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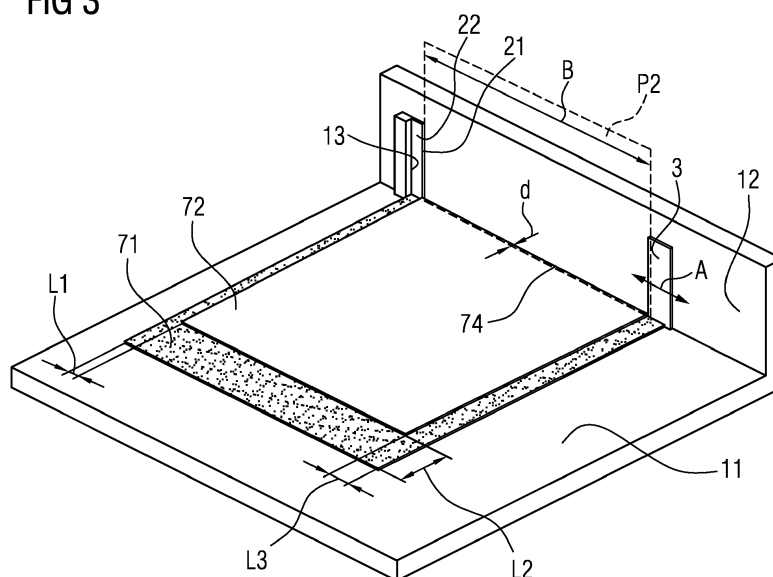
(54) **Tool, method and system for manually manufacturing albums and books by butterfly binding**

(57) A method for manually making albums and books by butterfly binding includes the following phases:
a) the edge of the initial adhesive sheet (71) is manually aligned on a planar worktable (11) against the tool's (1, 1', 1'') first stopper line (P1);
b) the folding edge (74) of a folded photographic sheet (72) is manually aligned on top of the previous adhesive sheet (71, 73) and against the tool's (1, 1', 1'') second stopper line (P2), which is some distance (d) further from the worktable (11) than the first stopper line (P1), and the downwards-facing reverse side of said folded photographic sheet (72) on the worktable (11) is securely glued to said adhesive sheet (71, 73) by pressing towards the worktable (11);

c) the edge of an adhesive sheet (73) is manually aligned on top of the previous photographic sheet (72) and against the tool's (1, 1', 1'') first stopper line (P1), and the adhesive sheet (73) on the worktable (11) is securely glued to the upwards-facing reverse side of said photographic sheet (72) by pressing towards the worktable (11); and
d) phases b) and c) are repeated alternately until the desired quantity of photographic sheets (72) has been glued to form a butterfly binding (7).

The patent application includes a parallel method claim and in addition independent patent claims for the tool and the system.

FIG 3



Description

Field of the invention

[0001] The invention relates to the bookbinding field, namely to tools, systems and methods for manually making albums and books by butterfly binding.

Background art

[0002] The trend in making photo albums and photo-books is increasingly to use butterfly binding as the binding technique. In butterfly binding, the reverse sides of folded sheets are glued to each other. When an album or book bound by butterfly binding is opened, each folded sheet forms a spread of the album or book.

[0003] Butterfly binding is dealt with more generally in the English translation of the abstract of Japanese patent application JP 2003-300389, the English translation of the abstract of Japanese patent application JP 2006-272738 and the English translation of the abstract of Korean patent application KR 10-0725939.

[0004] The popular Fastbind® Fotomount butterfly binding device developed by the applicant is known from the patent application published under publication number WO 2009/030815 A1. Using the said device, the covers, the folded photographic sheets and the adhesive dividers usable in butterfly binding can be positioned and attached easily to each other to make a photo album or photobook, for example.

[0005] A device usable in butterfly binding is known from United States patent application publication US 2008/0072469. At the time of writing, Powis Parker Inc. is offering at the Internet address http://www.powis.com/photobook_solutions/ppfeature.html a device designed for butterfly binding.

[0006] At the time of writing, Photostory (Industrie Unibind Spa) is offering at the Internet address <http://www.broadcastitalia.it/photostory/index.htm> a device designed for butterfly binding.

Purpose of the invention

[0007] A binding device known from the applicant's publication number WO 2009/030815 A1 is relatively complex technically. Therefore, the manufacture of such devices requires much labor and quite a large number of parts. Thus, a relatively large financial investment is needed in order to acquire a binding device.

[0008] The purpose of the invention is to make it possible for users who do not have a continual need for butterfly binding, and for whom a financial investment in a relatively complex binding device would not necessarily be considered appropriate, to also benefit from the advantages of butterfly binding.

[0009] This purpose can be fulfilled by using a method in accordance with either of the parallel independent patent claims and by using a tool in accordance with the

independent patent claim.

[0010] Another purpose of the invention is to enable butterfly binding without increasing the footprint needed by existing devices. This purpose can be fulfilled with the aid of a system in accordance with the parallel independent patent claim.

[0011] The dependent claims describe advantageous aspects of the method, the tool and the system.

Advantages of the invention

[0012] The advantages of the invention are achievable by means of both of the methods described in the following sections I and II. The methods differ from each other only with respect to whether the gluing is begun with the initial adhesive sheet or with the folded photographic sheet.

I: Method (adhesive sheet begins):

[0013] A method, in accordance with the first aspect of the invention, of manually making albums and books by butterfly binding using an initial adhesive sheet, folded photographic sheets and adhesive sheets, concerning which the initial adhesive sheet and at least some of the adhesive sheets are, in the direction of the folding edge of the folded photographic sheets, wider than the folding edge of the folded photographic sheets (in other words, that at least $L1 > 0$ or $L3 > 0$, but at best both $L1 > 0$ and $L3 > 0$) comprises the following phases:

a) prior to beginning the gluing, the edge of the initial adhesive sheet is manually aligned on a planar worktable against the tool's first stopper line, so that the adhesive sheet is essentially parallel to the plane defined by the worktable;

b) the folding edge of a folded photographic sheet is manually aligned on top of the previous adhesive sheet and against the tool's second stopper line, which is a distance further from the worktable than the first stopper line, and the downwards-facing reverse side of said folded photographic sheet on the worktable is glued to said adhesive sheet by pressing towards the worktable so that the folded photographic sheet becomes essentially parallel to the plane of the adhesive sheet;

c) the edge of an adhesive sheet is manually aligned on top of the previous photographic sheet and against the tool's first stopper line, and the adhesive sheet is glued to the upwards-facing reverse side of said photographic sheet by pressing towards the worktable so that the adhesive sheet becomes essentially parallel to the plane of the photographic sheet (72); and

d) phases b) and c) are repeated alternately until the desired quantity of photographic sheets has been glued to form a butterfly binding.

II: Method (folded photographic sheet begins)

[0014] A method, parallel to the method described in section I, of manually making albums and books by butterfly binding using folded photographic sheets and adhesive sheets, concerning which at least some of the adhesive sheets are, in the direction of the folding edge of the folded photographic sheets, wider than the folding edge of the folded photographic sheets (in other words, that at least $L1 > 0$ or $L3 > 0$, but at best both $L1 > 0$ and $L3 > 0$)

includes the following phases:

a) prior to beginning the gluing, the folding edge of a folded photographic sheet is manually aligned on a planar worktable against the tool's second stopper line, so that the folded photographic sheet is essentially parallel to the plane defined by the worktable;

b) the edge of an adhesive sheet is manually aligned on top of the previous photographic sheet and against the tool's first stopper line, which is a distance closer to the worktable than the second stopper line, and the adhesive sheet on the worktable is glued to the upwards-facing reverse side of said photographic sheet by pressing towards the worktable so that the adhesive sheet becomes essentially parallel to the plane of the folded photographic sheet; and

c) the folding edge of the folded photographic sheet is manually aligned on top of the previous adhesive sheet and against the tool's second stopper line, and the downwards-facing reverse side of said folded photographic sheet on the worktable is glued to said adhesive sheet by pressing towards the worktable so that the folded photographic sheet becomes essentially parallel to the plane of the adhesive sheet;

d) phases b) and c) are repeated alternately until the desired number of photographic sheets has been glued to form a butterfly binding.

[0015] The methods described in sections I and II are much simpler than the method known from the patent application published under publication number WO 2009/030815 A1. The parallel methods we have now invented are very easy to implement in practice and additionally, with respect to butterfly binding, they can be very easily learnt by even inexperienced users. When the tool's stopper lines are used to align the folded photographic sheets and adhesive sheets, there is a fairly high probability that the alignment will succeed. Thus, less material will be lost due to faulty alignment than will be the case if no tool is used.

[0016] In accordance with the method described in section II, the fringe area on one side of the folding edge of the first or last folded photographic sheet can be longer than the other. Then said folded photographic sheet can be used as a pull-over cover for the butterfly binding. In this case, the photographic sheet to be used as the pull-over cover is initially (i.e. when compiling the butterfly binding) folded so that the photographic area on both sides of the folding line remains within the fold. The positioning and attaching of the cover have, until now, been regarded as the most difficult work phase in making a soft cover butterfly binding. When the pull-over cover is positioned in the binding as the first or the last photographic sheet to be bound, it is possible to achieve superior positioning accuracy compared to the situation when the covering paper is separately attached later. Normally, an additional device or separate positioning jigs are needed to attach the cover separately. Their use can be avoided by using the method according to the invention. It should be noted that always when manufacturing processes require re-positioning or a new attachment, then a new manufacturing tolerance is created and the risk of the work in hand being spoilt grows; in other words, the risk that the work will produce wastage or poorer-quality finished products.

[0017] After binding, when the pull-over cover is turned 270° , the picture's pre-folded edge acts as the first folding crease of the book or album. A second spine crease, defined according to the thickness of the spine, can be made in advance with some degree of accuracy, if the combined total thickness of the adhesive sheets and folded photographic sheets in the butterfly binding is known in advance. This is challenging, since, due to factors deriving from the working methods and the thickness of the photographic sheets, and the adhesive and any carrier material in the adhesive sheets, the measurements of the final butterfly binding can diverge to some extent from the estimated measurements. A more accurate result is obtainable if the crease made according to the strength of the spine is made only after the compilation of the butterfly binding (in other words, the interior of the book or album). A crease made according to the spine strength can be marked by a pen, for example, after the pull-over cover has been turned about 270° , although the marking of an exact crease line may require the compressing of the spine of the butterfly binding. Alternatively the exact thickness of the completed binding can be measured by a gauge and the crease can be made according to the spine strength accordingly.

[0018] When the method for aligning photographic sheets and adhesive sheets employs a tool comprising a worktable, parallel alignment guides essentially perpendicular to the worktable that form a first stopper line, and at least one backstop that forms a second stopper line, and in which the second stopper line is, with respect to the worktable, further away than the first stopper line, it is possible to mechanize the butterfly binding of albums or books in a relatively simple way. Thus it is possible to

better control the manufacturing tolerances of butterfly-bound albums or books.

[0019] When, in the method, prior to aligning the edge of the first adhesive sheet against the first stopper line, the distance between the parallel alignment guides is adjusted according to the size of the initial adhesive sheet and/or the folded photographic sheets, so that the folded photographic sheets fit between the parallel alignment guides, but the adhesive sheets do not, it is possible by means of the method to neatly mechanize butterfly binding in a relatively simple way for many sizes of albums or books.

[0020] When, in the method, the adhesive sheets are laterally aligned by means of the tool outside the distance between the alignment guides and against the corner of an alignment guide, it is possible to ensure that the adhesive sheet extends over the whole folded photographic sheet, in which case the folded photographic sheet becomes glued throughout the whole area of its reverse side.

[0021] When, in the method, the folded photographic sheets are aligned in an indented position with respect to the adhesive sheets along the distance between the alignment guides, it is possible to ensure that perpendicular placement with respect to the folding edge of the folded photographic sheets remains sufficiently uniform.

[0022] The method can be implemented advantageously by means of a tool attached to a host device used for bookmaking and including a planar worktable. According to an advantageous viewpoint, the host device can be a printing device, a photo lab/photo printer/exposure unit, a guillotine, rotary cutter or other type of cut-off device designed for cutting print media (such as paper, plastic or a paper block), a creasing/grooving device, a hard-cover making machine, a cover alignment device or a book casing-in device. Thus it is possible to increase the versatility of printers, paper finishing devices and equipment used for bookmaking. On the other hand, it is possible to utilize for butterfly binding the space (foot-print) needed by devices that already exist for other purposes or for bookmaking.

[0023] In an advantageous embodiment of the method i) prior to manually aligning the folding edge of the next folded photographic sheet on top of the previous adhesive sheet and against the tool's second stopper line, the adhesive surface of the previous adhesive sheet is exposed only partially, i.e. only on an edge strip on the side of the folding edge of the folded photographic sheet, most advantageously by folding the strip upwards or by removing the strip, ii) after which the folding edge of the folded photographic sheet is manually aligned on top of the previous adhesive sheet and against the tool's second stopper line, most advantageously by smoothing the folded photographic sheet along the remaining protective film on the adhesive surface, and the folding edge of the folded photographic sheet is attached to the exposed part of the adhesive surface, iii) after which the remainder of the adhesive surface is exposed and the downwards-facing

reverse side of the folded photographic sheet is glued entirely and securely to the previous adhesive sheet.

[0024] Unlike a situation in which the whole adhesive surface of the previous adhesive sheet is exposed, one is thus able to reduce the possibility that the lower side of a folded photographic sheet will stick to the previous adhesive sheet in the wrong position. If the lower side of the folded photographic sheet sticks to the previous adhesive sheet in the wrong position, this will lead in practice at least to the spoiling of said photographic sheet. In the worst case, if the adhesive used in the adhesive sheets sticks strongly, the whole of the butterfly binding formed up to that time will be spoilt. The financial loss caused by a butterfly binding being spoilt can, at the time of writing, easily be several hundred euros, for example in the case that a butterfly binding glued in the wrong position includes a couple of dozen high-quality photographs.

