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(71) Applicant: **Showdown Displays Europe Holding**
B.V.
6031 TW Nederweert (NL)

(72) Inventor: **Zajicek, Vit**
41501 Teplice (CZ)

(74) Representative: **KBN IP Patentanwälte**
Partnerschaft mbB
Im Mediapark 6A
50670 Köln (DE)

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(54) **DISPLAY FRAME**

(57) The invention relates to a display frame for presenting at least one information medium, in particular for use as an A-shaped advertising display, with a front panel (1) holding or carrying the information medium and a rear support side positioned at an angle to the front panel (1), wherein the front panel (1) is swivel-mounted to the rear support side via at least one upper hinge (6), wherein the hinge (6) comprises a hinge body with two hinge parts that can be swiveled relative to each other.

The known display frames are to be optimized in terms of handling and weight. The invention achieves this by the front panel (1) is formed by a plate and, for fastening the front panel (1) to the hinge (6), one of the two hinge parts has a receiving slot as a front panel receptacle (7) into which an edge area of the front panel (1) is inserted and fastened or can be inserted and subsequently locked in place.

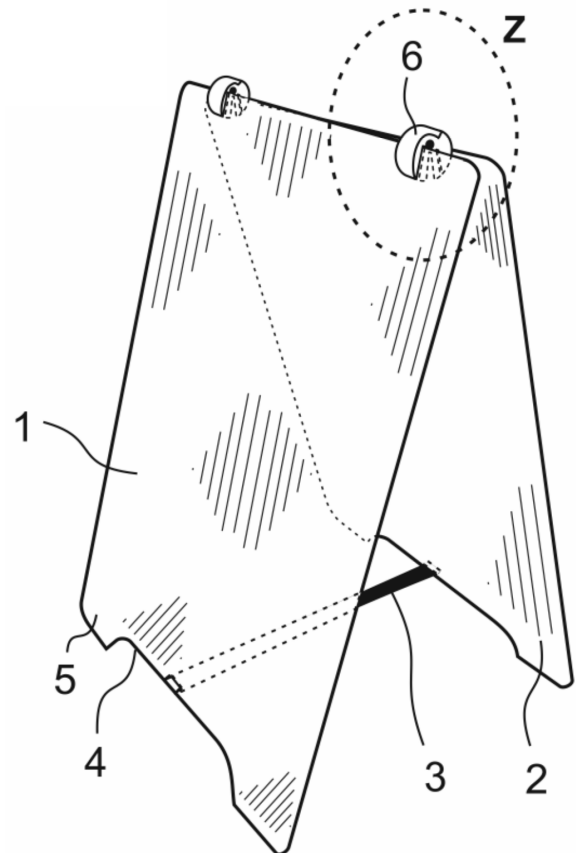


Fig. 1

Description

[0001] The invention relates to a display frame according to the preamble of claim 1. The display frame according to the invention, often referred to as an A-board (A-shaped advertising display) or, in the advertising industry, as a customer stopper, is used for the presentation of at least one information carrier in the form of a poster or similar information carriers, with one information carrier usually being arranged on the front and one on the back. But the invention is not limited to the number or type of information carriers.

[0002] Display frames are known, for example, from DE 2020 23 100 618 U1, EP 0 895 214 A1, or EP 1 791 102 A1. They are usually set up for a short period of time, for example in front of a shop, cinema, or other event venues. They should be stable, but also easy to remove and store. For the latter purpose in particular, they are foldable so that they can be easily carried and stowed away.

[0003] A preferred function of the display frame is to present one or more pieces of information to passing pedestrians or customers, which can be done on one side or on both sides. Therefore, the rear side can serve purely as a support or can itself be designed as a presentation surface. The present invention is applicable to both variants but preferably uses a front and a rear presentation surface.

[0004] Until present, picture frame-like front panels and, if available, rear panels holding the information carrier have been used as presentation surfaces. These panels have, for example, holding means for a poster in the form of foldable strips at the edges. EP 2 682 932 A1 shows such an A-board. Picture frames with the above-mentioned clamping technique are known from DE 20 2017 103 896 U1. Protection against moisture can be provided by a plastic bag into which the poster is inserted before being clamped in place. EP 2 843 648 A2 shows such a solution. Alternatively, the poster can also be held behind a glass or plastic pane, as in classic picture frames.

