention will be better understood and carried out with reference to the attached drawings, which illustrate some exemplifying and non-limiting embodiments thereof in which:

Figure 1 is a schematic cross-section of a step with which is associated accident-prevention finishing means according to the invention, by means of suitable fixing means;
Figure 2, is a cross-section like that one in Figure 1, illustrating fixing means made according to a version of the invention;
Figure 3 is a cross-section like that one in Figure 1, illustrating a ceramic product provided with a seat arranged to house accident-prevention finishing means according to the invention;
Figure 4 is a perspective view of accident-prevention finishing means according to the invention associated with a step of a rung ladder;
Figure 5 is a perspective view of accident-prevention finishing means according to the invention associated with a grille by further fixing means;
Figure 6 is a perspective view of the further fixing means in Figure 5;
Figure 7 is a perspective view of accident-prevention finishing means according to the invention associated with a grille by means of yet further fixing means;
Figure 8 is a perspective view of the yet further fixing means of Figure 7;
Figure 9 is a perspective view of accident-prevention finishing means according to the invention that can be fixed to a grille by means of protruding elements that are suitable for being housed in openings of said grille;
Figure 10 is a cross-section of the protruding elements of Figure 9;
Figure 11 is a plan view of an embodiment of accident-prevention finishing means according to the invention;
Figure 12 is a view like that one in Figure 11, illustrating a further embodiment of accident-prevention finishing means according to the invention;
Figure 13 is a partially interrupted plan view of grille means according to the invention;
Figure 14 is a cross-section taken along the plane XIV-XIV of Figure 13;
Figure 15 is an interrupted perspective view of an embodiment of grille means according to the invention;
Figure 16 is a view like that one in Figure 15 of a further embodiment of grille means according to the invention;
Figure 17 is a perspective cross-section view of a profiled element mounted on an angular zone of a structural element and of a finishing element associated with it;
Figure 18 is a cross-section view of a different embodiment of a profiled element and of a finishing element associated with it;
Figures 19 to 23 and 25 to 28 are cross-sections showing various forms of fixing systems for fixing finishing elements to an anchoring lamina;
Figure 24 is a partially cross-sectioned perspective view of a finishing element associated with an anchoring lamina in another embodiment;
Figure 29 is an enlarged and cross-sectioned detail of a non-slip finishing element;
Figure 30 is a perspective view from above of a metal step provided with a profiled accident-prevention element according to the fifth aspect of the invention;
Figure 31 is a cross-section along the line XXXI-XXXI of Figure 30;
Figure 32 is a cross-section of a metal step like that one in Figure 30, but without non-slip finishing element and in a different embodiment;
Figure 33 is a cross-section of a step like that one in Figure 30, to which accident-prevention finishing means of the type shown in Figures 1 to 12 is associated.

[0052] With reference to Figures 1 to 12 is shown an accident-prevention element 200 that can be associated with an item, for example a step 201 of masonry stairs (Figures 1 and 2), or a further step 202 of a rung ladder 203 (Figure 4), or a grille that can be associated, for example, with a channel for draining fluids (Figures 5, 7 and 9), in particular for collecting water overflowed from a swimming pool.

[0053] The accident-prevention element 200 comprises an friction-promoting band 209, made for example of elastomeric material, from which lead off appendages 204 defining a plurality of rows of parallel crests, extending longitudinally in relation to the accident-prevention element 200.

[0054] Said plurality of rows of crests comprises a first group 207 and a second group 208, the crests of the first group 207 being oriented in a direction that is substantially opposite the direction in which the crests of the second group 208 are oriented. In this way, the friction-promoting band 209 performs its non-slip function both if a user is going up the stairs comprising the step 202, and if said user is going down said stairs.

[0055] The accident-prevention element 200 further comprises an elongated supporting element 210 provided with a surface 211 arranged to be associated with the friction-promoting band 209 and a further surface 212 arranged to be associated with the step 202.

[0056] The elongated supporting element 210 has a transversal dimension substantially corresponding to the transversal dimension of the friction-promoting band 209.

[0057] The elastomeric material that constitutes the friction-promoting band 209 can be vulcanised directly on the elongated supporting element in such a way as to ensure good adhesion between the friction-promoting band 209 and the elongated supporting element 210.

[0058] The elongated supporting element 210 may be made of many different types of material, in particular it can be made of natural or synthetic plastic material, said

plastic material may be compact or expanded, reinforced or not reinforced.

[0059] The elongated supporting element 210 can be obtained by different manufacturing techniques, it can in particular be obtained by drawing, or by casting, or by pouring.

[0060] The elongated supporting element 210 can be fixed to the step 202 by a through screw 213, provided with a relative nut 214, or by an expanding stopper 215.

[0061] Alternatively, the accident-prevention element 200 can be fixed to the step 202 by means of rivets or fasteners.

[0062] As shown in Figures 5 and 7, the accident-prevention element 200 can be fixed to a grille 238, for example a metal grille made up of a plurality of folders 239 interconnected by bars 240 arranged transversally in relation to the folders 239.

[0063] The folders 239 and the bars 240 define a plurality of openings 241 suitable for allowing the passage of a fluid.

[0064] As shown in Figure 9, an accident-prevention element 200 can be fixed, for example by means of screws, glue or other known fixing systems, to protruding bodies 242 each one of which being suitable for being forced inside an opening 241.

[0065] In one embodiment not shown, the protruding bodies 242 and the elongated element 210 constitute a single semifinished product suitable for being associated with the friction-promoting band 209.

[0066] As shown in Figure 10, each protruding body 242 may have a ragged profile that prevents the protruding element 242 from disengaging from the opening 241.

[0067] As shown in Figures 7 and 8, an accident-prevention element 200 can be fixed to the grille 238 by means of a slab 243 provided with a pair of threaded holes 244 suitable for receiving respective screws 245 associated with the accident-prevention element 200.

[0068] By acting on the screws 245, the slab can be tightened against the folders 239 and/or the bars 240 in such a way as to ensure fixing of the accident-prevention element 200 to the grille 225.

[0069] Alternatively, as shown in Figures 5 and 6, further screws 246 can be associated with the accident-prevention element 200 each one of which screws 246 cooperates with a respective nut 247 from which projects an arched element 248 hook shaped, suitable for partially enveloping, in a locking configuration, a bar 240 in order to ensure fixing of the accident-prevention element 200 to be fixed of to the grille 238.

[0070] As shown in Figure 11, the friction-promoting band 209 may not have a continuous development, but may be constituted by a plurality of sections 116 that are spaced apart from one another in such a way as to enable a user to see portions 217 of the elongated supporting element 210 - arranged, during use, below the friction-promoting band 209 - interposed between two consecutive sections 216.

[0071] In this case, whereas the friction-promoting band 209 may be made of elastomeric material of a preset colour, for example black, the elongated supporting element 210 may be of a different colour, for example yellow.

[0072] In this way, the chromatic difference between the friction-promoting band 209 and the elongated supporting element 210 attracts the user's attention to the potential hazard situation generated by the slipperiness of the step 202.

[0073] As shown in Figure 12, the friction-promoting band may have interruptions arranged longitudinally rather than transversally, as in the case disclosed with reference to Figure 11.

[0074] In such case, a slot 219 - or a plurality of slots - is obtained in an intermediate portion 218 of the friction-promoting band 209, in order to enable the view of a corresponding further portion 220 of the elongated supporting element.

[0075] Also in this case, an improved accident-prevention action can be obtained by placing together an friction-promoting band 209 and an elongated supporting element 210 having different chromatic characteristics one with the other.

[0076] With reference to Figure 3, is shown a ceramic product 121 provided with a seat 222 arranged to house an accident-prevention element 200 according to the invention.

[0077] The seat 222 may be shaped in such a way that the accident-prevention element 200 is fitted therein and is kept therein through given interference with the walls defining the seat 222.

[0078] Alternatively, an adhesive material 237 interposed between the accident-prevention element 200 and the seat 222 can be provided.

[0079] With reference to the Figures 13 and 14, is shown a grill 225 suitable for being associated in the upper part of a channel 226 for draining fluids, said channel being made, for example, around the edge of a swimming pool.

[0080] The grille 225 comprises a slab in ceramic material 227 provided with openings 228 suitable for enabling the passage of said fluids.

[0081] In a version, can be provided a slab in an elastomeric material, for example rubber, inside which can be sunk slabs - or a lamina - that are made in a metallic material and are arranged to confer mechanical resistance to the slab.

[0082] In another embodiment, the slab in ceramic material 227 can be clad with said elastomeric material.

[0083] The grille 225 further comprises a laminar supporting body 229 provided with further openings 230.

[0084] The laminar supporting body 229 can be of plastic material.

[0085] Said plastic material can be natural or synthetic, compact or expanded.

[0086] Said plastic material can also be reinforced with known fillers or fibres.

[0087] The slab in ceramic material 227 and the laminar supporting body 229 are mutually interconnected to one another, by means of a layer of gluing material 231, in such a way that the openings 228 correspond to the further openings 230.

[0088] The layer of gluing material 231 also acts as compensation element for any irregularities in the thickness of the slab in ceramic material 227.

[0089] The layer of gluing material 231 further deadens the noise produced by the layers of ceramic material 227 when the latter is walked on.

[0090] The slab in ceramic material 227 enables a grille 225 to be obtained that has a top zone that is hardly subject to wear and deteriorations due to contact with atmospheric agents and/or with substances current in the fluids that pass through said grille.

[0091] The laminar supporting body 229 confers notable mechanical resistance on the grille 225.

[0092] A net can be associated underneath the grille 225, the meshes of which net have a relatively closely meshed to prevent solid-state polluting matter penetrating inside the channel 226.

[0093] With reference to Figure 15 is shown a grille 225 comprising corners 233 that are intended to be arranged substantially vertically in use and are provided with cladding 234 in rubber or in an elastomeric material in general.

[0094] The cladding 234 prevents or anyway limits damages of the corners 233, should the latter be subjected to blows.

[0095] With reference to Figure 16 is shown a grille 225 comprising a ceramic slab 227 having a plan area that is slightly less than the plan area of the laminar supporting body 229 fixed thereto.

[0096] In particular, the corners 235 that delimit the slab in ceramic material 227 are arranged in a more interior part of the grille 225 than the corresponding corners 236 that delimit the laminar supporting body 229.

[0097] In this way, during use, the further corners 236 interact with walls defining the channel 226, whereas the corners 235 are kept at a certain distance from said walls.

[0098] The result is that the corners 235 are protected from blows that could damage them and possibly break them.

[0099] Figures 17 and 18 show a profiled element 1 that is suitable for cladding a corner 2 of a structural element 2a, such as for example a stair step.

