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(54) Ventilator

(57) A glazed-in ventilator assembly comprises an elongate first element 5 having a longitudinal flange 6 for locating in a rebate 2 of the frame 3 of a door or window, an elongate second element 7 having a longitudinal channel 8 for reception of the marginal edge of glazing 9, the first and second elements 5,7 being rigidly connected together, and an elongate third element 4 connected to the first element 5 for pivotal movement to control airflow through the assembly. A spring 27 has a cantilever spring leg 28 co-operable with a free edge 22 of the third element 4 remote from the pivot axis for holding the third element 4 in any selected one of a range of open positions and the free edge 22 is arranged for snap action engagement with a rib 29 at the root of the spring leg 28 to hold the third element in a closed position. A respecive end cap 32 (Figure 2) is fitted to each end of the assembly.

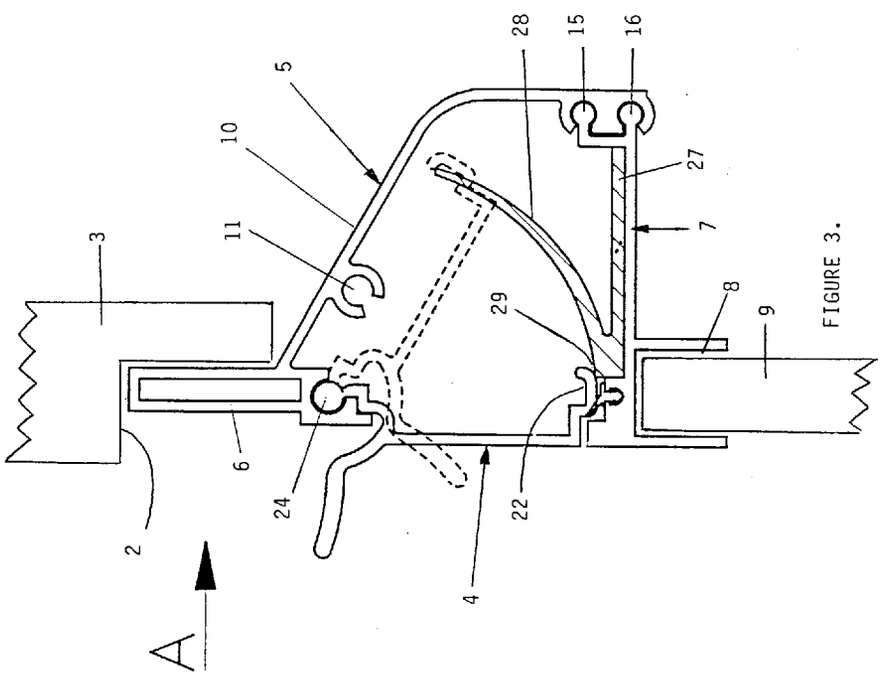

FIGURE 3.

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Description

This invention relates to ventilators for installation between a frame of a door or window and the marginal edge of glazing located in the frame. Such a ventilator will hereinafter be referred to as a glazed-in ventilator.

One object of this invention is to provide a glazed-in ventilator with pivotal flap to control airflow that can be secured closed in a simple, reliable manner.

Another object of this invention is to provide a glazed-in ventilator which can be assembled to a desired length for fitting to a selected size of frame and glazing.

Yet another object of this invention is to provide a glazed-in ventilator that is simple to manufacture, assemble and install.

According to one aspect of the invention a glazed-in ventilator for mounting between a frame of a door or window and the marginal edge of glazing located in the frame comprises an elongate flap mounted for pivotal movement to control air flow, and means having a snap-action engagement for securing the flap closed.

With this arrangement, the flap is secured closed in a simple, reliable manner.

Preferably, the flap securing means is arranged for snap-action engagement with a free edge of the flap remote from the pivot axis.

Advantageously, a flap spring is provided for holding the flap in any selected one of a range of open positions.

In a preferred arrangement, the flap spring comprises a cantilever spring leg arranged for frictional engagement with the free edge of the flap, and the flap securing means comprises a formation such as a raised rib at the root of the leg.

