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(54) Title: FURNITURE ARRANGEMENT

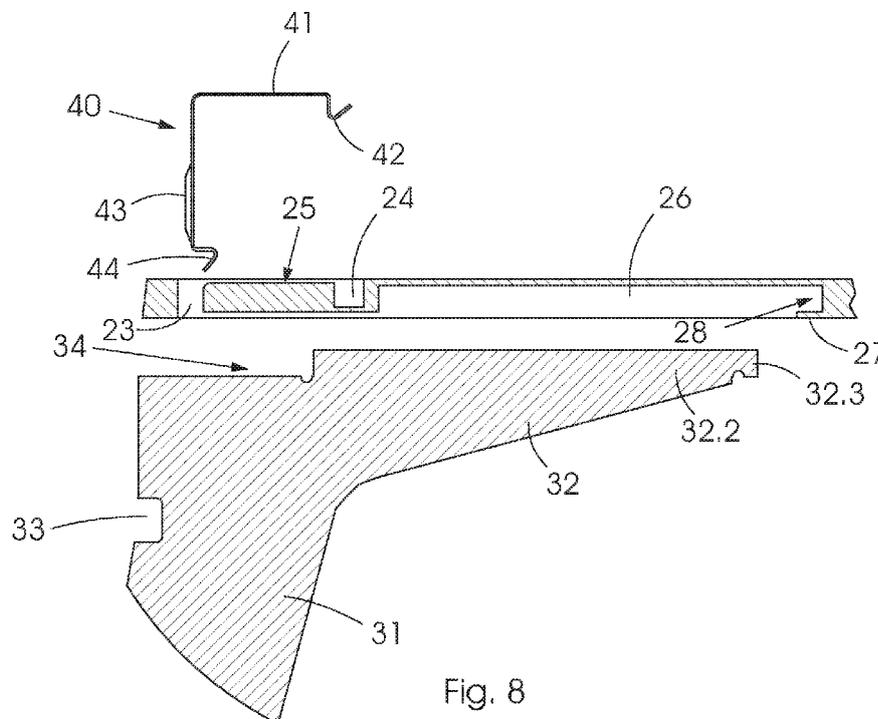


Fig. 8

(57) Abstract: This invention relates to a furniture arrangement, and more particularly but not exclusively to a ready-to-assemble furniture arrangement that utilizes releasable clips to assemble the furniture. The arrangement includes a plurality of furniture components having complementary engagement formations. Releasable fastening clips are provided for selectively securing the furniture components relative to one another by engaging the complementary engagement formations in the furniture components.



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FURNITURE ARRANGEMENT

BACKGROUND TO THE INVENTION

THIS invention relates to a furniture arrangement, and more particularly but not exclusively to a ready-to-assemble furniture arrangement that utilizes releasable clips to assemble the furniture.

Ready-to-assemble furniture, also known as knock-down furniture or flat pack furniture, is a form of furniture that requires customer assembly. The furniture components are typically packaged in a carton which also contains assembly instructions and necessary hardware needed for the buyer to follow in order to build the furniture item correctly. Ready-to-assemble furniture is typically packaged in a kit form with the pieces packaged in one or multiple boxes. The kit may contain a number of flat parts, fasteners, and other parts that are needed to assemble the furniture.

Ready-to-assemble furniture is popular among consumers who wish to save money on their furniture purchases by assembling the product on their

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own and also by saving on delivery cost. In addition to saving the consumer money, ready-to-assemble furniture is generally simple to assemble and requires only the use of simple tools. Since the furniture does not need to be assembled in the factory, ready-to-assemble furniture is often also less expensive. However, there is also a growing market for high-end furniture in which the assembly configuration of the furniture also forms part of the aesthetic appeal.

Most existing ready-to-assemble furniture arrangements require a significant degree of manual labour to erect, and for example requires the use of screws, and thus the concomitant tools, e.g. screw drivers or hex keys. Many configurations also makes use of cam lock nuts and cam screws, which are difficult to assemble, and which are mostly suited for use with particle board or chip board.

Existing ready-to-assemble furniture is also not designed for ease of disassembly and re-assembly, which is a drawback in when moving furniture from one location to another. In fact, in many cases the mechanisms and the materials utilized in existing ready-to-assemble furniture have been designed with a single assembly in mind, and although capable of being disassembled and re-assembled, the securing mechanisms can easily damage, for example because it relies on threaded fastening arrangements that can easily be impaired.

A particularly difficult joint to form when it comes to ready-to-assemble furniture is the joint between a leg and a top of a table, in particular if the legs of the table are not located on the corners of the top, but somewhat inwardly displaced. Existing securing techniques do not readily result in a joint that is both secure and aesthetically pleasing.

It is accordingly an object of the invention to provide a ready-to-assemble furniture arrangement that will, at least partially, alleviate the above shortcomings.

It is also an object of the invention to provide a ready-to-assemble furniture arrangement which will be a useful alternative to existing ready-to-assemble furniture arrangements.

SUMMARY OF THE INVENTION

According to the invention there is provided a ready-to-assemble furniture arrangement including:

- a plurality of furniture components, the furniture components including complementary engagement formations;
- releasable fastening clips for selectively securing the furniture components relative to one another by engaging the complementary engagement formations in the furniture components;
- wherein the complementary engagement formations are in the form of elongate receiving grooves suitable for receiving ends of the fastening clips; and
- wherein a channel extends through at least one of the furniture components in order for part of the fastening clip in use to extend through the channel from one side of the furniture component to the other side of the furniture component.

In one embodiment of the invention there is provided for one of the furniture components to be a top of a table, and for another of the furniture components to be a leg of a table.

There is also provided for a first receiving groove, suitable for receiving one end of a fastening clip, to be provided in an operatively upper surface of the one furniture component, for example the table top.

The first receiving groove is preferably substantially parallel relative to the channel.

A corresponding second receiving groove, suitable for receiving an opposing end of the fastening clip, is provided in the other furniture component, for example the leg of the table.

The leg may include a leg section, as well as an operatively upper securing section that extends transversely from an operatively upper end of the leg section.

There is provided for the second receiving groove to be provided in the leg section of the leg.

A further feature of the invention provides for a recess, suitable for receiving at least an upper part of the securing section of the leg, to be provided in an operatively bottom surface of the table top.

The recess preferably includes an undercut section at one end thereof, with the undercut section being suitable for receiving and retaining an end or a nose formation of the securing section of the leg.

The undercut section may be defined by a lip formation extending over an end zone of the recess.

