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(54) BASEBOARD OR FINISHING PROFILE AND AN IMPROVED METHOD FOR THE FABRICATION OF THIS BASEBOARD OR FLOORING PROFILE

(57) This invention pertains to a method for the forming of a baseboard or finishing profile for flooring, comprising a wood-based carrier material (1), provided with a decorative top layer (2) having one or more resin-impregnated layers, wherein the method involves the following steps:
- the making of one or more cutouts (16) in the carrier material (1) provided with a decorative top layer (2) for the forming of one or more fold pieces, each fold piece containing a remaining portion of carrier material with a thickness between 0.03 and 1.4 mm and a width of at least 2 mm;
- the applying of a layer (36) of filler and/or adhesive over the entire width of the fold piece, this layer forming a support layer (36) for the decorative top layer (2);
- the forming of the baseboard or finishing profile by heating of one or more fold pieces and bending them to the desired radius (R) or shape.

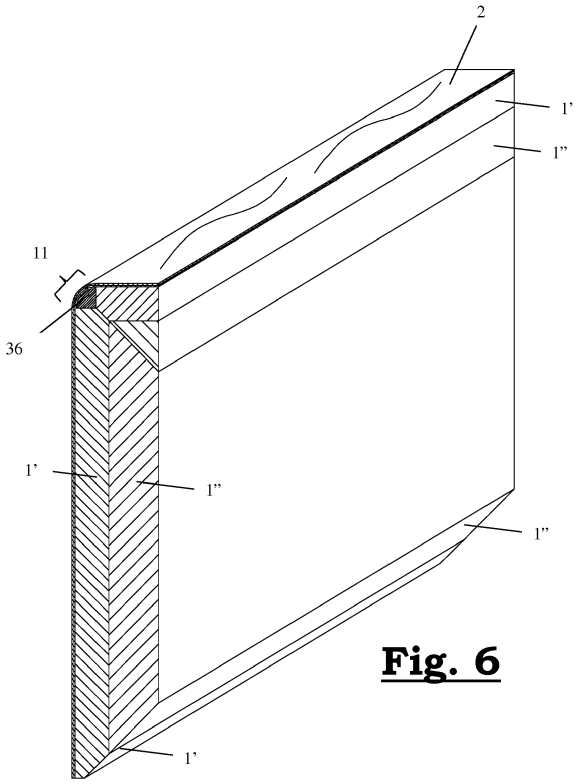

Fig. 6

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Description

[0001] This invention concerns on the one hand a method for the forming of a baseboard or finishing profile for flooring, comprising a wood-based carrier material, provided with a decorative top layer having one or more resin-impregnated layers. On the other hand, this invention concerns a baseboard or finishing profile for flooring.

[0002] This invention concerns in particular a baseboard or finishing profile manufactured from a DPL, a DLP, a CPL or an HPL laminate. This laminate is often used as flooring and can be of various kinds. Examples of such laminates are, among others, DPL (direct pressure laminate), HPL (high pressure laminate), CPL (continuous pressure laminate), LVT (luxury vinyl tiles), cushion vinyl (roll vinyl), WPC (wood plastic composite), DLP (direct laminate printing) or a combination of the above-mentioned laminates.

[0003] A DPL panel is made up of a bottom layer of plastic, usually melamine, a carrier material, generally high-density fibreboard (HDF), on which a layer of printed paper is provided (usually printed with an imitation wood structure), with a plastic top layer, usually melamine reinforced with corundum or aluminium oxide. The top or wearing layer of the cheaper products is thin, so that its lifetime is rather short.

[0004] A DLP panel has more or less the same construction as a DPL panel, but it lacks the printed paper layer. In place of this, the HDF carrier sheet is directly imprinted and then processed with a top layer. The carrier material can also be a WPC (wood plastic composite) sheet or some other plastic sheet.

[0005] Besides the above two types, there are many other different products which can be used. Thus, there is flooring which is laid in the form of planks on a base layer. These planks are usually interconnected with each other by means of a snap connection. Such planks are composed of a core which is made from MDF, HDF, PVC, PP or WPC (wood plastic composite). The top side of these planks is provided with a decorative top layer. This layer can contain one or more decorative layers and be covered by a scratchproof top layer, and depending on the application the implementation, structure, and scratch resistance can be different. Thus, the decorative top layer can be formed of a laminate in the form of DPL (direct pressed laminate), CPL (continuous pressure laminate) or HPL (high pressure laminate), DLP (a digitally printed layer). Decorative layers of PVC, PP low density or scratchproof paper are possible and belong to the prior art.

[0006] Various baseboards or profiles are available for the finishing of these floorings. Often, these baseboards or profiles are manufactured by providing a carrier profile with a film layer by means of the familiar process of sheathing. The carrier material of sheathed profiles often consists of MDF, HDF or PVC. The decorative film layers are often PVC film or paper film on which a print is applied which matches the respective flooring. For profiles such as transition profiles or adapting profiles a CPL film is often used, due to its scratch resistance.

[0007] A first problem, however, is that such profiles or baseboards never fit the respective flooring perfectly. The print or structure is almost never identical to the flooring. In particular, this structure is not unimportant; many structures are "embossed in register", which means that the structure runs synchronously with the decor. Such techniques or finishing grades are thus far not possible on films so that the finishing of the baseboard will always be of lesser quality than that of the floor.

[0008] A second problem with sheathed profiles is their durability. Under the influence of sunlight or UV light, discolouration or ageing will occur. As long as the top layer of the baseboards is not identical to the top layer of the floor panels, these will never age in the same way and in the end a serious colour difference can result between the baseboards and the flooring, which gets a less attractive finish.

[0009] A third problem with traditional sheathed profiles is that one has to lay in a stock of film for each decor or floor panel to make the aforementioned finishing strips or baseboards. These films often have to be purchased in large numbers, so that this is a costly matter for the floor manufacturer. Thanks to digital printing, one can keep these volumes to a minimum, but then the print or structure will still never be identical to the respective floor panel. Also, digitally printed films often do not have the necessary scratch resistance, so that they cannot be used for finishing strips which are walked upon.

[0010] The aforementioned problems would be solved if one could fabricate baseboards or profiles from the same sheet material as the corresponding floor panel is made of. After all, the floor panels are obtained by sawing a large mother sheet into smaller pieces. It should also be possible to use this mother sheet to fabricate baseboards or profiles.

[0011] There are already techniques known in the prior art which make it possible to fabricate a baseboard. Thus, the patent holder in the past has developed a technique which was specified in BE 1019285, and which allows a baseboard to be fabricated by folding a sheetlike material. For this, V-shaped recesses are made in the carrier material on the back side of the sheetlike material. After applying a glue layer, the sheetlike material is folded tightly into a baseboard. However, it has been found that this technique is only applicable to sheet material whose decorative top layer is flexible and/or foldable enough, such as vinyl or LVT, and which can thus be folded safely by a certain angle (e.g., 90°).

[0012] The technique specified in BE 1019285 is consequently not suited to making baseboards or finishing strips of sheet material whose decorative top layer is very thin (at most 0.35 mm), brittle and fragile, such as that made from DPL or HPL sheet material. Namely, it has been found experimentally that the top layer will break or tear upon making the slightest fold or exerting the least pressure.

[0013] Therefore, the purpose of this invention is to create a method which allows the fabricating of a baseboard or finishing profile from a sheet material with a hard and brittle top layer, such as a DPL or HPL sheet material, and which is just as attractive or high in quality as the traditional baseboards or profiles. For this, it is also essential that the decorative film or top layer runs uninterrupted across the entire visible side of the baseboard or the finishing profile.

[0014] The purpose of the invention is achieved by providing a method for the forming of a baseboard or finishing profile for flooring which comprises a wood-based carrier material, provided with a decorative top layer having one or more resin-impregnated layers, wherein the method involves the following steps:

- the making of one or more cutouts in the carrier material provided with a decorative top layer for the forming of one or more fold pieces, each fold piece containing a remaining portion of carrier material with a thickness between 0.03 and 1.4 mm and a width of at least 2 mm;
- the applying of a layer of filler and/or adhesive over the entire width of the fold piece, this layer forming a support layer for the decorative top layer;
- the forming of the baseboard or finishing profile by heating of one or more fold pieces and bending them to the desired radius or shape.

The method according to this invention allows one to make a baseboard or profile from panels with a hard top layer wherein a part of the respective panel is bent without this causing a tear (or crack) in the decorative top layer. Likewise, this method will ensure that the resulting baseboard or profile will be strong enough and that it can offer sufficient resistance to impacts, so that one can walk on these profiles. Furthermore, with the method according to the invention it is possible to manufacture the baseboards or finishing profiles in an economically profitable manner.

[0015] According to one preferable method, the thickness of the remaining portion of carrier material is between 0.2 and 0.8 mm, more particularly between 0.2 and 0.6 mm.

[0016] Further preferable method steps according to the invention are described in the dependent claims.

[0017] Another subject matter of this invention concerns a baseboard for a wall of a room or finishing profile for flooring, comprising a body made up of at least one wood-based carrier material, and a decorative top layer having one or more resin-impregnated layers, wherein said body comprises a lengthwise part forming at least one portion of the front of the baseboard or the finishing profile, and a top part that forms at least one portion of the top of the baseboard or the finishing profile, wherein the transition between the lengthwise part and the top part has a curved course, wherein at the height of said transition a remaining portion of carrier material is provided with a thickness between 0.03 and 1.4 mm and this across a width of at least 2 mm, and wherein opposite said remaining portion a support layer is provided for the remaining portion of carrier material with decorative top layer having a different composition than the carrier material.

[0018] Preferred embodiments of the baseboard or finishing profile are described in the dependent claims.

[0019] In the following detailed description of the method according to this invention and the baseboards (finishing profiles) so formed, the mentioned characteristics and benefits of the invention shall be further illustrated. It should be clear that the sole purpose of this description is to illustrate the general principles of this invention by a concrete example, and thus nothing in this description can be interpreted as a limitation of the scope of the patent rights sought in the claims, or the area of application of this invention.

[0020] In the following description reference is made by means of reference numbers to the accompanying figures, in which:

- ***Figure 1:*** *shows a sheet material from which a baseboard can be formed;*
- ***Figure 2:*** *is a representation of the sheet material shown in Figure 1, provided with a cutout for the forming of a fold part;*
- ***Figure 3:*** *is a representation of the heating of the fold part formed in Figure 2, wherein the fold part is to be secured against a profiled element;*
- ***Figure 4:*** *is a first embodiment of a baseboard according to the invention, where at the height of the rounding of the remaining portion of carrier material with decorative layer there is present a support layer;*
- ***Figure 5:*** *shows a second embodiment of a baseboard according to the invention where the support layer does not completely fill the cutout part;*
- ***Figure 6:*** *shows a third embodiment of a baseboard according to the invention where the carrier material is composed of two layers;*
- ***Figure 7:*** *is a representation of a finishing profile, especially a transition profile, mamifactured according to the method according to this invention;*
- ***Figure 8:*** *is a representation of the finishing profile shown in Figure 7 in the mounted state;*
- ***Figures 9 to 16:*** *show a number of finishing profiles which can be manufactured with the help of the method according to the invention;*
- ***Figure 17a:*** *is a representation of a cutting tool with which nose portions can be cut out from a multifunctional finishing profile;*
- ***Figure 17b:*** *shows the working of the cutting tool depicted in Figure 17a;*
- ***Figures 18 to 23b:*** *show a number of possible method steps according to the invention for making a finishing profile from a sheet material;*
- ***Figures 24 to 28b:*** *show a number of possible method steps according to the invention for making a*

baseboard from a sheet material.

[0021] The method according to this invention involves at least the following steps:

- the making of one or more cutouts (16) in the carrier material (1) provided with a decorative top layer (2) for the forming of one or more fold pieces (11), each fold piece (11) containing a remaining portion of carrier material with a thickness (d1) between 0.03 and 1.4 mm and a width (B) of at least 2 mm;
- the applying of a layer (36) of filler and/or adhesive over the entire width of the fold piece (11), this layer forming a support layer (36) for the decorative top layer (2);
- the forming of the baseboard or finishing profile by heating of one or more fold pieces (11) and bending them to the desired radius (R) or shape.

[0022] The decorative top layers of DPL and DLP sheet materials are very thin or almost nil. If we want to bend these top layers in a mechanical manner, we need to leave a limited amount of HDF layer or carrier material in the fold part, or else this top layer will break or tear outright. On the other hand, we cannot leave behind too much carrier material: the thicker the carrier material, the harder it is to bend. This will make the radius formed at the top of the baseboard increasingly large and we will no longer be able to fold, for example, the top side of a baseboard by 90°. Since HDF or wood is not thermoplastic, we need to take into account the properties of HDF in order to make the folding possible. Yet we see that a thin layer of HDF when heated becomes more slack and less brittle.

