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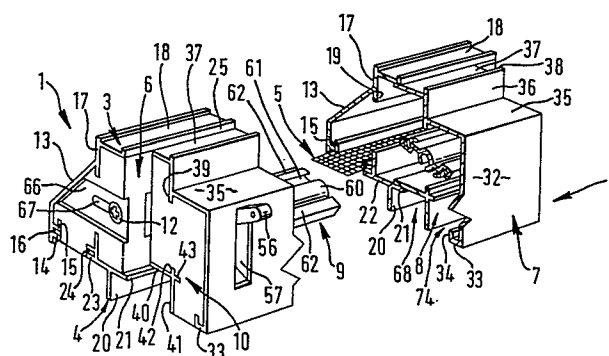
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Ventilator for glazed windows or doors.

The ventilator is of elongate form and comprises two main units, a hood unit 1 and a duct unit 2. The hood unit 1 includes a hood section 3, a first glazing section 4 and fly-netting 5, these members being connected together and supported at each end by support blocks 6. The duct unit 2 includes a duct section 7, a second glazing section 8 and a vane 9. These members are connected together and supported by blocks 10 which carry vane supports pivotally supporting the vane 9 for opening and closing movement of the air path through the ventilator. The hood and duct units are connected together through the inter-engagement of the respective support blocks 6 and 10 at each end. The first and second glazing sections 4 and 8 define a glazing channel 68 of which the width can be adjusted to suit different thickness of glazing by selective adjustment of the inter-engagement of the support blocks 6 and 10. The ventilator is designed to use elongate extruded sections for the main members to enable ventilators of different lengths to be assembled from common parts and enabling these parts to be used for different glazing requirements.



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Title:

VENTILATOR FOR GLAZED WINDOWS OR DOORS

This invention relates to ventilators for glazed windows or doors.

It is already known to provide ventilators for direct mounting in glazed panels wherein a prescribed
05 size of circular hole is cut in the glazing and a circular ventilator having a rotatable fan is mounted in the cut hole by means of a two part support assembly. Such ventilators can accomodate different thicknesses of single glazing, but if intended to be
10 used with double glazed panels, very special and expensive steps are required to provide a double glazed panel with the correct size opening.

It is already known to provide ventilators of elongate form which are mounted in the fixed frame or
15 surround of a window or door. These ventilators may have a slidable obturator or a pivotal vane or blade for controlling the air flow through the passageway formed or provided in the fixed frame by the ventilator. Such ventilators increase the dimensions
20 of the frame and in certain installations may decrease the effective glazed area or reduce headroom.

Furthermore, in various systems of assembling window and door frames, such as for replacement windows and patio doors, complex fabricating methods have to be
25 provided on site to install elongate ventilators to different sizes, and in some systems the size of the ventilator cannot be varied to suit different widths of the glazed opening, and on very wide openings it may be necessary to use several separate ventilators mounted
30 side-by-side.

It is an object of this invention to provide an elongate ventilator which is formed from a simple kit of parts so that it can be assembled to form a ventilator of required length and is adjustable for a range of thicknesses of glazing including double glazed panels.

It is another object of this invention to provide an elongate ventilator in which there is a thermal break to obviate temperature differences between the external and internal parts of the ventilator which lead to problems of condensation and the like.

Other objects of this invention will be apparent from the detailed description of the invention given later herein.

According to this invention, we provide a ventilator of elongate form and comprising a hood unit with a first glazing section and having a support block at each end, and a duct unit with a second glazing section and having a support block at each end mounting a pivotal vane for controlling flow through the ventilator between the hood and duct units, the hood and duct units being assembled and connected together at each end by the respective support blocks with the first and second glazing sections defining a glazing channel for receiving one edge of glazing in use, the respective support blocks being arranged for relative adjustment of the hood and duct units to vary the width of the glazing channel to accommodate different thicknesses of glazing.

The ventilator according to this invention has two main parts, these being the hood and duct units which are made up to fit the desired length of the one edge of the glazing. No special profile cutting of the glazing is required.

The ventilator provides the glazing channel so that it can be installed in an existing frame or form part of a frame for glazing. To accommodate the wide range of thicknesses of glazing, for example from 4 mm to 20 mm or greater, the hood and duct units are mounted together by the support block assemblies at each end of the ventilator and which are arranged to permit adjusting movement between the hood and duct units to suit the glazing to be fitted into the channel. Thus, the fabricator or installer can use the same ventilator component parts for a wide range of sizes of window or door and thicknesses of glazing.