There is provided for each fastening clip to include two legs extending away from one another, the two legs being connected to one another at one end, and each leg having a free end, with the free ends terminating in furniture

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component engagement formations which are adapted to engage the receiving grooves provided in the furniture components.

There is provided for the two legs of the fastening clip to be resiliently connected to one another at one end in order for the legs to be resiliently displaceable relative to one another.

The clip may also include a disengagement member which is displaceably connected to one of the legs, the disengagement member being displaceable relative to said leg between a rest position in which it does not interfere with an engagement formation provided on the leg, and a release position in which at least part of the disengagement member exerts a release force on the engagement formation of the leg.

There is alternatively provided for each fastening clip to include two legs extending away from one another, the legs being connected at one end, with each leg having an opposite free end that terminates in a furniture component engagement formation; characterized in that at least one of the engagement formations is an adjustable engagement formation that is adjustable between a locked position, in which the engagement formation is adapted to engage a receiving groove provided in the furniture component, and a release position, in which the engagement formation is adapted to be released from the receiving groove.

The clips may, for example, be the clips as disclosed in co-pending patent applications number US2016/0195118 and US2016/0215801, the content of which are incorporated herein by reference, but the invention is not limited to these clips.

A further feature of the invention provides for the furniture arrangement to include a table top extension which is releasably securable to the top of the table in order to increase the effective area of the table top.

Preferably, the table top extension comprises a plurality of extension members that are locatable about the periphery of the top. There is provided for the extension members to be securable to one another in an end-to-end configuration, preferably by way of interlocking engagement formations.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention is described by way of a non-limiting example, and with reference to the accompanying drawings in which:

- Figure 1 is a perspective view of the assembled furniture arrangement in accordance with one embodiment of the invention, the furniture arrangement in this example taking the form of a table;
- Figure 2 is an exploded perspective view of the furniture arrangement of figure 1;
- Figure 3 is a top plan view of the furniture arrangement of figure 1;
- Figure 4 is a top plan view of the furniture arrangement of figure 2;
- Figure 5 is a cross-sectional side view of part of the furniture arrangement of figure 1;
- Figure 6 is a side view of the furniture arrangement of figure 1;

- Figure 7 is an enlarged view of a leg interface of the assembled furniture arrangement shown in figure 5;
- Figure 8 is an enlarged view of the leg interface of figure 7 in a disassembled configuration;
- Figure 9 is a top perspective view of the leg interface of figure 7, with a top of the table shown in broken lines;
- Figure 10 is a top perspective view of part of the top of the furniture arrangement, omitting the leg and a clip used with the furniture arrangement, and wherein a recess in the bottom surface of the top of the table is shown in broken lines.

DETAILED DESCRIPTION OF INVENTION

Before any embodiments of the invention are explained in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of components set forth in the following description or illustrated in the following drawings. The invention is capable of other embodiments and of being practiced or of being carried out in various ways. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting. The use of "including," "comprising," or "having" and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional items. Unless specified or limited otherwise, the terms "mounted," "connected," "supported," and "coupled" and variations thereof are used broadly and encompass both direct and indirect mountings, connections, supports, and couplings and are thus intended to include direct connections between two members without any other members interposed therebetween and indirect connections

between members in which one or more other members are interposed therebetween. Further, "connected" and "coupled" are not restricted to physical or mechanical connections or couplings. The terminology includes the words specifically mentioned above, derivatives thereof, and words or similar import. It is noted that, as used in this specification and the appended claims, the singular forms "a," "an," and "the," and any singular use of any word, include plural referents unless expressly and unequivocally limited to one referent. As used herein, the term "include" and its grammatical variants are intended to be non-limiting, such that recitation of items in a list is not to the exclusion of other like items that can be substituted or added to the listed items.

Referring to the drawings, in which like numerals indicate like features, a non-limiting example of a furniture arrangement in accordance with the invention is generally indicated by reference numeral 10.

In the illustrated example the furniture arrangement 10 takes the form of a table comprising a table top 20 and four legs 30 extending downwardly from the table top 20. It will, however, be appreciated that the furniture arrangement 10 may take many other forms and is not limited to a table. Although the invention is particularly suited for use in ready-to-assemble tables, it could also find application in other items of furniture such as chairs, shelves and cupboards. However, for the purposes of this specific description reference will now be made to a table as opposed to the more generic term "furniture arrangement".

The table 10 comprises a table top 20 in the form of a rectangular section of planar material. The table top 20 may be made from a variety of materials, including chipboard, laminated wood, solid wood or even a synthetic material. It will also be readily apparent that the invention is not limited to any particular shape of table, and that a rectangular table is shown purely for illustrative purposes. The table top 20 includes an

operatively upper surface 21 and an operatively lower surface 22. A channel 23 extends right through the table top 20 from the operatively upper surface 21 all the way to the operatively lower surface 22. In use, part of a fastening clip 40 extends through the channel, as is described in more detail later on.

A first receiving groove 24, suitable for receiving a first furniture engagement formation 42 of a fastening clip 40, is provided in the operatively upper surface 21 of the table top 20. The first receiving groove 24 is in the form of an elongate groove which is substantially parallel to the channel 23 provided through the table top 20. The groove 24, however, ends in a blind end, and does not extend all the way through the table top 20. The groove 24 is typically square or rectangular in cross-section, but importantly, a vertical face of the groove 24 closest to the channel 23 is substantially perpendicular relative to the upper surface of the table top 20. The groove 24 forms an important part of the invention, as it enables the use of a releasable clip with a large engagement surface area, thus resulting in a secure and reliable connection.

A recessed zone 25 extends between the channel 23 and the first receiving groove 24, and in use houses a first leg 41 of the fastening clip 40 so as to ensure that the first leg 41 of the fastening clip 40 is flush with the operatively upper surface 21 of the tabletop 20 when the table 10 is assembled.

A leg receiving recess 26 is provided in an operatively lower surface 22 of the table top 20, and is provided for, in use, receiving part of a leg 30 that is secured to the table top 20. The recess 26 is in the form of an elongate groove. A longitudinal axis of the recess is substantially perpendicular to the channel 23 and groove 24 provided in the upper surface of the table top 20. The recess 26 ends in an undercut section 28 that is defined by a lip formation 27 extending across the end zone of the recess 26. In use, a

nose section 32.3 of a leg 30 is retained inside the undercut section 28, and is thereby prevented from being displaced away from the table top 20.

