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(54) Structure of jointing element particularly for the jointing of box-type sections

(57) Structure of jointing element particularly for the jointing of box-type sections (8, 9), the peculiarity of this structure (7) lays in that said structure (7) comprises at least one pair of opposed appendixes (10a, 10b, 11a, 11b) in correspondence to each of the jointed end pieces (8a, 9a) of a first and at least a second section (8, 9), a first and a second superposed body (12, 13) between which are inserted the above-mentioned pairs of appen-

dices (10a, 10b) of such first section (8) and the above-mentioned pairs of appendixes (11a, 11b) of such second section (9), fixing means (18) forcing such bodies (12, 13) against the above-mentioned pairs of appendixes (10a, 10b, 11a, 11b) in order to joint such sections (8, 9) together by means of such structure (7). The invention solves the drawbacks found in the known state of the art, as it allows to effect the jointing operation in simple way at low costs (ref. fig.3).

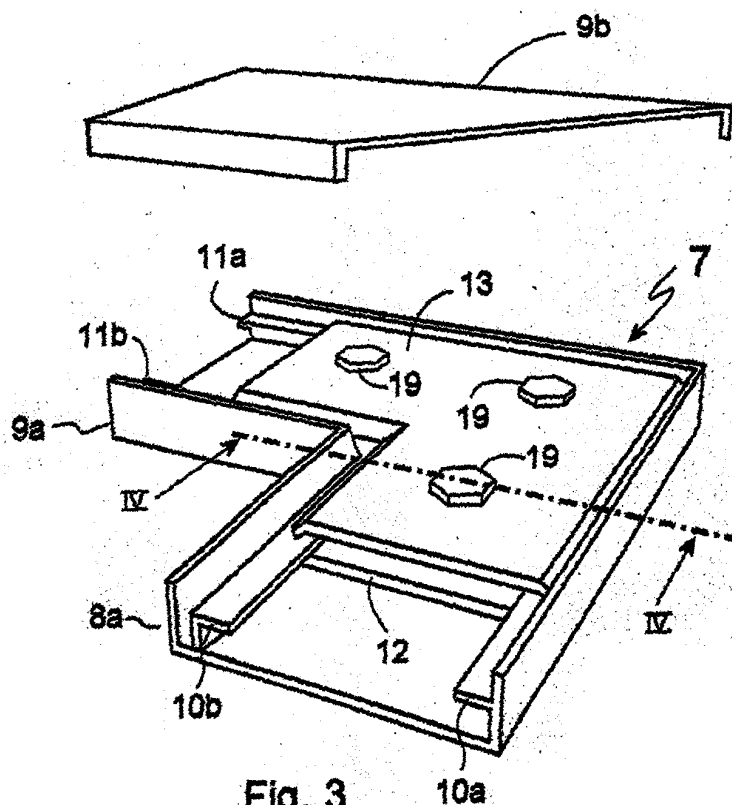


Fig. 3

Description

[0001] The present invention refers to a structure of jointing element particularly for the jointing of box-type sections, especially but not exclusively, to be used in the sector producing furniture and window and door frames for the realization of shutters, frames, skirting boards, elevations, borders of doors and windows, etc.

[0002] It is common knowledge that the above-mentioned components are constituted of a plurality of metal and/or plastic box-type sections jointed as needed by appropriate jointing elements. For example, according to the state of the art, the square jointing between a pair of sections requires the preparation of the end pieces of each section with a cut at 45°, the combination of said end pieces in order to match the cut surfaces and finally the jointing between the two sections applying a jointing element in correspondence with the edge. In details, said jointing elements are in substance formed by an "L"-shaped lamina to fix with screws tightened in preliminarily executed holes on above-mentioned sections. The application of the jointing element may be executed on the outside of the two sections on the side not in sight by the jointing. Alternatively, such application may happen outside or inside in correspondence with the flanks of said sections. Particularly, the last two solutions are preferred in the jointing of sections for doors and windows.

[0003] The main drawback raised in the known state of the art consists in the fact that said operations of preparing the sections, and particularly the boring and the pertinent countersinking of the holes result expensive because they require special working jigs.

[0004] The aim of the present invention is to provide a structure of jointing element, particularly for the jointing of box-type sections, which allows to perform the jointing operation in a simple way and at low costs.

[0005] Within the scope of this aim, one object of the invention consists in setting up a structure which allows to perform such jointing operation inside the factory producing furniture or doors and windows without applying to outside companies, which is today's practice, in case of considerable orders.