Preferably, each assembly of the support blocks provides a thermal break interrupting heat transfer between the hood and duct units. By this provision any temperature differential between the external hood unit and the internal duct unit will not cause condensation or other deleterious effects.

Conveniently, to provide the thermal break, the support blocks are made of a plastics material.

Preferably, the support blocks associated with each end of the duct unit are similar and each mounts a vane support member for limited rotation with each end of the elongate vane extending lengthwise of the duct unit being mounted on a respective one of the vane support members for pivotal movement relative to the duct support blocks.

By such an arrangement, the vane is also isolated to prevent thermal transfer between the duct unit and the hood unit as the vane is supported through the support block assembly providing the thermal break.

The support blocks associated with each end of the hood unit are similar to each other, and each hood support block includes a formation complementary to

another formation on each duct support block, the complementary formations on the hood and duct support blocks being arranged to inter-engage on assembly to locate the assembled support blocks adjustably
05 together.

The provision of such complementary formations assists in properly assembling the hood and duct units together and locates the hood and duct units whilst any relative adjustment is made to provide the correct
10 width of glazing channel.

Preferably, the complementary formations comprise a wing extending from one support block and a rebate or groove in the other support block for slidably receiving the wing for a range of positions. A member
15 for securing the two support blocks of each end assembly is provided. Conveniently, such member may be a pin, stud or threaded element arranged to extend through a hole and slot in respective ones of the complementary formations.

As will be appreciated, the rebate or groove
20 locates the wing for adjusting sliding movement whilst the securing member is employed to fix the hood and duct units together in their adjusted positions to suit the glazing thickness. Such an arrangement facilitates
25 fabrication of the ventilator where it is to be incorporated in a window or door system. Furthermore, where desired to fit a ventilator to an existing opening or glazing, the relative location of the hood unit and the duct unit assists in fitting and permits
30 the ventilator to be installed in situ from opposed sides of the opening or glazing.

There are other preferred features of the invented ventilator which will be described in detail later, but of these, one especial feature is the use of extruded

sections for forming the elongate parts of the hood unit and the duct unit.

05 The hood unit preferably comprises a hood section and the first glazing section, the sections being provided so that they can be cut to the required length for location and support at each end on opposed hood support blocks to form the hood unit. If desired, the hood unit may also comprise fly-netting or gauze
10 seated between the hood section and the first glazing section to prevent ingress of flies or detritus into the ventilator. This may also be a strip for cutting to length.

15 The duct unit preferably comprises the second glazing section, a duct section and a vane section, each of which sections can be cut to the required length for assembly at each end to the duct support blocks and vane supports. The duct support blocks are formed to support and locate the sections, with the vane being arranged to pivot between a seating on the
20 duct section and a seating provided on the second glazing section to control the flow of air through the ventilator.

25 Conveniently, the air passageway through the duct unit is provided between the second glazing section and the duct section.

The duct section may be provided with an access aperture for an actuator for controlling the pivotal movement of the vane, and the actuator may be integral with one or both of the vane supports.

30 It is envisaged that the ventilator according to this invention be provided as an assembly to window or door manufacturers or as a kit of parts comprising the various sections and support blocks and ancillary parts for assembly to suit a wide range of ventilator lengths

and glazing thicknesses. This invention is deemed to include such a kit.

An exemplary embodiment of this invention will now be described with reference to the accompanying
05 drawings wherein:-

FIGURE 1 is a perspective view of the assembled ventilator with the centre being broken away to show the internal arrangement;

FIGURE 2 is an exploded perspective view of the
10 component parts of the ventilator as shown in Figure 1;

FIGURE 3 is a schematic end view of the ventilator showing the assembly for a double-glazing unit;

FIGURE 4 is a schematic plan view of the end assembly of the ventilator as shown in Figure 3;

15. FIGURE 5 is a schematic end view of the ventilator showing the assembly for single glazing;

FIGURE 6 is a schematic plan view of the end assembly of the ventilator as shown in Figure 5;

20 FIGURES 7 and 8 are enlarged detail views of the vane support of the ventilator shown in the foregoing drawings; and

FIGURE 9 is a schematic end view similar to Figure 3 but illustrating an alternative type of actuator for the exemplary ventilator.