The table 10 includes a plurality of legs 30 which are releasably securable to the table top 20 by way of fastening clips 40. Each leg 30 comprises a leg section 31 and a securing section 32 that extends transversely from an upper end of the leg section 31. The leg section 31 includes a lower end 31.1 which in use is located on a surface on which the table 10 is used, and an upper end 31.2 located towards the table top 20. A second receiving groove 33, similar in shape and configuration to the first receiving groove 24, is provided towards the upper end 31.2 of the leg section 31 of the leg 30.

A rebate 34 is provided at the corner that defines the intersection between the leg section 31 and the securing section 32. The securing section 32 will in use be substantially parallel relative to the table top 20, and includes an inner end 32.1 and a free outer end 32.2. The outer end 32.2 terminates in a nose formation 32.3. An upper part of the securing section 32 in use snugly fits inside the recess 26 provided in the operatively lower surface 22 of the tabletop 20. In addition, the rebate 34 also engages part of the operatively lower surface 22 of the tabletop 20 that is not recessed. The nose formation 32.3 locates inside the undercut section 28, which prevents the leg 30 from being pivotable about its corner (at the rebate 34) when the leg is secured to the table top 20.

A releasable fastening clip 40 is used to secure the leg 30 relative to the tabletop 20. Many different clip configurations can be used to secure the leg 30 relative to the tabletop 20, with the common denominator being the fact that the fastening clip 40 will be releasable, and also able to engage the preformed receiving formations in the top 20 and the leg 30.

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In this particular example the fastening clip 40 includes a first leg 41 and a second leg 43, with the two legs being connected or integrally formed at one end, whilst terminating in opposing free ends. In this example the two legs will form an approximately 90° angle, but it will be appreciated that this angle could be different should different furniture arrangements require the same. The first leg 41 terminates in a first furniture engagement formation 42, and the second leg 42 terminates in a second furniture engagement formation 44. In this embodiment, both the furniture engagement formations are in the form of deformed end sections of the legs, and more particular in the form of concave protrusions that have been formed in the end sections of the legs. The concave protrusions may for example be V-shaped or D- shaped in cross-section.

In use, the second leg 42 extends through the channel 23 provided in the table top 20, and the second furniture engagement formation 44 engages the second receiving groove 33 provided in the leg section 30. The first leg 41 is located above the operatively upper surface 21 of the table top 20, and is more particularly located inside the recess zone 25. The first furniture engagement formation 42 in use engages the first receiving groove 24. When both the furniture engagement formations have engaged the respective receiving groove is, the leg 30 is retained in position relative to the top 20 by the fastening clip 40. It will be appreciated that it will also be very simple to remove the clip in order to disassemble the furniture arrangement, or in this example the table. The specific arrangement of the channel 23 extending through the table top 20 allows for the legs 30 to be inwardly displaced from the edge of the table top. If the channels were not provided, the legs would have had to be located at the edge of the table top in order for the legs to be securable to the table top by way of a releasable clip. The presence of the channel as well as the receiving grooves is therefore an important aspect of the invention, as it enables the combination of a releasable clip, and an inwardly displaced leg structure.

The clips may also for example be the clips as disclosed in co-pending patent applications number US2016/0195118 and US2016/0215801, the content of which are incorporated herein by reference.

The table 10 finally also includes a table top extension 50 which can enlarge the area of the table without an increase of the packaged product. The tabletop extension 50 comprises a plurality of extension members 51 that can be located about the periphery of the top 20. The individual extension members 51 are securable to one another by way of interlocking engagement formations that in this example includes lugs 52 and complementary receiving apertures 53.

It will be appreciated that the above is only one embodiment of the invention and that there may be many variations without departing from the spirit and/or the scope of the invention. It is easily understood from the present application that the particular features of the present invention, as generally described and illustrated in the figures, can be arranged and designed according to a wide variety of different configurations. In this way, the description of the present invention and the related figures are not provided to limit the scope of the invention but simply represent selected embodiments.

The skilled person will understand that the technical characteristics of a given embodiment can in fact be combined with characteristics of another embodiment, unless otherwise expressed or it is evident that these characteristics are incompatible. Also, the technical characteristics described in a given embodiment can be isolated from the other characteristics of this embodiment unless otherwise expressed.

CLAIMS:

1. A ready-to-assemble furniture arrangement including:
 - a plurality of furniture components, the furniture components including complementary engagement formations;
 - releasable fastening clips for selectively securing the furniture components relative to one another by engaging the complementary engagement formations in the furniture components;
 - wherein the complementary engagement formations are in the form of elongate receiving grooves suitable for receiving ends of the fastening clips; and
 - wherein a channel extends through at least one of the furniture components in order for part of the fastening clip in use to extend through the channel from one side of the furniture component to the other side of the furniture component.
2. The ready-to-assemble furniture arrangement of claim 1 in which a first component is a top of a table, and in which a second furniture components is a leg of a table.
3. The ready-to-assemble furniture arrangement of claim 1 or claim 2 in which a first receiving groove, suitable for receiving one end of a fastening clip, is provided in an operatively upper surface of the first furniture component.
4. The ready-to-assemble furniture arrangement of claim 3 in which the first receiving groove is substantially parallel relative to the channel.

5. The ready-to-assemble furniture arrangement of any one of the preceding claims in which a corresponding second receiving groove, suitable for receiving an opposing end of the fastening clip, is provided in the second furniture component.
6. The ready-to-assemble furniture arrangement of claim 5 in which the second furniture component is a leg of a table, and includes a leg section, as well as an operatively upper securing section that extends transversely from an operatively upper end of the leg section.
7. The ready-to-assemble furniture arrangement of claim 6 in which the second receiving groove is provided in a leg section of the leg.
8. The ready-to-assemble furniture arrangement of claim 6 or 7 in which a recess, suitable for receiving at least an upper part of the securing section of the leg, is provided in an operatively bottom surface of the first furniture component.
9. The ready-to-assemble furniture arrangement of claim 8 in which the recess includes an undercut section at one end thereof, with the undercut section being suitable for receiving and retaining an end or a nose formation of the securing section of the leg.
10. The ready-to-assemble furniture arrangement of claim 9 in which the undercut section is defined by a lip formation extending over an end zone of the recess.
11. The ready-to-assemble furniture arrangement of claim 2 including a table top extension which is releasably securable to the top of the table in order to increase the effective area of the table top.

12. The ready-to-assemble furniture arrangement of claim 11 in which the table top extension comprises a plurality of extension members that are locatable about the periphery of the top.
13. The ready-to-assemble furniture arrangement of claim 12 in which the extension members are securable to one another in an end-to-end configuration, preferably by way of interlocking engagement formations.