[0100] The profiled element 1 comprises a body 3 having an external surface 4 which, when the profiled element 1 is fixed to the structural element 2a, externally delimits the contour of the structural element 2a, a first internal surface 5 that is coupled when the profiled element 1 is fixed to the structural element 2a, to a first wall 6 of the structural element 2a, and a second internal surface 7 located in an intermediate position between a zone of the first internal surface 5 and the external surface 4.

[0101] The first internal surface 5 may be variously shaped, for example for constructional reasons connected with maintaining uniform thickness if the profiled element 1 is made of ceramic, in order to adapt itself to the shape of the first wall 6.

[0102] During mounting, between the first internal surface 5 and the first wall 6 a binding substance 8 is generally interposed.

[0103] The external surface 4 is formed in such a way as to have a contour that is free of roughness or edges, i.e. a rounded border.

[0104] The profiled element 1 is further provided with an anchoring lamina 9 that enables the profiled element 1 to be anchored to the structural element 2a by interposing the anchoring lamina 9 between a second wall 10 of the structural element 2a and a cladding element of the same structural element 2a, for example a ceramic tile 13.

[0105] In the embodiment shown in Figure 17, the anchoring lamina 9 has a fixing border 9b that is inserted into the body 3 of the profiled element 1 in an intermediate zone between the first internal surface 5 and the second internal surface 7, which fixing border 9b projects externally the anchoring lamina 9.

[0106] In the embodiment shown in Figure 18, on the other hand, the anchoring lamina 9 is fixed to the profiled element 1 in such a way that one of its fixing ends 9a adheres to a portion of the first internal surface 5 of the profiled element 1.

[0107] The fixing end 9a may be variously shaped in such a way as to correspond to the profile of the portion of the first internal surface 5 to which it is made to adhere.

[0108] The anchoring lamina 9 identifies with the second internal surface 7 of the profiled element 1, a recess 11 that is shaped in such a way as to house in its interior a desired finishing element 12 of the structural element 2a.

[0109] The finishing element 12, which is inserted into the recess 11 of the profiled element 1, is interposed between the profiled element 1 and one of the tiles 13 cladding the second wall 10 nearest the corner 2, and which is arranged in such a way that one lateral surface 12b thereof is coupled with the second internal surface 7 and its bottom surface 12c is fixed to the anchoring lamina 9.

[0110] The finishing elements 12 may have the most widely various shapes and be made of any material, in order that they have the desired technical, functional or aesthetic properties.

[0111] Thus, the finishing elements 12 that define a walking surface 12a opposite the bottom surface 12c, may be listels, or decorative elements, or mosaic tesseras made of ceramic material, or glass, or reinforced concrete and glass, or iron, or wood. The finishing elements 12 may have an accident-prevention function and therefore be made with a non-slip resin or with externally fluorescent or phosphorescent materials or

anyway luminous material with a signalling function.

[0112] In the version shown in Figure 18, the finishing element 12 has its own bottom surface 12c fixed to a further anchoring lamina 14 that has a protruding portion 14a, by means of which the finishing element 12 can be fixed, through the holes 14b with which it is provided, to the anchoring lamina 9 or directly to the structural element 2a.

[0113] The finishing element 12 and the further anchoring lamina 14 constitute a preassembled assembly.

[0114] The assembly constituted by the finishing element 12 associated with the relative anchoring lamina 9 also defines a preassembled product.

[0115] The production of preassembled elements makes the finishing system according to the invention particularly versatile, because it enables the range of possible combinations between finishing elements 12 and profiled elements 1 to be increased without having to increase the storage by a corresponding amount.

[0116] In the version of Figure 19, the finishing element 12 is made of rubber or resin and it is vulcanised on the anchoring lamina 9 or on the further anchoring lamina 14, at its own bottom surface 12c.

[0117] In the version in Figure 20, the lamina 9 has its own appendage 18 that is inserted into the body of the finishing element 12 and comprises a substantially inclined portion 18a projecting above the anchoring lamina 9, and a parallel portion 18b that runs substantially parallel to the anchoring lamina 9.

[0118] In the version in Figure 21, on the anchoring lamina 9 is obtained a pair of diverging elements 19 projecting externally from the surface of the lamina 9 towards the finishing element 12 in which they are completely incorporated.

[0119] In the version in Figure 22, on the anchoring lamina 9 is obtained an orifice 15 in such a way that the finishing element 12 - if it is formed by casting - can extend from opposite parts in relation to the lamina 9 passing through the orifice 15 when it is in sliding form.

[0120] Consequently, the finishing element 12 has a portion 12d that is in the part opposite the anchoring lamina 9 in relation to the surface 12a.

[0121] In the Figure 23 is shown the fixing of the finishing element 12 to the anchoring lamina 9 by means of a lag screw 20a housed in a hole 20 of the anchoring lamina 9. In order to improve the grip of the lag screw 20a, the finishing element 12 is provided with a base lamina 17 provided with a threaded hole 21.

[0122] In the embodiment in Figure 24, is provided an intermediate lamina 17a fixed to the body of the profiled element 1 and provided by a hole 22 through which an adjusting screw 24 is engaged, the adjusting screw having an accessible end 23b passing through an opening of the anchoring lamina 9. The opposite end 23a of the adjusting screw 24 is inserted in a groove 23c of the finishing element 12.

[0123] In this way, during mounting, it is possible to act on the accessible end 23b in order to adjust the height of the finishing element 12 in the recess 11.

[0124] In the embodiment in Figure 25, the base lamina 17 has a peripheral portion 25 and a further peripheral portion 26 both projecting externally from the outline of the bottom surface 12b of the finishing element 12 and which can be sealed when the finishing element 12 is mounted on the anchoring lamina 9. In one embodiment that is not shown, the finishing element 12 may extend beyond the base lamina 17 in such a way that the final length of the finishing element 12 can be chosen during mounting.

[0125] In the embodiment shown in Figure 26, the peripheral portion 25 and the further peripheral portion 26 are provided with adjusting screws 28 in such a way as to be able to adapt the height of the walking surface 12a to the particular dimensions of the recess 11.

[0126] With refernce to Figure 27, in the base lamina 17, further passage holes 29, are obtained that are positioned in such a way as to correspond to other holes 30 of the finishing element 12 for accommodating adjusting and fixing screws 31.

[0127] In this way, it is possible to adjust the position of the finishing element 12 even after it has been fixed in a given position, by acting on the heads 31a of the accessible screws 31 by removing the covers 32.

[0128] In the embodiment shown in Figure 28, are associated with the base slab 17 foldable fixing elements 35, which are positioned in openings of the fixing lamina 9 and clinched against it.

[0129] In Figure 29 is shown how the walking surface can be provided with a first series of fringes 36 inclined in one direction and/or a second series of fringes 37 inclined in an opposite direction, both fringes having a non-slip function.

[0130] With reference to Figures 30 and 31, it is shown a profiled element 101 for borders 102 of a structural element, in particular of a step 103 with a metal grille, for example for industrial environments or for outdoors, such as for the installation of a steps of fire escape stairs.

[0131] The step 103 comprises a plurality of first bar means 120 and of second bar means 121 arranged in such a way as to identify a multiplicity of intersecting zones and to create a grille structure 123.

[0132] The profiled element 101 is made of rubber or of another similar material and comprises a body 105 provided with a rear surface 106 that couples, when the profiled accident-prevention element 101 is mounted on the step 103, with a front bar 107 of the plurality of first bar means 120 of the step 103.

[0133] During fixing, the profiled element 101 is positioned in such a way that one of external surface 108 thereof, which has a substantially rounded profile, constitutes the most external contour of the step 103.

[0134] The profiled element 101 is fixed in a seat defined between the front bar 103 and a base bar 109 mounted substantially orthogonally in relation to the front bar 107.

[0135] The seat for receiving the profiled element 101 is longitudinally delimited by the front ends 110 of lateral bars 111 of the plurality of second bar means 121.

[0136] The profiled accident-prevention element 101 can be vulcanised directly on the step 103, in such a way that its rear surface 106 adheres perfectly to the front bar 107, one of its bottom surfaces 112 adheres to the base bar 109, and lastly the side surfaces adhere to the front ends 110.

[0137] Alternatively, the profiled element 101 can be mechanically fixed by means of screws 115 engaged in nuts 114 incorporated in the body of the profiled element 101.

[0138] To facilitate mechanical seal, a metal lamina 116 can be incorporated into the body 105.

[0139] On a top surface 118 of the profiled element 101 are obtained knurling 119 having a non-slip function.

[0140] With reference to Figure 32, it is shown a different embodiment of the step 103 comprising a sheet-metal body 125 in which the seat for the profiled element 101 is defined by an end having an 'L'-shaped cross-section.

[0141] On a top surface 126 of the body 125 suitable slits 127 are obtained to prevent snow or rain collecting on the top surface 126 of the step 103.

[0142] With reference to Figure 33, it is shown a step 103 at a corner 223 of the step 103 being obtained a surface 224 suitable for being associated with an accident-prevention element 200 of the type disclosed in Figures 1 to 12.

[0143] The accident-prevention element 200 can be fixed to the surface 224 with known fixing means, for example screws.

[0144] The components and/or the devices illustrated in any one of the illustrated Figures can also be considered separately or in combination with components and/or devices shown in the remaining Figures.

Claims

1. Accident-prevention finishing means, comprising friction-promoting means (209) that prevailingly extends in a longitudinal direction and that is suitable for being associated with an item (201; 202; 103) to reduce its slipperiness, supporting means (210) provided with a surface arranged to be associated with said friction-promoting means (211) and with a further surface (212) arranged to be associated with said item (201; 202; 103), **characterised in that** said friction-promoting means (229) has a transversal dimension substantially corresponding to the transversal dimension of said supporting means (210).

2. Finishing means according to claim 1, wherein said friction-promoting means (209) has a substantially laminar shape.

3. Accident-prevention finishing means according to claim 1, or 2, wherein said friction-promoting means (209) is made of plastic material vulcanised on said supporting means (210).

4. Accident-prevention finishing means according to any one of the preceding claims, wherein said supporting means (210) is made of plastic material.

5. Accident-prevention finishing means according to claim 4, wherein said plastic material is chosen from a group comprising natural plastics material, or synthetic plastics material, that are compact or expanded, reinforced with fibres or fillers, or not reinforced.

6. Finishing means according to any one of the preceding claims, wherein said supporting means (210) has substantially the same plan area as said friction-promoting means (209).

7. Accident-prevention finishing means according to any one of claims 1 to 6, wherein said friction-promoting means comprises sections (216) of an friction-promoting band (209) fixed to said supporting means (210) in such a way as to enable portions (217; 220) of said supporting means (210) to be viewed.

8. Accident-prevention finishing means according to any one of the preceding claims, wherein said friction-promoting means (209) and said supporting means (210) have different chromatic characteristics.