25 The ventilator as depicted in the accompanying drawings comprises a hood unit 1 and a duct unit 2.

The hood unit 1 comprises a hood section 3, a first glazing section 4 and a strip of fly-netting 5. These members are connected together and supported at
30 each end by hood support blocks 6.

The duct unit 2 comprises a duct section 7, a second glazing section 8, and a vane section 9. The duct and second glazing sections are connected together and supported at each end by duct support blocks 10,

and the vane section 9 is supported also from the duct support blocks 10 for pivotal movement by means of two opposed vane supports 11 rotatably received in the duct support blocks 10.

05 Each of the sections are of uniform cross-section throughout their length and are preferably extrusions of aluminium. These sections are designed so that they can each be cut to the desired length by simple right-angle cuts to enable ventilators of differing lengths
10 to be assembled from the same basic component parts.

The support blocks 6 and 10 are mouldings of a suitable plastics material of low thermal conductivity and the hood and duct support blocks are arranged for assembly to each other and to be secured together by a
15 threaded member 12.

The hood section 3 has a main wall 13 terminating at it's lower edge with a pair of inwardly directed ribs 14,15 which define a groove 16 therebetween. The upper edge of the main wall 13 has an upstanding
20 web 17 leading to a transverse top flange 18 with a dependent rib 19 projecting from the lower part of the web 17.

The first glazing section 4 is generally of T-shape providing a dependent leg 20 with opposed
25 flanges 21,22. The outwardly directed flange 22 is formed with a pair of ribs 23 which are similar to those on the hood section and which also provide a groove 24 therebetween extending in the hood unit opposed to the hood section groove. The marginal edges
30 of the strip of fly-netting 5 are received within the opposed grooves 16,24 of the hood and first glazing sections, and the gap 25 between the hood and first glazing sections provides an air path opening to the interior of the ventilator.

Each hood support block 6 is similar so that the same block can be fitted to either end of the ventilator. The block has a profile designed to enable the block to be pushed onto the cut ends of the hood and first glazing sections. Each hood support block 6 has a top ledge face 26 for supporting and engaging the underside of the top flange with a shallow groove 27 being arranged to receive the dependent rib 19. The outward face 28 of the block has a profile conforming to the inside face of the main wall 13 of the hood section and the lower outer corner edge portion of the block is formed with another shallow groove 29 to receive and locate the uppermost rib 15 of the two inwardly directed ribs.

To support and locate the first glazing section 4, each hood support block 6 has a support face 30 at the inward corner to engage the upper face of the aligned flanges 21,22 with the block having a shaped recess 31 to receive the uppermost rib 23 of the flange 22.

As will be understood, once the hood and first glazing sections are supported and located at each end by the respective hood support blocks, and fly-netting inserted, the hood unit is assembled and self-supporting.

The duct section 7 has a main wall 32 terminating in a flange 33 which is directed inwardly with a peripheral rib 34. The main wall 32 depends from one side of a bridging portion 35, and from the other side of the bridging portion there is an upstanding wall 36 from which a transverse flange 37 extends. The top of the upstanding wall terminates in a short rib portion 38 providing an abutment and the bottom of the wall 36 terminates in a dependent rib 39 providing an upper seating. The width of the transverse flange 37

of the duct section is substantially the same as that of the transverse flange 18 of the hood section, and the transverse flange 37 of the duct section is adapted to underlie the transverse flange 18 of the hood section in the assembled ventilator with the rib 38 providing a limit stop or abutment.

The second glazing section 8 is generally of L-shape and provides a transverse limb 40 and a dependent flange 41 with two ribs 42, 43 extending normally to each other extending from the angular corner of the section 4. The upstanding rib 42 provides a lower seating.

The two duct support blocks 10 are very similar the differences only being the opposite handing for each end, and herein the same terms and references will be used for each of the two duct support blocks where appropriate.

Each duct support block 10 has a profile designed to enable the cut ends of the duct section 7 and the second glazing section 8 to be pushed into the respective block.

Each support block 10 has a top ledge 44 and a step face 45 for supporting and engaging the underside of the transverse flange 37 and the bridging portion 35 respectively. The side face 46 of the block provides a seating for the main wall 32 of the duct section with the block being formed with a groove 47 for receiving the peripheral rib 34. Furthermore, the block 10 has a lower angular rebate for receiving and supporting the second glazing section 8 with the rebate including respective slots 48, 49 for receiving the two ribs 42, 43 of the second glazing section.