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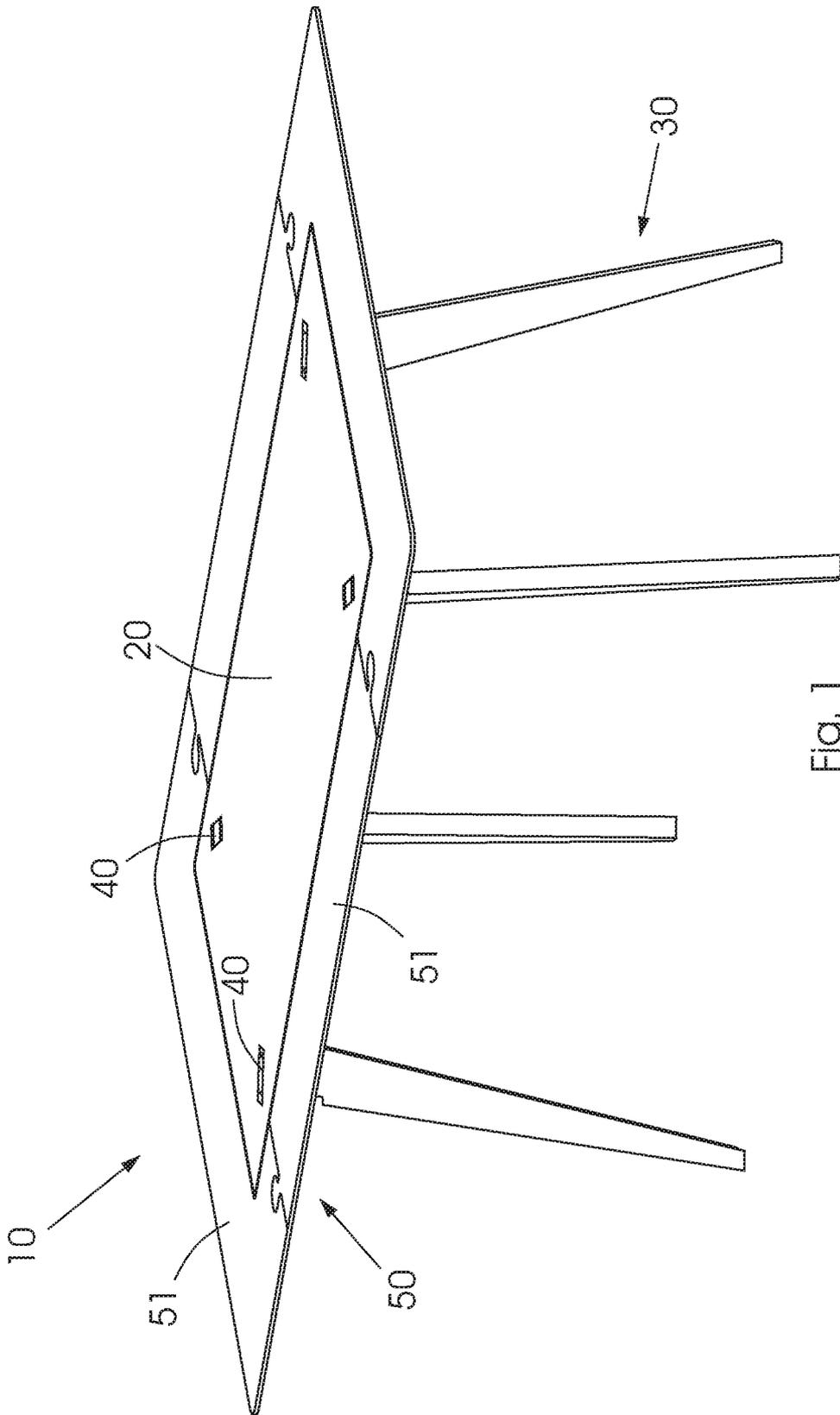


