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(54) **WOOD PIECE AND METHOD FOR SUPPORTING IT**

HOLZSTÜCK UND METHODE, UM DASSELBE ABZUSTÜTZEN

PIECE DE BOIS ET SON PROCEDE DE SUPPORT

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US-A- 4 106 252 **US-A- 4 484 428**
US-A- 4 742 662 **US-A- 4 926 606**

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Description

[0001] The present invention refers to a method for supporting a wood piece presented in the introductory part of claim 1. Further, the invention relates to, a wood piece presented in the introductory part of claim 6 and to a construction having fixing means for fixing a wood piece as presented in the introductory part of claim 11.

[0002] A recent trend has been to promote the use of wood in various constructions, interior decorations, coatings, furniture, etc., in view of the special properties of wood and also with increasing environmental awareness. In many such objects, metal or plastic has been previously used, e.g. because of their easy workability, durability and light weight. However, one disadvantage with the use of metals and plastic is the fact that their manufacture uses irreplaceable resources of natural raw materials and energy, wherein the manufacturing processes pollute the environment to a considerable extent.

[0003] Further, surfaces made of metal laths have the problem of poor acoustics, being manifested in sonority of the room to be decorated. For avoiding this, sound insulating materials must be used either behind the metal laths or in other surfaces of the room to be decorated.

[0004] However, in many projects, the aim is to give the impression that a wood material has been used instead of metal or plastic. For this purpose, coating methods have been developed, by which the metal or plastic is coated, and a pattern resembling the fibre construction of wood is provided in the coating. Further, the coatings are aimed at giving other exterior features, such as colour, of a desired wood species. However, coatings of this kind do not fully correspond to real wood being used as the material. For example, acoustic factors, as well as factors affecting the quality of inside air are not the same as with real wood.

[0005] Also, cladding surfaces manufactured of wood laths, have been recently used for coating buildings, particularly in wall and ceiling surfaces. Surfaces of this kind are made of solid wood laths having usually a rectangular cross-section. The aim has been to accomplish surfaces which are aesthetically more decorative and acoustically better than what has been possible to achieve with said metal and plastic laths. Such surfaces made of wood laths according to prior art have the problem of relatively high weight of wood laths compared with e.g. plastic laths, setting high demands for the fastening of the wood laths.

[0006] The use of wood in constructions has, however, been limited e.g. by the problem that untreated wood stands poorly attacks by weather, such as changes in humidity and temperature, wherein wood, particularly when used outdoors, must be treated with wood preservatives for increasing durability. Also indoors, wood does not necessarily withstand stresses caused by changes in indoor air, but different slits, warpings and bends may occur in the wood. Particularly in winter time, wherein heaters must be used in rooms under cold con-

ditions, indoor air becomes dry and causes above-mentioned deformations also in wooden structures, even increasingly due to changes in humidity conditions. For example, in constructions where elongated wood pieces, or wood laths, are placed close to each other, even a small warping of wood is visible, and the appearance of the surface does no longer correspond to the original. Thus, a surface made of wood laths is no longer aesthetically pleasant, whereby the surface may need to be replaced. It has not been possible with present methods for fixing solid wood pieces to eliminate totally the disadvantages caused by stretching and contracting of elongated wood pieces. Stretching and contracting have been affected by selection of the wood material and by fixing the wood pieces densely, but this is an expensive solution, particularly when a so-called hidden joints are required as the fixing method.

[0007] Consequently, the weatherproof properties of wood can be promoted by preservatives, but these are usually environmentally polluting. One must be particularly careful and wear respirator filters or the like when handling preservatives. Moreover, preservatives may cause allergic reactions to more sensitive persons. The work can be made less harmful to the environment by arranging the preservative treatments at a factory.

[0008] Still another factor limiting the use of wood is the fact that fixing pieces made of wood e.g. in buildings has required either gluing or fixing with attachments, such as screws. Gluing is not a useful solution in objects where the piece to be fixed must also be detachable e.g. in connection with cleaning or another maintenance operation. In such a case, screw fastening is more useful but rather laborious. Further, with time, the fixing of a screw fastening becomes poorer in objects where the fixing must be opened relatively often.

[0009] The above-mentioned disadvantages of surfaces made of wood laths are primarily caused particularly by the basic properties of wood material. Wood is an organic material, whose behaviour is affected by its own individual factors and properties ascribed to its growing time, primary treatment, use environment, and embodiment environment. Due to its structure, i.e. internal tensions are generated in wood because of changes in the environment, such as changes in humidity and temperature. Tensions generated during the growing time and primary treatment of wood can also relax. Said external changes caused by stretching and contracting of wood, as well as their way of manifestation and intensity depend particularly on the factors of growth and treatment of the wood.

[0010] Finnish patent application FI 103062 B discloses an arrangement for the manufacture of wood lath ceilings. The arrangement comprises wood laths placed at predetermined intervals and braces placed transversely to the wood laths, wherein each wood lath is fixed to a brace. The braces are metal supporting battens having guide brackets extending to the wood laths, the wood laths being placed between the guide brackets. The

wood laths are provided with fixing grooves, and the arrangement comprises fixing means extending to the fixing grooves and over them onto the supporting battens so that they press the wood laths against the mounting batten. The wood laths constitute the actual visible surface. A problem with this arrangement is, however, that the construction becomes very heavy, because the wood laths are primarily solid in cross-section. Further, this arrangement has the above-mentioned disadvantages caused by stretching and contracting of wood, such as warping, bending and split forming, particularly due to changes in the environmental conditions.

[0011] In documents EP-0 114 218, US-4 742 662 and US-4 926 606 have been presented arrangements for fixing a stile or masking rail by using clips which are slidably assembled into clip seating recesses of the stile or masking rail through the open end of the stile or masking rail.

[0012] The purpose of the present invention is to eliminate the above-mentioned disadvantages to a major extent and to provide a method for supporting wood in a way that its use in various constructions is possible and stretching and contracting of wood is reduced to a minimum. The invention relates also to a fixing piece for supporting the wood piece or the like according to the method. Further, the invention relates to a wood piece that maintains its original shape as long as possible, irrespective of the effect of environmental conditions. The method of the invention is based on the idea that the wood piece is supported at least on one wall on an area of three fourths of the height of its inner volume, located closest to its bottom part in its cross-sectional profile form, advantageously on the area between halfway and the bottom of the height of the inner volume, located closest to its bottom part in its cross-sectional profile form. The support is arranged advantageously inside the profile form. The method of the invention is characterised in what will be presented in the characterising part of the appended claim 1. The wood piece of the invention is characterised in what will be presented in the characterising part of the appended claim 6. Further, the construction of the invention is characterised in what will be presented in the characterising part of the appended claim 11.

[0013] The present invention gives considerable advantages to methods, fixing pieces and wood pieces of prior art. When making the wood piece a construction with thin walls and supporting the wood piece according to the invention, it has been surprisingly found that it is thus possible to reduce substantially deformations caused by internal tensions which are due to stretching and contracting of wood and possibly left in the wood piece at the stage of its manufacturing, as well as their effect on the appearance of the wood piece. With a fixing piece according to the invention, the wood piece can be fixed in its object by a simple force effect directed to the wood piece substantially in the direction of opening of the profile form, *i.e.* upwards, for example by pressing

the wood piece in the direction from its bottom part. Thus, mounting the wood piece involves no tools which might leave scars in the wood piece at the fixing stage, such as knocking scars by a hammer or scars left by a screw driver. Further, laborious inserting of fixing means into fixing grooves is eliminated, because preferably the walls of the wood piece bend at the mounting stage and return when the wood piece is in place, thus securing the attachment of the wood piece in the fixing piece. It is also easy to detach the wood piece, when necessary, without a need to open fixing means *e.g.* with a screw driver. Because a wood piece fixed with a fixing means according to the invention is also easily detachable, it is possible to use wood pieces of this kind also in objects which need to be opened *e.g.* for maintenance. Thanks to its lighter construction, the fixing of the wood pieces can be implemented with lower strength requirements than before, which makes the fixing less expensive than when using wood pieces of prior art. The fixing can also be easily implemented as hidden fixing, and the inner surface of the profile form can be designed more freely.

[0014] Moreover, the wood piece provided by the invention makes it possible that it can be treated economically to become better resistant to weather with environmentally safe treating methods, such as thermal treatment or the like. This reduces the need for protecting the wood piece with other wood preservatives or paints. If necessary, wood pieces of the invention can be exposed to surface treatment in a production plant and cut-to-size wood pieces can be delivered to the site of installing, thereby reducing the work at the site of installing.

[0015] In a wood piece according to the invention, dimensional stability is better than in elongated wood pieces of prior art, due to *e.g.* the fact that the wood piece is dried evenly and the tensions possibly existing in the wood piece are smaller.

[0016] In the following, the invention will be described in more detail with reference to the appended drawings, in which

Fig. 1 is a cross-sectional view on a wood piece according to the invention, fixed in a fixing piece according to the invention,

Fig. 2a shows a wood lattice of a ventilation window fixed by the method of the invention and installed in its place, seen from the front,

Fig. 2b is a cross-sectional view at point A—A of the wood lattice of a ventilation window shown in Fig. 2a, and

Figs. 3a to 3k show some alternative cross-sectional profiles for the wood piece, and shapes of fixing pieces corresponding

to them.

[0017] Wood pieces 1 are manufactured preferably by working with conventional wood working methods, for example with a cornice plane or by milling on one side of the wood piece 1 so that the wood piece 1 is shaped advantageously into a U-form or the like, wherein a structure with two or more walls is formed in the longitudinal direction of the wood piece 1. At least part of the walls, preferably the outermost walls, are advantageously thin, whereby their thickness is primarily smaller than their height, preferably primarily less than half of the height of the walls. In the working, a great part of the wood material is removed from the wood piece, even more than a half, *i.e.* the area of the cross-sectional profile of the worked wood piece 1 is less than a half of the area of the surface formed by the imaginary smallest circumferential measurement around the cross-section of the worked wood piece 1, or a so-called reference area. In a case that the wood piece 1 is worked of a planed wood piece so that its outer dimensions remain unchanged, the reference area can be the cross-sectional area of this wood piece before working. The wood piece 1 of the invention can also be made directly of saw timber, wherein thicker wood is cut into blanks of wood pieces which are planed, if necessary, at least on the surfaces that will be visible. Thus, the reference area is the area of the smallest peripheral measurement of the worked wood piece 1, as described above. In practical solutions, the maximum value for the ratio between the surface area of the cross-sectional profile of the wood piece according to the invention and the reference area is approximately 0.8, advantageously less than 0.6, preferably less than 0.4. The quantity to be worked depends particularly on the wood species used and on the shape of the cross-sectional profile to be worked on the wood piece. This surface area formed by the imaginary minimum peripheral measurement around the cross-section of the wood piece 1 can be regarded as the reference area also for wood pieces 1 made by other methods than by working.