[0006] Another object of the invention is to set up a structure which allows to perform such jointing operation in a demountable way in order to obtain easy performance of repair operations, if necessary, such as for example the replacement of a door-pane.

[0007] This aim, as well as other objects appearing afterwards, are achieved by a structure of jointing element particularly for the jointing of box-type sections characterized in that it comprises at least one pair of opposed appendixes in correspondence with each of the end pieces jointed of a first and at least a second section, a first and a second body placed one upon the other and between these are inserted said pairs of appendixes of said first section and said pairs of appendixes of said second section, fixing means which press

said bodies against said pairs of appendixes in order to joint together said sections by means of said structure.

[0008] Further features and advantages of the invention will become apparent from the description of the preferred embodiments, illustrated as indication but not as limitation, in the attached four drawings, where:

- figure 1 is an exploded vertical view of part of a first embodiment of the structure according to the invention;
- figure 2 is a perspective detail view of the first way of execution of the jointing of two box-type sections by means of said structure according to this invention in its first embodiment;
- figure 3 is an exploded view of the edge of the jointing from the above figure;
- figure 4 is a sectional view of the structure taken along the plan IV-IV of figure 3;
- figure 5 is a perspective view of part of the second embodiment of the structure according to the invention;
- figure 6 is a perspective detail view of the second way of the jointing of two box-type sections by means of said structure according to the second embodiment of this invention.

[0009] With reference to the figures of attached drawings, and initially to the figures 1, 2, 3 and 4, the structure of jointing element in its first embodiment is generally indicated by the reference number 7. Such structure 7 is particularly suitable to perform the first embodiment of the jointing, as illustrated in figure 2 and indicated by the reference letter A, between two box-type sections sizes indicated by reference numbers 8 and 9 previously cut at 45° in correspondence with the ends to join in order to form a square edge. According to the state of the art such sections 8 and 9 comprise supporting portions indicated by 8a and 9a and closing portions indicated by 8b and 9b being reciprocally coupling. With particular reference to the figures 3 and 4, the end pieces of each of the portions 8a and 9a are equipped with two opposed appendixes 10a, 10b and 11a and 11b. As it can be seen in the above-mentioned figures, the appendixes 10a, 10b and 11a, 11b are obtained in concordance with the direction of the longitudinal expansion of each size 8 and 9 and are parallel the ones to the other. The appendixes 10a and 11a are extending directly from one of the lateral sides of the supporting portions 8a and 9a. On their hand, the appendixes 10b and 11b are extending perpendicularly from ribs protruding from the floor of above-mentioned supporting portions 8a and 9a. The structure 7 further comprises a first body 12 and a second body 13 placed one upon the other and between them are inserted the above-mentioned pairs of appendixes 10a, 10b and 11a, 11b. Such bodies 12 and 13 are plate formed and shaped like an "L" laid down horizontally. The flaps 14a, 14b and 15a, 15b of said bodies 12 and 13 extending in concordance with the longitudinal ex-

pansion of the sections 8 and 9 are bent against said appendixes 10a, 10b and 11 a, 11 b in such a way that the rims of said flaps are in contact with the last-mentioned. In order to improve the clinging of said rims to the appendixes 10a, 10b and 11 a, 11 b, these rims might be appropriately serrated or finished in another equivalent way. Further, on the bodies 12 and 13 are made holes to fit the fixing means described in the following. In details, on said first body 12 are made three threaded holes 16 and in correspondence on said second body 13 are made three smooth holes 17. Such holes 16 and 17 are made approximately in the middle of the bodies 12 and 13. Furthermore, in each body 12 and 13 one of the holes 16 and 17 is made in the central area and the other two holes are made at the same distance from the first one towards the ends of said bodies 12 and 13. The above-mentioned fixing means of the structure 7, generally indicated by the reference number 18, consist of three screws 19 inserted in the smooth holes 17 and tightened in the threaded holes 16. The function of said fixing means 18 is to clench body 12 against body 13 so that the flaps 14a, 14b and 15a, 15b close like in a clamp simultaneously the pairs of appendixes 10a, 10b of the first section 8 and the pairs of appendixes 11 a and 11 b of the second section 9 in order to joint them together.

