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(54) **Improvements relating to glazing**

(57) A method of fixing a panel piece (16) in a synthetic door is described. The method comprises the steps of:

forming a rebate in the door in the shape of the panel piece (16) to create a panel-shaped area; and locating the panel piece (16) in the panel-shaped area.

With a rebate, the edge of the panel piece (16) is

not therefore accessible from the non-recessed side of the door.

Preferably, one or more mounting pieces are located around the panel piece to assist mounting of the panel piece (16) within the panel-shaped area, and the mounting pieces are fixable to the door.

Description

[0001] The present invention relates to improvements relating to panelling of doors, particularly but not exclusively glazing for synthetic doors.

[0002] There is an increasing market for synthetic, generally 'plastics', doors, i.e. doors generally being plastic, such as UPVC and/or glass reinforced plastic. Such doors are generally formed from two face sheets fitted to either side of a rectangular frame, with a foam infill. One such example of a door is shown in GB2183706A. Such doors can include wooden or metallic parts, such as a wooden frame, or a steel security face sheet, but are still generally 'non-timber' doors.

[0003] It is frequently desired to insert decorative "insert" panels within such doors, to provide the panelling effect often seen on wooden doors. The panelling of synthetic doors is hitherto carried out by cutting completely through the door to form a suitably shaped aperture, inserting the panel piece, and adding seals on either side.

[0004] However, the problem with such panelling on external or internal security doors is that it is relatively easy for people such as burglars to remove the seal on one side then remove the panel, and gain access through the door, especially to the internal lock.

[0005] It is an object of the present invention to obviate this disadvantage.

[0006] According to one aspect of the present invention, there is provided a method of fixing a panel piece in a synthetic door comprising the steps of:

forming a rebate in the door in the shape of the panel to create a panel-shaped area; and
locating the panel piece in the panel-shaped area.

[0007] The rebate could be formed in a number of ways. In one instance, by forming a recess substantially through the door to form the panel-shaped areas, and then forming an aperture within the boundary of the panel-shaped area and completely through the door.

[0008] Alternatively, the rebate could be formed by forming an aperture completely through the door and forming a recess around the boundary of the aperture substantially through the door to form the panel-shaped area.

[0009] By not cutting completely through the door for the size of the panel piece, the edge of the panel piece abuts against a rim or lip or edge of the door face, which edge or lip forms the outline of the complete aperture. The edge of the panel piece is not therefore accessible from the non-recessed side of the door.

[0010] In particular, where the door can be defined as having a front or outside face and a rear or inside face, eg a face designed to face outwardly, forwardly, or from the relevant building housing the door, such as the outside environment, and a face designed to face inwardly towards the interior or an inner part of the building housing

the door or the like, the door is preferably rebated from the rear or inside face.

[0011] Preferably, one or more mounting pieces are located around the panel piece to assist mounting of the panel piece within the panel-shaped area.

More preferably, the or each mounting piece is fixable to the door. The or each mounting piece could be fixable to the door by at least one fixing means prior to location of the panel piece in the panel-shaped area. More preferably the or each mounting piece is fixable to the door by at least one fixing means after insertion of the panel piece in the area. Even more preferably, the or each mounting piece is fixable to the door only from the recessed-side of the door. The reinforcement may be the subframe or internal frame of the door, or a part thereof, or may also be additional reinforcement added within the door. Such parts of the frame or reinforcement can be eg aluminium pieces.

[0012] The or each mounting piece can be fixed to the door by any known fixing means, such as screws, studs, pins, etc.

[0013] Preferably, one or more of the fixing means, more preferably the post-panel piece location fixing means, is fixed to reinforcement in the door. The reinforcement may be the subframe or internal frame of the door, or a part thereof, or may also be additional reinforcement added within the door. Such parts of the frame or reinforcement can be eg aluminium pieces.

[0014] According to a second aspect of the present invention, there is provided a mounting piece for mounting a panel piece in a door, wherein the mounting piece includes a panel piece mounting section and a door mounting section, the door mounting section including at least one part only fixable to the door after location of the panel piece in the door.

