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(54) Profiles for laying ceramic-tile, wooden and laminate flooring, and carpeting

(57) This is a new system of profiles for jointing flooring elements, consisting of a base profile (B) resting on, and attached to the subfloor, a U-shaped main spacer (D1) and a top profile (T). Said base profile (B) and main spacer (D1) are respectively complete with ribbing (Br) and a seat (D1s), both of substantially circular cross-section, so that the main spacer (D1) can be positioned at a variable tilting angle. The new system of profiles also includes an auxiliary spacer (D2) with a rectangular cross-section, which can be inserted between the base profile (B) and the main spacer (D1) to increase the distance between the top profile (T) and said base profile (B). Said auxiliary spacer also includes a seat (D2s) in the bottom and ribbing (D2r) in the top, both of substantially circular cross-section.

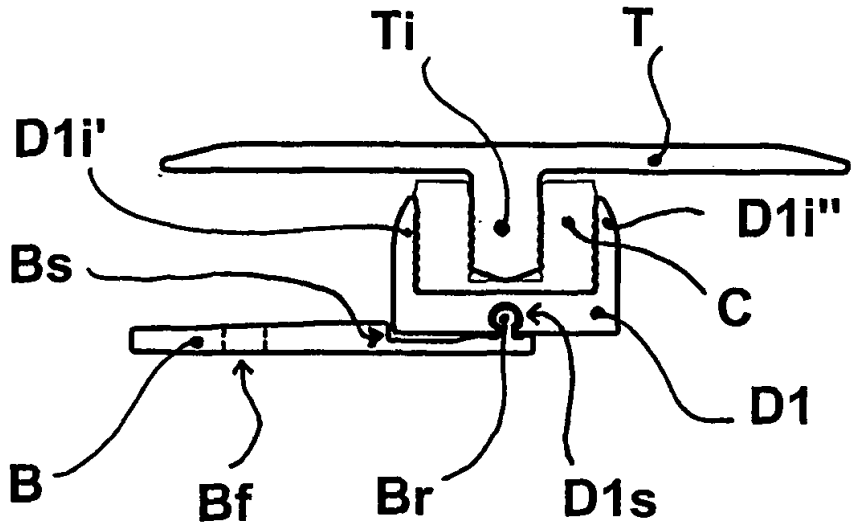

Fig. 1a

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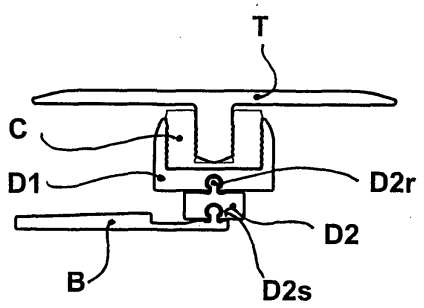

Fig. 1b

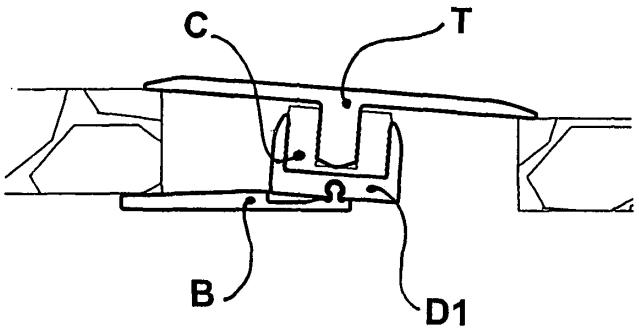

Fig. 1c

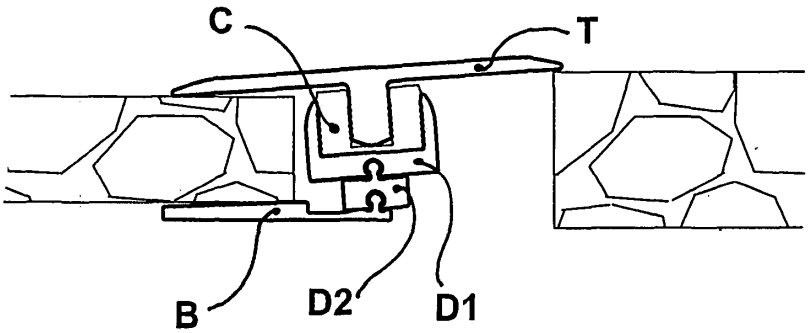

Fig. 1d

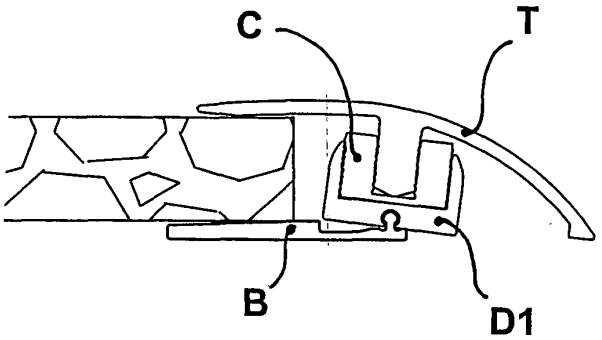

Fig. 1e

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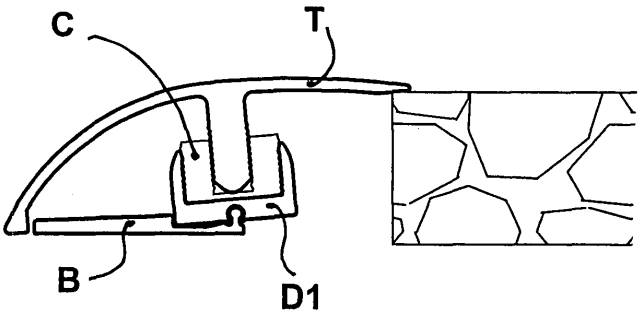

Fig. 1f

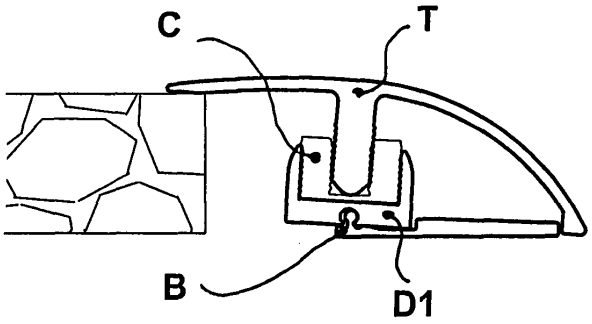

Fig. 1g

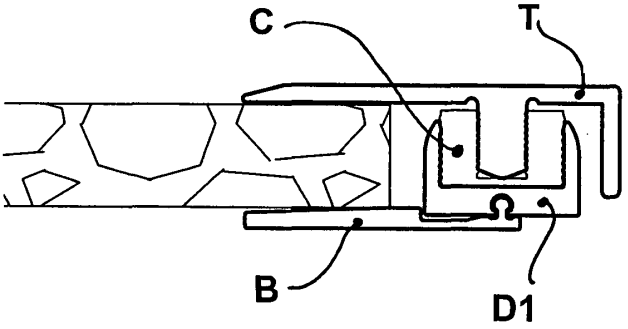

Fig. 1h

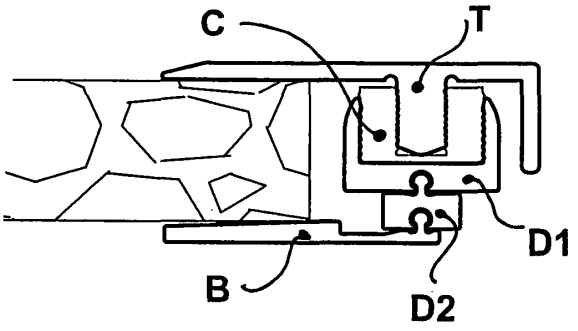

Fig. 1i

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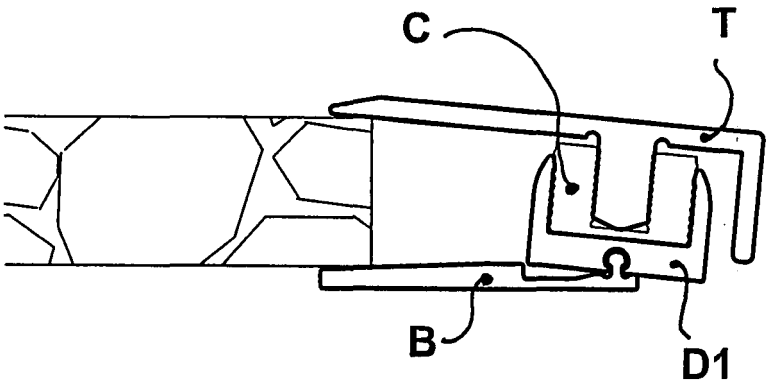

Fig. 1j

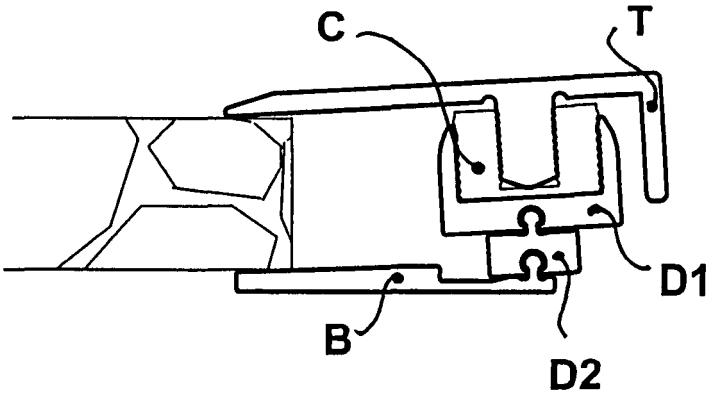

Fig. 1k

Description

[0001] This patent relates to profiles for laying flooring and floor coatings in general, and particularly concerns a system of profiles for laying ceramic-tile, wooden or laminate flooring, carpeting, and so on.