[0023] The decorative top layer of DPL sheet material has a total thickness of +/-0.2 to 0.3 mm. The decorative paper has a thickness of +/-0.05 mm. Such tolerances are not attainable for many machines. Any way, one must not cut through the decorative paper, or else a part of the decoration or print will disappear or exhibit small cracks. DLP floor panels do not have any printed paper, but rather the print is pressed directly onto the carrier material. In this way, it is not possible to remove all of the carrier material in order to employ a kind of post-forming for the forming of a baseboard.

One must also take account of the fact that one has to cut away the carrier material across a well defined width B. Across this width B the material is very weak, which will make it shake so that the tolerances can no longer be maintained under control.

Thus, it is almost impossible to entirely cut away the carrier material down to the decorative paper. If we leave behind a rather thin layer of carrier material, the narrowed portion is somewhat stronger and thus can be kept more under control during the production.

[0024] If we cut down to the printed paper, which in combination with the melamine resins is very brittle, this will bring about transverse cracks (flaws) in the printed paper. The reason is that the printed paper is entirely provided with resin and this is very brittle, so that it will continually break or crack due to the shaking or impact of the tools. This will result in an aesthetically less attractive product. In order to prevent this, it is also necessary not to cut down to the printed paper, but instead to leave in place a bit of carrier material.

[0025] The top layer is provided with thermoplastic melamine resins. If we heat the top layer it becomes less brittle, so that the material in the fold part can be folded by a smaller radius.

The DLP floors have no printed paper layer, but rather the decoration is printed directly onto the carrier material. However they are provided with a scratchproof transparent top layer. This heating also has advantages for the folding of the formed fold part.

[0026] As mentioned above, the heating of the top layer brings benefits for the folding of the material in the fold part. However, if we leave behind a certain thickness of HDF carrier material in the fold part, this will begin to scorch at a certain temperature. In a first phase, this will become evident at the top layer and in a further phase the baseboard will begin to scorch during the production, with all the risks this entails. We must therefore pay attention when heating the top layer.

The DLP floors have no printed paper layer, but rather the decoration is printed directly onto the carrier material. However, they are provided with a scratchproof transparent top layer. This heating can also have advantages for the folding.

[0027] Likewise certain profiles are walked upon, so that the fold part or the bent part (transition) must be very strong. Even so, if walked upon, the respective fold part will be subjected to large stresses. Therefore, a filler or adhesive is needed to support this fold part.

[0028] It is therefore important to determine the ideal thickness of carrier material which must be left behind in the fold part. In this we must take into account:

- the strength of the fold part, this must be strong enough so that this process can be carried out entirely mechanically and automatically without the fold part breaking.
- the top layer must be impact resistant and able to be worked further without breaking off.
- the fold part must still be foldable.
- one must consider the machine tolerances, so that the printed paper is not damaged during the manufacturing of the baseboard.

[0029] As already indicated, the fold part needs to be very thin, or else we cannot fold it over. Once the baseboard has been formed, this zone will then also be a very weak one.

[0030] One could improve this by supporting the fold

part with an extra carrier material integrated in the profile or baseboard. However, this is not quite impossible to automate and also it limits the form of the baseboard or the profile.

[0031] It is therefore necessary to place a reinforcement (support layer) in the form of an adhesive or filler which completely supports the fold part. A filler which is to be applied in liquid form, so that it is easy to automate. Upon cooldown, the filler will harden, so that the remaining carrier material will be supported together with the decorative top layer.

[0032] This will make the fold part more impact resistant and also less brittle during the sawing or the further working.

[0033] This adhesive or filler will thus be injected during production into the recesses and it will harden after the folding over of the fold part. In this way, the fold part can in theory take on any given shape.

[0034] Depending on the requirements of the profile or baseboard, one can select a very hard adhesive or an adhesive which remains more supple or elastic. This can go to the benefit of the ease of use of the profile.

[0035] The fold part will always have stresses, since it is folded over during the forming of the baseboard or finishing profile. Because this fold part is now entirely glued together by the adhesive, these stresses should be neutralized, which greatly reduces the likelihood that the decorative top layer will still exhibit cracks.

[0036] One must also consider that hot-melt glues are reactivated at certain temperatures. As a result, the profile or the fold part can come loose under stress or at high temperatures. However, this can be resolved by using the right type of adhesive.

[0037] **Fig. 1:** Layout of a floor panel containing a carrier material (1), a decorative layer (7), a scratchproof top layer (6) and a backing (35). The carrier material can consist of HDF, MDF, LDF, chipboard, WPC (wood plastic composite), etc.

The decorative layer (7) is a printed film which can be made from decorative paper (7) with a scratchproof layer on top of this. The scratchproof top layer (6) is a transparent layer which protects the floor panel against scratching and dirt. Sometimes the decorative layer (7) and the scratchproof top layer (6) can be the same layer. The decorative layer (7) and the scratchproof top layer (6) form the decorative top layer (2). The backing (35) often serves to prevent warping.

Such floor panels depending on their construction are known as DPL (direct pressed laminate), HPL (high pressure laminate), CPL (continuous pressure laminate), etc.

[0038] **Fig. 2:** The panel from Fig.1 in which well placed recesses have created a fold part with a remaining portion (11) of carrier material with a width (B). The thickness d1 is the thickness of the remaining layer of carrier material (residual layer) (1). Thickness d2 of the decorative layer (7) and d3 of the scratchproof top layer (6). The total thickness D of the fold part is thus d1+d2+d3. By leaving in place yet another thickness d1 of the carrier material (residual layer), the fold part (11) is much more stable. The thickness d1 of the remaining portion of carrier material is preferably between 0.03 mm and 1.4 mm and in particular between 0.1 mm and 0.8 mm.

In order to still bend this fold part (11) to a radius of, e.g., 5 mm, we must take advantage of the physical properties of the decorative top layer (2) on the one hand and the residual layer of carrier material (1) on the other. It is also important to keep as broad as possible a width (B) of the fold part (11), preferably greater than 2 mm, more particularly greater than 3 mm. In this way, we no longer have a folding line, but instead obtain a fold part (11) with a width B > 2 mm and a thickness D less than or equal to 1.7 mm.

By means of intense heating of both the residual layer of carrier material (1) and the decorative top layer (7) at the height of the fold part (11), we can bend this fold part (11) across a certain radius (R). In this way we can form a baseboard or profile for flooring. Preferably, the fold part will be heated to a temperature between 80° and 250°C. When adjusting the temperature, one should take into account here the composition of the fold part and the thickness of the remaining portion of carrier material.

[0039] **Fig. 3:** Figure showing that the fold part will start to bend over if the decorative top layer (2) is heated and an air circulation is created above the, e.g., HDF layer of carrier material (1) in the fold part (11). In order to glue the back side of the fold part (11) at the rounded side (26) of the profiled part/element (15), we need to press the fold part (11) with, e.g., pressure rollers. This profiled part (15) can be a pre-profiled element, but can also be a filler (36) such as an adhesive.

[0040] **Fig. 4:** Baseboard according to the invention. The Baseboard is composed of at least three parts, a carrier material (1), a filler (36) with a composition other than the carrier material (1) and a decorative top layer (2) made from a DPL, a DLP, a CPL and a HPL sheet material, wherein the decorative top layer (2) shows a rounding or radius (R). At the height of the rounding there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1), this fold part (11) being completely supported by the filler (36), which forms a support layer, and the decorative top layer (2) at the height of the fold part (11) has an uninterrupted course. The thickness D of the fold part is preferably less than 1.7 mm and the width B is preferably greater than 2 mm. The decorative top layer (2) consists of a decorative film (7) on top of which is placed a scratchproof top layer (6). The filler (36) which will form the support layer is an adhesive which has two functions, namely, to support the fragile fold part (11) and to glue together all component parts. The filler (36) must be strong enough so that the fragile fold part (11) does not break or crack when sawing the baseboard.

This filler (36) need not be limited to an adhesive, it can also be a profile which is placed in the recess (cutout) during the manufacturing of the baseboard. This profile can be made from the same basic material as the carrier

material or from a different material.

[0041] **Fig. 5:** Baseboard according to the invention. The baseboard is composed of 3 parts, a carrier material (1), a filler (36) other than the carrier material (1) and a decorative top layer (2) wherein the decorative top layer (2) shows a rounding or radius (R). The decorative top layer (2) is composed of a decorative layer (7) and a scratchproof top layer (6). At the height of the rounding there is a remaining portion of carrier material provided with a decorative top layer (2), this remaining portion being completely supported by the filler (36) which will form the support layer. The decorative top layer (2) has at the height of the fold part (11) an uninterrupted course. Unlike Figure 3, the fold part (11) is completely supported by a thin layer of filler or adhesive (36). If the fold part (11) is not too heavily stressed, as in the case of a baseboard, this may be sufficient. Thus, besides the filler (36), there can further be present in the glue chamber (L) an empty cavity (37).

This filler (36) need not be limited to an adhesive, it can also be a profile which is placed in the recess during the manufacturing of the baseboard. This profile can be made from the same basic material as the carrier material (1) or from a different material.

[0042] **Fig. 6:** Baseboard according to the invention. The baseboard is composed of 4 parts, a carrier material (1) which is composed of 2 different layers of carrier material (1' and 1"), a filler (36) other than the carrier material (1' and 1") and a decorative top layer (2) wherein the decorative top layer (2) shows a rounding or radius (R). At the height of the rounding there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1'), this fold part (11) being completely supported by the filler (36), and the decorative top layer (2) at the height of the fold part (11) has an uninterrupted course. The filler (36) is an adhesive which has two functions, namely, to support the fragile fold part (11) and to glue together all component parts. The thickness of the remaining portion of carrier material is between 0.03 mm and 1.4 mm. The filler (36) must be strong enough so that the fragile fold part (11) does not break or crack when sawing the baseboard.

[0043] There may be various reasons why the carrier material (1) is composed of two different layers of carrier material (1' and 1"): One reason is cost savings. Thus, the layer of carrier material (1') can be very thin, so that it is glued to a second cheaper layer of carrier material (1") in order to obtain a thicker baseboard. A second reason may be stability. It is also so that if the first layer (1') is moisture resistant while the 2nd layer (1") is not, and the baseboard is profiled so that only the first layer of carrier material (1') makes contact with the ground, this baseboard can still be sold as moisture resistant. This can be an important selling advantage.

[0044] **Fig. 7:** Finishing profile according to the invention. The transition profile is composed of 3 parts, a carrier material (1), a filler (36) other than the carrier material and a decorative top layer (2) wherein the decorative top layer (2) shows two roundings. At the height of the roundings there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1), this fold part (11) being completely supported by the filler (36) and the decorative top layer (2) at the height of the fold part (11) having an uninterrupted course. The decorative top layer (2) consists of a decorative film (7) on top of which is placed a scratchproof top layer (6). The filler (36) is an adhesive which has two functions, namely, to support the fragile fold part (11) and to glue together all component parts. The thickness of the remaining portion of carrier material is between 0.03 mm and 1.4 mm. Since these profiles are walked upon, it is of great importance that the filler (36) be strong enough to support the fragile fold part (11).

[0045] **Fig. 8:** Finishing profile according to the invention. The transition profile is composed of three parts, a carrier material (1), a filler (36) other than the carrier material and a decorative top layer (2) wherein the decorative top layer (2) shows two roundings. At the height of the roundings there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1), this fold part (11) being completely supported by the filler (36).

Such a transition profile is walked upon and it is subjected to a number of stresses (F). Because the fragile fold part (11) is completely supported by the filler (36), this should not break under heavy load (F). The filler (36) has two functions, namely, to support the fold part (11) and to glue together the component parts. A more elastic or tougher adhesive (36) may be used as support layer, so that this also has a more cushioning function, in order to absorb shocks without breaking.

This profile is secured to the ground by means of a PVC fastening piece (72).

[0046] **Fig. 9:** T- profile according to the invention. The T-profile is composed of three parts, a carrier material (1), a filler (36) other than the carrier material and a decorative top layer (2) wherein the decorative top layer (2) shows two roundings. At the height of the roundings there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1), this fold part (11) being completely supported by the filler (36). A T-profile is used to make a transition between two floors on the same level. At the bottom there is a fastening part (6) to snap this profile into a holder (72).

[0047] **Fig. 10:** Adjusting profile according to the invention. The adjusting profile is composed of three parts, a carrier material (1), a filler (36) other than the carrier material and a decorative top layer (2) wherein the decorative top layer (2) shows two roundings. At the height of the roundings there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1), this fold part (11) being completely supported by the filler (36). An adjusting profile is used to make a transition between two floors with a different level. At the bottom there is a fastening part (6) to snap this profile into a holder (72).

[0048] **Fig. 11:** End profile according to the invention. The end profile is composed of 3 parts, a carrier material (1), a filler (36) other than the carrier material and a decorative top layer (2) wherein the decorative top layer (2) shows two roundings. At the height of the roundings there is a fold part (11) containing a decorative top layer (2) and a thin layer of carrier material (1), this fold part (11) being completely supported by the filler (36). An end profile is used to finish a floor against the wall. At the bottom there is a fastening part (6) to snap this profile into a holder (72).

