

Screen-frame configuration and screen device

TECHNICAL FIELD

5 The present invention relates to a screen device, preferably in the form of a slot machine and/or amusement machine, having a device housing which has a housing door or housing-door configuration for opening and closing the device housing, wherein the housing door forms a frame for at least one screen, the legs of said frame surrounding the at least one screen and delimiting a frame opening.

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PRIOR ART

 Such screen devices may be slot machines and/or amusement machines or betting machines which may be designed as terminals in particular in the form of floor-standing devices or so-called stand-alone devices, as are used for example in
15 casinos and gaming venues. It is also possible in principle, however, for the devices to be designed in the form of wall-mounted devices or table-top devices. Other use purposes such as cash machines, ticket machines and the like are conceivable.

 Such screen devices comprise at least one screen, which is fitted at an appropriate height for a user sitting or standing in front of the device, in order to
20 display information and/or, if the screen is designed in the form of a touch screen, to receive control or input signals. It is possible here, in addition to the at least one screen, to provide, for example beneath the screen, an operating panel with input buttons, input levers or the like, card readers and possibly also cash-insertion and -dispensing components, which may be connected to corresponding functional
25 subassemblies in the interior of the device housing and/or themselves may be arranged, at least in part, in the interior of the housing. The device housing can accommodate, for example, in particular a control unit or computer unit, which for example can activate the screens and/or control a game.

 Depending on the information which is to be displayed and the functions of the
30 screen device, it may be advantageous here to provide more than one screen, for example so as to display the actual game content on one screen and to display additional information, for example game rules, potential winnings and the like, on a further screen. In some cases, an additional screen is also used to display a number of games in parallel, for example a main game and a bonus game. If a

plurality of screens are used in the aforementioned manner, it is possible for said screens to be arranged one above the other, either in a common plane and/or oriented parallel to one another, possibly with an offset in relation to one another in the depthwise direction of the device, that is to say in the direction of the axis along which the screens are viewed. In particular it is possible for a plurality of screens arranged one above the other also to be tilted at an obtuse angle in relation to one another so as to achieve, in a manner corresponding to the different axes along which the respective screens are viewed, alignment which is as perpendicular as possible to a user's line of vision. Such devices are sometimes referred to as slant top devices. Instead of, or in addition to, the screens being arranged one above the other in this way, it is nevertheless also possible for a plurality of screens to be arranged one beside the other, in which case it is correspondingly possible to arrange the screens in a parallel state or also such that they are tilted at an obtuse angle.

A screen device of the aforementioned type in the form of a slot machine and/or amusement machine is known, for example, from EP 16 71 284 B1.

The disadvantage with previous screen devices of the aforementioned type is that, in the event of converting or retrofitting the device, it is often the case that the entire device housing, together with the housing door, has to be changed over, for example in order to accommodate an additional screen if, in respect of an upgrade of a slot machine, the latter, in addition to the main game, is also intended to display a bonus game. The previously used housings have to be disposed of or, at best, can be recycled. In a similar manner, in the context of the production of new devices, it is also a laborious task, or disadvantageous, to have to keep in stock a large number of housing types appropriate for different types of device which use differently sized, or different numbers of, screens.

DESCRIPTION OF THE INVENTION

Proceeding from this point, it is an object of the present invention to create an improved screen device, and an improved housing-door configuration of the type mentioned, which avoids disadvantages of the prior art and develops the latter in an advantageous manner. In particular the intention is to create a screen device which can be converted and retrofitted in a cost-effective manner and of which the number

and formats of screens can be adapted straightforwardly to the respective type of device and the function thereof.

The aforementioned object is achieved according to the invention by a housing-door configuration for a screen device as claimed in claim 1. Preferred
5 embodiments of the invention form the subject matter of the dependent claims.

It is thus proposed for the housing door or the housing-door configuration, which forms a screen-surrounding frame and has one or more frame openings for one or more screens, to be assembled from a modular construction system having separate, mutually compatible frame parts, and therefore the housing door or the
10 screen-surrounding frame can easily be reconfigured by a different arrangement of identical frame parts and/or by using different frame parts. Rather than being formed in one piece, as is known from the prior art, the frame is constructed from a plurality of frame parts which can be positioned one against the other in a variable manner. According to the invention, the frame of the housing door has a modular
15 construction and can be assembled from a plurality of frame parts in a variable manner in different configurations in which the frame has different numbers of, and/or differently sized, frame openings. A relatively large frame opening and/or a frame having a plurality of frame openings can be configured by the use of additional frame parts and/or relatively long frame parts, whereas, conversely, a
20 smaller frame opening for a smaller screen and/or fewer frame openings for fewer screens can be configured by the removal of frame parts and the frame being constructed from fewer frame parts and/or shorter frame parts. It is possible here for individual frame parts to be used a number of times, that is to say for different frame configurations, and therefore a large number of frame configurations can be
25 achieved using a construction kit made up of only a small number of frame parts.

The frame parts are advantageously connected to one another in a releasable manner, for example by means of screw connections or releasable form-fitting connections, such as releasable latching connections, and therefore a frame can be reconfigured at a later date and frame parts, once installed, can be reused in a new
30 frame configuration. Although it is also possible for the frame parts to be connected in a non-releasable manner, which would be advantageous from a production point of view in the production of new parts, that is to say in the production of housing doors of new devices, it is nevertheless preferable to use releasable connections, in

order to make it possible for the devices to be retrofitted at a later date and to allow the frame parts to be reused.

The frame parts from which the frame can be assembled can form entire frame legs or just parts of individual frame legs. As an alternative, it is also possible for individual frame parts to form a plurality of frame legs or parts of a plurality of frame legs, it being possible to provide, for example, corner pieces which form both part of a side leg and part of a transverse leg.

In an advantageous development of the invention, the frame parts, on their end portions, have mutually compatible connecting means, by way of which a certain frame part can be connected optionally to various other frame parts. The compatible connecting means here ensure that various frame parts can be connected to a certain frame part.

In particular it is possible for the connecting means to be positioned in mutually corresponding arrangement patterns on the end portions, for example in the form of an identical, repeating screw-hole and/or threaded-hole arrangement, of a socket-pin pattern or of a corresponding, repeating pattern of latching tongues and recesses for the latching connection of the frame parts. It is advantageously possible for the frame parts, on their opposite end portions, to have respectively the same arrangement pattern of connecting means, for example to have, on each end portion, two screw holes arranged at an equal distance from one another and from the end contour. As an alternative, it would also be possible for a first arrangement pattern, for example having two screw holes, to be arranged on one end portion of a frame part and for a second arrangement pattern, for example having three screw holes, to be arranged on a second end portion, and for these two arrangement patterns to be provided correspondingly on a plurality, or all, of the frame parts.

It is advantageously possible for the connecting means to be positioned in a fixed, constant arrangement pattern relative to the connection contours at the end portions of the frame parts, for example such that a plurality of connecting means, for example screw holes, are respectively spaced apart by a fixedly predetermined distance from a mating surface, and/or from a connection contour, by way of which the respective frame part can be connected in a precisely fitting manner to the next frame part and/or the connection contour or mating surface there.

In particular it is possible for the end portions of different frames which are to be connected to one another, and frame parts which are adjacent in the connected

state, to be designed such that they overlap one another, wherein the overlapping portion is provided with aligned connecting means for example in the form of screw holes or threaded holes, socket-pin recesses or latching tongues and recesses.

In a development of the invention, it is possible for mutually opposite side legs of the frame and/or transverse connecting legs, which connect the side legs, to be constructed in each case from different numbers of side parts which can be positioned one against the other and connected to one another and/or different numbers of transverse parts which can be positioned one against the other and connected to one another, and therefore it is possible to configure different lengths of side leg by virtue of different numbers of, and/or different-length, side parts being positioned one against the other and/or different lengths of transverse connecting leg by virtue of different numbers of, and/or different-length, transverse parts being positioned one against the other.

Within the context of the present application, the aforementioned side legs can denote the upright side legs arranged to the right and left of a screen, and/or can extend in an upright state, whereas the transverse legs can be oriented horizontally, this resulting, for example, essentially in a right-angled configuration of the side and transverse legs. It is also possible in principle, however, for the terminology to be understood conversely, such that side legs denote horizontal frame legs and transverse legs are upright frame legs.

In order for it to be possible for the frame, and the frame opening formed thereby, to be adapted to different screen formats and/or to different numbers of screens, it is possible for mutually opposite side parts advantageously to have connected to them, or fastened on them, in each case optionally a further side part or a transverse connecting part. It is possible here for two, three, four or more side parts to be arranged one behind the other, in order to extend the relevant side leg correspondingly, or for use to be made of just one side part, which can have a transverse connecting part connected to it, or fastened on it, in order to provide the corresponding transverse delimitation of the frame opening. The optional capability for adding on a further side part or a transverse connecting part, in particular a transverse termination part, allows the respective side part to be used in a variable manner and for different screen formats and different numbers of screens.