Preferably, the ventilator has an elongate first component adapted for mounting along an opening in the frame and an elongate second component adapted for locating the marginal edge of the glazing with the flap mounted for pivotal movement on one of the first and second components.

Advantageously, the first and second components are connected together by sliding engagement of complementary locating formations extending along the respective lengths thereof so as to rigidly interlock the components, and the flap is pivotally mounted on the first component by complementary hinge formations extending along the respective lengths thereof.

The first and second components and the flap are preferably extrusions capable of being cut to any desired length for sizing to the width of the opening in the frame. In this way, the length of the ventilator can be adapted to the size of the opening in the frame by sizing the lengths of the first and second components and flap for assembly of the ventilator.

By this use of the same extrusions for different lengths of ventilator, manufacture, stock-holding and fitting of the ventilator is simplified for a wide range of doors and windows having openings made to different widths.

The first component may provide an external weatherhood for an air inlet provided by a wall portion of the second component. The air inlet may be arranged to act as an integral flyscreen. For example, the inlet may consist of a series of narrow slots or an array of holes in the second component.

Preferably, a respective end cap is fitted to each end of the ventilator with each end cap being optionally adapted for mounting in the opening in the frame and/or for locating the marginal edge of the glazing.

According to another aspect of the invention a glazed-in ventilator assembly for mounting between a frame of a door or window and the marginal edge of glazing located in the frame comprises an elongate first element for mounting to the frame, an elongate second element for locating the marginal edge of the glazing, the first and second elements being connected together by complementary locating formations extending along the respective lengths thereof, and means for controlling airflow preferably comprising an elongate third element mounted for pivotal movement on one of the first and second elements by complementary hinge formations extending along the respective lengths thereof.

With this construction, the ventilator can be of any desired length for fitting to a selected size of frame and glazing.

The invention in each of its aspects will now be described in more detail, by way of example only, with reference to the accompanying drawings, wherein:-

FIGURE 1 is a perspective view of a ventilator according to the present invention;
FIGURE 2 is an exploded perspective view of the main component parts of the ventilator shown in Figure 1;
FIGURE 3 is a vertical section of the ventilator shown in Figure 1 as mounted in the rebate of a frame;
FIGURE 4 is shows a detail, to an enlarged scale, of the flap in the closed position; and
FIGURE 5 is a view in the direction of arrow A in Figure 3 showing the location of the flap spring.

Referring to the drawings, the ventilator comprises an elongate housing 1 for mounting horizontally along a rebate 2 of a door or window frame 3 with a flap 4 extending lengthwise of the housing 1 for pivotal movement between a closed position shown in full lines in Figure 3 and an open position shown in broken lines in Figure 3 for controlling air flow through the housing 1.

The housing 1 comprises an elongate first element 5 with a vertical hollow flange 6 of box-section for location in the rebate 2 and an elongate second element 7 with a downwardly open channel-section recess 8 for reception of the marginal edge of glazing 9 mounted in the frame 3. The elements 5,7 are cut to size from ex-

trusions of aluminium according to the required length of ventilator. Extrusions of other metals or plastics may be used for one or both elements 5,7.

The element 5 has a front wall 10 extending from the lower portion of the flange 6 to form a hood on the exterior weatherside of the frame 3. The upper portion of the front wall 10 extends downwardly and away from the flange 6 and has a part-circular groove 11 on the rear face. The lower portion of the front wall 10 extends vertically and has two spaced parallel part-circular grooves 12,13 on the rear face.

The element 7 has a main wall 14 with two spaced parallel part-circular beads 15,16 along the outer edge complementary to the grooves 12,13 of the element 5 for assembly of the elements 5,7 by inserting and sliding the beads 15,16 lengthwise of the grooves 12,13 respectively so that the elements 5,7 are connected and held together in fixed relationship along the respective lengths.

The housing 1 has a horizontal air inlet 17 and a vertical air outlet 18. The air inlet 17 is provided in a centre portion of the main wall 14 of the element 7. The air outlet 18 is provided between the lower portion of the flange 6 of the element 5 and the inner edge of the element 7.