[0049] **Fig. 12:** Multifunctional finishing profile for a flooring comprising a body which is composed of several parts (3, 6, 7a, 7b) made from a carrier material which are mutually separable depending on the application, wherein the mentioned parts (3, 6, 7a, 7b) in the joined state comprise at least one flange-shaped part (3), one fastening part (6) for the finishing profile and at least one nose piece (7a, 7b) extending beneath the flange-shaped part (3), wherein the flange-shaped part (3) and the nose piece (7a,7b) are at least partly furnished with a lining layer (2) and wherein the finishing profile moreover comprises one or more cutting lines (40a and 40b) in order to separate the parts from each other with the help of a cutting tool (67), characterized in that the lining layer (2) at the height of the transition between the flange-shaped part (3) and the nose piece (7a and 7b) has a curved course, wherein at the height of said curved transition (11a and 11b) a portion of the carrier material (1) is replaced by a filler (36) with a different composition than the carrier material (1) and the decorative top layer (2) at the height of the transition (11a and 11b) has an uninterrupted course, and said cutting lines (40a and 40b) extend through the filler (36).

[0050] **Fig. 13a:** shows a piece of multifunctional profile according to the invention. In the figure the cutting line (40a) is represented and we see that this cutting line (40a) runs through the support layer (the filler (36)), through the lining layer (2) and through a residual thin layer of carrier material (1) which is located between the lining layer (2) and the filler (36).

[0051] **Fig. 13b:** shows a piece of multifunctional profile according to the invention in perspective. The lining layer (2) is not interrupted at the height of the cutting line (40a,40b).

[0052] **Fig. 14:** A multifunctional finishing profile according to the invention. By cutting off the nose piece (7a) along the cutting line (40a) the multifunctional profile is converted into an adjusting profile.

[0053] **Fig. 15:** A multifunctional finishing profile according to the invention. By cutting off the nose piece (7b) along the cutting line (40b) the multifunctional profile is converted into an end profile.

[0054] **Fig. 16:** A multifunctional finishing profile according to the invention. By cutting off the nose pieces (7a) and (7b) along the cutting lines (40a) and (40b) the multifunctional profile is converted into a T-profile.

[0055] **Fig. 17a:** Cutting tool (67) which is specially developed to cut off nose pieces (7a,7b). For this, an incision is made along the cutting line (40a).

[0056] **Fig. 17b:** A multifunctional finishing profile according to the invention wherein a nose piece (7a) is removed by means of the cutting tool. For this, an incision is made along the cutting line (40a). The cutting is easy because the incision cuts primarily through the tough adhesive (36) rather than the hard carrier material (1).

[0057] **Fig.** 18: Floor panel with a construction as described in Figures 1 to 3 with the decorative top layer (2) pointing downward.

[0058] **Fig. 19:** On the back side of the panel, recesses (16) are made with a width B. Across this width B is produced a residual layer (11) which is composed of the decorative film (6), the scratchproof top layer (7) and a very thin layer of carrier material (1) with constant thickness. The total thickness of the fold part (11) is D. The side edges of the recesses (16) can be rounded or angular. It can also be that the thickness of the remaining portion of carrier material is not constant over the entire width (B).

[0059] **Fig. 20:** The residual layers (11) are heated by means of a heat source (20). This heat source can consist of lamps, air blowers, etc. In this way, the residual layers (11) become more supple and less brittle. In order to make possible the folding, the decorative top layer in the fold part must have a temperature between 80° C and 250° C.

[0060] **Fig. 21:** Glue or adhesive (36) is injected into the recesses (16). The fold parts (11) are also heated further (20). This glue can be a hot-melt glue, a PUR glue or a polyolefin glue, depending on the desired properties of the baseboard. The quantity of glue (36) which is injected into the recess (16) depends on the volume (V) resulting in the glue chamber (L) after the bending of the fold part (11).

[0061] **Fig. 22:** The fold parts (11) are bent to a certain radius (R). This produces a glue chamber (L) with a volume (V). Given that the fold part (11) is much more fragile, it is of great importance that the fold part (11) be completely supported by the adhesive (36) with which the glue chamber (L) is filled. It is important that the fold part (11) be continually heated during the folding.

[0062] **Figs. 23a and 23b:** We can further work the shaped profile until the desired shape is obtained.

[0063] **Fig. 24:** On the back side of the panel, recesses (16) are made with a width B. Across this width B is produced a fold part (11) which is composed of the decorative film (6), the scratchproof top layer (7) and a very thin layer of carrier material (1) with constant thickness. The total thickness of the fold part (11) is D. The side edges of the recesses (16) can be rounded or angular. It can also be that the thickness of the remaining portion of carrier material is not constant over the entire width (B), depending on the desired shape to be achieved.

[0064] **Fig. 25:** The fold parts (11) are heated by means of a heat source (20). This heat source can consist of lamps, air blowers, etc. In this way, the fold parts (11)

become more supple and less brittle. In order to make possible the folding, the decorative top layer in the fold part must have a temperature between 80° C and 250° C.

[0065] **Fig. 26:** A support layer is formed by placing glue (36) in the recesses (cutouts) (16). The fold parts (11) are also heated further (20). This glue can be a hot-melt glue, a PUR glue or a polyolefin glue, depending on the desired properties of the baseboard. The quantity of glue (36) which is injected into the recess (16) depends on the volume (V) resulting in the glue chamber (L) after the bending of the fold part (11).

[0066] **Fig. 27:** The fold parts (11) are bent to a certain radius (R). This produces a glue chamber (L) with a volume (V). Given that the fold part (11) is much more fragile, it is of great importance that the fold part (11) be completely supported by the adhesive (36) with which the glue chamber (L) is filled. It is important that the fold part (11) be continually heated during the folding, or else there is a danger that the fold part will cool down too much, so that it would break during the folding.

[0067] **Figs. 28 a and 28 b:** We can further work the shaped profile until the desired shape is obtained. Still more profilings can also be provided on the back side in order to fasten the baseboards to the wall with a clip system.

Claims

1. Method for the forming of a baseboard or finishing profile for flooring, comprising a wood-based carrier material (1), provided with a decorative top layer (2) having one or more resin-impregnated layers, **characterized in that** the method involves the following steps:

   - the making of one or more cutouts (16) in the carrier material (1) provided with a decorative top layer (2) for the forming of one or more fold pieces (11), each fold piece (11) containing a remaining portion of carrier material with a thickness (d1) between 0.03 and 1.4 mm and a width (B) of at least 2 mm;
   - the applying of a layer (36) of filler and/or adhesive over the entire width of the fold piece (11), this layer forming a support layer (36) for the decorative top layer (2);
   - the forming of the baseboard or finishing profile by heating of one or more fold pieces (11) and bending them to the desired radius (R) or shape.

2. Method according to Claim 1, **characterized in that** the remaining portion of carrier material in the fold part has a constant thickness.

3. Method according to Claim 1 or 2, **characterized in that** the carrier material (1) is made of LDF, MDF, HDF or chipboard.

4. Method according to one of the preceding claims, **characterized in that** the fold parts during the bending have reached a temperature between 80° C and 250° C.

5. Method according to one of the preceding claims, **characterized in that** the baseboard or finishing profile is made from an HPL, CPL or DPL panel.

6. Method according to one of the preceding claims, **characterized in that** the support layer (36) contains a PUR glue, an EVA glue, a hot-melt glue, a water-based glue, a binary glue or a polyolefin glue.

7. Method according to one of the preceding claims, **characterized in that** after the bending of the fold parts to the desired shape or radius (R) the whole is cooled down to allow the support layer to harden.

8. Method according to one of the preceding claims, **characterized in that** after the making of the cutout, the walls of the fold part extend at least in part transversely to the remaining portion of carrier material.

9. Baseboard for a wall of a room or finishing profile for flooring, comprising a body made up of at least one wood-based carrier material (1), and a decorative top layer (2) having one or more resin-impregnated layers, wherein said body comprises a lengthwise part forming at least one portion of the front of the baseboard or the finishing profile, and a top part that forms at least one portion of the top of the baseboard or the finishing profile, wherein the transition between the lengthwise part and the top part has a curved course, **characterized in that** at the height of said transition a remaining portion of carrier material is provided with a thickness between 0.03 and 1.4 mm and this across a width of at least 2 mm, and opposite said remaining portion a support layer (36) is provided for the remaining portion of carrier material with decorative top layer having a different composition than the carrier material (1).

10. Baseboard or finishing profile according to Claim 9, **characterized in that** the decorative top layer (2) at the height of the transition has an uninterrupted course.

11. Baseboard or finishing profile according to Claim 9 or 10, **characterized in that** the support layer (36) contains a PUR glue, an EVA (hot-melt) glue, a water-based glue, a binary glue or a polyolefin glue.

12. Baseboard or finishing profile according to one of Claims 9 to 11, **characterized in that** the decorative top layer (2) is composed of a decorative film (7) with a scratchproof top layer (6) placed on it.

13. Baseboard or finishing profile according to one of Claims 9 to 12, **characterized in that** the finishing profile is a T-profile, an adjusting profile or an end profile.

14. Baseboard or finishing profile according to one of Claims 9 to 12, **characterized in that** the finishing profile is multifunctional and can be formed into a T-profile, an adjusting profile or an end profile.

