

PATENT SPECIFICATION

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(54) CASE STRUCTURE

(71) We, A/S MODULEX, of Systemvej, 7190 Billund, Denmark, a Company organised and existing under the laws of Denmark do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to case structures and, more particularly, to such structures having a base member and a transparent cover mounted on the base member, so as to define an enclosure for mounting a wall sign or similar panel.

In such case structures the cover may be hinged on the base member so that the case may be opened and closed without removing the cover from the base member. Moreover, it may also be desirable to mount the cover detachably on the base member, so as to provide for inter-changeability of covers, e.g. of covers or lids of identical shape but having different colours, although the cover may generally be made of transparent material.

Finally, it is of particular importance to provide locking means for interlocking the cover with the base member.

According to the present invention, a case structure comprises a flat rectangular base member having a pair of outwardly facing longitudinally extending channels along opposite sides and a cover having a pair of side walls extending transversely to the plane of the base member in the closed position and capable of being detachably and hingedly connected to the base member, at least one of the side walls comprising a combined hinge and locking device including a connecting member extending along the free edge of the side wall and having an inwardly extending, substantially hook-shaped projection for interlockingly engaging one of the channels in the base member, and a flexible, lengthwise extending hinge member inter-

connecting the connecting member and the side wall of the cover. The base member may be provided with ledges projecting away from the surface to be enclosed by the cover and extending lengthwise adjacent the channels partially to close the openings of the respective channels and thus form substantially hook-shaped recesses for interlocking the hook-shaped projections of the connecting member with the base member.

An example of a case structure in accordance with the invention will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view of the structure showing a base member and a cover separated therefrom;

Figures 2, 3 and 4 are sectional views showing the cover in three different positions relatively to the base member;

Figure 5 is a plan view of an alternative form of the base member shown in Figures 1 to 4;

Figure 6 is a sectional view taken on the line VI-VI of Figure 5; and

Figure 7 is a sectional view taken on the line VII-VII of Figure 5.

The construction shown in Figures 1 to 4 of the drawings consists basically of a base member 10 and a cover 20 which is hingedly, detachably and interlockingly associated with the base member.

The base member 10 is in the form of a rectangular plate 11 provided with lengthwise extending channels 12 defined by downwardly projecting ledges 13, along a pair of opposite sides. A panel 14 (Figures 2, 3 and 4) is mounted on the upper face of the plate 11, and the top face of this panel is provided with studs 15 for mounting interchangeable elements (not shown) on the panel 14. The plate 11 is further provided with a pair of upwardly projecting end walls 16 disposed at right angles to the sides 17 adjacent the channels 12. The base plate 11 may be made

of any suitable material, such as wood, metal or a thermoplastic material.

The cover 20 comprises a substantially plane top surface 21 and a pair of downwardly projecting side walls 22. Preferably, this cover is made of a sheet of transparent acrylic material, in which the side walls 22 are formed by heating and bending the sides of the sheet. The edge of each of the side walls is firmly attached to an elongated hinge member 23 comprising a strip made of an elastic, flexible material, such as any suitable elastomer. Each hinge member 23 is in turn firmly attached to an elongated connecting member 24 forming the lower edge of the side wall. Each of the connecting members 24 is provided with an inwardly extending, substantially hook-shaped projection 25, 26 for engagement with the channels 12 and ledges 13 of the base plate 11, as shown in Figures 2 to 4. Slots or recesses 27 are formed in the outer faces of the connecting members 24 for insertion of a tool 30 providing a lever for bending the hinge member 23 outwardly, as shown at 22a of Figure 3, thereby disengaging the projections 25, 26 from the grooves 12.

It will be noted that, in Figures 2, 3 and 4, all reference numbers referring to the side walls are marked by index "a" as applied to the right hand side of the structure and by index "b" as applied to the left hand side.

Thus the combination of the side walls 22 with the hinge members 23 and the connecting members 24 constitutes a combined hinge and locking device providing for complete interlocking of the cover 20 with the base member 10, as shown in Figure 2, and for the opening of the case, as shown in Figure 4. In this latter position, the side wall 22a is lifted from the base plate 11 by turning the other side wall 22b relatively to its connecting member 24b through elastic deformation of the hinge member 23b. Moreover, this device also enables the cover 20 to be completely removed from the base member 10, as shown in Figure 1, by disconnecting both side walls of the cover from the base plate.

