



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
19.08.2009 Bulletin 2009/34

(51) Int Cl.:
E06B 1/04 (2006.01)
E06B 1/52 (2006.01)
E06B 1/10 (2006.01)

(21) Application number: **09152952.9**

(22) Date of filing: **16.02.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK TR
Designated Extension States:
AL BA RS

(30) Priority: **14.02.2008 IE 20080107**
06.06.2008 IE 20080459

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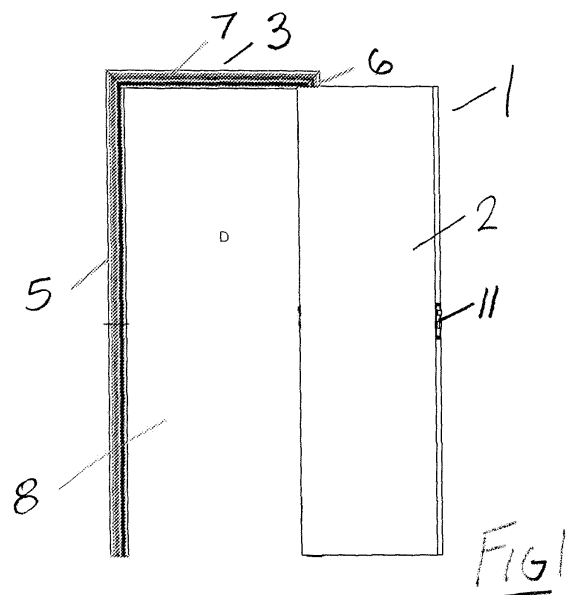
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(54) **A reversible door frame assembly**

(57) A universal door frame assembly (1) comprises a door (2) and a complementary door frame (3) comprising a pair of door posts (5, 6) and an associated door head (7). The door frame (3) is reversible to allow mounting of the door (2) in either a right handed or left handed configuration on the door frame (3). To achieve this the door posts (5, 6) and head (7) are similarly machined on both sides so they can be assembled in the required orientation. Complementary mating serrations (21, 22) on door stops (20) and the door posts (5, 6) and head (7) allow accurate alignment of the door stops (20) on the door frame (3) and also facilitate adjustment of the door stops (20) on the door frame (3) to accommodate doors of different thicknesses. Also, the door frame (3) is adjustable to allow mounting in wall openings of different size.



Description

Introduction

[0001] This invention relates to a door frame assembly.

[0002] It is common now in building construction to use pre-assembled door frame sets which are delivered to a building site ready for installation. This is quicker, cheaper and easier than constructing a door frame set in situ, which also requires the services of a skilled carpenter. However, typically between 5% and 10% of the pre-assembled door frame sets have to be returned because of wrong "handing".

[0003] The present invention is directed towards overcoming this problem.

Statements of Invention

[0004] According to the invention there is provided a door frame kit comprising three associated frame members, namely a hinge door post, a shutting door post and a door head for assembly together to form a door opening for reception of a complementary door, characterised in that at least the door post frame members are reversible. Thus, advantageously the kit can be assembled to form a door frame such that a door can be hung in either a right handed or a left handed orientation on the door frame.

[0005] In one embodiment of the invention each frame member is reversible.

[0006] In another embodiment each reversible frame member is shaped are machined on both sides such that either side of the frame member can form an inside face of the frame member defining the opening for reception of the door.

[0007] In another embodiment a set of spaced-apart hinge check-outs are provided on each side of the hinge door post and a lock striker plate check-out is provided on each side of the shutting door post.

[0008] In another embodiment the kit includes a door stop which is adjustably engagable with an associated frame member. Advantageously this accommodates the mounting of doors of different thicknesses in the opening formed by the door frame.

[0009] In another embodiment complementary inter-engagable formations are provided on the door stop and frame member for adjustably positioning the door stop on the frame member.

[0010] In another embodiment the complementary inter-engagable formations comprise mating serrations on the door stop and the frame member.

[0011] Conveniently, the formations on the stop are located intermediate a front edge and a rear edge of the stop and inwardly from said edges sufficiently such that the stop extends over and conceals the associated formations on the frame member when the stop is engaged therewith.

[0012] In another embodiment a striker plate is mounted

on the shutting door post, said striker plate being reversible.

[0013] In another embodiment, the striker plate has a pair of spaced-apart receiver openings for reception of a latch bolt and a catch bolt of a lock mounted on the door, said receiver openings being of similar size and equidistant from a centre of the striker plate.

[0014] In another embodiment the width of the door frame is adjustable.

[0015] In another embodiment each door frame member is width adjustable.

[0016] In a further embodiment each door frame member has two parts interengagable which are movable relative to each other for adjustment to accommodate different wall thicknesses.

[0017] In another embodiment an outwardly projecting tongue is provided along an inner edge of one part which is slidably engagable within a complementary groove along an inner edge of the other part to allow for wall thickness adjustment.

[0018] In another embodiment the kit may additionally include one or more of door stops, architraves and door furniture.

[0019] In another embodiment, each architrave member is interengagable with a door frame member by means of a tongue and groove connector. Preferably a tongue is provided on the architrave and a complementary groove is provided on the door frame member.

[0020] In a particularly preferred embodiment, the architrave has an L-shaped section comprising a decorative outer moulding with an inwardly extending tongue. By adjusting the depth to which the tongue is inserted into the groove on the door frame member this allows adjustment of the width of the door frame.

[0021] In a further aspect the invention provides a door set comprising the door frame kit together with a complementary door.

[0022] In another embodiment a number of spaced-apart hinge mounting slots are provided along a hinge edge of the door, said hinge slots extending between front and rear faces of the door.

Detailed Description of the Invention

[0023] The invention will be more clearly understood from the following description of some embodiments thereof, given by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is an elevational view of a door set according to the invention;

Fig. 2 is a side elevational view of the door set;

Fig. 3 is a plan view of the door set;

Fig. 4 is an enlarged perspective view of the door set;

Fig. 5 is an enlarged detail perspective view showing portion of the door set;

Fig. 6 is an enlarged detail perspective view showing portion of the door set;

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Fig. 7 is an enlarged detail sectional plan view showing a hinge door post portion of the door set;

Fig. 8 is an enlarged detail sectional plan view showing a shutting door post of the door set;

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Fig. 9 is an enlarged detail sectional plan view showing portion of the shutting door post;

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Fig. 10 is a perspective view of one part of the hinge door post;

Fig. 11 is an elevational view of the hinge door post part shown in Fig. 10;

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Fig. 12 is a plan view of the hinge door post part shown in Fig. 11;

Fig. 13 is an underneath plan view of the hinge door post part shown in Fig. 11;

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Fig. 14 is an end elevational view of the hinge door part post shown in Fig. 11;

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Fig. 15 is an enlarged detail view showing portion of the hinge door post part shown in Fig. 12;

Fig. 16 is an enlarged view similar to Fig. 14;

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Fig. 17 is another perspective view of the door set;

Fig. 18 is an enlarged detail perspective view showing portion of the door set;

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Fig. 19 is a detail view of portion of the door set;

Fig. 20 is enlarged elevational view of a door forming portion of the door set;

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Fig. 21 is an end elevational view of the door;

Fig. 22 is an enlarged detail view showing portion of the door;

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Fig. 23 is an enlarged detail view showing portion of the door;

Fig. 24 is an elevational view of a hinge forming portion of the door set;

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Fig. 25 is a plan view of the hinge;

Fig. 26 is an elevational view of a striker plate forming portion of the door set;

Fig. 27 is an end elevational view of the striker plate;

Fig. 28 is an exploded perspective view of a door frame kit according to the invention;

Fig. 29 is an elevational view of the assembled door frame kit;

Fig. 30 is a sectional plan view of the door frame shown in Fig. 29;

Fig. 31 is a sectional side elevational view of the door frame shown in Fig. 29;

Fig. 32 is an elevational view of a shutting door post of the door frame;

Fig. 33 is a sectional view of the shutting door post;

Fig. 34 is another sectional view of the shutting door post;

Fig. 35 is an enlarged detail view of portion of the shutting door post;

Fig. 36 is an elevational view of a hinge door post forming portion of the door frame kit;

Fig. 37 is a sectional view of the hinge door post;

Fig. 38 is an enlarged detail view showing a hinge cut out portion of the hinge door post;

Fig. 39 is an elevational view of a door head forming portion of the door frame kit;

Fig. 40 is a rear elevational view of the door head of Fig. 39;

Fig. 41 is a side elevational view of the door head of Fig. 39;

Fig. 42 is a sectional view of the door head of Fig. 39;

Fig. 43 is a sectional view of an architrave forming portion of the door frame kit;

Fig. 44 is an elevational view of a door stop for the door head of the frame;

Fig. 45 is a sectional view of the door stop shown in Fig. 44;

Fig. 46 is an elevational view of a door stop for a door post of the frame;

Fig. 47 is a sectional view of the door stop shown in Fig. 46;

Fig. 48 is a perspective view of a striker plate forming portion of a door set of the invention; and

Fig. 49 is a sectional view of the striker plate.

[0024] Referring to the drawings and initially to Figs. 1 to 27 thereof, there is illustrated a wooden door set according to the invention indicated generally by the reference numeral 1. The door set 1 comprises a door 2 mounted on a complementary door frame 3. Advantageously, according to the invention the door frame 3 is reversible to allow mounting of the door 2 in either a right-handed or a left handed configuration on the door frame 3.

[0025] The door frame 3 has three interconnected frame members, namely a pair of spaced-apart substantially parallel door posts 5, 6 interconnected at their upper ends by a door head 7 defining an opening 8 for reception of the door 2. One of the door posts 5 comprises a shutting door post 5 with a striker plate 10. A mortise lock 11 mounted at a free edge of the door 2 is engagable with the striker plate 10 in the usual way. The other door post 6 comprises a hinge door post 6 to which the door 2 is secured by a number of spaced-apart hinges 12.