9. Accident-prevention finishing means according to any one of the preceding claims, and further comprising fixing means (213, 214; 215; 237; 242, 243, 245; 246, 247, 248) arranged to fix said friction-promoting means (229) and said supporting means (230) to said item.

10. Accident-prevention finishing means according to claim 9, wherein said fixing means is chosen from a group comprising screw means (213; 245; 246), expanding stopper means (225), rivet means, fastener means, glue means (237).

11. Finishing means according to any one of the preceding claims, wherein said item comprises a step (201; 202; 103).

12. Finishing means according to any one of the preceding claims, wherein said item comprises protruding body means (242) suitable for being forced inside a recess (241) obtained in a product.

13. Finishing means according to claim 12, wherein said protruding-body means (242) and said supporting means (210) form a single component.

14. Finishing means according to claim 12, or 13, wherein said product comprises a grille provided with elongated elements that are mutually spaced apart from one another and define said recess (241).

15. Ceramic product, comprising accident-prevention finishing means (200) according to any one of the preceding claims that is housed in seat means (222) obtained in a visible surface of said ceramic product.

16. Ceramic product according to claim 15, wherein said seat means (222) houses said accident-prevention finishing means (200) in a positive coupling, in such a way that said accident-prevention finishing means (220) is kept inside said seat means (222) through interference.

17. Grille means suitable for being associated with drainage channels (226) of fluids comprising slab means (227), supporting means (229) arranged to support said slab means (227), in said slab means (227) and in said supporting means (229) being provided slit means (228; 230) for the passage of said fluids, and glue means (231) interposed between said slab means (227) and said supporting means (229) and arranged to fix said slab means (227) to said supporting means (229).

18. Grille means according to claim 17, wherein said slab means comprises ceramic slab means (27).

19. Grille means according to claim 17, or 18, wherein said slab means comprises plastic material.

20. Slab means according to claim 19, wherein said plastic material comprises rubber.

21. Grille means according to any one of claims 17 to 20, wherein said supporting means (229) is made of plastic material.

22. Grille means according to claim 21, wherein said plastic material is chosen from a group comprising natural plastics material, or synthetic plastics material, that is compacted or expanded, reinforced with fibres or fillers, or not reinforced.

23. Grille means according to any one of claims 17 to 22, wherein net-filtering means arranged to prevent solid polluting materials from penetrating inside said drainage channels (226) is associated with said slit means (228; 230).

24. Grille means according to any one of claims 17 to 23, wherein said slab means (227) and said supporting means (229) have substantially aligned corners (233) in correspondance of which is obtained a cladding (234) arranged to protect said corners (233) from damages.

25. Grille means according to claim 24, wherein said cladding is rubber.

26. Grille means according to any one of claims 17 to 23, wherein said slab means (227) has a plan area less than the plan area of said supporting means (229).

27. Grille means according to claim 26, wherein corners (235) of said slab means (227) are arranged nearer a central zone of said grille means (225) than the corresponding corners (236) of said supporting means (229).

28. Finishing means, comprising anchoring means (9) that externally projects from a profiled element (1) to anchor it to a structure (2), external surface means (4) arranged to envelop a corner zone of said structure (2), first internal surface means (5) arranged to be coupled with a first portion (6) of said structure, second internal surface means (7) arranged on the opposite side of said anchoring means (9, 14) in relation to said first internal surface means (5), **characterised by** the fact that said second internal surface means (7) is arranged in an intermediate position between said first internal surface means (5) and said external surface means (4).

29. Finishing means according to claim 28, and further comprising recess means (11) defined between said second internal surface means (7) and said anchoring means (9, 14).

30. Finishing means according to claim 29, wherein said recess means houses a finishing element (12).

31. Finishing means, comprising anchoring means (9, 14) to a desired structure (2), **characterised in that** it further comprises a finishing element (12) that is stably associated with an intermediate portion of said anchoring means (9, 14).

32. Finishing means according to claim 31, wherein said finishing element (12) is housed in recess means (11) of a profiled element (1).

33. Finishing means according to any one of claims 28 to 30, or according to claim 32, wherein said anchoring means comprises lamina means (9) associated with a body (3) of said profiled element (1).

34. Finishing means according to claim 33 as appended to claim 30, or 32, wherein said finishing element (12) is stably associated with said lamina means (9).

35. Finishing means according to any one of claims 28 to 34, wherein said anchoring means (9, 14) comprises further lamina means (14).

36. Finishing means according to claim 35 as appended to any one of claims 30 to 32, or to claim 33 as appended to claim 30, or 32, or to claim 33, wherein said finishing element (12) is stably associated with said further lamina means (14).

37. Finishing means according to any one of claims 28 to 30, or according to any one of claims 33 to 36 when appended to any one of claims 28 to 30, wherein said finishing element (12) is interposed between said second internal surface means (7) and an intended cladding element (13) of surfaces.

38. Finishing means according to any one of claims 29, or 30, or 32, or any one of claims 33 to 37 when appended to claim 29, or 30, or 32, and further comprising height adjusting means (24, 28) of said finishing means in said recess means (11).

39. Finishing means according to claim 38, wherein said height adjusting means comprises screw adjusting means (24, 28).

40. Finishing means according to any one of claims 30 to 32, or according to any one of claims 33 to 39 when appended to any one of claims 30 to 32, wherein said finishing element (12) is coupled with said anchoring means by connecting means (18, 19, 20, 15, 35).

41. Finishing means according to claim 40, wherein said connecting means is selected from a group comprising: interpenetrating means (18, 19), fixing-screw means (20a), opening means (15), riveting means (35).

42. Finishing means according to any one of claims 30 to 32, or according to any one of claims 33 to 41 when appended to any one of claims 30 to 32, wherein said finishing element (12) is associated with base lamina means (17).

43. Finishing means according to claim 42 when appended to claim 38, or 39, or to any of claims 40 to 42 when appended to claim 38, or 39, wherein said base lamina means interacts with said height adjustment means (24, 28).

44. Finishing means according to any one of claims 30 to 32, or to any of claims 33 to 43 when appended to any one of claims 30 to 32, wherein said finishing element (12) has a walking surface comprising at least a series of gills (36, 37) oriented in one direction.

45. Finishing means for structural elements, in particular for metal steps, comprising body means (105) of a profiled element (101) and fixing-promoting means (114, 115) arranged to fix said profiled element (101) to said structural elements, and **characterised in that** said fixing-promoting means (114, 115) is surrounded by said body means (105).

46. Step with metal structure (103, 125) comprising finishing means according to claim 18 and a seat (109, 107) having a 'L' shape to house said profiled element (101).

47. Method for obtaining a finish in a corner zone (2) of a structure comprising fixing to said structure a profiled element (1) provided with anchoring elements (9, 14) externally projecting from said profiled element (1), further fixing a cladding element (13) to said structure, and **characterised in that** it further comprises interposing between said cladding element (13) and said profiled element (1) a finishing element (12) of said structure.