Fig. 1

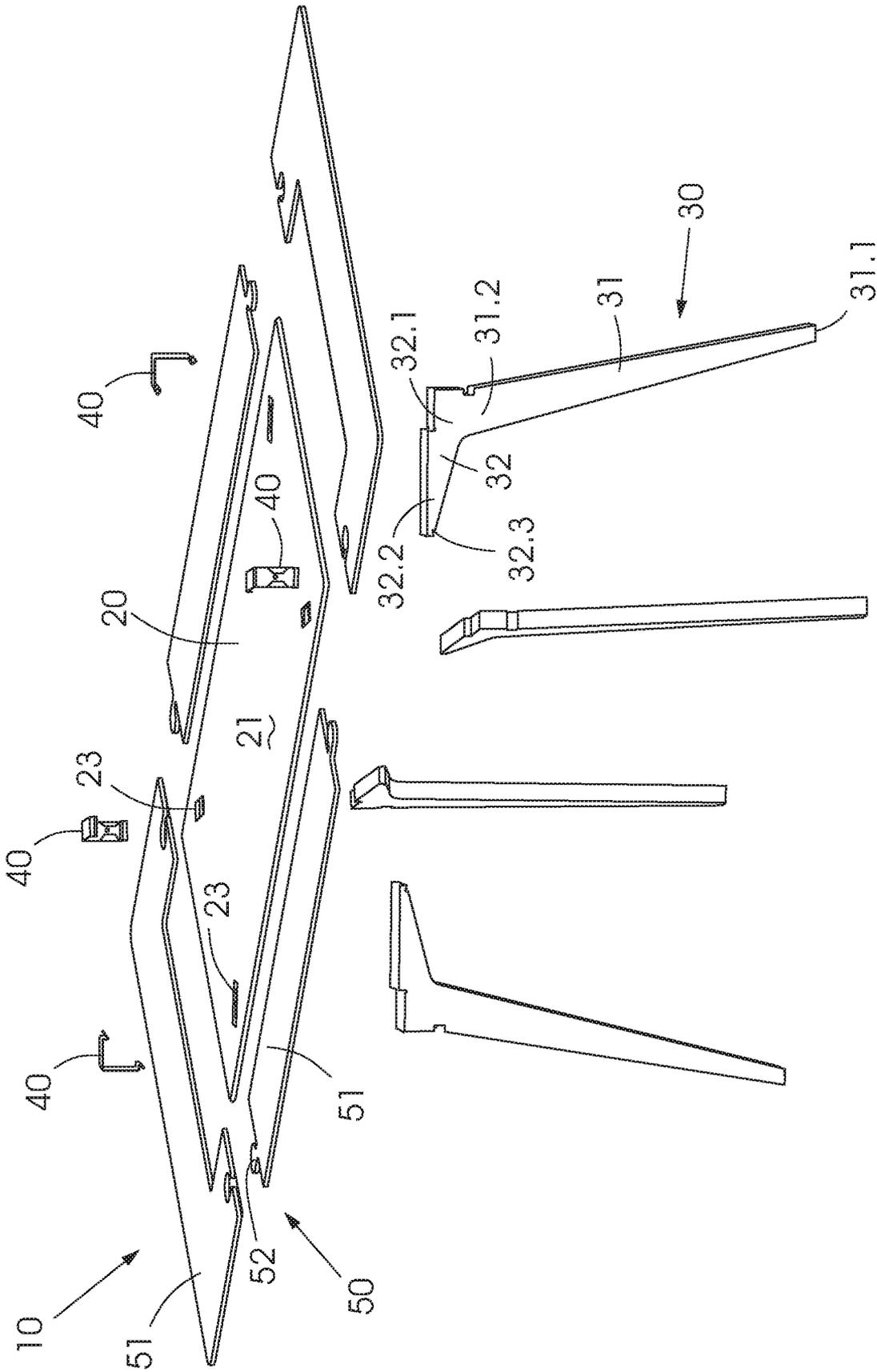


Fig. 2

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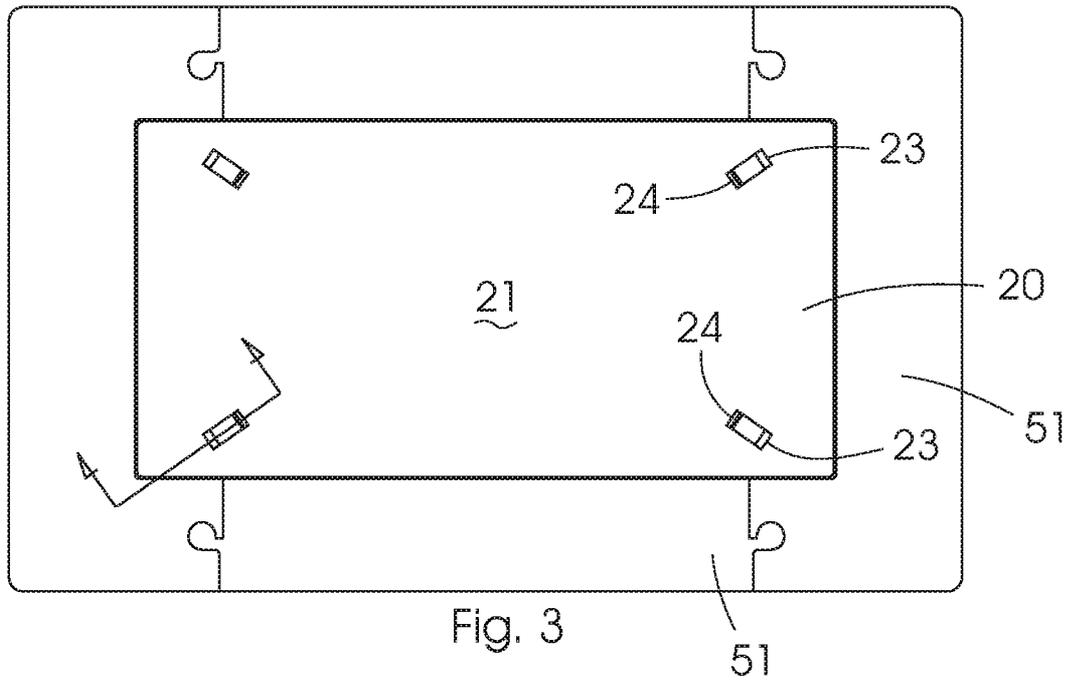