[0005] The front panel is pivotably connected to the rear support side via an upper hinge, which usually extends over most of the width of the upper side of the front panel, or via two upper hinges. As mentioned above, this rear support side can serve purely for display and support purposes, for example in the form of a stand, or, preferably, it can also be designed as a panel with a holder for a poster-like information carrier. The hinge usually has a hinge body with two hinge parts that can be rotated relative to each other.

[0006] The known display frames are flexible and reliable. However, there is room for improvement in terms of their handling, particularly regarding weight. Furthermore, as typical aluminum constructions, they are complex to manufacture and assemble.

[0007] It is therefore object of the invention to avoid the above-mentioned drawbacks and to create a display

frame that is lightweight, easy to handle, and inexpensive to manufacture.

[0008] This object is achieved by the invention of a display frame according to claim 1. The new display frame is characterized in particular by the fact that the front panel is formed by a flat plate and, to attach the front panel to the hinge, a first hinge part of the two hinge parts has a receiving slot as a front panel receiver. An edge area of the front panel is inserted into the receiving slot and is fastened or, alternatively, can be inserted and subsequently locked in place. Preferably, the front panel is a flat, frameless plate.

[0009] If the rear support side is to be designed to present a further rear information carrier, the rear support side is preferably also formed by a rear panel, which can be formed by a flat plate made of glass or plastic. In particular, the rear support side is preferably identical or largely identical to the front panel. For attachment to the hinge, a second hinge part of the two hinge parts then has a further receiving slot as a rear plate receptacle, into which an edge area of the rear panel is inserted and fastened in the same manner or can be inserted and subsequently locked in place.

[0010] In principle, the panels can be permanently connected to the hinge by the manufacturer. In this case, this can be done using screw, clamp, or adhesive connections. However, it is preferable that at least one panel is detachably connected to the hinge. For this purpose, a snap connection that can be detached by the installer can be used, which will be described in more detail below.

[0011] The concept of the invention introduces a new way of setting up an A-board. Only three main types of parts are required for the construction: Two simple, printed panels with special mounting holes in the upper section, whereby the panels can be made of any suitable material that is stable enough to bear its own weight and, if necessary, the bending moment transmitted by the hinge when opening. Reinforcements made of the same or a different material may be provided in the region of the mounting holes. However, this will usually not be necessary.

[0012] For example, 3 mm thick composite panels, such as Dibond® panels, can be used as boards. Dibond® panels are sandwich panels consisting of three layers. The material consists of two outer layers of aluminum with a core layer of polyethylene in between. Alternatively, panels with a similar structure but made of different materials can also be used. For example, the aluminum panels can be replaced by plastic panels. The number of layers can also be smaller or larger. Ultimately, this depends on the expected load, the size of the mounting frame, and the thickness and stability of the materials used.

[0013] Other, particularly less expensive sheet materials are also possible, for example sheets made of foamed plastics of the same or greater thickness, cardboard materials, or other materials. Finally, the sheet material can be made of transparent, preferably see-through

plastic, in which case the information carriers can be designed as films and can also be glued to the plastic, either from behind or from the front. A particularly easy-to-change design uses printed plastic films as information carriers, which can be easily removed as stickers using a suitable adhesive or can be held in place on the panel by adhesive forces alone, whereby it is particularly advantageous to arrange the information carriers on the back of a transparent panel.

[0014] The front panel is connected to the rear support frame or the rear panel in a manner that allows it to be swiveled or folded via one or more hinges. A set of two hinges is preferred. In a particularly preferred design, the hinges are made of rubber, are therefore flexible, and can be easily attached to the panels. In particular, they can also be easily removed, for example to exchange the panels, which is particularly useful if the panels are printed directly with the information and thus form the information carrier themselves. This is useful, for example, in the case of printed panels on moisture-resistant cardboard.

[0015] The hinges have an internal fastening point in the form of a panel receptacles that engages positively in recesses in the panels, for example in pre-drilled holes. The shape and size of the internal fastening points and the material for the hinges must be coordinated to achieve stability, durability, and smooth installation.

[0016] A pair of two hinges is a preferred design. Alternatively, a continuous, more cylindrical hinge can be used, whereby the functional areas in both cases differ only insignificantly from each other. The hinges used can be manufactured using 3D printing, as the required parts are often difficult or impossible to produce using the standard injection molding method as a standard production method for plastic molded parts.