The one face 50 of the duct support block which faces inwards of the ventilator is provided with a

closed end bore 51 in which a respective one of the two vane supports 11 is rotatably received with a friction washer 52 being disposed between the inner end of the vane support and the end of the bore.

05 The vane supports are similar, and each comprises a cylindrical hub 53 having a central bore 54 with a diametric slot 55 being formed at each end of the hub. One vane support has a radially extending control arm 56 which is arranged to project through a clearance slot 57 formed in the main wall 32 of the duct section 7 at that end of the ventilator assembly for which actuation is required. The other vane support is initially formed with the same radial control arm, but where it is not required, it is broken off at a weakness 58 to leave a short stub 59 which may be arranged to frictionally engage an internal surface of the duct unit to provide a braking action.

15 The vane section 9 has a central spline portion 60 of substantially cylindrical shape from which two diametrically opposed webs 61 extend with each web terminating in a longitudinal groove for receiving a strip 62 of plastics wiper or pile seal. Each end of the vane section 9 is received in a respective vane support 11 with the spline portion 60 being received in the central bore 54 and the webs 61 extending through the diametric slot 55.

20 The vane supports may also be formed of a plastics material having low friction and thermal conductivity characteristics.

30 As will now be appreciated, once the various sections and strips of seal have been cut to length and the component parts of the duct unit assembled together, the duct unit 2 is self supporting and mounts the pivotal vane 9 for controlling the air flow through

the ventilator. The seal strips 62 mounted on the vane are arranged to engage the opposed seatings 39,42 provided by the duct section and the second glazing section to close the air passageway, and as the vane is
05 pivoted, the air passageway is opened.

The hood unit 1 and duct unit 2 are located and assembled together by means of the respective support blocks 6,10 which are each formed with complementary formations for this purpose.

10 The duct support blocks 10 are each formed with a transversely extending wing 63 of rectangular section and terminating with an inclined side face 64. The wing has a through hole 65 through which the securing fastener 12 can extend, and the wing is slightly offset
15 to one side of the block body.

The hood support blocks 6 are each formed with a pair of opposed rebates 66 which extend across each end face with a through slot 67 being formed in the block extending mid-way and parallel to the extent of the
20 rebates 66.

Each rebate 66 in the hood support blocks is similar and is for receiving the wing 63 of a duct support block with the slot 67 in the hood support block being in register with the through hole 65 in the
25 wing. The wing 63 is a sliding fit in the selected rebate 66 and the hood and support blocks 6,10 can be secured together in the adjusted position by means of the threaded fastener 12 which is tightened through and to the wing and hood blocks.

30 In mounting the hood unit to the duct unit and as clearly shown in Figures 3, 4, 5 and 6, the glazing channel 68 is formed at the bottom of the ventilator assembly, and the glazing channel 68 is defined by the aligned first and second glazing sections 4,8 with the

dependent leg 20 and limb 41 providing the opposed side faces and the transverse flanges 23,40 forming the bottom of the channel.

05 By varying the relative positions of the hood and duct units the width of the glazing channel can be adjusted to suit single glazing 69 such as shown in Figures 5 and 6 or to suit a double glazing panel 70 such as shown in Figure 3 and 4. In known manner the glazing may be mounted in the glazing channel by a
10 glazing bead 71 such as shown, or the glazing may be directly glazed in the channel by other means.

As shown in Figures 3 and 4, and Figures 5 and 6, the ventilator is arranged to be installed within a fixed timber surround 72 is received in a rebate formed
15 in the head of the frame with the bridging portion of the duct section being secured to the frame by screws 73 to which access is available through the ventilating slot 74 opening to the internal face of the glazing. The respective ends of the ventilator unit
20 are each received in the rebates formed in each side member 75 of the frame. In the installation, suitable sealing strips or mastic 76 are located as required between those faces of the ventilator lying adjacent and within the frame.