Fig. 3

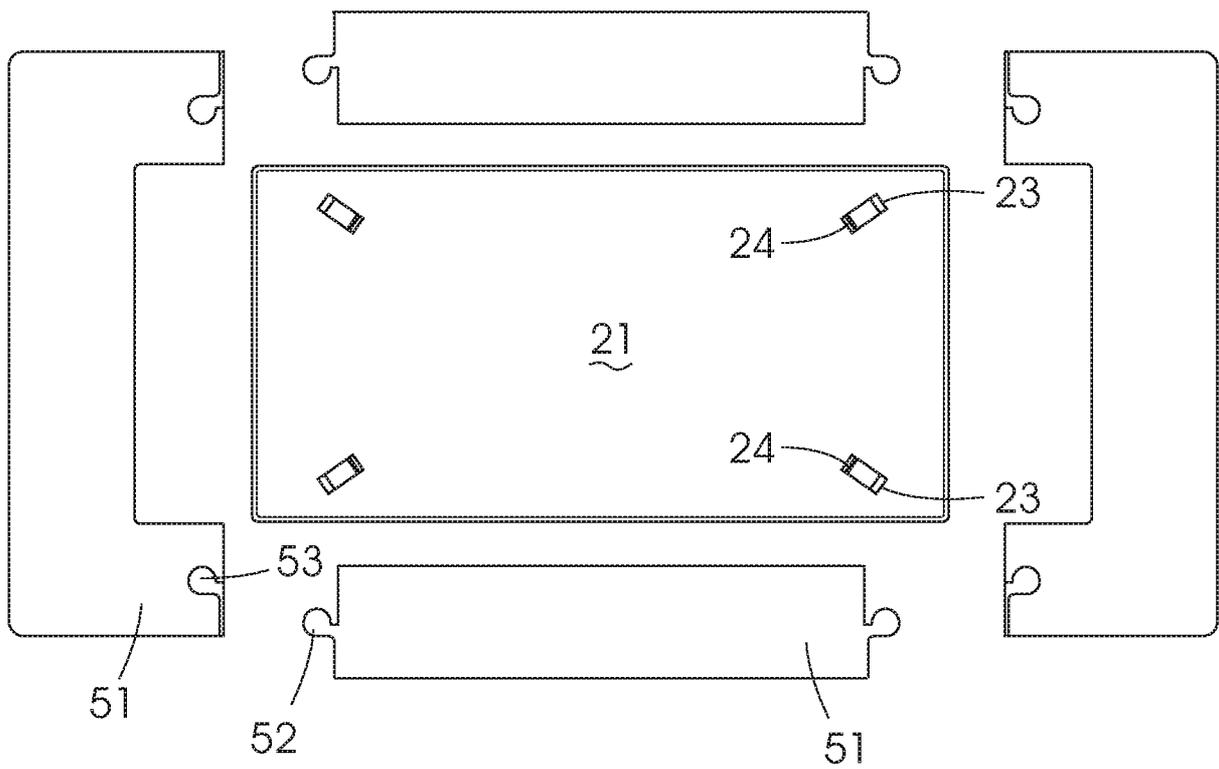
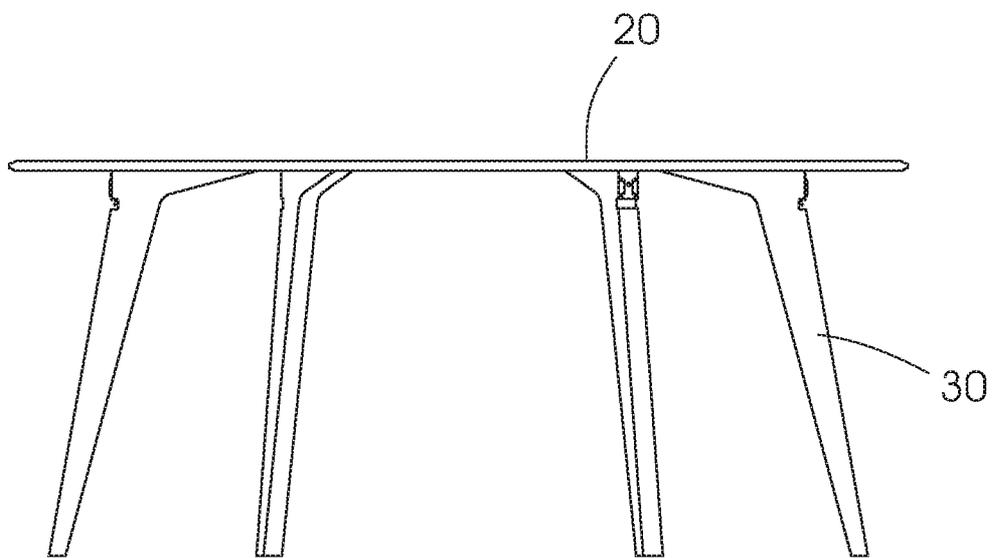