[0015] Preferably, that portion of the mounting piece is only accessible from one side (preferably the rear or inside) of the door once the panel piece is mounted in the mounting piece.

[0016] The mounting piece may be formed from any suitable material, e.g. a metal such as aluminium or steel, or a strong plastic such as PVC, or a combination. Preferably, the mounting piece is integral and extruded, to provide a simple manufacturing production thereof.

[0017] According to a third aspect of the present invention, there is provided a synthetic door having one or more panelled pieces located therein, wherein the or each panel piece(s) located in a rebate in the door.

[0018] The door generally has an aperture within the boundary of each rebate, through which aperture the or each panel piece is visible.

[0019] The panel piece may be any known panel piece, including solid and/or glazed panel pieces as are well known in the art.

[0020] According to a further aspect of the present invention, there is provided a method of fixing a panel piece in a wooden door comprising the steps of:

forming a rebate in the door in the shape of the panel piece to create a panel-shaped area; and

locating the combined panel piece and mounting brackets as hereinbefore described in the panel-shaped area; and

fixing the mounting brackets to the door.

[0021] Embodiments of the present invention will now be described by way of example only, and with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a door having a series of panel pieces therein, and one panel piece to be fitted therein;

Figure 2 is view along line AA in Figure 1;

Figure 3 is an exploded view of most of Figure 2; and

Figure 4 is an enlarged view of the mounting piece shown in Figure 3.

[0022] Referring to the drawings, Figure 1 shows a plastic door 2. The door 2 comprises two outer door skins 4 made of moulded GRP material, fitted on each side of a generally rectangular door frame 6.

[0023] Figure 1 shows the door 2 having six 'panels' 8. Prior to forming any aperture in the door skins 4, the door 2 is generally filled with polyurethane rigid foam material within the door frame 6.

[0024] Figure 1 shows one embodiment of the process of the present invention. The door 2 is generally termed to have an "external door skin" 10 and an "internal door skin" 12, which door 2 is generally usable as an exterior door or an internal-lockable door.

[0025] Figure 2 shows a vertical cross-sectional view along line AA of Figure 1, showing the external door skin 10 and internal door skin 12, and a part of the door frame 6 thereinbetween.

[0026] As shown in Figure 3, the present invention involves forming a rebate in the door by cutting wholly through the door 2 to form an aperture C therethrough. A recess B is then milled from the interior door skin 12 side around the boundary of the aperture C, which recess B has a depth labelled D. By not cutting completely through the door 2, there remains an edge 14 against which the glazing panel 16 can abut, as shown in Figure 2. Thus, whilst a decorative finishing mount and/or seal could still be added between the external door skin 10 and the glazing panel 16, removal of any such mount or seal will not result in the ability to remove the glazing panel 16 from the external door skin side, and thus gain access through the door 2.

[0027] The aperture C allows the glazing panel 16 to be seen from the external side, and to let light through.

[0028] The glazing panel 16 comprises external and internal glass panels 17, having a glazing panel spacer bar 19 therein between as shown in Figure 2. The panel 16 is held by mounting brackets 18, shown in more detail in Figure 4. The brackets 18 can be formed by aluminium extrusion.

[0029] In Figure 4, the bracket 18 comprises a panel mounting section having top and bottom fingers 20a,b within which the glazing panel 16 will be held, and a door mounting section 21, (part of which optionally has holes for the insertion of screws 22 therethrough if desired. Such screws 22 could further secure the mounting brackets to the door 2 prior to insertion of the glazing panel 16 if fitted first.)

[0030] Preferably, the brackets 18 are initially mounted on the glazing panel 16. As shown in Figure 3, the brackets 18 and panel 16 combination are then located against the edges 14 and each exposed face of the recess B. After insertion, security screws 24 are inserted through a lower segment 26 of the door mounting section of the mounting bracket 18. A part of the lower section 26 is angled, so as the direction of the security screws 24 are deliberately accessible following the location of the glazing panel 16 in the mounting bracket 18. The screws 24 can also then be screwed into reinforcement sections 28 located in the door 2 and around the recess B, to increase the conjunction of the mounting bracket 18 and door 2. The reinforcement sections 28 could be made of wood, metal, plastic, etc, and provide the secure attachment of the brackets 18 to the door 2.