[0025] According to another aspect of the invention, a tool for manually making albums and books by butterfly binding comprises a planar worktable and parallel alignment guides essentially perpendicular to the worktable that form a first stopper line, and at least one backstop that forms a second stopper line. The second stopper line is, with respect to the worktable, further away than the first stopper line. By means of the tool, it is possible to mechanize the manual butterfly binding of albums or books in a relatively simple way. Thus it is possible to better control the manufacturing tolerances of butterfly-bound albums or books.

[0026] When in the tool, the distance between the parallel alignment guides is adjustable, it is possible to neatly mechanize butterfly binding in a relatively simple way for many sizes of albums or books.

[0027] If in the tool, one of the parallel alignment guides is fixed and the other is movable, it is possible to increase the ease of use of a tool suited for the butterfly binding of many sizes of albums or books.

[0028] When in the tool, at least one of the parallel alignment guides is installed in a groove or slot, it is possible to implement the alignment guide to be adjustable, while also reducing the risk of the detaching and destruction of the alignment guide. This helps particularly in situations where the tool is not used continually, but is stored in a different place after being used.

[0029] When a projection in the tool forms the backstop and/or alignment guide or a part of them, it is possible to simplify the mechanical design of the tool. Most advantageously the projection is the front or back wall of the tool.

[0030] A system, according to the third aspect of the invention, for manually making albums and books by butterfly binding to be used in the method according to the first aspect of the invention comprises a host device (e.g. a printing device, a photo lab/photo printer/exposure unit, a guillotine, rotary cutter or other type of cut-off device designed for cutting print media such as paper, plastic or a paper block, a creasing/grooving device, a hard-

cover making machine, a cover alignment device or a book casing-in device) used for bookmaking and including a planar worktable, and a tool according to the second aspect of the invention attached to, set in or suspended on it. The worktable and/or the backstop is/are a part of the host device and the tool forms one or both alignment guides.

[0031] Most advantageously a host device is a printing device, a photo lab/photo printer/exposure unit, a guillotine, rotary cutter or other type of cut-off device designed for cutting print media (such as paper, plastic or a paper block), a creasing/grooving device, a hard-cover making machine, a cover alignment device or a book casing-in device. A guillotine, rotary cutter or other type of cut-off device and a creasing/grooving device are needed in practice in any case in making albums or books, including when using butterfly binding, so that in this way the table surface area of existing devices can be utilized.

[0032] A book casing-in device generally has a planar worktable that can be utilized.

List of drawings

[0033] The following is a more detailed description of the method, the tool and the system, with the aid of the exemplary embodiments presented in the accompanying drawings FIG 1-28. The drawings show:

FIG 1 the first embodiment of the tool;

FIG 2 the tool presented in the drawing FIG 1, on whose planar worktable is the initial adhesive sheet, whose edge is aligned against the first stopper line;

FIG 3 the tool presented in the drawing FIG 2, on whose planar worktable is an aligned initial adhesive sheet, on top of which is a photographic sheet whose folding edge is aligned against the second stopper line, after which the downwards-facing reverse side of the folded photographic sheet is glued to the initial adhesive sheet;

FIG 4 the tool presented in the drawing FIG 3, on which, on top of the existing photographic sheet, is an adhesive sheet aligned against the first stopper line and securely glued to the upwards-facing reverse side of the photographic sheet;

FIG 5 the tool presented in the drawing FIG 1, on top of which is a butterfly binding created as a result of the method;

FIG 6 the tool and butterfly binding present-

FIG 7

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FIG 8

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FIG 11

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FIG 12

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FIG 13

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FIG 14

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FIG 15

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FIG 16

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FIG 18

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FIG 19

FIG 20

ed in the drawing FIG 5, viewed from the front;

the cross-section VII-VII presented in the drawings FIG 5 and 6;

the detail VIII presented in the drawing FIG 7;

the tool and butterfly binding presented in the drawing FIG 4, viewed from above, in which an adhesive sheet protected by an adhesive surface protective film is uppermost;

the detail X presented in the drawing 9, in which the adhesive surface protective film of the adhesive sheet has been removed;

the detail XI presented in the drawing 9, in which the adhesive surface protective film of the adhesive sheet has been removed;

an alternative embodiment of the tool, on top of which is the butterfly binding created as a result of the method;

the tool presented in the drawing FIG 12, viewed from above in a situation such as in FIG 9;

the detail XIV presented in the drawing 13, in which the adhesive surface protective film of the adhesive sheet has been removed;

the detail XIV presented in the drawing 13, in which the adhesive surface protective film of the adhesive sheet has been removed;

Another alternative embodiment of the tool;

Another alternative embodiment of the tool presented in the drawing FIG 16, viewed from the front;

cross-section XIX presented in the drawings FIG 16 and 17;

the detail XIX presented in the drawing FIG 18; and

the tool presented in the drawing FIG 12.

FIG 21 and 22 illustrate an embodiment of the method, in which the downwards-facing reverse side of the folded photographic sheet is glued at one time to the previous sticker sheet.

FIG 23 - 26 illustrate an embodiment of the method in which, before manually aligning the folding edge of the next folded photographic sheet on top of the previous adhesive sheet and against the tool's second stopper line, the adhesive surface of the previous adhesive sheet is partially exposed by removing a strip of the adhesive surface's protective film, after which the folding edge of the folded photographic sheet is aligned with the second stopper line and the folding edge of the folded photographic sheet is attached to the exposed part of the adhesive surface, after which the remainder of the adhesive surface is exposed and the downwards-facing reverse side of the folded photographic sheet is glued entirely and securely to the previous adhesive sheet.

FIG 27 and 28 illustrate a variant of the embodiment of the method presented in the drawings FIG 23-26 in which a strip of the protective film of the adhesive surface is turned upwards.

[0034] The same reference numbers refer to the same technical features in all FIG.

Detailed description

[0035] FIG 1 presents the first embodiment of tool 1. Tool 1 comprises a planar worktable 11, alignment guides 2, 3 and backstop 12. Worktable 11 is most advantageously in a horizontal position, but it may also be inclined from the horizontal.

[0036] Alignment guides 2, 3 and back stop 12 rise essentially perpendicular to the worktable level in which case $\alpha \approx 90^\circ$, but most advantageously totally perpendicular in which case $\alpha = 90^\circ$, although this is actually difficult to achieve in manufacturing. Taking account of the manufacturing tolerances that exist in practice, we use the term 'essentially perpendicular' in this context, which is intended to include any deviations from a right angle (90° angle) that result from required manufacturing tolerances and/or wearing.

[0037] The distance B between alignment guides 2, 3 can be adjustable. This can be implemented in such a way that the right-hand alignment guide 3 is movable (cf. arrow A indicating the adjustment area), or in such a way that the left-hand alignment guide 2 is movable, or in such

a way that both alignment guides 2, 3 are movable relative to each other.

[0038] One alignment guide, for example the left-hand alignment guide 2, contains alignment guide corner 13. Alignment guide 13 can, of course, also be implemented in both alignment guides 2, 3, or in the right-hand alignment guide 3.

[0039] In tool 1, the first stopper line P1 is formed by alignment guide 2 (to the right of corner 13 of alignment guide 2) and alignment guide 3. The second stopper line is formed by backstop 12.

[0040] Tool 1, presented in the drawing FIG 1, can be manufactured extremely advantageously, because it requires at its simplest only plates attached essentially perpendicular to each other, one as worktable 11 and the other as backstop 12. Alternatively, tool 1 can be implemented by bending a thin plate essentially in a right angle, in which case worktable 11 and backstop 12 are formed from the same thin plate. Alignment guide 2 can be implemented equipped with a small indentation and attached, suspended or set in tool 1. Likewise, laterally-movable alignment guide 3 can be attached, suspended or set in tool 1.

[0041] FIG 2 shows tool 1, presented in the drawing FIG 1, on whose planar worktable 11 lies initial adhesive sheet 71, whose edge is aligned against the first stopper line P1. On closer examination we see that initial adhesive sheet 71 is aligned so that its edge is set against alignment surface 22 of alignment guide 2 and against alignment guide 3, being delimited laterally by corner 13 of alignment guide 2. Thus, by means of tool 1, initial adhesive sheet 71 can be aligned laterally outside the mutual distance B against corner 13 of alignment guide 2.

[0042] Initial adhesive sheet 71 is most advantageously a cover sheet that has adhesive on only one side. Alternatively, an adhesive sheet that has adhesive on both sides can also be used as the initial adhesive sheet 71.

[0043] The adhesive of initial adhesive sheet 71 can be pressure-sensitive, heat-activated or light-activated adhesive. The latter can be activated by ultraviolet light.

[0044] Initial adhesive sheet 71 can be a single-sided or double-sided sticker sheet. A sticker sheet and an adhesive sheet are equally suitable for the method and the invention, and we use term adhesive sheet to refer to any of both.

[0045] The carrier material for the adhesive can be, for example, paper, board or other fiber material, or plastic or metal.

[0046] In addition to this, or alternatively, initial adhesive sheet 71 can be purely adhesive material, provided it is in such form that the adhesive does not stick to the worktable.

[0047] FIG 3 shows tool 1, presented in the drawing FIG 2, on whose planar worktable 11 is aligned initial adhesive sheet 71, on top of which is photographic sheet 72 whose folding edge 74 is set against the second stopper line P2, after which the downwards-facing reverse side of photographic sheet 72 is glued to initial adhesive

sheet 71. On closer examination we see that folding edge 74 of photographic sheet 72 is set between alignment guides 1, 3, i.e. along the distance B between them, against backstop 12.

[0048] Indentation L2 parallel to folding edge 74 is optional, so that $L2 = 0$, or at other times preferably $L2 > 0$.

[0049] Folded photographic sheet 72 is likewise aligned and indented in relation to initial adhesive sheet 71 (cf. the perpendicular indentations L1, L3 with respect to the folding edge) being delimited along the mutual distance B of alignment guides 2, 3.

[0050] Between stopper line P1 and stopper line P2 is distance d, which is preferably 0.5 mm - 5 mm. Distance d can depend on the thickness of the material of folded photographic sheet 72 and the shape of folding edge 74. Generally, the shape of folding edge 74 depends on the folding method and on the shape and size of the tools used in the creasing.

[0051] FIG 4 shows tool 1, presented in the drawing FIG 3, on which adhesive sheet 73, supported on top of photographic sheet 72, is aligned against the first stopper line P1, after which it is glued to the upwards-facing reverse side of photographic sheet 72. Adhesive sheet 73 is aligned in the same way as initial adhesive sheet 71.

[0052] Adhesive sheet 73 is most advantageously a sticker sheet or adhesive sheet equipped with a double-sided adhesive surface. Here, too, a sticker sheet and an adhesive sheet are equally suitable for the method and the invention, and we refer to both with the term adhesive sheet.

[0053] Before use, the adhesive surfaces of adhesive sheet 73 are exposed by removing protective film 78, with protective film 78 preferably being removed one side at a time. Protective film 78 is removed before adhesive surface 76 of adhesive sheet 73 is joined to the attachable surface.

[0054] The adhesive of adhesive sheet 73 can be pressure-sensitive, heat-activated or light-activated adhesive. The latter can be activated by ultraviolet light.

[0055] FIG 5 shows tool 1, presented in the drawing FIG 1, on top of which butterfly binding 7 has been assembled by using the method. Adhesive sheets 73 and folded photographic sheets 72 are indented, as can be seen, with respect to initial adhesive sheet 71 (cf. indentation L2 parallel to folding edge 74).

[0056] The number of folded photographic sheets 72 in the completed butterfly binding 7 can vary. The most common number varies between a few and a few dozen.

[0057] FIG 6 shows tool 1, presented in the drawing FIG 5 and butterfly binding 7 viewed from directly in front. FIG 7 shows the cross-section VII-VII presented in the drawings FIG 5 and 6. Detail VIII (see FIG 8) shows how folding edges 74 are aligned against the second stopper line P2 (i.e. preferably against backstop 12) and how initial adhesive sheet 71 and adhesive sheets 73 are aligned against the first stopper line P1 (i.e. preferably against alignment surface 22 and alignment guide 3).

[0058] In other words, since initial adhesive sheet 71

and adhesive sheets 73 have been cut into a slightly larger format than folded photographic sheets 72, then by alternating the stacking of adhesive sheets 73 and the folded photographic sheet 72 so that adhesive sheets 71, 73 are aligned against alignment guides 2 and 3, and folded photographic sheet 71 is aligned against backstop 12 along the distance B between them, we obtain butterfly binding 7, i.e. a fully openable photographic block.

[0059] FIG 9 shows tool 1, presented in the drawing FIG 4, and a partially or fully completed butterfly binding 7 viewed from directly above. Adhesive sheet 73 or folded photographic sheet 72 can be uppermost in the completed butterfly binding.

[0060] In the partially or fully completed butterfly binding 7 presented in FIG 9, the uppermost sheet is adhesive sheet 73, which still has protective film 78 of adhesive surface 76 in place. After the removal of protective film 78 of adhesive surface 76, the depicted detail X is shown in more detail in the drawing FIG 10 and the detail XI is shown in more detail in the drawing FIG 11.

[0061] FIG 12 presents tool 1", on top of which is the butterfly binding resulting from the method. Tool 1" has no separate backstop 12, but only two nodule-like backstops 2' and 3' which are fixed to worktable 11, and one or both of which are adjustable laterally.

[0062] The first stopper line P1 is formed in tool 1" by means of the surface of alignment surface 22' and alignment guide 3'. The second stopper line P2 is formed by means of backstops 12' and 12" integrated in backstops 2' and 3'.

[0063] FIG 20 shows tool 1", presented in the drawing FIG 12. Drawn so as to be visible in the drawing FIG 20 is slot 35, along which alignment guide 3' is movable laterally. Instead of using slot 35, alignment guide 3' can be attached to a groove.