25 From the views illustrating the installation of the ventilator, it will be understood that the ventilator can be made and assembled to the required size, namely to length and to glazing thickness, for supply to a window or door manufacturer to assemble to
30 a suitable frame which is then glazed. However, by this design the duct unit can be installed in situ secured to the frame and ready for receiving the glazing. Once the glazing has been installed, the assembly of the ventilator can be completed by locating

the hood unit on the projecting wings of the duct support blocks and sliding the hood unit into the correct alignment with the hood unit being pushed up to close onto the glazing. This latter aspect has certain applications for the modification of existing windows or doors or where glazing is done internally.

In use of the installed ventilator, the control lever 56 projects through the clearance slot 57 and can be moved upwards and downwards open and close the air path through the ventilator. The hood unit will be subject to the extremes of temperature in situ, and thermal conductance to the duct unit is prevented by the thermal break provided through the support blocks, and the risk of thermal conductance through the vane is also prevented by means of the seals or pile strips on the opposed edges of the vane which engage the opposed seatings of the duct unit.

In a modification shown in Figure 9, the vane is actuated by a cord 77 which is wrapped around the vane support 11 having annular flanges 78 formed on the hub 53. This cord 77 can be used to move the vane and is suitable for installations where remote control is desired.

Various other modifications to the ventilator are also considered within the scope of this invention, and these include providing the hood unit and/or the duct unit as extrusions of aluminium coated with plastics, or as extrusions of plastics material. Furthermore, where the vane is of considerable length special configurations may be provided to ensure rigidity of the vane, and mid-mounted support blocks may be provided.

It is also envisaged that the shape and configuration of the hood and duct units may be varied

to suit any specific design requirement, and to suit the configuration of existing window and door systems with which the ventilator may be employed. In this regard, the dimensions of the sections and the style
05 exposed to view may be selected to match or otherwise suit. Other fixings to use the ventilator with a metal or plastics or composite frame may be provided.

For certain installations, it may be desirable to provide for the relative adjustment of the hood and
10 duct units through the support blocks to be completed in another manner which is accessible from the forward or rear faces of the installation. In such an arrangement, it is envisaged that the complementary formations be arranged so that the wing is pulled or
15 pushed into or out of the associated rebate by means of a suitable threaded fastener which can be rotated from the forward face of rearward faces through suitable clearance holes such as formed in the main wall of the hood section or the internal wall of the duct section.

20 As mentioned earlier herein, the ventilator according to this invention is particularly suitable for assembly from a kit of parts, and from each kit a range of different lengths of ventilators can be assembled and installed with only the sections and
25 other elongate members having to be cut to the required length.

Other advantages and features of this invention will be appreciated by those skilled in this field.

Claims:

1. An elongate ventilator for glazed doors or windows characterised in that the ventilator comprises a hood unit (1) having a first glazing section (4) and having
05 a support block (6) at each end, and further comprises a duct unit (2) having a second glazing section (8) and having a support block (10) at each end mounting a pivotal vane (9) for controlling flow through the ventilator between the hood and duct units (1,2), the
10 hood and duct units being assembled and connected together at each end by the respective support blocks (6,10) with the first and second glazing sections (4,8) defining a glazing channel (68) for receiving one edge of glazing in use, the respective
15 support blocks being arranged for relative adjustment of the hood and duct units to vary the width of the glazing channel to accommodate different thicknesses of glazing.
2. The ventilator according to claim 1 characterised
20 in that the support blocks (6,10) are of plastics material and each assembly of the support blocks provides a thermal break between the hood unit (1) and the duct unit (2).
3. The ventilator according to Claim 2 characterised
25 in that the support blocks (10) for the duct unit (2) each mount a vane support member (11) for limited rotation with each end of the elongate vane (9) extending lengthwise of the duct unit (2) being mounted on a respective one of the vane support members (11)
30 for pivotal movement relative to the duct support blocks (10).
4. The ventilator according to claim 3 characterised in that the support blocks (6) of the hood unit (1) are similar, and each hood support block (6) includes a

formation (66) complementary to another formation (63) on each duct support block (10), the complementary formations (66,63) on the hood and duct support blocks being arranged to inter-engage on assembly to locate
05 the assembled support blocks adjustably together.

5. The ventilator according to claim 4 characterised in that the complementary formations comprise a wing (63) extending from one support block (10) and a rebate or groove (66) in the other support block (6)
10 for slidably receiving the wing (63) for a range of adjustable positions with the support blocks (6,10) being connected and secured together by a member (12) extending through a hole (65) and slot (67) in respective ones of the complementary
15 formations (63,66).