[0010] Referring to the figures 5 and 6 the second embodiment of the structure, generally indicated by reference number 107, allows to carry out the second way of execution of the jointing, as illustrated in figure 6 and indicated by the reference letter B, between the pair of sections 8 and 9 previously cut at 45° in correspondence with the ends in a different way as compared with the first way of execution of the jointing A. Such structure 107 comprises a first and a second body 112 and 113 one laid upon the other. Such bodies 112 and 113 are plate formed and shaped like an "L" laid on a vertical plane. The flaps 114a, 114b and 115a and 115b of the bodies 112 and 113, which are extending in concordance with the longitudinal expansion of the sections 8 and 9, are bent against the appendixes 10a, 10b and 11a and 11b (not illustrated in the figures 5 and 6). In this way the rims of the flaps 114a, 114b and 115a and 115b are in contact with the above-mentioned appendixes 10a, 10b and 11 a, 11 b according to the first way of execution of the jointing A. Each of the bodies 112 and 113 are equipped with a pair of holes 116 and 117 according to the description of the first embodiment of the jointing A and necessary to fit the fixing means described in the following. Preferably the holes 117 should be slotted as illustrated in figure 5. The above-mentioned fixing means for the second embodiment of the structure 107, in a similar way as in the first embodiment 7, are generally indicated by the reference number 118 and consist of one pair of screws 119 inserted in the holes 117 and tightened in the below threaded holes 116. The second embodiment of the structure 107 carries out its function as described above.

[0011] Still referring to the figures of the enclosed

drawings the installation of the structure in the two embodiments 7 and 107 is carried out as described in the following. The first operation consists in preparing the ends of the sections 8 and 9 without the closing portions 8b and 9b, making the choice, according to the need, between the first way of execution A or the second B of the jointing. Thereafter, the first 7 or the second 107 embodiment of the structure is applied to the prepared section ends and then the screws 19 or 119 are tightened sufficiently. At this moment, the closing portions 8b and 9b are coupled with the supporting portions 8a and 9a in order to finish the jointing between the two sections 8 and 9. The uncoupling of the sections 8 and 9 is simply achieved following the above steps backwards.

[0012] In practice, it has been established that this structure of jointing element allows to perform the jointing of box-type sections in a simple way at low costs. In particular, such structure eliminates the need of boring the sections and consequently the need to carry out suitable boring jigs for the execution of such operations.

[0013] The structure according to the invention is susceptible of numerous modifications and variations, all of them are within the scope of the same inventive concept. In particular, such box-type sections might be monolithic with an opening corresponding to the approaching ends to allow the introduction of a tool to operate on the fixing means during the installation of the structure and later during the uncoupling.

[0014] The materials used, the forms, the dimensions and the execution details may be different from these here indicated, but technically equivalent to these, without for this reason to exceed the limits of the law for this invention.

[0015] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. Structure of jointing element particularly for the jointing of box-type sections, **characterized in that** it comprises at least one pair of opposed appendixes (10a, 10b, 11a, 11 b) in correspondence with each of the end pieces (8a, 9a) jointed of a first and at least a second section (8, 9), a first and a second body (12, 13, 112, 113) placed one upon the other and between these are inserted said pairs of appendixes (10a, 10b) of said first section (8) and said pairs of appendixes (11a, 11b) of said second section (9), fixing means (18, 118) which press said bodies (12, 13, 112, 113) against said pairs of appendixes (10a, 10b, 11 a, 11 b) in order to joint together said sections (8, 9) by means of said struc-

ture (7, 107).