[0064] The particular advantage of the tool 1" embodiment presented in FIG 12 and 20 is that it is possible to work between alignment guides 2' and 3', and material can be moved between them. Thus worktable 11 can be easily used for the finishing of butterfly binding 7, the book cover or other printed products: butterfly binding 7 can be turned at an angle on worktable 11 and the corners 31, 32 of butterfly binding 7 can be cut off along edge 30 of worktable 11 or along cut-off line 30 belonging to tool 1" (or to the host device). A possible cutting device can be moved along cut-off line 30.

[0065] The alignment guides 2' and 3' of tool 1" can advantageously be fixed.

[0066] A smaller worktable 11 can be implemented for tool 1" than for tool 1 and 1'.

[0067] FIG 13 shows tool 1", presented in the drawing FIG 12, viewed directly from above in a situation such as in FIG 9. Protective film 78 of adhesive surface 76 of the uppermost adhesive sheet 73 is still in place. After the removal of protective film 78 of adhesive surface 76, detail XIV is depicted more exactly in the drawing FIG 14 and detail XV is shown more exactly in the drawing FIG 15.

[0068] FIG 16 shows tool 1'. FIG 17 shows tool 1', presented in the drawing FIG 16, viewed from directly in front.

[0069] Cross-section XVII is shown in the drawing FIG 18. Detail XIX is depicted more exactly in the drawing FIG 19.

[0070] Alignment 3" is suspended from the upper edge of backstop 12.

[0071] Tool 1, 1', 1" can be implemented as a feature in almost any kind of device that includes a planar worktable (in what follows: in a host device) and that is needed in making a book, such as, for example, in a printing device, a photo lab/photo printer/exposure unit, a guillotine, rotary cutter or other type of cut-off device designed for cutting print media (such as paper, plastic or a paper block), a creasing/grooving device, a hard-cover making machine, a cover alignment device or a book casing-in device, without tool 1, 1', 1" interfering in the host device's operation in any substantial and/or permanent way.

[0072] In order to equip a host device with a tool 1, 1', 1", only attachment, setting or suspension places for alignment guides 2, 2', 3, 3' (for example, for alignment guide 2 and its mirror image) and/or for backstop 12 are needed. Most advantageously, however, a vertical part of the host device can be used as backstop 12.

[0073] Attachment to the host device can be implemented in the simplest way by equipping alignment guides 2, 2', 3, 3' with magnets, sticky-back or adhesive fasteners (e.g. Velcro® tape), or more generally using any toolless attachment/detachment method.

[0074] In addition, or alternatively, separate attachment points can be implemented in the host device for alignment guides 2, 2', 3, 3' and/or for backstop 12, 12'. Attachment is then most advantageously a mechanic shape-locking attachment.

[0075] Alternatively, the host device can have mounting points equipped with under-side magnets to which alignment guides 2, 2', 3, 3' and/or backstop 12, 12' are attached.

[0076] If an adjustable tool 1, 1', 1" is required, it should be possible to move at least one of the alignment guides 2, 2', 3, 3' within the adjustment area A, so that different butterfly bindings 7 can be implemented in different sized formats.

[0077] FIG 21 and 22 illustrate an embodiment of the method in which the downwards-facing, reverse side of the folded photographic sheet 72, is glued at one time to the previous adhesive sheet. Rather than using the initial adhesive sheet 71, the next adhesive sheet 73 can also be used.

[0078] FIG 21 shows the alignment of the folded photographic sheet 72 to the second stopper line P2 and FIG 22 shows the gluing of the folded photographic sheet 72 to the previous adhesive sheet. Operating in this way it can sometimes happen that the alignment of folded photographic sheet 72 does not stay in place long enough for the downwards-facing, reverse side of folded photographic sheet 72 to be glued.

[0079] FIG 23-26 illustrate an improved embodiment of our invented method in which, before manually aligning folding edge 74 of the next folded photographic sheet 72 on top of the previous adhesive sheet and against the tool's second stopper line P2, we expose adhesive surface 76 of the previous adhesive sheet (initial adhesive sheet 71 or adhesive sheet 73) only partially, by removing strip 80 of the adhesive surface's protective film 78 (FIG 23 -> FIG 24), after which folding edge 74 of folded photographic sheet 72 is aligned with the second stopper line P2. This is most advantageously implemented by smoothing folded photographic sheet 72 along the remaining protective film 78 on adhesive surface 76. The smoothing can be done particularly well when protective film 78 is made of slippery material such as silicon paper. Then folding edge 74 of folded photographic sheet 72 is attached to the thus exposed part of adhesive surface 76 (for example by applying pressure with the finger the whole distance) (FIG 25), after which the remainder of the adhesive surface 76 is exposed and the downwards-facing reverse side of folded photographic sheet 72 is glued entirely and securely to the previous adhesive sheet (FIG 26).

[0080] In order to facilitate the detaching of strip 80, initial adhesive sheet 71 and/or adhesive sheet 73 can have a cut-off line or incision 79.

[0081] FIG 27 and 28 illustrate a variant of the embodiment of the method presented in the drawings FIG 23-26, in which strip 80 of the protective film of adhesive surface 78 is turned up and back by about 180° (FIG 27), after which folding edge 74 of folded photographic sheet 72 is aligned against the second stopper line P2 and folding edge 74 of folded photographic sheet 72 is attached to the thus exposed part of adhesive surface 76 (for example by applying pressure with the finger the whole distance) (FIG 28), after which the remainder of the adhesive surface 76 is exposed and the downwards-facing reverse side of folded photographic sheet 72 is glued entirely and securely to the previous adhesive sheet (FIG 26).

[0082] The invention should not be understood as being limited only to the attached claims, but should be understood as including all their legal equivalents.

List of reference numbers:

[0083]

P1	first stopper line
P2	second stopper line
d	distance between first stopper line and second stopper line
α	inclination angle between backstop and worktable surface
A	adjustment area of laterally-movable alignment guide
B	distance between alignment guide and movable alignment guide
L1	indentation perpendicular to folding edge (on

	left)	
L2	indentation parallel to folding edge	
L3	indentation perpendicular to folding edge (on right)	
1	tool	5
1'	tool	
1"	tool	
2, 2'	alignment guide	
3, 3'	laterally-movable alignment guide	
7	butterfly binding	10
11	worktable	
12	backstop	
12', 12"	backstop	
13	corner of alignment guide	
21	edge of alignment surface	15
22, 22'	alignment surface	
30	cut-off line	
31, 32	corners	
35	slot	
71	initial adhesive sheet	20
72	folded photographic sheet	
73	adhesive sheet	
74	folding edge	
76	adhesive surface	
77	carrier material	25
78	protective film (e.g. silicon paper) covering adhesive surface	
79	cut-off line or incision	
80	strip	30

Claims

1. A method for manually making albums and books by butterfly binding using an initial adhesive sheet (71), folded photographic sheets (72) and adhesive sheets (73), concerning which the initial adhesive sheet (71) and at least some of the adhesive sheets (73) are, in the direction of the folding edge (74) of the folded photographic sheets (72), wider than the folding edge (74) of the folded photographic sheets, which method includes the following phases:
 - a) prior to beginning the gluing, the edge of the initial adhesive sheet (71) is manually aligned on a planar worktable (11) against the tool's (1, 1', 1") first stopper line (P1), so that the adhesive sheet (71) is essentially parallel to the plane defined by the worktable (11);
 - b) the folding edge (74) of a folded photographic sheet (72) is manually aligned on top of the previous adhesive sheet (71, 73) and against the tool's (1, 1', 1") second stopper line (P2), which is a distance (d) further from the worktable (11) than the first stopper line (P1), and the downwards-facing reverse side of said folded photographic sheet (72) on the worktable (11) is glued

to said adhesive sheet (71, 73) by pressing towards the worktable (11) so that the folded photographic sheet (72) becomes essentially parallel to the plane of the adhesive sheet (71, 73); c) the edge of an adhesive sheet (73) is manually aligned on top of the previous photographic sheet (72) and against the tool's (1, 1', 1") first stopper line (P1), and the adhesive sheet (73) on the worktable (11) is glued to the upwards-facing reverse side of said photographic sheet (72) by pressing towards the worktable (11) so that the adhesive sheet (73) becomes essentially parallel to the plane of the folded photographic sheet (72); and d) phases b) and c) are repeated alternately until the desired quantity of photographic sheets (72) has been glued to form a butterfly binding (7).

2. A method for manually making albums and books by butterfly binding using folded photographic sheets (72) and adhesive sheets (73), concerning which at least some of the adhesive sheets (73) are, in the direction of the folding edge (74) of the folded photographic sheets (72), wider than the folding edge (74) of the folded photographic sheets (72), which method includes the following phases:

a) prior to beginning the gluing, the folding edge (74) of a folded photographic sheet (72) is manually aligned on a planar worktable (11) against the tool's (1, 1', 1") second stopper line (P2), so that the folded photographic sheet (72) is essentially parallel to the plane defined by the worktable (11); b) the edge of an adhesive sheet (73) is manually aligned on top of the previous photographic sheet (72) and against the tool's (1, 1', 1") first stopper line (P1), which is a distance (d) closer to the worktable (11) than the second stopper line (P2), and the adhesive sheet (73) on the worktable (11) is glued to the upwards-facing reverse side of said photographic sheet (72) by pressing towards the worktable (11) so that the adhesive sheet (73) becomes essentially parallel to the plane of the folded photographic sheet (72); and c) the folding edge (74) of the folded photographic sheet (72) is manually aligned on top of the previous adhesive sheet (71, 73) and against the tool's (1, 1', 1") second stopper line (P2), and the downwards-facing reverse side of said folded photographic sheet (72) on the worktable (11) is glued to said adhesive sheet (71, 73) by pressing towards the worktable (11) so that the folded photographic sheet (72) becomes essentially parallel to the plane of the adhesive sheet (71, 73);

- d) phases b) and c) are repeated alternately until the desired number of photographic sheets (72) has been glued to form a butterfly binding (7).
3. A method according to claim 2, in which the fringe area on one side of the folding edge (74) of the first or last folded photographic sheet (72) of the butterfly binding (7) is longer than the other, in which case said folded photographic sheet (72) can be used as a pull-over cover for the butterfly binding (7).
 4. A method according to any of claims 1 - 3, in which the alignment of photographic sheets (72) and adhesive sheets (71, 73) employs a tool (1, 1', 1'') comprising a worktable (11) and parallel alignment guides (2, 2', 3, 3') essentially perpendicular ($\alpha \approx 90^\circ$) to it in order to form a first stopper line (P1), and at least one backstop (12, 12', 12'') in order to form a second stopper line (P2), and in which the second stopper line (P2) is, with respect to the worktable (11), further away than the first stopper line (P1).
 5. A method, according to any of the foregoing claims 1 - 4, in which prior to aligning the edge of initial adhesive sheet (71) against the first stopper line (P1), the distance (B) between the parallel alignment guides (2, 2', 3, 3') is adjusted according to the size of the initial adhesive sheet (71) and/or the folded photographic sheets (72), so that the folded photographic sheets (72) fit between the parallel alignment guides (2, 2', 3, 3'), but the adhesive sheets (71, 73) do not.
 6. A method, according to any of the foregoing claims 1 - 6, in which the adhesive sheets (71, 73) are laterally aligned by means of the tool (1, 1', 1'') outside the distance (B) between the alignment guides (2, 2', 3, 3') and against the corner (13) of an alignment guide (2, 2', 3, 3').
 7. A method, according to any of the foregoing claims 1 - 6, in which the folded photographic sheets (72) are aligned in an indented position (L1, L3) with respect to the adhesive sheets (71, 73) along the distance (B) between the alignment guides (2, 2', 3, 3').
 8. A method, according to any of the foregoing claims 1 - 7, which is implemented by means of a tool (1, 1', 1'') attached to a host device used in bookbinding and including a planar worktable.
 9. A method according to claim 8, in which the host device is a device needed for bookmaking, particularly a printer, a printing device, a photo lab/photo printer/exposure unit, a guillotine, rotary cutter or other type of cut-off device designed for cutting print media (such as paper, plastic or a paper block), a creasing/grooving device, a hard-cover making machine, a cover alignment device or a book casing-in device.
 10. A method according to any of the foregoing claims 1 - 9, in which:

prior to manually aligning the folding edge (74) of the next folded photographic sheet (72) on top of the previous adhesive sheet (71, 73) and against the tool's (1, 1', 1'') second stopper line (P2), the adhesive surface (76) of the previous adhesive sheet (71, 73) is exposed partially, i.e. only on an edge strip (80) on the side of the folding edge (74) of the folded photographic sheet (72), most advantageously by folding the strip (80) upwards or by removing the strip (80), after which the folding edge (74) of the folded photographic sheet (72) is manually aligned on top of the previous adhesive sheet (71, 73) and against the tool's (1, 1', 1'') second stopper line (P2), most advantageously by smoothing the folded photographic sheet (72) along the remaining protective film (78) on the adhesive surface (76), and the folding edge (74) of the folded photographic sheet (72) is attached to the exposed part of the adhesive surface (76), after which the remainder of the adhesive surface (76) is exposed and the downwards-facing reverse side of the folded photographic sheet (72) is glued entirely and securely to the previous adhesive sheet (71, 73).
 11. A tool (1, 1', 1'') for manually making albums and books by butterfly binding to be used in a method according to any of the foregoing claims 1 - 10, **characterized in that:** the tool (1) comprises a planar worktable (11) and parallel alignment guides (2, 2', 3, 3') essentially perpendicular ($\alpha \approx 90^\circ$) to it in order to form a first stopper line (P1), and at least one backstop (12, 12', 12'') in order to form a second stopper line (P2), and in which the second stopper line (P2) is, with respect to the worktable (11), further away than the first stopper line (P1).
 12. A tool (1, 1', 1'') according to claim 11, in which the distance (B) between the parallel alignment guides (2, 2', 3, 3') is adjustable.
 13. A tool (1, 1', 1'') according to claim 12, in which one (2, 2') of the parallel alignment guides (2, 2', 3, 3') is fixed and the other (3, 3') is movable. Most advantageously, at least one of the parallel alignment guides (3') is installed in a groove or slot (35).
 14. A tool (1, 1', 1'') according to any of claims 11 - 13, in which a projection in the tool (1, 1', 1'') forms a backstop (12, 12', 12'') and/or an alignment guide (2, 2', 3, 3') or a part of them. Most advantageously, the

projection is the front or back wall (12) of the tool (1, 1').