[0017] In a particularly preferred embodiment of the display frame, the hinge may comprise two identical hinge parts which are connected to each other in an articulated manner by means of a bolt. For this purpose, the hinge parts have blind hole-like bearing openings or hollow cylindrical through-openings through which they are placed on the bolt.

[0018] A special aspect of the present invention is the fact that particularly light and easy-to-manufacture parts are used, which are simple in design but attractive to look at. In particular, the panels of the front board and, if used, the rear board are preferably flat, frameless boards. They have a square or rectangular cross-section and may have a central recess in the lower area to form feet, so that they stand on the outer corners or edge areas on the ground.

[0019] When assembled, the hinge can form a disc-like base body. In this case, two hinge parts are coupled together around a pivot axis, with appropriate clearances provided outside the pivot axis so that the two hinge parts can rotate relative to each other. When assembled, with the exception of these clearances, they form the disc-like base body or lie within a cylindrical area. However, the

round shape is not mandatory.

[0020] The front panel receptacles can be a simple slot in one part of the hinge. The corresponding area of the front panel is then inserted into this slot. If a rear panel is used instead of a simple support frame, it can be connected to the other hinge part in a similar manner. To secure the panels when they are not glued or screwed in place, panel receptacles in the form of locking elements or manually lockable clamping devices can be provided in the slot of the front panel receptacles or the rear panel receptacles, which penetrate the locking recesses arranged in the edge area of the panels after assembly.

[0021] If the panels are interchangeable, the hinge is preferably designed to be elastic so that the panel receptacles can be moved out of the snap-fit recess in the panel by widening the hinge. For example, at least the hinge parts can be made of rubber or another elastic material. The entire hinge can also be made of these materials. Alternatively, conventional means of unlocking can also be provided. These can be, for example, push buttons or other movable retaining means. The hinge may have locking means by which the mobility of the hinge parts relative to each other can be fixed. This is useful both when the display frame is folded up and when it is set up. In both cases, this prevents the panels from moving unintentionally relative to each other.

[0022] The maximum angle by which the panels can be moved relative to each other in the hinge may be limited by the design of the hinge itself. Stops may be provided in the hinge to serve as travel limiters. Alternatively, or additionally, a means may also be provided in the lower area of the support frame to limit the maximum folding movement. This may be, for example, a strap running from the front panel to the rear support frame or, if used, to the rear panel.

[0023] The strap forming the travel limit is preferably connected to the lower edge of the front panel and/or to a lower edge of the rear support frame or rear panel by means of a detachable connection, particularly preferably by means of a Velcro connection. On one side, the strap can be firmly connected to the display frame to prevent it from getting lost. Furthermore, the strap can have another fastening option, particularly a Velcro fastening, at a small distance from the connection to one of the panels or the support frame, so that it can also be used to hold the folded parts of the display frame together.

[0024] In particular, the use of transparent panels allows further additions to the mounting frame. For example, a light source can be used whose light is coupled into the transparent panels. Such a light source can comprise a light-emitting diode or a plurality of light-emitting diodes. Preferably, the light source is concealed, for example, in the hinge. The coupled light spreads within the transparent panel and is refracted by edge areas or specifically introduced impurities. For example, a luminous edge can easily be used to create circumferential lighting, thereby significantly increasing the audience's

attention.

[0025] The subclaims relate to advantageous embodiments of the invention.

[0026] Further features and advantages of the invention are apparent from the following description of preferred embodiments with reference to the drawings.

[0027] The drawings depict:

Fig. 1 a display frame according to the invention,

Fig. 2 the detail "Z" from Figure 1,

Fig. 3 a three-dimensional representation of the hinge of the display frame shown in Figures 1 and 2,

Fig. 4 the individual parts of a hinge and their assembly to form the complete hinge,

Fig. 5 the hinge in a sectional view,

Fig. 6 one of the hinge parts in a side view,

Fig. 7 the hinge part shown in Fig. 6 in a sectional view, and

Fig. 8 the hinge part shown in Figs. 6 and 7 in a three-dimensional view.

[0028] Figure 1 shows a display frame according to the invention. The frame essentially consists of three basic components: The first is a front panel 1 for holding or presenting information. The information can be affixed using adhesive or electrostatic forces, clamped or clipped in place, or printed on. The information can be placed on the front side or, which is preferable in the case of the transparent front panel 1, on the back side of the transparent front panel 1. Ultimately, this depends on the application.