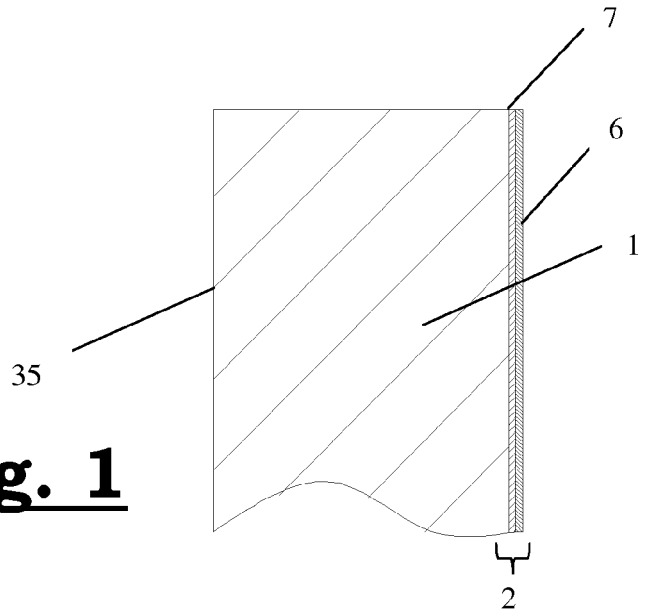


Fig. 1

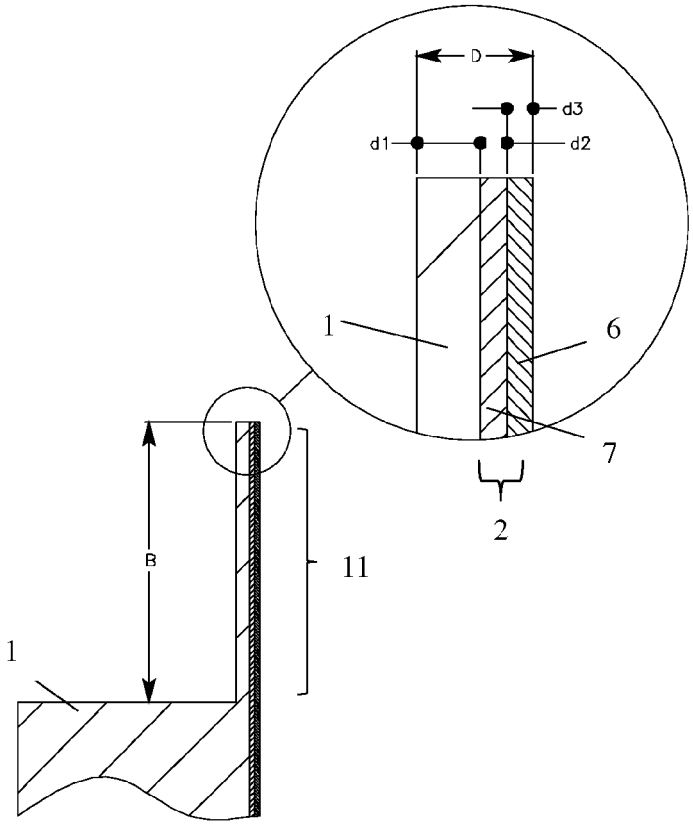


Fig. 2

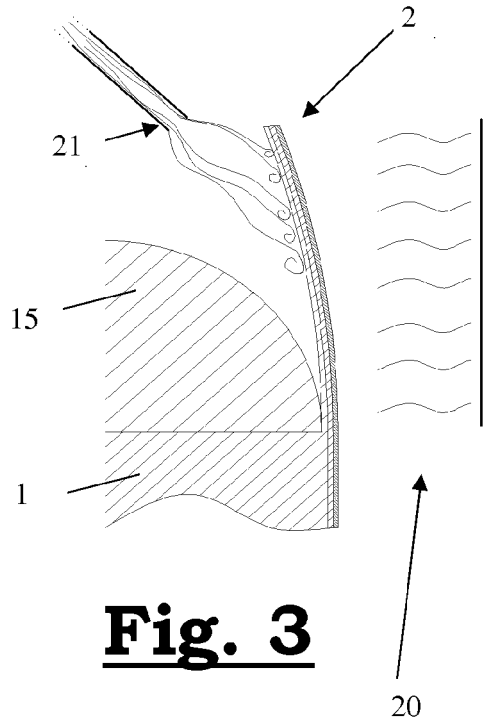


Fig. 3

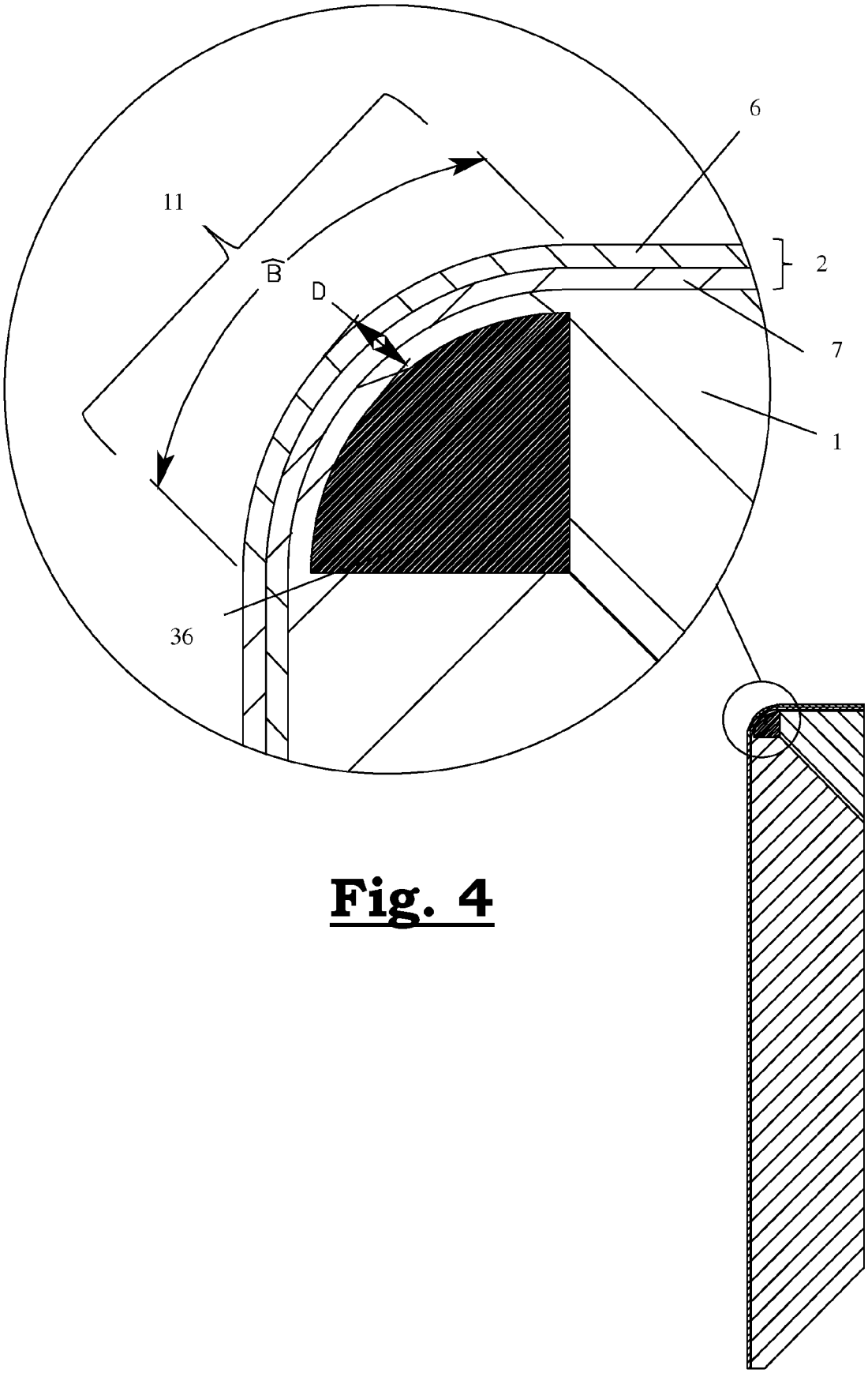


Fig. 4

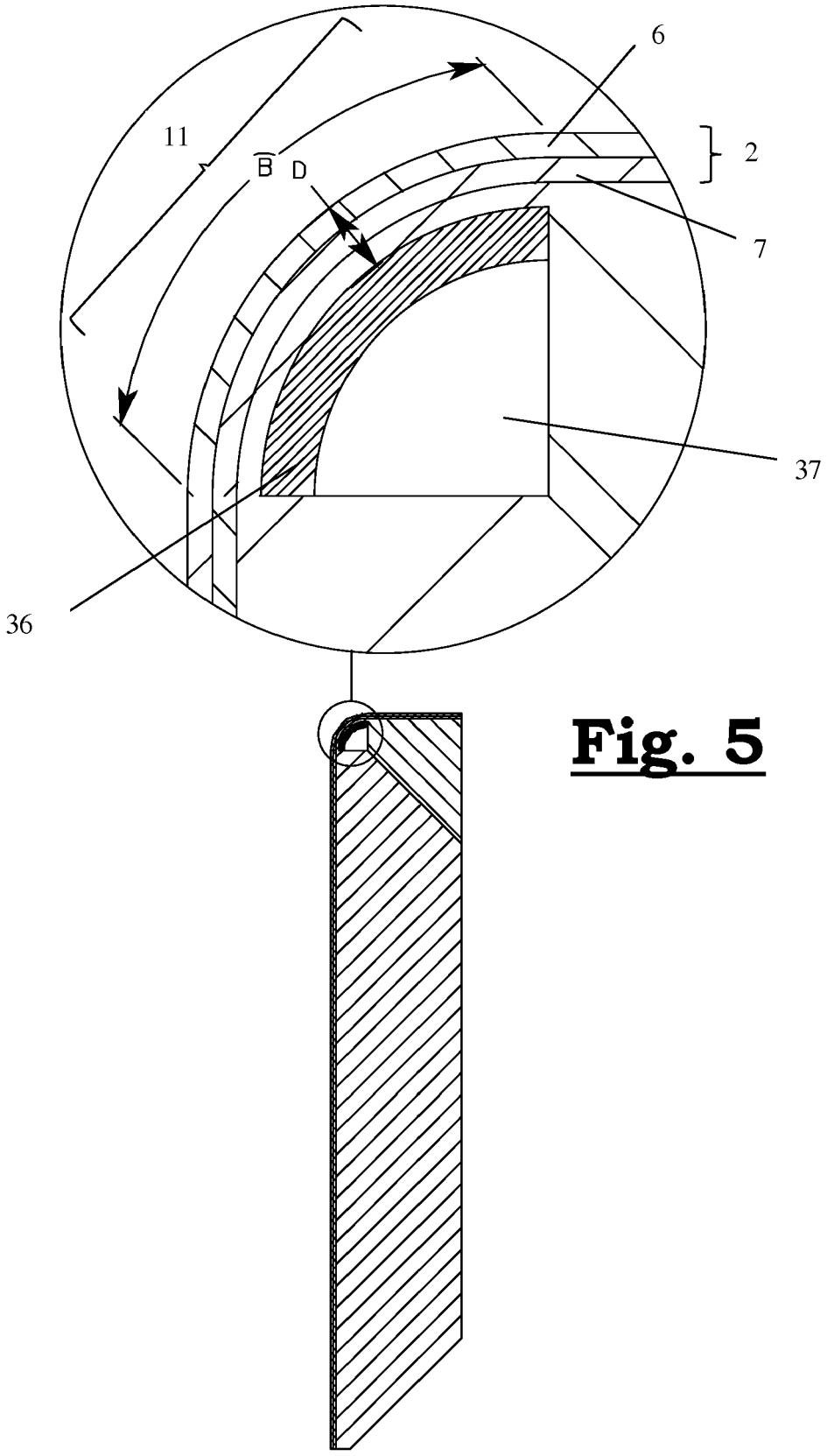
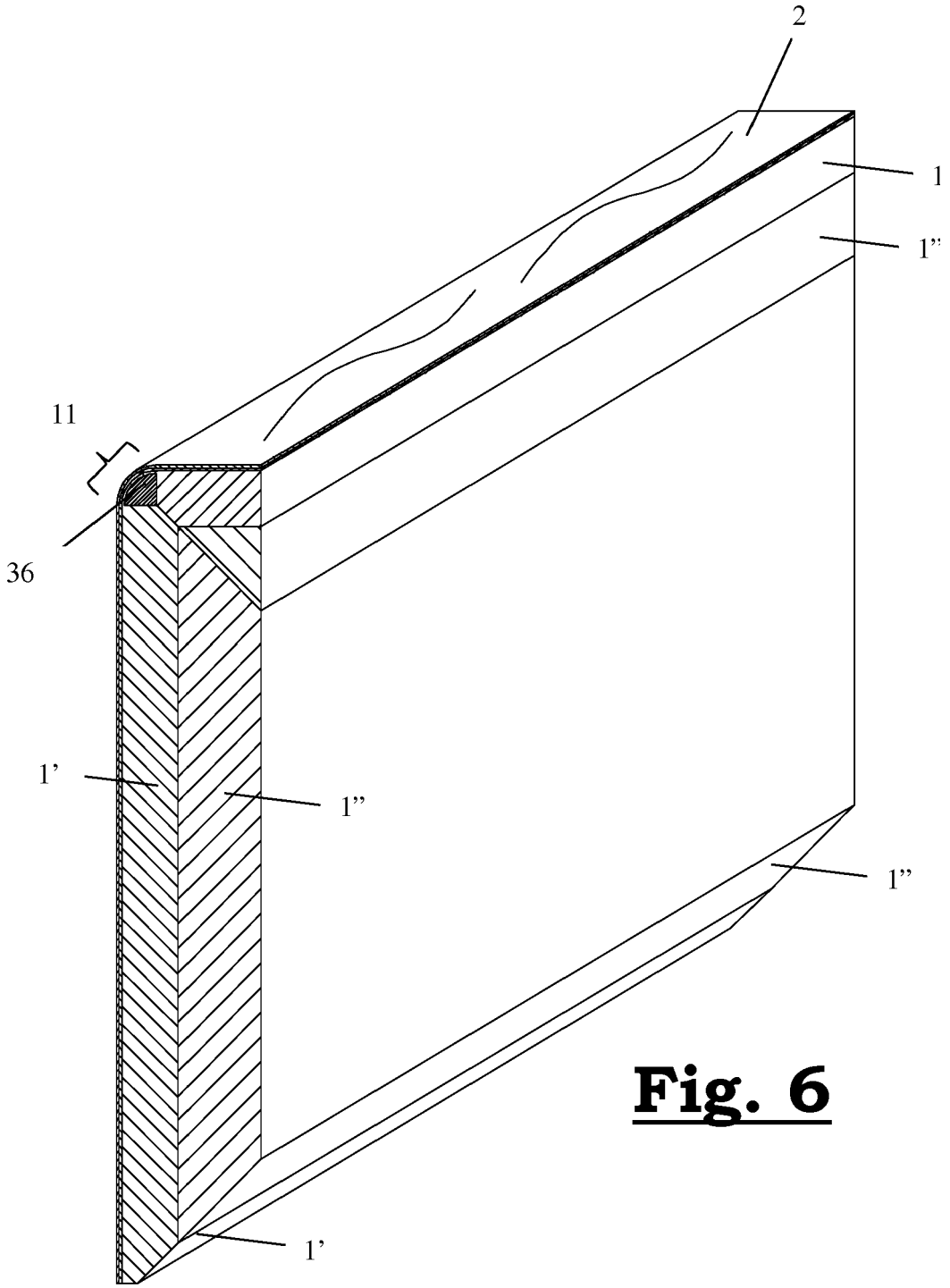