15. A tool (1, 1', 1'') according to any of claims 11 - 14,
whose worktable (11) forms a plane and is part of a
device needed for bookmaking, particularly a printer,
a printing device, a photo lab/photo printer/exposure
unit, a guillotine, rotary cutter or other type of cut-off
device designed for cutting print media (such as pa-
per, plastic or a paper block), a creasing/grooving
device, a hard-cover making machine, a cover align-
ment device or a book casing-in device. 5 10
16. A system for manually making albums and books by
butterfly binding to be used in a method according
to any of the foregoing claims 1 - 10, which system
comprises: a host device used in bookbinding and
including a planar worktable, and a tool (1, 1', 1'')
according to any of claims 11 - 15 attached to, set
in or suspended on it, in which the worktable (11)
and/or backstop (12) is part of the host device and
in which the tool (1, 1', 1'') forms one or both of the
alignment guides (2, 2', 3, 3') for the system. 15 20
17. A system according to claim 16, in which the host 25
device is a device needed in bookmaking, particu-
larly a printer, a printing device, a photo lab/photo
printer/exposure unit, a guillotine, rotary cutter or oth-
er type of cut-off device designed for cutting print
media (such as paper, plastic or a paper block), a 30
creasing/grooving device, a hard-cover making ma-
chine, a cover alignment device or a book casing-in
device.