The base member shown in Figures 5 to 7 is in the form of a rectangular frame structure comprising two pairs of frame members A and B, preferably made by extrusion of aluminium profiles. As shown in Figure 6, the lengthwise extending frame members A have a bottom flange 111 and a projection 118 extending upwardly therefrom. This projection is shaped substantially as an inverted L defining a lengthwise extending channel 112 and a downwardly extending ledge 113 corresponding to the channels 12 and ledges 13 of Figures 1 to 4. The outer side 117 of the flange 111 corresponds to the side 17 of Figures 1 to 4.

The frame members B, as shown in Figure

7, have a bottom flange 111 and an upwardly extending flange 116 defining end walls corresponding to the end walls 16 of Figures 1 to 4.

The assembly of the frame members A and B may be made in any conventional manner and forms no part of the present invention. Accordingly, assembly connections such as auxiliary projections, grooves and angular connecting pieces, have been omitted in Figures 5 to 7 of the drawings.

Thus the frame structure of Figures 5 to 7 constitutes a modification of the base member 11 of Figures 1 to 4 including channels 112 for engaging the connecting members 24 of the cover, and end walls 116 for closing the space between the cover and the base member of the case.

In Figures 1 to 4, the recesses 27 in the connecting members 24 are shown as lengthwise extending slots for receiving the end of a tool, such as a lever 30. It will be understood, however, that these recesses 27 may alternatively be shaped as key holes, in which case the tool 30 is a corresponding key.

While a case structure according to the present invention is pre-eminently intended for use as a wall cabinet for mounting panels, such as sign boards, planning boards or the like, it will be understood that it can readily be adapted to other uses, such as chests, coffers and suchlike boxes provided with detachable covers or lids.

WHAT WE CLAIM IS:

1. A case structure comprising a flat rectangular base member having a pair of outwardly facing longitudinally extending channels along opposite sides and a cover having a pair of side walls extending transversely to the plane of the base member in the closed position and capable of being detachably and hingedly connected to the base member, at least one of the side walls comprising a combined hinge and locking device including a connecting member extending along the free edge of the side wall and having an inwardly extending, substantially hook-shaped projection for interlockingly engaging one of the channels in the base member and a flexible, lengthwise extending hinge member inter-connecting the connecting member and the side wall of the cover.

2. A case structure, as defined in claim 1, in which the base member is provided with ledges projecting away from the surface to be enclosed by the cover and extending lengthwise adjacent the channels, so as partially to close the openings of the respective channels and thus to form substantially hook-shaped recesses for interlocking the hook-shaped projection of the connecting member with the base member.

3. A case structure as claimed in claim 1

of any suitable material, such as wood, metal or a thermoplastic material.

The cover 20 comprises a substantially plane top surface 21 and a pair of downwardly projecting side walls 22. Preferably, this cover is made of a sheet of transparent acrylic material, in which the side walls 22 are formed by heating and bending the sides of the sheet. The edge of each of the side walls is firmly attached to an elongated hinge member 23 comprising a strip made of an elastic, flexible material, such as any suitable elastomer. Each hinge member 23 is in turn firmly attached to an elongated connecting member 24 forming the lower edge of the side wall. Each of the connecting members 24 is provided with an inwardly extending, substantially hook-shaped projection 25, 26 for engagement with the channels 12 and ledges 13 of the base plate 11, as shown in Figures 2 to 4. Slots or recesses 27 are formed in the outer faces of the connecting members 24 for insertion of a tool 30 providing a lever for bending the hinge member 23 outwardly, as shown at 22a of Figure 3, thereby disengaging the projections 25, 26 from the grooves 12.

It will be noted that, in Figures 2, 3 and 4, all reference numbers referring to the side walls are marked by index "a" as applied to the right hand side of the structure and by index "b" as applied to the left hand side.