2. Structure, according to claim 1, **characterized in that** each pair of said appendixes (10a, 10b, 11a, 11b) are obtained in the direction of the longitudinal expansion of the section (8, 9) and are parallel the ones to the other.
3. Structure, according to claims 1 and 2, **characterized in that** said appendixes (10a, 10b, 11a, 11b) are extending directly from the lateral sides of said sections (8, 9) or are extending perpendicularly from ribs formed on the floor of said sections.
4. Structure, according to claim 1, **characterized in that** said bodies (12, 13, 112, 113) are plate formed.
5. Structure, according to claim 1 or 4, **characterized in that** said bodies (12, 13, 112, 113) are shaped like an "L" laid on a horizontal or vertical plane in order to allow the jointing of said sections (8, 9) according to a first or second way of execution.
6. Structure, according to claim 1, **characterized in that** said bodies (12, 13, 112, 113) comprise flaps (14a, 14b, 15a, 15b, 114a, 114b, 115a, 115b) bent against said appendixes (10a, 10b, 11a, 11b) of said sections (8, 9).
7. Structure, according to claim 6, **characterized in that** said bent flaps (14a, 14b, 15a, 15b, 114a, 114b, 115a, 115b) are extending in concordance with the longitudinal expansion of said sections (8, 9).
8. Structure, according to claim 6, **characterized in that** the rims of said flaps are in contact with said appendixes (10a, 10b, 11a, 11b).
9. Structure, according to claim 8, **characterized in that** said rims are serrated to improve the clinging to said appendixes (10a, 10b, 11 a, 11 b).
10. Structure, according to claim 1, **characterized in that** it comprises threaded holes (16, 116) bored on said first body (12, 112) and corresponding smooth holes (17, 117) on said second body (13, 113) to fit said fixing means (18, 118).
11. Structure, according to claim 10, **characterized in that** said holes (16, 17, 116, 117) are realized in the middle of said bodies (12, 13, 112, 113).
12. Structure, according to claim 10, **characterized in that** at least two smooth holes (16, 116) and at least two threaded holes (17, 117) are made towards the ends of said bodies (12, 13, 112, 113).
13. Structure, according to claim 10, **characterized in that** a third smooth hole (16) and a third threaded hole (17) are made on said bodies (12, 13) approximately in their central area.
14. Structure, according to claim 10, **characterized in that** said smooth holes (117) are slotted.
15. Structure, according to claim 1 and 10, **characterized in that** said fixing means (18, 118) comprise a plurality of screws (19, 119) inserted in said smooth holes (17, 117) and tightened in said threaded holes (16, 116).