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FIG 1

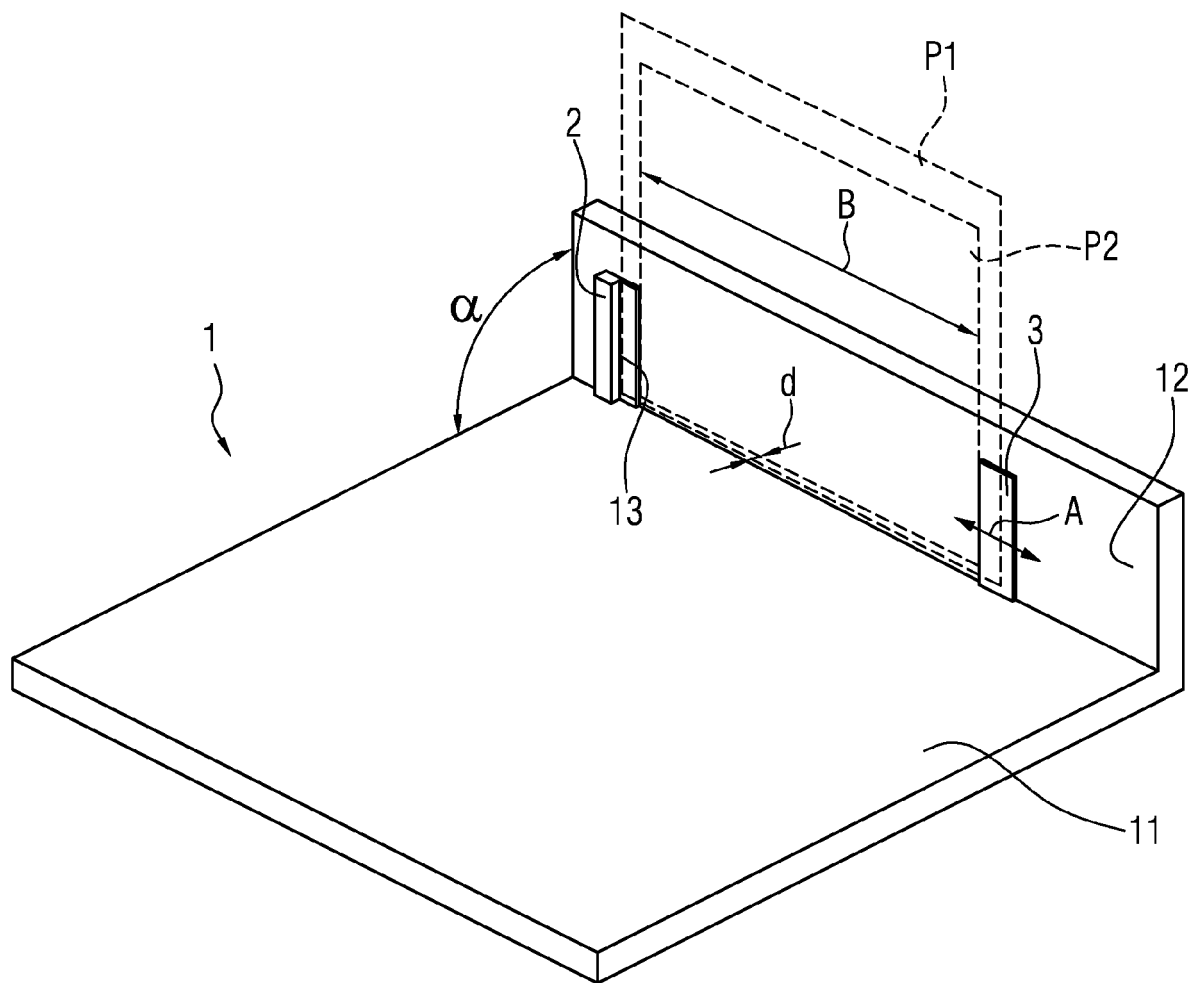


FIG 2

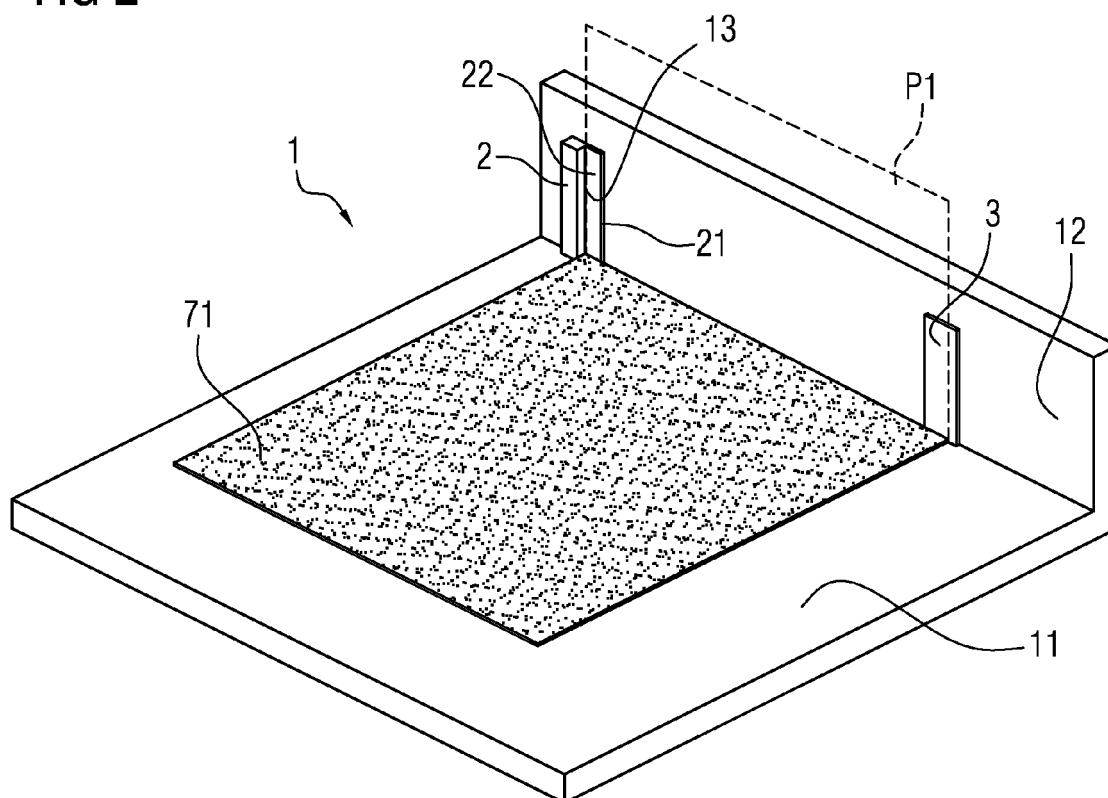


FIG 3

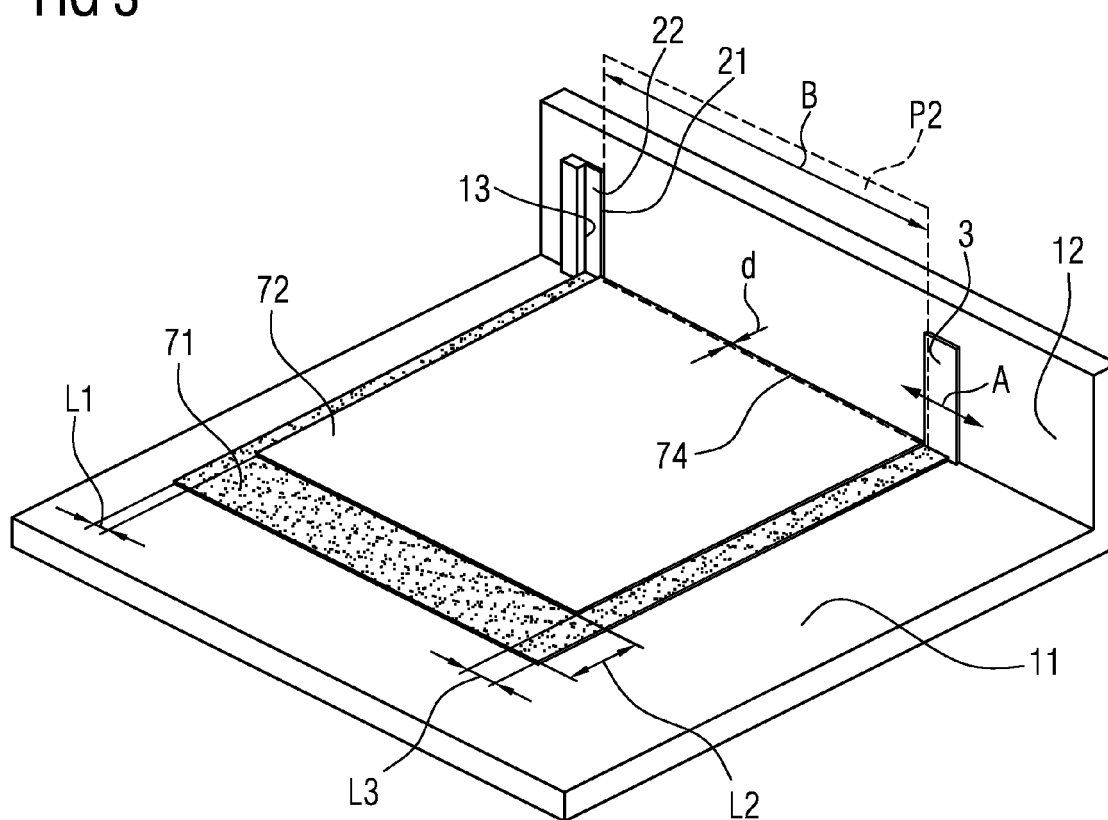


FIG 4

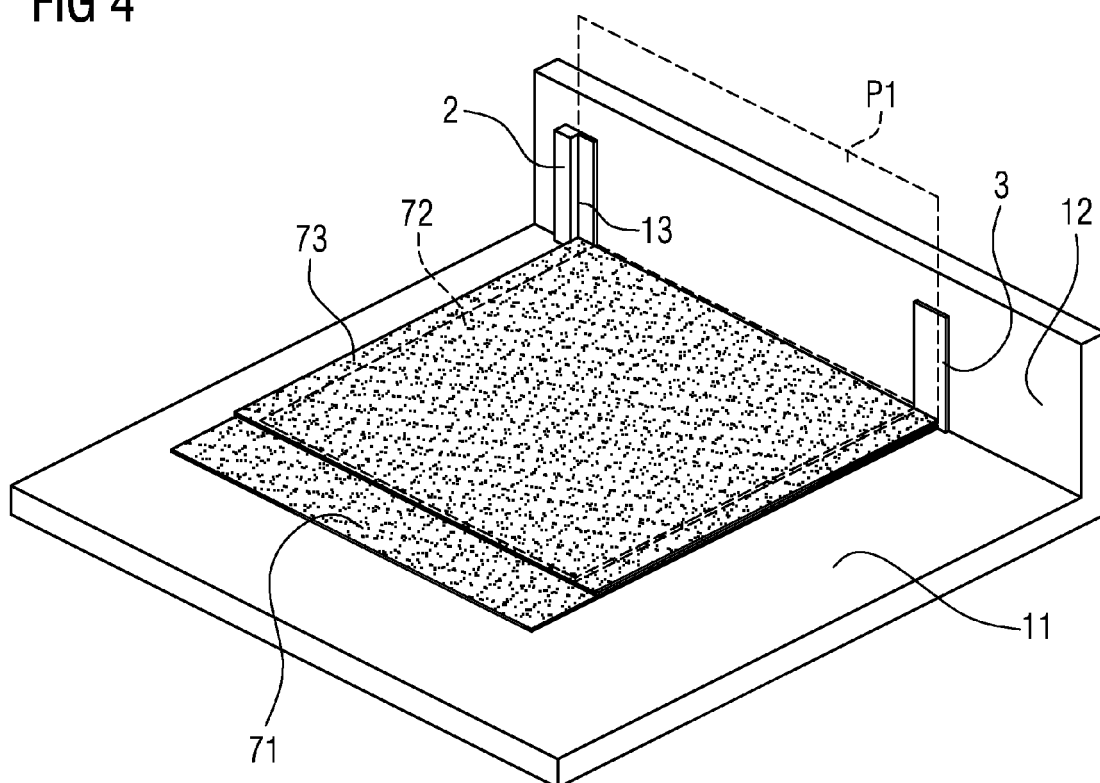


FIG 5

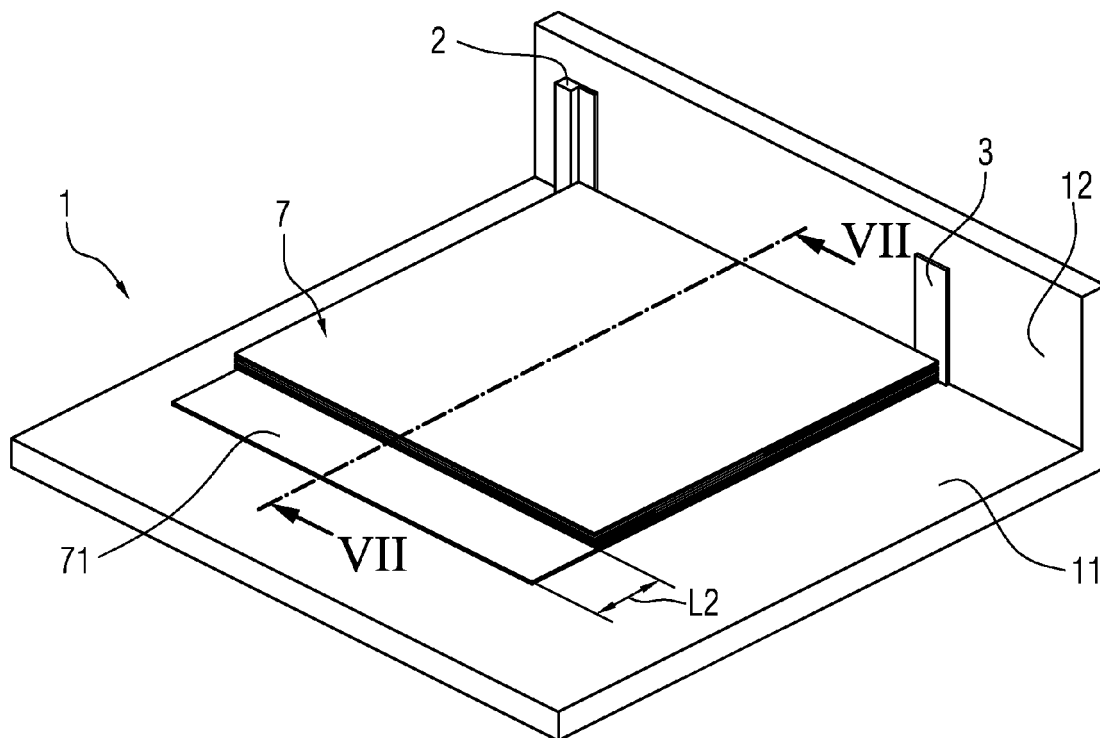


FIG 6

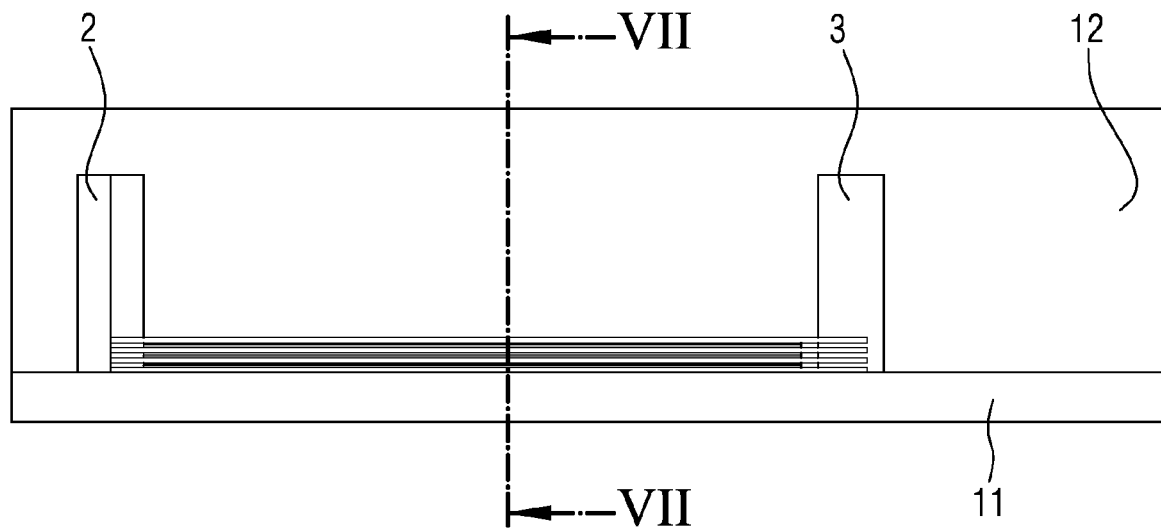


FIG 7

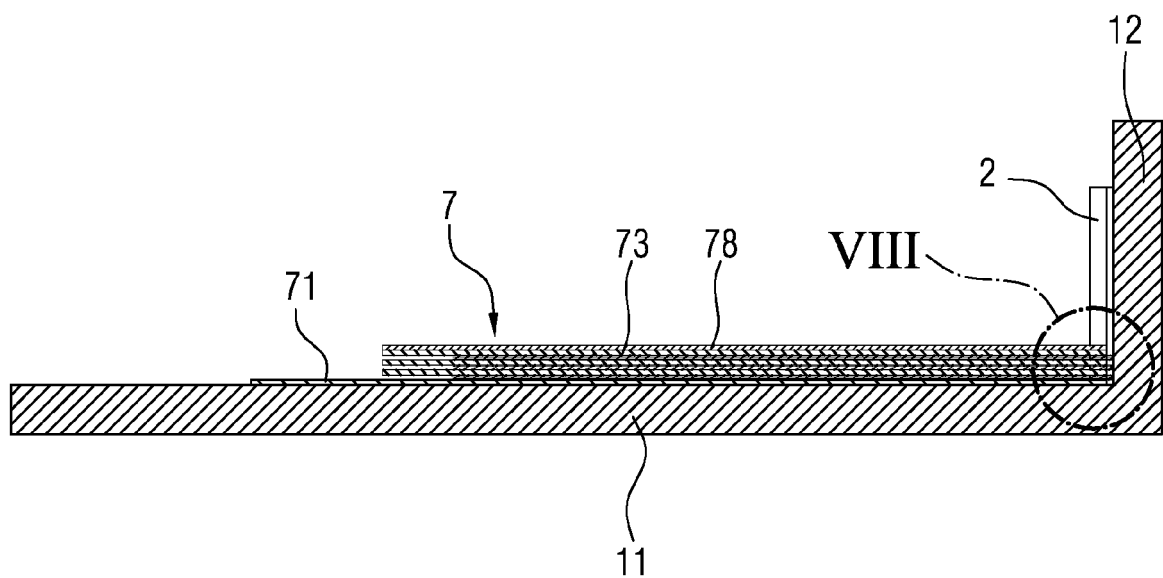


FIG 8

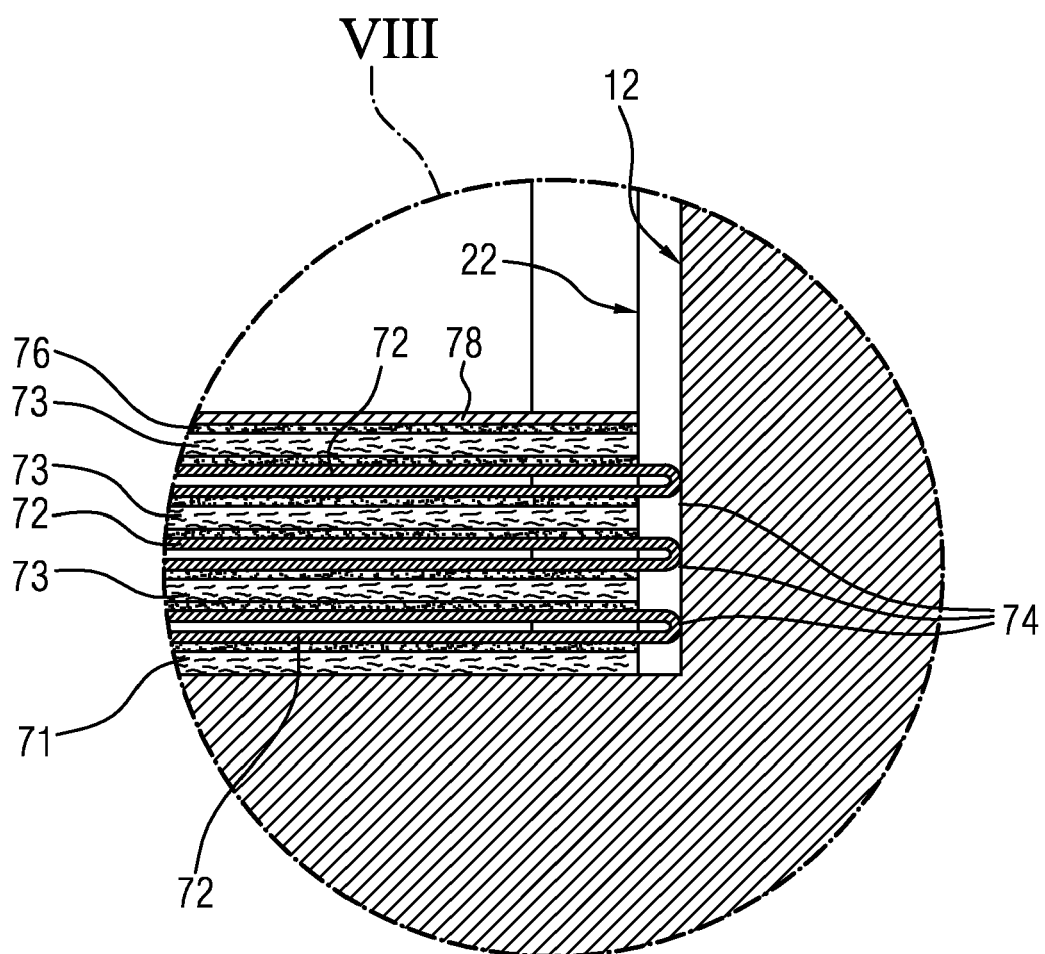


FIG 9

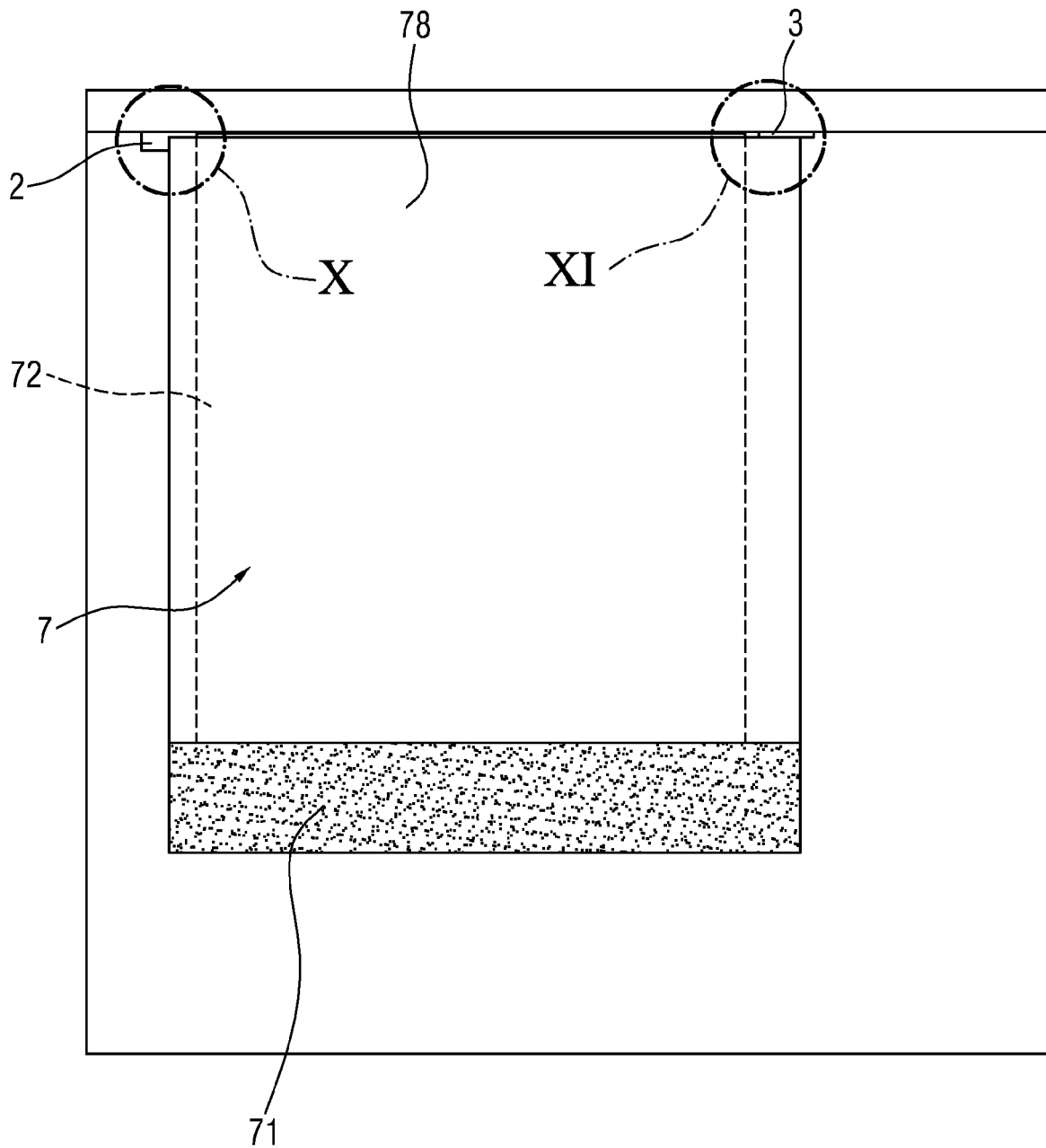


FIG 10

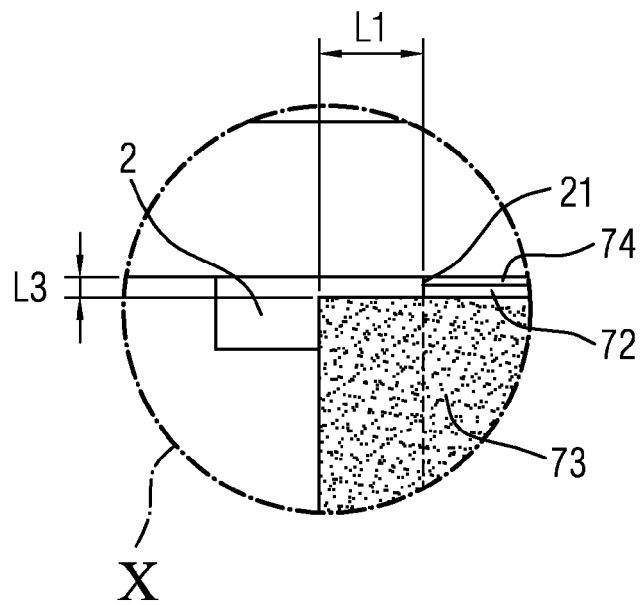


FIG 11

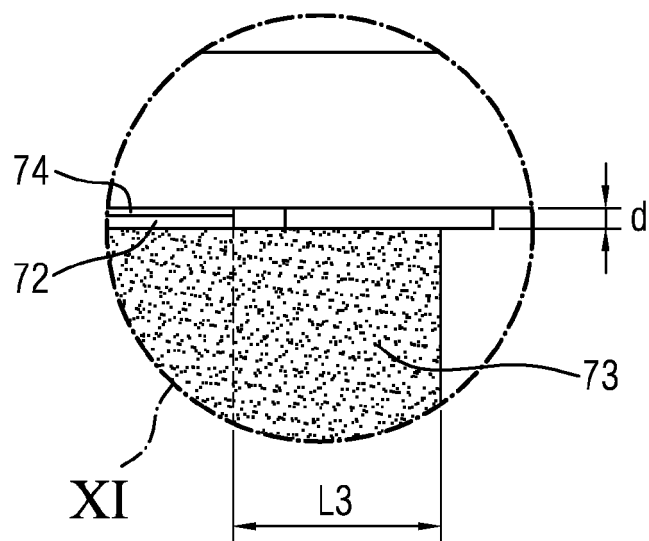


FIG 12

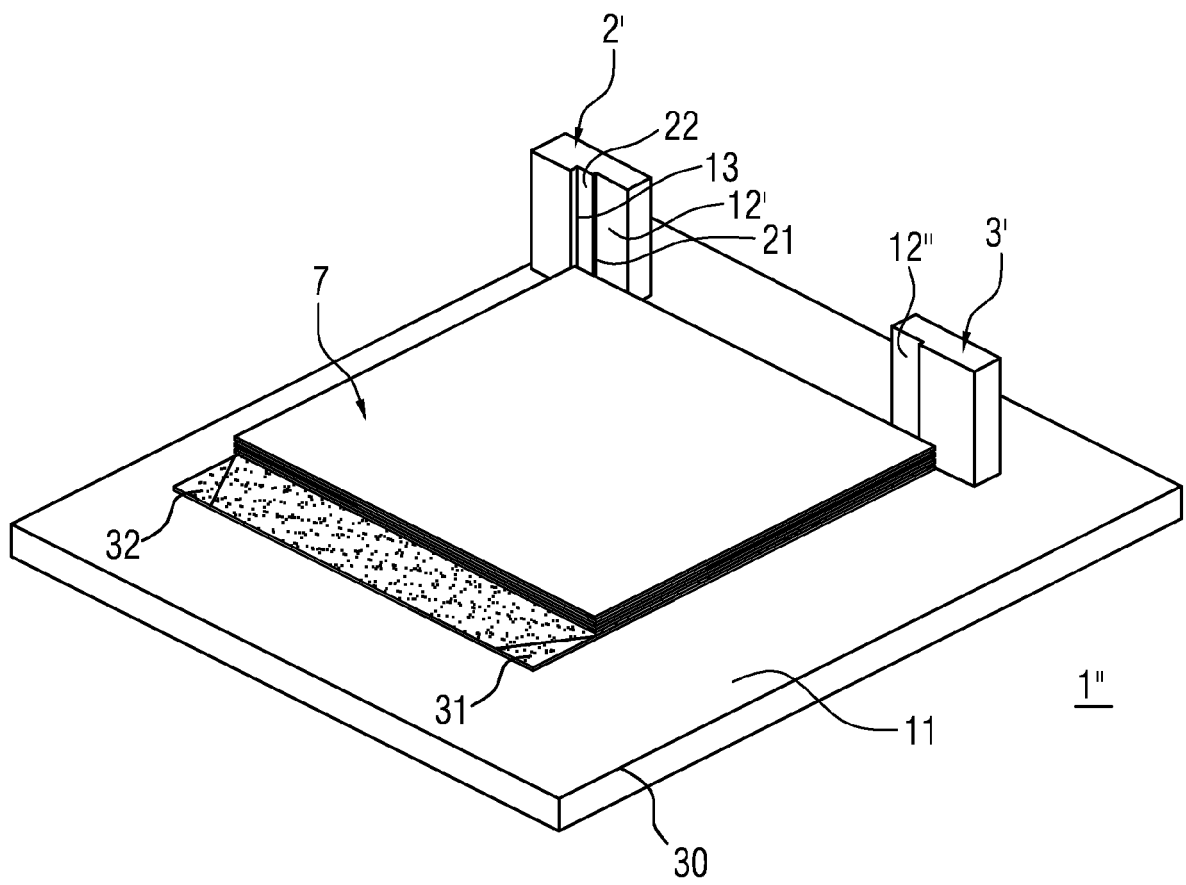


FIG 13

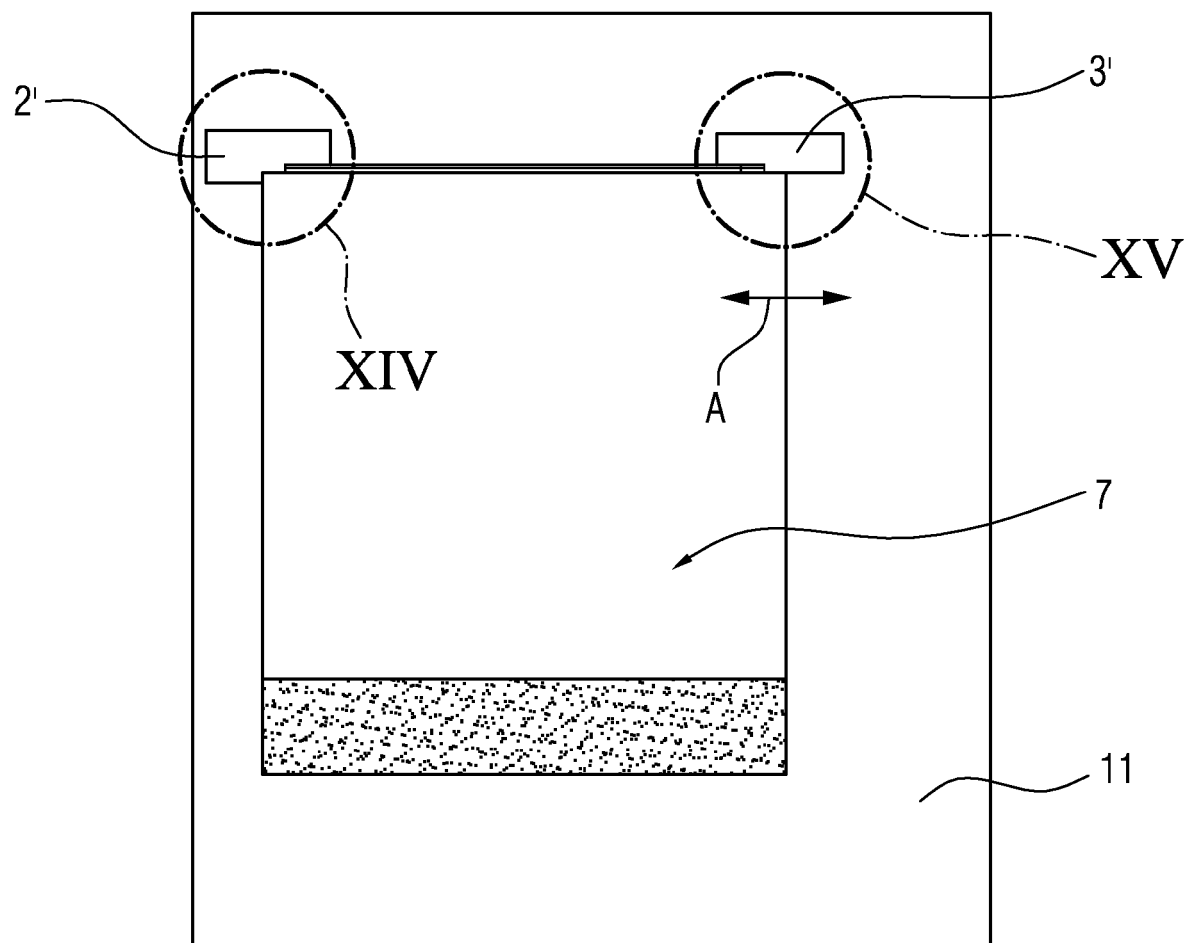