[0031] Thereafter, a decorative glazing trim 30 (not shown in Figure 3) is fitted around the recess B. It is fitted onto an edge of the mounting bracket 18 and hides the mounting brackets 18 and screws 24 from view.

[0032] As can be seen from the figures, the glazing panel 16 is securely held and fitted within the recess B, irrespective of any action taken from the external side of the door 2. Removal of any seal between the edge 14 and glazing panel 16, will not loosen the securement of the glazing panel 16. Even complete removal of the edge 14, e.g. by breakage with a tool such as a jemmy bar inserted in the direction of arrow D, will not loosen the glazing panel 16. The upper finger 20a of the mounting bracket 18 is not designed to be flexible, so as to be able to be forced back and the glazing panel pulled outward (or upward in Figure 2).

[0033] Also, the mounting bracket 18 is secured to the door 2 by means of the screws 24, which are only accessible from the 'inside' side of the door 2, (having the internal door skin 12). Any force directed against the glazing panel 16 from the external side is transmuted by the screws 24, which are set into the reinforcement 28 in the door 2. This means that substantial force is required against the glazing piece 16 to affect any dislocation thereof, more likely leading to substantial damage to the complete door 2, than any 'neat' dislocation of the glazing panel 16.

[0034] Meanwhile, any desired removal of the panel 16 for repair or replacement, for example due to any damage thereto, only requires the simple removal from the inside side of the door 2 of any trim, removal of the screws 24, following which the panel 16 and brackets 18 can be slid out of the recess B, and the brackets 18 taken off. Such repair and/or replacement work is simple, without detracting from the security of the panel 16 once refitted.

[0035] The present invention provides significantly increased secure insert panels and the like in doors, thus providing significantly increased security where such doors are exterior or internal security doors, against burglars and the like.

Claims

1. A method of fixing a panel piece in a synthetic door comprising the steps of:

forming a rebate in the door in the shape of the panel piece to create a panel-shaped area; and locating the panel piece in the panel-shaped area.

2. A method as claimed in Claim 1 wherein the rebate is formed by forming an aperture completely through the door and forming a recess around the boundary of the aperture substantially through the door to form the panel-shaped area.

3. A method as claimed in Claim 1 wherein the rebate is formed by forming a recess substantially through the door to form the panel-shaped area, and forming an aperture within the boundary of the panel-shaped area and completely through the door.

4. A method as claimed in any one of Claims 1 to 3 wherein the door has an outer face and an inner face, and wherein the door is rebated from the inner face.

5. A method as claimed in any preceding Claim wherein one or more mounting pieces are located around the panel piece to assist mounting of the panel piece within the panel-shaped area.

6. A method as claimed in Claim 5 wherein the or each mounting piece is fixable to the door.

7. A method as claimed in claim 6 wherein the or each mounting piece is fixable to a re-inforcement piece in the door.

8. A method as claimed in Claim 7 wherein the reinforcement is part of the sub-frame or internal frame of the door.

9. A method as claimed in any one of Claims 4 to 8 wherein the or each mounting piece is fixable to the door by at least one fixing means after insertion of the panel piece in the panel-shaped area.

10. A method as claimed in any one of Claims 4 to 9 wherein the or each mounting piece is fixable to the door after insertion of the panel piece only from the rebated side of the door.

11. A mounting piece for mounting a panel piece in a recess in a door, wherein the mounting piece includes a panel piece mounting section and a door mounting section, the door mounting section including at least one part only fixable to the door after location of the panel piece in the recess.

12. A mounting piece as claimed in Claim 11 wherein the at least one part of the door mounting section only fixable to the door after location of the panel piece in the recess is only accessible from the recess side of the door.

13. A mounting piece as claimed in Claim 11 or Claim 12 wherein the panel piece mounting section includes at least two fingers, at least one of which is non-rigid, and the door mounting section includes a portion at an angle to the remaining part of the door mounting section.