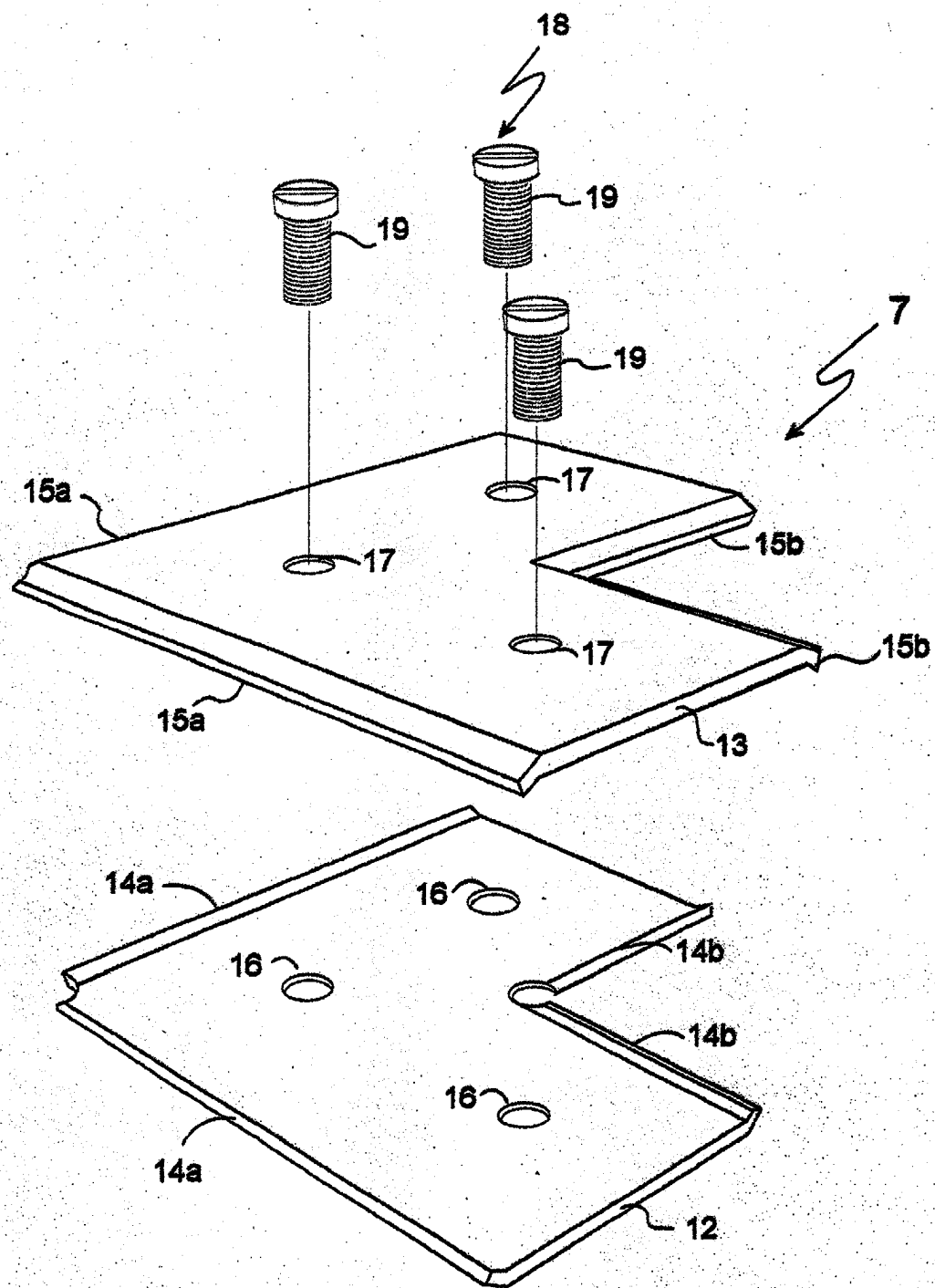


Fig. 1

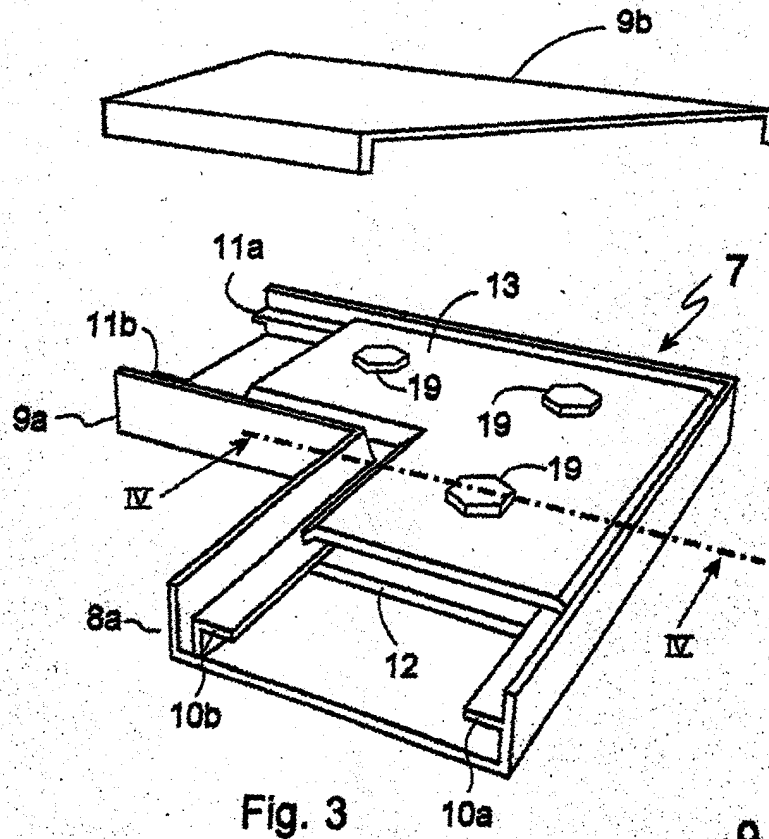