6. The ventilator according to Claim 5 characterised in that the vane (9) has a central spline portion (60) from which two diametrically opposed webs (61) extend with the free edges of the webs being arranged to
20 engage opposed seatings (39,42) provided respectively on a duct section (7) and the second glazing section (8).

7. The ventilator according to claim 6 wherein the hood unit (1) also comprises a hood section (13)
25 mounting a length of fly-netting (5) covering an air inlet slot (25) opening into the hood unit (1), and the hood section, duct section, vane, and first and second glazing sections are each lengths of extruded section.

8. The ventilator according to claim 7 characterised
30 in that the duct unit (2) includes an access opening (57) opening to one of vane support members (11) and through which an actuator (56) for pivoting the vane (9) extends for operation of the ventilator.

FIG. 1

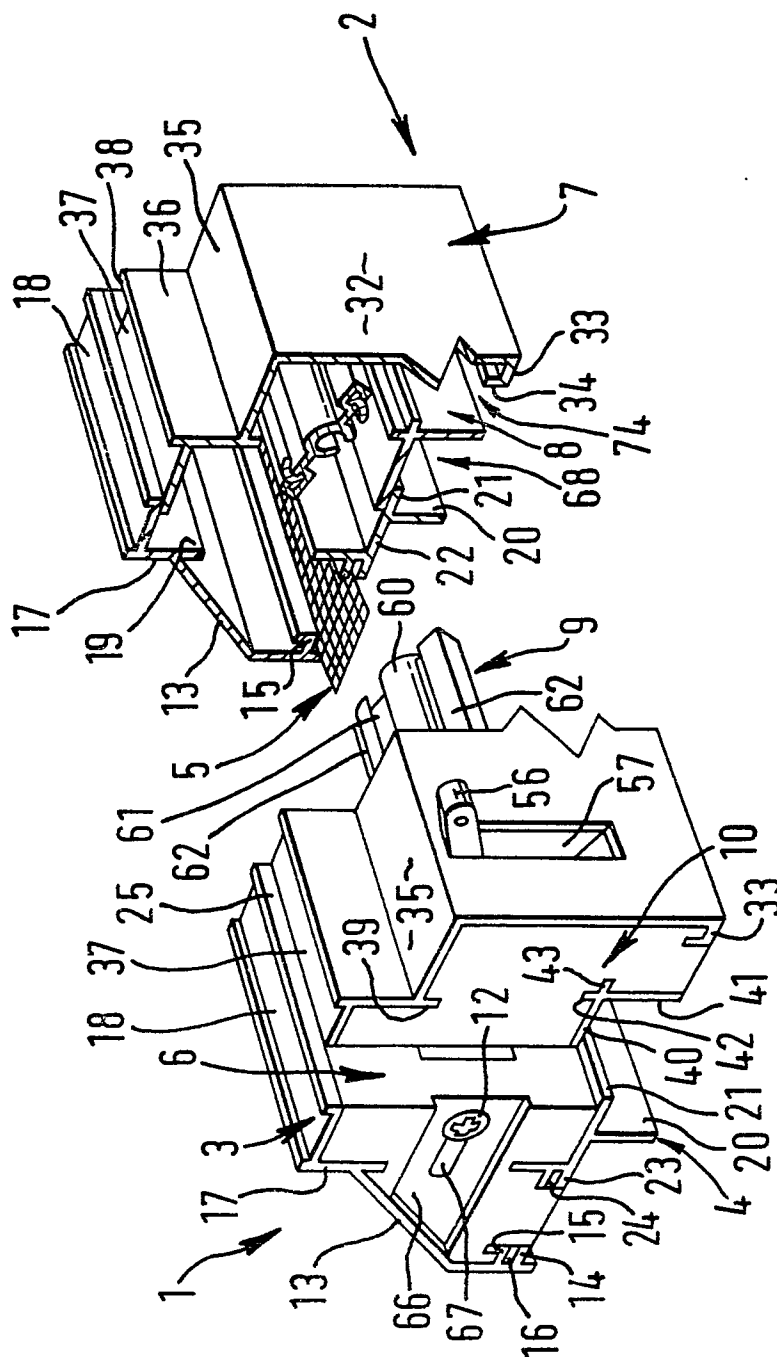


FIG. 2