FIG 14

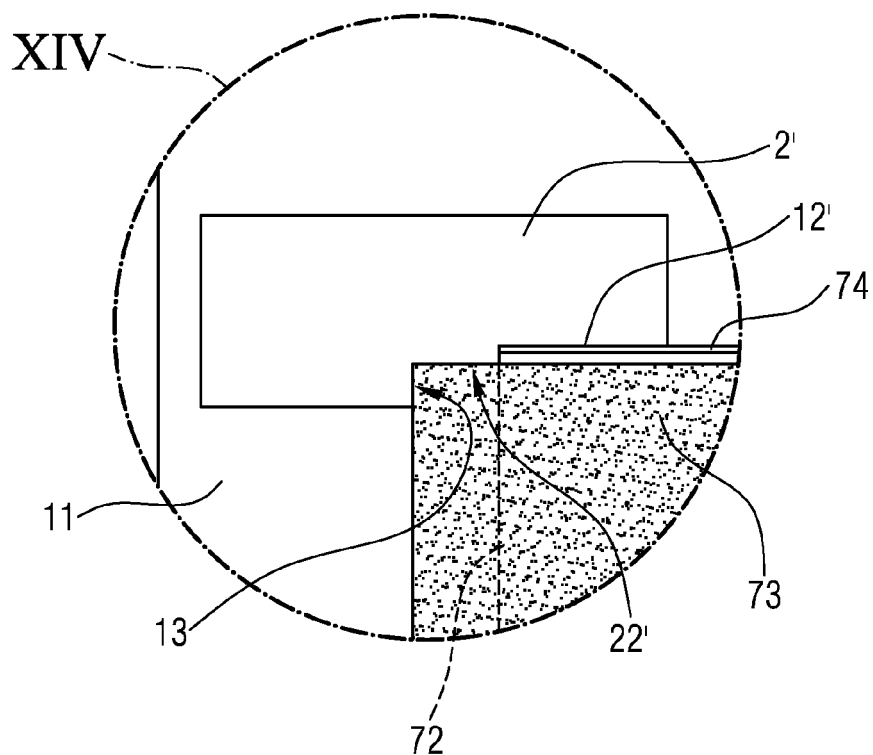


FIG 15

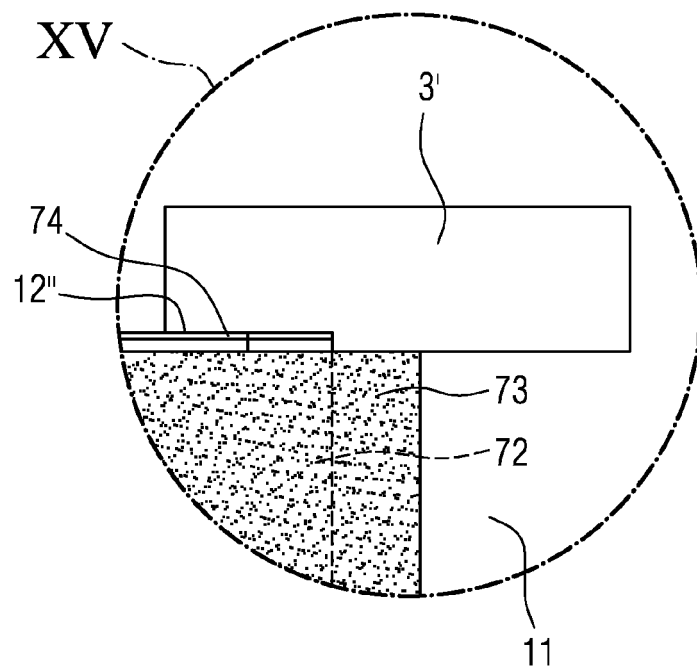


FIG 16

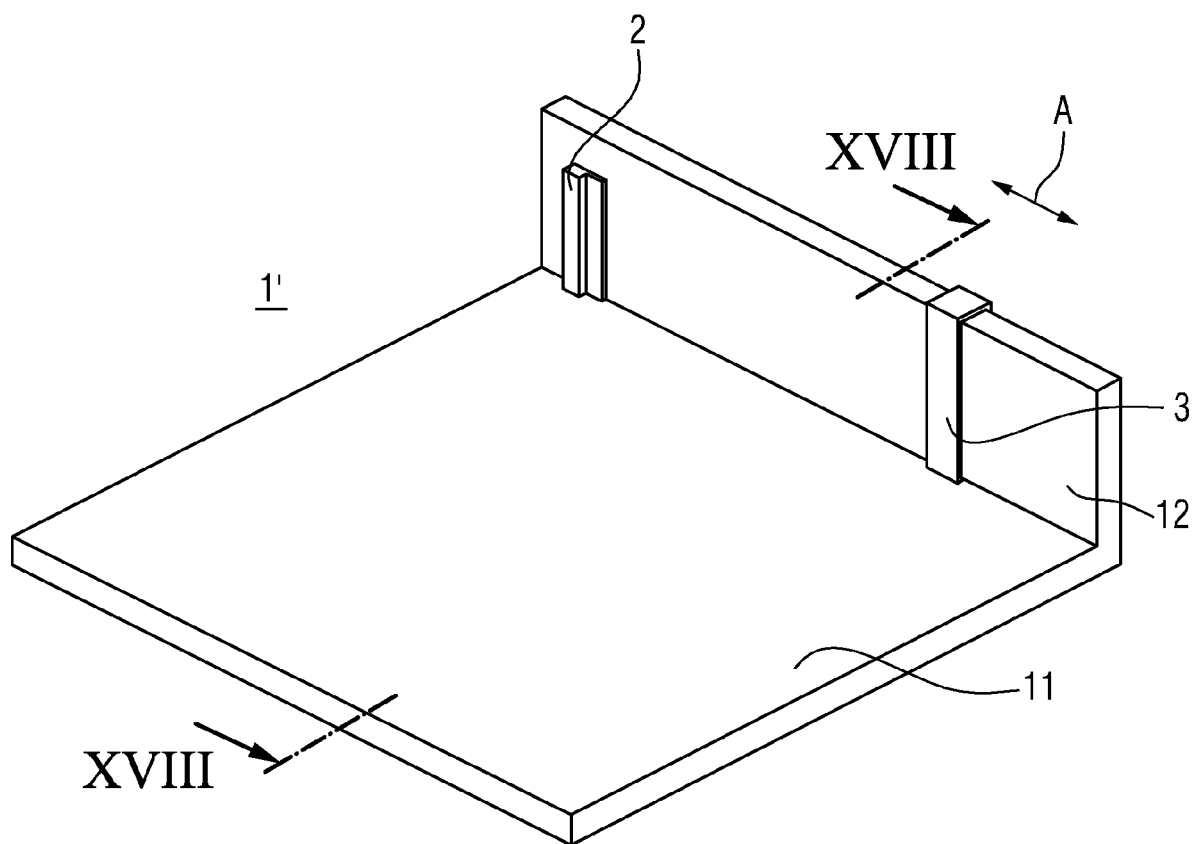


FIG 17

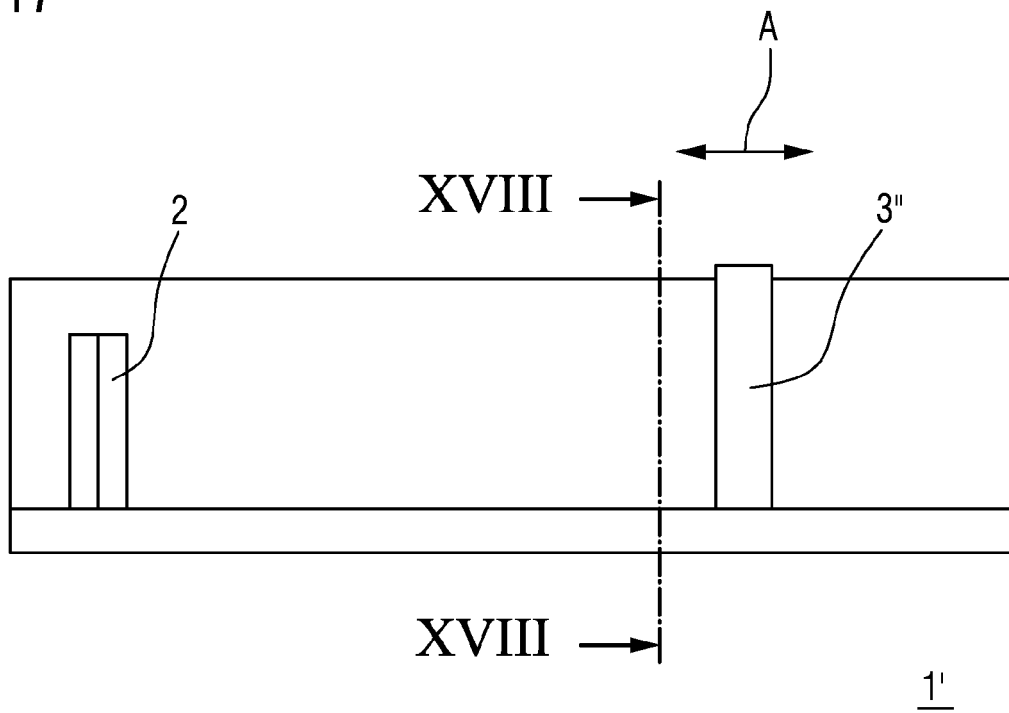


FIG 18

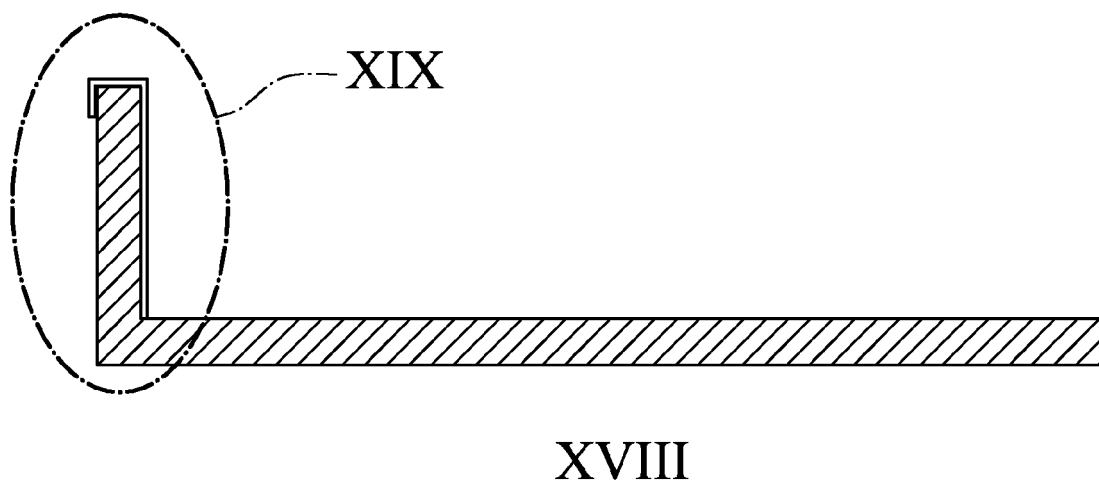


FIG 19

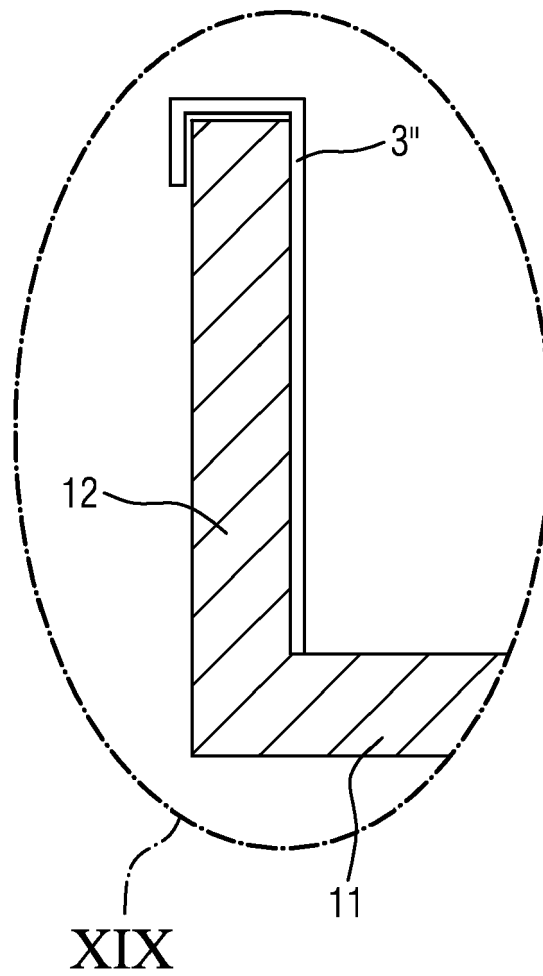


FIG 20

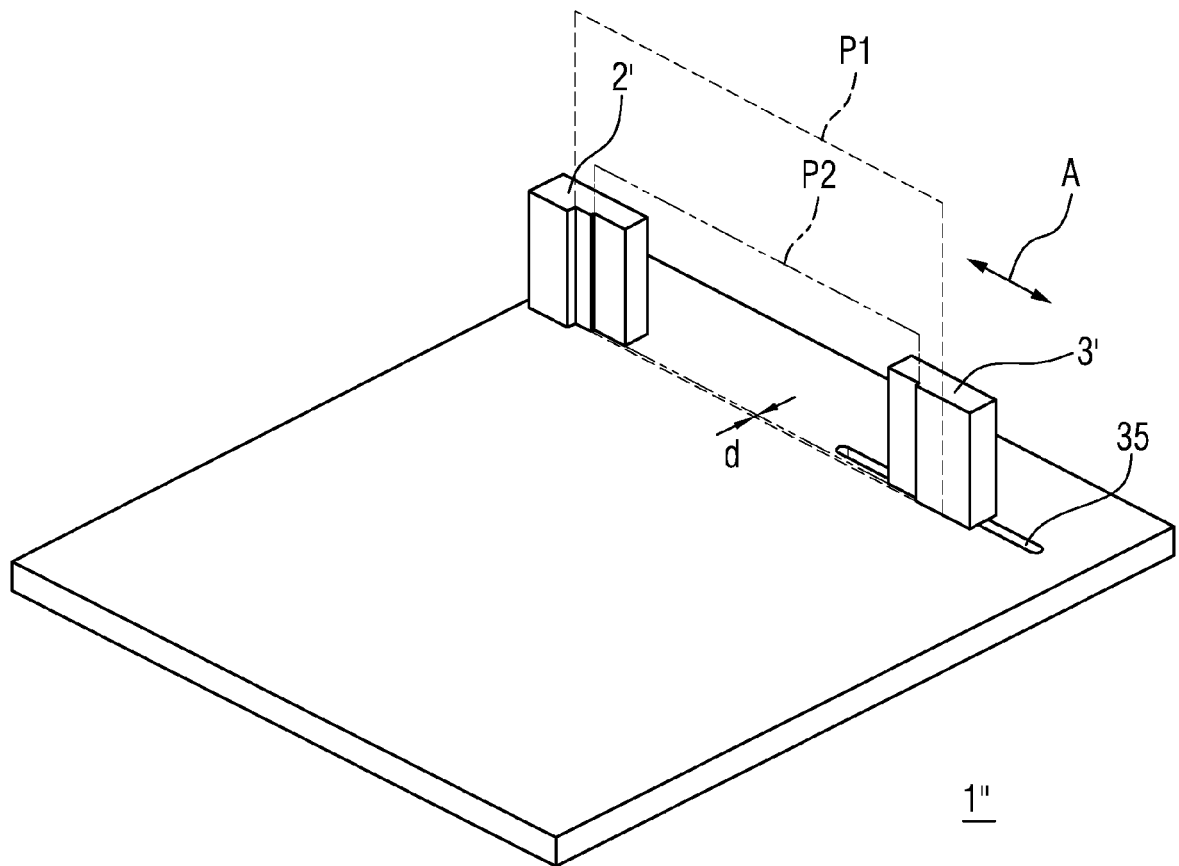


FIG 21

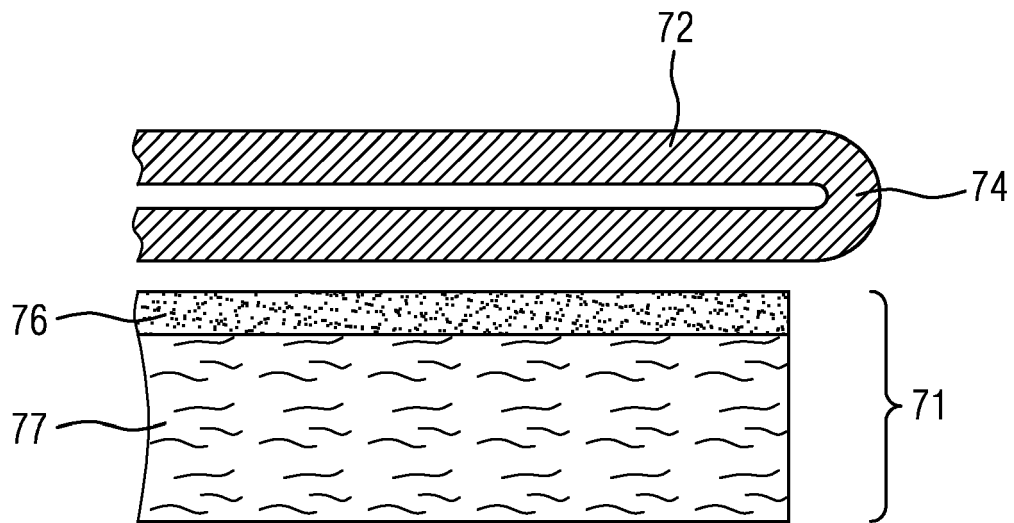


FIG 22

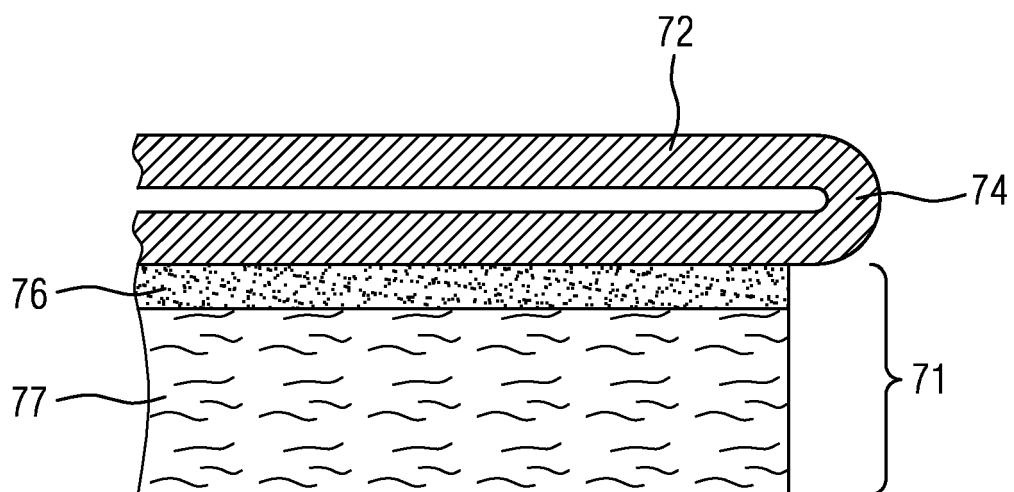


FIG 23

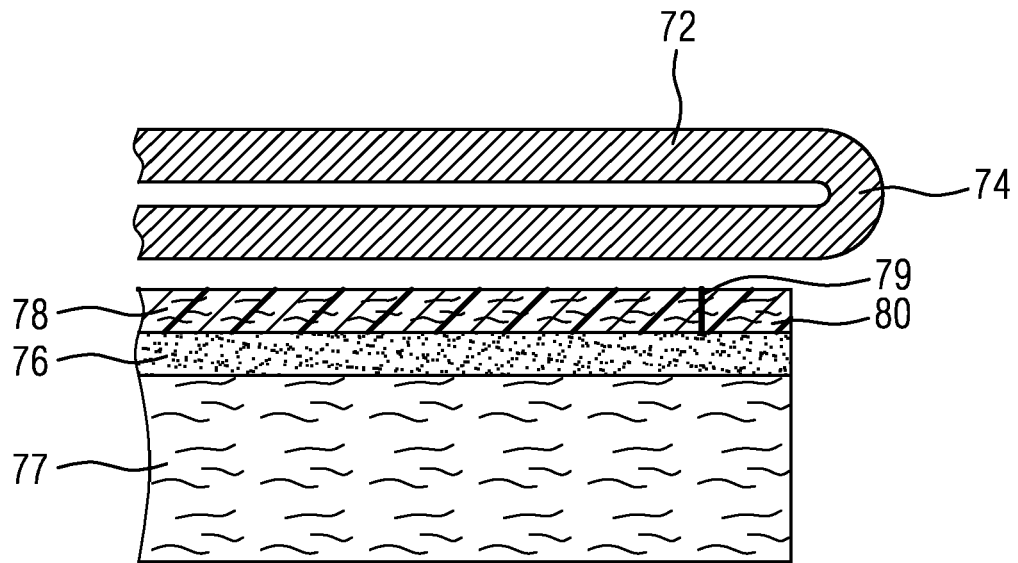


FIG 24

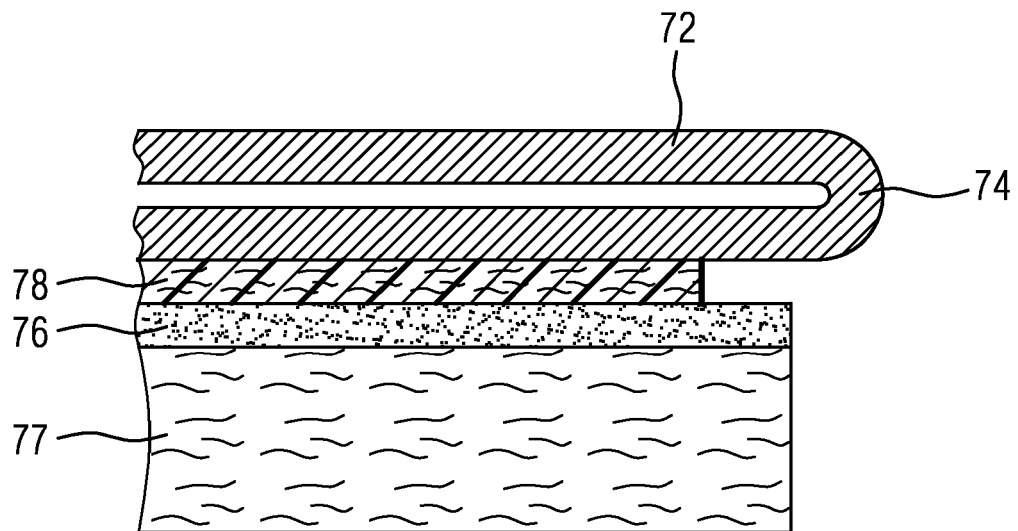


FIG 25

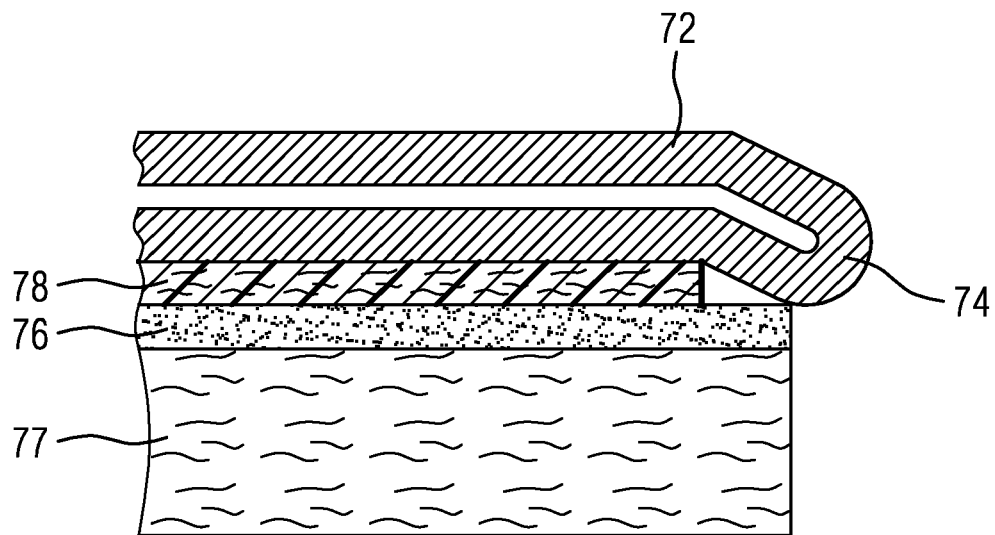


FIG 26

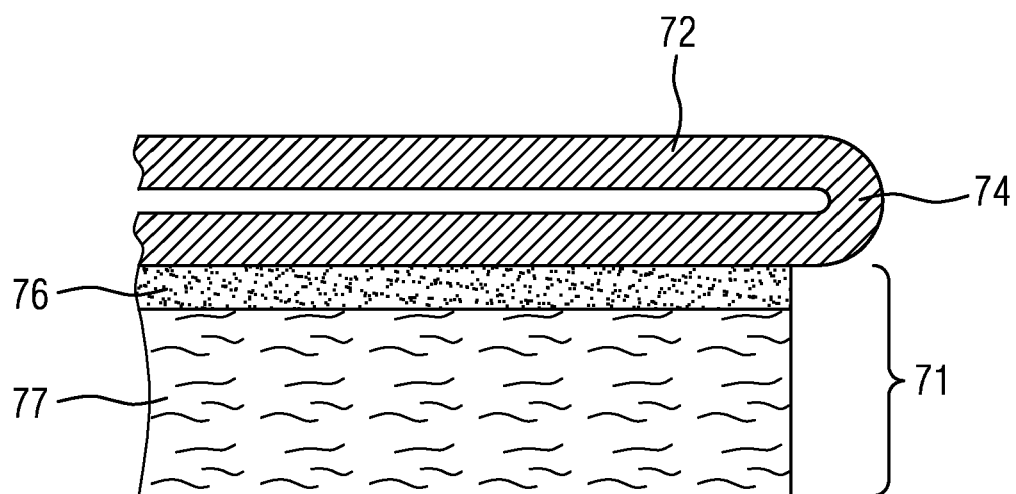


FIG 27

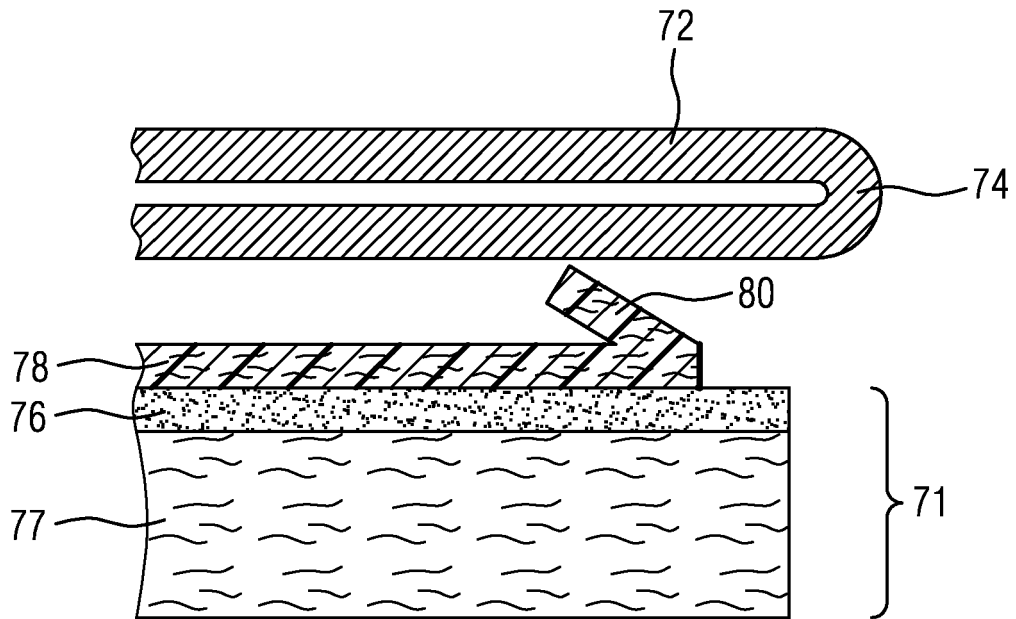