In particular it is possible for the frame parts, and the connecting means provided thereon, to be designed such that a side part can have connected to it

optionally a transverse termination part or an intermediate transverse part together with a further side part, this therefore forming a frame junction point from which extend frame parts, that is to say two side-leg-forming side parts and an intermediate transverse part, which extends transversely thereto. The capability for
5 adding such intermediate transverse parts onto a side transverse leg or two interconnectable side parts, or for connecting such intermediate transverse parts thereto, makes it possible to configure different numbers of screen openings or frame openings. By means of an intermediate transverse part, the frame opening or three-dimensional region surrounded by the side legs and the transverse
10 termination legs is subdivided into a plurality of frame openings, in which a plurality of screens can be arranged.

In an advantageous development of the invention, it is possible for the aforementioned intermediate transverse parts to serve, at the same time, for connecting two adjacent side parts of a side leg. The aforementioned intermediate
15 transverse parts may comprise connecting means for connection to two side parts positioned one against the other, and therefore the two side parts can be connected to one another by an intermediate transverse part. In contrast to an intermediate transverse part, a transverse termination part need only have connecting means for connection to one side part.

20 The aforementioned frame parts in the form of the aforementioned side parts and/or in the form of the aforementioned transverse parts may have, in principle, a rectilinear progression or a rectilinear longitudinal axis and/or may be positionable one against the other such that they form rectilinear side legs or rectilinear transverse legs of the frame and the frame therefore has a planar contour overall
25 and, in the case of a plurality of screens being provided, all the screens are parallel to one another and/or coplanar in relation to one another.

In an alternative, advantageous development of the invention, it is also possible, however, for the side parts and/or the transverse parts to have a contour which is curved in arcuate form and/or is angled in a manner of a polygon, or to
30 have a longitudinal axis which is correspondingly curved in arcuate form and/or is angled in the manner of a polygon, so as to form side legs and/or transverse legs for the frame which are curved in arcuate form and/or are angled in the manner of a polygon. As an alternative, or in addition, to a curved or angled progression of the longitudinal axes, it is also possible for the side parts and/or transverse parts to be

designed in the region of their end portions, and/or of their connection contours and/or connecting means, such that two respectively adjacent side parts and/or two respectively adjacent transverse parts can be positioned one against the other at an obtuse angle, and therefore the interfaces or connecting locations angled at an obtuse angle between the side parts and/or between the transverse parts give rise to the transverse legs or side legs being angled correspondingly in the manner of a polygon.

In particular it is possible, by way of such an arcuately curved or angled longitudinal-axis progression of the side legs and/or the transverse legs, for a plurality of screens arranged one above the other, and/or a plurality of screens arranged one beside the other, to be positioned, and surrounded by the frame, in a manner in which they are inclined at an obtuse angle in relation to one another, in particular in order for the screens to be oriented in each case in relation to a device user's eyes, so that his gaze is as perpendicular as possible to the screen.

In particular it is possible for the frame to have a plurality of frame openings inclined at an obtuse angle in relation to one another and to surround a plurality of screens which are inclined at an obtuse angle in relation to one another and are arranged one above the other or one beside the other.

The at least one screen may be arranged and fastened in the device-housing interior, and therefore the aforementioned frame or the housing door, as it is opened, is moved away from the screens. As an alternative, however, it is also possible for the at least one screen, in a development of the invention, to be fastened on the housing door, in particular the aforementioned frame, and therefore, as the housing door is opened, the screen is moved away with the frame.

This advantageously means that, as the housing door is opened, it is also the case that the rear side of a respective screen and a structural component positioned in the device housing behind the screen becomes accessible. Surprisingly it is also possible, in the case of the abovedescribed, modular construction of the frame of the housing door, for a relatively heavy screen to be mounted on the housing door or the frame without the assembled, multi-part frame becoming unstable or overloaded as a result. In contrast, fastening the screen or the screens on the frame gives the modular frame structure additional stability, in particular when a screen is fastened on a plurality of frame parts and/or frame legs. The screen, as a result, takes on a frame-supporting or frame-stabilizing function.

In order to achieve a visually pleasing device surface and a clearly defined termination between the housing door or frame with the or the screen, it is possible for the at least one screen advantageously to be fastened on a rear side of the frame and for the frame at least partially to cover over a front-side peripheral strip of the screen, so that, as seen from the front side of the screen, the frame, in a manner of a cover panel, conceals a preferably narrow peripheral strip of the screen. As an alternative, however, it would also be possible to provide for a clearance between the screen and the surrounding frame, in which case a gap remains between the inner frame contour and the outer screen contour, or to adapt the frame precisely to the outer dimensions of the screen.

In an advantageous development of the invention, it is possible for at least some of the frame parts to have retaining crosspieces which project in the rearward direction from a rear side of the frame, engage laterally around the screen and can be connected to the screen. The aforementioned retaining crosspieces simultaneously form lateral guides, between which the screen can be attached to the frame from the rear. For example by using transverse bolts such as threaded bolts, it is possible for the screen to be fixed on the aforementioned retaining crosspieces. It is preferably the case that a rigid, preferably form-fitting, connection is provided between the frame parts and a respective screen.

In an advantageous development of the invention, it is possible for the housing door, with the screens possibly fastened thereon, to be mounted on a basic housing structure, for example by means of a suitable (door) hinge, such that it can be pivoted about a door-pivoting axis, wherein, in an advantageous development of the invention, the aforementioned door-pivoting axis can extend horizontally, preferably in the region of an upper housing-door end portion, and it is therefore possible for the housing door, with the screens fastened thereon, to be pivoted open in the upward direction. It would also be conceivable, in principle, to provide an upright door-pivoting axis, in which case the housing door can be opened in the manner of a cabinet door, or to provide a horizontal door-pivoting axis on the lower end portion of the housing door, in which case the housing door can be swung open in the downward direction in the manner of a bureau lid. Pivoting open in the upward direction in the manner of a gullwing door, however, improves the accessibility to the housing interior, for example, for a fitter, since the pivoted-open housing door is moved out of the way of the fitter's working area.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be explained in more detail hereinbelow with reference to a preferred exemplary embodiment and associated drawings, in which:

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figure 1 shows a perspective, schematic front view of a screen device in the form of a slot machine according to an advantageous embodiment of the invention, wherein the pivot-open housing door is configured for two screens which are inclined at an obtuse angle in relation to one another and are arranged one above the other,

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figure 2 shows a perspective, schematic side view of a screen device similar to figure 1, wherein just one screen is provided or the housing door is configured for just one screen,

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figure 3 shows a perspective, schematic front view of a screen device similar to figures 1 and 2, wherein the device comprises 3 screens which are arranged one above the other and are inclined at an obtuse angle in relation to one another and the housing door is configured in the form of a surround or frame for three such screens arranged in the aforementioned manner,

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figure 4 shows a schematic perspective illustration of the screen device from figure 1 which shows the upper part of the device housing and the housing door with the screens fastened thereon, said housing door being mounted in a pivotable manner on the device housing and having been pivoted open in the upward direction, wherein the view a shows the entire housing door with the two screens mounted thereon, and the view b shows the pivot-bearing connection of the housing door to the basic housing structure,

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figure 5 shows a perspective front view of the housing-door-forming frame and the frame parts thereof, wherein the two screens fastened on the frame are illustrated, in the manner of an exploded illustration, as being detached from the frame and at a distance apart therefrom,

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figure 6 shows a perspective rear view of the frame from figure 5 and of the screens fastened thereon,

figure 7 shows a perspective rear view of the frame from the two previous figures without the screens being illustrated, wherein the frame parts, being in an exploded illustration, are illustrated as being detached from one another,

figure 8 shows a schematic, perspective illustration of the rear view of the frame for the screens similar to figure 7, wherein the frame is configured in a different or converted configuration for three screens arranged one above the other and defines three frame openings, as is the case for the device configuration according to figure 3,

figure 9 shows an enlarged illustration, in detail form, of the region of connection between a transverse termination part of the frame and a side part of the frame, with the parts, as they are in an exploded illustration, being in a detached state, wherein the detail designated by A in figure 8 is illustrated, and

figure 10 shows an enlarged illustration, in detail form, of the region of connection between two longitudinally successive side parts which are positioned one against the other and an intermediate transverse part, which connects the two side parts.

IMPLEMENTATION OF THE INVENTION

As figure 1 shows, it is possible for a screen device 1 to be designed in the form of a floor-standing device, in particular a free-standing stand-alone device, and to have an overall elongate, upright – broadly speaking – cubic basic device structure 2, in the upper half of which one or more screens 3 are provided. As figure 1 shows, this may be two screens which are arranged one above the other and are tilted at an obtuse angle in relation to one another or also just one screen, as figure 2 shows, or also three or more screens, which may be arranged one above the other and/or tilted at an obtuse angle in relation to one another, as figure 3 shows.