Fig. 5



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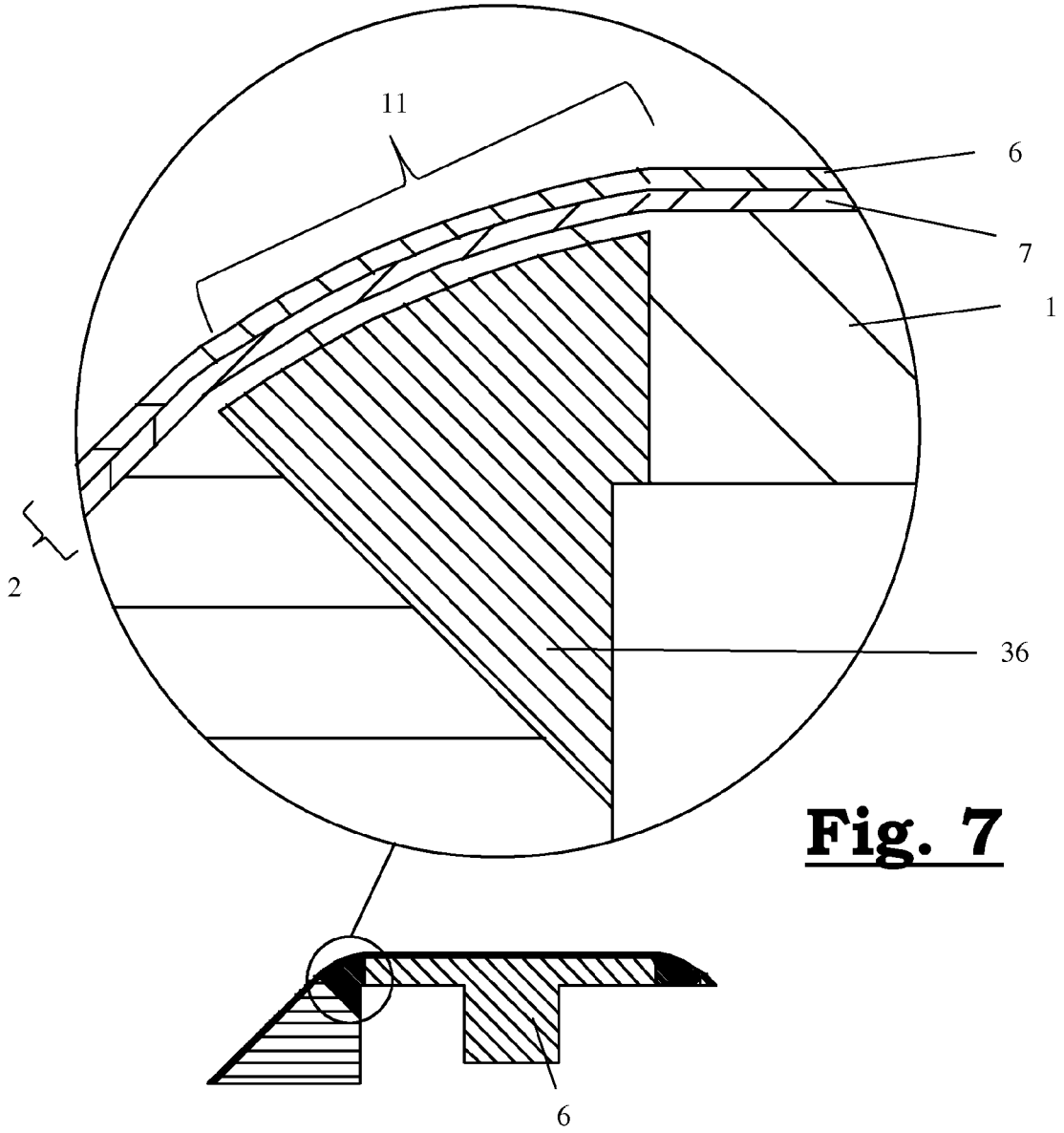

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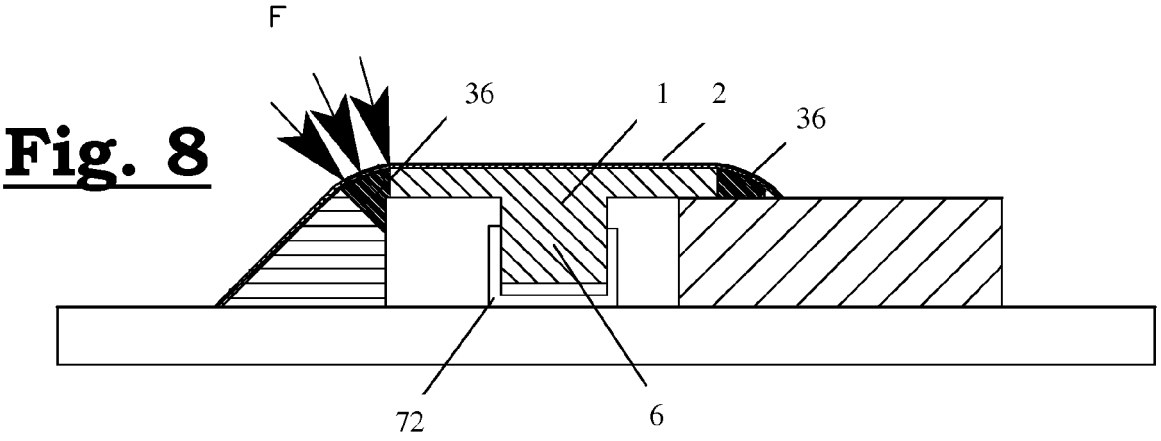


Fig. 8

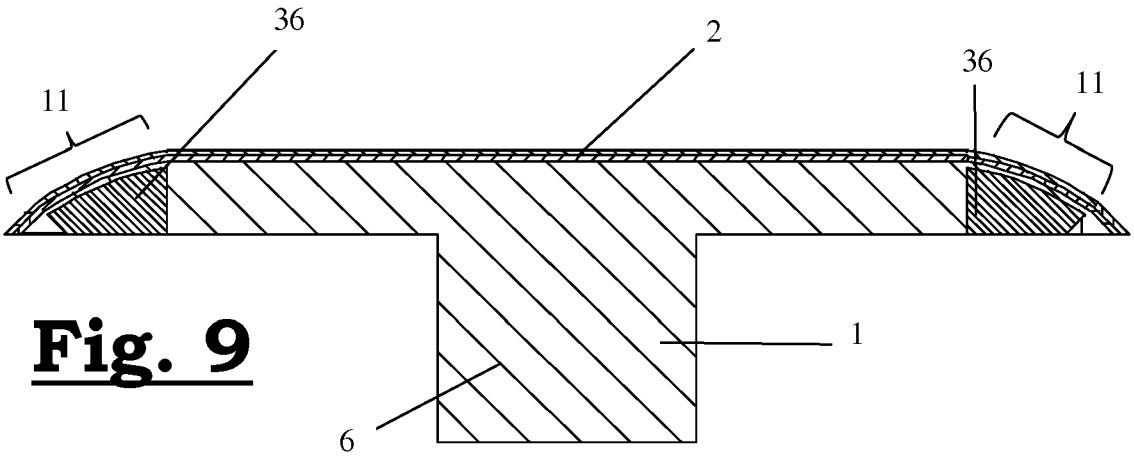
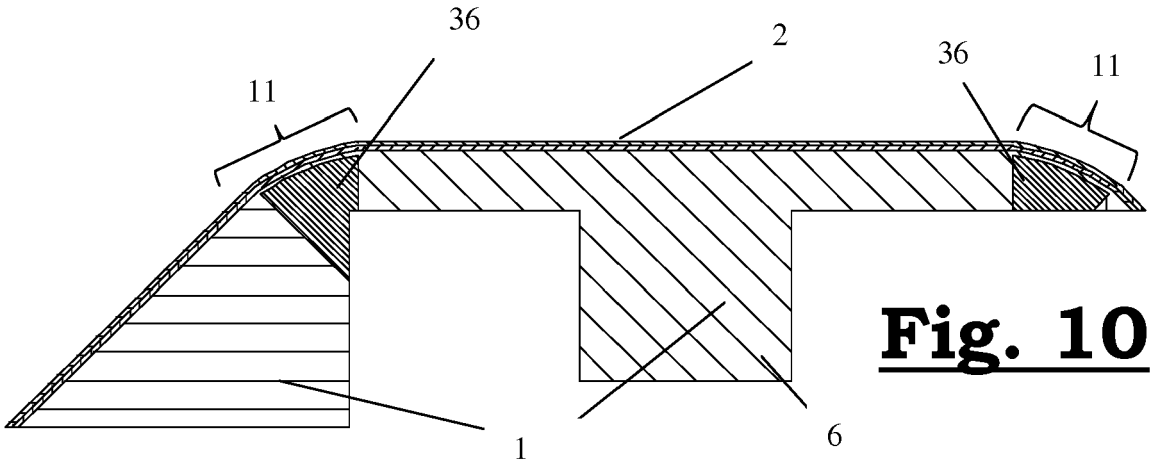


Fig. 9



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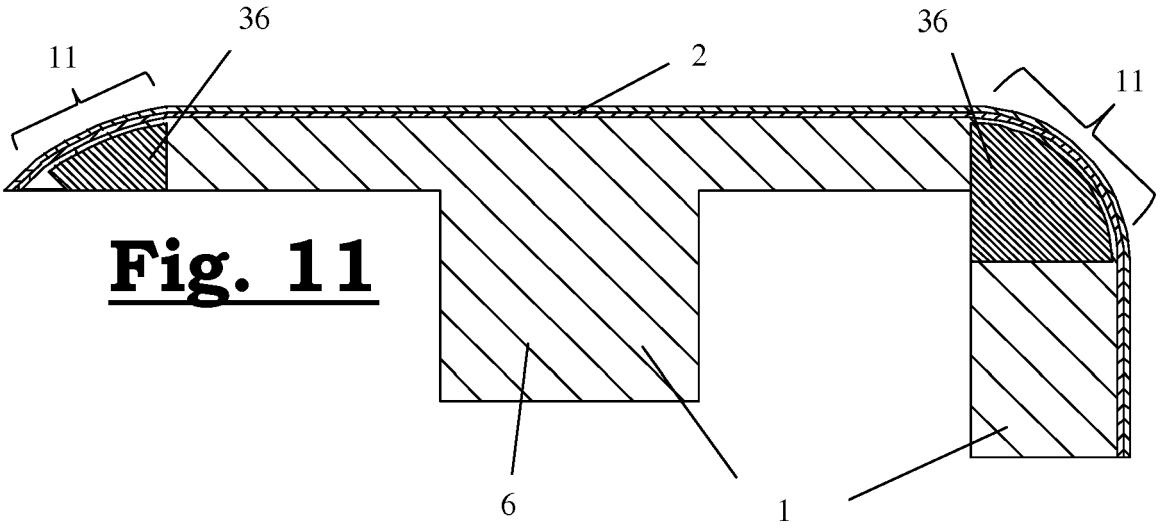

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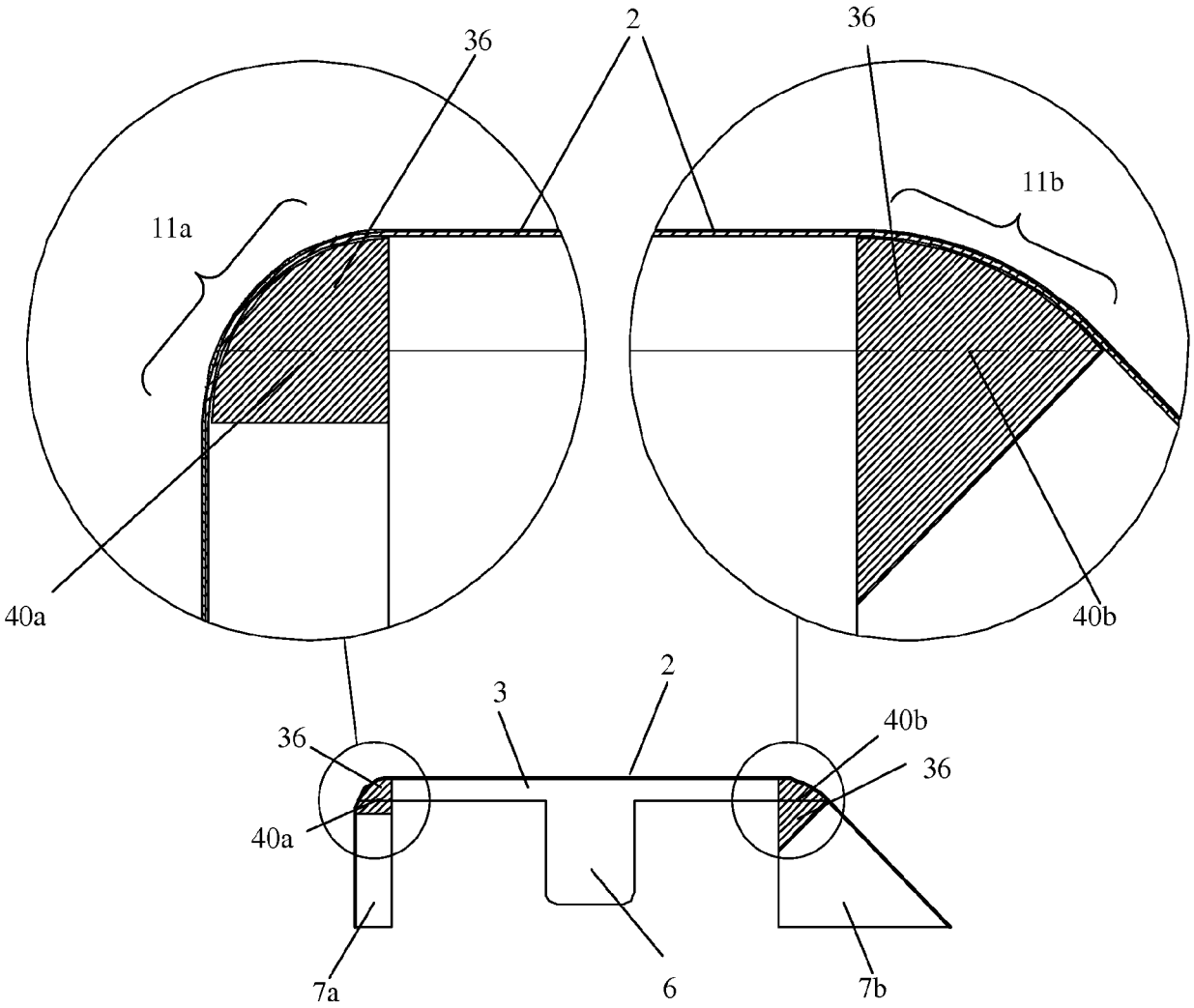