[0026] As can be seen particularly in Figs. 4, 6 and 7, the hinge door post 6 is provided with three spaced-apart hinge check-outs 14 on both sides of the hinge door post 6. Thus, the hinge door post 6 is reversible to provide a right handed door 2, or a left handed door 2 in the opening 8. The hinges 12 are mounted in the innermost hinge check-outs 14, that is the hinge check-outs 14 facing the shutting door post 5.

[0027] Similarly, as can be seen particularly in Figs. 8 and 9, a lock striker plate check-out 15 is provided on each side of the shutting door post 5 so it too is reversible as required to provide right handed or left handed door opening. The striker plate 10 is mounted in the innermost striker plate check-out 15, that is the striker plate check-out facing the hinge door post 6.

[0028] Referring in particular to Figs. 4, 7 and 8, a door stop 20 is adjustably engagable with each frame member 5, 6, 7. Complementary mating serrations 21, 22 on the door stop 20 and door frame members 5, 6, 7 respectively allow adjustment and positioning of the door stop 20 in the opening 8 to accommodate doors of different thicknesses. In this regard, for convenience the pitch between adjacent serrations may correspond to the difference in standard door thicknesses. For example, common door thicknesses are 35mm, 40mm, 45mm and 50mm i.e. having a 5mm difference or step between door types. Thus, the serrations 21, 22 may be provided with a 5mm pitch point to point to match the 5mm difference in door thicknesses mentioned above. However, it will be appreciated that any suitable pitch may be chosen.

[0029] The striker plate 10 is shown in more detail in

Fig. 26. This striker plate 10 is also reversible having a pair of spaced-apart receiver openings 25, 26 for reception of a latch tongue 27 (Fig. 5) and a lock bolt 28 of the lock 11. Said receiver openings 25, 26 are of similar dimensions and are equi-spaced from a centre of the striker plate 10. Openings 25, 26 of different sizes could be provided if the striker plate 10 is made flat with no lead-in curve for the latch tongue 27.

[0030] Each door frame member 5, 6, 7 is thickness adjustable as best seen in Figs. 6 to 8. Each door frame member 5, 6, 7 has a first part 30 and an associated second part 31. One of the parts 30, 31, in this case the first part 30 has an outwardly projecting tongue 32 along an inner edge of the first part 30. The other of the parts 30, 31 - in this case the second part 31 has a complementary groove 33 and the tongue 32 is slidably engagable within the complementary groove 33 along an inner edge of the second part 31 to allow a degree of width adjustment by moving the parts 30, 31 together and apart with the tongue 32 engaged within the groove 33. This will accommodate walls of different thicknesses within which the door set is mounted. It will be noted that the gap 34 between the first part 30 and the second part 31 is hidden behind the door stop 20 when the door frame 3 is assembled.

[0031] Architraves 35 are mounted at outer edges of each of the parts 30, 31 of the door frame members 5, 6, 7. An outwardly projecting rib 36 on each part 30, 31 engages within an associated slot 37 in the architrave 35 to correctly locate, position and secure the architrave 35 on the frame members 5, 6, 7.

[0032] The door 2 is shown in more detail in Figs. 20-23. Three spaced-apart hinge slots 40 are provided along a hinge edge of the door 2. These hinge slots 40 extend between a front face 41 and a rear face 42 of the door 2. A leaf 43 (Fig. 25) of each hinge 12 is located in the hinge slots 40. At the opposite side of the door 2 to the hinges a socket is provided for reception of the mortise lock 11.

[0033] In use, advantageously the door frame members 5, 6, 7 can be assembled to provide a right or left handed door frame as required. Further, the door posts 5, 6 and door head 7 can be made oversized and cut down to the required size to accommodate different door heights and widths.

[0034] Conveniently, a kit can be provided including a door frame, a door, architraves and door furniture. This can then be assembled in situ in an opening in a wall when required in either a right-handed or left-handed configuration opening inwards or outwards (i.e. four options).

[0035] Advantageously delivery in kit form reduces bulk and thus facilitates more efficient transport.

[0036] Also one size of door frame kit can accommodate a number of different door fitting requirements.

[0037] Another advantage is provided by the invention for products sold in retail outlets. Stocking levels diminish in that it is only now necessary to stock one size door frame which suits all requirements.

[0038] It will be appreciated that the door frame may be provided in a complete door set with an associated door, architraves, door stops, etc. or alternatively the various components could be provided separately to allow a "mix and match" choice for the consumer, where the consumer can select a desired door and/or architrave design to mount on the frame.

[0039] Referring now to Figs. 27 to 48 there is shown a door frame kit according to another embodiment of the invention indicated generally by the reference numeral 50. Parts similar to those described previously are assigned the same reference numerals. In this case, the door frame members 5, 6, 7 are of fixed width. A range of door frame members 5, 6, 7 in a number of different widths may be provided to accommodate mounting in walls of different thickness. Also, as described later, the fitting of the architraves on the door frame allows adjustment of the width of the door frame.

[0040] The figures also show a saddle board 51 forming portion of the door frame kit. It will be noted, particularly from Figs. 33, 34, 37 and 42 that each frame member 5, 6, 7 in this case has grooves 52 centrally located in inner and outer faces of the frame member 5, 6, 7. In this case also, referring in particular to Fig. 43, an L-shaped section architrave member 55 is provided comprising a decorative outer moulding portion 56 with an inwardly extending tongue 57. This tongue 57 is inserted into a complementary groove 52 in one of the frame members 5, 6, 7 for mounting the architrave 55 on the door frame. By adjusting the depth to which the tongue 57 is inserted into the groove 52, this provides an amount of width adjustment for the door frame.

[0041] It will also be noted that the serrations 21 on the door stop 20 (Fig. 45 and Fig. 47) are located intermediate a front edge 60 and a rear edge 61 of the stop 20 and are located inwardly from said edges 60, 61 sufficiently such that the stop 20 extends over and conceals the associated serrations 22 on the frame members 5, 6, 7 when the stop 20 is mounted on the frame members 5, 6, 7 as can be seen in Figs. 30 and 31 for example.

[0042] Figs. 48 and 49 show the striker plate 10. In this case a leading edge 60 of the striker plate 10 is bent back at 30° to provide a lead-in for the latch tongue 27 of the lock.

[0043] The invention is not limited to the embodiments hereinbefore described which may be varied in both construction and detail with the scope of the appended claims.

Claims

1. A door frame kit comprising three associated frame members, namely a hinge door post, a shutting door post and a door head for assembly together to form a door opening for reception of a complementary door, **characterised in that** at least the door post frame members are reversible.

2. The door frame kit as claimed in claim 1 wherein each frame member is reversible.

3. The door frame kit as claimed in claim 1 or claim 2 wherein each reversible frame member is shaped on both sides such that either side of the frame member can form an inside face of the frame member defining the opening for reception of the door.

4. The door frame kit as claimed in any preceding claim wherein a set of spaced-apart hinge check-outs are provided on each side of the hinge door post and a lock striker plate check-out is provided on each side of the shutting door post.

5. The door frame kit as claimed in any preceding claim including a door stop which is adjustably engagable with an associated frame member.

6. The door frame kit as claimed in claim 5 wherein complementary interengagable formations are provided on the door stop and frame member for adjustably positioning the door stop on the frame member.

7. The door frame kit as claimed in claim 6 wherein the complementary interengagable formations comprise mating serrations on the door stop and the frame member.

8. The door frame kit as claimed in any of claims 4 to 7 wherein a striker plate is mounted on the shutting door post, said striker plate being reversible.

9. The door frame kit as claimed in claim 8 wherein the striker plate has a pair of spaced-apart receiver openings for reception of a latch bolt and a catch bolt of a lock mounted on the door, said receiver openings being of similar size and equi-distant from a centre of the striker plate.

10. The door frame kit as claimed in any preceding claim wherein each door frame member is width adjustable.

11. The door frame kit as claimed in claim 10 wherein each door frame member has two interengagable parts which are movable relative to each other for adjustment to accommodate different wall thicknesses.

12. The door frame kit as claimed in claim 10 wherein an architrave is provided for mounting on the door frame, said architrave and door frame being interengagable by means of a tongue and groove connector, preferably the tongue being provided on the architrave and the complementary groove being provided on the frame, most preferably the architrave

having an L-shaped section comprising a decorative outer moulding with an inwardly extending tongue.

- 13.** The door frame kit as claimed in any preceding claim further including one or more of door stops, architraves and door furniture. 5
- 14.** A door set comprising the door frame kit as claimed in any preceding claim together with a complementary door. 10
- 15.** The door set as claimed in claim 14 wherein a number of spaced-apart hinge mounting slots are provided along a hinge edge of the door, said hinge slots extending between front and rear faces of the door. 15