[0018] If a cornice plane is used in working, the width of the working part of the cornice plane is set slightly narrower than the width of that side of the wood piece 1 in the transverse direction of the wood piece, to which measurement the wood piece of the invention is to be worked. After planing, the wood piece 1 comprises side walls 1a, 1b and bottom part 1c in the embodiments of Figs. 1, 3a—3k. The side walls 1a, 1b and the bottom part 1c constitute an inner volume 2 from which the wood material is worked out. The wood piece of Fig. 3f comprises also a partition wall 1d, wherein it is possible to increase the rigidity of the wood piece, which is advantageous particularly in the manufacture of panel walls and ceilings. Furthermore, the partition wall 1d facilitates the unbending of possible warpings and lateral distortions, because the force effects caused by unbending are distributed not only to the first 1a or second

side wall 1b but also primarily to the partition wall 1d which can be made thicker than the side walls 1a, 1b.

[0019] A structure with thin walls is advantageous *e.g.* in the respect that internal tensions of the wood piece are smaller and cause fewer externally visible defects, such as bends, slits and warpings.

[0020] Wood pieces 1 can be made more flexible *e.g.* by means of flexible grooves 6a, 6b formed at the joint of the side walls and the bottom part (Fig. 3c). This additional flexibility gives the advantage that the installation of the wood pieces 1 is easier.

[0021] Under working, also other moulding methods are understood, known as such, whereby the wood material is brought to a workable or mouldable state by vaporising, radio-frequency irradiation, microwave irradiation, or the like. Further, the COMPWOOD™ method can be used for moulding wood. The choice of the method to be used in moulding depends *e.g.* on the desired shape of the cross-sectional profile for the wood piece, the quality of wood, as well as the desired appearance of the wood piece. However, it is not essential in this invention in what way the wood piece is moulded or how the wood piece is brought into a mouldable state.

[0022] For example, the wood piece of Fig. 1 can be formed also in a way that the wood piece 1 is brought into a mouldable state, after which the wood piece is compressed in a mould or the like to accomplish the desired cross-sectional profile in the wood piece 1. In moulding, it is also possible to use the roll forming technique known as such, whereby the wood piece in a mouldable state is conveyed by rolls and the edge parts of the wood piece 1 are simultaneously bent by successive roll frames, wherein the cross-sectional profile is gradually changed to the desired profile form of the wood piece 1.

[0023] The wood piece 1 of the invention can also be made of two or more parts, such as laths, by gluing, to achieve the desired cross-sectional profile. Further, the wood piece can also be extended in the longitudinal direction by gluing shorter lath blanks or already glued wood pieces together. The profiles can be worked on the gluing surfaces to facilitate the alignment of the surfaces to be glued together and to increase the gluing surface area. The gluing seams of the laths to be glued can be placed, for example, advantageously either at the joints of the walls and the bottom part or *e.g.* advantageously in the middle of the bottom part. The laths to be glued can be worked more roughly, wherein the final working is conducted first after gluing, or they can be worked to finish, wherein no finishing working will be needed after gluing. Further, the thickness of one or several walls and/or the bottom part of the wood piece can be accomplished by gluing them of two or several parts (overlying). Thus, the boundary lines between the walls and the bottom part can be formed at the gluing stage advantageously by bending or gluing.

[0024] Wood pieces produced by the above-mentioned moulding and gluing methods may cause higher

manufacturing costs, but they may come into question in some cases.

[0025] The wood piece of the invention can be manufactured of a thermally treated wood blank, or it can be subjected to thermal treatment e.g. after working. In thermal treatment, wood is treated under different temperature and humidity conditions, resulting in a wood material resisting well the conditions of the environment. Heat-treated wood suits well to objects to be used outdoors, because its rot-preventing property is better and deformations caused by humidity are smaller because of less water being absorbed in the wood material and fewer changes in the cellular structure of the wood. If necessary, it is possible to use known preservative treatments. Deformations caused by changes in humidity can also be reduced by surface treatment of the wood piece 1 on its outer as well as inner surfaces.

[0026] For securing the attachment of the wood piece 1, it is possible to provide the wood piece 1 also with attachment means 3a, 3b e.g. by milling. The attachment means can be made either at the same stage when the wood piece 1 is provided with the desired cross-sectional profile form, or in another suitable connection.

[0027] Figures 3a to 3k show some advantageous cross-sectional profile forms as well as corresponding forms for fixing means 4, whereby the support according to the invention can be arranged in the wood piece 1. Within the scope of the idea of the invention, the cross-sectional profile comprises advantageously two or more walls 1a, 1b, 1d. Further, the wood piece 1 may contain a bottom part 1c, to which the walls 1a, 1b, 1d are connected at the lower edges of the walls 1a, 1b, 1d. In this description, the lower edge of the walls refers to that part of the walls which in the wood pieces shown in Figs. 1, 3a—3k is located in the lower part of the wood piece 1, i.e. close to the edge on the side of the bottom part 1c. When the wood part 1 is in its operational position, the lower edge is not necessarily facing downwards, but it can be also facing to the side or even upwards, but this is not significant for the application of the invention. As a result from the definition of the lower edge presented above, the upper edge of the walls 1a, 1b, 1d is placed at the edge opposite to the lower edge, i.e. in the upper parts of the wood pieces 1 in the embodiments shown in Figs. 1, 3a—3k.

[0028] The following terms will still be defined for the wood piece 1 according to the invention: The outer surface of the wood piece 1 refers to the surface formed in the cross-sectional profile by the surface of the outermost walls 1a, 1b and possibly of the bottom part 1c facing away from the wood piece 1. In a corresponding manner, the inner surface refers to the surface formed by the surface opposite to the outer surface of the outermost walls 1a, 1b and of the possible bottom wall 1c, as well as the surface of possible partition walls 1d. Inner volume 2 refers primarily to the minimum volume limited by the inner surface of the wood piece 1 as defined above. For example, in Fig. 3a, a broken line 2' is

drawn to illustrate an imaginary plane limiting the inner volume in the upper part of the wood piece 1 in this direction. This broken line 2' is also part of the minimum peripheral measurement by means of which the reference area was determined above in this description.

[0029] At least some of the walls 1a, 1b, 1d, preferably the outermost walls 1a, 1b, are advantageously thin, wherein their thickness is smaller than their height, preferably less than a half of their height. On the other hand, the invention can also be applied in a construction with thick walls, wherein the flexibility of the wood piece 1 is accomplished preferably by forming thinner portions with better flexibility in part of the cross-sectional profile. It is also possible to provide the thinner portions in only part of the wood piece, wherein the cross-sectional profile can vary on the length of the wood piece 1. The structure with thin walls and/or the varying cross-sectional profile of the wood piece 1 according to the invention has e.g. the advantage that the internal tensions of the wood piece 1 are smaller and cause fewer externally visible defects, such as bends, slits and warpings.

[0030] Further, the structure with thin walls has the advantage that the wood piece can be treated with different additives, such as various preservatives, which can be effectively absorbed even to the whole wood material, from disadvantageous factors, such as rotting, burning, colour changes, etc. With effective absorption of the preservative, the resistance of the wood piece 1 against different changes in the conditions can also be improved, thus increasing the uses of wood pieces 1 according to the invention. Wood pieces 1 of the invention, treated with a preservative, can be used even in objects where it is not possible to use wood pieces of prior art.

[0031] When installing the wood piece 1, its flexibility allows that the distance between the walls 1a, 1b is slightly changed, at least at the upper edge, wherein the piece accomplishing the support functions of the fixing means 4 can be placed in the U profile form, or the like, in the wood piece 1. The wood piece being set in its place, the flexibility of the wood 4a, 4b in the fixing means are placed against each other according to the desired arrangement, accomplishing the fixing of the wood piece 1 in its place.

[0032] The fixing means 4 is advantageously designed so that it supports the cross-sectional profile of the wood piece 1 in its inner volume. The wood piece is supported on at least one wall 1a, 1b, 1d on the area of three quarters of its height, located closer to its bottom part in the cross-sectional profile form, i.e. in the height direction at least partly in the range from 0 to 75 %, advantageously underneath the midpoint of the height of the inner volume, i.e. in the height direction at least partly in the range from 0 to 50 %, preferably on the lowermost quarter of the height of the inner volume, i.e. at least partly in the range from 0 to 25 % of the height of the inner volume. For clarity, said percentage values are given e.g. in Figs. 3a and 3b. This supporting at the bottom section gives, *inter alia*, the advantage that defor-

mations possibly taking place in the wood piece 1, particularly visible warpings at the bottom part, can be eliminated almost totally and the shape of the wood piece 1 will not be changed to a significant degree.

[0033] For keeping the wood piece 1 of the invention in place, it is possible to provide the wood piece 1 with attachment means 3a, 3b and the fixing means 4 with counterparts 4a, 4b. The attachment means 3a, 3b are placed advantageously in the area between the midpoint and the lower edge of the walls, but, according to the use in question, also elsewhere at the wall, e.g. close to the upper edge, as shown in the embodiment of Fig. 3e. The most advantageous location of the attachment means 3a, 3b is affected e.g. by the cross-sectional profile form of the wood piece 1 as well as by the wood material used in the wood piece 1. With the position and design of the attachment means 3a, 3b and the counterparts 4a, 4b, it is possible to affect e.g. the suspension strength and the force required upon installing. One possibility is to place the fixing means also on the outer surface of the wood piece 1. The attachment means 3a, 3b used are advantageously grooves, indents, crowns, projections, or the like. Thus, the fixing means 4 is advantageously provided with a counterpart 4a, 4b, such as a crown, projection, groove, indent, or the like, to receive the fixing means. Particularly in cases where the attachment means are provided on the outer surface of the wood piece 1, the counterparts 4a, 4b can be separate from the fixing means 4 for accomplishing the actual support. An example of this is shown in Fig. 3g. Counterparts 4a, 4b are used to improve the fixing of the wood pieces primarily in a direction perpendicular to the profile form of the wood piece, i.e. in the vertical direction in Figs. 3a to 3k. The fixing means 4 is used e.g. to accomplish the support of the wood pieces 1 in the lateral direction and thus their fixing in position.