[0029] The in figure 1 shown version of the display frame includes a rear panel 2 on the back side. This is identical in structure to the front panel 1. The front panel 1 and the rear panel 2 are connected to each other by two hinges 6. Both panels 1, 2 have a recess 4 in the central area, so that foot sections 5 protruding downwards are formed in the outer areas. The display frame stands on a surface on these.

[0030] The two panels 1, 2 are limited in their movement relative to each other by a swivel angle limiter 3. This swivel angle limiter 3 is a flexible, for example textile, strap which is detachably connected to the lower edge of the front panel 1 and the rear panel 2 in the region of the recess 4 by means of Velcro fasteners. Of course, other types of fasteners, such as press studs or similar, can also be used here. Furthermore, the strap of the swivel angle limiter 3 can also be permanently connected to both components if the panels 1, 2 do not need to be exchanged.

[0031] The hinge 6 and its connection to the panels 1,2 are shown in detail "Z" in Figure 2 in an enlarged view. In principle, the hinge 6 has two rounded jaws as hinge parts, each of which is detachably connected to one of the two panels 1,2. Both hinge parts are preferably identical in shape and assembled in a twisted position relative to each other to form hinge 6. The connection of the hinge parts is best seen in the three-dimensional representation of hinge 6 shown in Figure 3.

[0032] In each of the two hinge parts of the hinge 6, there is a slot-shaped panel receptacles, namely a front panel receptacle 7 and a rear panel receptacle 8. The upper edge of a panel 1 or 2 can be inserted into the panel receptacles 7, 8. Panel retainers 10 are provided as locking means in the slots forming the plate receptacles 7, 8. These interact with through-openings in the upper edge area of the panels 1, 2, which are not shown here.

[0033] To insert the upper edges of panels 1,2, the slot-shaped panel receptacles 7,8 are slightly expanded so that the panels 1,2 can slide completely into the slot under the panel retainer 10. After the upper edge areas of panels 1,2 have been inserted, the hinge parts spring back elastically so that the panel retainer 10 engage positively in the recesses in the upper edge areas of panels 1,2. This holds panels 1,2 firmly in place on hinge 6.

[0034] To release the panels 1,2, the hinge 6 can then be widened again so that, in reverse order, the plate holders 10 disengage from the openings in the upper edges of the panels 1,2 and the panels 1,2 can be pulled out downwards. To achieve this function, it is preferable for the hinge 6 to be elastic, whereby in a preferred embodiment of the invention, the hinge 6 is made entirely of rubber or a rubber-like material. Alternatively, the panel retainer 10 can of course also be designed as a movable locking device. This can be, for example, a push button, a slider, or a similar locking device.

[0035] With the exception of the panel receptacles 7, 8 and a free space for moving the hinge parts relative to each other, the hinge 6 has a substantially disc-shaped basic form. A hinge bolt 9 is provided in the middle area, which holds the two hinge parts, which each have the same shape here but are rotated 180° relative to each other, together and allows them to move relative to each other. The hinge bolt 9 can also be designed as a handle in the form of a push button, so that the hinge 6 can be fixed by pressing the hinge bolt 9. This can be done both in the folded state and in the open state. Since the panels 1, 2, which can be pivoted relative to each other, can also be fixed in place via the swivel angle limiter 3 provided above the lower area, the handle can also be dispensed with.

[0036] Figures 4 to 8 show the hinge 6 in individual illustrations. Figure 4 is an illustration of the assembly of the hinge 6. On the left-hand side, the first hinge part with the front panel receptacle 7 is shown. This front hinge part is assembled with another hinge part not yet shown in the two left-hand partial views to form hinge 6, whereby the

two hinge parts are connected to each other in a rotatable manner via hinge bolt 9. The advantage of the hinge 6 used is that the two hinge parts are identical and are only assembled in a rotated position relative to each other. This state is shown in the right-hand section of Figure 4. The identical parts concept reduces manufacturing costs and facilitates assembly.

[0037] Figure 5 shows the complete hinge 6 in a sectional view. The two plate holders 7 and 8 can be seen in the two parts of the hinge 6. A panel retainer 10 (shown here with a thickened border) protrudes into each of the panel receptacles 7, 8. This panel retainer 10 engages in recesses in the upper area of the panels 1, 2.