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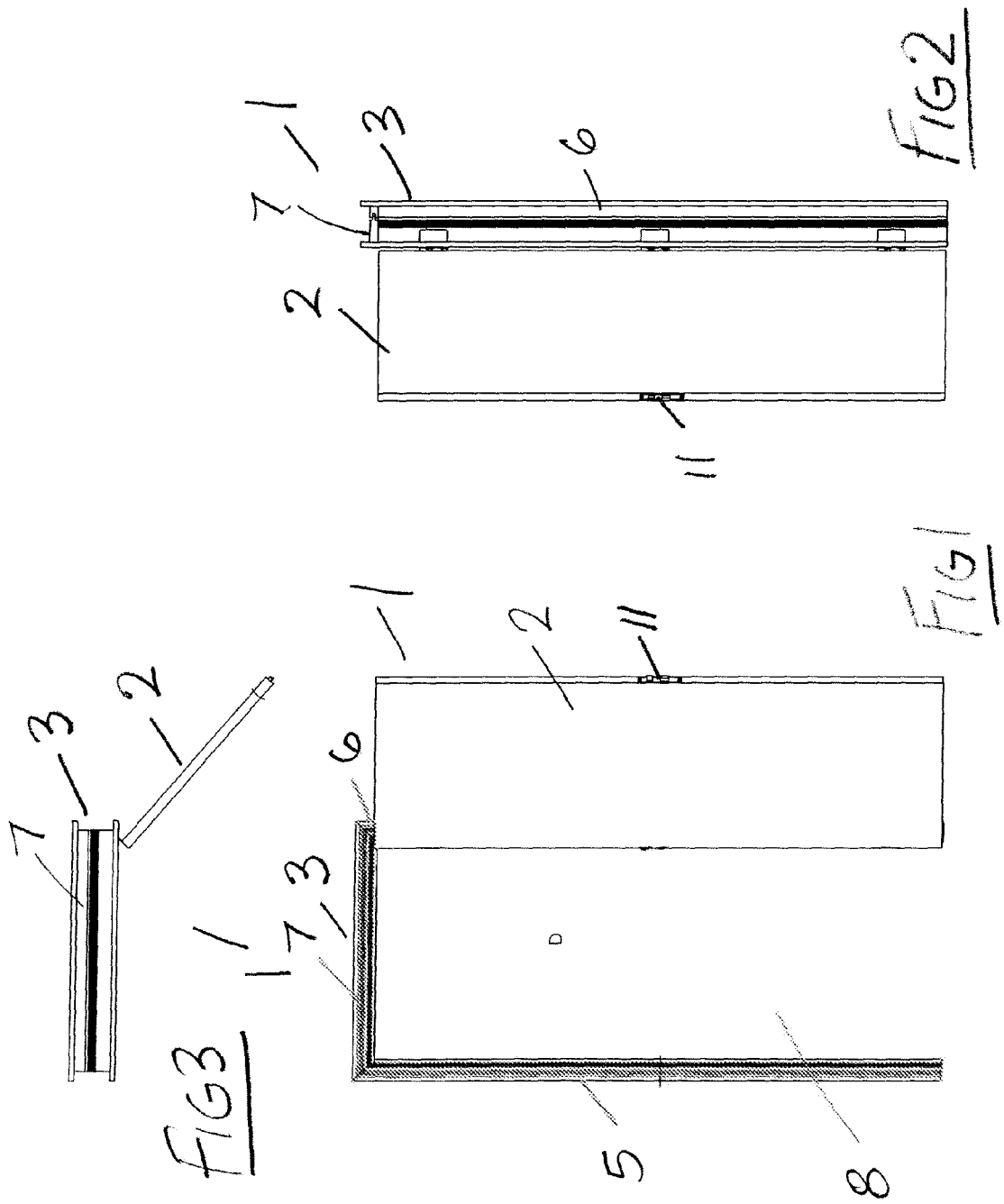
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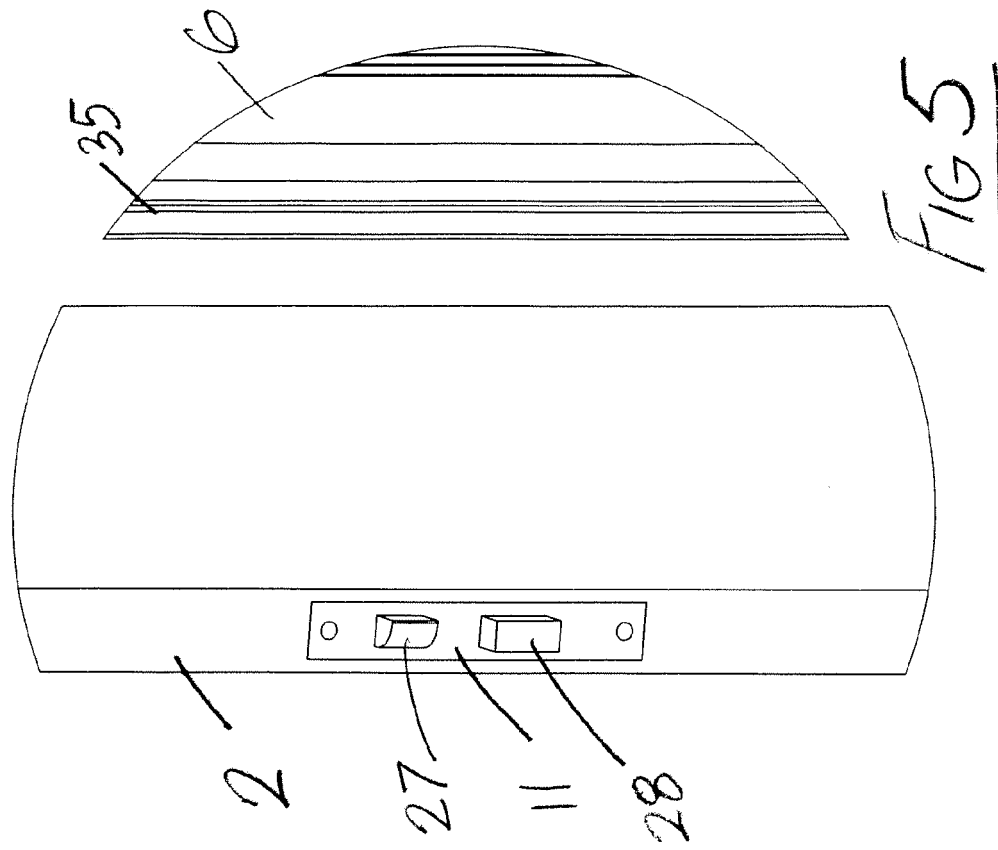
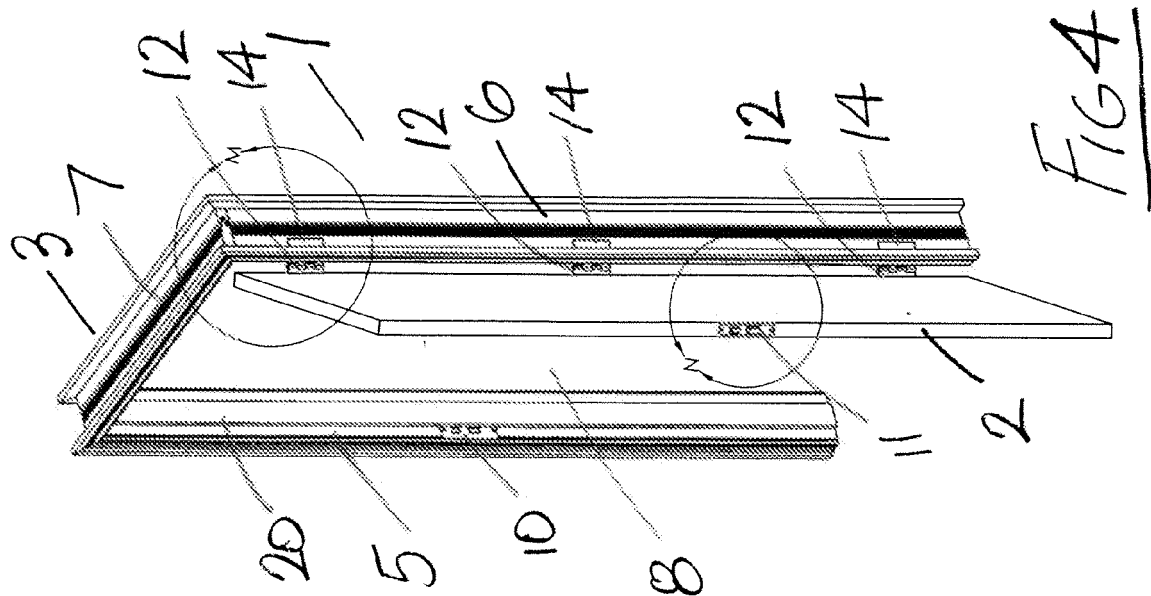
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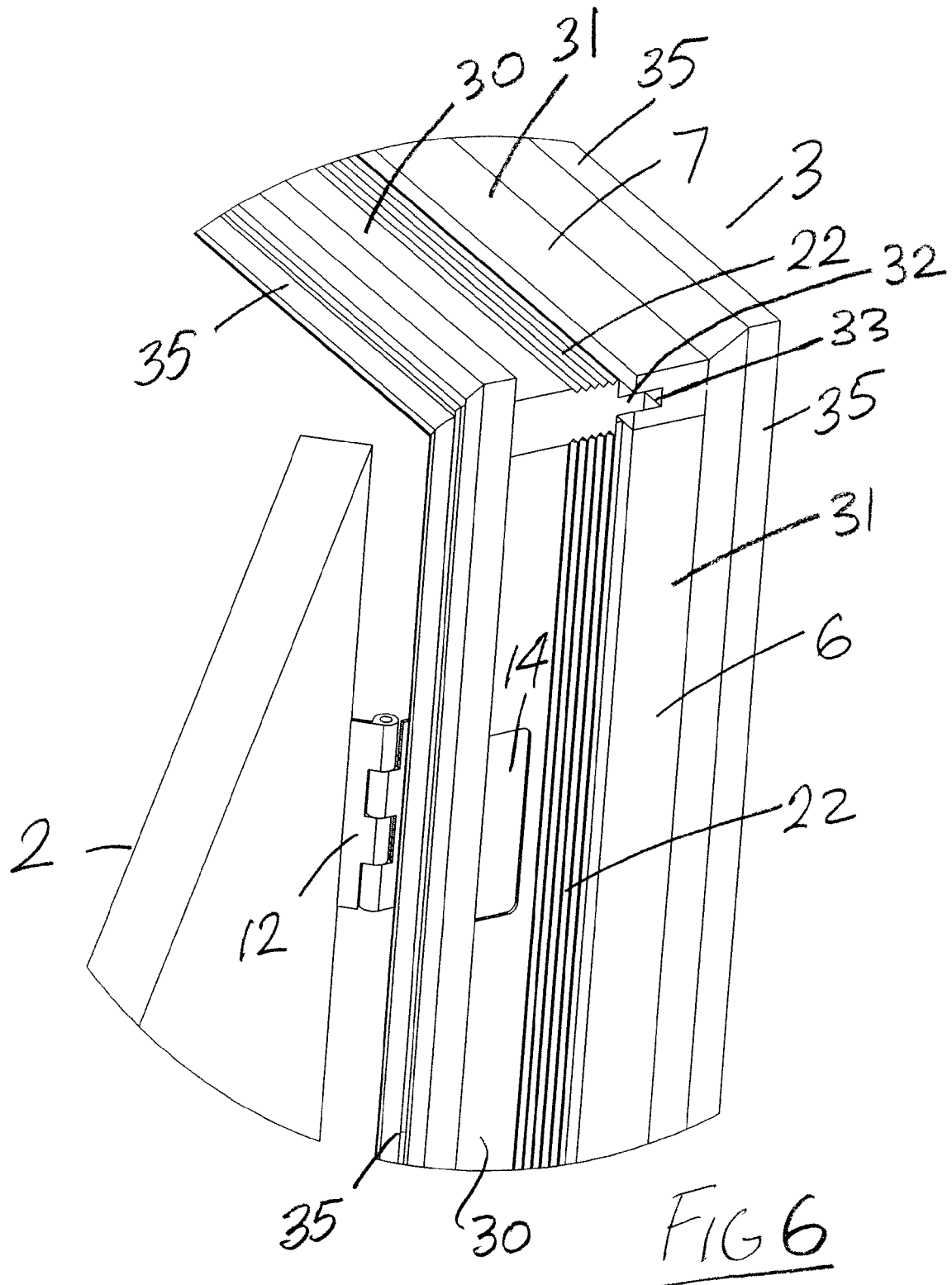