[0034] In view of keeping the wood piece 1 in its place, it should be considered that the minimum distance W1 between the walls comprising the attachment means 3a, 3b of the wood piece (Fig. 3a) above the attachment means 3a, 3b is smaller than the maximum width W2 of the fixing means 4 at the counterparts 4a, 4b in the case that the attachment is arranged inside the profile form of the wood piece 1. Fixing the wood piece 1 on the outside, in turn, requires that the distance between the walls comprising the attachment means 3a, 3b of the wood piece above the attachment means 3a, 3b, indicated by W3 in Fig. 3g, is smaller than the minimum distance W4 between the counterparts 4a, 4b of the fixing means 4.

[0035] In addition to the fact that the wood piece 1 is supported at the lower part of the height of the inner volume, it is possible to arrange also other supports to the wood piece 1.

[0036] The fixing means can be provided with supporting indents 9a, 9b to receive the upper parts of the walls 1a, 1b of the wood pieces. Thus, the walls 1a, 1b of the wood pieces are also supported at the edges of

the supporting indents 9a, 9b, which prevents the walls of the wood profile from drawing away from the counterparts 4a, 4b and thus secures the fixing of the wood piece 1 in its attachment. By the design and placement of the supporting indents 9a, 9b, it is possible to effect that, upon installing or detaching the wood piece 1, at least one wall 1a, 1b of the wood piece 1 bends in relation to the counterparts 4a, 4b, and that, the wood piece being fixed in the fixing means 4, the bent walls 1a, 1b are straightened substantially to their initial shape. Thus, it is secured that the wood piece 1 is fixed in its place.

[0037] Figure 3g shows an example of a wood piece 1, where the support is arranged on the inside, close to the lower part of the wood piece 1, and the attachment means 3a, 3b are placed outside the wood piece 1. Thus, the counterparts 4a, 4b are arranged outside the wood piece 1 accordingly. The attachment means 3a, 3b are placed preferably higher in the profile than that part of the fixing means 4 which accomplishes the support functions.

[0038] In the embodiment of Fig. 3h, the fixing means 4 supports wood pieces 1, 1' on the outside. In this embodiment, one fixing means 4 is arranged to support two adjacent wood laths 1, 1'. The attachment means 3a, 3b and the counterparts 4a, 4b are placed inside the profile form of the wood piece 1, 1'. It is obvious that the fixing means 4, 4' can be divided into two fixing means next to each other, wherein one fixing means supports one wood piece 1 and the other fixing means supports the adjacent wood piece 1'.

[0039] Figure 3i shows a further example of supporting the wood piece 1 from outside. That part of the fixing means 4, 4' which accomplishes the support functions, is thus placed outside the wood piece 1, at least partly on the height dimension of the inner volume, within its range of three quarters located closest to its bottom part in the cross-sectional profile form, advantageously in the range between the midpoint of the height of the inner volume and the bottom part. Also the attachment means 3a, 3b and the counterparts 4a, 4b are placed outside the wood piece 1. In this embodiment, the upper edge of the wood piece 1 is further supported by support indents 9a, 9b, preventing e.g. the bending of the walls 1a, 1b inwards in a self-acting manner.

[0040] Figure 3j shows still another advantageous embodiment of the invention. Wood pieces 1 are placed close to each other so that one wall 1b of the wood pieces 1 is provided with a protruding part intended to be placed at least partly underneath the first wall 1a of the next wood piece. Thus, adjacent wood pieces provide each other with additional support and, on the other hand, a substantially solid surface is obtained, to be used e.g. as a wall panel.

[0041] Figure 3k shows an embodiment in which a separate cover piece 12 can be installed in the interspace between wood pieces 1, or the interspace is covered either by the flange part of the wood piece 1, the

flange part of the wood piece 1', or the flange parts of both wood pieces 1, 1'. Thus, the walls 1a, 1b are supported indirectly from the outside either by the flange part of one of the wood parts or by the cover piece 12.

[0042] Further, it is obvious that the invention is not limited solely to the profile forms of Figs. 1 to 3k, but the profile forms can vary. For example, the thickness of the walls and the bottom part can be changed also in the longitudinal direction of the wood piece 1, wherein the profile form is not necessarily identical throughout the wood piece 1. The wood piece 1, particularly its outer surface, can be provided with patterns affecting its appearance, such as grooves, bulges, or even holes penetrating the walls and the bottom part. By these operations, it is possible also to improve the acoustic and other functional properties of the wood piece, to affect the flexibility, tensions, stretching and contracting of the wood piece 1.

[0043] The wood lattice 1 of a ventilation window arranged in connection with a window 5, as shown in Fig. 2a, is made, according to the invention, of shaped wood laths 6, 7, 8, 9 connected at their ends to each other to form a rectangular shape. Preferably between the substantially parallel vertical laths 6, 7, there are also transverse laths 11, spaced substantially equidistantly, fixed to cover the opening of the ventilation window and to give a finished appearance to the wood lattice 1. The window frame 10 is provided with a sufficient number of fixing means 4 which are fixed e.g. by screws and whose design corresponds to the shape of the cross-sectional profile of the inner volume of the wood laths 6—9. The wood lattice is installed advantageously by pressing. This kind of a wood lattice can also be easily detached e.g. for cleaning.

[0044] Because deformations may occur also in the wood pieces 1 of the invention to some extent, the wood piece 1 is advantageously fixed at one or several points by means of designed, advantageously rigid fixing means 4. The distance between the fixing means and their number must be determined on the basis of the shape, size, wood species, wood quality and other factors of the wood piece 1 to be used, considering also the effect of the use conditions and loading factors. By fixing one or several spaced fixing means 4, it is possible to straighten warpings possibly existing or caused at the use situation in the wood piece 1. With a single fixing means 4, it is possible to straighten e.g. local forces effective on the cross-sectional form of the profile.

[0045] Those parts and shapes of the fixing means 4 which accomplish the support functions are placed primarily within the range of three quarters of the height of the inner volume located closest to the bottom in the cross-sectional profile form of the inner volume, advantageously underneath the midpoint of the height of the inner volume. The fixing means 4 support the wood piece 1 advantageously on the inside on a sufficient portion, depending on the profile, and keep the wood piece 1 in its profile form. The supporting can be continuous

or discontinuous.

[0046] Further, the fixing means 4 can be designed in a way that it is supported by the profile form, at least its one wall, on at least the portion either directly or at a distance from the upper edge of the wall 1a, 1b, or substantially on the entire length from the upper edge of the wall advantageously to the lower edge of the fixing means, and further on the attachment means 3a, 3b by means of the counterparts 4a, 4b. The supporting can also be discontinuous. Moreover, the fixing means 4 can be supported to the profile form also in the bottom part 1c either on its whole length, discontinuously, or not at all.

[0047] By the supporting functions of the walls 1a, 1b, 1d and the bottom part 1c inside the profile, it is also accomplished that the profile will not collapse inside.

[0048] Furthermore, the fixing means 4 can support the profile either directly or indirectly advantageously at least at or close to the upper edge of one wall 1a, 1b, thus preventing the walls of the profile form of the wood piece from drawing away from the counterparts, if this occurred.

[0049] In the main embodiment, the fixing means 4 is rigid, wherein the surfaces of the fixing means corresponding to or limiting the profile remain fully in their shape during fixing and detaching of the wood piece 1.

[0050] Thus, during fixing and detaching, the flexible part is the profile, *i.e.* the wood piece 1.

[0051] By using the fixing means 4 of the invention, the wood piece 1 can be attached to its object simply by a force directed at the wood piece 1 substantially in the direction of opening of the profile form, *i.e.* upwards, for example by pressing the wood piece from the direction of the bottom part 1c. Thus, installing the wood piece involves no toots which might leave scars in the wood piece at the fixing stage, such as knocking scars by a hammer or scars left by a screw driver.

[0052] Figure 3f shows still another profile form of the wood piece 1 in which the application can be advantageously applied. The wood piece 1 comprises three walls 1a, 1b, 1d, one purpose of the intermediate wall 1d being to give the wood piece 1 supplementary rigidity, which is useful particularly in the manufacture of panel walls and ceilings. Also, the intermediate wall 1d facilitates also to straighten possible warpings and lateral bends, because force effects caused by the straightening are divided primarily in the intermediate wall 1d which can be made thicker than the walls 1a, 1b. Further, the force effects can be directed partly also to the first wall 1a or the second wall 1b. or to both. In the three-wall profile structure of Fig. 3f, the support can also be arranged in a way that those means of the fixing means 4 which accomplish the support functions are supported at least partly on the intermediate wall 1d. whose height may not be necessarily the same as the height of the walls 1a, 1b. Some examples of the variation in the height of the intermediate wall 1d are indicated by broken lines in Fig. 3f. Moreover, the support can be ar-

ranged in a way that the support is directed to the intermediate wall 1d from one side and to either of the walls 1a, 1b. It is essential, however, that the support functions are positioned at least partly within the three quarters of the height of the inner volume of the profile form located closest to the bottom part of the cross-sectional profile form, as presented above in this description.

[0053] Also other solutions for the fixing part 4 can be used, where, according to the invention, it is essential that when the wood piece 1 is fixed in its place, the fixing piece 4 supports the wood piece sufficiently, advantageously at its bottom part. By using fixing means 4 spaced in a desired alignment, it is possible to prevent undesirable deformations existing or possibly arising in the wood piece 1. By arranging the support according to the invention at least in the range of three quarters of the height of the inner volume of the wood piece 1, placed closest to the bottom part of the wood piece in the cross-sectional profile form, preferably in or close to the bottom part, it is achieved that possible lateral bendings and warpings of the wood piece 1 can be straightened. Further, a profile supported according to the invention cannot change its shape, and the fixing of the profile is secured.

[0054] The fixing means 4 can be of any sufficiently rigid or sturdy material, such as metal (Fe, Al, *etc.*), but also polymers, wood in its different forms (wood lath, plywood, *etc.*) are feasible. The fixing means can also be arranged partly flexible *e.g.* with a spring, as shown in connection with the embodiment of Fig. 3b, or by making the fixing means *e.g.* a two-piece construction, as shown in connection with the embodiment of Fig. 3d. in the embodiment of Fig. 3d, the elastic bending of the fixing means 4 requires a greater force than required for controlling bendings and warpings possibly existing or arising in the wood piece 1 as a result of stretching and contracting. Figure 3d shows still another design for the fixing means 4, combining the supporting function of the fixing means 4 and the counterpart 4a, 4b.