[0002] Among the procedures involved in finishing inhabited buildings, the installation of flooring is one of the most important and costly.

[0003] It is common knowledge that flooring can be made of various materials, such as ceramic tiles, wood, marble, laminated materials, carpeting, etc.

[0004] In the process of installing flooring materials, the need often arises to create a joint between flooring elements made of the same surface finishing material, or of two different such materials.

[0005] For this purpose, the most obvious design solution involves a method that uses no jointing means between the flooring elements, which are simply juxtaposed and laid so as to make the ends come together as accurately as possible. Using this method, the jointing is always imperfect, however, and it is impossible to avoid unsightly gaps in the places where the flooring elements are joined, where damage can occur and dirt can accumulate.

[0006] Moreover, this type of solution does not allow for any dilation of the flooring elements, particularly important where wood and laminated materials are concerned.

[0007] The solution that overcomes said drawbacks involves the use of specific profiles for jointing the flooring elements.

[0008] Numerous types of profile are already known, that vary in shape, the method used for fixing them to the floor, the materials of which they are made, and the type(s) of flooring for which they are suitable.

[0009] There are profiles for jointing coplanar flooring elements and terminal profiles for jointing flooring elements lying on different levels, where the height difference may vary from a few millimeters up to dimensions the order of a couple of centimeters.

[0010] The profiles can be fixed with screws and/or anchors, adhesive media and/or joints.

[0011] Numerous systems are known to the market that include profiles of a substantially linear design for fixing directly or indirectly to the subfloor with the aid of screws that remain in view. Said profiles are the most straightforward solution for laying flooring, but they have the drawback of the visible screws, which can be unsightly.

[0012] Another type of profile involves including the heads of one or more anchors in a specific channel cut longitudinally in the bottom of the profile, out of sight, so that said profile can be attached to the concrete subfloor without the fixing devices remaining visible from the outside.

[0013] There are also systems of profiles for use in installing structurally more complex flooring, consisting of a base profile made of metal, preferably aluminium, for laying under the flooring and fixing to the concrete subfloor with the aid of screws, adhesive, or embedding it directly in the concrete casting. The base profile is shaped so as to have two vertical walls side-by-side, the space between them containing the leg of a longitudinally-shaped top profile, with a substantially T-shaped cross-section. Said top profile can be fixed to the base profile by a snap-in joint, with or without the aid of intermediate means, called fixing clips.

[0014] There are also perforated top profiles on the market, that enable them to be fixed to the base profile with the aid of screws and anchors.

[0015] In the event of jointing profiles being installed between floors at different heights, i.e. with surfaces that are not coplanar, it becomes necessary to use shaped profiles to cover the height difference as smoothly as possible, so as to enable the passage of trolleys or pushchairs and avoid the risk of people tripping.

[0016] For this purpose, there are known types of shaped profile with a flat or rounded cross-section, in various shapes and sizes to cover all differences in height.

[0017] Such profiles may be made of metal, e.g. aluminium, or plastic, real wood or other like materials.

[0018] To overcome the problem of the unsightly difference in the materials used for the profiles and the flooring, there are known types of profile that are coated with a special film to reproduce the colour and/or the vein of the flooring material.

[0019] The fundamental drawback of all the above-described types of profile lies in their scarce adaptability to different situations, i.e. different situations demand different types of profile. In fact, there are base profiles and top profiles on the market that can be used for coplanar flooring joints and various other versions of base profiles and top profiles for dealing with certain differences in height.

[0020] Operators laying flooring are consequently obliged to establish in advance whether or not the flooring is coplanar and which type of profile is best suited to a given case, with the consequent risk of the profiles subsequently proving unsuitable for the height differences to cover, or of delays in the completion of the flooring.

[0021] It is also important to bear in mind that even the same type of flooring material may have slightly different thicknesses and thus present differences in height that, though minimal, can still be harmful and ugly, and that the profiles of known type fail to cover adequately.

[0022] This makes it necessary to have a vast range of profiles available in order to be able to cope with all the different installation requirements.

[0023] To overcome the aforementioned drawbacks, a new system of profiles for use in laying flooring has been

designed and manufactured, comprising a base profile, a top profile with an adjustable tilting angle and at least one spacer element.

[0024] The main object of the new system of profiles for laying flooring is to provide an optimal connection between adjacent flooring elements of the same and/or different thickness with the maximum degree of adaptability.

[0025] Another object of the new system of profiles for laying flooring is to restrict the variety of different profiles needed, making the components as versatile as possible, i.e. making them adaptable to as many situations as possible, and thereby reducing the risk of having to purchase and stock materials that remain unsold.

[0026] Another object of the new system of profiles for laying flooring is to enable them to be used for laying all types of flooring material, such as ceramic tiles, wood block or board, laminate, or carpeting.

[0027] A further aim of the new system of profiles for laying flooring is to facilitate the operations involved in installing said profiles.

[0028] These and other direct and complementary objects are achieved by the new invention, as emerges from the following description and claims.

[0029] The new system of profiles for laying flooring preferably consists of three main elements and one or more auxiliary elements.

[0030] A substantially linear, longitudinal base profile has perforations distributed longitudinally thereon to enable said base profile to be attached to the concrete subfloor with the aid of screws, adhesive or by embedding it directly in the cement mortar casting. The base profile is consequently fixed permanently under the floor.

[0031] In parallel with the perforations, said base profile includes linear ribbing with a preferably circular cross-section distributed longitudinally thereon.

[0032] A second element, hereinafter called the main spacer, serves the purpose of connecting the base profile with the third element of the system, i.e. the top profile.

[0033] Said main spacer extends longitudinally and is substantially U-shaped, and the lower part of it contains a seat distributed along the length of said main spacer, that is preferably of circular cross-section, i.e. suitable for engaging the ribbing on the base profile.

[0034] Thus, the engagement of the ribbing on the base profile in the circular seat on the main spacer ensures the connection of said two elements and enables the main spacer to rotate around said ribbing, tilting to one side or the other.

[0035] To enable said oscillation of the main spacer, the shape of the base profile near the ribbing is designed so as to leave sufficient space for said main spacer to be able to turn and thus bring the top profile into the ideal position for connecting the flooring elements.

[0036] The upper part of said main spacer has a rounded shape to enable it to partially engage the third element, i.e. the top profile, which also has a longitudinal, substantially linear shape, which is attached to the main spacer by means of a snap-on connection or screws, with or without intermediate means, hereinafter called fixing clips.

[0037] The fourth element, hereinafter called the auxiliary spacer, can be installed between the main spacer and the base profile in the event of the thickness of the flooring making it necessary to position the top profile further away from said base profile.

[0038] Said auxiliary spacer has a linear shape and a generically rectangular cross-section and consists of one or more linear seats of substantially circular cross-section (i.e. similar to the one on the main spacer) distributed longitudinally along one of the longer sides. Thus, when the auxiliary spacer is placed with said side underneath, the ribbing on the base profile can engage inside said seat in the auxiliary spacer.

[0039] On the side opposite said seat, said auxiliary spacer also has longitudinal ribbing of linear shape and substantially circular cross-section (i.e. similar to the ribbing on the base profile), which can consequently engage likewise in the seat of circular cross-section on the underside of the main spacer.

[0040] If the thicknesses of the flooring material to join make it necessary for the top profile to be positioned further away from the base profile, said auxiliary spacer can be rotated through 90°. The other pair of sides also has ribbing on one side and a seat on the other so that the auxiliary spacer can engage in the base profile below and in the main spacer above.

[0041] The top profile can consequently be placed at various distances from the base profile, depending on the position of said auxiliary spacer.

[0042] The features of the new system of profiles for laying flooring are better clarified in the following description with reference to the drawings, attached as a non-restrictive example, illustrating some of the possible applications of the new invention, as laid out in the present description and claims.

[0043] Figures 1 show the new system of profiles with the top profile fixed to the main spacer by means of a joint, with the aid of a fixing clip.

[0044] Figures 2 show the new system of profiles with the top profile fixed to the main spacer using screws, without any fixing clip.