The screen device 1 here comprises a device housing 4, on the front side of which the aforementioned screens 3 are arranged and in the housing interior of which it is possible to arrange functional components such as a computer and control means, a cooling apparatus, a cash-processing and/or cash-storage means or the like.

The front side, which may also be referred to as the operator side, of the device housing 4 comprises an operating portion 21, which is arranged beneath the at least one screen and is designed, for example, in the manner of a table-form operating panel, on which control and operating buttons and the like are provided. It is likewise possible for a card reader, cash-insertion and/or –dispensing means and the like to be provided on functional subassemblies which are conventional in slot machines and to be integrated in the device housing 4.

The device housing 4 here may comprise a lower housing block or a housing base 5, which comprises the aforementioned operating portion and on which can be positioned an upper housing part 6, on which the aforementioned screens 3 are arranged.

The device housing 4, in particular the upper housing part 6 thereof, advantageously comprises a housing door 7, on which the at least one screen 3 or the plurality of screens 3a and/or 3b and/or 3c are fastened, in which case, as the aforementioned housing door 7 is opened, the screens 3 are moved away with the basic housing structure 6. As figure 4 shows, it is advantageously possible for the housing door 7 to be pivoted open in the upward direction in the manner of a gullwing door about a horizontally oriented door-pivoting axis 8, which may be arranged on the upper door end region, wherein suitable power-lifting means or blocking means for example in the form of a gas-pressure cylinder or the like may be provided here in order for it to be possible for the door to be kept in the upwardly pivoted, open position.

As figure 5 shows, the aforementioned housing door 7 forms a frame 9, which surrounds the screens 3 fastened on the housing door 7 and delimits a separate frame opening 10 for each screen, wherein figure 5 in the present case shows, by way of example, two frame openings 10a and 10b which are arranged one above the other, and are tilted at an obtuse angle in relation to one another, for the purpose of framing, in accordance with the device configuration according to figure 1, two screens 3a and 3b which are arranged one above the other and are

tilted at an obtuse angle. The aforementioned frame openings 10 may be designed in the manner of window openings which allow a clear view of the respective screen 3 arranged in the frame opening 10. The frame openings 10 may be of open design, in which the case the screen surface is directly exposed. As an alternative, it is possible for the frame openings 10 to be closed by a transparent covering, for example a glass or Plexiglas panel 11, behind which the respective screen can be arranged.

As figures 5 to 10 show, the frame 9 of the housing door 7 has a modular construction and can be assembled from a plurality of frame parts in a variable manner, and therefore the frame 9 can be configured optionally for an individual screen 3a, for two screens 3a, 3b or also for three screens 3a, 3b, 3c.

It is possible here for the frame 9 to comprise two opposite side legs 12, which are oriented for example in an upright state when the housing door 7 is closed, and transverse connecting legs 13, which connect the aforementioned side legs 12 to one another and are oriented in particular horizontally.

The side legs 12 here can be assembled in a variable manner from different numbers of side parts 12a, 12b and 12c, cf. figure 8, which can be positioned linearly one behind the other, and therefore, depending on the number of side parts, it is possible to configure side legs 12 of different lengths. It is possible here for the aforementioned side parts 12a, 12b and 12c to have a rectilinear or slightly arcuately curved progression and/or to be positioned one against the other at an obtuse angle at their joint locations, and therefore the side parts follow the desired screen arrangement or predetermine the same correspondingly.

The side parts here may comprise end portions which can be positioned one against the other flush in abutment, for example they may have straight-cut joint surfaces by means of which they can be positioned one against the other.

In the region of the end portions 14, the side parts 12a, 12b and 12c may comprise connecting means 15, for example in the form of screw holes or threaded holes, which are arranged in a predetermined, identical pattern relative to the connection contours, in particular the joint edges on the end portions 14. For example it is possible for each side part, on its end portions, to have two spaced-apart screw holes or threaded holes, on which can be fastened end portions of transverse parts of the transverse connecting legs 13.

The transverse connecting legs 13, in this case, have transverse parts 16 which comprise transverse termination parts 16a and 16b, which are each attached to the ends of the side legs 12 and, with these side legs 12 oriented in an upright state, can terminate the frame in the upward and downward directions. These
5 transverse termination parts 16a and 16b may have, on their end portions, connecting portions 17, which extend in the direction of the longitudinal axis of the side parts 12a, 12b and 12c and, with side and transverse parts positioned one against the other as intended, cover over a part, in particular an end portion 14, of the respective side part 12a or 12b. The connecting portions 17 of the end portions
10 18 of the transverse termination parts 16a and 16b have connecting means of which the arrangement pattern corresponds to the arrangement pattern of the connecting means 17 of the side parts 12, and therefore the connecting means on the transverse termination parts 16a and 16b can be connected to the connecting means on the side parts 12. In particular it is also possible for the transverse
15 termination parts to be provided with screw holes and/or threaded holes which, with the side parts and transverse parts positioned one against the other, are in alignment with the corresponding screw holes or threaded holes of the side parts, cf. figure 9. The side legs (side parts) and transverse legs are preferably arranged at right angles in relation to one another.

20 It is also possible for the aforementioned transverse parts 16 to comprise intermediate transverse parts 16c and 16d, cf. figure 8, by means of which the frame opening surrounded by the frame 9 as a whole, that is to say the side legs 12 and the transverse termination parts 16a and 16b, can be subdivided into a plurality of separate frame openings. The aforementioned intermediate transverse parts 16c
25 extend advantageously parallel to the transverse termination parts 16a and 16b and/or perpendicularly to the side legs 12.

The aforementioned intermediate transverse parts 16c and 16d here serve, at the same time, to connect two side parts 12a and 12b or 12b and 12c which are positioned one against the other, cf. figure 8. For this purpose, the intermediate
30 transverse parts 16c and 16d may comprise connecting portions 17 in the region of their end portions 18, said connecting portions covering over the end portions 14 of two side parts which are positioned one against the other in each case and having connecting means 15 for connection to two side parts. The connecting portions 17 of the intermediate transverse parts 16c and 16d may comprise, in particular, two

screw-hole and/or threaded-hole arrangements which together have a hole pattern which is in alignment with the screw holes and/or threaded holes in the end portions of two side parts 12a and 12b or 12b and 12c which are positioned one against the other, cf. figure 10. The threaded-hole arrangement or the arrangement of the end portions 18 or connecting portions 17 is such that a preferably form-fitting connection is established for the side parts and transverse parts and, in essence, torsional rigidity is achieved in all spatial directions.

As can be gathered from the figures overall, the frame 9, which forms the housing door 7, can be reconfigured by the insertion and removal of side parts 12, and therefore the frame 9 is suitable optionally for one screen, for two screens or for three screens or, of course, also for more screens. Although not shown in the drawings, it would also be possible for the transverse connecting legs 16 to be constructed in modular fashion in a corresponding manner from a plurality of transverse parts which can be positioned one behind the other, so that a plurality of screens can be arranged correspondingly one beside the other and the number of screens arranged one beside the other can be changed.

The screens 3 can advantageously be fitted on the frame 9 from a rear side, in particular can be positioned in the respective frame opening from a rear side of the frame 9, and therefore the frame at least partially covers over a narrow peripheral strip of the respective screen.

As figures 5 and 6 clearly show, for example the side parts 12a, 12b of the side legs 12 may have provided on them, for example integrally formed thereon, two retaining legs 20 which project in the direction of the rear side of the frame and engage laterally around a screen attached to the rear side of the frame 9. The aforementioned retaining legs 20 may be connected rigidly to the screens 3 for example by transverse bolts or transverse screws. In particular it is possible, according to one embodiment, to provide a connecting part (connecting bracket) 22 in addition in order for the attached screens 3a and 3b to be connected between two adjacent retaining legs 20 and thus, in addition, for the rigidity of the housing-door configuration to be increased.

As is shown in particular in figures 5 to 8, the transverse termination part 16a here additionally has two mounts for a loudspeaker arrangement 23.

The frame parts may be designed in the form of profile strips and consist of, for example be injection molded from, metal or plastics material or some other

material. According to one embodiment, the frame parts may preferably have for example mirrored and/or chrome-plated regions preferably on the front side (i.e. the side directed toward the operator). It is also possible for illuminating elements for example in the form of RGB LEDs or OLED strips to be integrated in the frame parts and for the connection portions 17 of the transverse parts 16 and/or the end portions 14 of the side parts 12 to have corresponding electrical connecting contacts (not illustrated specifically in the figures) for the electrical connection of the LED strips.