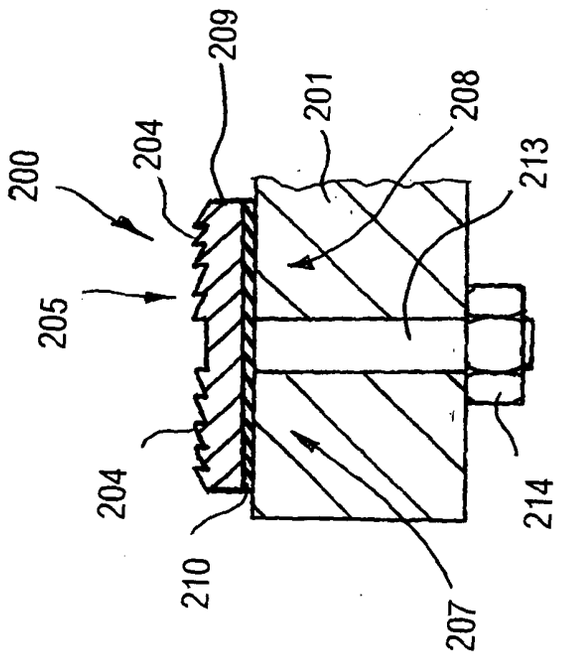


Fig. 2

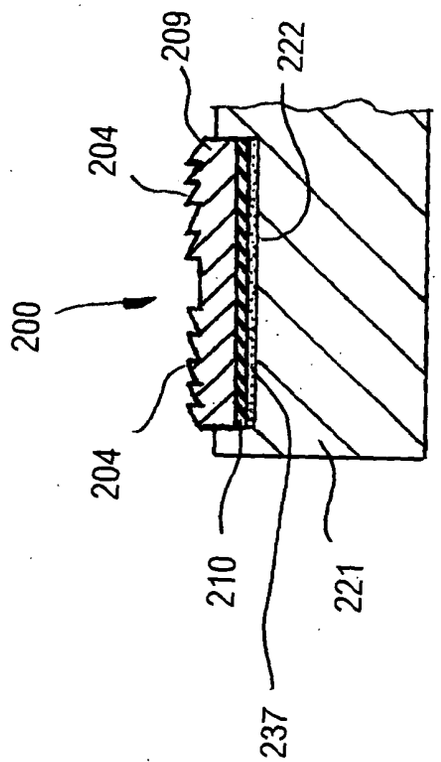


Fig. 3

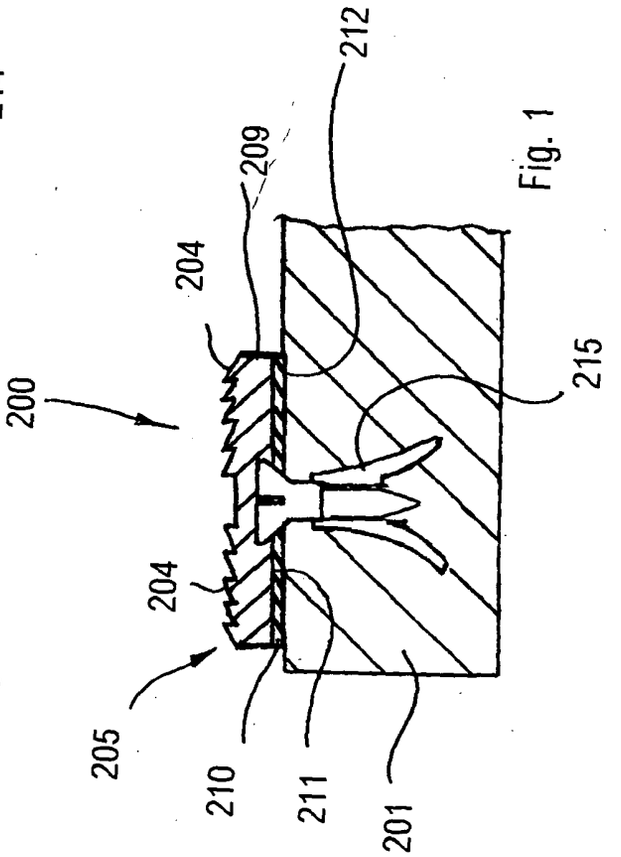


Fig. 1

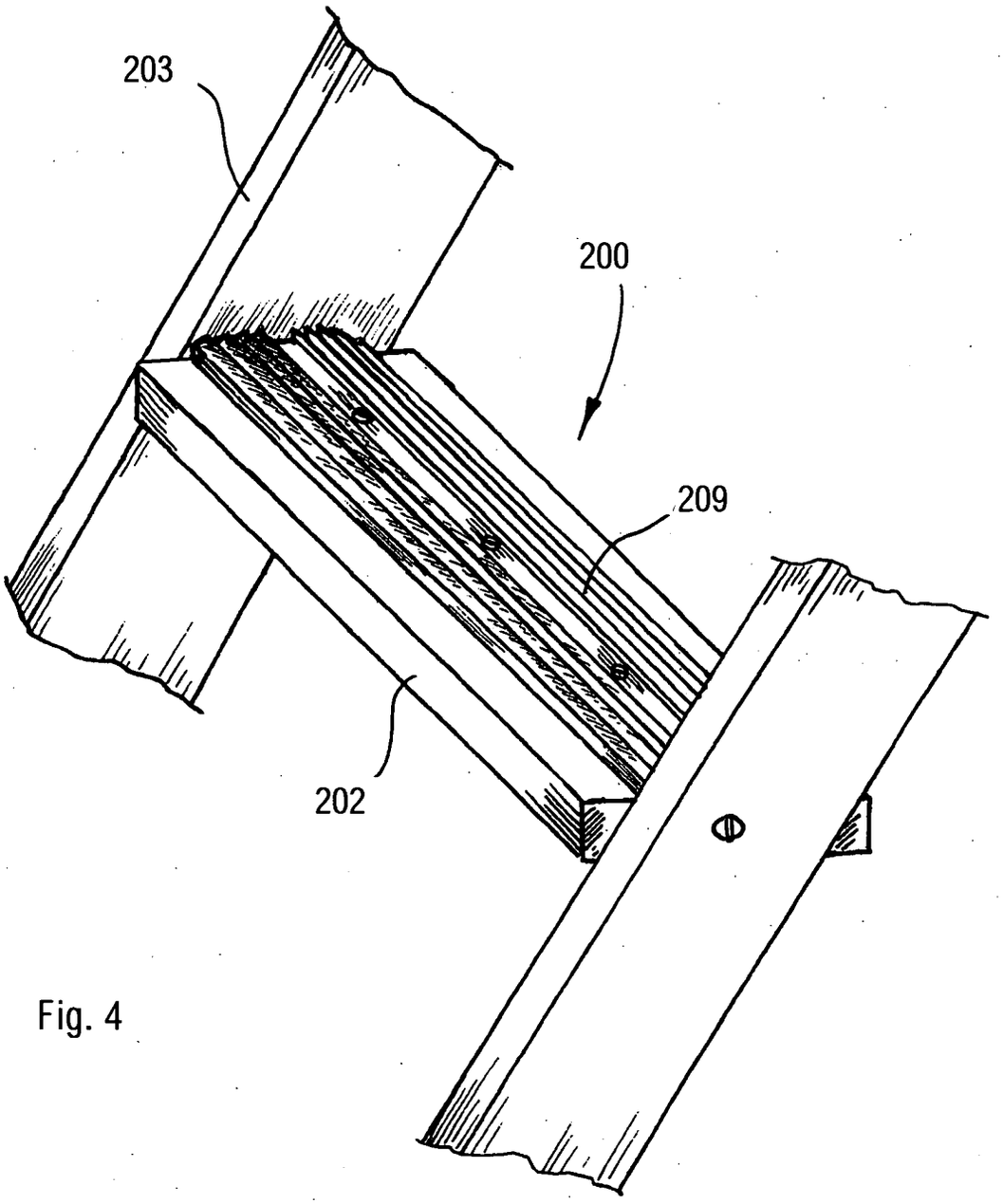


Fig. 4

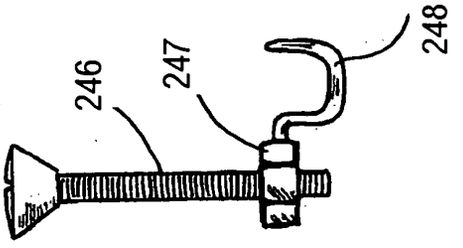


Fig. 6

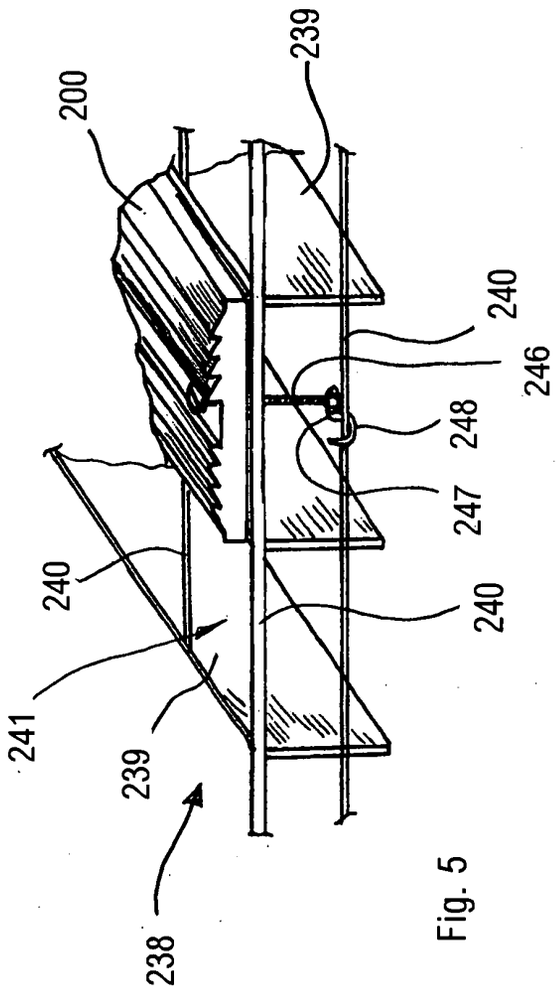


Fig. 5

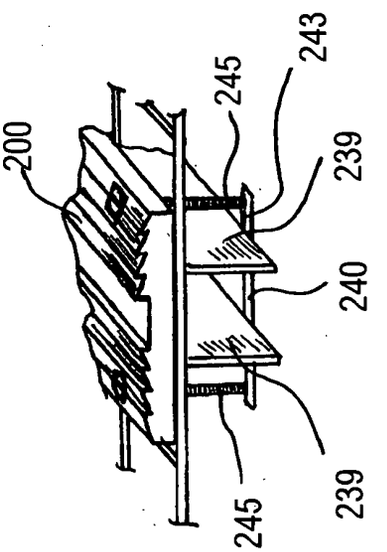


Fig. 7

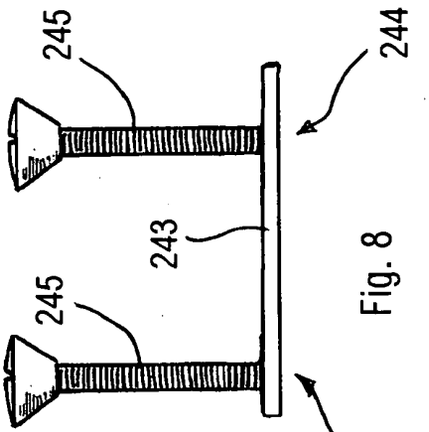


Fig. 8

Fig. 10

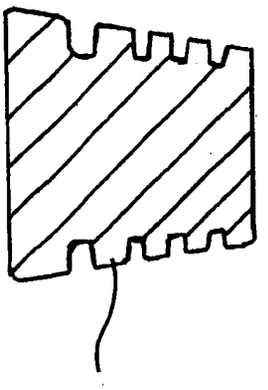
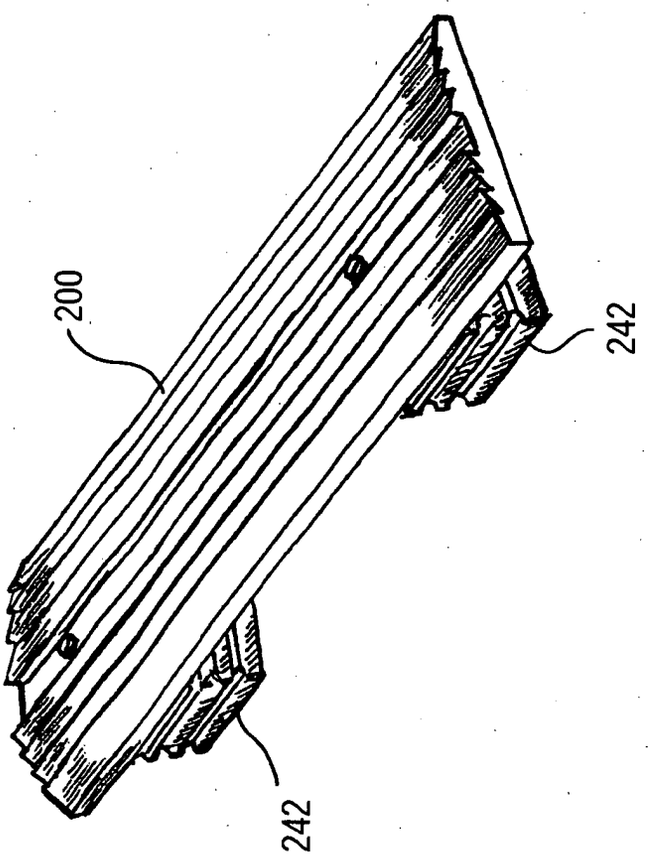