[0055] As the raw material for the wood pieces 1, it is possible to use any suitable workable wood species, such as pine, birch, spruce, alder, aspen, oak, *etc.* Thus, in the selection of the wood species to be used, it is possible to consider the desirable properties relating to appearance *etc.* that are desired to accomplish with the wood piece 1.

[0056] In addition to those presented above, there are a number of applications for the wood piece 1 according to the invention. The wood piece 1 and fixing means 4 of the invention can be used *e.g.* in laths, such as skirting boards, and in various pieces of furniture, thus giving the advantage that the fixing can be easily made without scars left on the visible surface by a tool. Because the wood piece 1 of the invention can be detached when necessary, it is advantageous to apply the invention also in duct-works *e.g.* for placing electric cables, wherein it will be possible to add electric cables to or remove them from the duct-work, if necessary.

[0057] The present invention is not limited solely to the embodiments presented above, but it can be modified within the scope of the appended claims.

Claims

1. Method for supporting a wood piece (1) on at least one fixing means (4) in a construction having at least one wood piece (1) and at least one fixing means (4), the wood piece (1) being formed as a structure comprising at least two walls (1a, 1b, 1d) and a bottom part (1c) in its cross-sectional profile form, wherein the outermost walls (1a, 1b) and the bottom part (1c) of the wood piece (1) limit an inner volume (2) **characterized in that** the wood piece (1) is supported on at least one wall (1a, 1b, 1c) on the range of three quarters of the height of the inner volume (2) located closest to the bottom part (1c) in the cross-sectional profile form that the structure of the wood piece (1) is arranged to be flexible on the part accomplishing the installation of the wood piece to the fixing means (4) and that the wood piece (1) is installed by a force effect directed to the wood piece (1) substantially in the direction of opening of the profile form, for example by pressing the wood piece (1), in the direction from its bottom part (1c).
2. Method according to claim 1, wherein the surface left inside the imaginary minimum peripheral measurement around the cross-section of the wood piece (1) forms a reference area, **characterized in that** the surface area of the cross-sectional profile of the wood piece (1) in relation to the reference area is formed smaller than or equal in size to 0.8, advantageously smaller than 0.6, preferably smaller than 0.4.
3. Method according to claim 1 or 2, **characterized in that** the wood piece (1) is further provided with attachment means (3a, 3b) for securing that the wood piece (1) remains in its position, the attachment means (3a, 3b) being grooves, indents, crowns, projections or the like, and that the fixing means (4) is provided with counterparts (4a, 4b) corresponding to the attachment means (3a, 3b) of the wood piece (1), the counterparts being crowns, projections, grooves, indents or the like.
4. Method according to any of the claims 1 to 3, **characterized in that** the fixing means (4) is provided with a least one supporting indent (9a, 9b) supporting at least one wall (1a, 1b).
5. Method according to any of the claims 1 to 4, **characterized in that** the wood piece (1) is formed of two or several parts by gluing.

6. Wood piece (1) arranged to be supported by at least one fixing means (4) **in a construction**, the wood piece (1) being formed as a structure comprising at least two walls (1a, 1b, 1d) and a bottom part (1c) in its cross-sectional profile form, wherein the outermost walls (1 a, 1 b) and the bottom part (1c) of the wood piece (1) limit an inner volume (2), **characterized in that** the support of the wood piece (1) is arranged on at least one wall (1a, 1b, 1c) on the range of three quarters of the height of the inner volume (2) located closest to the bottom part (1c) in the cross-sectional profile form, advantageously in the range between the midpoint of the height of the inner volume (2) and the bottom part (1c), preferably in the range of the quarter of the height of the inner volume (2) which is placed closest to the bottom part (1c) of the wood piece (1) in the cross-sectional profile form, and that the structure of the wood piece (1) is arranged to be flexible on the part accomplishing the installation of the wood piece to the fixing means (4) and that the wood piece (1) is arranged to be installed by a force effect directed to the wood piece (1) substantially in the direction of opening of the profile form, for example by pressing the wood piece (1) in the direction from its bottom part (1 c).
7. Wood piece (1) according to claim 6, wherein the surface left inside the imaginary minimum peripheral measurement around the cross-section of the wood piece (1) forms a reference area, **characterized in that** the surface area of the cross-sectional profile of the wood piece (1) in relation to the reference area is formed smaller than or equal in size to 0.8, advantageously smaller than 0.6, preferably smaller than 0.4.
8. Wood piece (1) according to claim 6 or 7, **characterized in that** it is further provided with attachment means (3a, 3b) for securing that the wood piece (1) remains in its position.
9. Wood piece (1) according to any of the claims 6 to 8, **characterized in that** at least some of the walls (1a, 1b, 1d), preferably the outermost walls (1a, 1b) are made thin, wherein their thickness is less than a half of their height.
10. Wood piece (1) according to any of the claims 6 to 9, **characterized in that** the wood piece is formed of two or several parts by gluing.
11. Construction having fixing means (4) for fixing a wood piece (1), the wood piece (1) being formed as a structure comprising at least two walls (1a, 1b, 1d) and a bottom part (1c) in its cross-sectional profile form, wherein the outermost walls (1a, 1b) and the bottom part (1c) of the wood piece (1) limit an inner

volume (2), **characterized in that** the structure of the wood piece (1) is arranged to be flexible on the part accomplishing the installation of the wood piece to the fixing means (4), that the fixing means (4) is arranged to support the wood piece (1) indirectly and/or directly on at least one wall (1a, 1b, 1c) on the range of three quarters of the height of the inner volume (2) located closest to the bottom part (1c) in the cross-sectional profile form, advantageously in the range between the midpoint of the height of the inner volume (2) and the bottom part (1c), preferably in the range of the quarter of the height of the inner volume (2) which is placed closest to the bottom part (1c) of the wood piece (1) in the cross-section profile form, and that the fixing means (4) is arranged to be flexible on the part accomplishing the installation of the wood piece (1) and that the fixing means (4) is arranged so that the wood piece (1) is installed by a force effect directed to the wood piece (1) substantially in the direction of opening of the profile form, for example by pressing the wood piece (1) in the direction from its bottom part (1c).

12. Construction according to claim 11, **characterized in that** the fixing means (4) is provided with counterparts (4a, 4b) corresponding to the attachment means (3a, 3b) of the wood piece (1).

13. Construction according to claim 11 or 12, **characterized in that** the attachment means (3a, 3b) and the counterparts (4a, 4b) are arranged inside the profile form of the wood piece (1).

14. Construction according to any of the claims 11 to 13, **characterized in that** the fixing means (4) is provided with at least one supporting indent (9a, 9b) to which at least one wall (1a, 1b) of the wood piece (1) is arranged to be supported.

Patentansprüche

1. Verfahren zum Abstützen eines Holzstücks (1) auf zumindest ein Fixierungsmittel (4) in einer Konstruktion mit zumindest einem Holzstück (1) und zumindest einem Fixierungsmittel (4), wobei das Querschnittsprofil des Holzstücks (1) als Struktur mit zumindest zwei Wänden (1a, 1b, 1d) und einem unteren Teil (1c) ausgebildet wird, wobei die äussersten Wände (1a, 1b) und der untere Teil (1c) des Holzstücks (1) ein Innenvolumen (2) begrenzen, **dadurch gekennzeichnet, dass** das Holzstück (1) auf zumindest eine Wand (1 a, 1b, 1c) im Bereich von drei Vierteln der Höhe des Innenvolumens (2) abgestützt wird, welcher Bereich im Querschnittsprofil nächst dem unteren Teil (1c) liegt, dass die Struktur des Holzstücks (1) angeordnet ist, auf dem

die Installation des Holzstücks an dem Fixierungsmittel (4) auszuführenden Teil flexibel zu sein, und dass das Holzstück (1) durch eine auf das Holzstück (1) wesentlich in Richtung einer Öffnung der Profilform gerichtete Kraftwirkung installiert wird, beispielsweise indem das Holzstück (1) vom seinen unteren Teil (1 c) aus gepresst wird.

2. Verfahren nach Anspruch 1, wobei die Fläche, die innerhalb des imaginären kleinsten Umfangsmaßes um den Querschnitt des Holzstücks (1) bleibt, eine Referenzfläche bildet, **dadurch gekennzeichnet, dass** die Fläche des Querschnittsprofils des Holzstücks (1) in Bezug auf die Referenzfläche kleiner als oder gleich 0,8, vorteilhaft kleiner als 0,6, vorzugsweise kleiner als 0,4 ist.
3. Verfahren nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Holzstück (1) weiter mit Befestigungsmitteln (3a, 3b) versehen ist, um sicherzustellen, dass das Holzstück (1) in seiner Position bleibt, welche Befestigungsmittel (3a, 3b) Rillen, Einkerbungen, Wölbungen, Vorsprünge oder dergleichen sind, und dass das Fixierungsmittel (4) mit den Befestigungsmitteln (3a, 3b) des Holzstücks (1) entsprechenden Gegenstücken (4a, 4b) versehen ist, welche Gegenstücke Wölbungen, Vorsprünge, Rillen, Einkerbungen oder dergleichen sind.
4. Verfahren nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** das Fixierungsmittel (4) mit zumindest einer abstützenden Einkerbung (9a, 9b) versehen ist, die zumindest eine Wand (1a, 1 b) abstützt.
5. Verfahren nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** das Holzstück (1) aus zwei oder mehreren Teilen durch Kleben ausgebildet wird.
6. Holzstück (1), das angeordnet ist, von zumindest einem Fixierungsmittel (4) in einer Konstruktion abgestützt zu werden, wobei das Querschnittsprofil des Holzstücks (1) als Struktur mit zumindest zwei Wänden (1a, 1b, 1d) und einem unteren Teil (1c) ausgebildet wird, wobei die äussersten Wände (1 a, 1 b) und der untere Teil (1 c) des Holzstücks (1) ein Innenvolumen (2) begrenzen, **dadurch gekennzeichnet, dass** die Abstützung des Holzstücks (1) auf zumindest eine Wand (1a, 1b, 1c) im Bereich von drei Vierteln der Höhe des Innenvolumens (2) angeordnet ist, welcher Bereich im Querschnittsprofil nächst dem unteren Teil (1c) liegt, vorteilhaft im Bereich zwischen dem Mittelpunkt der Höhe des Innenvolumens (2) und dem unteren Teil (1c), vorzugsweise im Bereich von dem Viertel der Höhe des Innenvolumens (2), das sich nächst dem

unteren Teil (1c) des Holzstücks (1) im Querschnittsprofil befindet, und dass die Struktur des Holzstücks (1) angeordnet ist, auf dem die Installation des Holzstücks an dem Fixierungsmittel (4) auszuführenden Teil flexibel zu sein, und dass das Holzstück (1) angeordnet ist, durch eine auf das Holzstück (1) wesentlich in Richtung einer Öffnung der Profilform gerichtete Kraftwirkung installiert zu werden, beispielsweise indem das Holzstück (1) vom seinen unteren Teil (1c) aus gepresst wird.