Thus the combination of the side walls 22 with the hinge members 23 and the connecting members 24 constitutes a combined hinge and locking device providing for complete interlocking of the cover 20 with the base member 10, as shown in Figure 2, and for the opening of the case, as shown in Figure 4. In this latter position, the side wall 22a is lifted from the base plate 11 by turning the other side wall 22b relatively to its connecting member 24b through elastic deformation of the hinge member 23b. Moreover, this device also enables the cover 20 to be completely removed from the base member 10, as shown in Figure 1, by disconnecting both side walls of the cover from the base plate.

The base member shown in Figures 5 to 7 is in the form of a rectangular frame structure comprising two pairs of frame members A and B, preferably made by extrusion of aluminium profiles. As shown in Figure 6, the lengthwise extending frame members A have a bottom flange 111 and a projection 118 extending upwardly therefrom. This projection is shaped substantially as an inverted L defining a lengthwise extending channel 112 and a downwardly extending ledge 113 corresponding to the channels 12 and ledges 13 of Figures 1 to 4. The outer side 117 of the flange 111 corresponds to the side 17 of Figures 1 to 4.

The frame members B, as shown in Figure

7, have a bottom flange 111 and an upwardly extending flange 116 defining end walls corresponding to the end walls 16 of Figures 1 to 4.

The assembly of the frame members A and B may be made in any conventional manner and forms no part of the present invention. Accordingly, assembly connections such as auxiliary projections, grooves and angular connecting pieces, have been omitted in Figures 5 to 7 of the drawings.

Thus the frame structure of Figures 5 to 7 constitutes a modification of the base member 11 of Figures 1 to 4 including channels 112 for engaging the connecting members 24 of the cover, and end walls 116 for closing the space between the cover and the base member of the case.

In Figures 1 to 4, the recesses 27 in the connecting members 24 are shown as lengthwise extending slots for receiving the end of a tool, such as a lever 30. It will be understood, however, that these recesses 27 may alternatively be shaped as key holes, in which case the tool 30 is a corresponding key.

While a case structure according to the present invention is pre-eminently intended for use as a wall cabinet for mounting panels, such as sign boards, planning boards or the like, it will be understood that it can readily be adapted to other uses, such as chests, coffers and suchlike boxes provided with detachable covers or lids.

WHAT WE CLAIM IS:—

1. A case structure comprising a flat rectangular base member having a pair of outwardly facing longitudinally extending channels along opposite sides and a cover having a pair of side walls extending transversely to the plane of the base member in the closed position and capable of being detachably and hingedly connected to the base member, at least one of the side walls comprising a combined hinge and locking device including a connecting member extending along the free edge of the side wall and having an inwardly extending, substantially hook-shaped projection for interlockingly engaging one of the channels in the base member, and a flexible, lengthwise extending hinge member inter-connecting the connecting member and the side wall of the cover.

2. A case structure, as defined in claim 1, in which the base member is provided with ledges projecting away from the surface to be enclosed by the cover and extending lengthwise adjacent the channels, so as partially to close the openings of the respective channels and thus to form substantially hook-shaped recesses for interlocking the hook-shaped projection of the connecting member with the base member.

3. A case structure as claimed in claim 1



or claim 2, in which the connecting member is provided with a recess in its outer face for inter-engagement with a tool for bending the flexible hinge member outwardly from the side of the base member to disconnect the side wall of the cover from the channel of the base member.

4. A case structure as claimed in any one of the preceding claims, in which the base member comprises a pair of end walls extending perpendicular to the surface to be enclosed by the cover, so as to form an enclosure defined by the side walls of the cover and the end walls of the base member.

5. A case structure, as claimed in claim 4, in which the base member comprises two pairs of frame members, one of which pairs includes the longitudinally extending channels and the other of which has upwardly

extending flanges defining the end walls of the base member.

6. A case structure, as claimed in claim 5, in which each of the first pair of frame members comprises a bottom flange and a projection extending upwardly therefrom in the form of an inverted L and each of the second pair of frame members comprises a bottom flange and an end flange extending perpendicularly to the bottom flange.

7. A case structure substantially as described and as illustrated with reference to Figures 1 to 4 or as modified by Figures 5 to 7 of the accompanying drawings.

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