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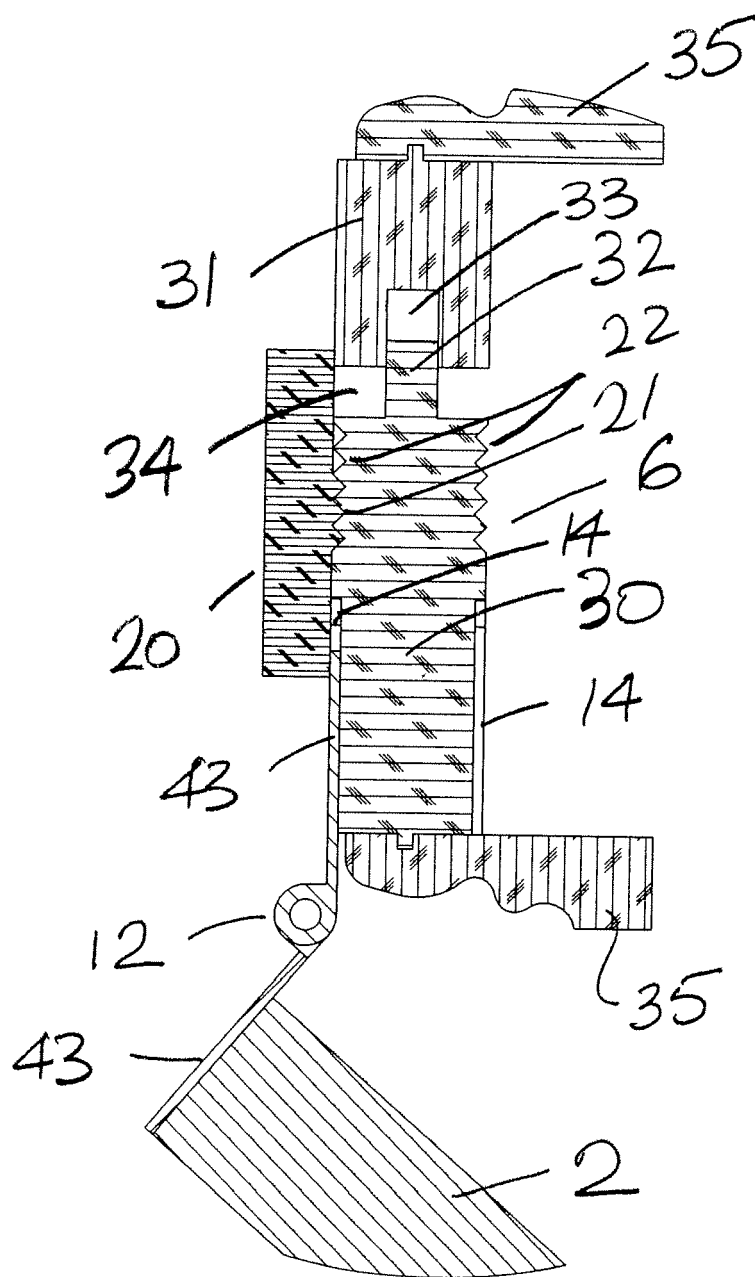
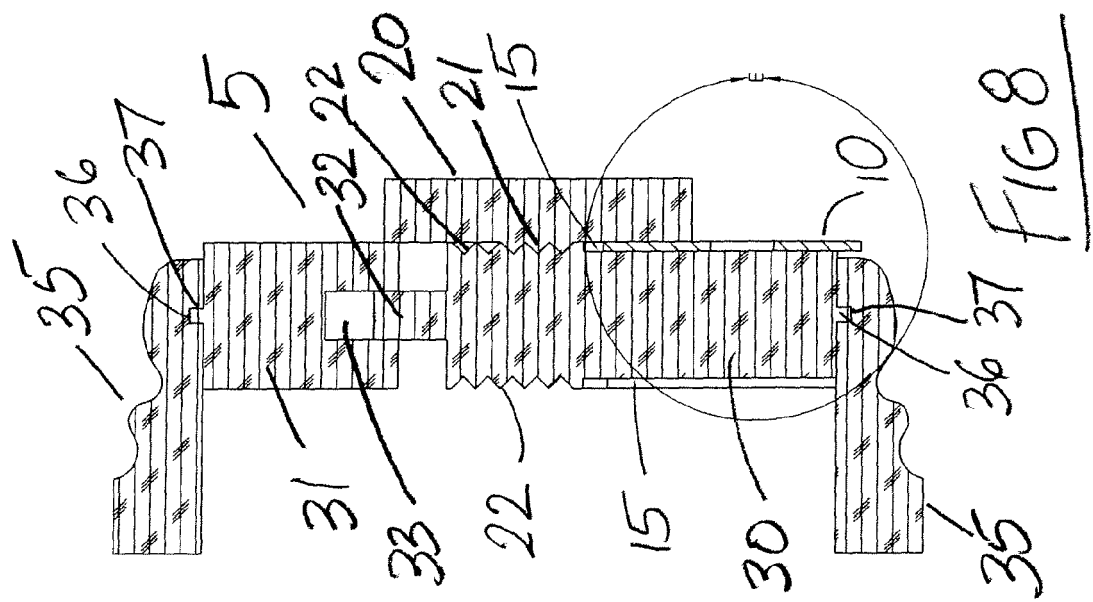
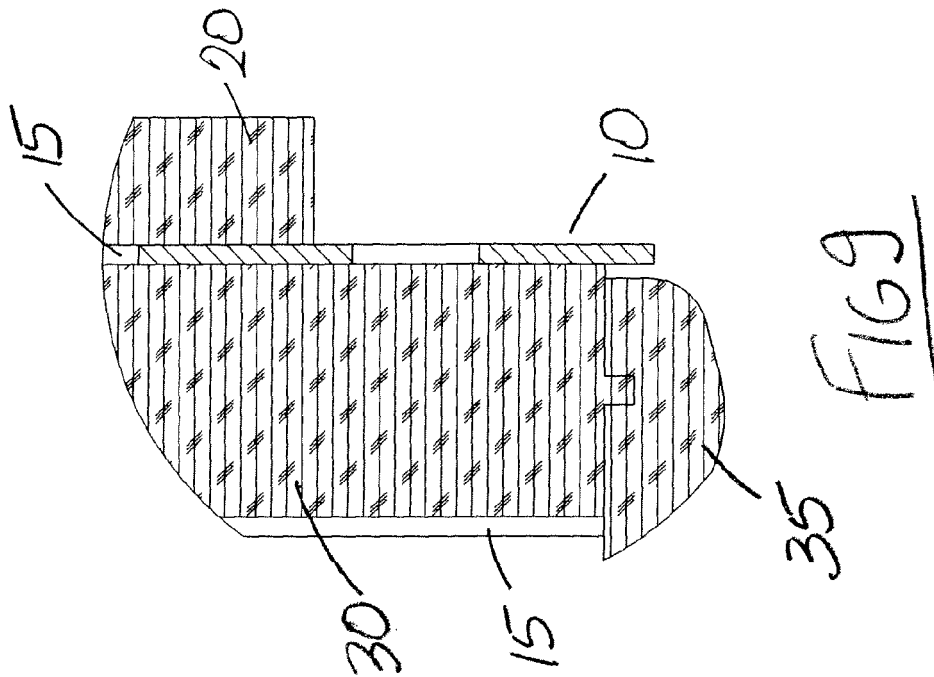
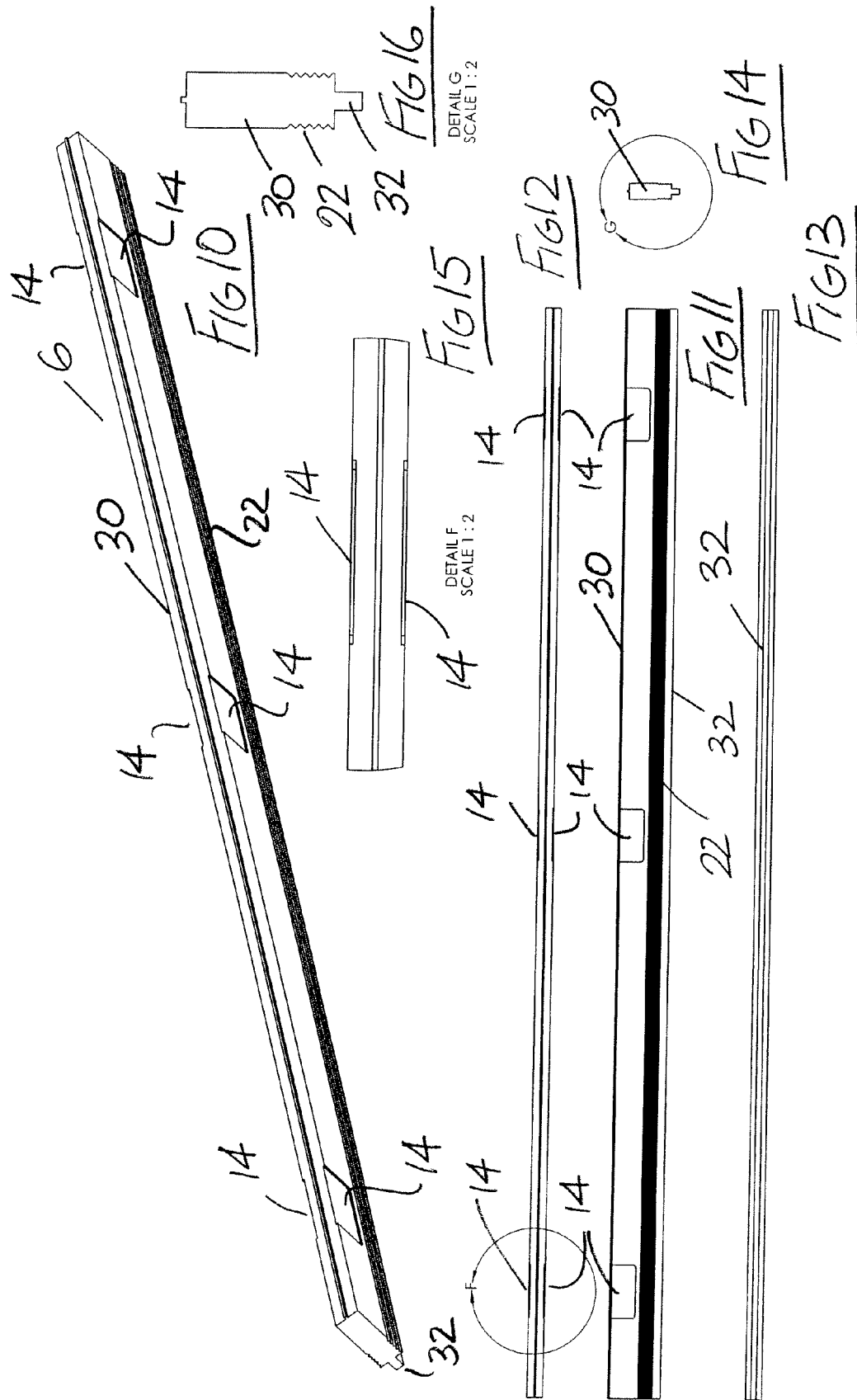
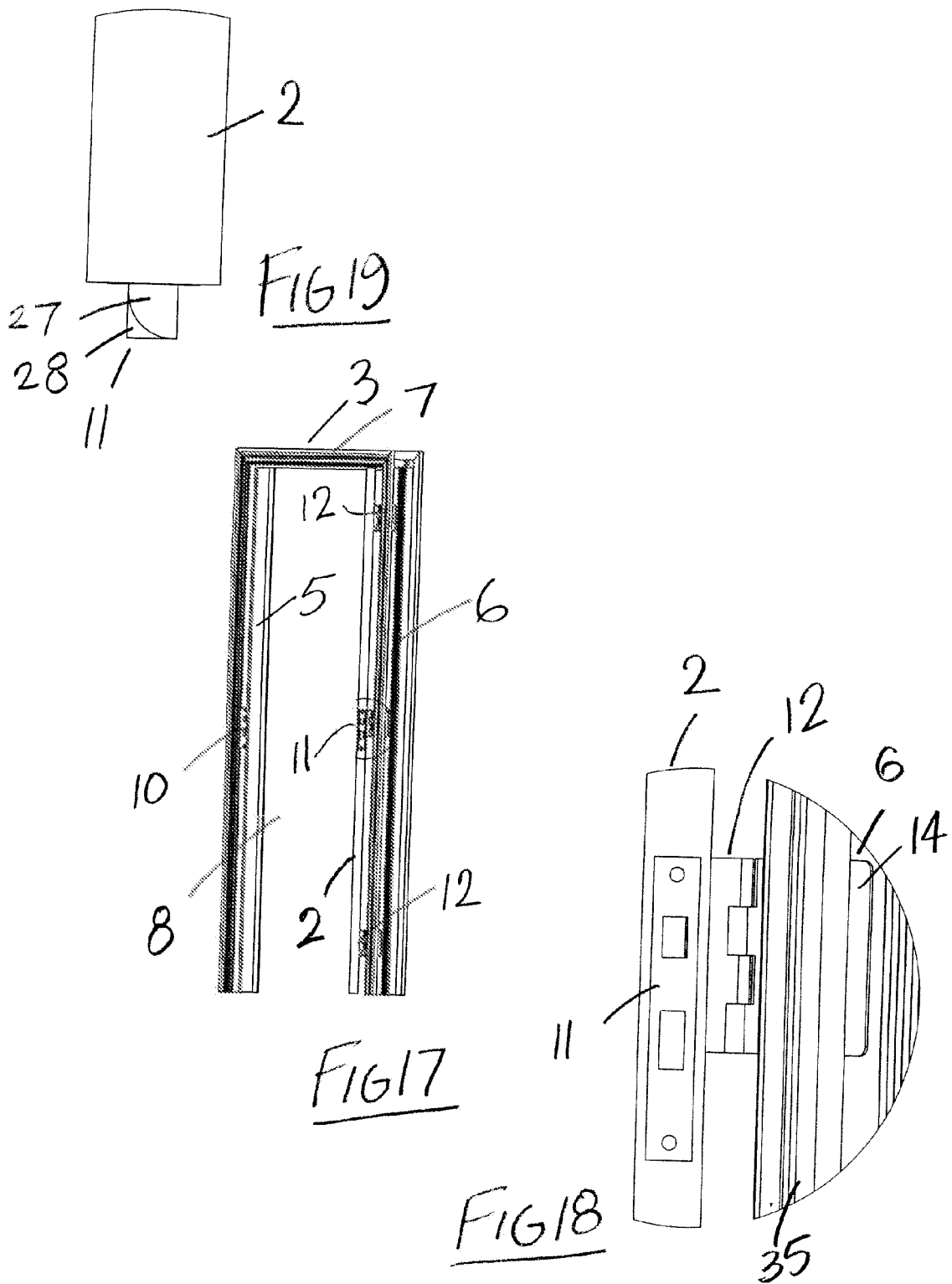
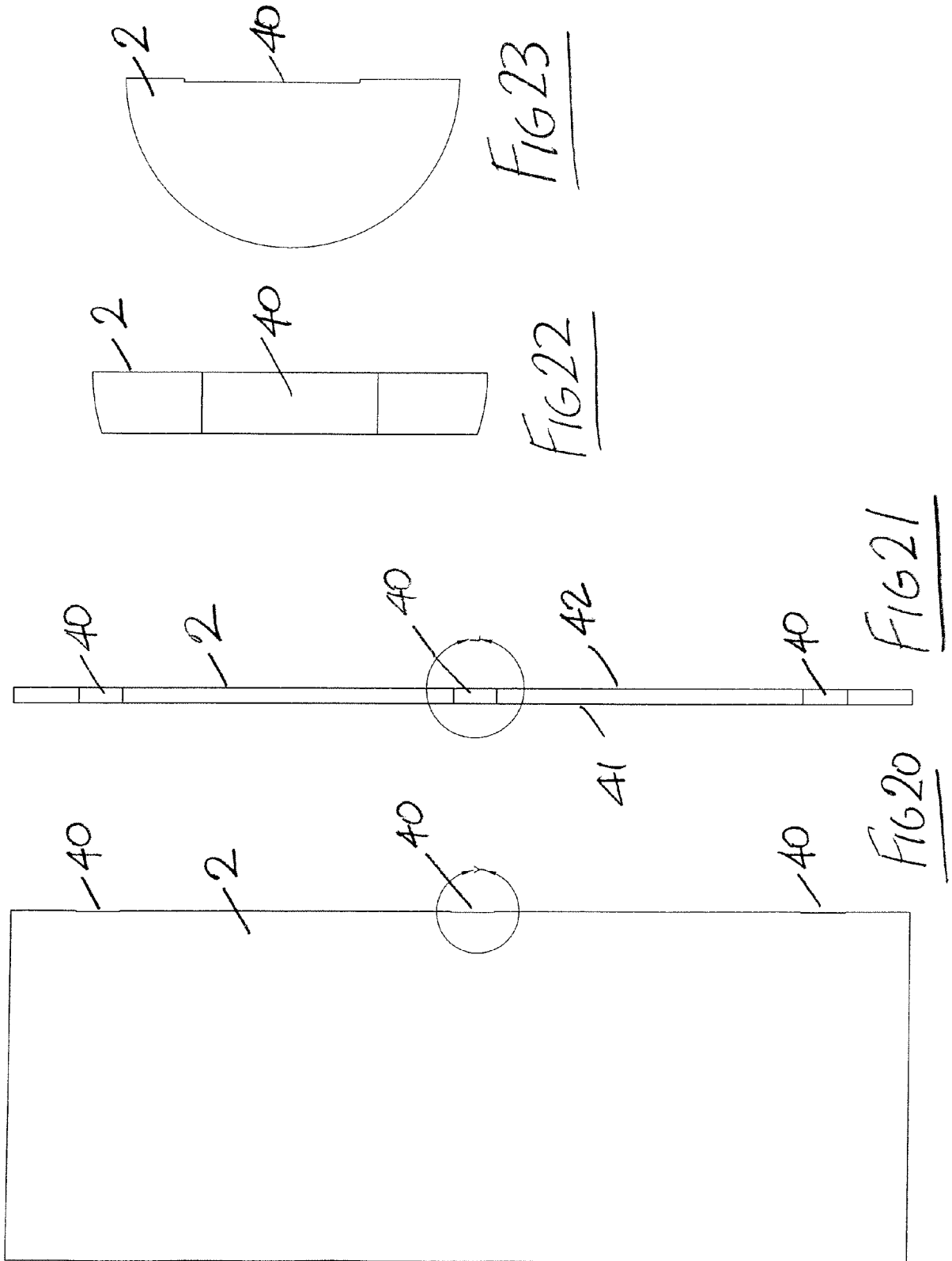