7. Holzstück (1) nach Anspruch 6, wobei die Fläche, die innerhalb des imaginären kleinsten Umfangsmaßes um den Querschnitt des Holzstücks (1) bleibt, eine Referenzfläche bildet, **dadurch gekennzeichnet, dass** die Fläche des Querschnittsprofils des Holzstücks (1) in Bezug auf die Referenzfläche kleiner als oder gleich 0,8, vorteilhaft kleiner als 0,6, vorzugsweise kleiner als 0,4 ist.
8. Holzstück (1) nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** es weiter mit Befestigungsmitteln (3a, 3b) versehen ist, um sicherzustellen, dass das Holzstück (1) in seiner Position bleibt.
9. Holzstück (1) nach einem der Ansprüche 6 bis 8, **dadurch gekennzeichnet, dass** zumindest einige der Wände (1a, 1b, 1d), vorzugsweise die äussersten Wände (1a, 1b), dünn ausgebildet werden, wobei ihre Dicke geringer als die Hälfte ihrer Höhe ist.
10. Holzstück (1) nach einem der Ansprüche 6 bis 9, **dadurch gekennzeichnet, dass** das Holzstück (1) aus zwei oder mehreren Teilen durch Kleben ausgebildet wird.
11. Konstruktion mit Fixierungsmitteln (4) zum Fixieren eines Holzstücks (1), wobei das Querschnittsprofil des Holzstücks (1) als Struktur mit zumindest zwei Wänden (1a, 1b, 1d) und einem unteren Teil (1c) ausgebildet wird, wobei die äussersten Wände (1a, 1b) und der untere Teil (1c) des Holzstücks (1) ein Innenvolumen (2) begrenzen, **dadurch gekennzeichnet, dass** die Struktur des Holzstücks (1) angeordnet ist, auf dem die Installation des Holzstücks an dem Fixierungsmittel (4) auszuführenden Teil flexibel zu sein, dass das Fixierungsmittel (4) angeordnet ist, das Holzstück (1) direkt und/oder indirekt auf zumindest eine Wand (1a, 1b, 1c) im Bereich von drei Vierteln der Höhe des Innenvolumens (2) abzustützen, welcher Bereich im Querschnittsprofil nächst dem unteren Teil (1c) liegt, vorteilhaft im Bereich zwischen dem Mittelpunkt der Höhe des Innenvolumens (2) und dem unteren Teil (1c), vorzugsweise im Bereich von dem Viertel der Höhe des Innenvolumens (2), das sich nächst dem unteren Teil (1c) des Holzstücks (1) im Querschnittsprofil befindet, und dass das Fixierungsmittel (4) ange-

ordnet ist, auf dem die Installation des Holzstücks (1) auszuführenden Teil flexibel zu sein, und dass das Fixierungsmittel (4) derart angeordnet ist, dass das Holzstück (1) durch eine auf das Holzstück (1) wesentlich in Richtung einer Öffnung der Profilform gerichtete Kraftwirkung installiert wird, beispielsweise indem das Holzstück (1) vom seinen unteren Teil (1c) aus gepresst wird.

12. Konstruktion nach Anspruch 11, **dadurch gekennzeichnet, dass** das Fixierungsmittel (4) mit den Befestigungsmitteln (3a, 3b) des Holzstücks (1) entsprechenden Gegenstücken (4a, 4b) versehen ist. 10
13. Konstruktion nach Anspruch 11 oder 12, **dadurch gekennzeichnet, dass** die Befestigungsmittel (3a, 3b) und die Gegenstücke (4a, 4b) innerhalb der Profilform des Holzstücks (1) angeordnet sind. 15
14. Konstruktion nach einem der Ansprüche 11 bis 13, **dadurch gekennzeichnet, dass** das Fixierungsmittel (4) mit zumindest einer abstützenden Einkerbung (9a, 9b) versehen ist, auf die zumindest eine Wand (1a, 1b) des Holzstücks (1) angeordnet ist abzustützen. 20 25

Revendications

1. Procédé pour supporter une pièce de bois (1) sur au moins un moyen de fixation (4) dans une construction comportant au moins une pièce de bois (1) et au moins un moyen de fixation (4), la pièce de bois (1) se formant une structure comprenant au moins deux parois (1a, 1b, 1d) et une partie de fond (1c) en profil en travers, les parois les plus extérieures (1a, 1b) et la partie de fond (1c) de la pièce de bois (1) délimitant un volume intérieur (2), **caractérisé en ce que** la pièce de bois (1) est supportée à au moins une paroi (1a, 1b, 1c) à l'étendue de trois quarts de la hauteur du volume intérieur (2) situé le plus près de la partie de fond (1c) en profil en travers, que la structure de la pièce de bois (1) est agencée à être flexible à la partie qui accomplit la monture de la pièce de bois aux moyens de fixation (4) et que la pièce de bois (1) est montée à l'aide d'une force exercée sur la pièce de bois (1) sensiblement dans le sens de l'ouverture du profil, par exemple, par pressant la pièce de bois dans le sens depuis la partie de fond (1c). 30 35 40 45 50
2. Procédé selon la revendication 1, dans lequel la surface laissée à l'intérieur de la circonférence imaginaire minimale autour de la coupe transversale de la pièce de bois (1) forme une zone de référence, **caractérisé en ce que** la zone superficielle du profil en travers de la pièce de bois (1) par rapport de la zone de référence est moins que ou bien égale à 55
- 0,8, avantageusement moins que 0,6, de préférence moins que 0,4.
3. Procédé selon la revendication 1 ou 2, **caractérisé en ce que** la pièce de bois (1) est en outre fournie des moyens d'ancrage (3a, 3b) pour assurer que la pièce de bois (1) demeure dans sa position, les moyens d'ancrage (3a, 3b) constituant des rayures, entailles, bombés, saillies ou pareils, et que les moyens de fixation (4) sont fournis des contreparties (4a, 4b) correspondant les moyens d'ancrage (3a, 3b) de la pièce de bois (1), les contreparties étant sous la forme des bombés, saillies, rayures, entailles ou pareils.
4. Procédé selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** le moyen de fixation (4) est fourni d'au moins une entaille de support (9a, 9b) supportant au moins une paroi (1a, 1b).
5. Procédé selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** la pièce de bois (1) est formée de deux ou plusieurs parties par encollage.
6. Pièce de bois (1) agencée à être supportée par au moins un moyen de fixation (4) dans une construction, la pièce de bois (1) se formant une structure comportant au moins deux parois (1a, 1b, 1d) et une partie de fond (1c) en profil en travers, les parois les plus extérieures (1a, 1b) et la partie de fond (1c) de la pièce de bois (1) délimitant un volume intérieur (2), **caractérisé en ce que** le support de la pièce de bois (1) est agencé à au moins une paroi (1a, 1b, 1c) à l'étendue de trois quarts de la hauteur du volume intérieur (2) situé le plus près de la partie de fond (1c) en profil en travers, avantageusement à l'étendue entre le milieu de la hauteur du volume intérieur (2) et la partie de fond (1c), de préférence à l'étendue du quart de la hauteur du volume intérieur situé le plus près de la partie de fond (1c) de la pièce de bois (1) en profil de travers, et que la structure de la pièce de bois (1) est agencée à être flexible à la partie qui accomplit la monture de la pièce de bois aux moyens de fixation (4) et que la pièce de bois (1) est agencée à être montée à l'aide d'une force exercée sur la pièce de bois (1) sensiblement dans le sens de l'ouverture du profil, par exemple, par pressant la pièce de bois (1) dans le sens depuis la partie de fond (1c).
7. Pièce de bois (1) selon la revendication 6, dans laquelle la surface laissée à l'intérieur de la circonférence imaginaire minimale autour de la coupe transversale de la pièce de bois (1) forme une zone de référence, **caractérisé en ce que** la zone superficielle du profil en travers de la pièce de bois (1) par rapport de la zone de référence est moins que

ou bien égale à 0,8, avantageusement moins que 0,6, de préférence moins que 0,4.

8. Pièce de bois (1) selon la revendication 6 ou 7, **caractérisé en ce qu'elle** est en outre fournie des moyens d'ancrage (3a, 3b) pour assurer que la pièce de bois (1) demeure dans sa position. 5
9. Pièce de bois (1) selon l'une quelconque des revendications 6 à 8, **caractérisé en ce qu'au moins** quelques-unes des parois (1a, 1b, 1d), de préférence les parois les plus extérieures (1a, 1b) sont minces, leur épaisseur étant moins que la moitié de leur hauteur. 10
10. Pièce de bois (1) selon l'une quelconque des revendications 6 à 9, **caractérisé en ce que** la pièce de bois est formée de deux ou plusieurs parties par encollage. 15
11. Construction comportant des moyens de fixation (4) pour fixer une pièce de bois (1), la pièce de bois (1) se formant une structure comprenant au moins deux parois (1a, 1b, 1d) et une partie de fond (1c) en profil en travers, les parois les plus extérieures (1a, 1b) et la partie de fond (1c) de la pièce de bois délimitant un volume intérieur (2), **caractérisé en ce que** la structure de la pièce de bois (1) est agencée à être flexible à la partie qui accomplit la monture de la pièce de bois aux moyens de fixation (4), que les moyens de fixation (4) sont agencés à supporter la pièce de bois (1) indirectement et/ou directement à au moins une paroi (1a, 1b, 1c) à l'étendue de trois quarts de la hauteur du volume intérieur (2) situé le plus près de la partie de fond (1c) en profil en travers, avantageusement à l'étendue entre le milieu de la hauteur du volume intérieur (2) et la partie de fond (1c), de préférence à l'étendue du quart de la hauteur du volume intérieur (2) situé le plus près de la partie de fond (1c) de la pièce de bois (1) en profil de travers, et que les moyens de fixation (4) sont agencés à être flexible à la partie qui accomplit la monture de la pièce de bois (1) et que les moyens de fixation (4) sont agencés de telle manière que la pièce de bois (1) est montée à l'aide d'une force exercée sur la pièce de bois (1) sensiblement dans le sens de l'ouverture du profil, par exemple, par pressant la pièce de bois dans le sens depuis la partie de fond (1c). 20
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12. Construction selon la revendication 11, **caractérisé en ce que** les moyens de fixation (4) sont fournis des contreparties (4a, 4b) correspondant les moyen d'ancrage (3a, 3b) de la pièce de bois (1). 55
13. Construction selon la revendication 11 ou 12, **caractérisé en ce que** les moyens d'ancrage (3a, 3b) et les contreparties (4a, 4b) sont agencés à l'inté-

rieur du profil de la pièce de bois (1).