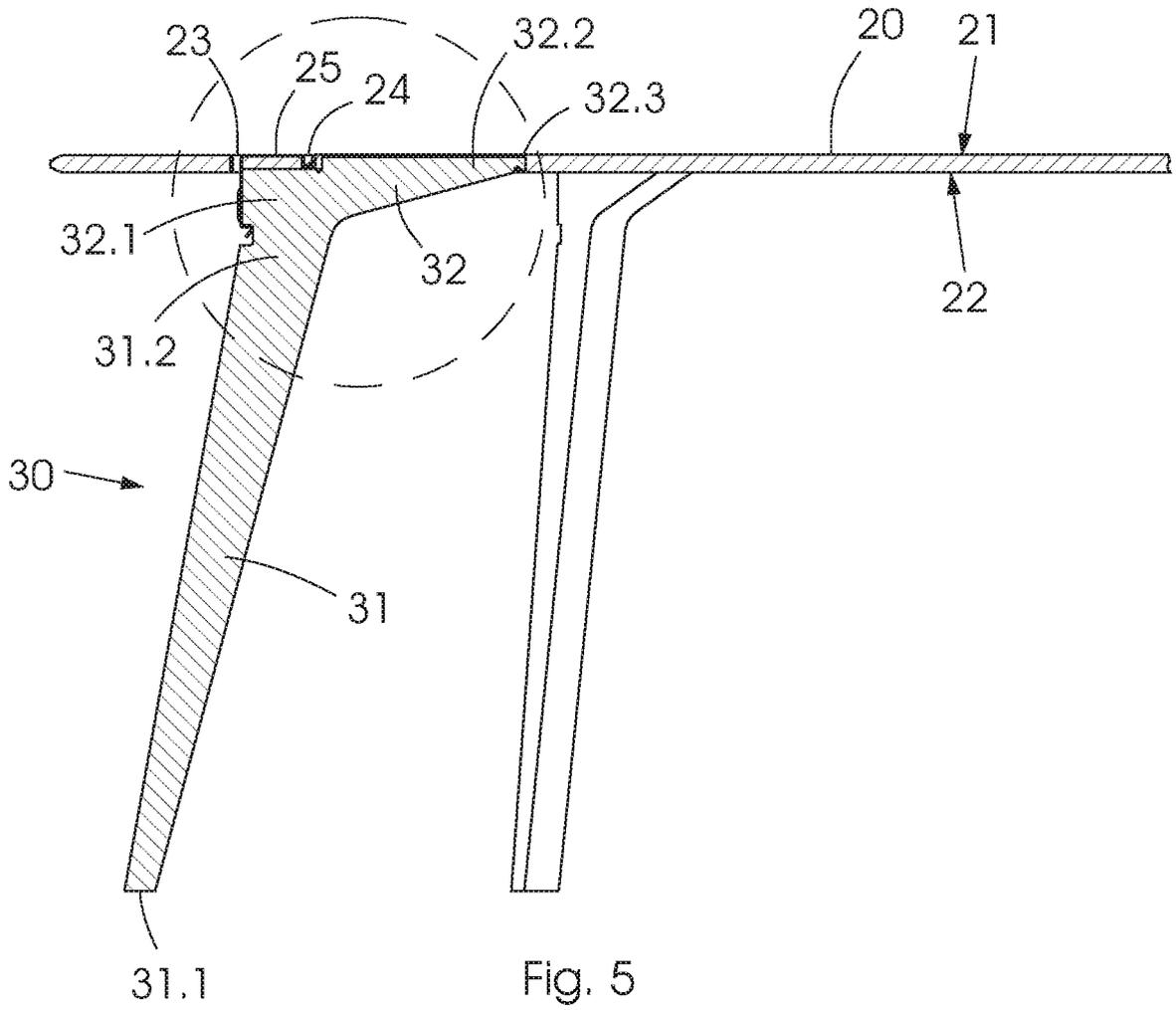
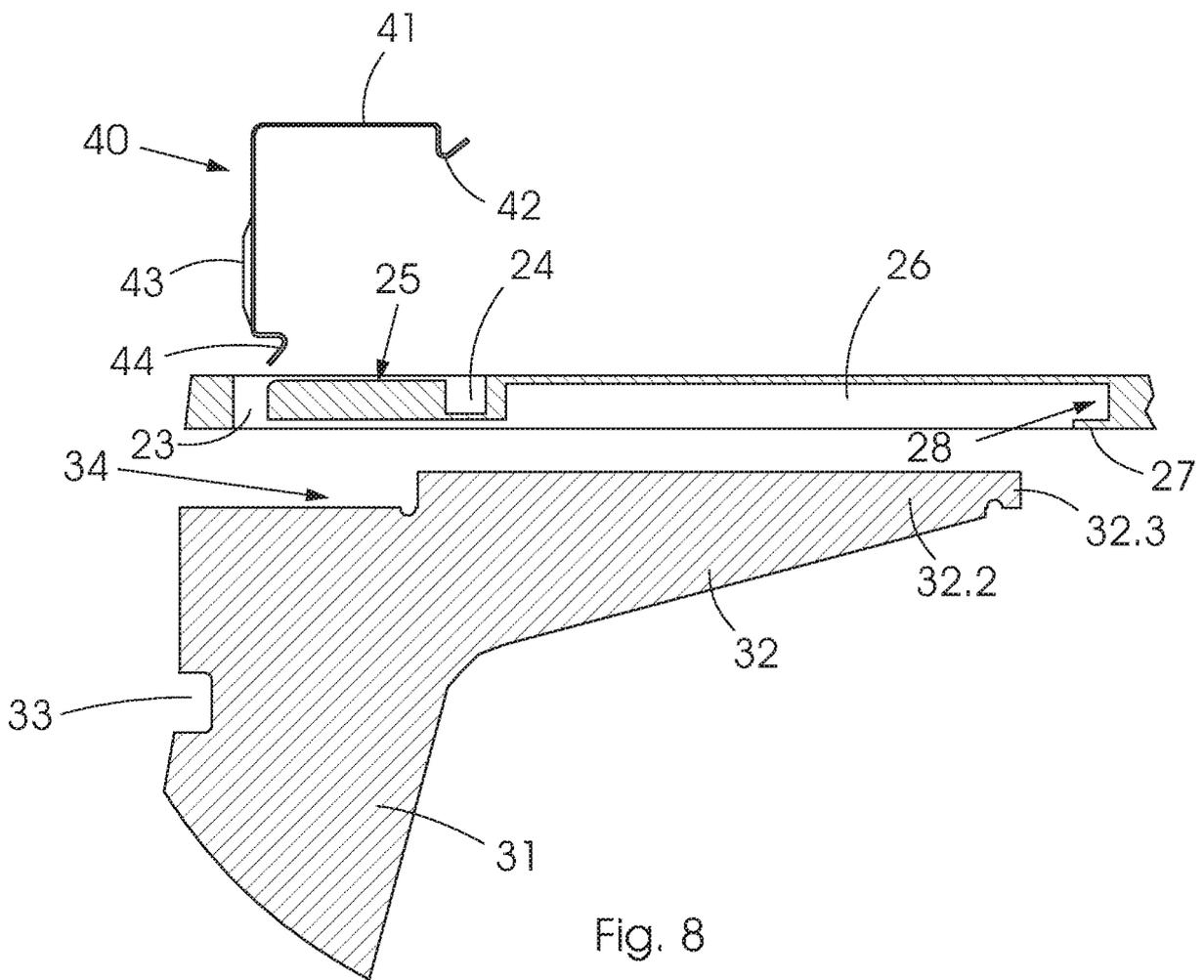
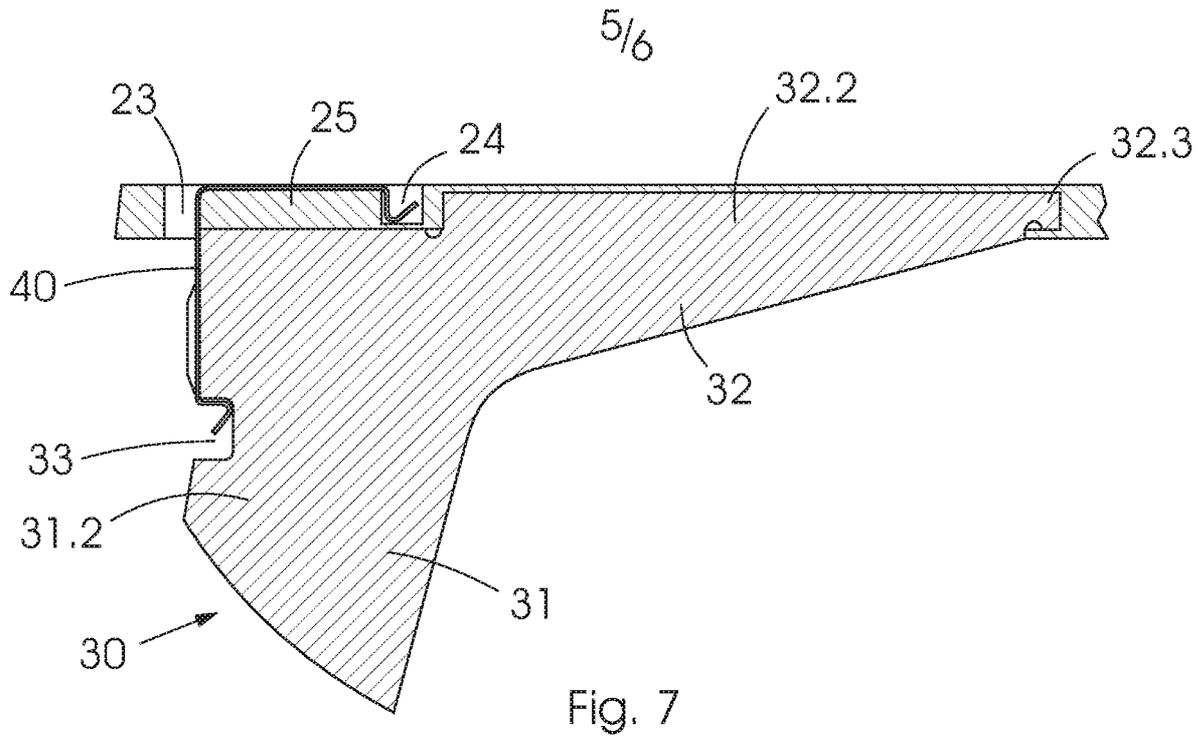