Fig. 9



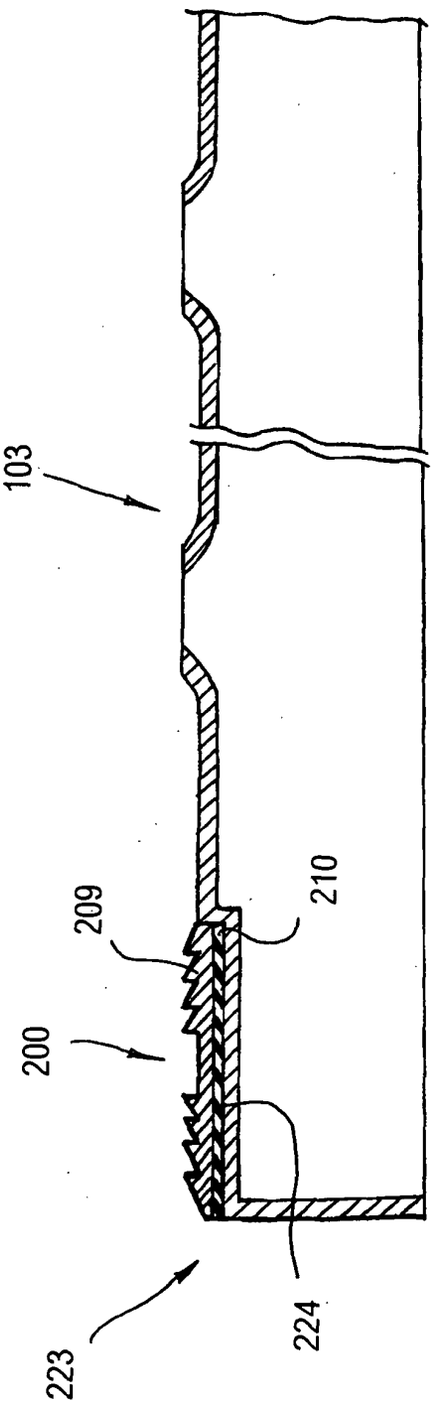


Fig. 33

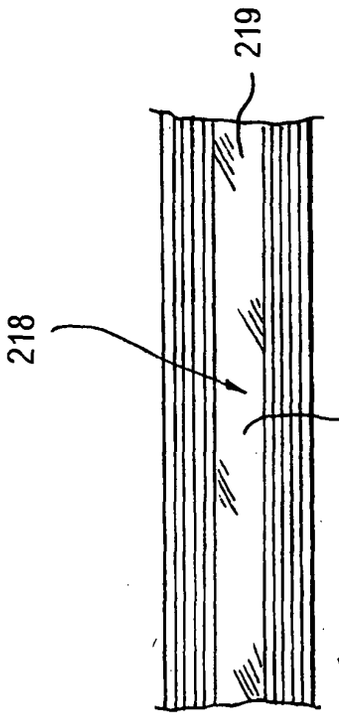


Fig. 12

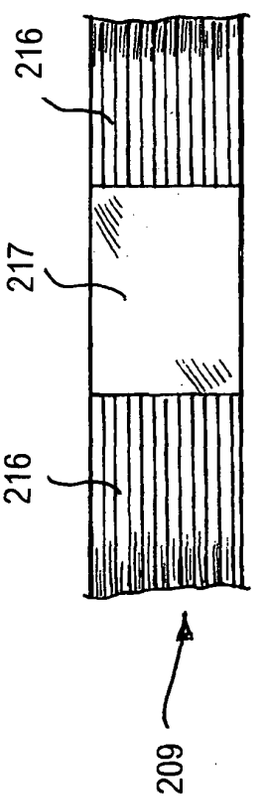


Fig. 11

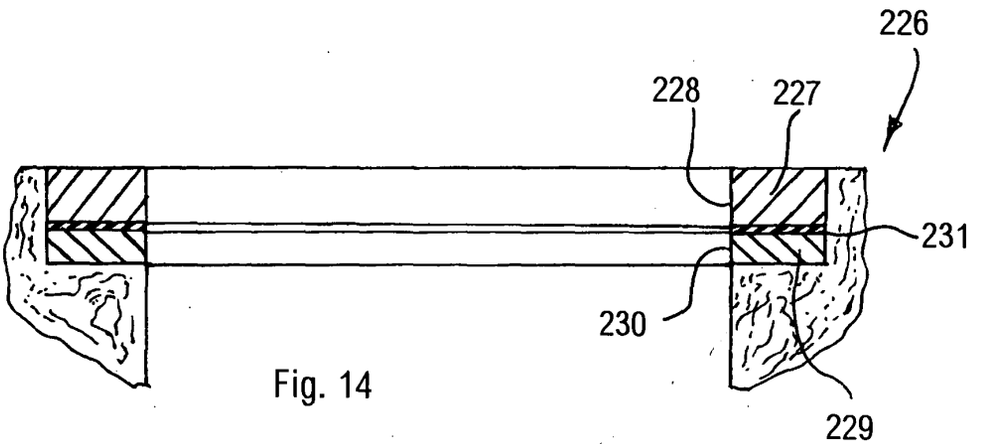


Fig. 14

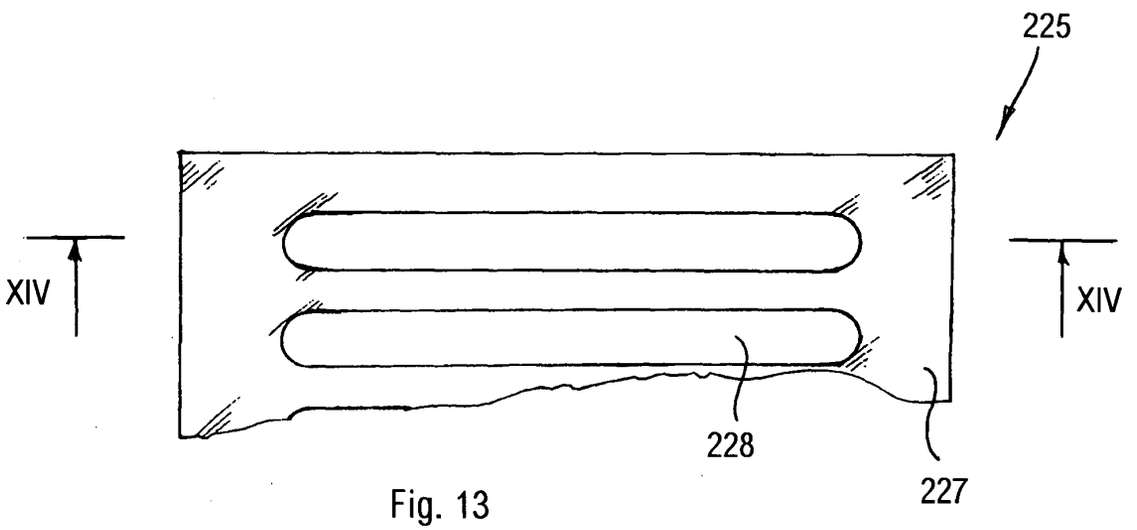


Fig. 13

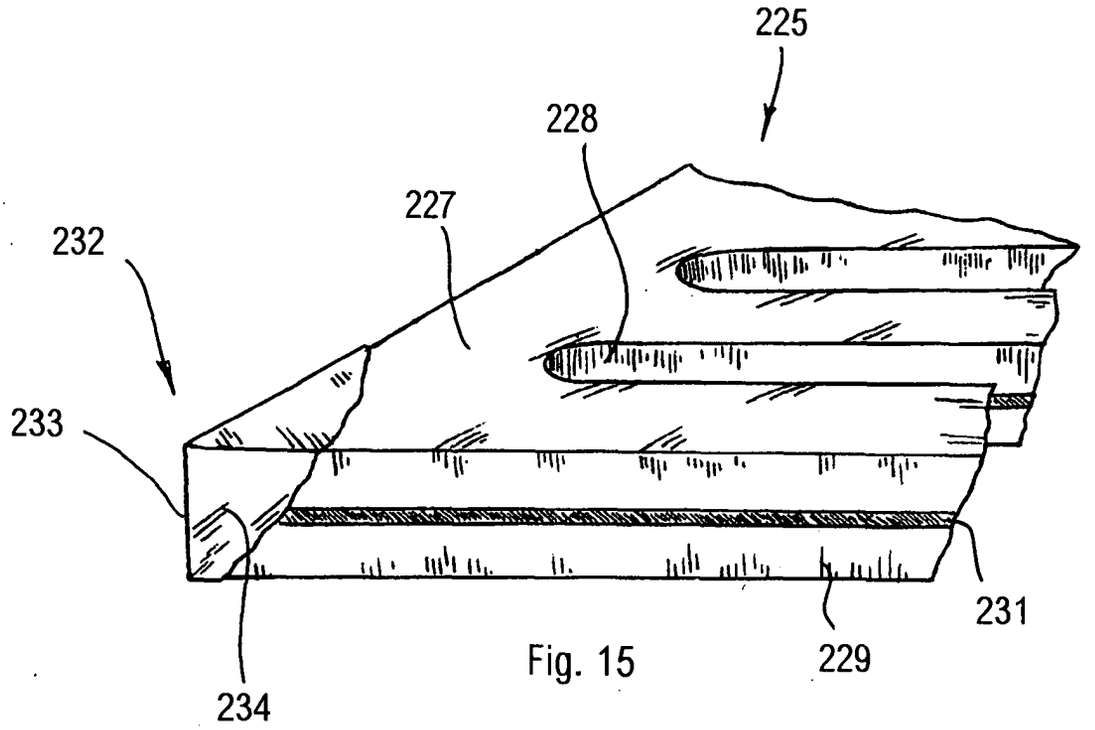


Fig. 15

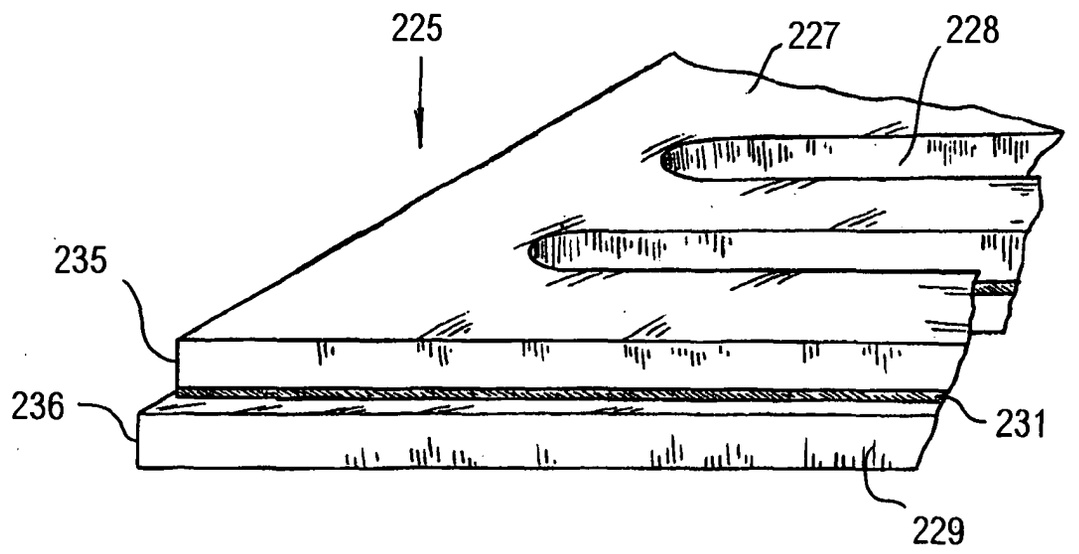


Fig. 16

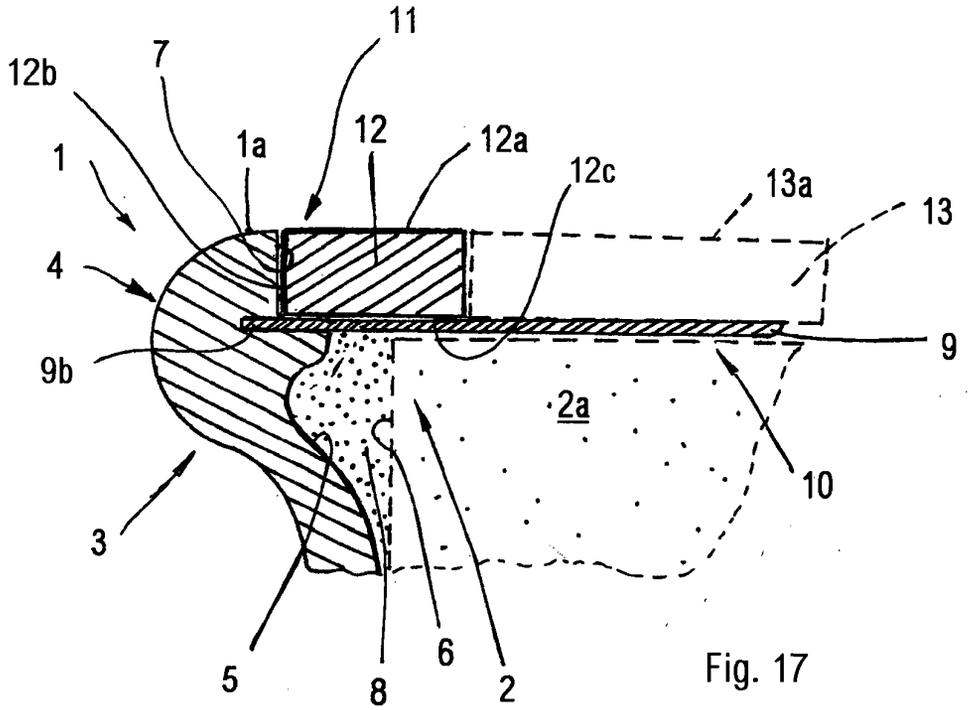

11
12b
7
1a
12
12a
12c
13a
13
1
4
9
9b
2a
10
3
5
8
6
2

Fig. 17

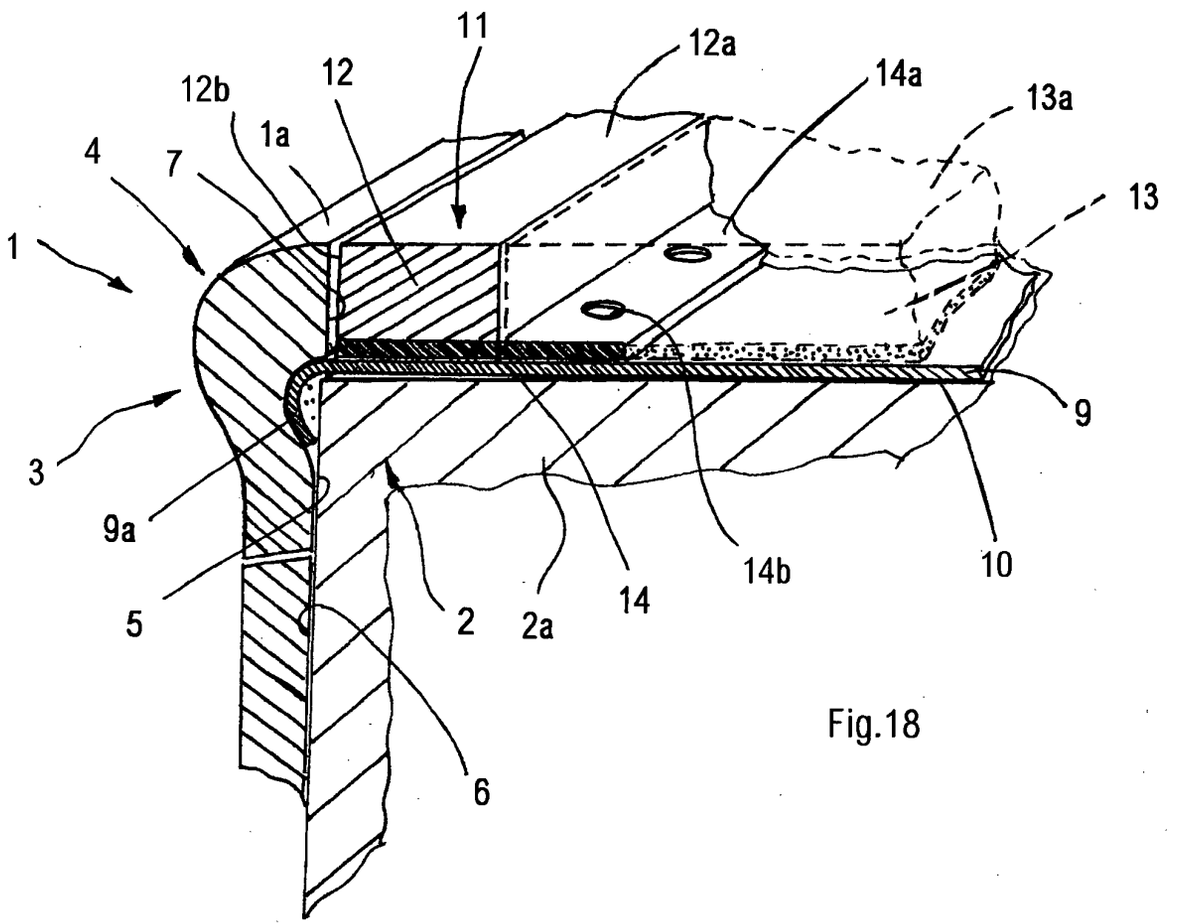

11
12a
14a
12b
12
13a
1a
4
7
13
1
9
3
9a
14b
10
5
2
2a
14
6

Fig.18

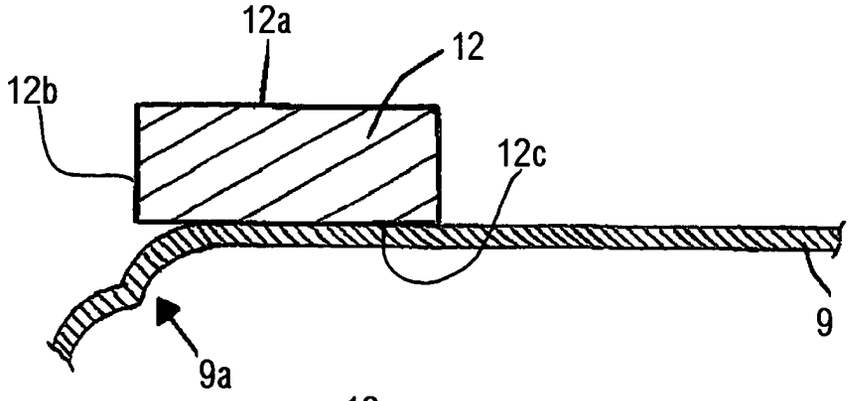


Fig. 19

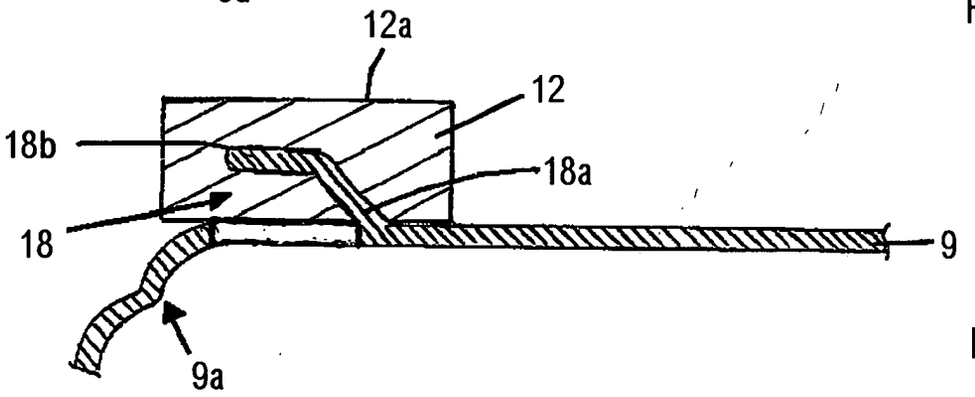


Fig 20

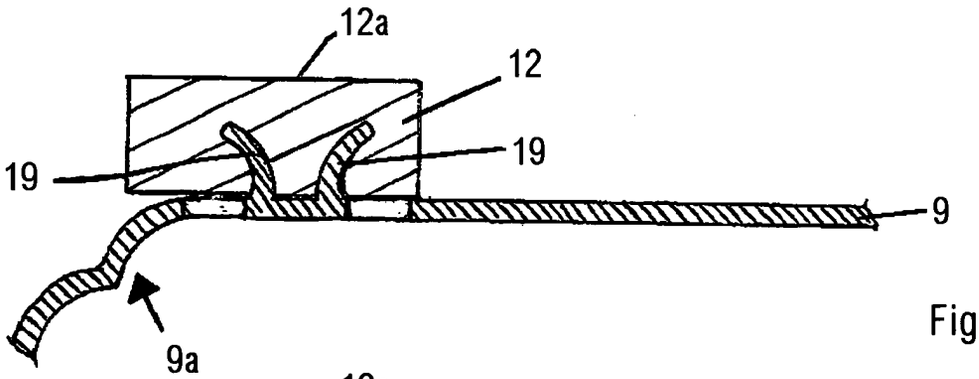


Fig. 21

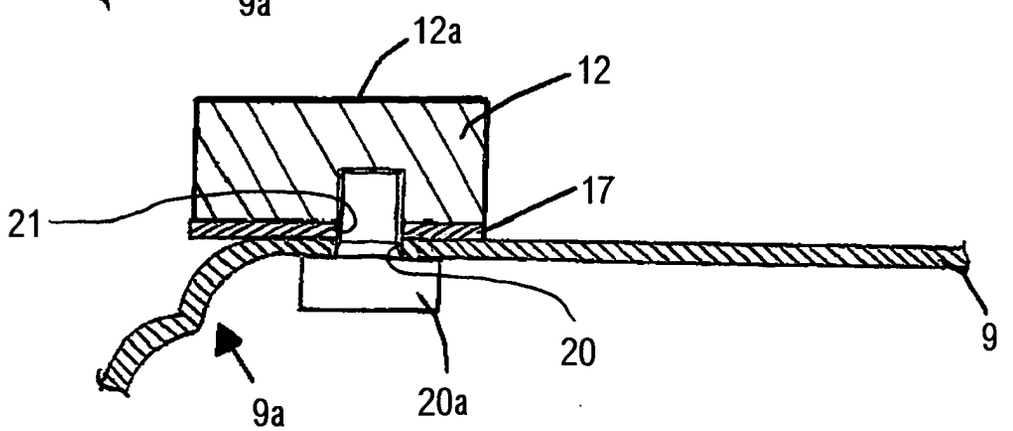


Fig. 23

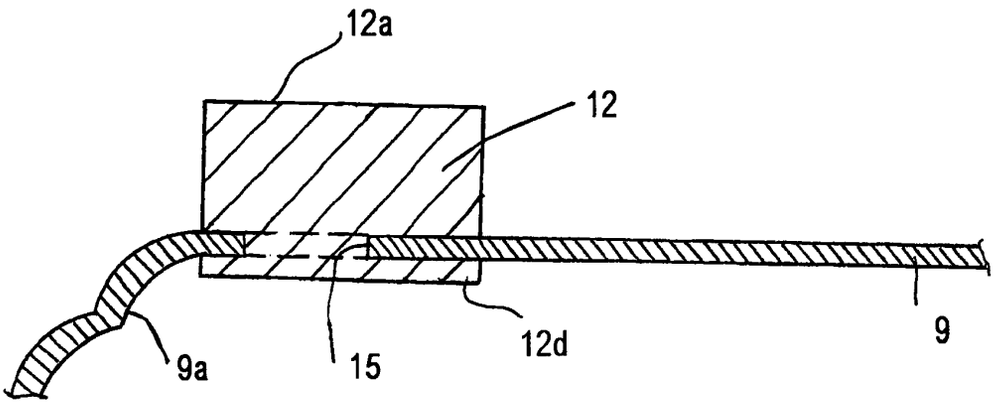


Fig. 22

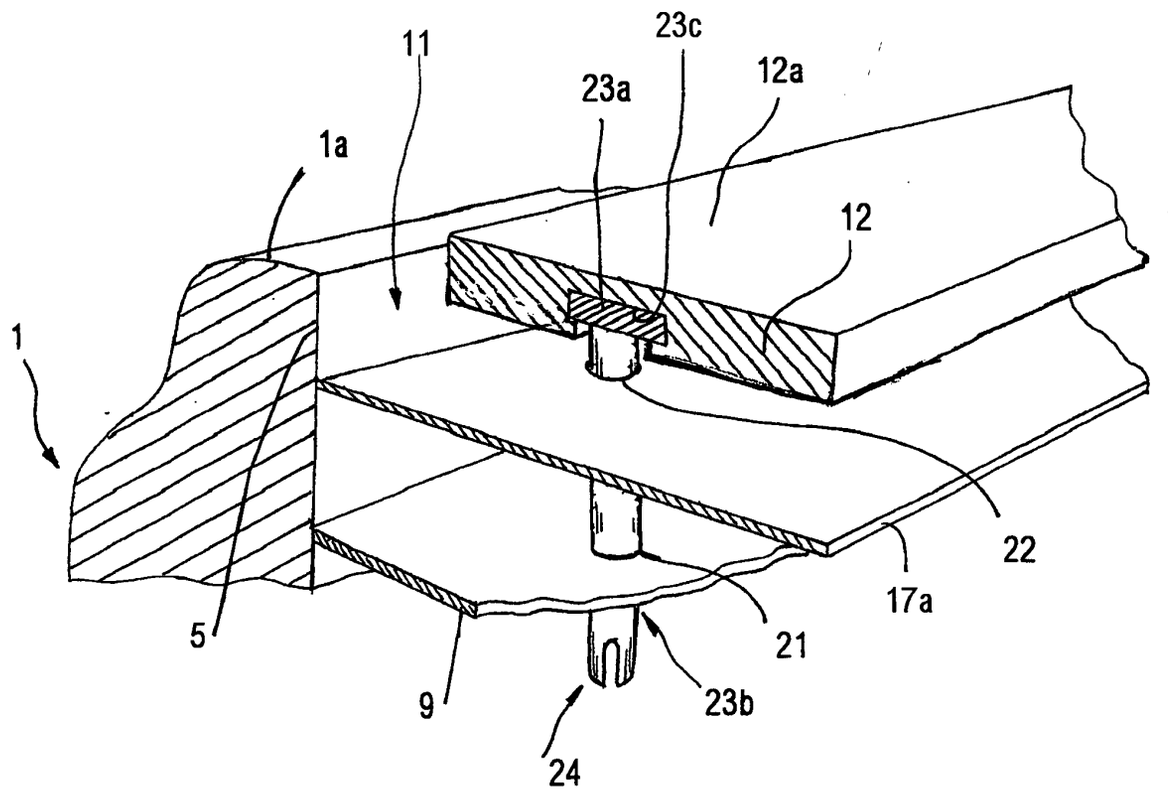