In this embodiment, the air inlet 17 comprises a series of narrow slots 18 of chevron shape which act as an integral flyscreen. It will be appreciated that the slots 18 may be replaced by openings of any other shape for the same purpose, for example an array of holes.

The flap 4 has main wall 20 with upper and lower flanges 21 and 22 respectively extending to one side and an upper flange 23 extending to the other side.

The flange 21 terminates in a bead 24 and the flange 22 terminates in a curved edge 25. The flange 23 provides a handle for operating the flap 4. The flap 4 is cut to size from an extrusion of aluminium according to the required length of ventilator. Extrusions of other metals or plastics may be used for the flap 4.

The element 5 has a part-circular groove 26 below the flange 6 complementary to the bead 24 for assembly of the flap 4 and the element 5 by inserting and sliding the bead 24 lengthwise of the groove 26 so that the flap 4 and the element 5 are connected and held together along the respective lengths for pivotal movement of the flap 4 to open and close the air outlet 18. As shown in Figure 3, the flange 21 co-operates with the mouth of the groove 26 to locate the flap 4 in each of the open and closed positions.

A flap spring 27 is mounted on the main wall 14 of the element 7 at one end of the air inlet 17 and has a cantilever spring leg 28 that extends away from the air outlet 18.

The leg 28 co-operates resiliently with the flange 22 to provide frictionally restrained pivotal movement of the flap 4 to hold the flap 4 in the open position and any intermediate position between the open and closed positions to control the air flow through the housing 1.

The flap 4 is held in the closed position by snap action engagement of the curved edge 25 of the flange 22 with a raised rib 29 at the root of the leg 28.

To reduce draughts in the closed position, the flange 22 is also engageable with a lip seal 30 mounted in a groove 31 in the main wall 14 of the element 7 to seal along the free edge of the flap 4 remote from the hinge axis.

In this embodiment, the flap spring 27 is a plastics moulding but other materials having the required resilience may be used. Depending on the overall length of the ventilator, one or more flap springs 27 may be provided spaced apart along the length of the housing 1.

The housing 1 is closed at opposite ends by a respective cap member 32 with each cap member being similar but of opposite hand. Each cap member 32 has a pair of cylindrical lugs 33 engageable within the part-circular grooves 11,26 respectively and a lateral flange 34 which provides an extension of the flange 6 and is provided with a pair of rectangular lugs 35 engageable within the flange 6.

Each cap member 32 further has a pair of dependent feet 36 for locating the ends of the channel-section recess 8 and a face flange 37 that overlies the end of the flap 4 to provide a neat finish.

As will now be appreciated, the elements 5,7 and flap 4 can be cut to any desired length from extrusions of the appropriate section for sizing the ventilator to the length of the rebate 2 in the frame 3.

Furthermore, the ventilator can be adapted for different thicknesses of glazing by using different extrusions for the element 7 to provide the required width of glazing recess 8 for assembly with proportionately extended extrusions for the element 5.

Claims

1. A glazed-in ventilator for mounting between a frame (3) of a door or window and the marginal edge of glazing (9) located in the frame (3) characterised by an elongate flap (4) mounted for pivotal movement to control air flow, and means (29) having a snap-action engagement for securing the flap (4) closed.

2. A ventilator according to Claim 1 characterised in that the flap securing means (29) is arranged for snap-action engagement with a free edge (22) of the flap (4) remote from the pivot axis.

3. A ventilator according to Claim 2 characterised by a flap spring (27) adapted for holding the flap (4) in any selected one of a range of open positions.

4. A ventilator according to Claim 3 characterised in that the flap spring (27) comprises a cantilever spring leg (28) arranged for frictional engagement with the free edge (22) of the flap (4), and the flap

securing means (29) preferably comprises a formation such as a raised rib (29) at the root of the leg (28).

5. A ventilator according to any one of the preceding Claims characterised by an elongate first element (5) adapted for mounting along an opening in the frame (3) and an elongate second element (7) adapted for locating the marginal edge of the glazing (9) with the flap (4) mounted for pivotal movement on one of the elements (5,7).