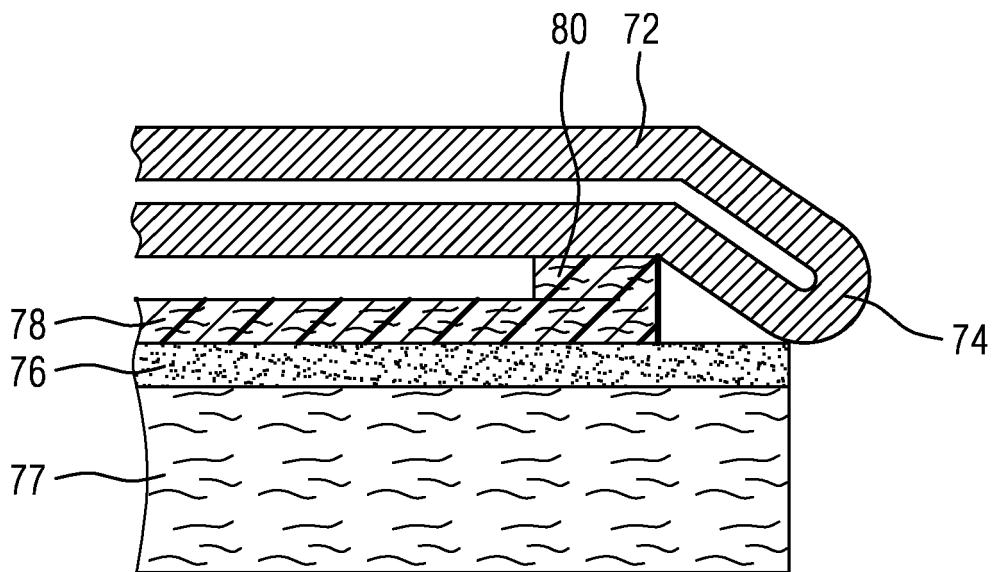


FIG 28





EUROPEAN SEARCH REPORT

Application Number
EP 14 15 2521

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	WO 2009/030815 A1 (MAPING KY [FI]; HUOTARI IISAKKI [FI]; HUOTARI HENRI [FI]; SIIKAMAEKI M) 12 March 2009 (2009-03-12) * page 2, line 3 - page 4, line 26; figures 1-5 *	1-17	INV. B42C9/02 B42C19/02 B42D1/08
X	WO 2011/112109 A2 (COSTEA GEORGE-MARIAN [RO]) 15 September 2011 (2011-09-15) * page 5, line 12 - page 17, line 31; figures 1-18 *	1-17	
A	WO 2013/111000 A1 (ITALIAN CREATIVE BOOK SRL [IT]) 1 August 2013 (2013-08-01) * the whole document *	1-17	
			TECHNICAL FIELDS SEARCHED (IPC)
			B42D B42C B29C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 18 June 2014	Examiner Kelliher, Cormac
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 14 15 2521

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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18-06-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009030815 A1	12-03-2009	CN 101848814 A	29-09-2010
		EP 2188134 A1	26-05-2010
		US 2011031729 A1	10-02-2011
		WO 2009030815 A1	12-03-2009

WO 2011112109 A2	15-09-2011	NONE	

WO 2013111000 A1	01-08-2013	NONE	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2003300389 A [0003]
- JP 2006272738 A [0003]
- KR 100725939 [0003]
- WO 2009030815 A1 [0004] [0007] [0015]
- US 20080072469 A [0005]