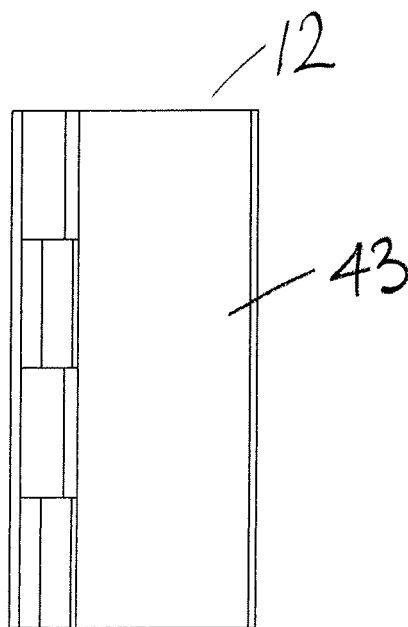
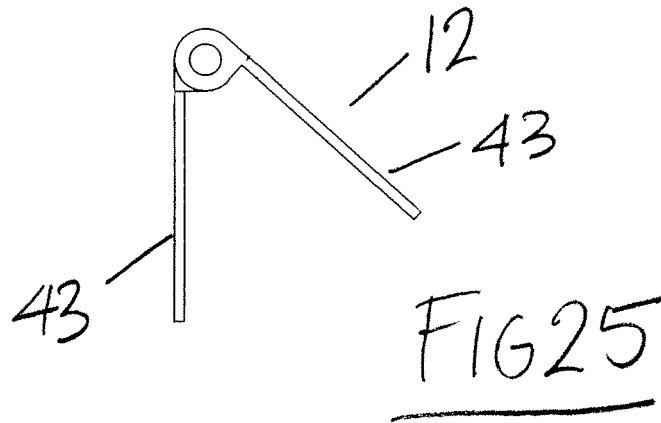
FIG 7