6. A ventilator according to Claim 5 characterised in that the first and second elements (5,7) are connected together by sliding engagement of complementary locating formations (12,13;15,16) extending along the respective lengths thereof so as to rigidly interlock the elements (5,7), and the flap (4) is pivotally mounted on the first element (5) by sliding engagement of complementary hinge formations (24,26) extending along the respective lengths thereof.

7. A ventilator according to Claim 6 characterised in that the first and second elements (5;7) and the flap (4) are extrusions capable of being cut to any desired length for sizing to the width of opening in the frame (3).

8. A ventilator according to any one of Claims 5 to 7 characterised in that the first element (5) provides an external weatherhood (10) for an air inlet (17) provided by the second element (7) with the air inlet (17) optionally arranged to provide an integral flyscreen, for example the air inlet (17) may consist of a series of narrow slots (18) or an array of holes.

9. A ventilator according to any one of Claims 5 to 8 characterised in that a respective cap member (32) is fitted to each end of the ventilator, and each cap member (32) is optionally adapted for mounting in the opening in the frame (3) and/or for locating the marginal edge of the glazing (9).

10. A glazed-in ventilator assembly for mounting between a frame (3) of a door or window and the marginal edge of glazing (9) located in an opening in the frame (3) characterised by an elongate first element (5) having a longitudinal flange (6) for locating on the frame (3), preferably in a rebate (2), an elongate second element (7) having a longitudinal channel (8) for receiving one edge of the glazing (9), the first and second elements (5;7) having longitudinal co-operating locating formations (12,13; 15,16) engageable by sliding the first element (5) relative to the second element (7) or vice versa to connect the elements (5;7), an elongate third element (4) mounted on one of the first and second elements (5;7) for pivotal movement to control airflow through the assembly, the third element (4) and said one element (5;7) having longitudinal co-operating hinge formations (24;26) engageable by sliding the third element (4) relative to said one element (5;7) or vice versa to connect the elements(4;5;7), a pair of end caps (32) for the ends of the ventilator assembly, each end cap (32) having a lateral flange (34) for locating on the frame (3), preferably in the rebate (2), and a spring member (27) for co-operating with a free edge (22) of the third element (4) remote from the pivot axis for holding the third element (4) in any selected one of a range of open positions and arranged for snap action engagement with the free edge (22) of the third element (4) to hold the third element (4) in a closed position.