As in particular figures 5 to 8 show, it is possible to provide, according to an advantageous embodiment, a screen-frame configuration or frame configuration for screens, wherein a frame 9 has a modular construction and can be assembled from a plurality of frame parts in a variable manner, and therefore the frame 9 can be configured optionally for an individual screen 3a, for two screens 3a, 3b or also for three screens 3a, 3b, 3c. The frame configuration therefore forms a frame 9 for at least one screen 3, wherein the frame 9 comprises frame legs 12, 13 which surround the at least one screen 3 and delimit a frame opening 10, through which the at least one screen 3 is visible, and wherein the frame 9 has a modular construction and can be assembled from a plurality of frame parts 12a, 12b, 12c; 16a, 16b, 16c; 16d in a variable manner in different configurations in which the frame 9 has different numbers of, and/or differently sized, frame openings 10a, 10b, 10c.

In a further-advantageous embodiment of the frame configuration, it is possible for the frame parts 12a, 12b, 12c; 16a to 16d, on their end portions 14; 18, to comprise mutually compatible connecting means 17, by way of which a respective frame part can be connected optionally to various of the other ones of the plurality of frame parts 12a, 12b, 12c; 16a to 16d.

The frame configuration and the at least one screen 3 can be fastened to one another and thus form a unit or module. Preferably, the at least one screen can be fastened on a rear side of the frame and the frame can at least partially cover over, or engage around, a front-side peripheral strip of the screen (3).

The frame configuration may be designed in the form of a free-standing module or element or in the form of a module which can be fastened on a wall. It is advantageously possible for the frame configuration to be designed in the form of a housing door for a housing of a screen device.

Claims

1. A housing-door configuration (7) for opening and closing a housing (4) of a screen device, wherein the housing-door configuration (7) forms a frame (9) for at least one screen (3), wherein the frame (9) comprises frame legs (12, 13) which delimit a frame opening (10), through which the at least one screen (3) is visible, characterized in that the frame (9) has a modular construction and can be assembled from a plurality of frame parts (12a, 12b, 12c; 16a, 16b, 16c; 16d) in a variable manner in different configurations in which the frame (9) has different numbers of, and/or differently sized, frame openings (10a, 10b, 10c).
2. The housing-door configuration as claimed in the preceding claim, wherein the frame parts (12a, 12b, 12c; 16a to 16d), on their end portions (14; 18), comprise mutually compatible connecting means (17), by way of which a respective frame part can be connected to other ones of the plurality of frame parts (12a, 12b, 12c; 16a to 16d).
3. The housing-door configuration as claimed in the preceding claim, wherein the connecting means (17) are positioned in mutually corresponding arrangement patterns on the end portions (14; 18).
4. The housing-door configuration as claimed in one of the preceding claims, wherein mutually opposite sides legs (12) and/or transverse connecting legs (13), which connect the side legs (12), can be constructed from different numbers of side parts (12a, 12b, 12c) which can be positioned one against the other and/or different numbers of transverse parts (16a, 16b, 16c, 16d) which can be positioned one against the other, wherein it is possible to configure different lengths of side leg (12) by virtue of different numbers of, and/or different-length, side parts (12a, 12b, 12c) being positioned one against the other and/or different lengths of transverse connecting leg (13) by virtue of different numbers of, and/or different-length, transverse parts being positioned one against the other.

5. The housing-door configuration as claimed in the preceding claim, wherein the side legs (12) are oriented in an upright state and the transverse legs (13) are oriented horizontally.

5 6. The housing-door configuration as claimed in one of the preceding claims, wherein the frame parts comprise mutually opposite side parts (12b), to the end portions (14) of which can be connected optionally a further side part (12a; 12c) or a transverse connecting part (16).

10 7. The housing-door configuration as claimed in the preceding claim, wherein a side part (12b) can have connected to it optionally a transverse termination part (16a, 16b) or an intermediate transverse part (16c, 16d) together with a further side part (12a; 12c), wherein the aforementioned intermediate transverse parts (16c, 16d) have connecting means (15) for connection to two side parts positioned one
15 against the other and the aforementioned transverse termination parts (16a, 16b) have connecting means (15) for connection to a side part.

8. The housing-door configuration as claimed in the preceding claim, wherein the connecting means of the transverse connection parts (16a, 16b) and/or of the
20 intermediate transverse parts (16c, 16d) cover over the side part/s.

9. The housing-door configuration as claimed in either of the two preceding claims, wherein two side parts (12a, 12b; 12b, 12c) positioned successively one against the other are retained one against the other by an intermediate transverse
25 part (16c, 16d).

10. The housing-door configuration as claimed in one of the preceding claims, wherein the side legs (12) of the frame (9), said side legs being assembled from a plurality of side parts, and/or the transverse connecting legs (13) have a longitudinal
30 axis which is curved in arcuate form and/or angled in the manner of a polygon.

11. The housing-door configuration as claimed in one of the preceding claims, wherein the frame (9) has a plurality of frame openings (10a, 10b, 10c) inclined at an obtuse angle in relation to one another and surrounds a plurality of screens (3a,

3b, 3c) which are inclined at an obtuse angle in relation to one another and are arranged one above the other or one beside the other.

12. The housing-door configuration as claimed in one of the preceding claims, wherein the at least one screen (3) is fastened on the frame (9) and can be moved up and down together with the housing-door configuration (7).

13. The housing-door configuration as claimed in one of the preceding claims, wherein the at least one screen can be fastened on a rear side of the frame and the frame (9) at least partially covers over, or engages around, a front-side peripheral strip of the screen (3).

14. The housing-door configuration as claimed in one of the preceding claims, wherein the frame (9) has retaining crosspieces (20) which project from a rear side of the frame, engage laterally around the at least one screen (3) and can be fixed to the screen (3).

15. A screen device (1) comprising a basic housing structure (6) and a housing-door configuration (7) as claimed in one of the preceding claims, wherein the housing-door configuration (7) is mounted on the basic housing structure (6) such that it can be pivoted about a door-pivoting axis (8), wherein the aforementioned door-pivoting axis (8) is arranged preferably horizontally on an upper end portion of the housing-door configuration (7).

16. The screen device (1) as claimed in the preceding claim, wherein the screen device is designed in the form of a slot machine and/or amusement and/or betting machine.

17. A housing (6) of a screen device (1), wherein the device housing comprises a housing-door configuration (7) for opening and closing the device housing as claimed in one of preceding claims 1 to 14.

18. A frame configuration for screens, wherein the frame configuration forms a frame (9) for at least one screen (3), wherein the frame (9) comprises frame legs

(12, 13) which surround the at least one screen (3) and delimit a frame opening (10), through which the at least one screen (3) is visible, characterized in that the frame (9) has a modular construction and can be assembled from a plurality of frame parts (12a, 12b, 12c; 16a, 16b, 16c; 16d) in a variable manner in different configurations in which the frame (9) has different numbers of, and/or differently sized, frame openings (10a, 10b, 10c).