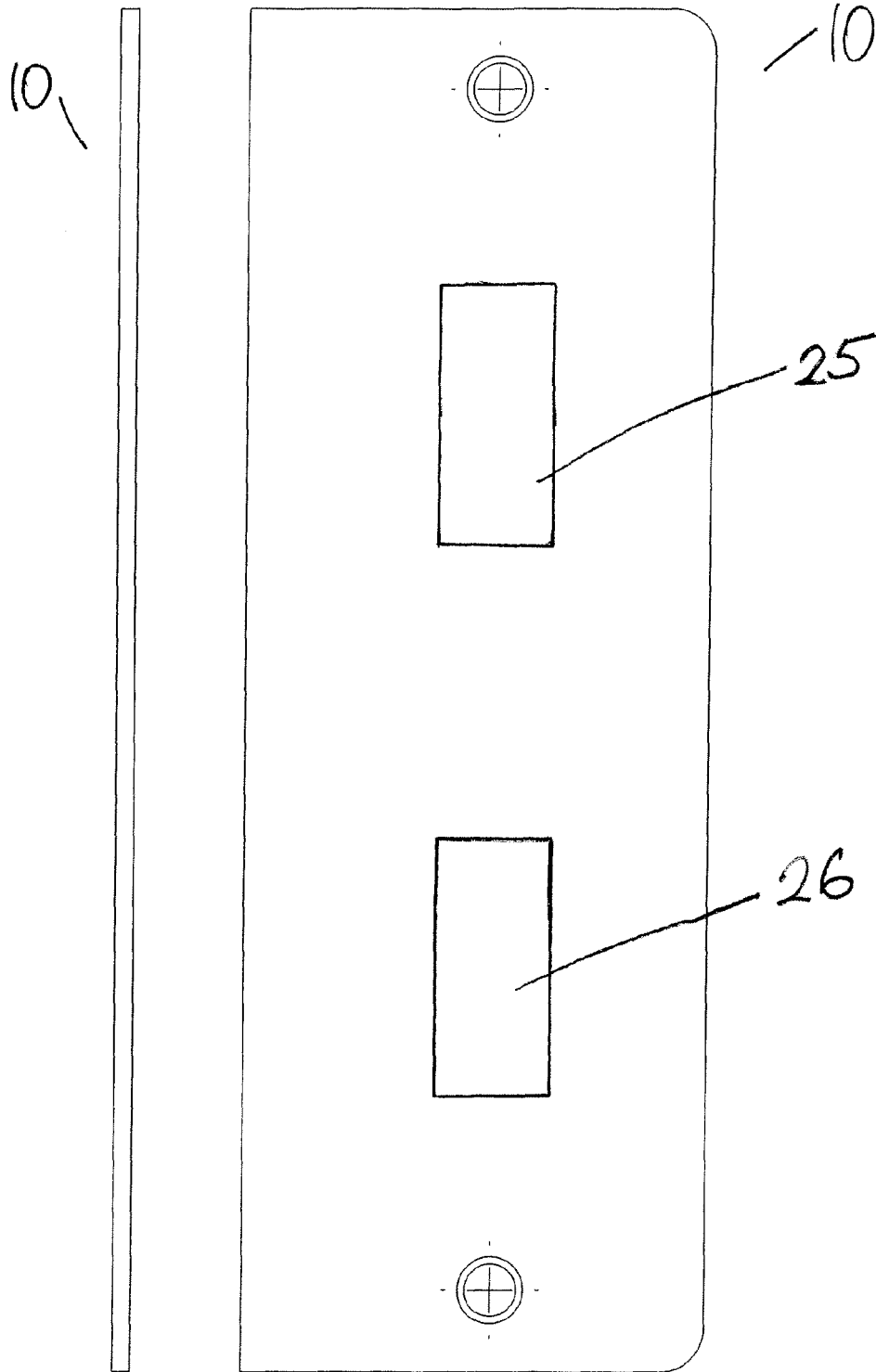


FIG 27

FIG 26

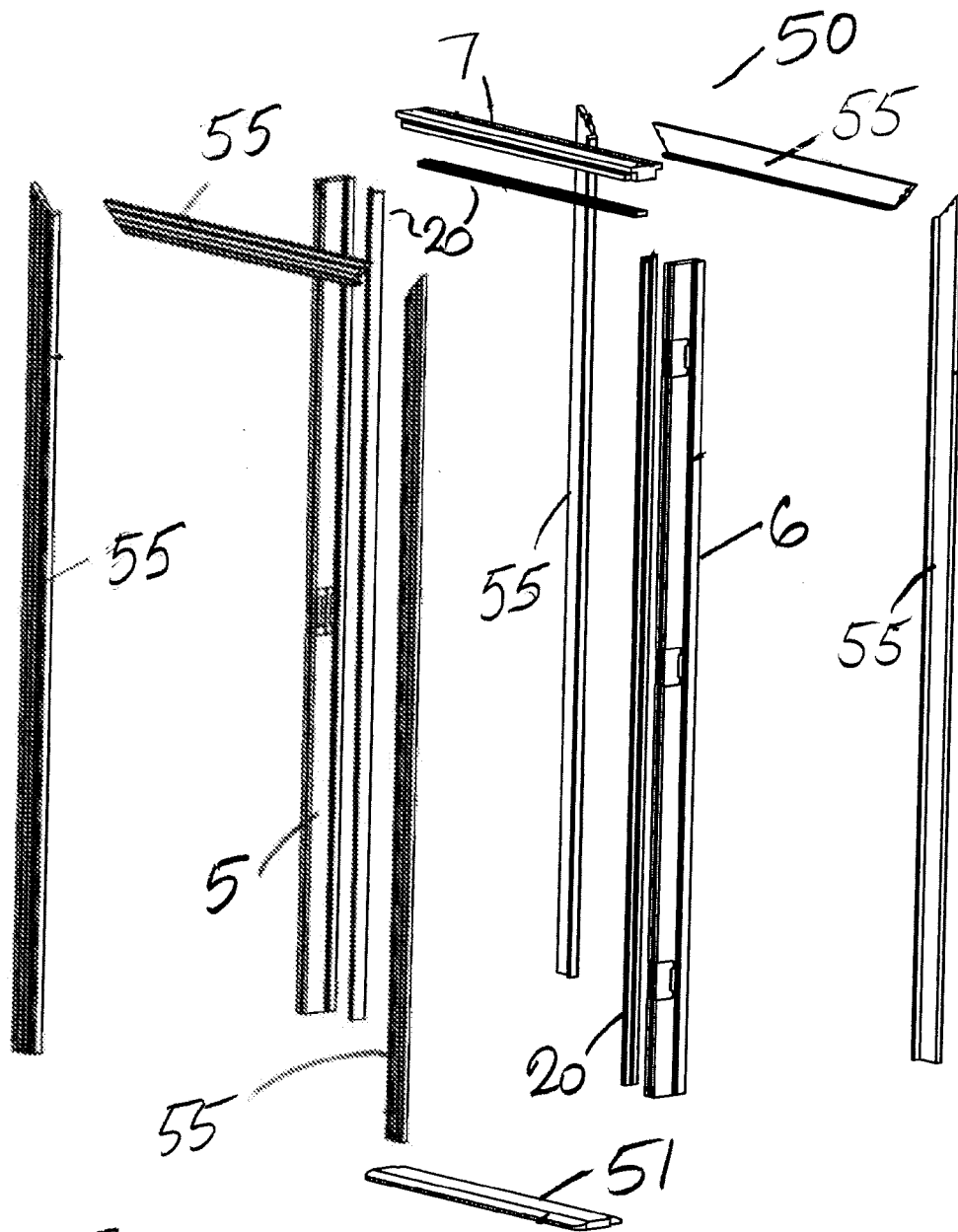
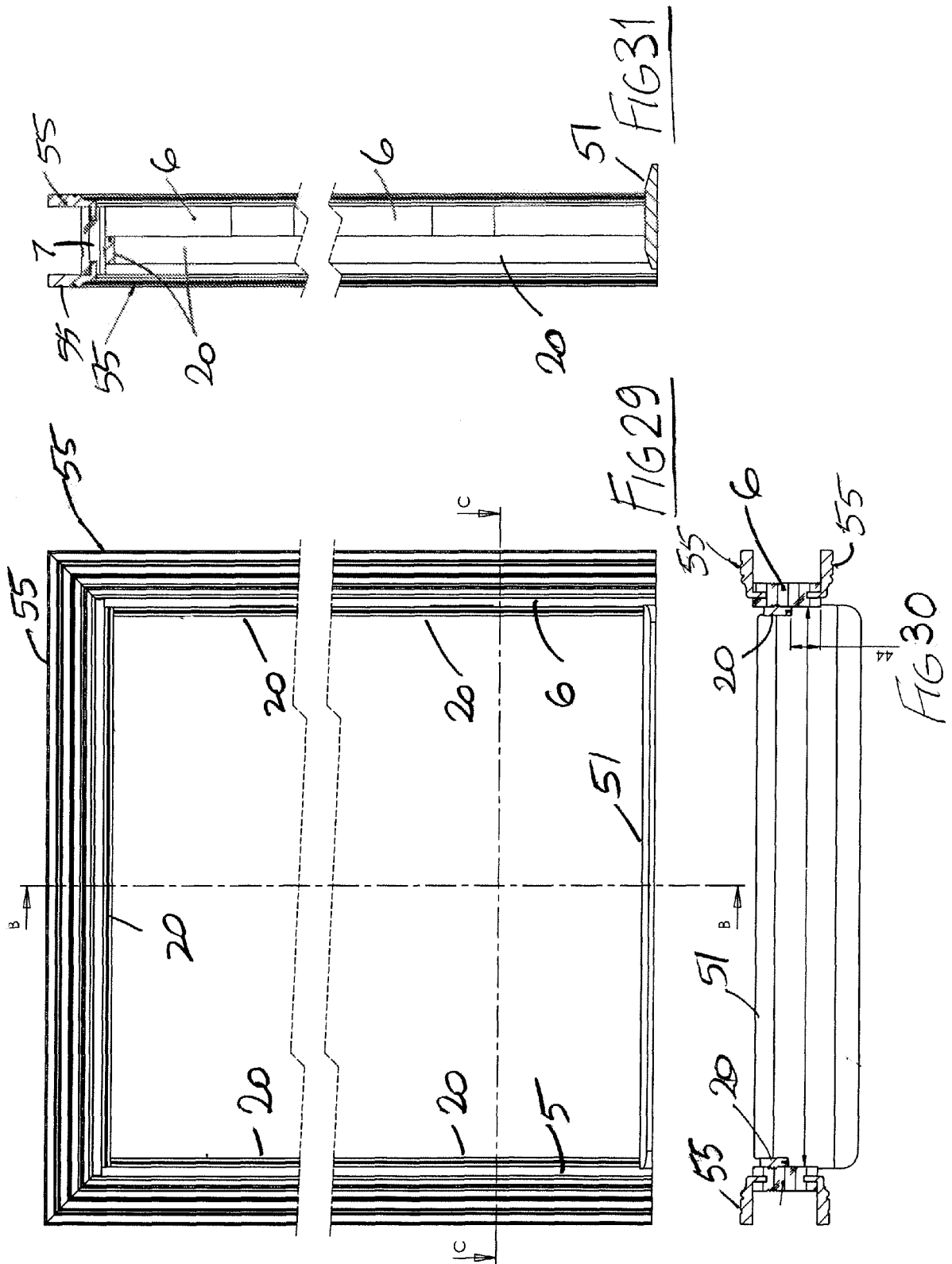