Fig. 24

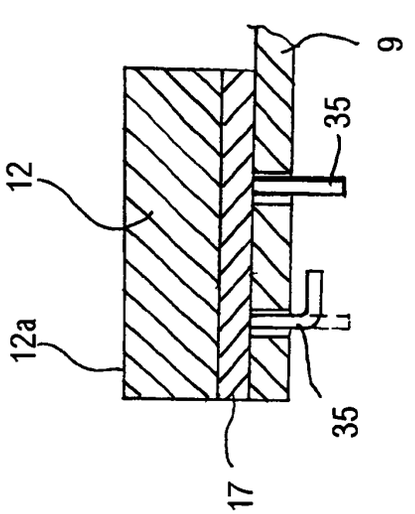


Fig. 28

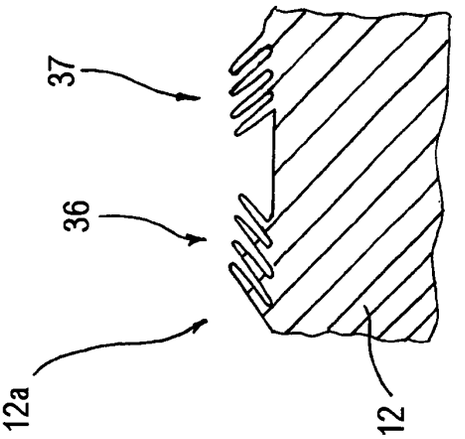


Fig. 29

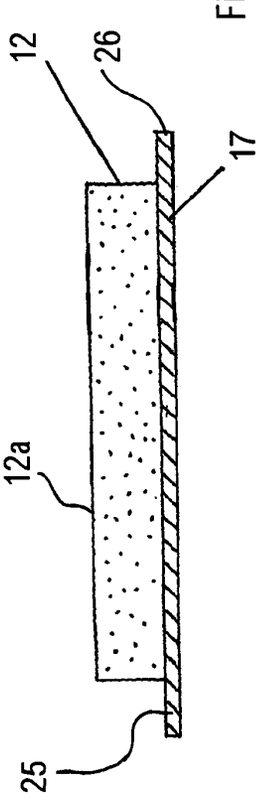


Fig. 25

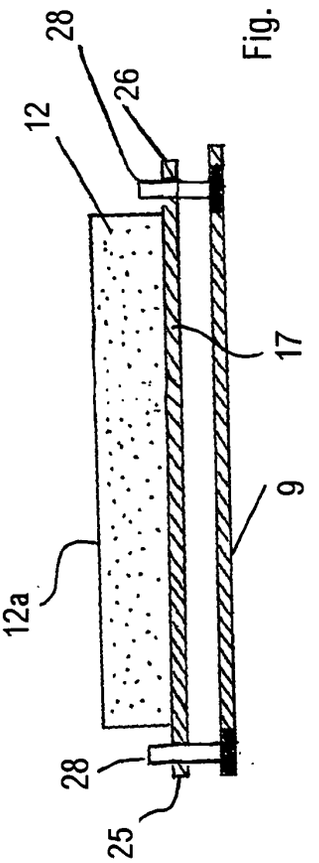


Fig. 26

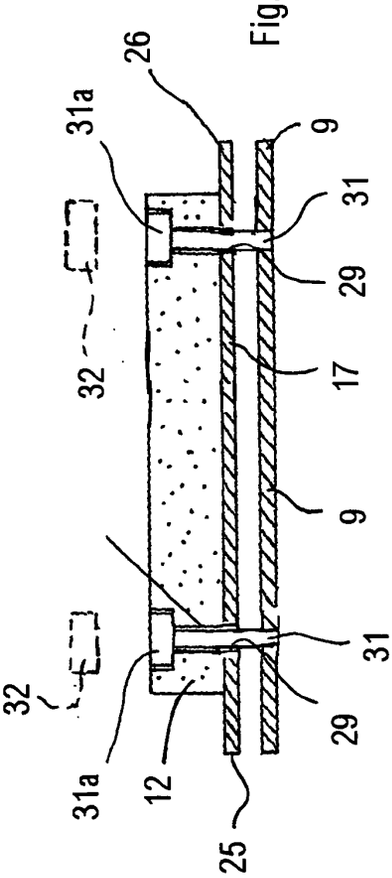


Fig. 27

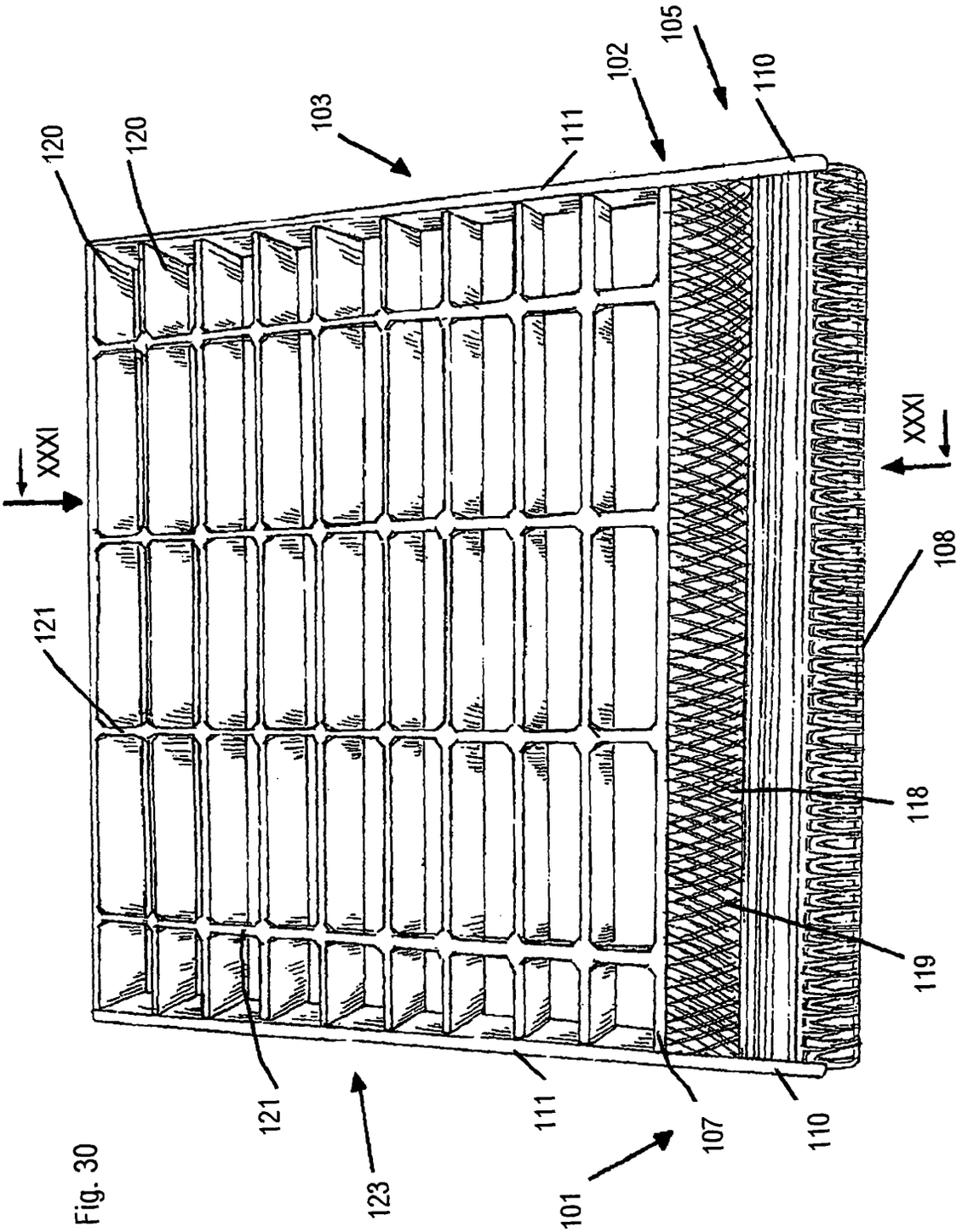

120
120
103
111
102
105
110
XXXI
XXXI
121
108
118
119
121
111
107
110
123
101

Fig. 30

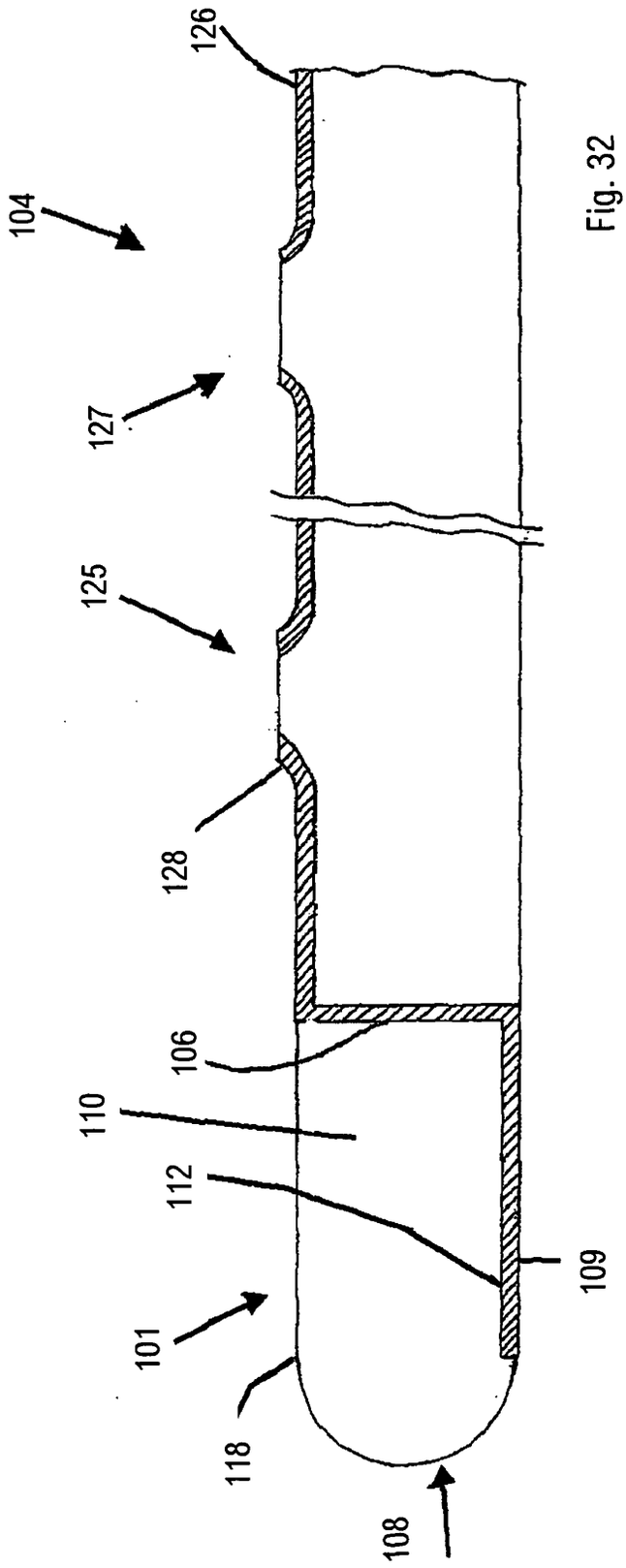

126
104
127
125
128
106
110
112
109
101
118
108

Fig. 32

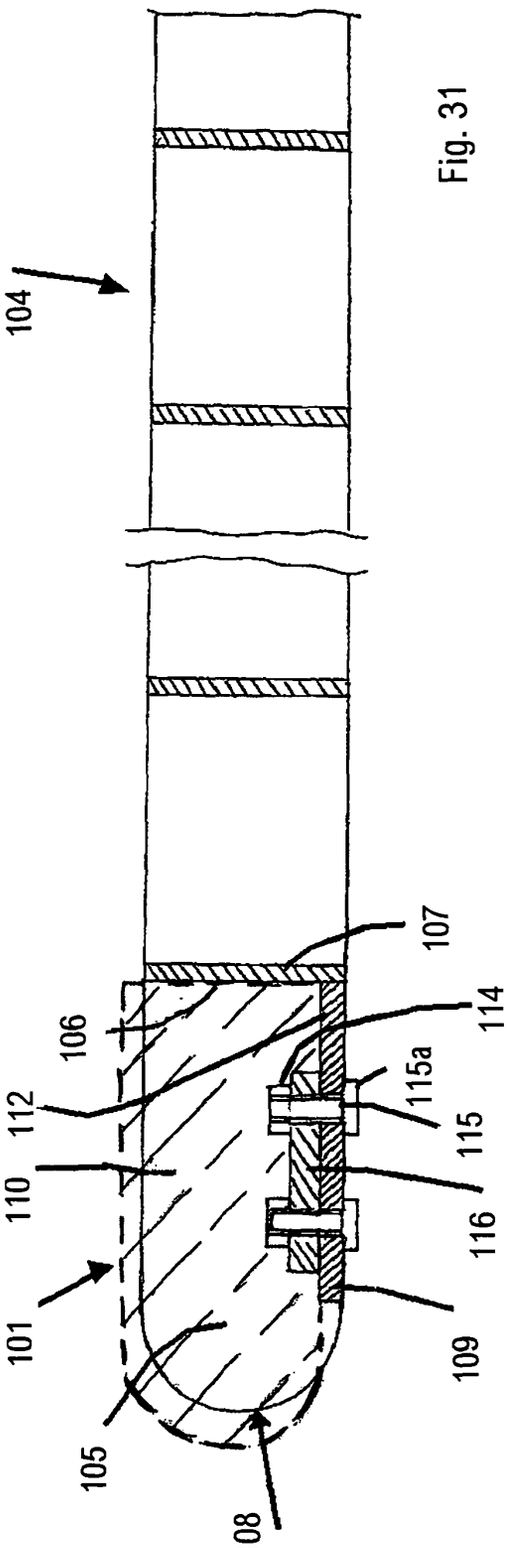

104
107
106
114
115a
112
115
110
116
101
109
105
108

Fig. 31

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 02 1919

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.7)
X	US 4 058 942 A (NAKA) 22 November 1977 (1977-11-22)	1,2,4-11	E06C7/08 E04F11/16