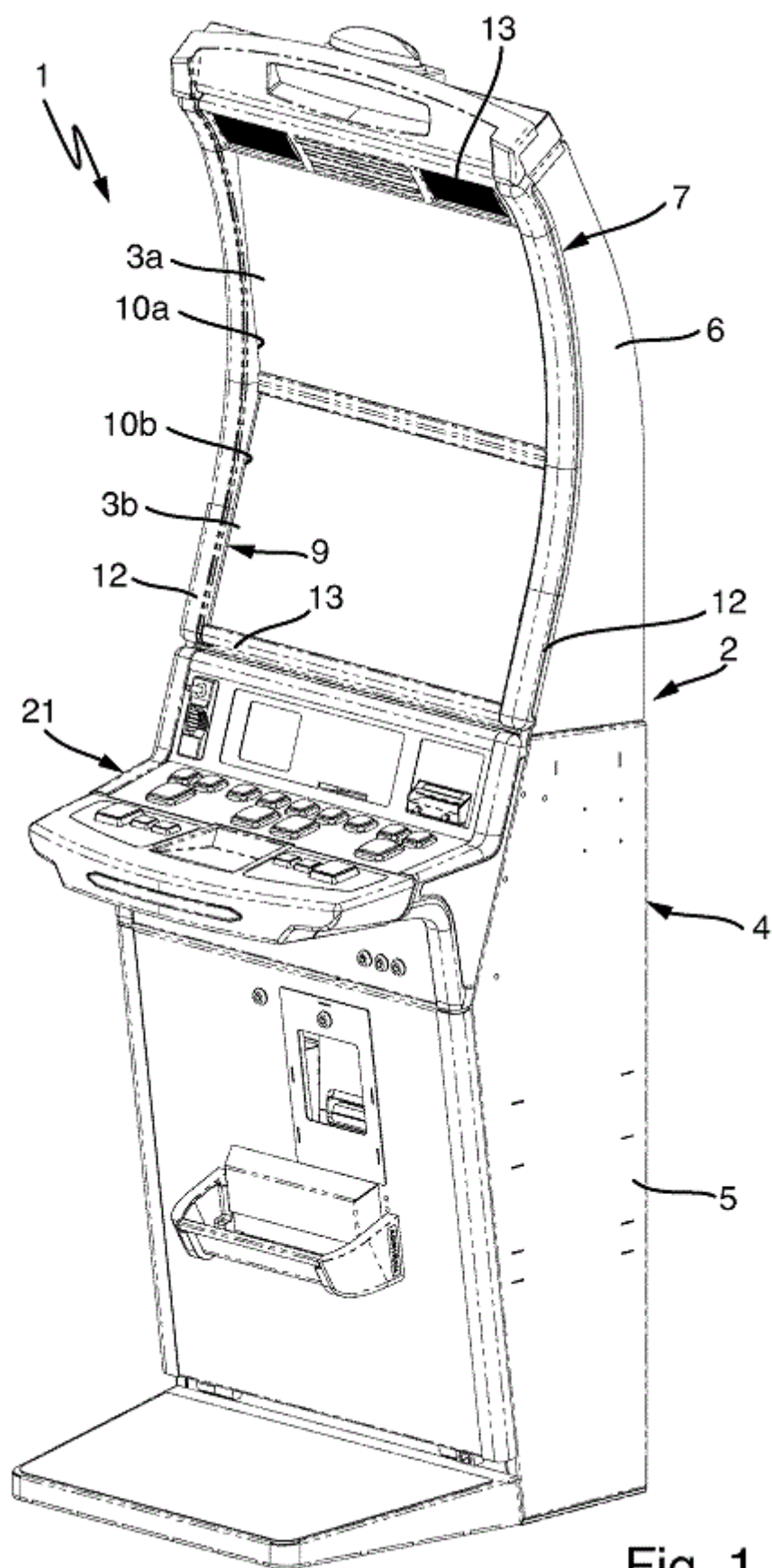


Fig. 1

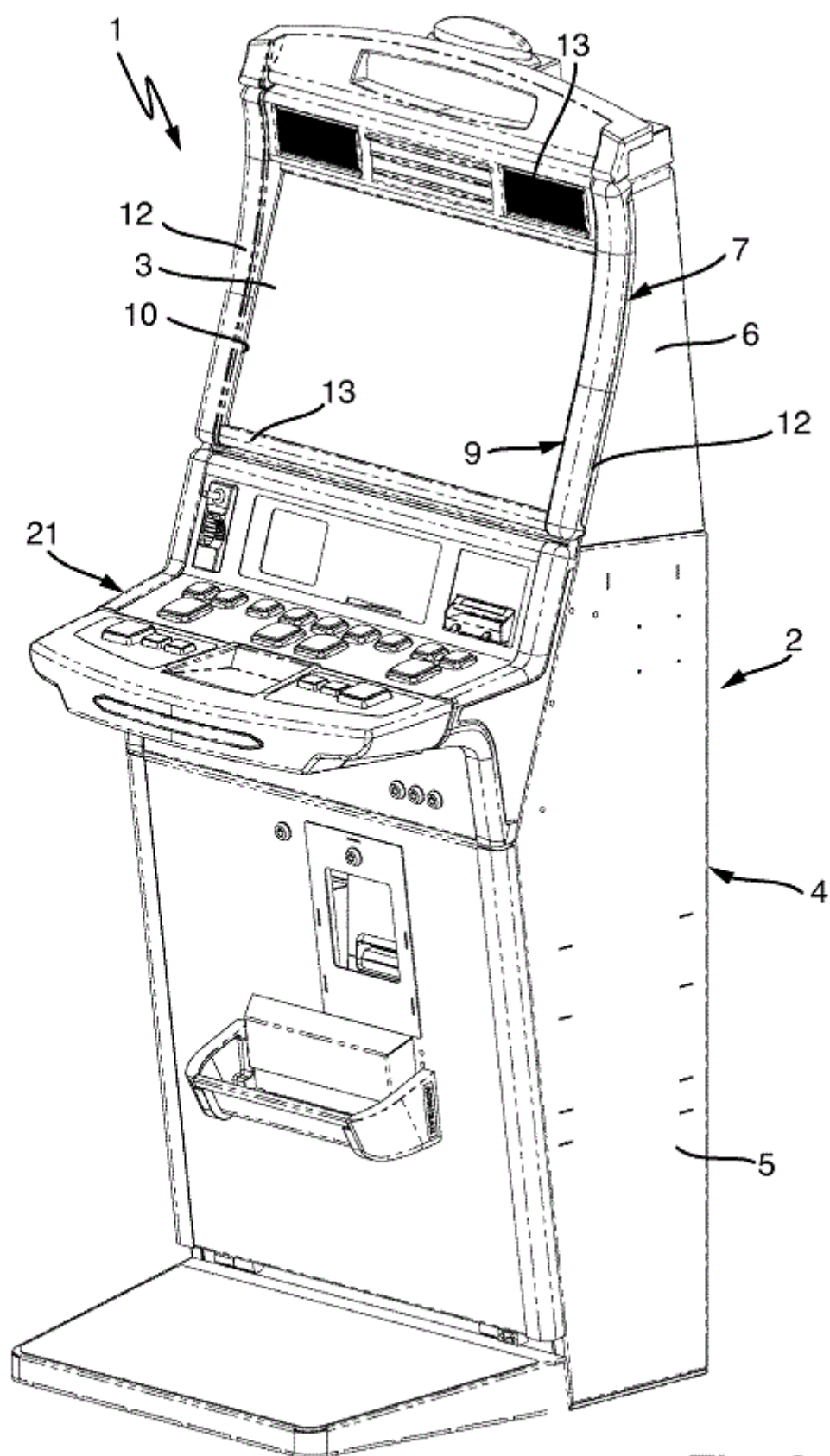


Fig. 2

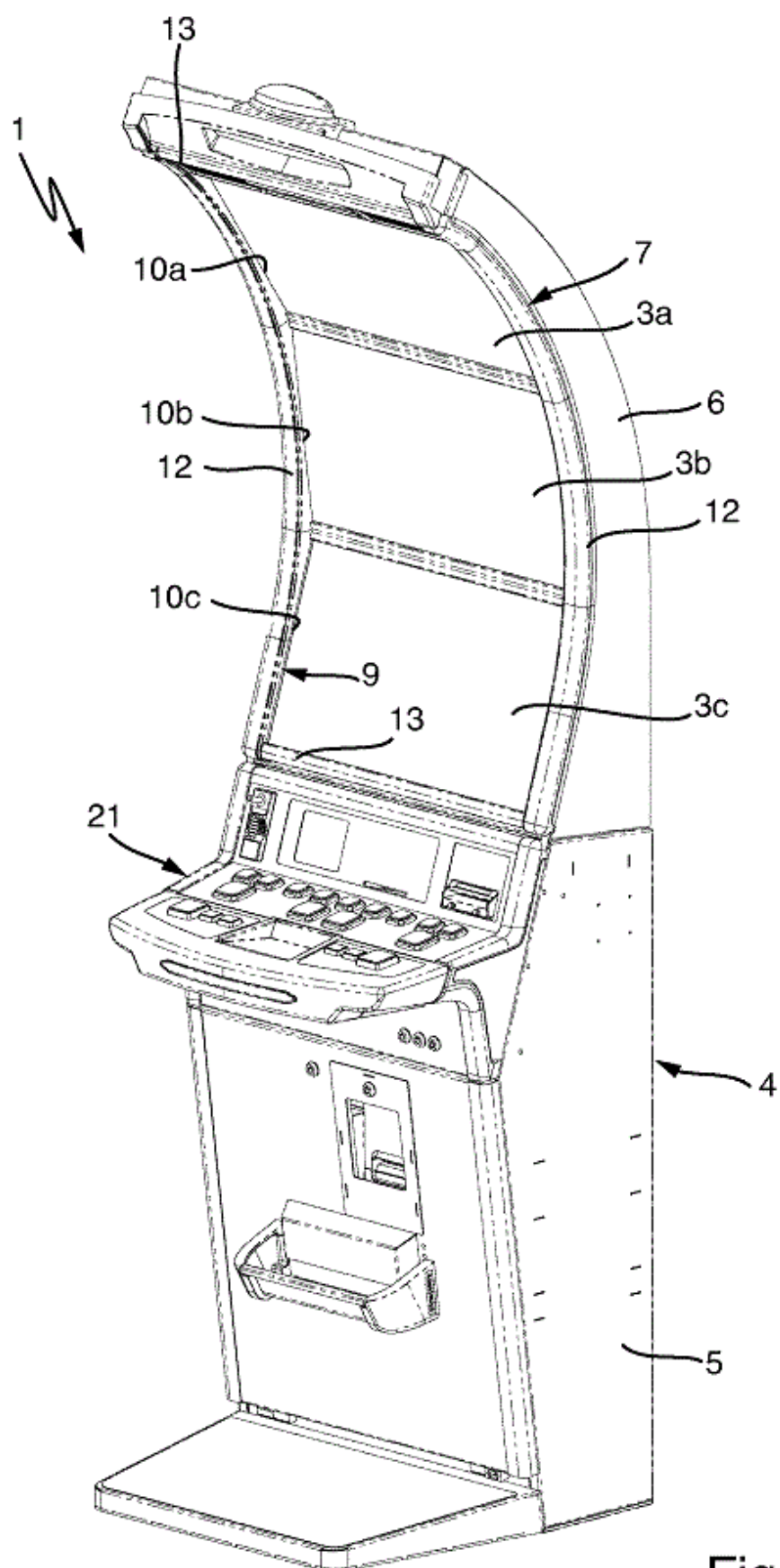