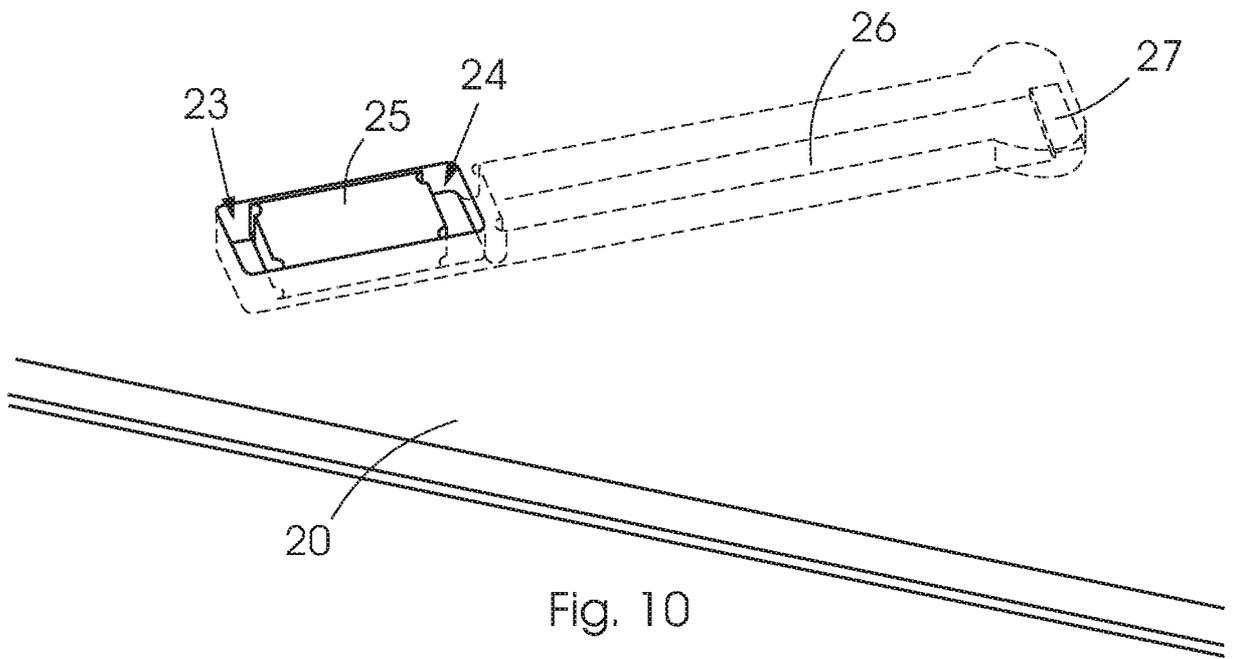
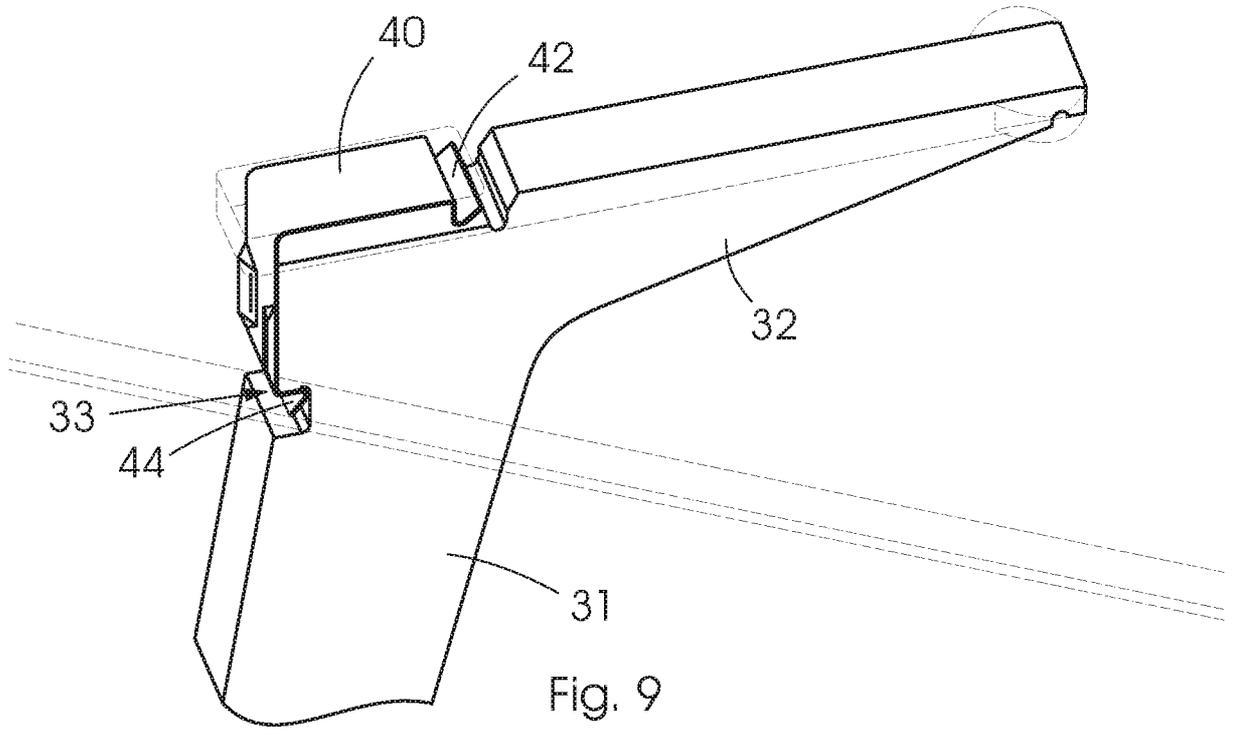
Fig. 4

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2018/053557

A. CLASSIFICATION OF SUBJECT MATTER

INV. A47B3/12 A47B13/00 A47B13/08 F16B12/20 A47B1/05
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47B F16B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 006 679 A (LIN STEVE [TW]) 28 December 1999 (1999-12-28)	1-7
A	the whole document	8-10
X	US 9 215 923 B1 (BOONE LUTHER [US]) 22 December 2015 (2015-12-22)	1-7
A	column 4, line 12 - column 8, line 67; figures	8-10
A	US 4 765 253 A (SCHAPPACH RICHARD [US]) 23 August 1988 (1988-08-23)	1-10
A	US 2016/195118 A1 (MUNCH-FALS JAKOB [DK] ET AL) 7 July 2016 (2016-07-07)	1-10
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 Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search

26 July 2018

Date of mailing of the international search report

21/08/2018

Name and mailing address of the ISA/

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Ottesen, Rune

INTERNATIONAL SEARCH REPORT

International application No
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Information on patent family members

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