Y	* column 8, line 43 - line 57 * * column 10, line 10 - line 30 * * column 13, line 6 - column 14, paragraph 1; figures 12-17,23-25 *	3,12,13, 15,16	
D,Y	WO 01/89786 A (LO SCALINO S.R.L.) 29 November 2001 (2001-11-29)	3	
A	* page 9, line 11 - line 19; figures *	1	
Y	US 5 103 608 A (ANDREO) 14 April 1992 (1992-04-14)	12,13	
A	* column 1, line 59 - column 2, line 1; figures *	1	
Y	DE 41 01 098 A (P.J. KORZILIUS SÖHNE) 23 July 1992 (1992-07-23)	15,16	
A	* column 2, last paragraph - column 3, line 41; figures *	1,12	
A	DE 35 11 302 A (H. ARENS) 2 October 1986 (1986-10-02) * abstract; figures *	14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E06C E04F E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	15 April 2004	Righetti, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 02 1919

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

15-04-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4058942 A	22-11-1977	JP 50029024 U	02-04-1975
		JP 50029025 U	02-04-1975
		JP 50029026 U	02-04-1975
		JP 50041319 U	26-04-1975
		JP 50041728 U	26-04-1975
		JP 50068515 U	18-06-1975
		AU 7076874 A	08-01-1976
		CA 1013919 A1	19-07-1977
		CA 1051153 A2	27-03-1979
		CH 589199 A5	30-06-1977
		DE 2432353 A1	30-01-1975
		FR 2236069 A1	31-01-1975
		GB 1481531 A	03-08-1977
		GB 1481532 A	03-08-1977
		HK 67980 A	05-12-1980
		IT 1014471 B	20-04-1977
		MY 6581 A	31-12-1981
		SU 617022 A3	25-07-1978
		SU 1109062 A3	15-08-1984
		US 4060947 A	06-12-1977
		US 4077825 A	07-03-1978
		US 4093499 A	06-06-1978
		US 4151320 A	24-04-1979
WO 0189786 A	29-11-2001	AU 5659801 A	03-12-2001
		WO 0189786 A2	29-11-2001
US 5103608 A	14-04-1992	NONE	
DE 4101098 A	23-07-1992	DE 4101098 A1	23-07-1992
DE 3511302 A	02-10-1986	DE 3511302 A1	02-10-1986

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82