Fig. 3

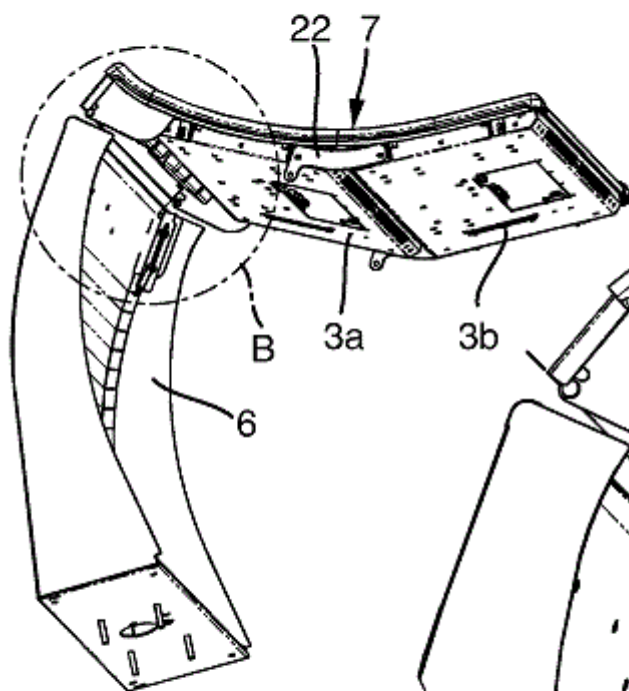


Fig. 4a

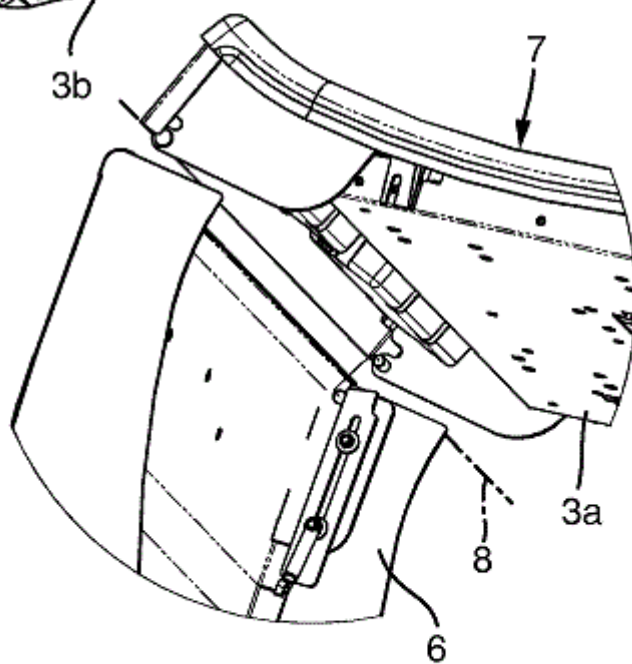


Fig. 4b

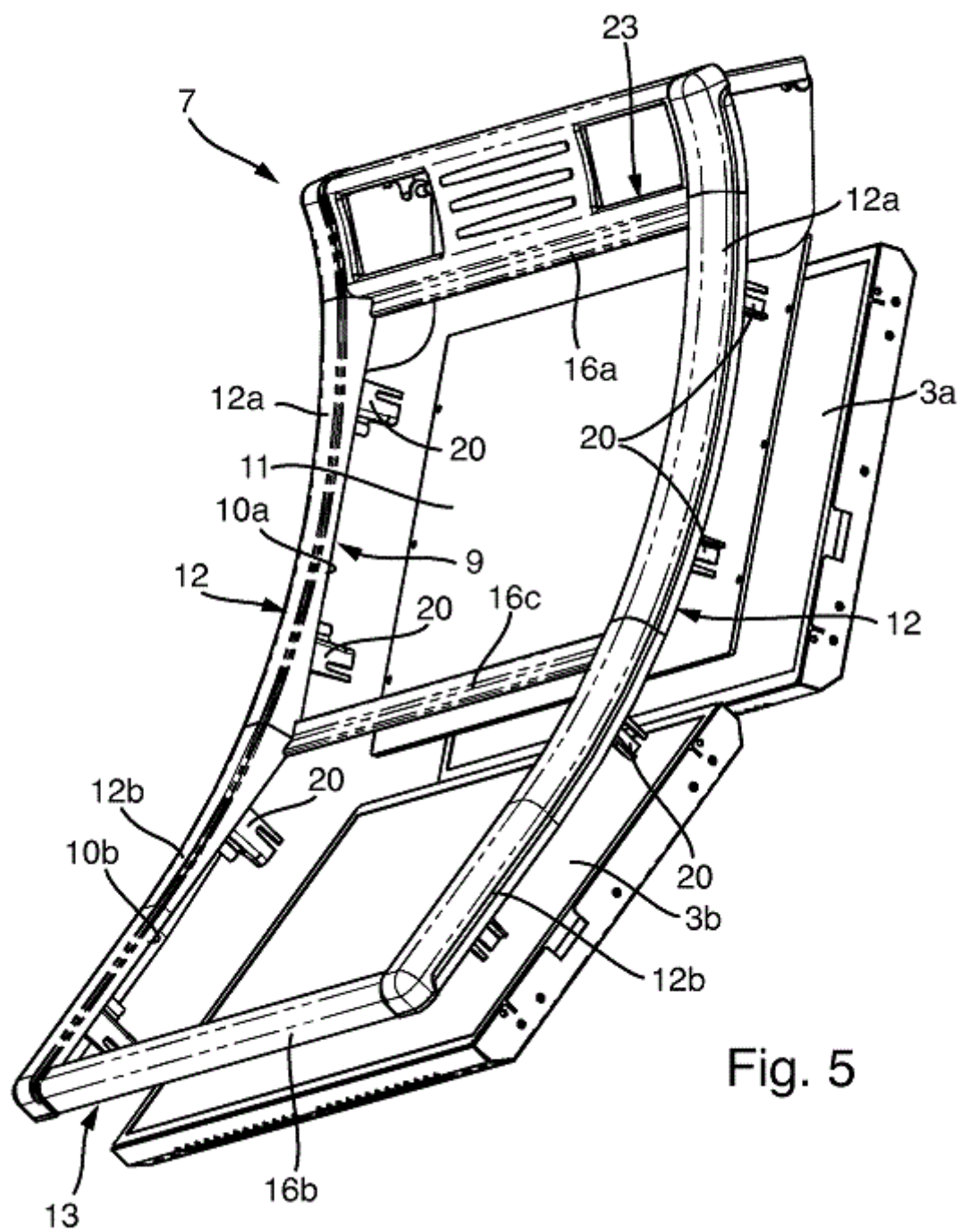