Fig. 3

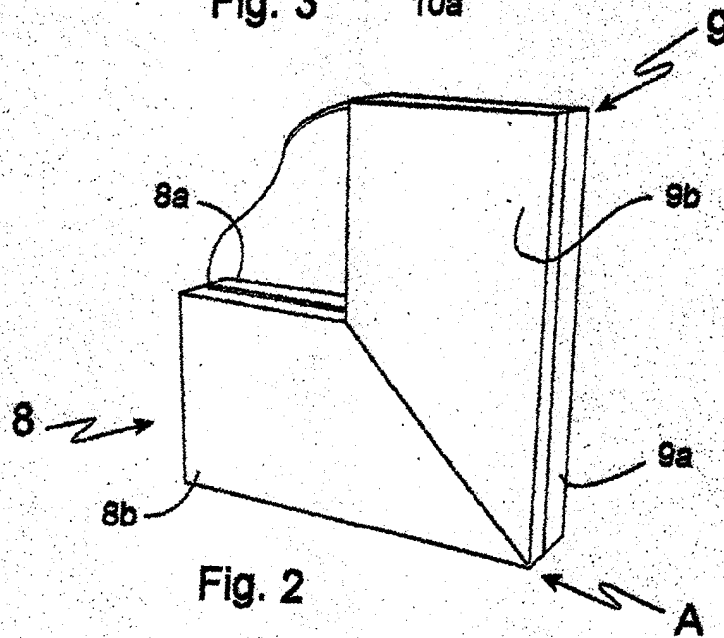
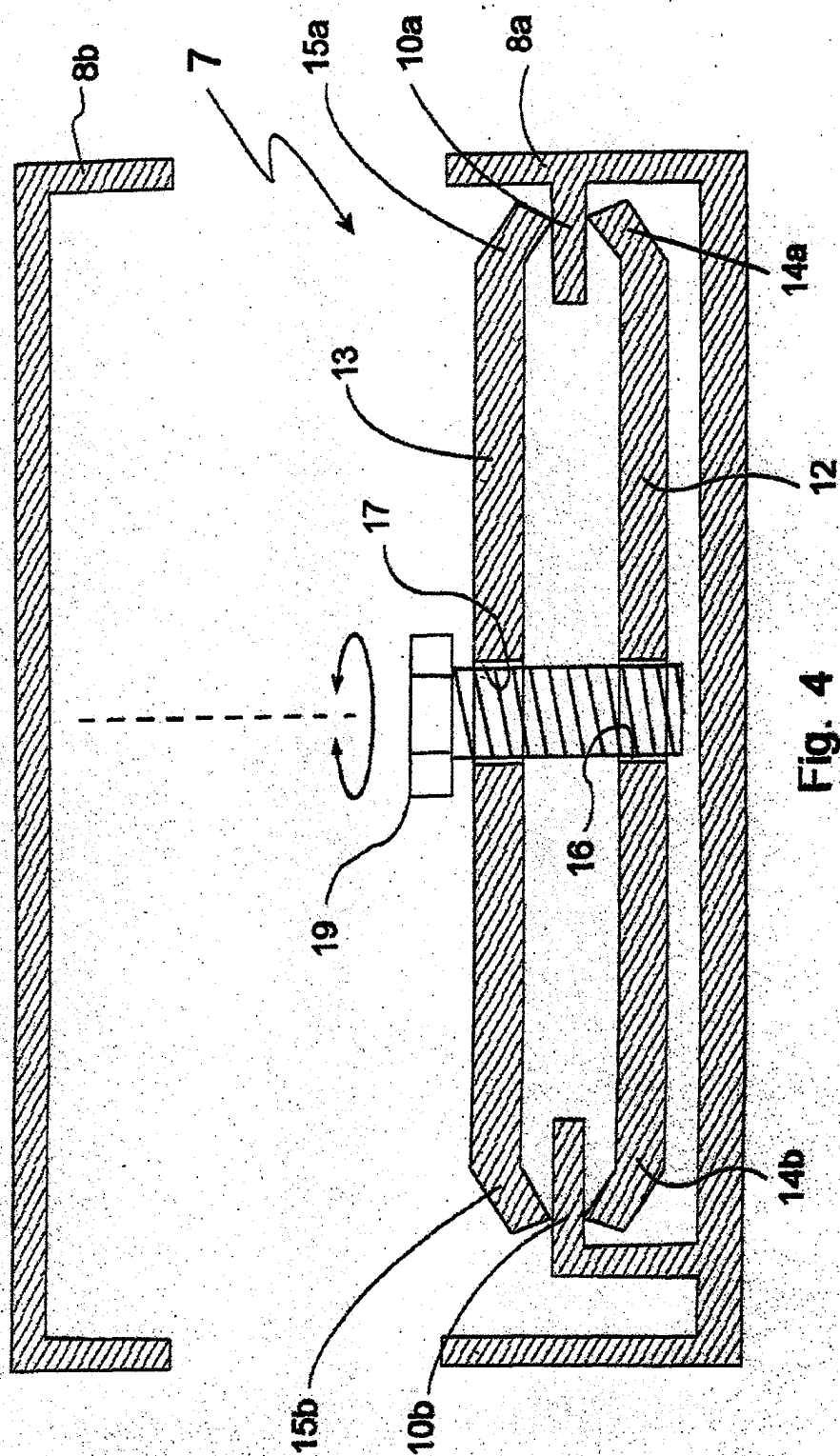