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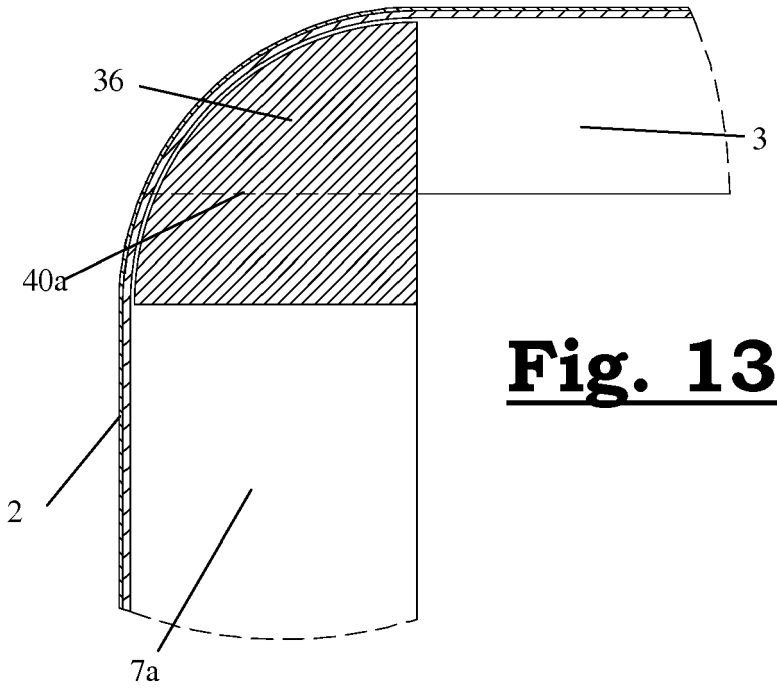


Fig. 13a

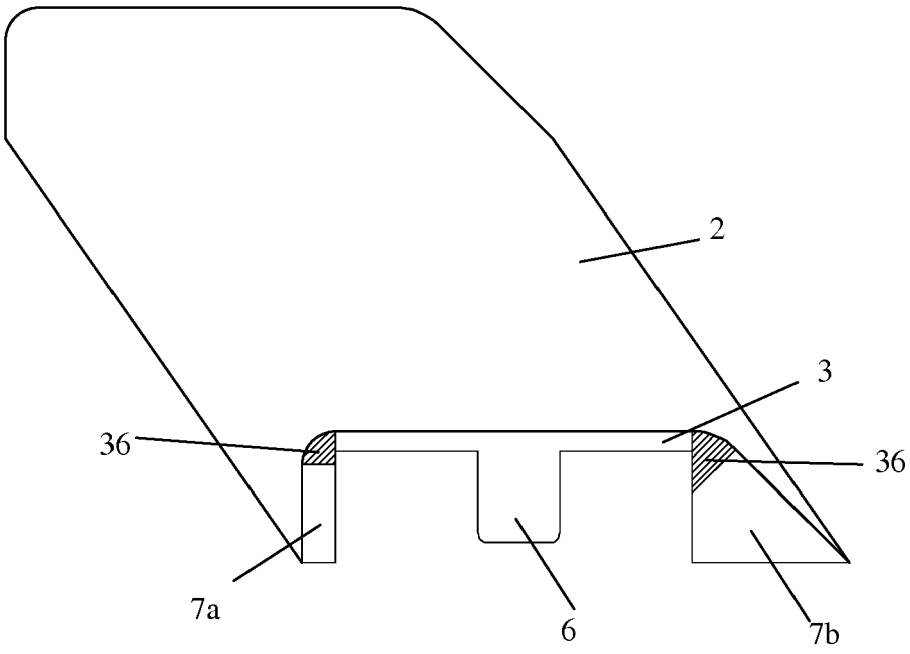


Fig. 13b

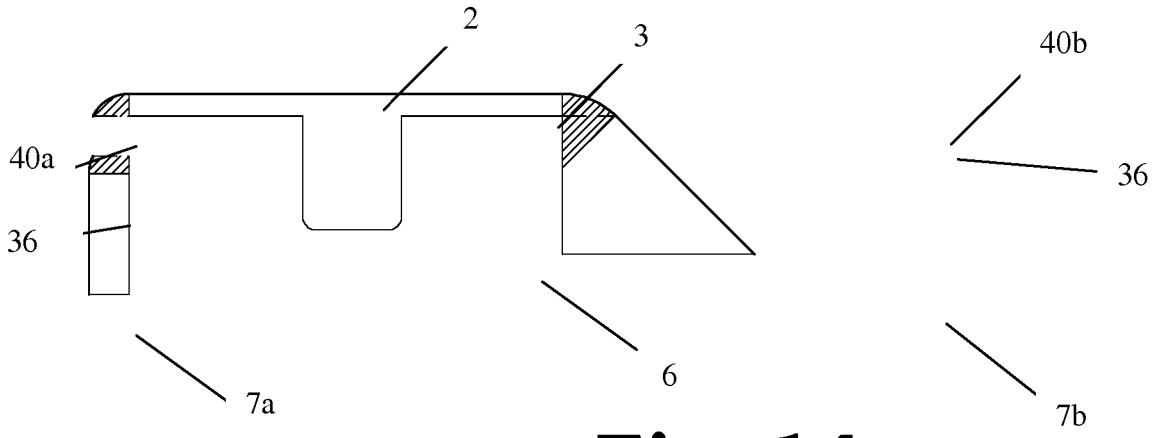
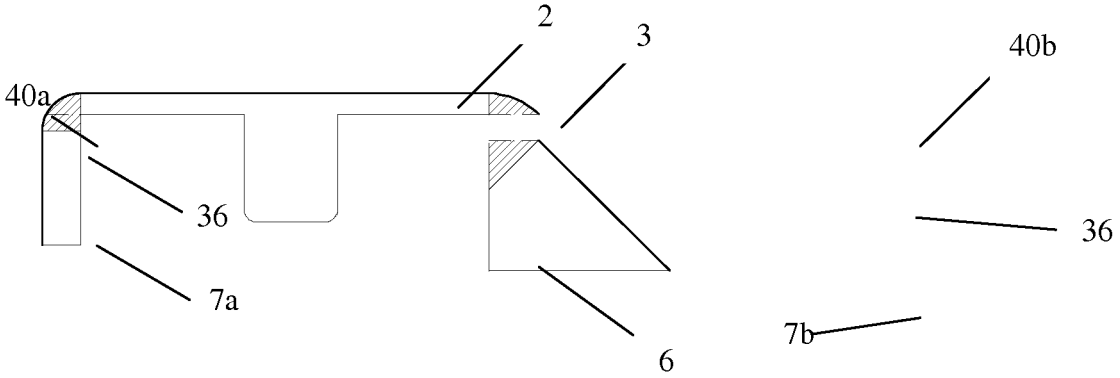


Fig. 14



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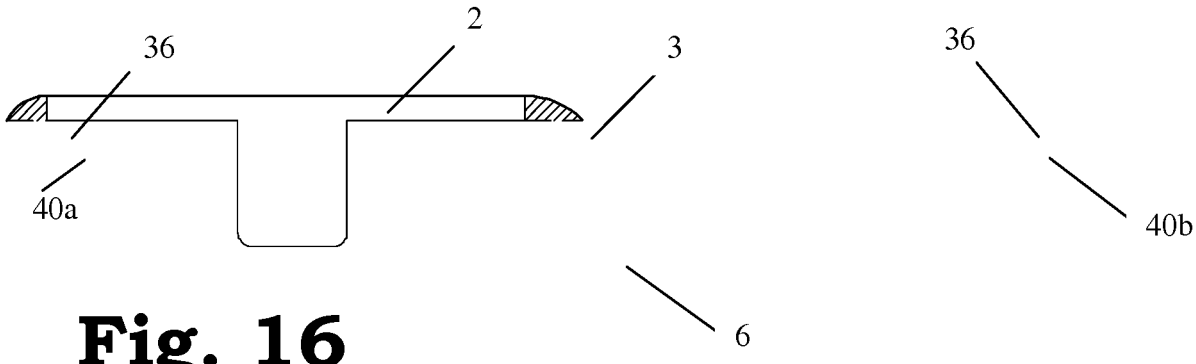