14. Construction selon l'une quelconque des revendications 11 à 13, **caractérisé en ce que** les moyens de fixation (4) sont fournis d'au moins une entaille de support (9a, 9b) à laquelle au moins une paroi (1a, 1b) de la pièce de bois (1) est agencée à être supportée.

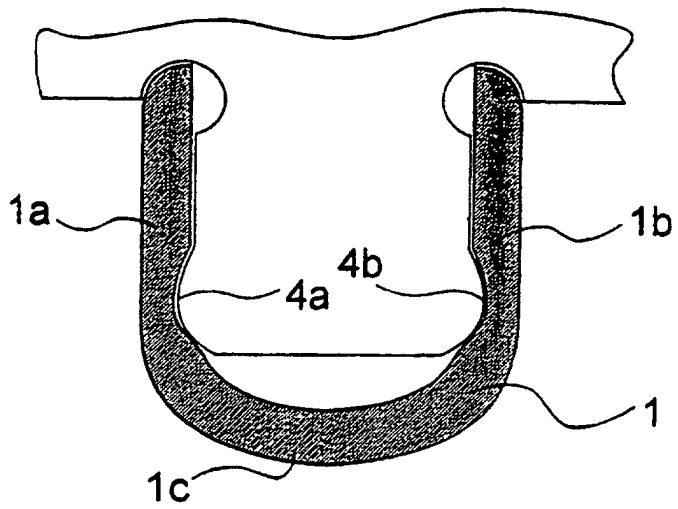


Fig. 1

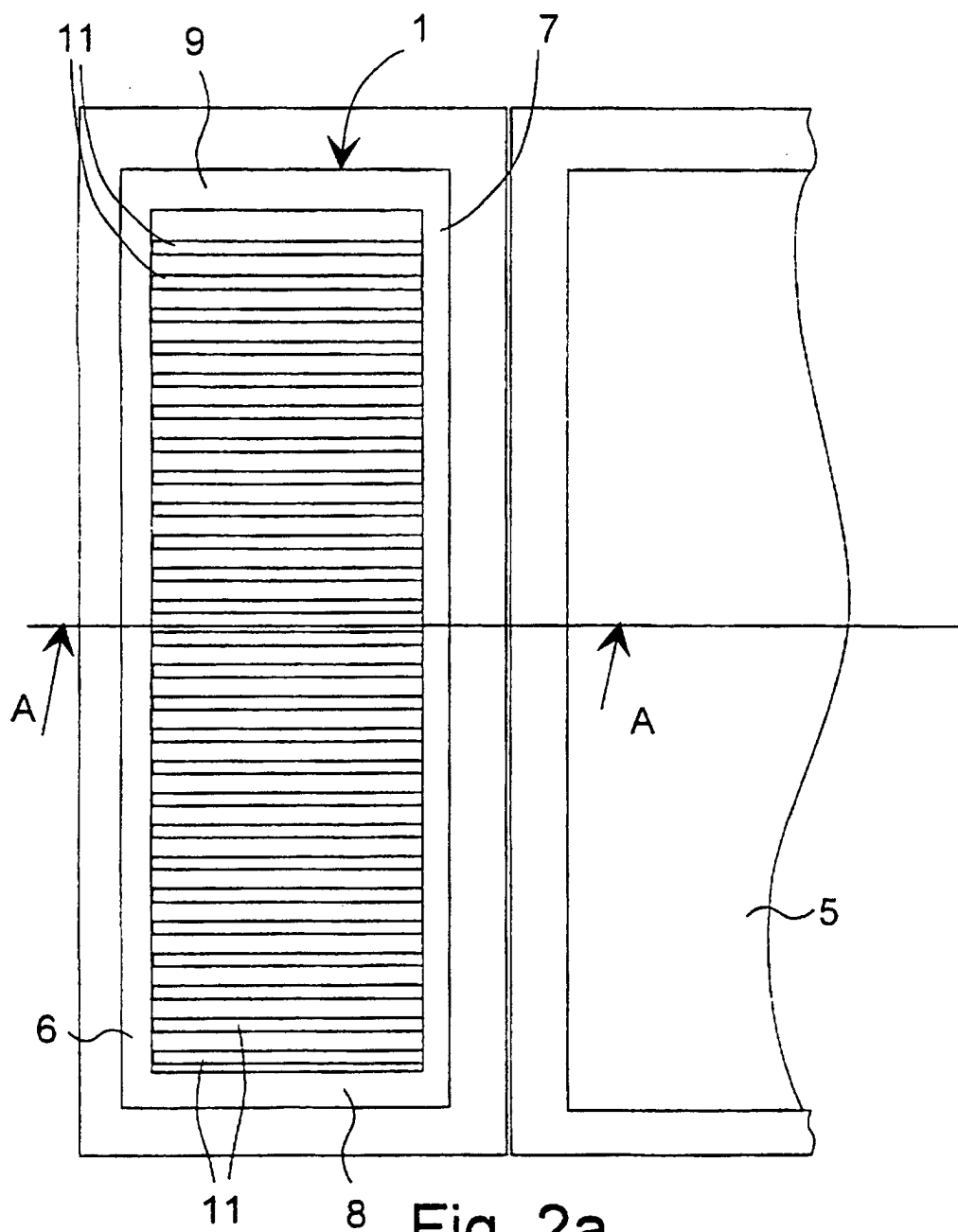


Fig. 2a

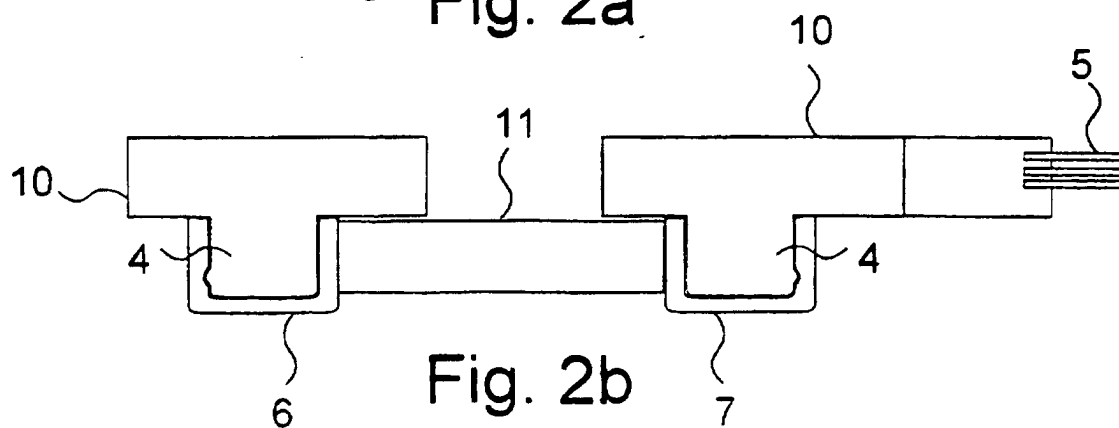
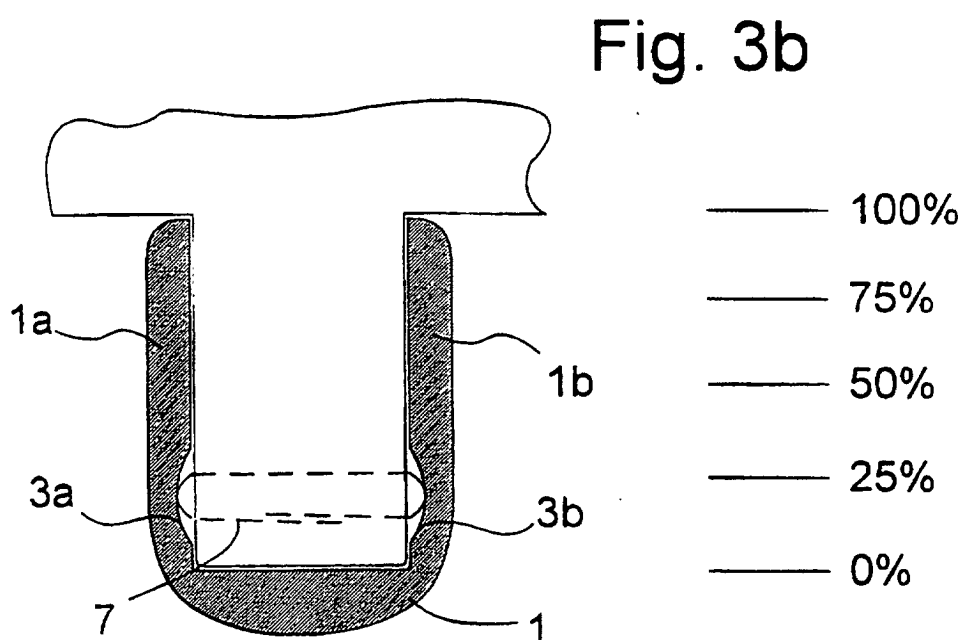
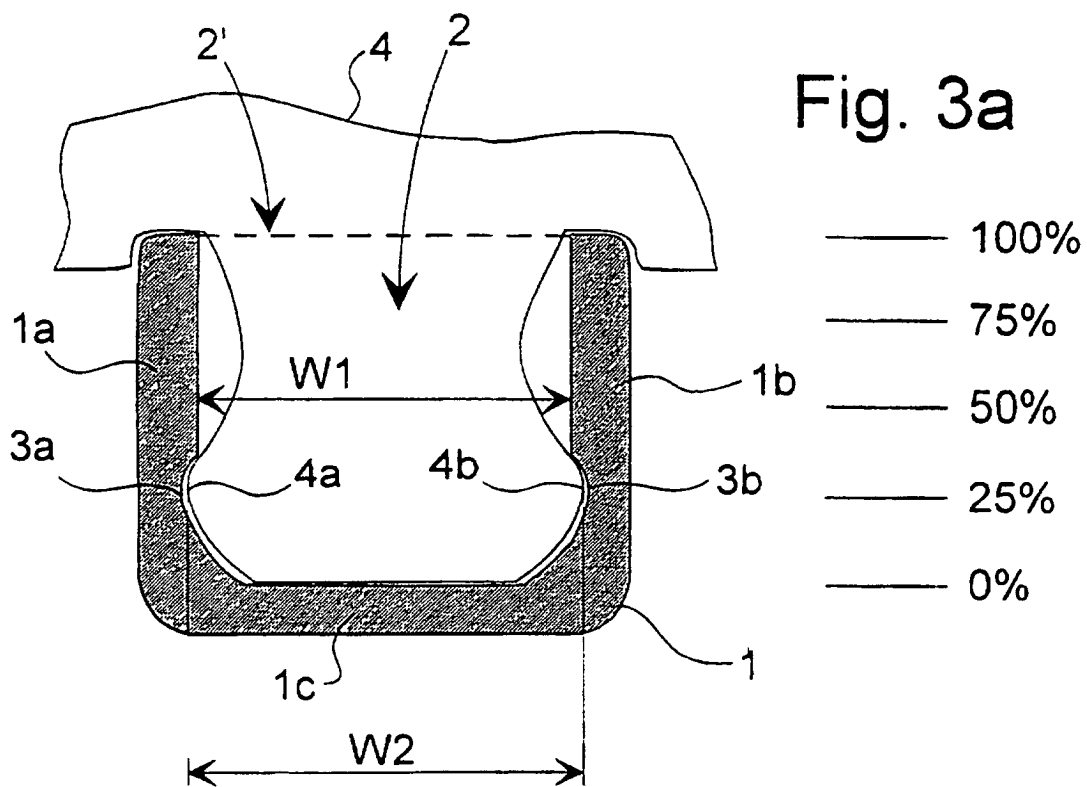