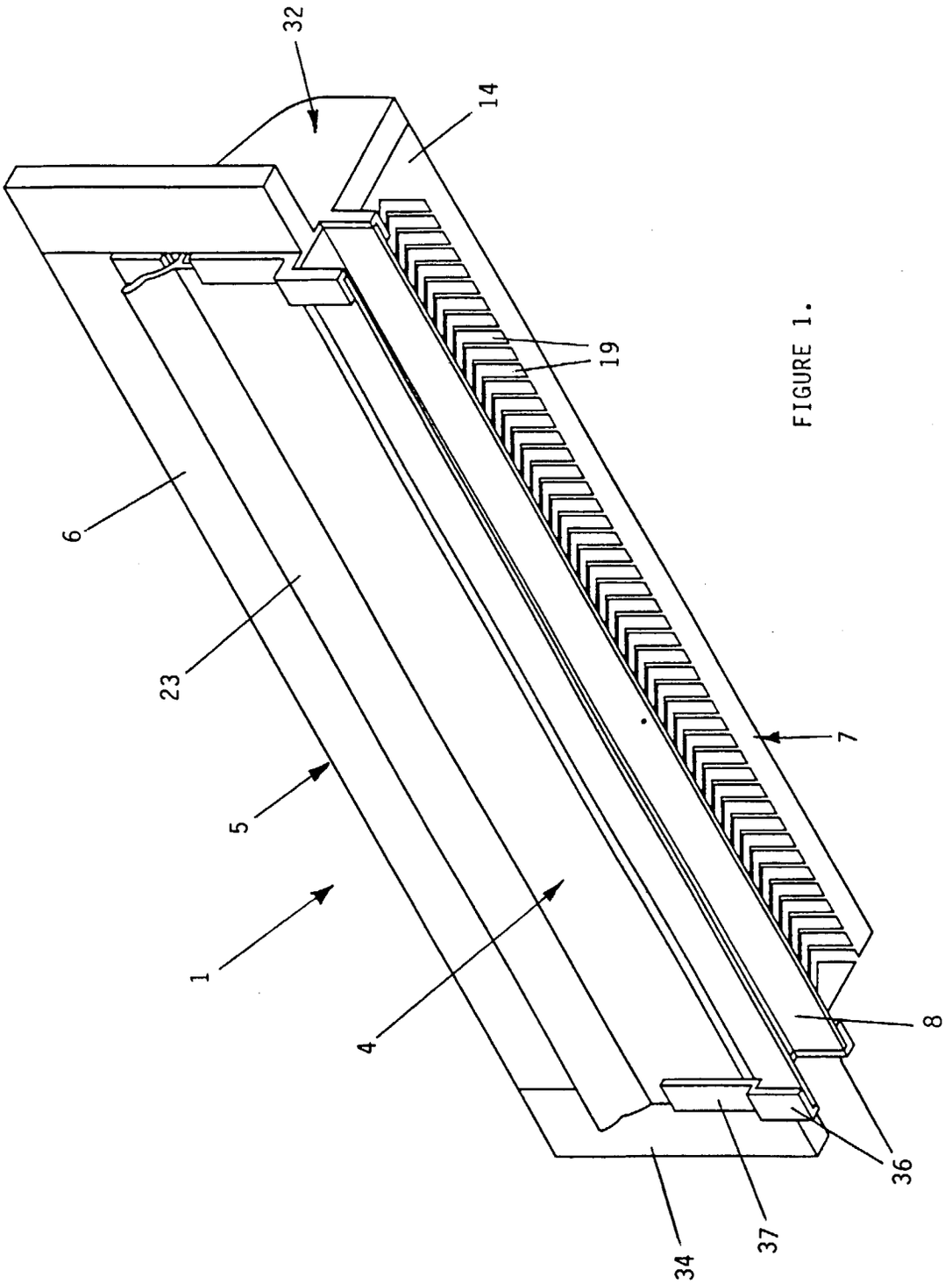

FIGURE 1.