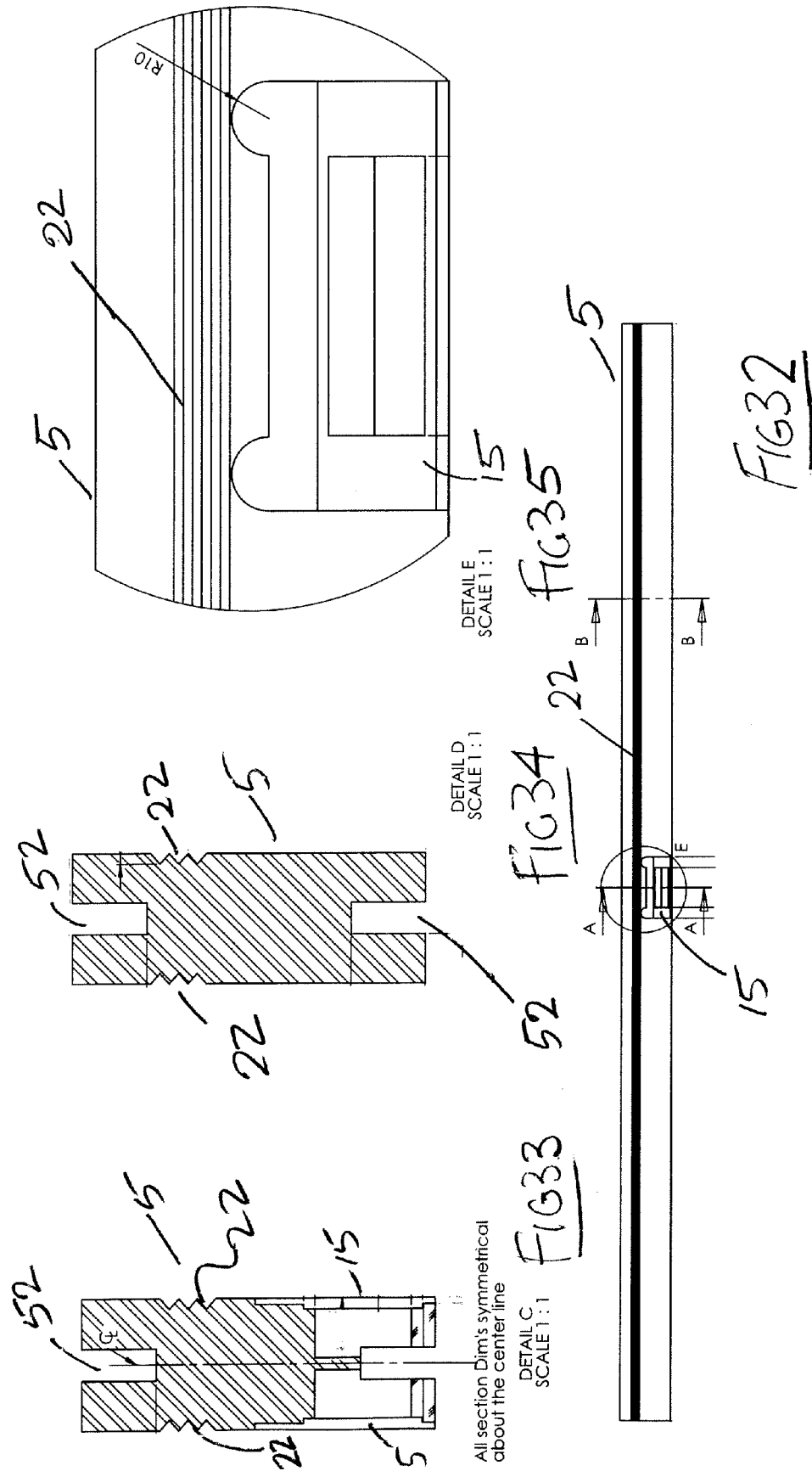
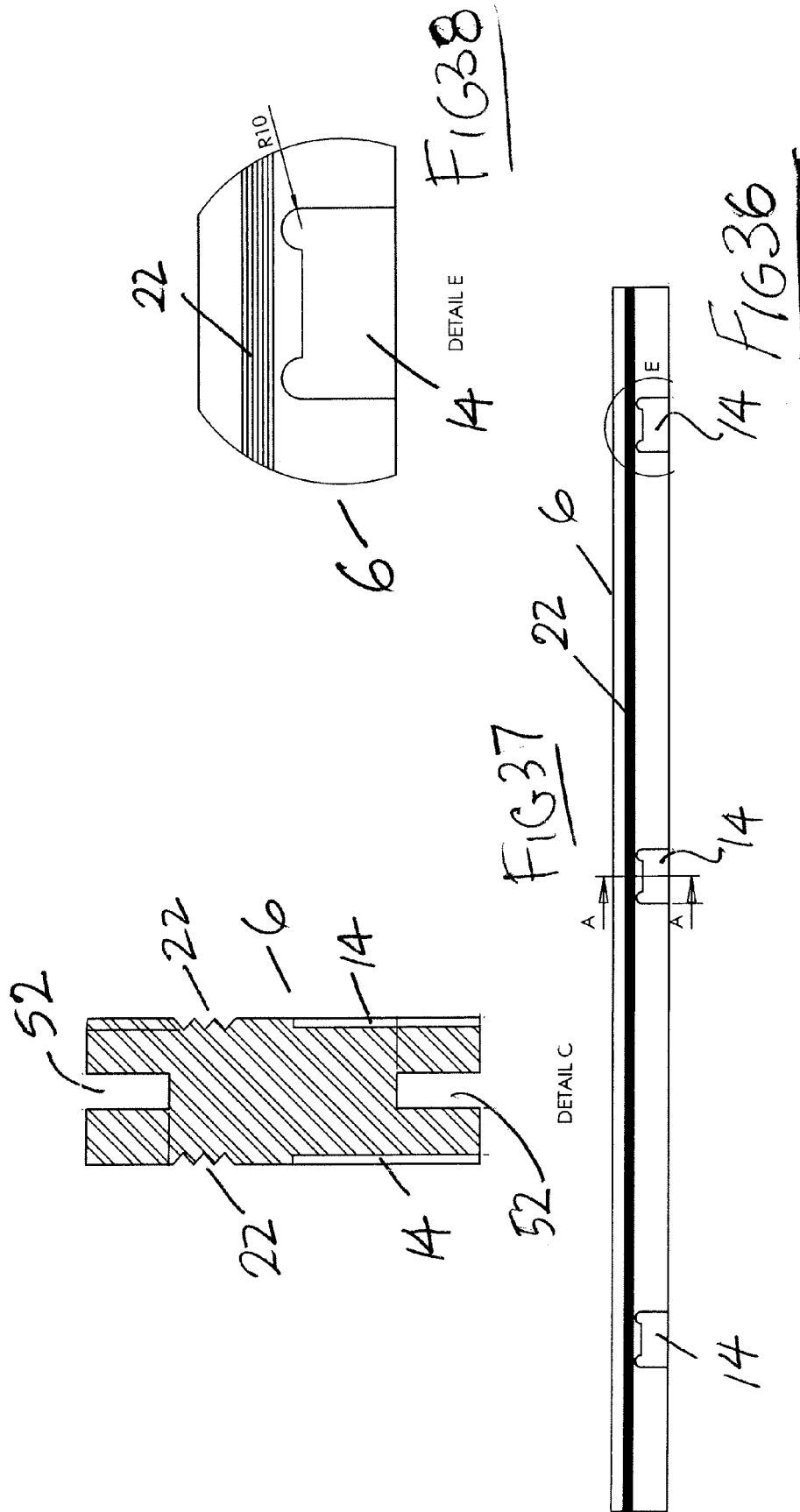
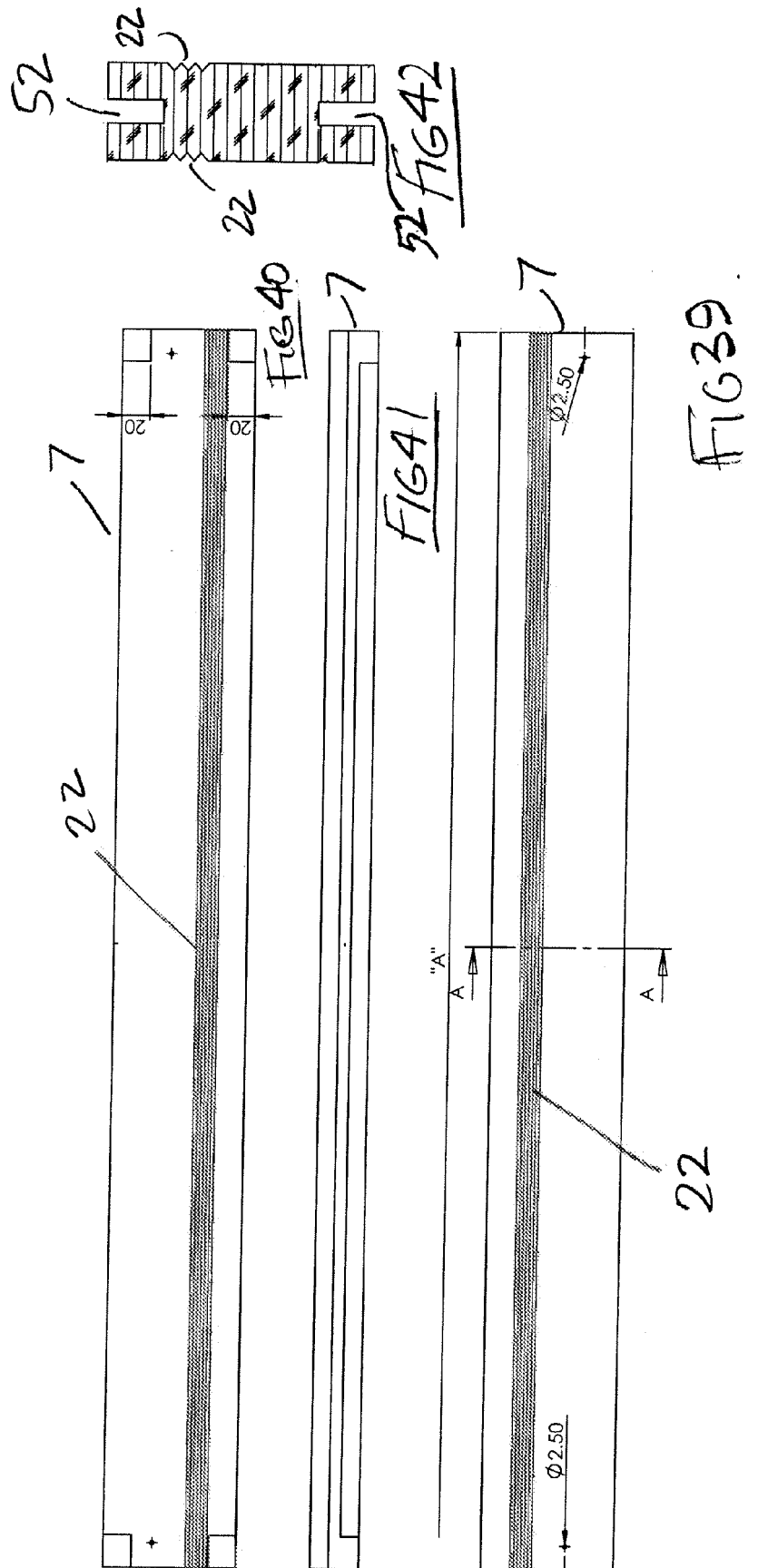