Fig. 16

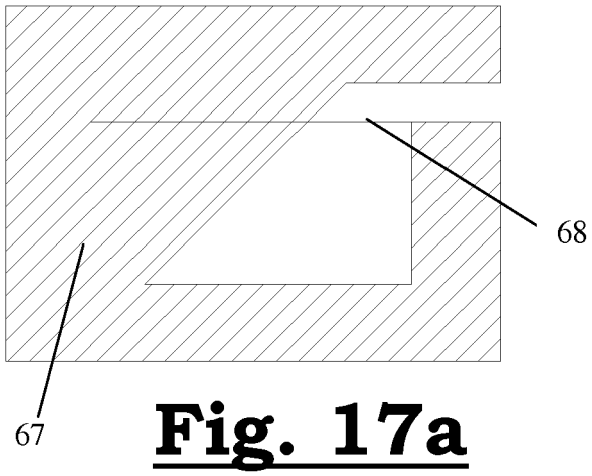


Fig. 17a

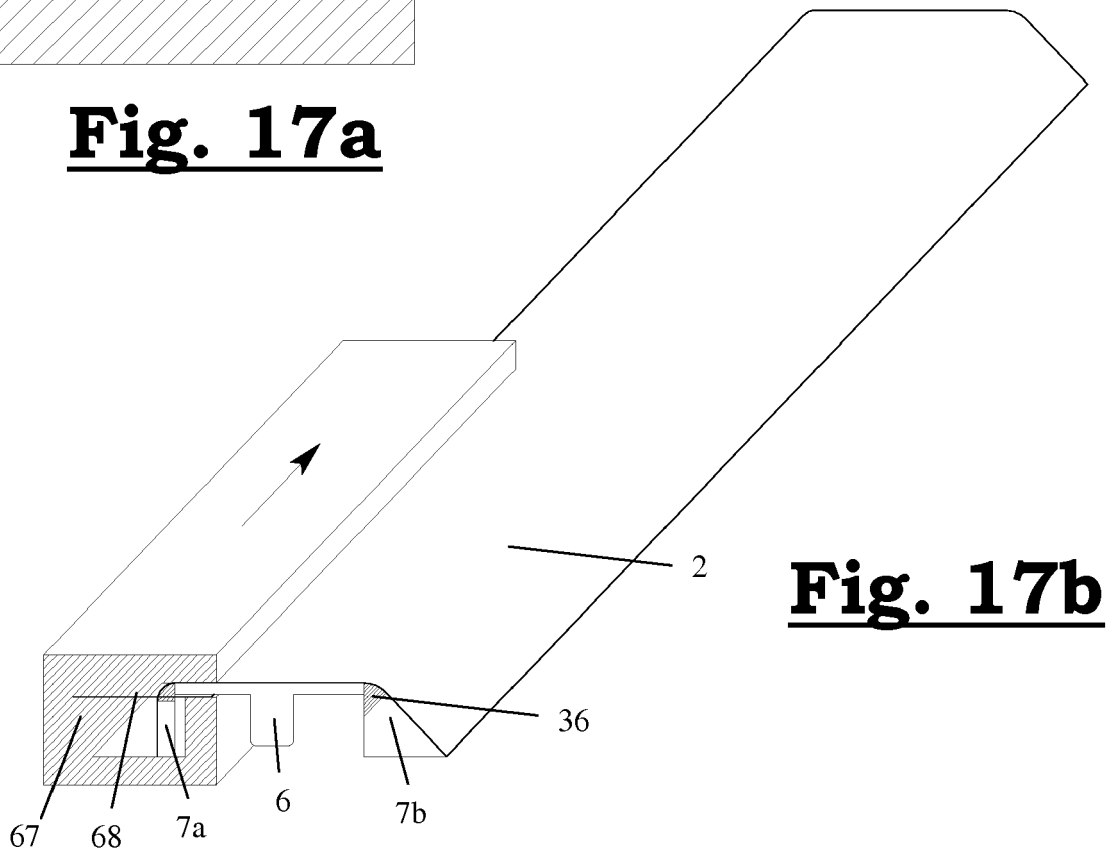


Fig. 17b

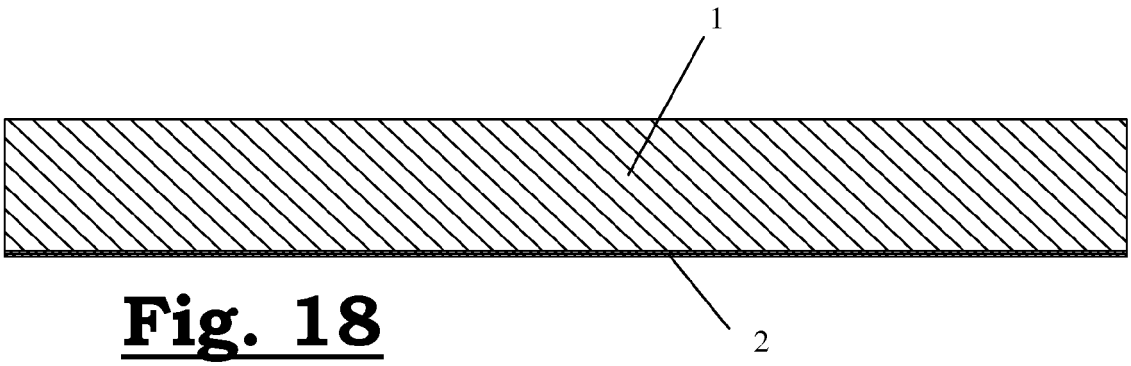


Fig. 18

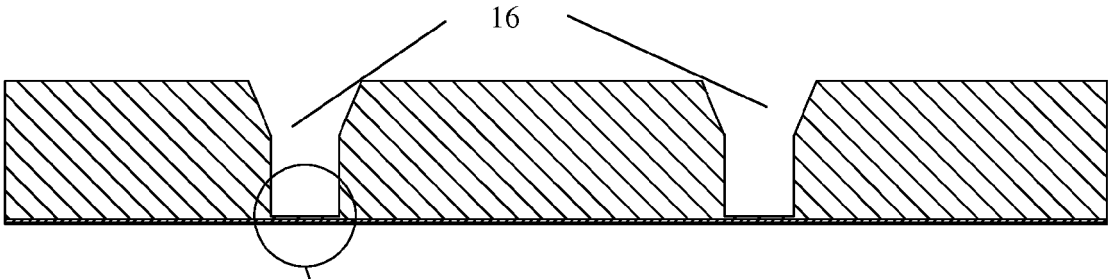
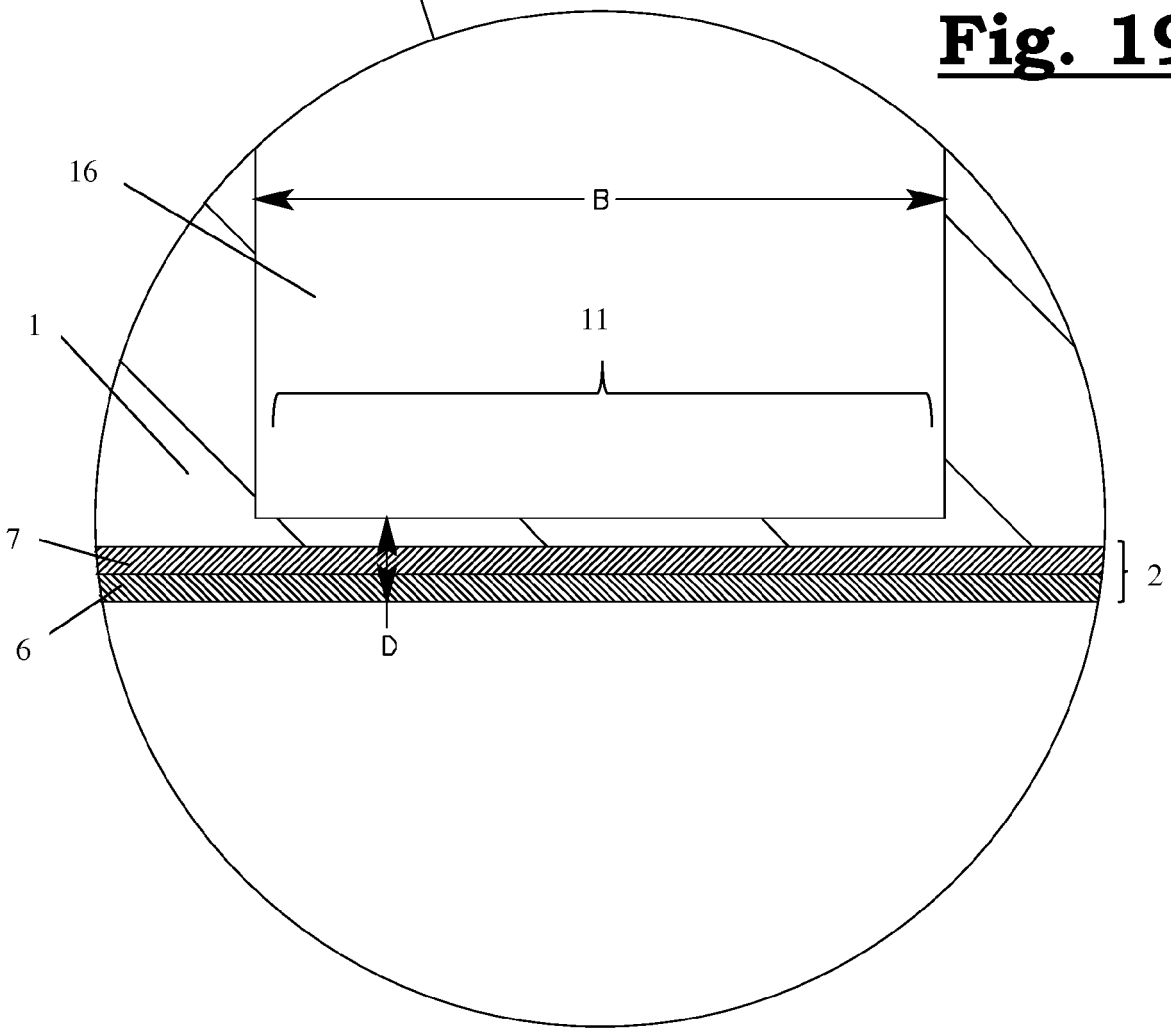