[0045] Figures 3 show the new system of profiles wherein the top profile is complete with a channel on the underside to contain the heads of the screws used to attach the top profile to the main spacer. Said screws can be screwed directly

into the main spacer (figures 3a-3g) or fixed thereto by screwing them onto a fixing clip (figures 3h-3m) or expansion bolt.

[0046] All the proposed solutions for installing the new system of profiles for laying flooring use of the previously-illustrated main elements, positioned and installed in various possible ways.

[0047] Looking at figure la, for example, the base profile (B) has a longitudinal and substantially linear shape, and lies on the subfloor, being attached thereto by means of screws, adhesive or by embedding it directly in the cement mortar casting. For this purpose, said base profile (B) has perforations (Bf) arranged along the length of said profile (B).

[0048] Said base profile (B) includes ribbing (Br) of substantially circular cross-section, distributed along said base profile (B) and placed at one of the two ends of said base profile (B).

[0049] The main spacer (D1) is a linear element with a generically U-shaped shaped cross-section and including a seat (D1s) in its lower part, distributed longitudinally along said main spacer (D1) and of substantially circular cross-section. The shape of said seat (D1s) is designed to enable the circular ribbing (Br) on the base profile (B) to engage therein.

[0050] With this type of joint, the main spacer (D1) remains attached to the base profile (B) but is free to rotate around said ribbing (Br), i.e. it can be tilted at a variable angle to one side or the other.

[0051] To allow for said tilting position, the base profile (B) is shaped so that, in the vicinity of the ribbing (Br), a seat (Bs) affords the necessary freedom of movement so that said main spacer (D1) can be tilted to adjust the position of the top profile (T) and thereby ensure an optimal connection between the flooring elements.

[0052] The upper part of the main spacer (D1) is shaped so as to create two vertical walls (D1i') and (D1i") placed side-by-side and the resulting cavity is suitable for containing the lower end of the top profile (T).

[0053] The top profile (T) is of longitudinal shape with a substantially T-shaped cross-section, the lower part of which forms a leg or jointing element (Ti), that enables said top profile (T) to be attached to the main spacer (D1).

[0054] Said joint is achieved using an intermediate element, or fixing clip (C), that is inserted in the main spacer (D1) and attached thereto by means of an adhesive, for instance.

[0055] Said fixing clip (C) may be made of rubber or a suitable plastic.

[0056] The upper part of said top profile (T) is the outer part of the system of profiles for laying flooring and can be coated with a suitable surface film to reproduce the color and/or vein and or pattern of the flooring elements being installed.

[0057] The new system of profiles for laying flooring as described above enables the jointing of flooring elements of the same thickness, of different thicknesses, or arranged at different heights, thanks to the opportunity to tilt the top profile to ensure an optimal connection between said flooring elements (see figure 1c).

[0058] For thicker flooring elements (e.g. around two centimeters), the system of profiles includes an optional additional element for attaching between the base profile (B) and the main spacer (D1). Said element is called the auxiliary spacer (D2) and has a generically rectangular cross-section, i.e. with two longer parallel sides and two shorter parallel sides.

[0059] Said auxiliary spacer (D2), illustrated for instance in figure 1b, serves the purpose of increasing the distance between the top profile (T) and the subfloor. On one of its sides it has a longitudinally-distributed seat (D2s) of substantially circular cross-section, suitable for retaining the circular ribbing (Br) on the base profile (B).

[0060] On the side opposite said seat (D2s), said auxiliary spacer has longitudinally-distributed ribbing (D2r) of substantially circular cross-section, suitable for engaging in the seat (D1s) in the main spacer (D1).

[0061] Because said seats (D1s) and (D2s), and said ribbing (Br) and (D2r) are of substantially circular cross-section, as explained earlier, they enable the system comprising the auxiliary spacer (D2), the main spacer (D1) and the top profile (T), to be tilted in order to ensure an optimal joint between the flooring elements. The top profile (T), for instance, has to be arranged horizontally, i.e. parallel to the subfloor, if the free ends of the flooring elements come to be at the same height (see figure 1 b), but it has to be more or less tilted to one side or the other if said free ends of the flooring elements lie on different levels (see figure 1d).

[0062] If the thicknesses of the flooring elements being joined together make it necessary for the top profile (T) to be placed at an even greater distance from the base profile (B), said auxiliary spacer (D2) can be inserted after rotating it by 90°, if necessary, because the other pair of sides also has ribbing on one side and a seat on the other, so that the bottom of the auxiliary spacer (D2) can engage in the base profile (B) and the top can engage in the main spacer (D1).

[0063] Where necessary, more than one auxiliary spacer (D2) can be used, placed one on top of the other, should it be necessary to position the top profile (T) even further away from the base profile (B).

[0064] The remainder of the figures 1e - 1k show different solutions for using the system of profiles described herein, and different shapes of top profile (T), used to meet different installation requirements.

[0065] The top profile (T) illustrated in figures 1e - 1g has a rounded surface, which serves the purpose of connecting flooring elements while rounding off the step.

[0066] Where appearance or other considerations make it necessary to avoid rounding off the step, the recommended solution is a top profile (T) whose upper part is shaped to produce a corner (see figures 1h - 1k).

[0067] Alternatively, the top profile (T) can be attached to the main spacer (D1) by means of a joint to with the aid of screws or anchors.

[0068] Figures 2 and 3 illustrate the various solutions involving the use of said screws.

[0069] Figures 2, for instance, show the top profile (T) attached to the main spacer (D1) with the aid of screws (V) inserted through holes provided in said top profile (T) and screwed directly into said main spacer (D1).

[0070] The installation and assembly options are the same as for the profiles of the type described previously and illustrated in figures 1.

[0071] Using screws to fix the top profile (T) has the advantage of enabling the height of said top profile (T) to be adjusted not only by adding the optional auxiliary spacer (D2), but also by screwing the screws down more or less into the main spacer (see figures 2g and 2h, for instance).

[0072] Note in figures 2i and 2p that the auxiliary spacer (D2) is rotated by 90° so as to further increase the distance between the top profile (T) and the subfloor, thus enable the jointing of even thicker flooring elements.

[0073] Figures 3 show the solution with a top profile (T) that includes a channel at the bottom for containing the heads of screws or specific fixing clips (C) or expansion bolts.

[0074] Thus, with reference to the previous description and to the attached drawings, the following claims are advanced.

Claims

1. Profiles for laying flooring **characterized in that** they consist of the following elements:

   • a base profile (B) of substantially linear longitudinal shape, suitable for being placed on the subfloor and attached thereto by means of screws, adhesive, or by embedding it directly in the cement mortar casting, with perforations (Bf) for said purpose placed longitudinally along said base profile (B);
   • a longitudinally-shaped main spacer (D1) with a generically U-shaped cross-section, the bottom of which is connected to said base profile (B);
   • a longitudinally-shaped top profile (T) with a substantially T-shaped cross-section, the bottom of which can be connected to said main spacer (D1).

2. Profiles for laying flooring, as in claim 1, **characterized in that** said base profile (B) includes ribbing (Br) of substantially circular cross-section, distributed longitudinally along said base profile (B).

3. Profiles for laying flooring, as in claims 1, 2, **characterized in that** said main spacer (D1) includes:

   • a seat (D1s) at the bottom, distributed longitudinally along said main spacer (D1), with a substantially circular cross-section suitable for retaining therein said circular ribbing (Br) on the base profile (B), so that said main spacer (D1) remains attached to the base profile (B), but is free to rotate around the ribbing (Br) and thus occupy a variable tilting position;
   • two vertical walls (Dli') and (Dli") side-by-side at the top, so as to create a cavity in which the lower part of the top profile (T) engages.

4. Profiles for laying flooring, as in claims 1, 2, **characterized in that** said ribbing (Br) on the base profile (B) is positioned at one of the two ends of said base profile (B).

5. Profiles for laying flooring, as in claims 1, 2, **characterized in that** said base profile (B) includes a cavity or seat (Bs) in the vicinity of the ribbing (Br) that is designed to allow for the tilting of the main spacer (D1).

6. Profiles for laying flooring, as in claims 1, 2, 3, **characterized in that** said top profile (T) can include a leg or jointing element (Ti) at the bottom for engaging between said two vertical walls (D1i') and (D1i") on the main spacer (D1) so that the top profile (T) remains engaged in said main spacer (D1).

7. Profiles for laying flooring, as in claims 1, 2, 3, 6, **characterized in that** said top profile (T) can be attached to the main spacer (D1) with the aid of screws or anchors, either with their heads in view or lying flush with the surface inside specific channels created in the bottom of said top profile (T).

8. Profiles for laying flooring, as in claims 1, 2, 3, 6, 7, **characterized in that** said top profile (T) can be attached to the main spacer (D1) with the aid of an intermediate element, or fixing clip (C).