14. A method of fixing a panel piece in a wooden door comprising the steps of:

forming a rebate in the door in the shape of a panel-shaped area;
locating the panel piece and one or more mounting pieces as described in any one of Claims 11-13 in the panel-shaped area; and fixing the mounting brackets to the door.

15. A door having one or more panel pieces located therein, wherein each panel piece(s) is located in a corresponding rebate(s) in the door.

16. A door as claimed in Claim 15 wherein the or each panel piece is located in the door according to a method as defined in any one of Claims 1 to 10.

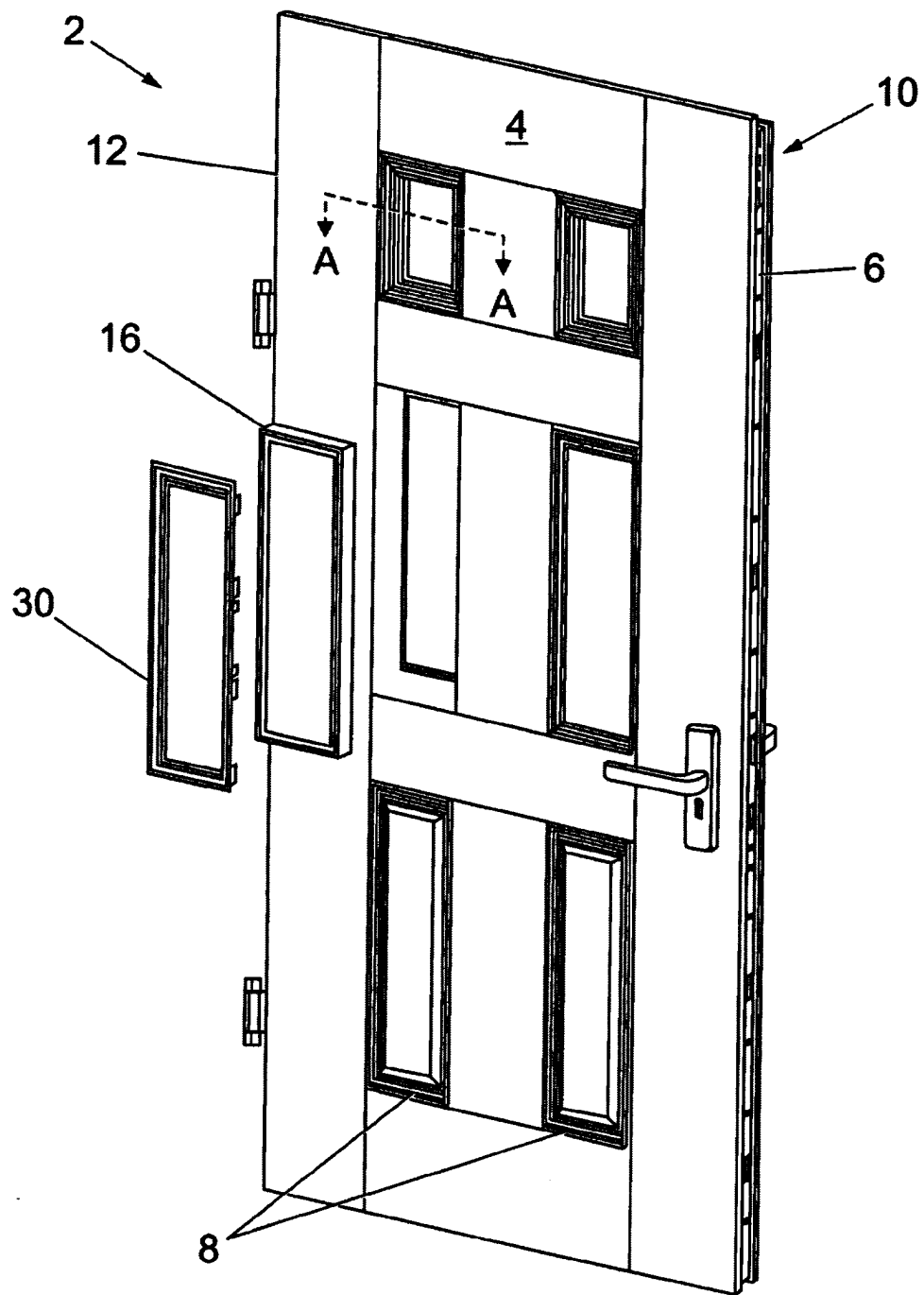


Fig. 1

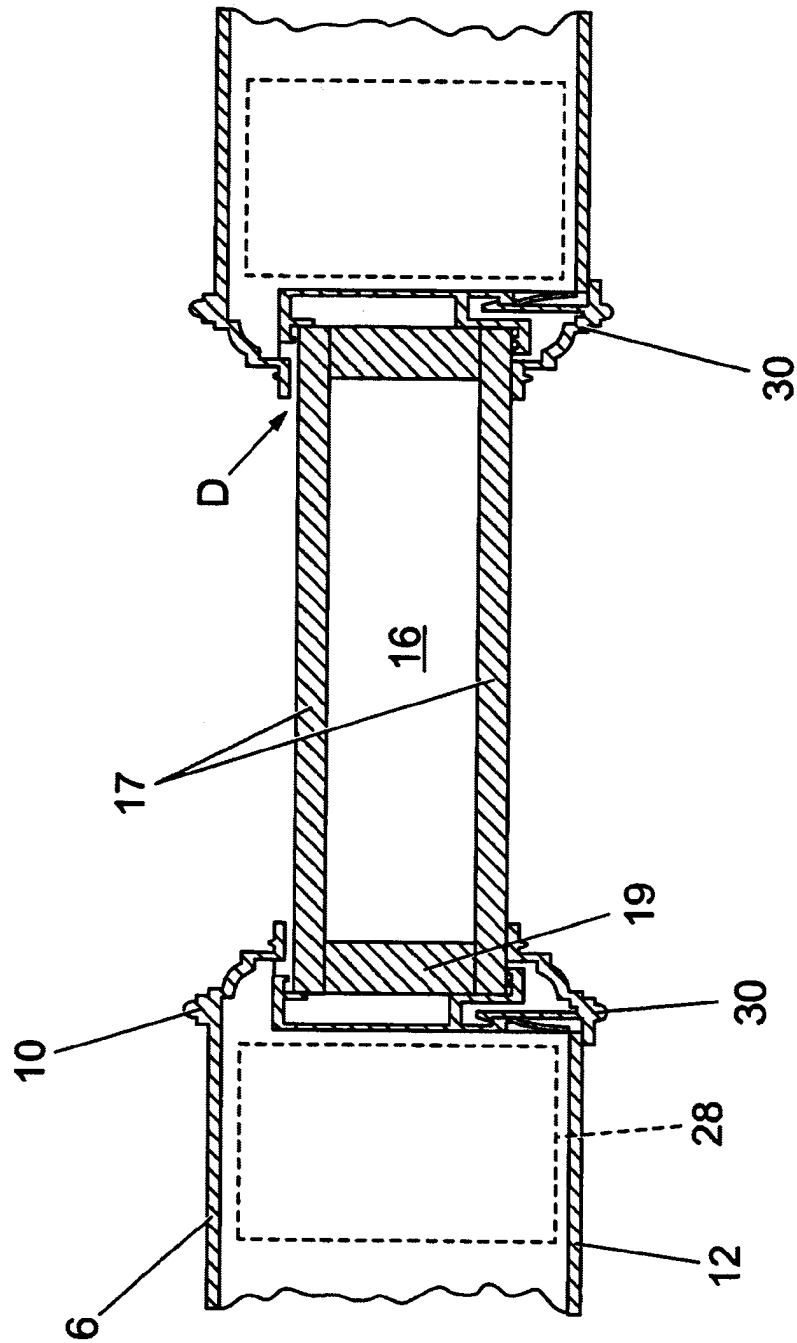


Fig. 2