[0038] Figures 6, 7, and 8 each show one of the hinge parts in individual part representations. Figure 6 is a side view of the hinge part that includes the front panel receptacle 7. Figure 7 shows the same view in section, slightly rotated. Figure 8, in turn, shows the hinge part in a three-dimensional representation. These figures show in particular that the hinge parts have a sleeve-shaped receptacle for the hinge bolt 9. The hinge bolt 9 is passed through this receptacle and connects the two hinge parts, which are twisted relative to each other, to form the hinge 6.

[0039] In principle, the invention can be used in conjunction with an upstanding frame with a front panel 1 and any rear support frame for setting up the front panel 1 at an oblique angle. It is preferable to use the variant shown, in which the rear support frame is formed by a rear panel 2. By using particularly simple-looking individual parts, the display frame according to the invention can not only be manufactured easily and inexpensively but is also lightweight and visually attractive.

[0040] Particularly when transparent materials are used to form the front panel 1 or rear panel 2, the information can be presented by printing directly onto the respective panel 1, 2. In this case, the underside of each individual panel 1, 2 can be printed. Alternatively, films can be glued on or held to the panel by means of electrostatic or other adhesive forces, making them particularly easy to replace. If panels 1, 2 are made of non-transparent material, for example cardboard, plastic panels, aluminum panels, or composite panels, the information is of course printed on the front.

[0041] Instead of placing the information directly on panels 1 and 2, a pocket-like information carrier can of course also be used, which can be glued on, for example. It is also possible to stretch a film over the panel. Finally, a tube-like film can also be used, which can be stretched over the entire panel 1 and 2.

[0042] Finally, an attractive alternative in terms of both appearance and content is the option of placing a light source above the display frame, which projects the content onto panels 1 and 2 in the manner of a "head-up display," as is known from automotive technology. In this case, the installation angle is the angle of reflection of the light required to reproduce the information. This design has the advantage that even moving images can be

reproduced via the installation frame, with the projection surface being formed by simple panels 1, 2.

Reference list:

[0043]

- | | |
|----|------------------------|
| 1 | Front panel |
| 2 | Rear panel |
| 3 | Swivel angle limiter |
| 4 | Recess |
| 5 | Foot section |
| 6 | Hinge |
| 7 | Front panel receptacle |
| 8 | Rear panel receptacle |
| 9 | Hinge bolt |
| 10 | Panel retainer |

Claims

1. Display frame for presenting at least one information medium, in particular for use as an A-shaped advertising display, with a front panel (1) holding or carrying the information medium and a rear support side positioned at an angle to the front panel (1), wherein the front panel (1) is swivel-mounted to the rear support side via at least one upper hinge (6), wherein the hinge (6) comprises a hinge body with two hinge parts that can be swiveled relative to each other, **characterized in that** the front panel (1) is formed by a plate and, for fastening the front panel (1) to the hinge (6), one of the two hinge parts has a receiving slot as a front panel receptacle (7) into which an edge area of the front panel (1) is inserted and fastened or can be inserted and subsequently locked in place.
2. Display frame according to claim 1, **characterized in that** the panel forming the front panel (1) is a flat panel, which is designed without a frame and is, in particular, a panel made of glass, aluminum, sheet steel or stainless steel, cardboard, plastic, or a panel made of a composite of two or more cardboard or plastic panels stacked on top of each other and connected to each other.
3. Display frame according to claim 1 or 2, **characterized in that** the rear support side is formed by a rear panel (2), wherein the rear panel (2) is formed by a flat plate and, for attachment to the hinge (6), a second hinge part of the two hinge parts has a receiving slot as a rear plate receptacle (8), into which an edge area of the rear panel (2) is inserted and fastened or can be inserted and subsequently locked.
4. Display frame according to claim 3, **characterized in that** the flat panel forming the rear panel (2) is frameless and, in particular, is a panel made of glass,

aluminum, sheet steel or stainless steel, cardboard, plastic, or a panel made of a composite of two or more cardboard or plastic panels stacked on top of each other and connected to each other.