9. Profiles for laying flooring, as in claims 1, 2, 3, 4, 5, 6, 7, 8, **characterized in that** they include a longitudinally-shaped auxiliary spacer (D2) with a generically rectangular cross-section, suitable for engaging between the base profile (B) and the main spacer (D1) so as to increase the distance between the top

profile (T) and said base profile (B), and consisting of:

- a seat (D2s) on one side, distributed longitudinally along said auxiliary spacer (D2), with a substantially circular cross-section suitable for retaining the circular ribbing (Br) on the base profile (B), so that said auxiliary spacer (D2) remains attached to the base profile (B) but is free to turn, i.e. it can occupy a variable tilting position on either side.
- ribbing (D2r) with a substantially circular cross-section distributed longitudinally along the opposite side of said auxiliary spacer (D2) so as to engage in the seat (D1s) in the main spacer (D1), while remaining free to turn, i.e. to occupy a variable tilting position on either side.

10. Profiles for laying flooring, as in claims 1, 2, 3, 4, 5, 6, 7, 8, 9, **characterized in that** the other two sides of said auxiliary spacer (D2) can also include ribbing on one side and a seat on the other, both of substantially circular cross-section, so that the auxiliary spacer (D2) can be positioned with said sides lying horizontally and connected to the base profile (B) underneath and to the main spacer (D1) above, thus further increasing the distance between the top profile (T) and said base profile (B).

11. Profiles for laying flooring, as in claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, **characterized in that** said auxiliary spacer (D2) has a generically rectangular cross-section, i.e. it has two longer parallel sides and the other two shorter parallel sides.

12. Profiles for laying flooring, as in claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, **characterized in that** more than one auxiliary spacer (D2) can be used in combination, attached one on top of the other, should it prove necessary to position the top profile (T) even further away from the base profile (B).