Fig. 2



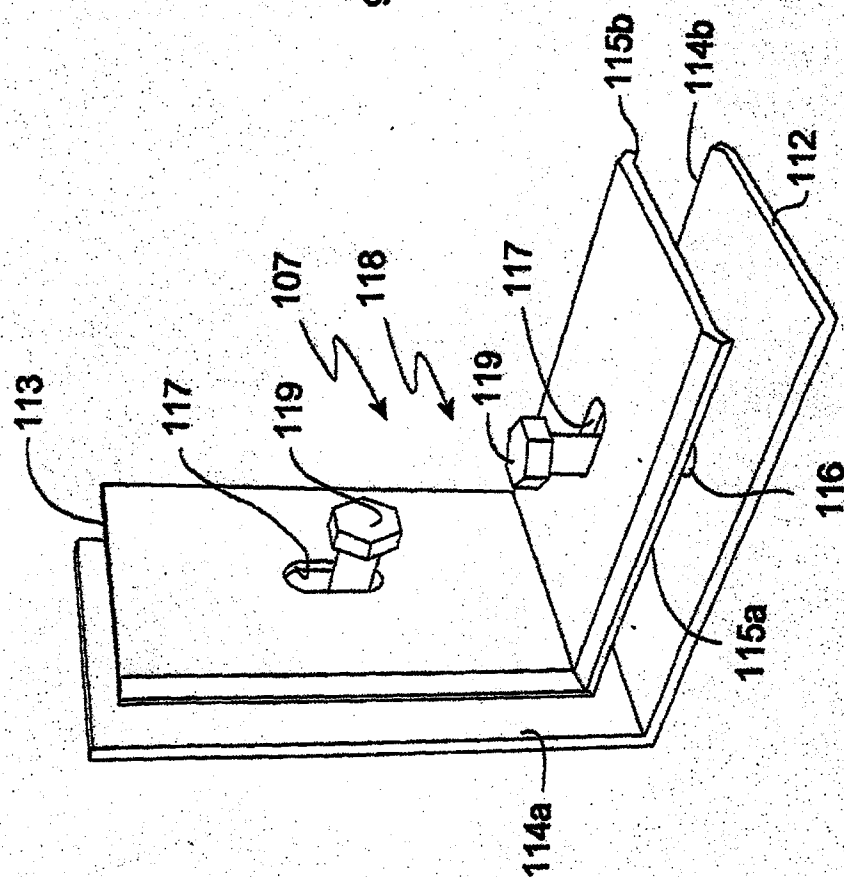


Fig. 5

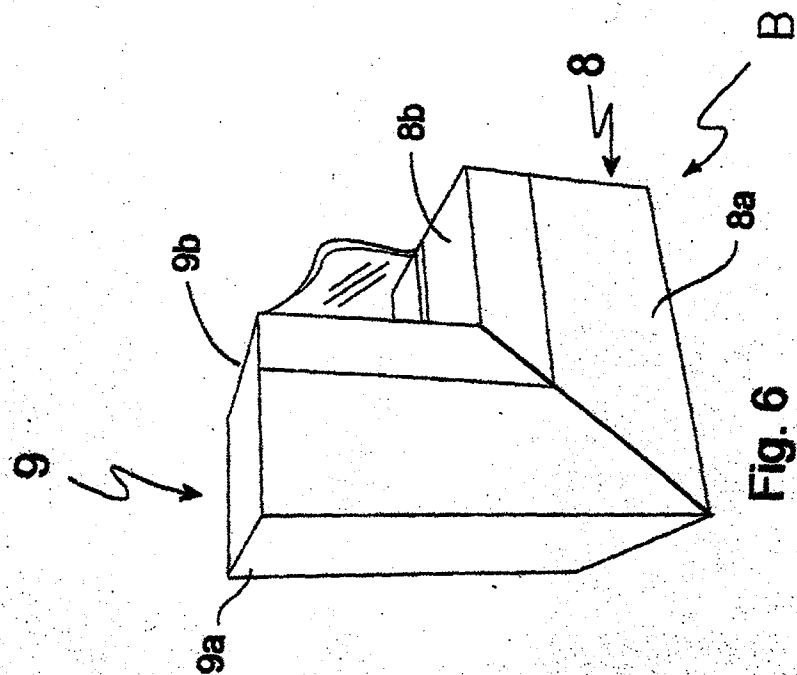


Fig. 6