5. Display frame according to one of the preceding claims, **characterized in that** the front panel (1) has at least one locking recess in the area that protrudes into the front panel receptacle (7), and the hinge (6) has a panel retainer (10) that can be operated by a handle as a locking means, wherein the panel retainer (10), when the front panel (1) is inserted into the front panel receptacle (7), automatically locks into the locking recess with a locking means or can be moved into the locking recess by means of an actuating means.
6. Mounting frame according to one of the preceding claims, **characterized in that** the hinge (6) is formed by two hinge parts connected to each other in an articulated manner via a hinge bolt (9) held in a bolt receptacle, and the two hinge parts are elastically designed and, in particular, made of rubber.
7. Mounting frame according to the preceding claim, **characterized in that** the front panel receptacle (7) can be elastically expanded by inserting the front panel (1) or manually, whereby
 - the front panel (1) in the area that protrudes into the front panel receptacle (7) after insertion, and the hinge (6) has a panel retainer (10) as a locking means, wherein the panel retainer (10) automatically springs into the locking recess with the panel retainer (10) when the front panel (1) is inserted into the front panel receptacle (7) and/or the rear panel receptacle (8) can be elastically expanded by inserting the rear panel (2) or manually, and whereby
 - the rear panel (2) in the area that protrudes into the rear panel receptacle (8) after insertion, and the hinge (6) has a panel retainer (10) as a locking means, which, when the rear panel (2) is inserted into the rear panel receptacle (8), automatically springs into the locking recess with the panel retainer (10).
8. Display frame according to claim 3, **characterized in that** the rear panel (2) is firmly connected to the rear panel receptacle (8) by means of a form-fit or friction-fit connection or an adhesive connection.
9. Display frame according to one of the preceding claims, **characterized in that** the two hinge parts connected to each other in an articulated manner are identical parts which are assembled at 180° to each other to form the hinge (6).

10. Display frame according to one of the preceding claims, **characterized in that** the hinge (6) can be fixed in at least one position by means of a snap connection that can be released by means of a handle, and in a first position in which the hinge (6) is fixed, the rear support side and the front panel (1) are parallel to each other, and in a second position, in which the hinge (6) is fixed, the rear support side and the front panel (1) are arranged at a defined angle to each other and converge upwards.
11. Mounting frame according to one of the preceding claims, **characterized in that** the lower ends of the rear support side and the front panel (1) are connected to each other by a flexible and/or elastic band to form a swivel angle limiter (3), wherein the elastic band is detachably connected to the lower ends of the rear support side and the front panel (1) by a Velcro fastener.
12. Display frame according to claim 3, **characterized in that** the front panel (1) and/or the rear panel (2) have a rectangular basic shape with a recess (4) arranged centrally on the underside, wherein the areas on both sides of the recess (4) each form a foot section (5) for setting up the display frame on a surface.
13. Display frame according to claim 2, **characterized in that** the front panel (1) is made of transparent material and a light source in the form of one or more light-emitting diodes is provided at the edge of the front panel (1), which is designed and arranged in such a way that it couples the light into the front panel (1), which is then refracted at the edges and/or specifically introduced impurities and in the form of circular or groove-shaped depressions.
14. Display frame according to one of the claims 3, 4, 8 or 12, **characterized in that** the rear panel (2) is made of transparent material and a light source in the form of one or more light-emitting diodes is provided at the edge of the rear panel (2), which is designed and arranged in such a way that it couples the light into the rear panel (2), which is then refracted at the edges and/or specifically introduced imperfections and in the form of circular or groove-shaped indentations.
15. Display frame according to claim 13 or claim 14, **characterized in that** the light source is arranged in the hinge (6).