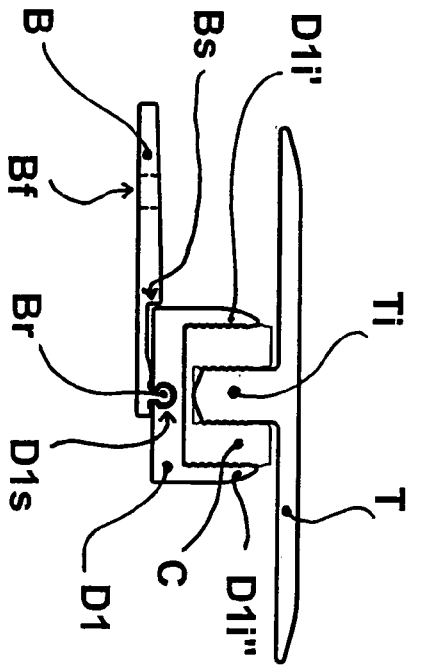

Fig. 1a

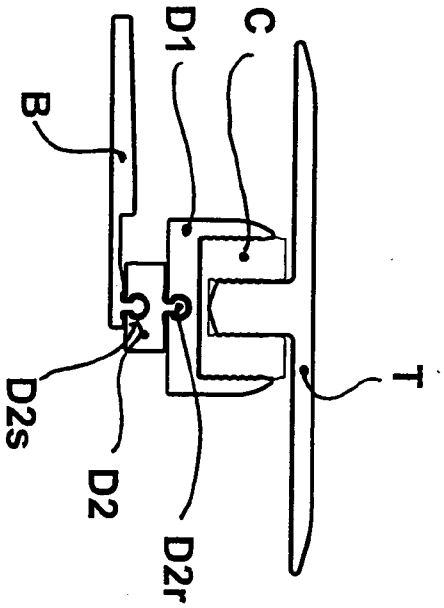

Fig. 1b

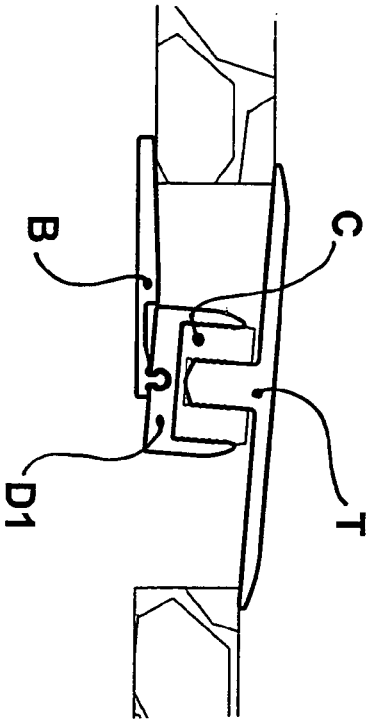

Fig. 1c

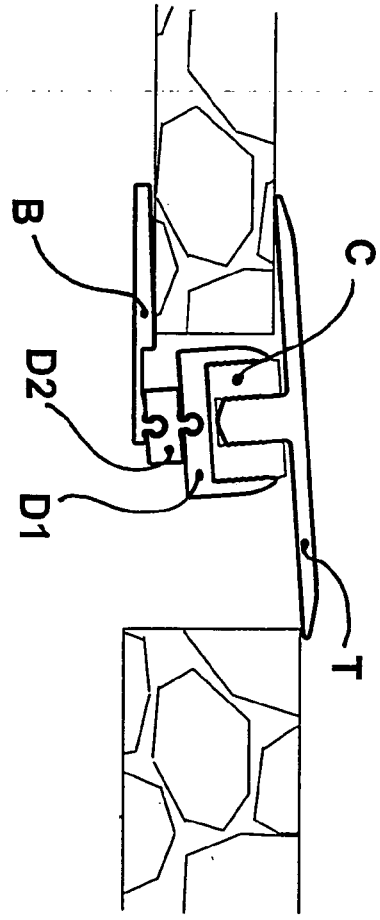

Fig. 1d

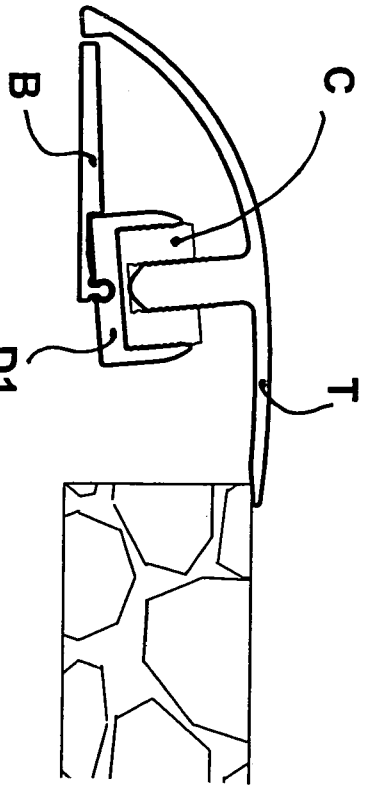

Fig. 1f

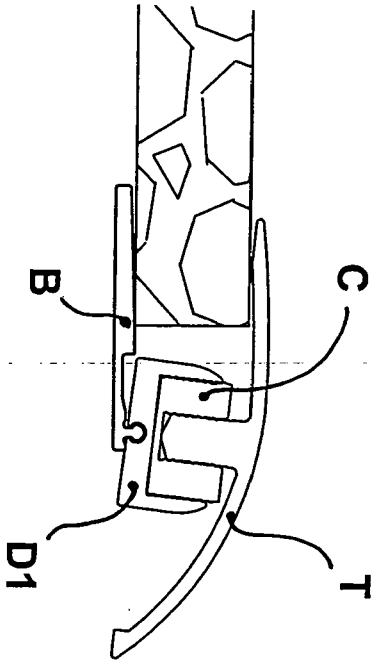

Fig. 1e

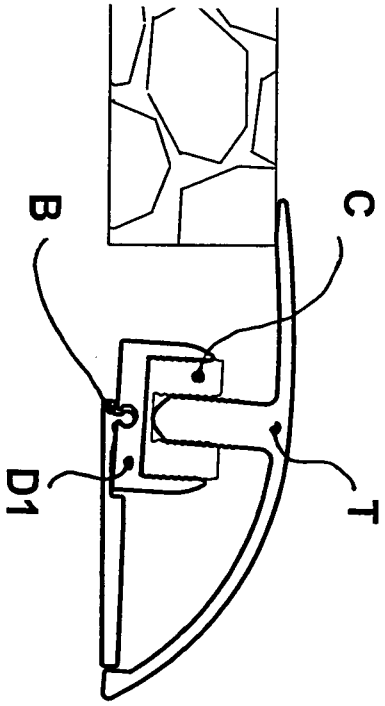

Fig. 1g

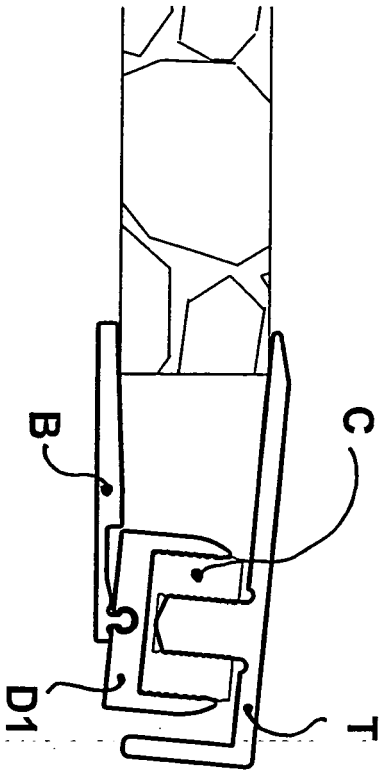

Fig. 1j

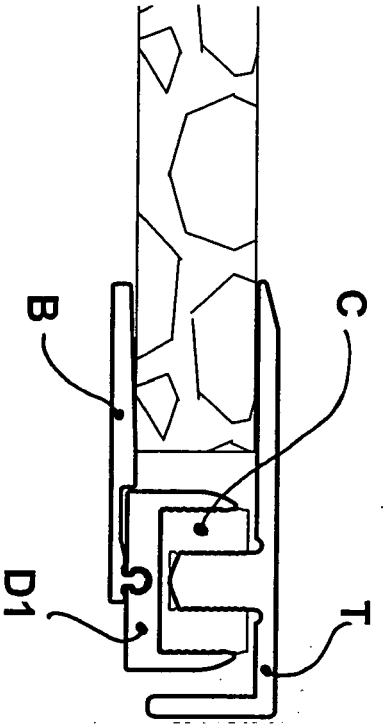

Fig. 1h

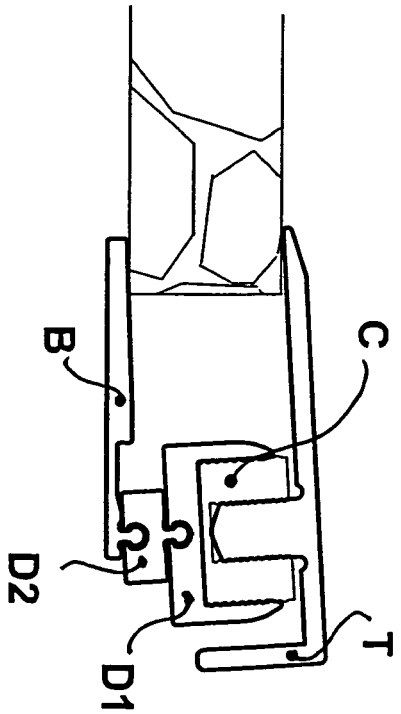

Fig. 1k

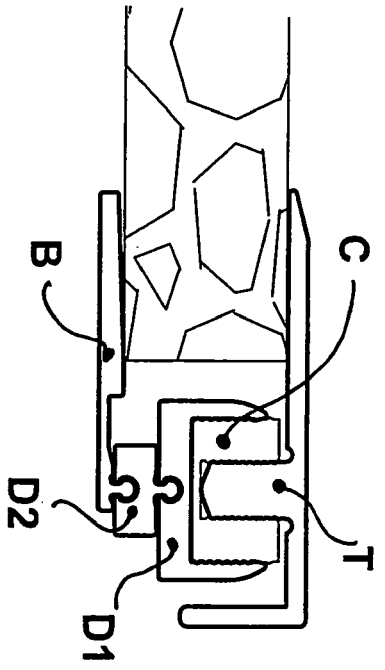

Fig. 1i

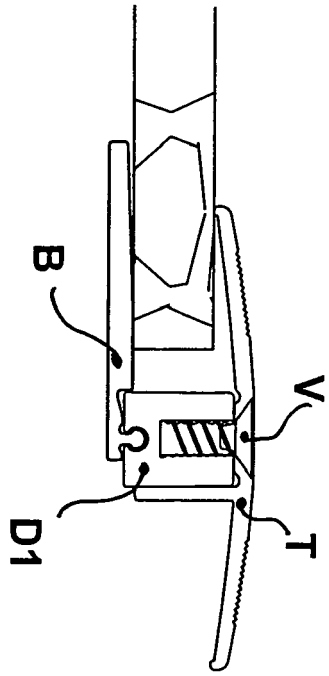

Fig. 2c