Fig. 19



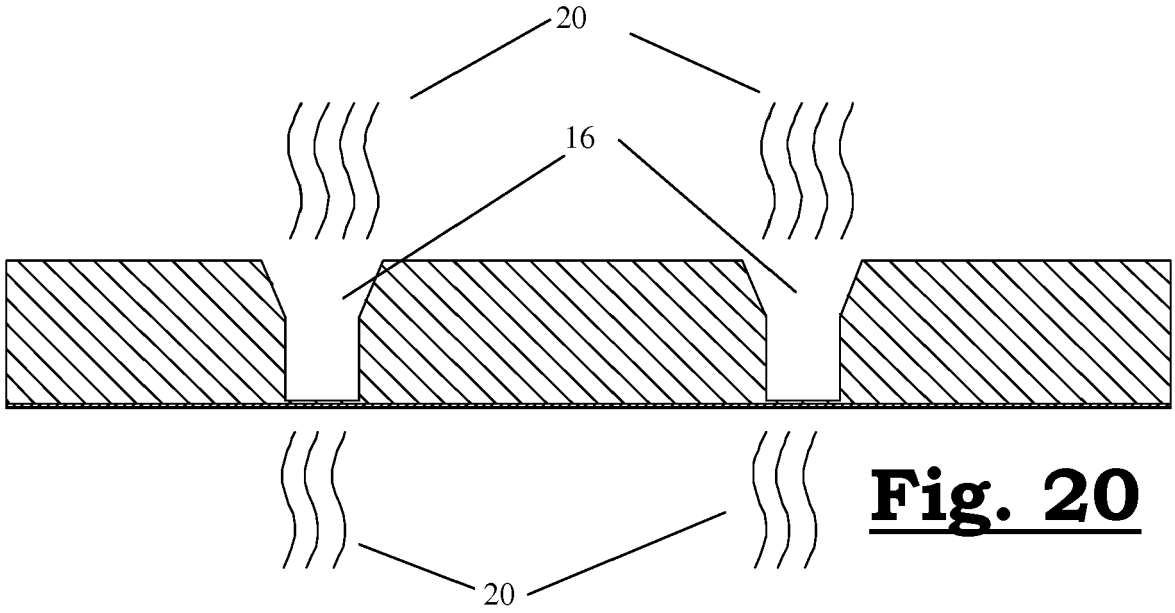


Fig. 20

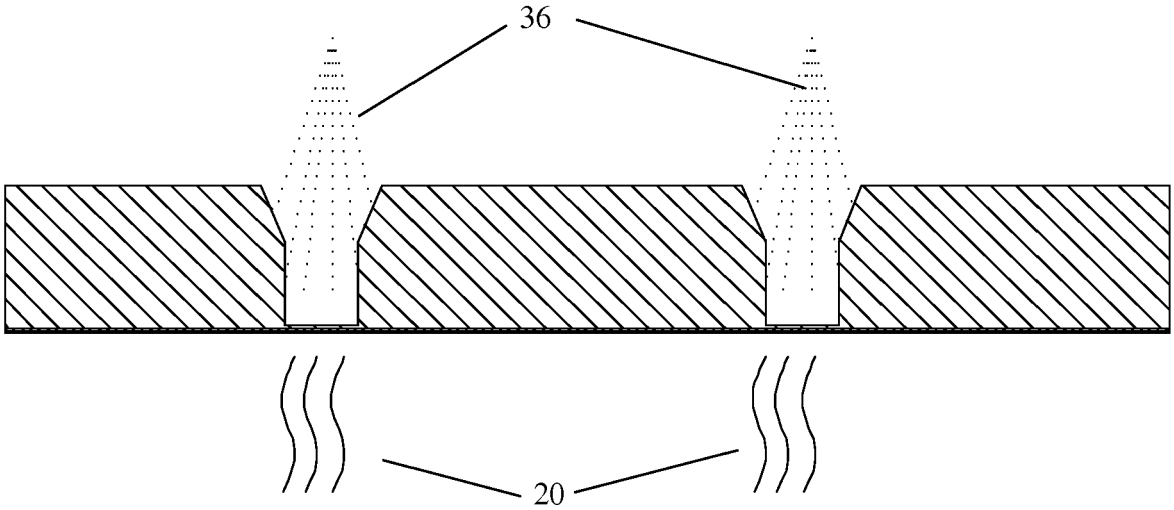


Fig. 21

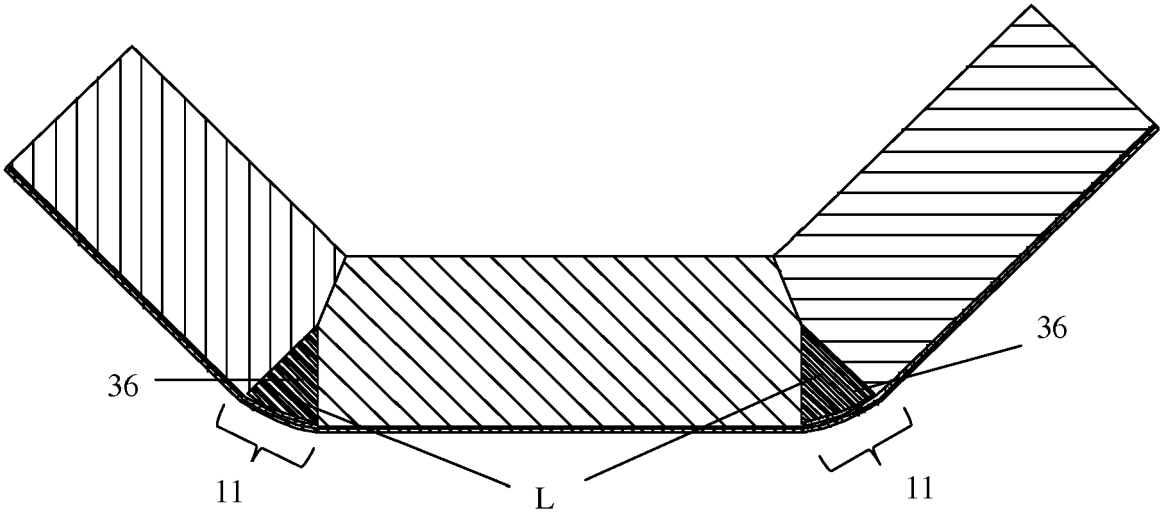


Fig. 22

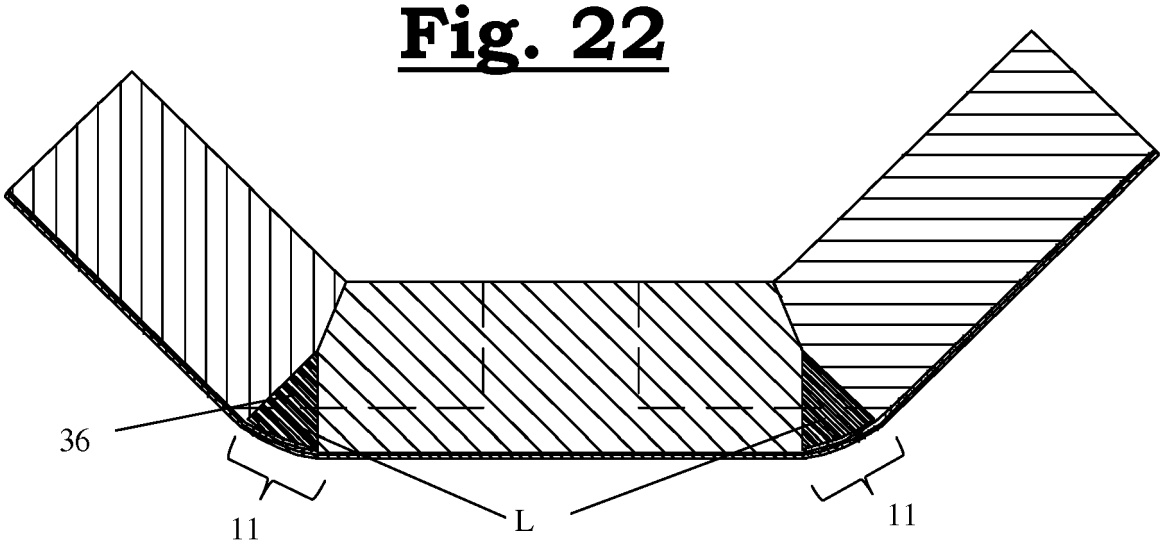


Fig. 23a

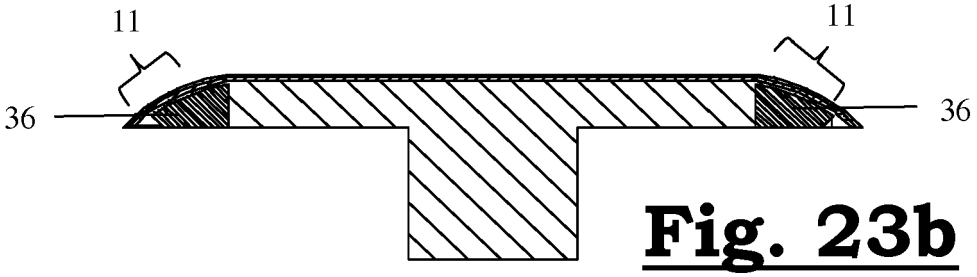


Fig. 23b

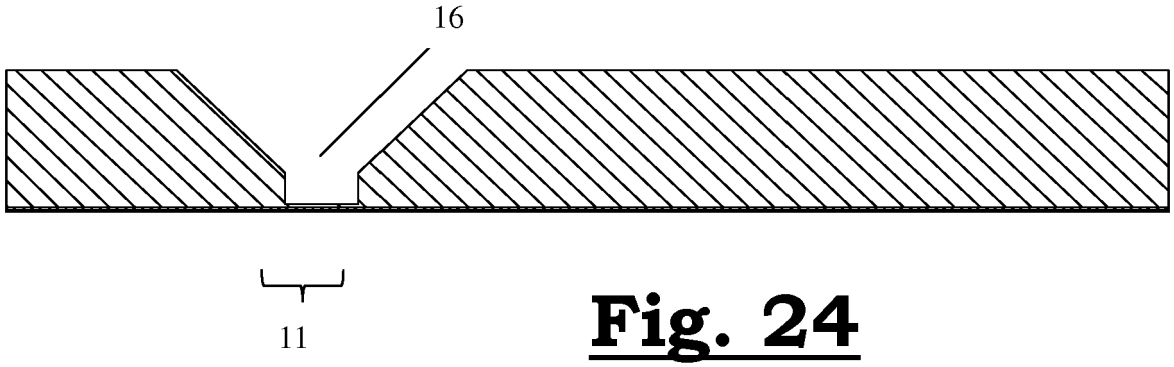


Fig. 24

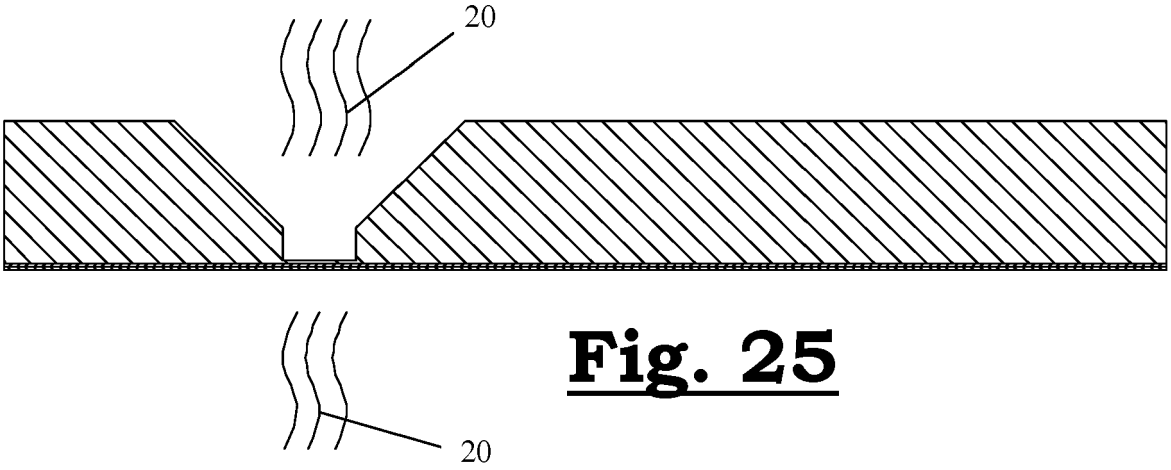


Fig. 25

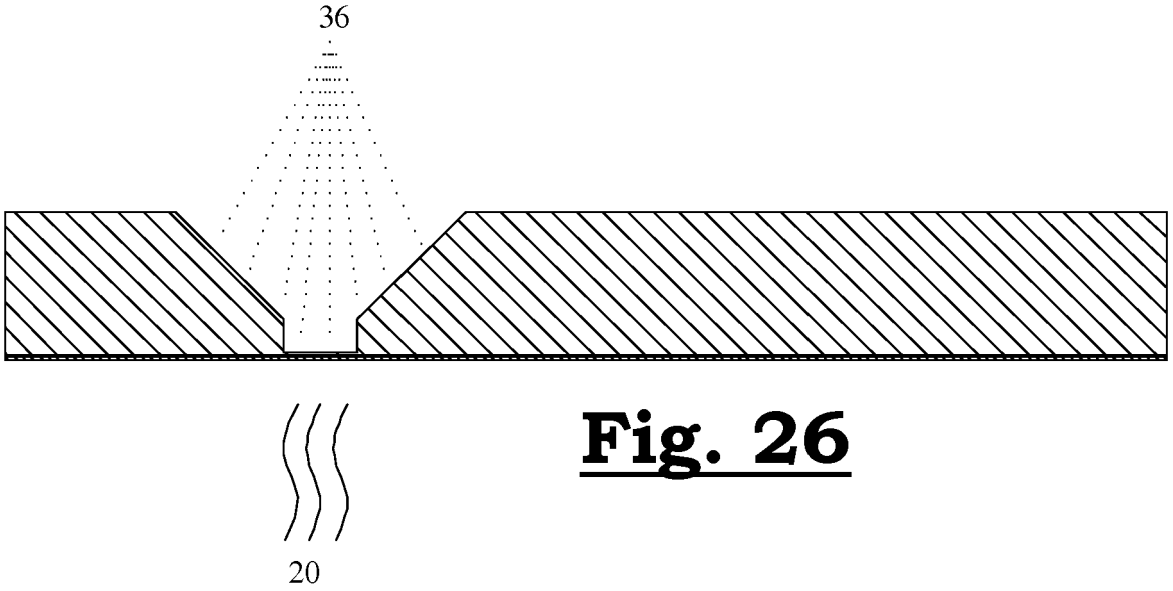


Fig. 26

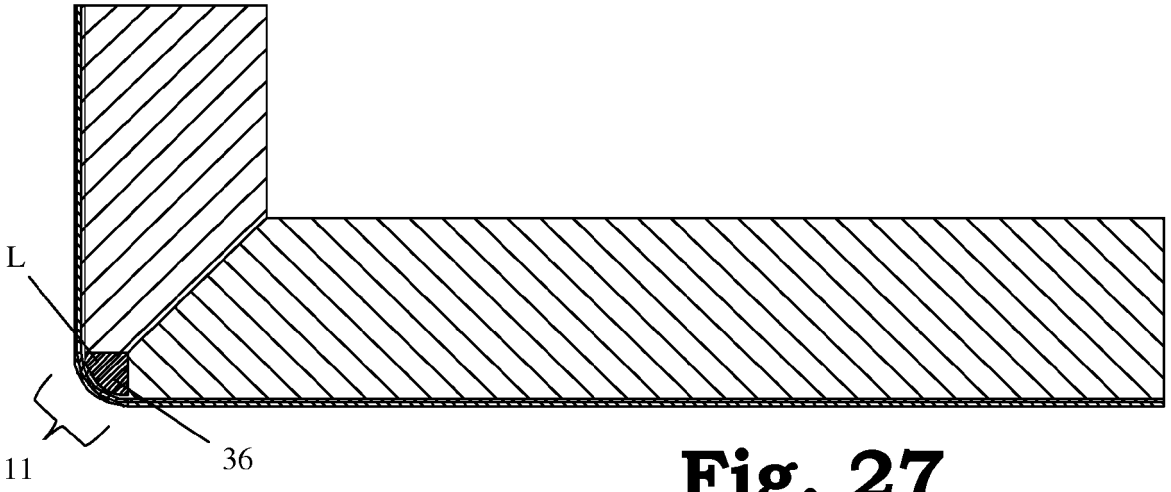


Fig. 27

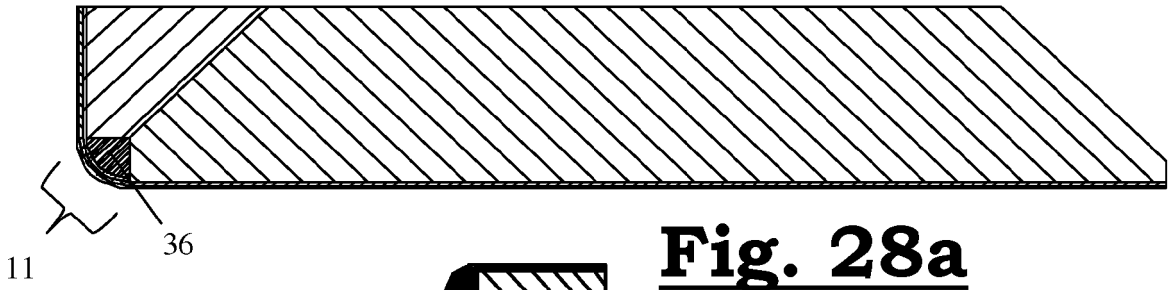


Fig. 28a

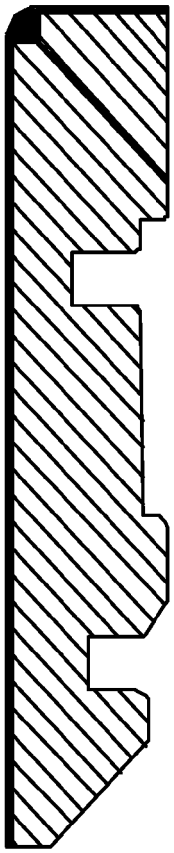


Fig. 28b

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EUROPEAN SEARCH REPORT

Application Number
EP 16 16 4048

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 370 353 A2 (GRUBER & WEBER [DE]) 30 May 1990 (1990-05-30) * column 4, lines 39-42,50-51; figures 2,4-11 * * column 2, lines 28-30,44-45 * * column 6, line 12 - line 20 * * column 8, line 46 * -----	1-14	INV. E04F19/04 B27D5/00

TECHNICAL FIELDS SEARCHED (IPC)

E04F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 October 2016	Topcuoglu, Sadik Cem

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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D : document cited in the application
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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 16 16 4048

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10-10-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0370353 A2	30-05-1990	DE 3906594 A1	23-05-1990
		EP 0370353 A2	30-05-1990

EPO FORM P0459

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

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Patent documents cited in the description

- BE 1019285 **[0011] [0012]**