Fig. 5

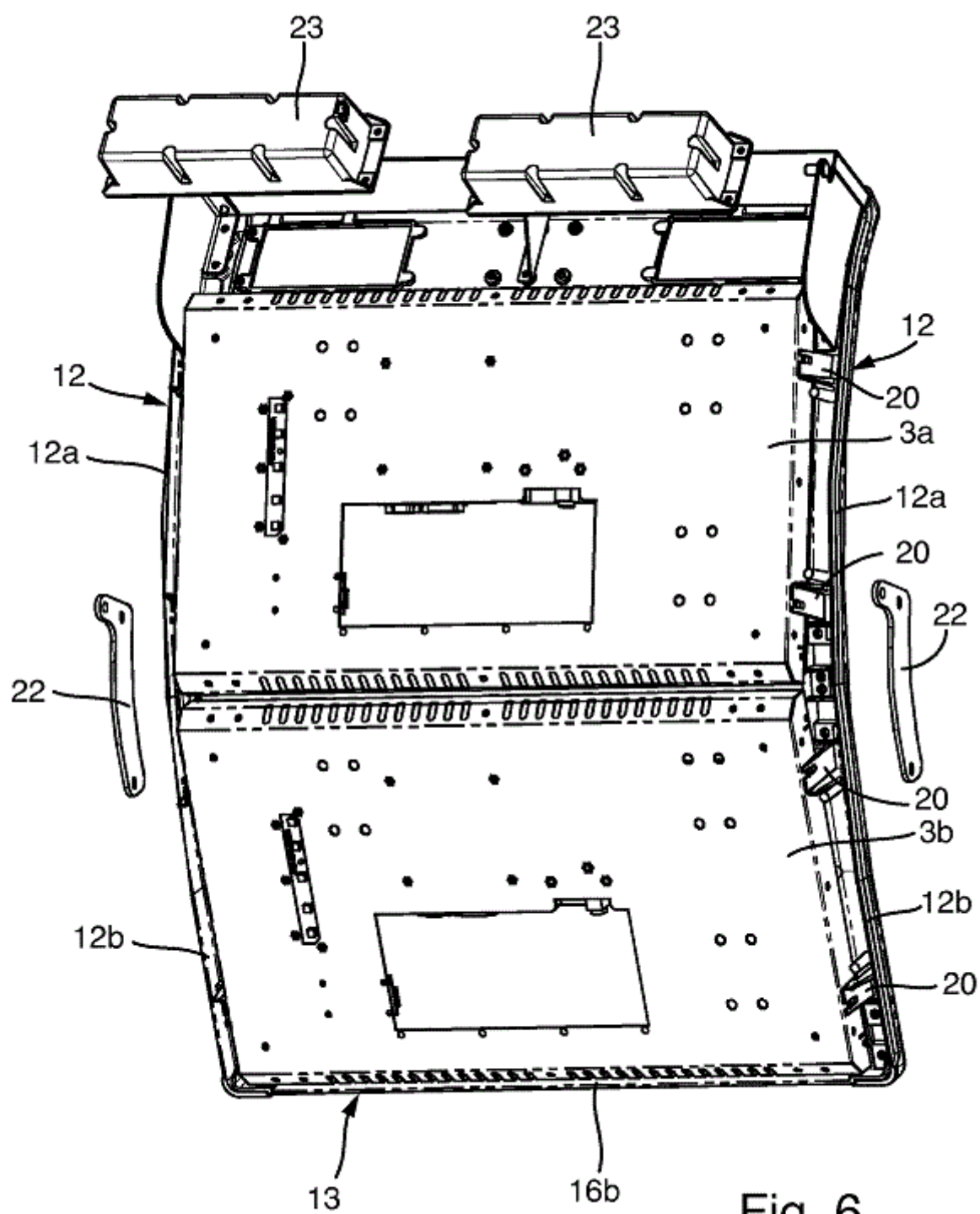


Fig. 6

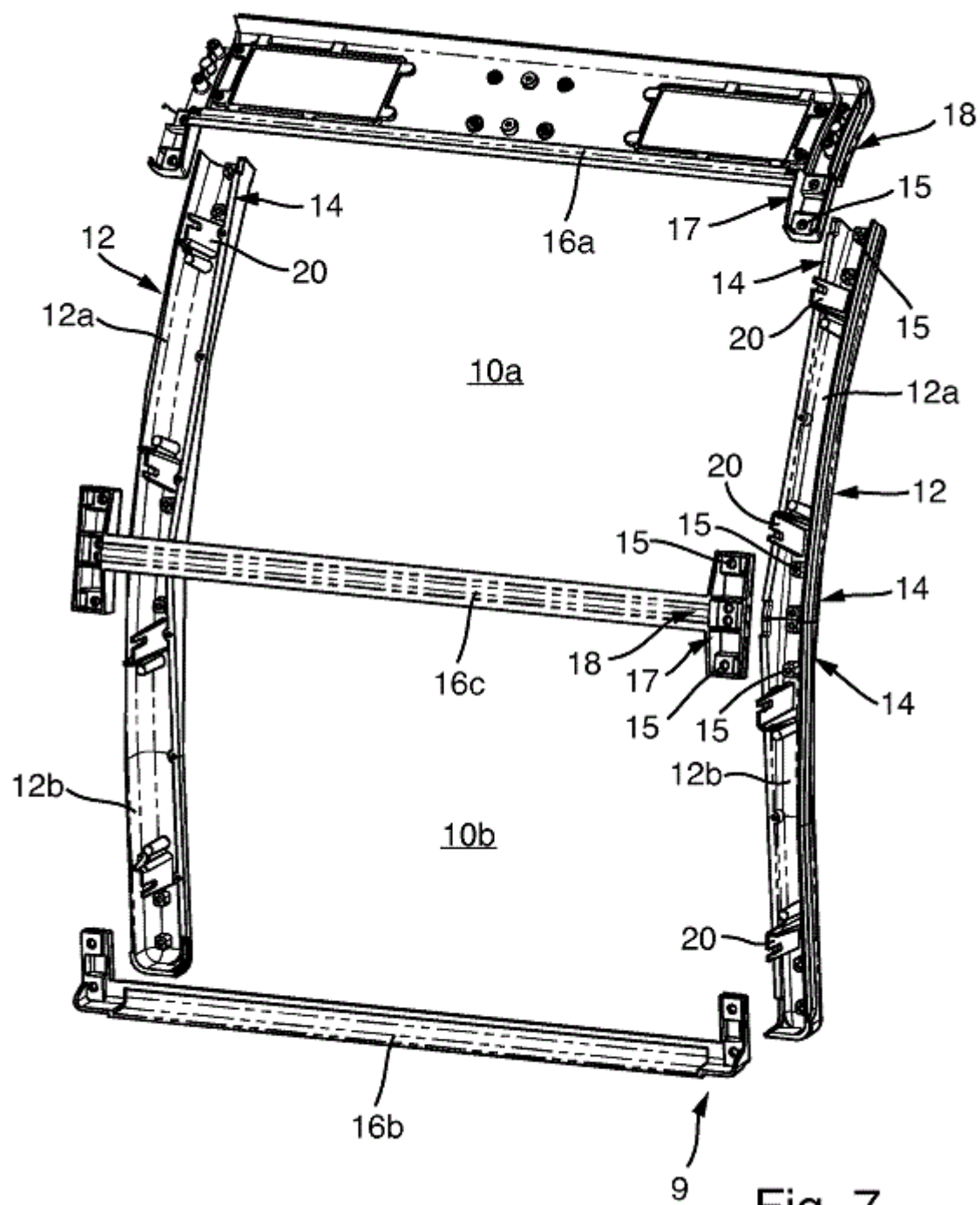


Fig. 7