Fig. 2b



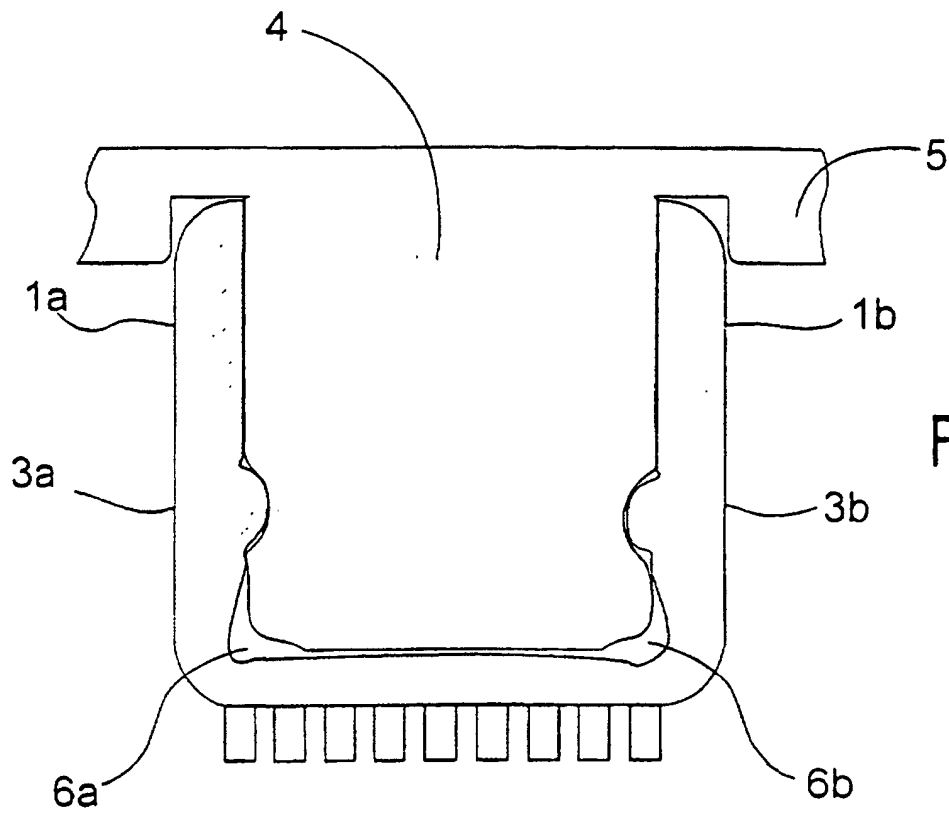


Fig. 3c

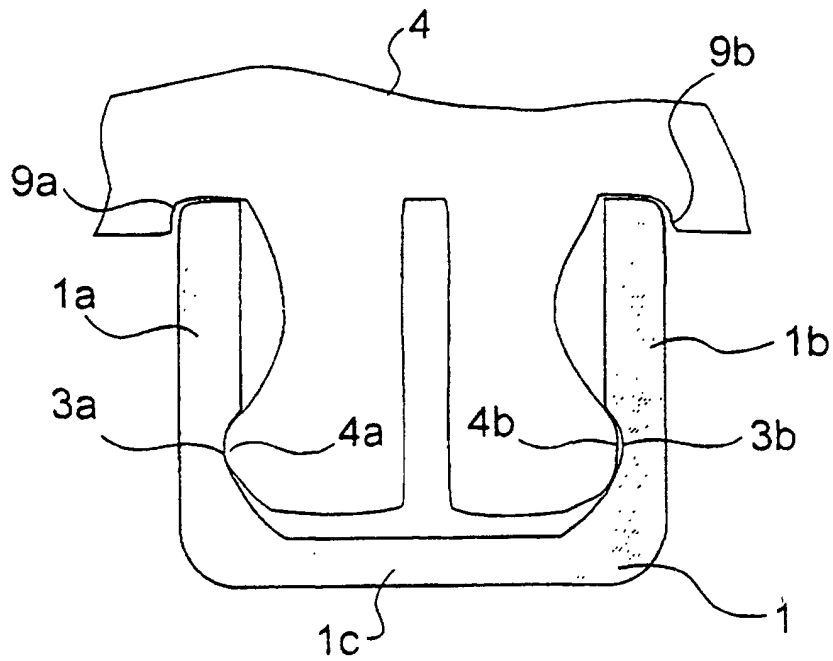


Fig. 3d

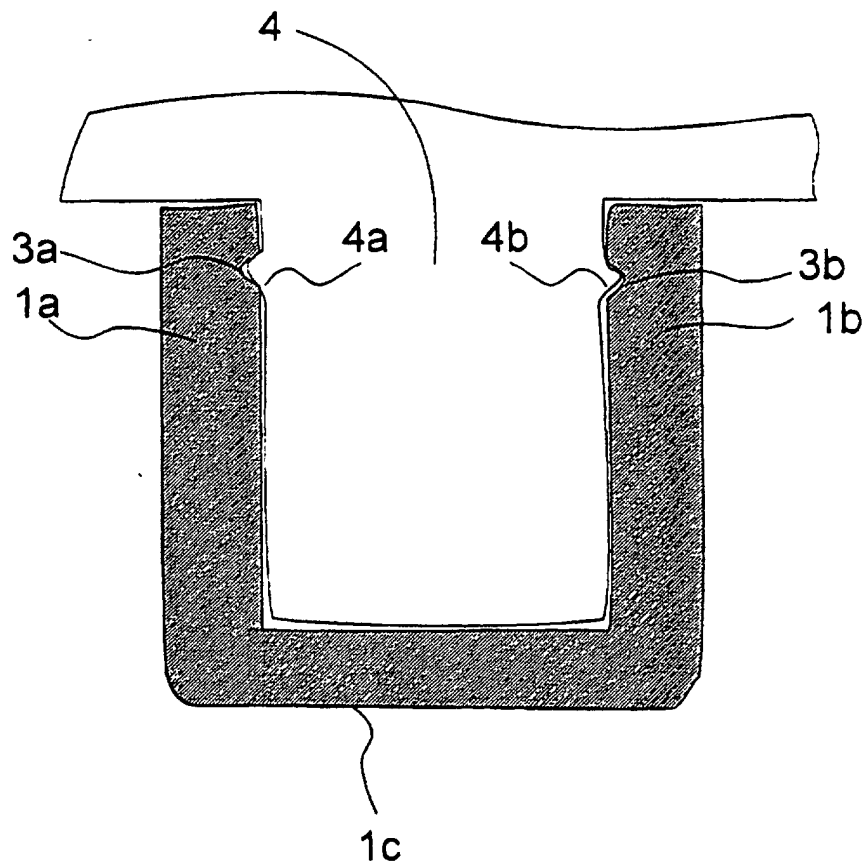


Fig. 3e

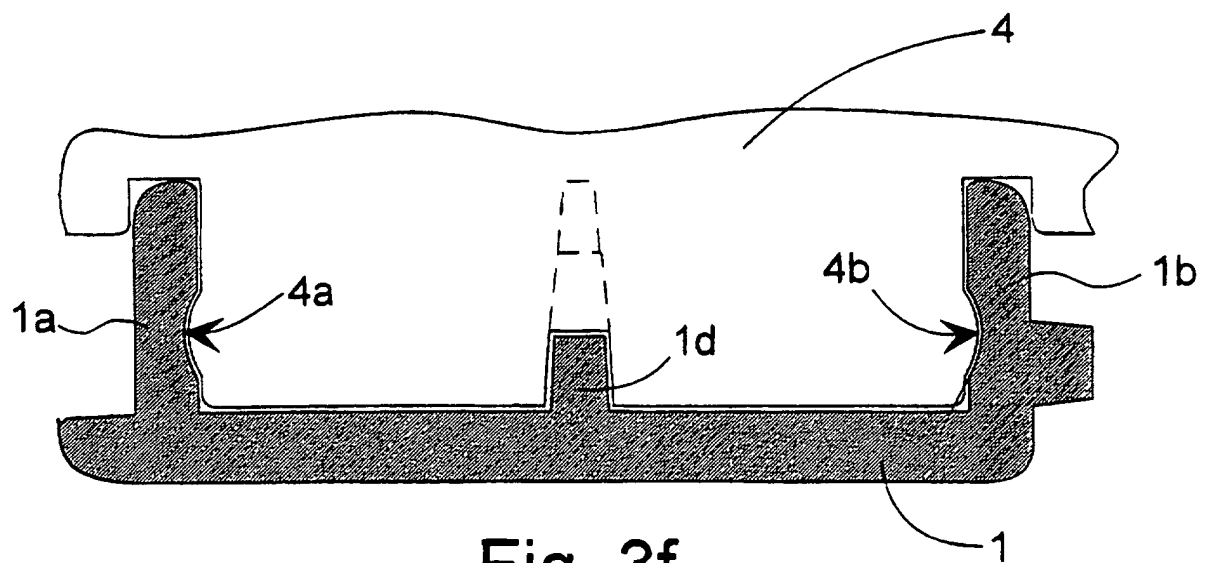


Fig. 3f