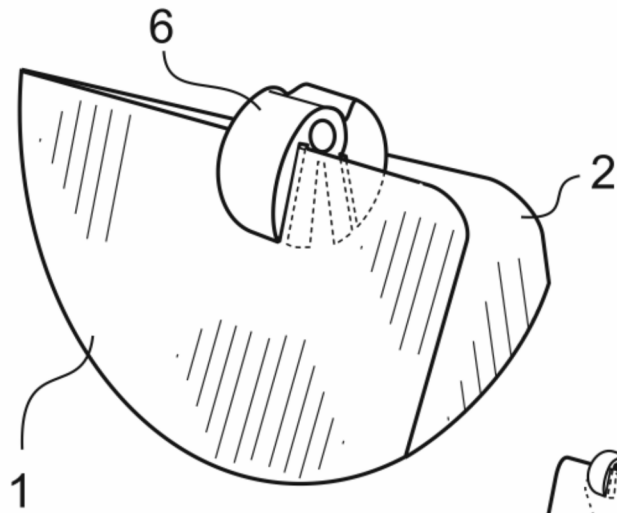


Fig. 2

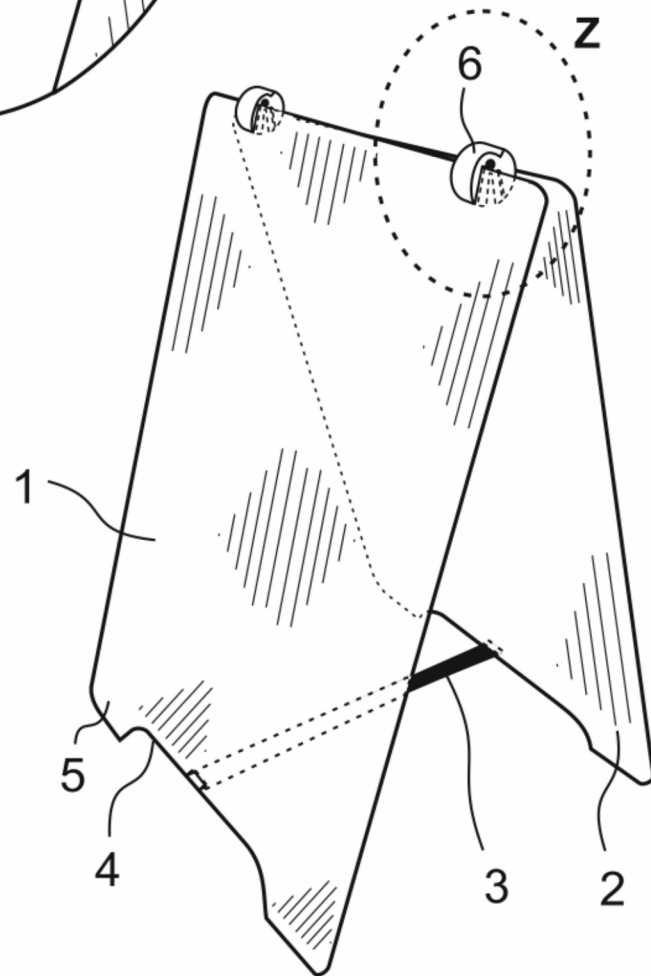


Fig. 1

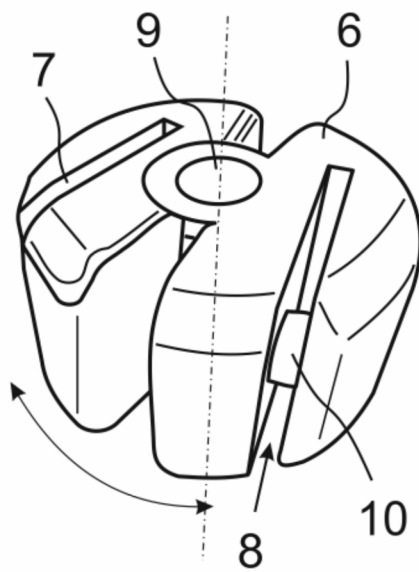
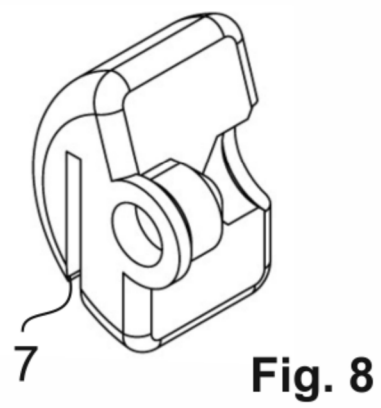
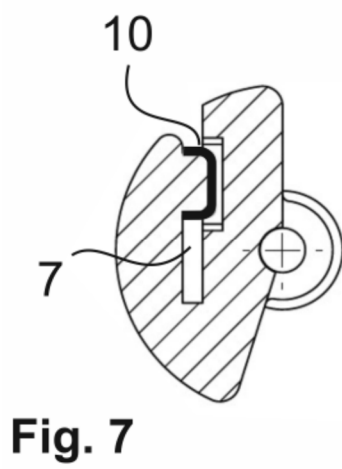
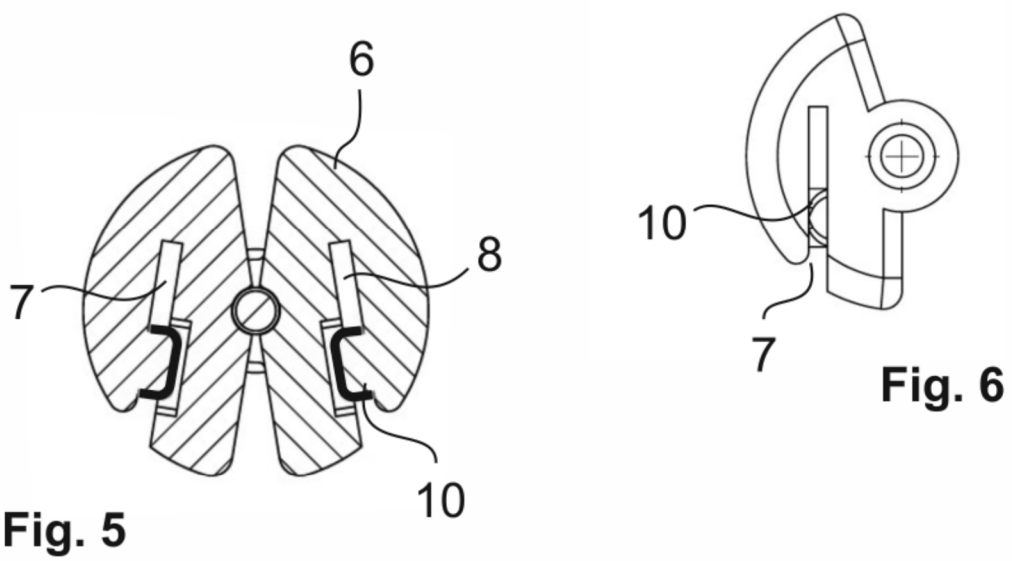
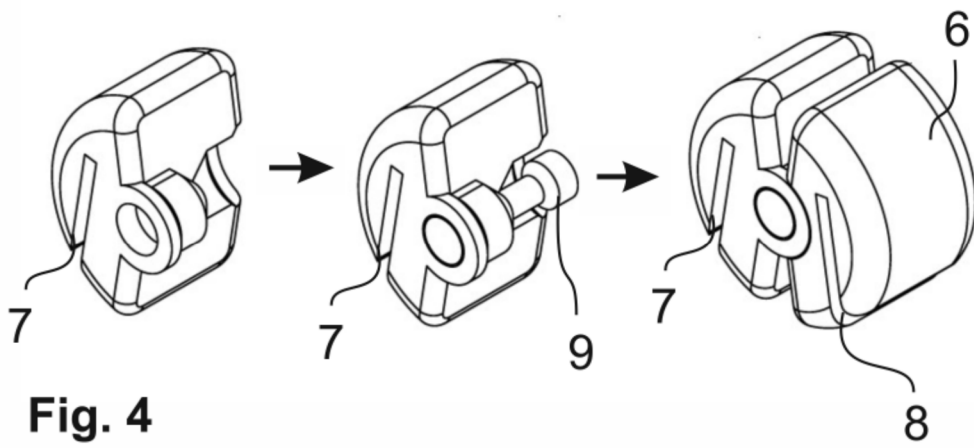


Fig. 3





EUROPEAN SEARCH REPORT

Application Number

EP 25 21 5056

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	WO 93/14484 A1 (GLACO BRICKS PTY LTD [AU]) 22 July 1993 (1993-07-22)	1-12	INV. G09F1/10
Y	* page 1, line 1 - line 3 * * page 2, line 2 - line 9 * * page 3, line 10 - page 4, line 23 * * figures 1-11 *	13-15	ADD. G09F15/00
X,D	EP 0 895 214 B1 (TIEDEMANN ROMAN [AT]) 3 September 2003 (2003-09-03) * paragraph [0015] - paragraph [0023] * * figures 1-7 *	1-4	
Y	DE 20 2009 012404 U1 (MATSCHOS PHILIPP [DE]) 26 November 2009 (2009-11-26) * paragraph [0034] - paragraph [0045] * * page 3, line 25 - page 4, line 23 * * figures 1-11 * * figures 1-3 *	13-15	
A	US 5 009 541 A (THURSTON KURT W [US]) 23 April 1991 (1991-04-23) * page 2, line 30 - page 4, line 10 * * pages 1-7 *	1-15	TECHNICAL FIELDS SEARCHED (IPC) G09F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		11 March 2026	Pantoja Conde, Ana
CATEGORY OF CITED DOCUMENTS		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	
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			

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

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5

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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