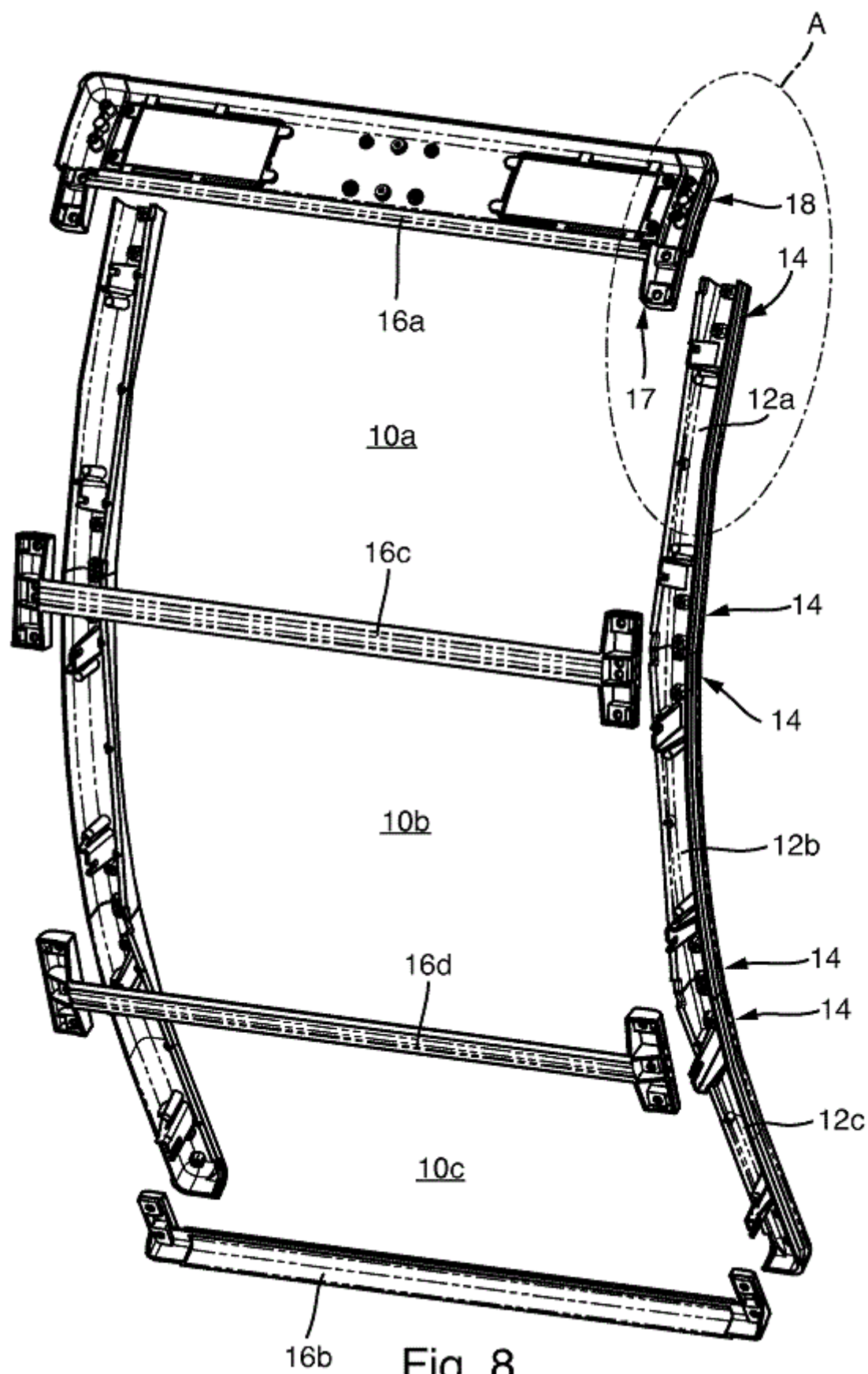


Fig. 8

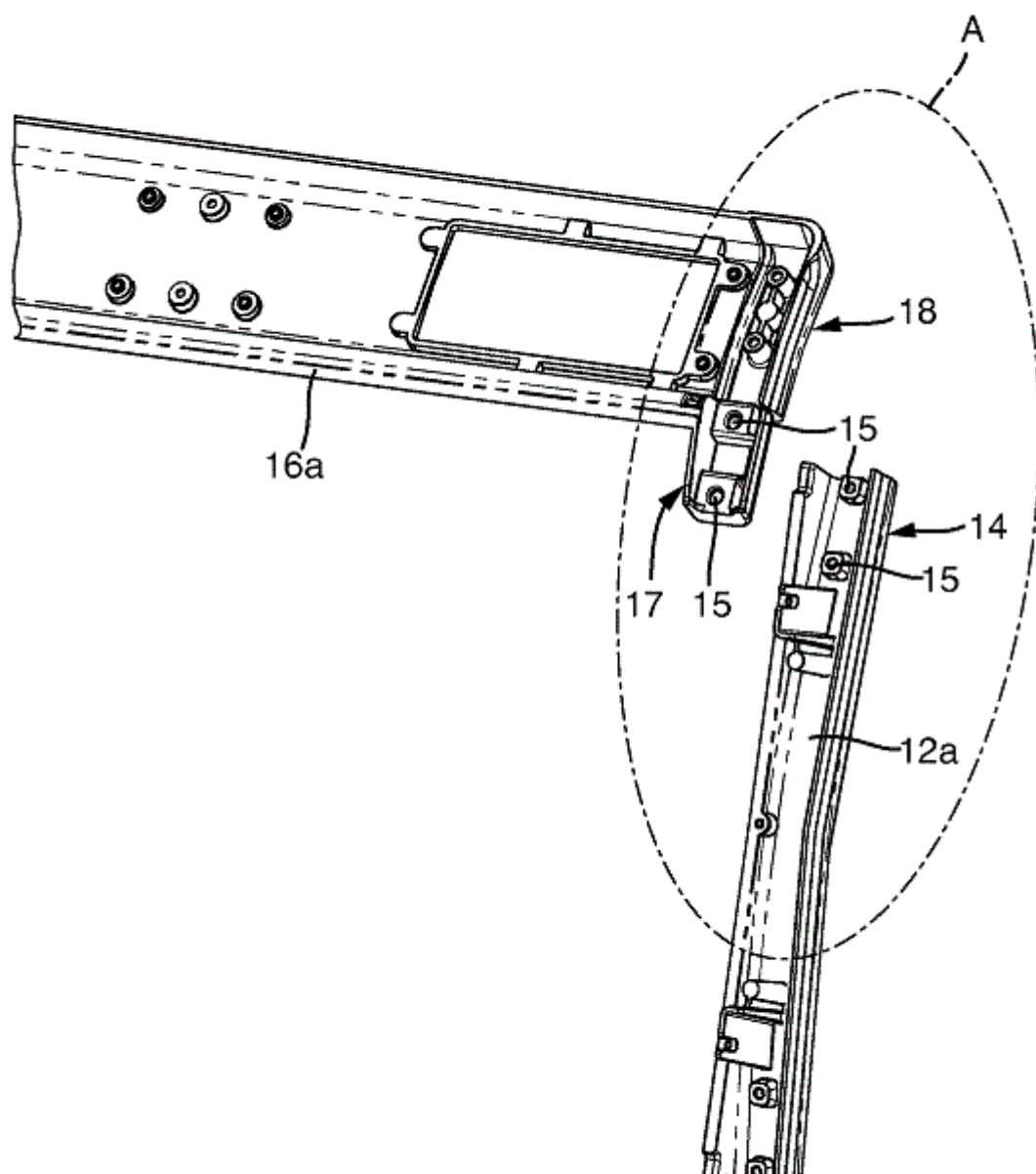


Fig. 9

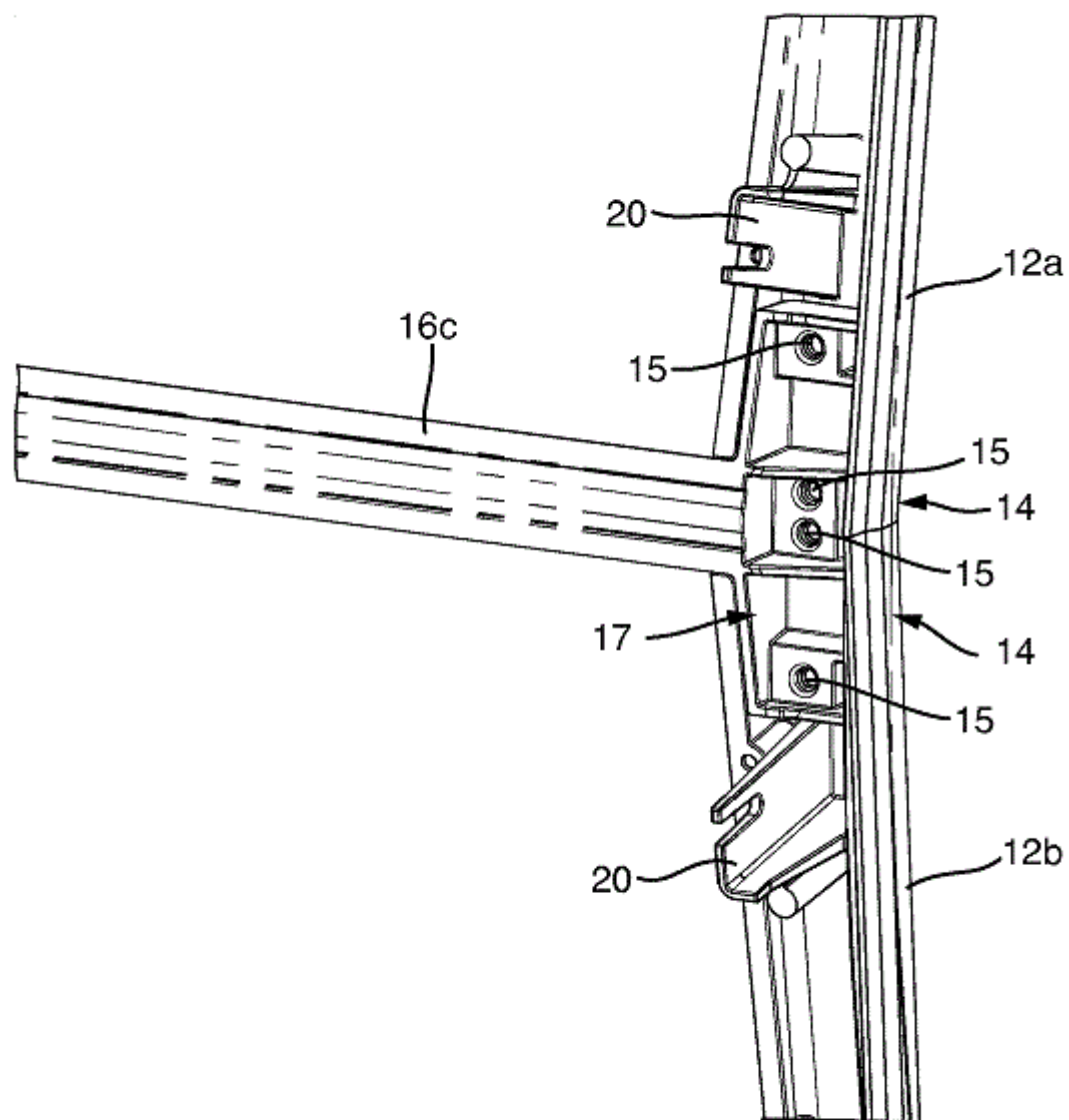


Fig. 10