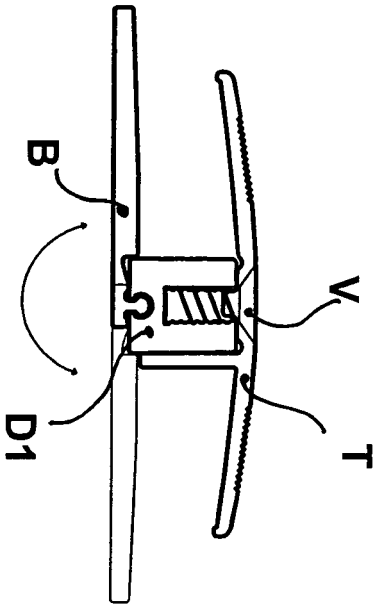

Fig. 2a

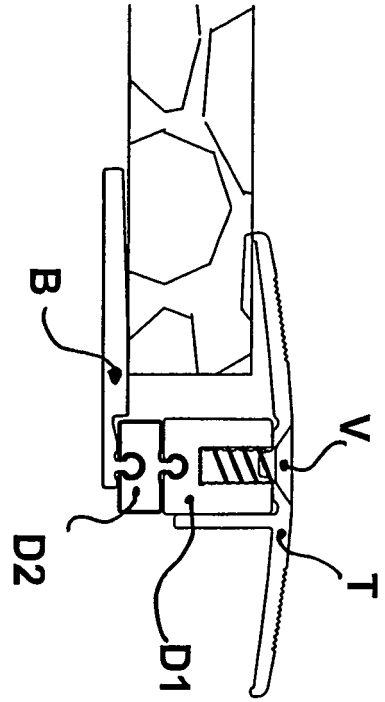

Fig. 2d

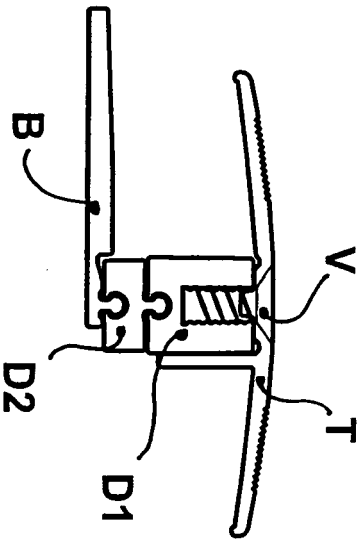

Fig. 2b

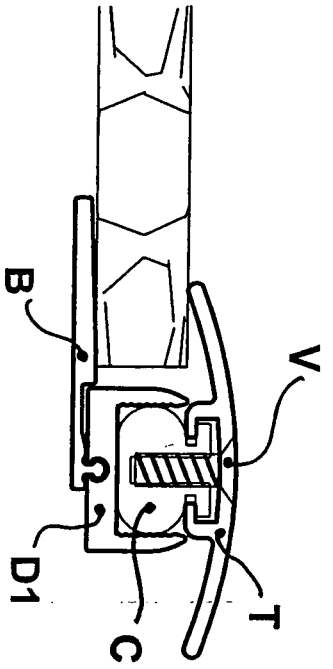

Fig. 3h

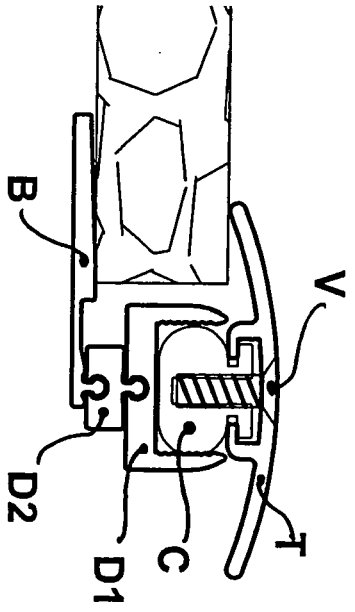

Fig. 3i

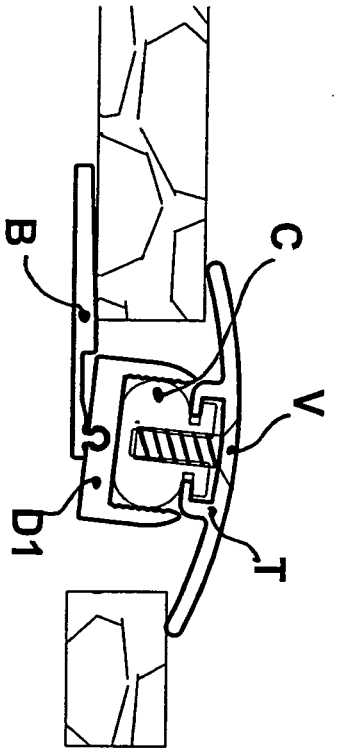

Fig. 3j

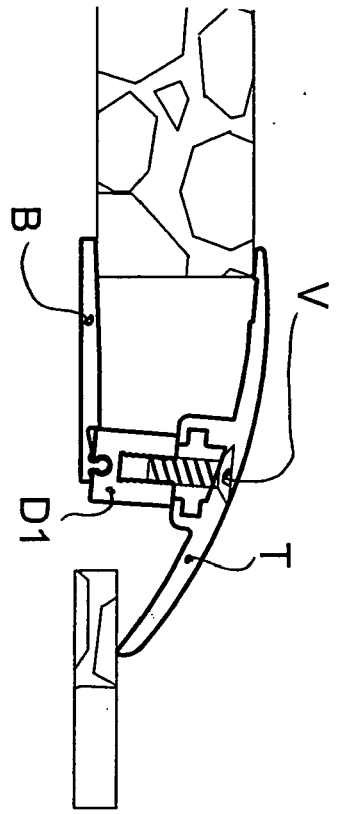

Fig. 3e

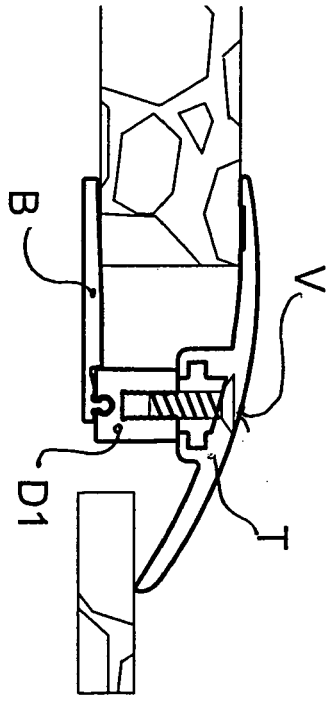

Fig. 3f

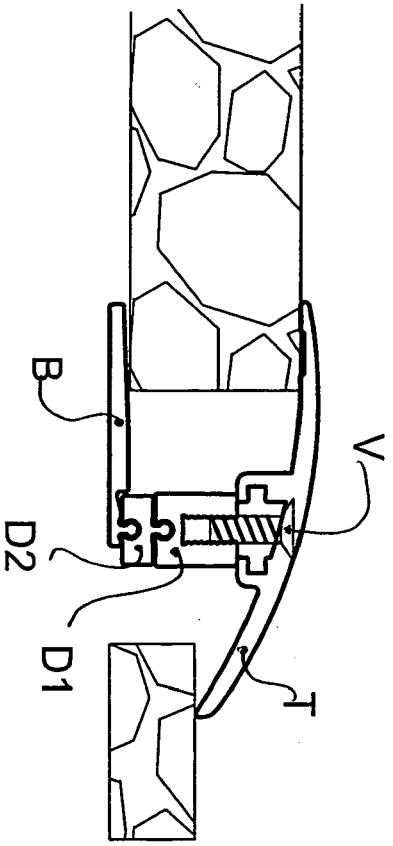

Fig. 3g

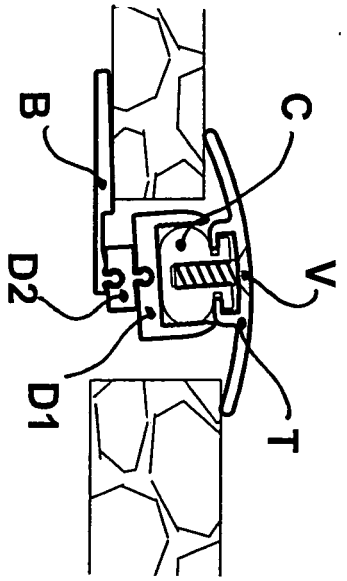

Fig. 3k

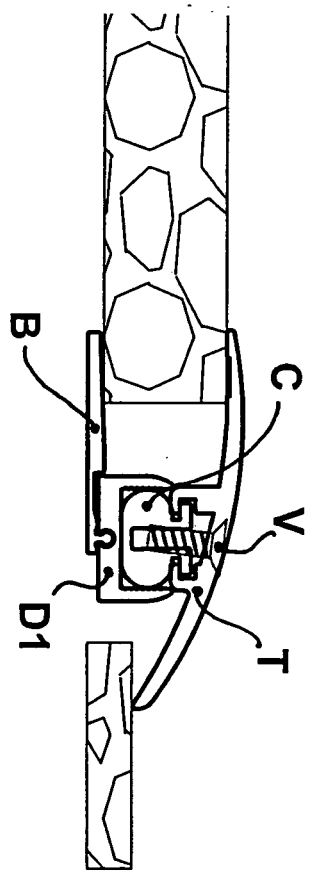

Fig. 3l

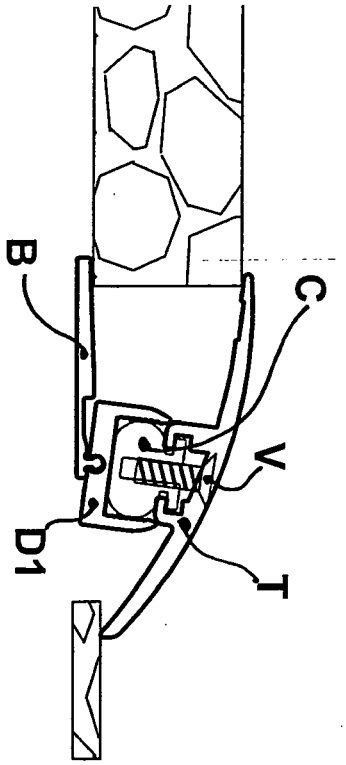

Fig. 3m