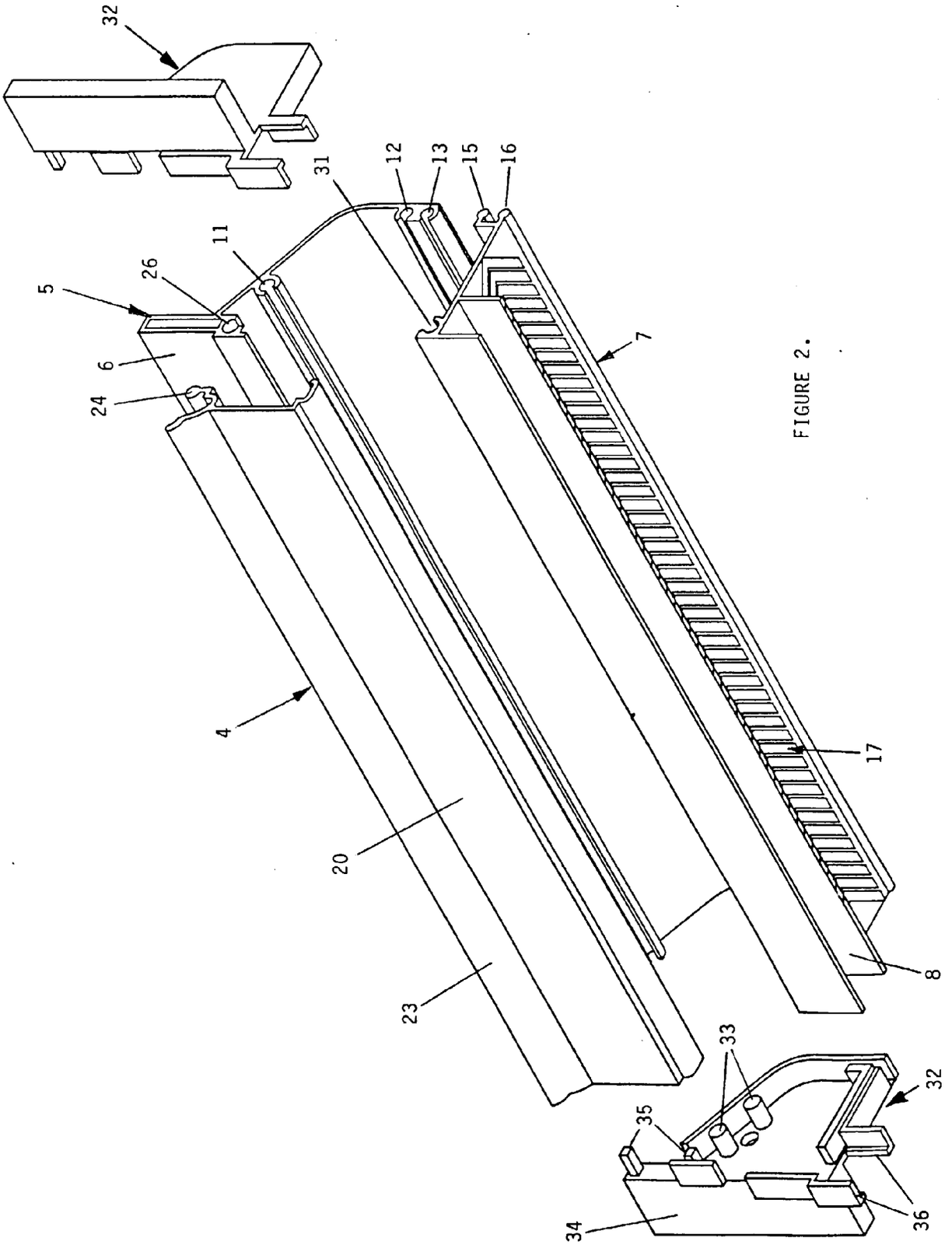

FIGURE 2.

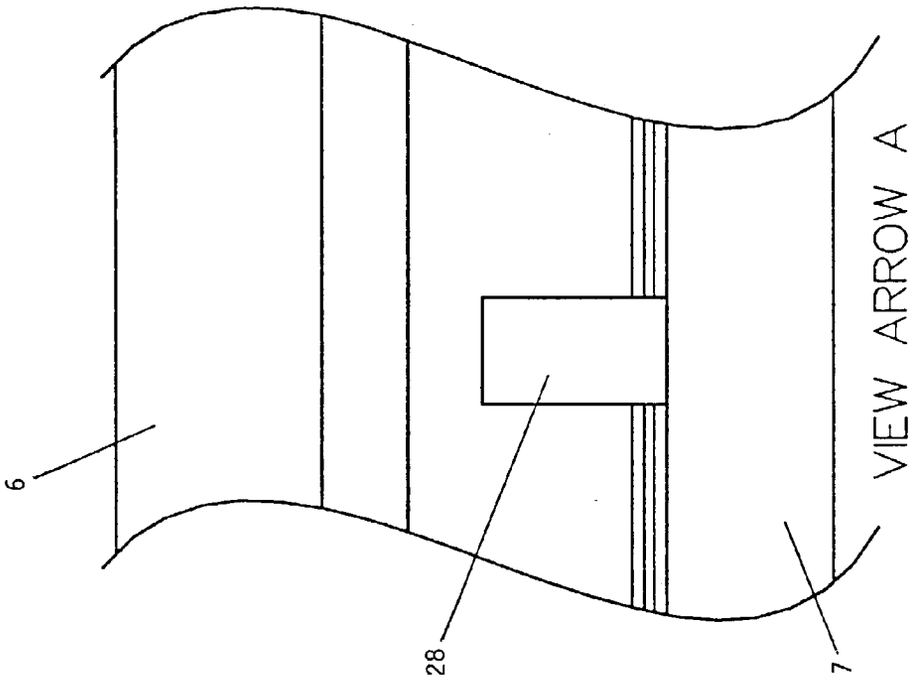

FIGURE 5.