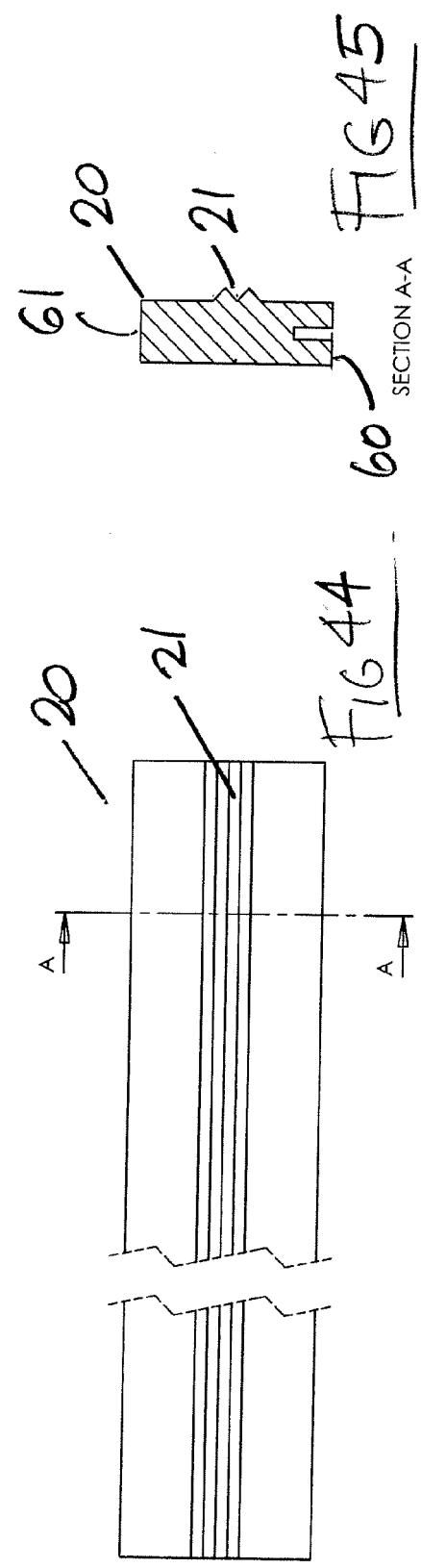
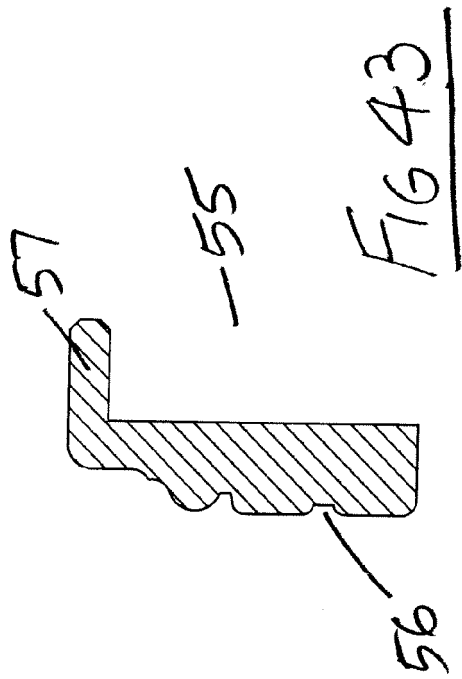
FIG 28











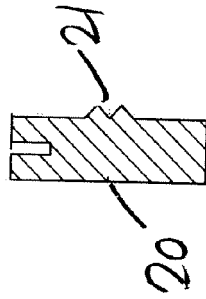
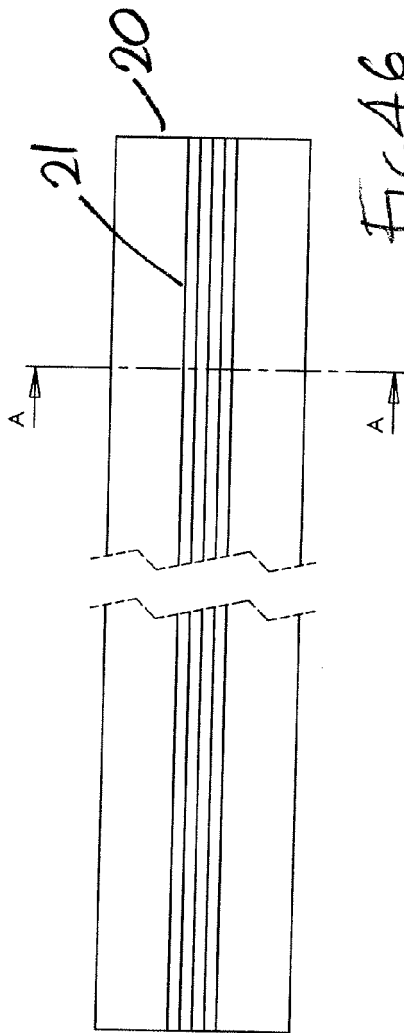


FIG 47