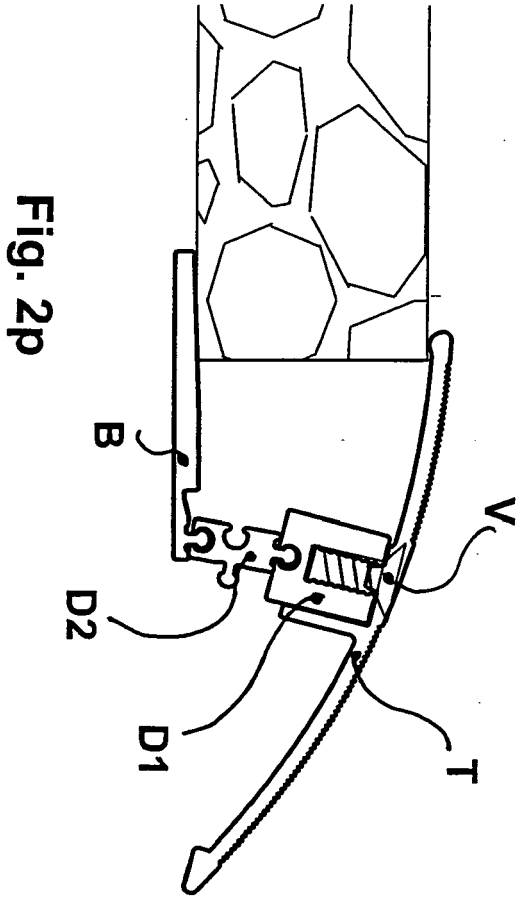

Fig. 2p

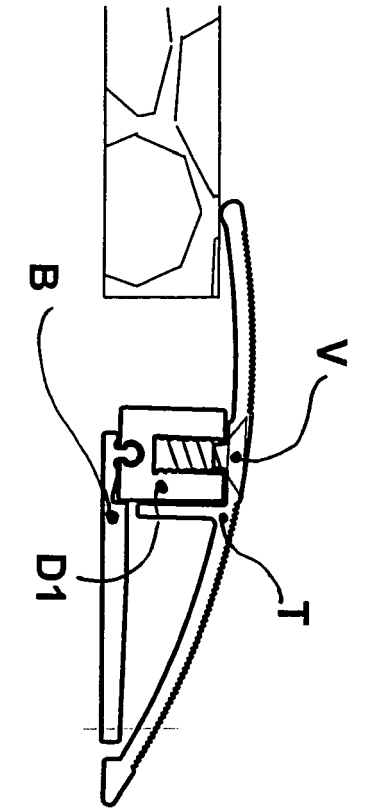

Fig. 2n

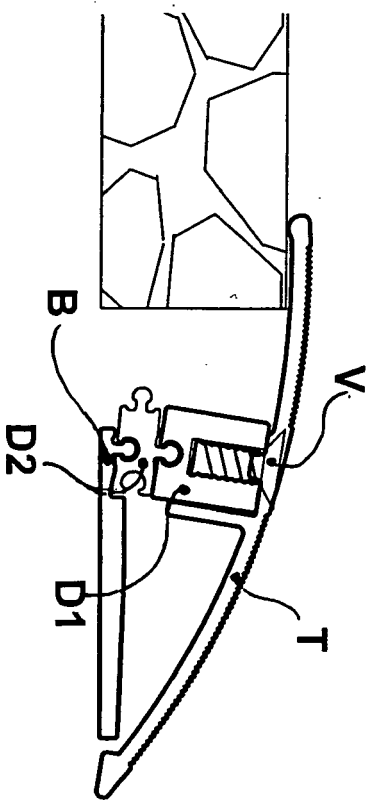

Fig. 2o

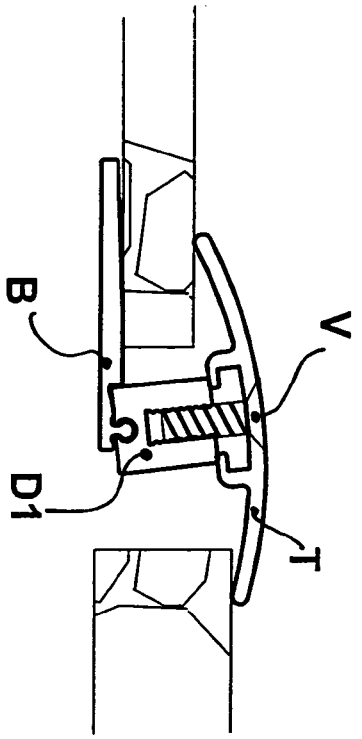

Fig. 3c

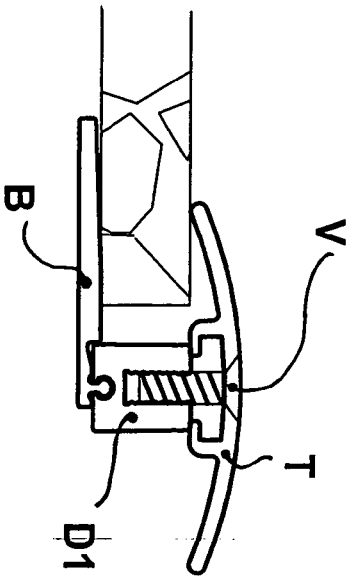

Fig. 3a

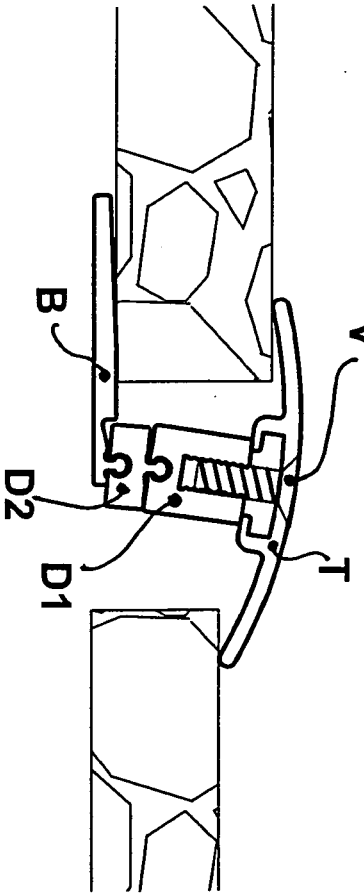

Fig. 3d

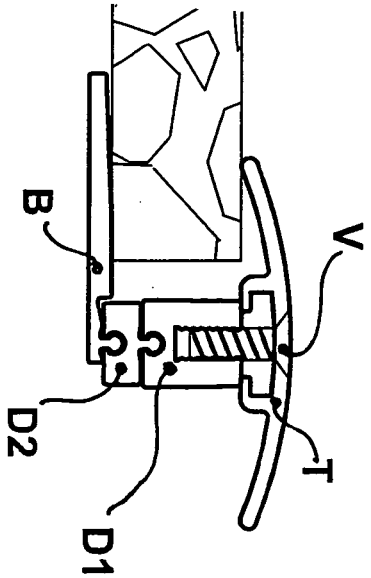

Fig. 3b

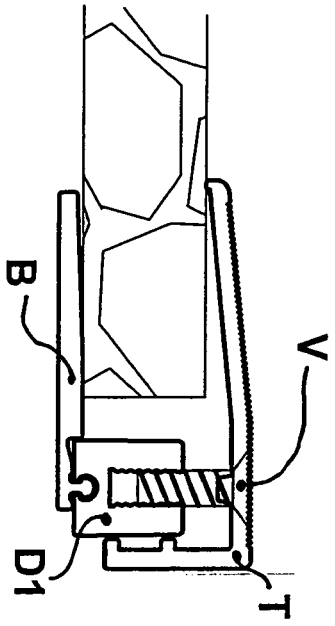

Fig. 2s

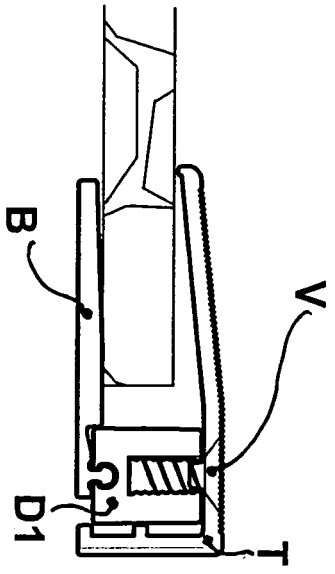

Fig. 2q

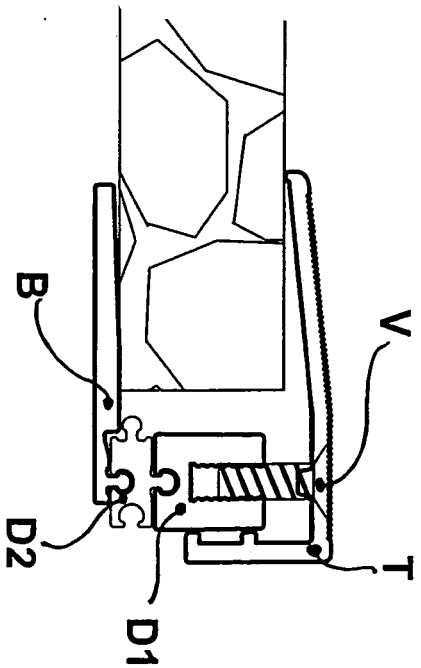

Fig. 2t

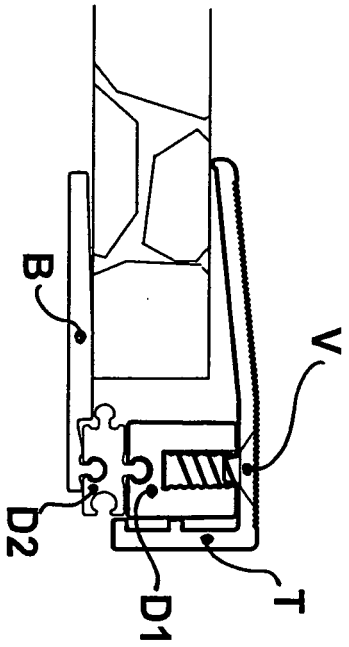

Fig. 2r

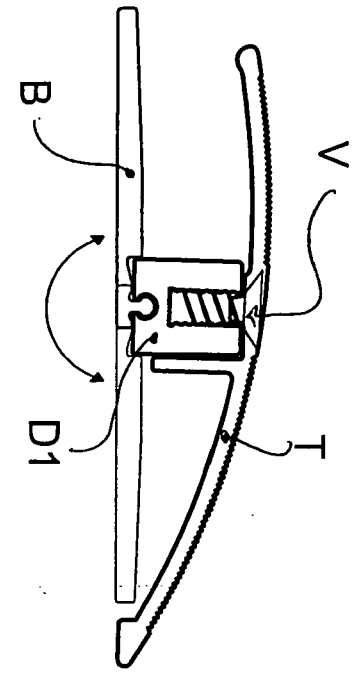

Fig. 2j