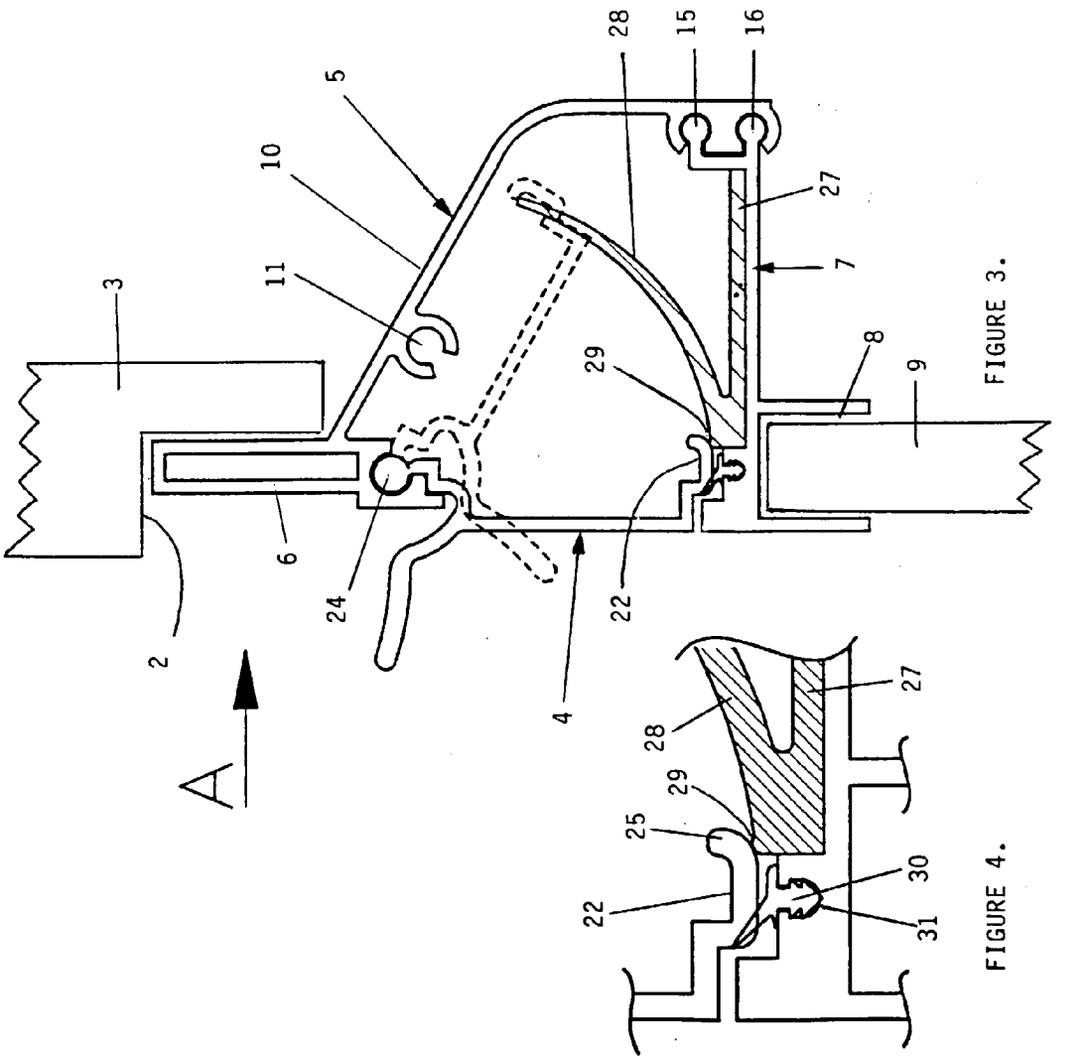

FIGURE 3.

FIGURE 4.