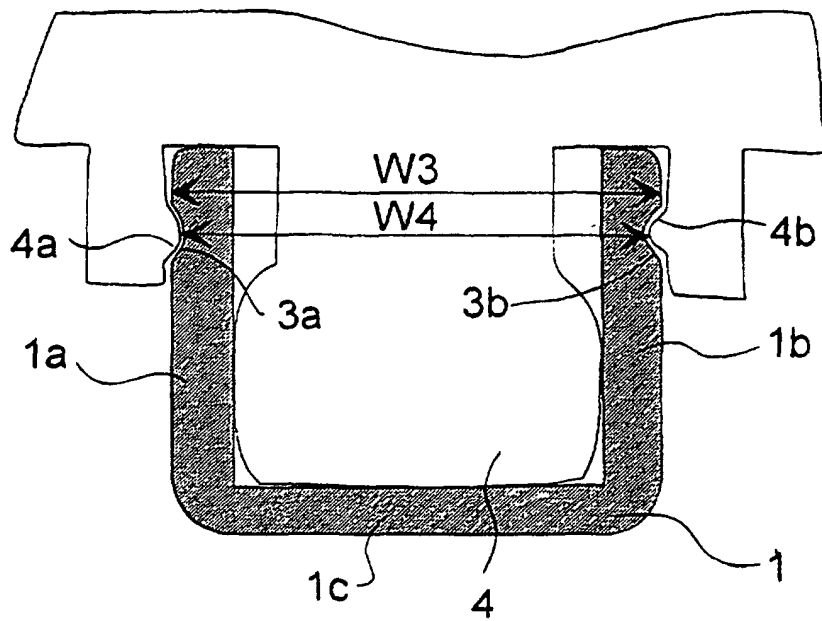


Fig. 3g

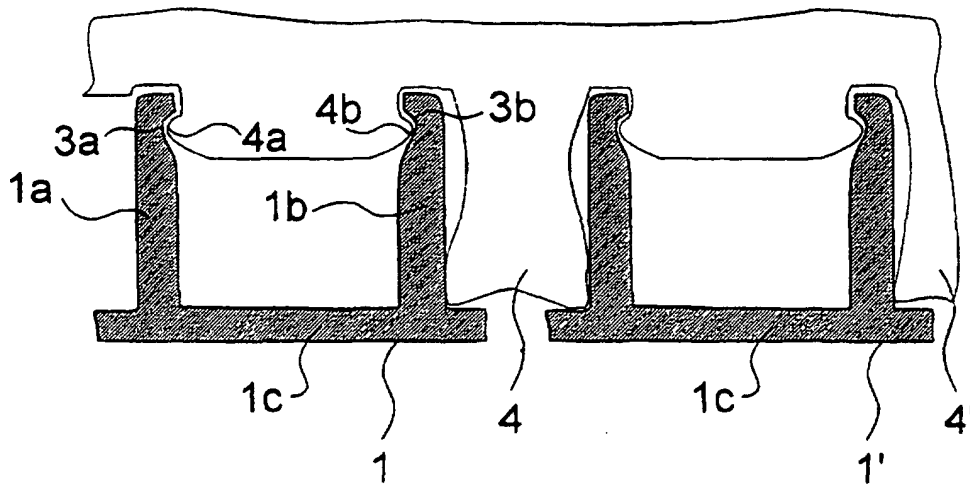
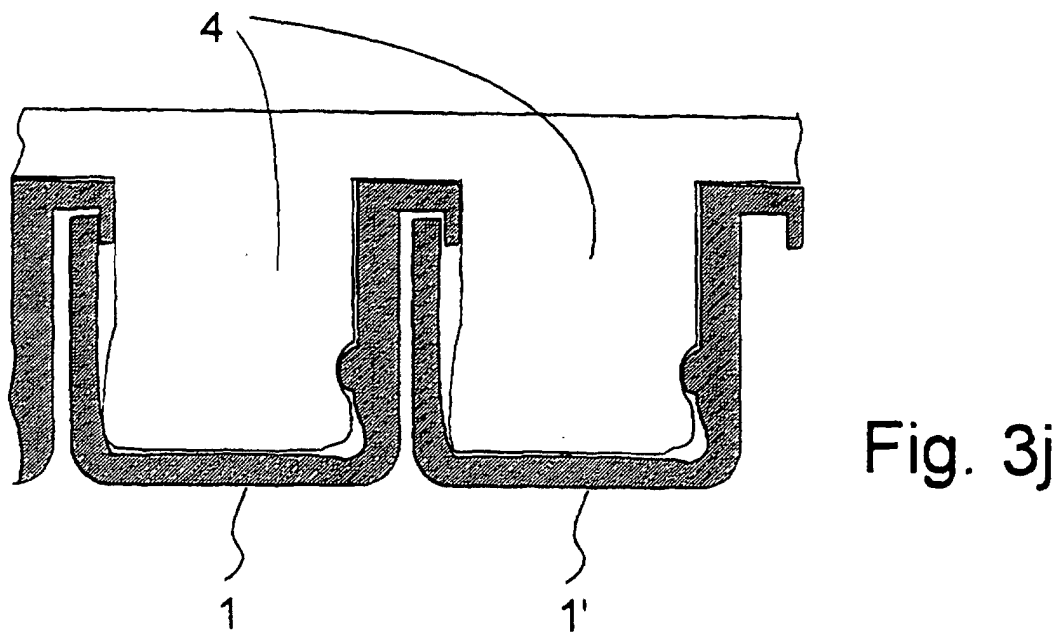
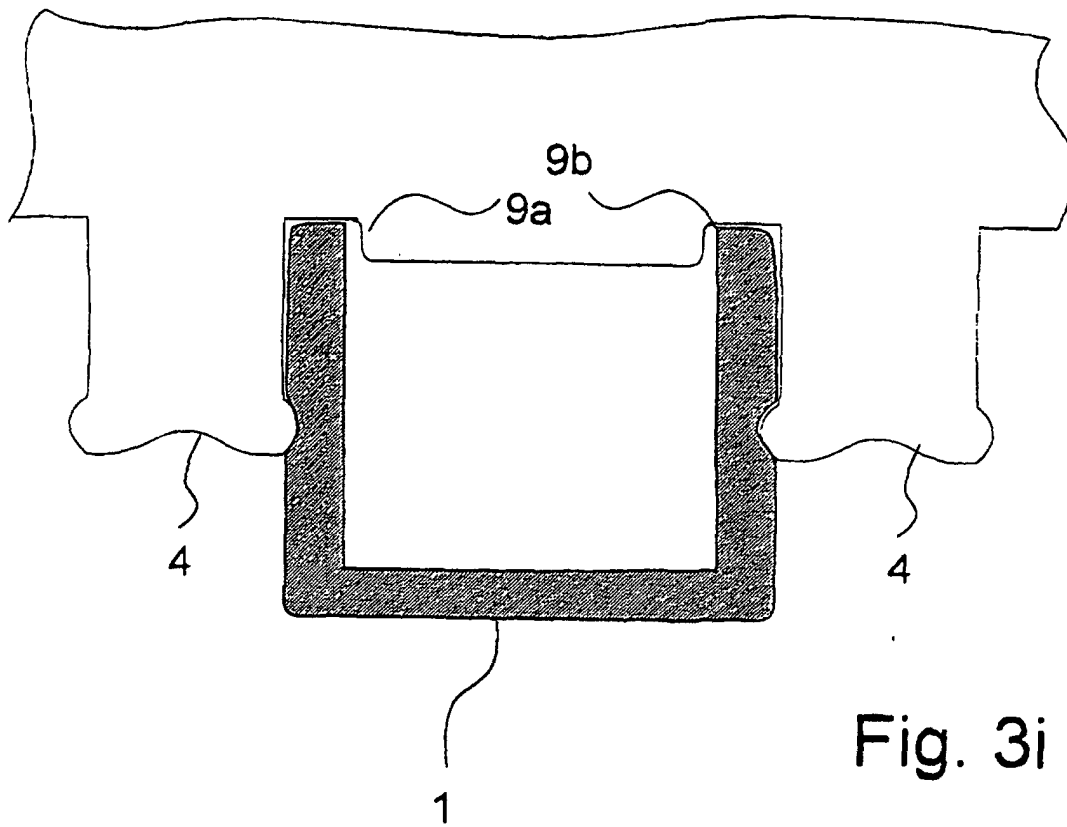


Fig. 3h



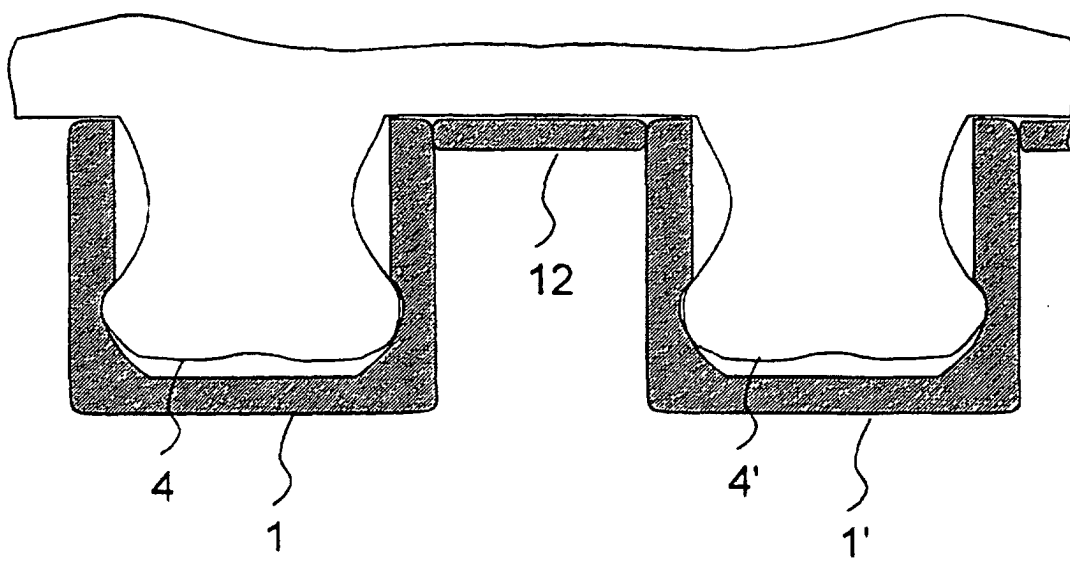


Fig. 3k