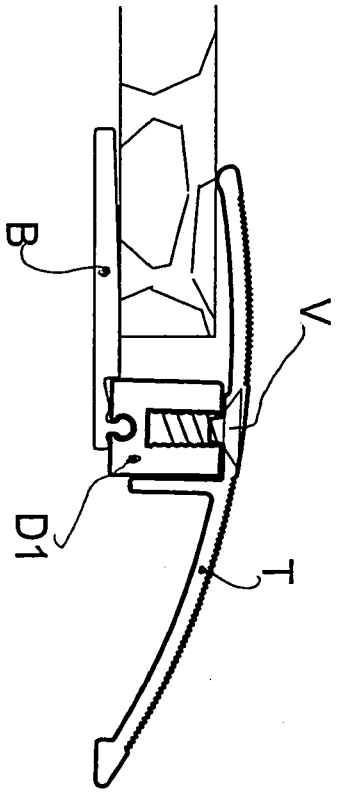

Fig. 2l

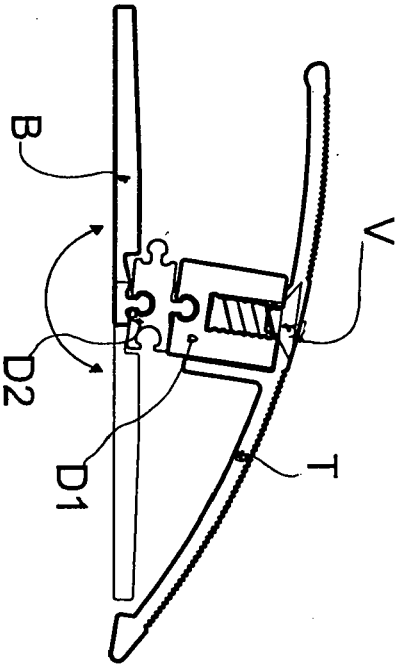

Fig. 2k

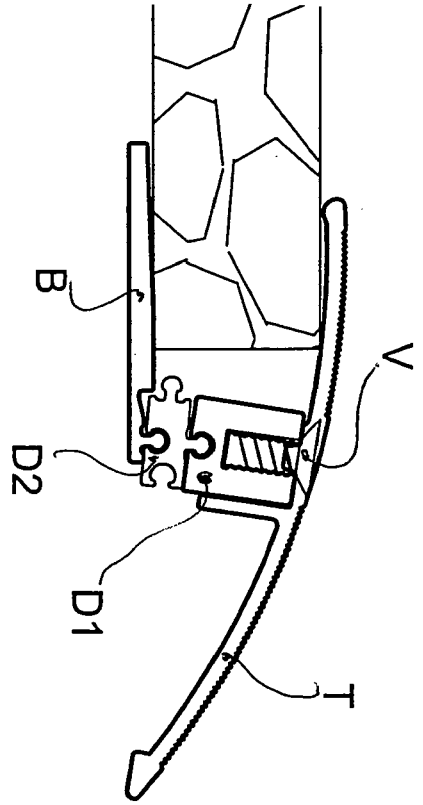

Fig. 2m

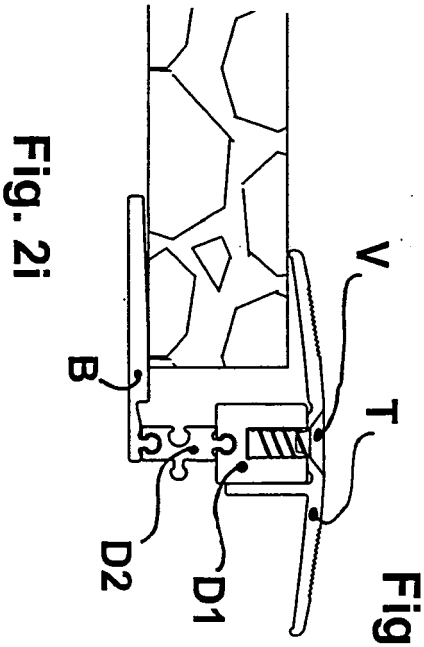

Fig. 2i

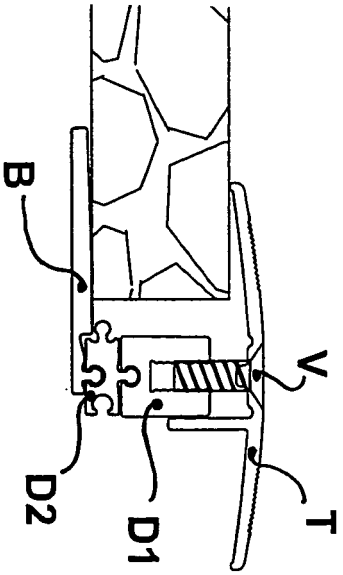

Fig. 2h

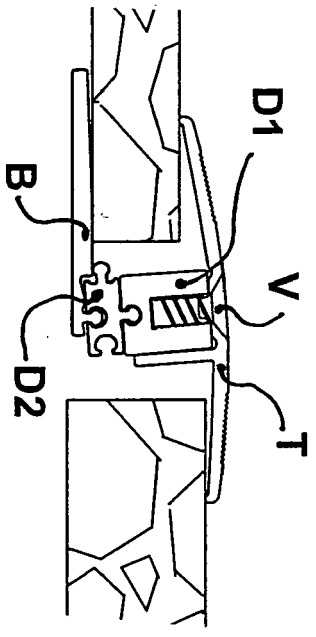

Fig. 2f

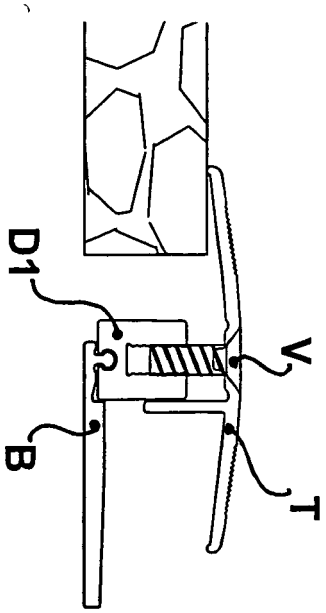

Fig. 2g

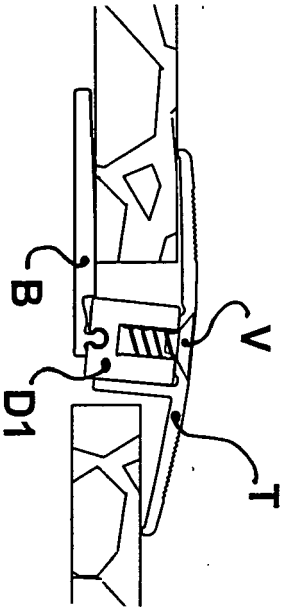

Fig. 2e

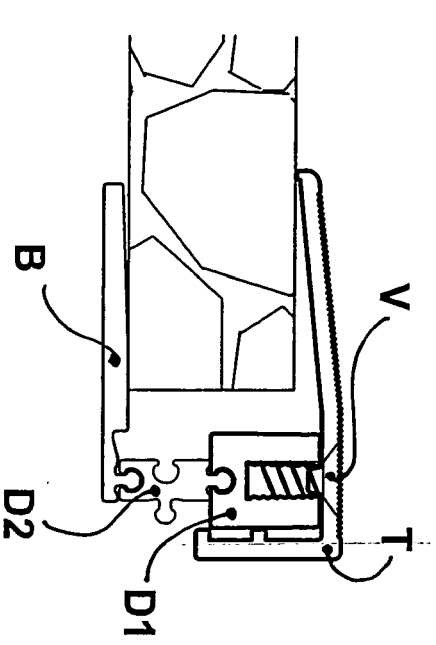

Fig. 2w

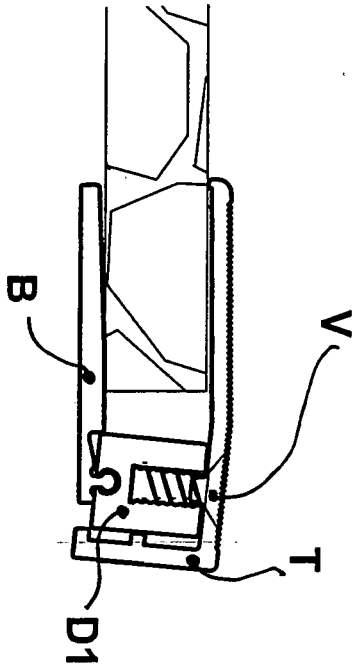

Fig. 2u

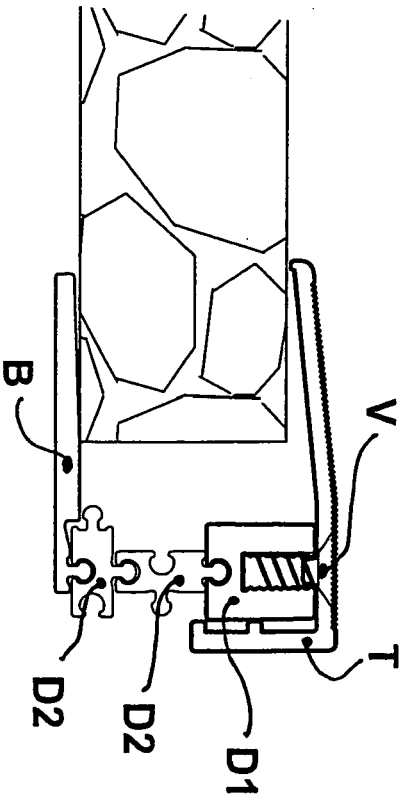

Fig. 2x

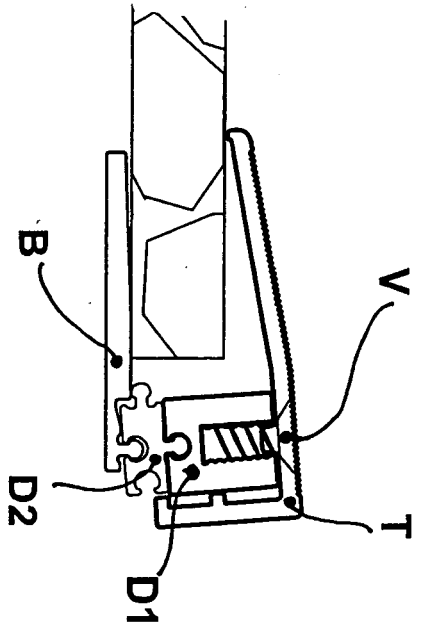

Fig. 2v