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(54) Ventilation device for buiiding roofs.

(57) A housing (2) defines a ventilation opening (I) controlled by a closing device with two flaps (5, 6) which are alike and are pivotally movable in opposite directions about external hinge axes (I8) (see Fig. 2) by means of pivot drives (7) and which, in their closed position, engage with their edges over a gutter (I9) crossing the ventilation opening (I) centrally as well as over the walls (9, I0; II, I2) of the housing (2) carrying them, at their upper edge so as to completely cover the ventilation opening (I) in the housing (2) and protect it from the entry of the weather. A transverse girder (8) is secured to the longitudinal walls (9, I0) and engages under the gutter (I9) and supports the pivot drives (7) for the flaps (5, 6). The longitudinal walls (9, I0) of the housing (2) comprise supporting and locking rails (20, 2I) (see also Fig. 3) supporting axially adjustable bearing blocks (24, 25) for the flaps (5, 6).

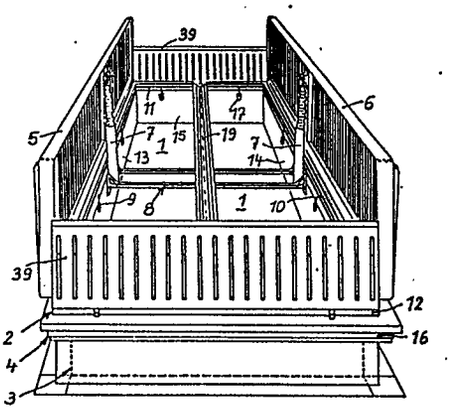

Fig.1

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Description

VENTILATION DEVICE FOR BUILDING ROOFS

The invention relates to a ventilation device for building roofs in a construction according to the preamble to claim 1.

In known ventilation devices of this type, the housing and the closing device form structural units which are fully assembled by the manufacturer and which, after being transported to the building site are placed, as a whole, on a substructure, for example a base, and anchored on this.

The transport and handling of such prefabricated units is difficult and expensive.

It is the object of the invention to provide a ventilation device of the type mentioned at the beginning which can be delivered in handy individual parts to the building site and can be assembled quickly and easily on the spot.

In order to solve this problem, the ventilation device according to the invention, starting from one according to the preamble to claim 1, is characterised by the features mentioned in the characterising part of claim 1. With regard to optional further developments, reference should be made to the claims 2 to 6.

The ventilation device according to the invention permits a completely separate delivery of the parts forming the closure device and of the housing and possibly of a frame section to be fitted between housing and base and a rapid and easy joining of the parts on site which can be carried out without any special previous knowledge and with a simple tool, while the supporting and locking rails not only simplify the assembly but also facilitate the alignment of the parts and compensate for manufacturing tolerances.

One specific embodiment of the invention will now be described in detail by way of example with reference to drawings:

In the drawings:

FIG. 1 shows a perspective, simplified general view of a ventilation device according to the invention;

FIG. 2 shows, in a broken away, enlarged detail, a vertical partial section in the region of a longitudinal wall of the housing; and

FIG. 3 shows a broken away separate illustration of the bearing elements for a flap.

The ventilation device illustrated in the drawings is adapted for roofs of buildings used industrially, commercially or municipally and comprises a housing 2 defining a ventilation opening 1, a base 3 to be secured to a roof, a frame section 4 interposed between base 3 and housing 2 and a closing device which consists essentially of two flaps 5, 6 as well as pivot drives 7 which are supported on a transverse girder 8.

The housing 2 comprises longitudinal walls 9, 10 which are situated opposite one another, parallel in pairs, as are transverse walls 11 and 12. The frame section 4 in turn comprises longitudinal and transverse struts 13, 14 and 15, 16 which are situated opposite one another, parallel in pairs and on which the housing 2 is placed with its longitudinal and transverse walls 9, 10, and 11, 12 and fixed by means of snap closures 17.

The flaps 5, 6 which are alike, are pivotally movable in opposite directions about external hinge axes 18 by means of the pivot drives 7 and, in their closed position, engage with their edges over a gutter 19 crossing the ventilation opening 1 centrally as well as over the walls 9, 10, 11, 12 of the housing 2 carrying them, at their upper edge. Accordingly, the ventilation opening 1 in the housing 2 is completely covered in the closed position of the flaps 5, 6 protected from the entry of the weather and also sealed off from the passage of air by means of seals.

As can be seen in detail from Figures 2 and 3, the longitudinal walls 9, 10 of the housing 2 are provided with supporting and locking rails 20, 21 and 22, 23 which extend longitudinally and all of which (with a horizontal alignment of the ventilation device) extend horizontally and preferably over the whole length of the longitudinal walls 9, 10.

The supporting and locking rails 20, 21 serve to support bearing blocks 24 and 25 for the flaps 5, 6 and are each formed by an upright rib which is parallel to the outer surface of the longitudinal walls 9, 10 of the housing 2, with spacing, and which is disposed on a base plate 26 projecting outwards. The bearing blocks 24, 25 comprise an angle support which can be placed with an upright arm 28 astride the associated rib 20, 21 and, in the superimposed position, can be located by an arm 29, bent inwards at an angle, on the upper edge of the longitudinal walls 9, 10 by means of a holding-down means, for example a screw 30 or another suitable snap closure. In the lower region of its arm 28, each bearing block 24, 25 is provided with a bearing bore to receive a pivot 27, the entrances of the bearing bores of the two bearing blocks 24 facing towards one side (towards the right in Figure 3) and that of the bearing bore in the third bearing block 25 facing towards the opposite side.

Each flap 5, 6 is provided with three pivot fittings 31 each of which carries one of the pivots 27. Two of the three pivots 27, which jointly define the hinge axis I8, are disposed at one and the same side, in Figure 3 in the left-hand side, of their pivot fitting 3I, while the third pivot is associated with its pivot fitting 3I at the opposite side. In order to mount a flap 5 or 6, this is at first only fixed by two bearing blocks, namely the bearing blocks 24, to the associated longitudinal wall, the longitudinal wall I0 in Figure 3, after which the third bearing block 25 is subsequently pushed onto its associated pivot 27 in a displacement movement taking place from right to left in Figure 3 and is then fixed in its operating position by means of its holding-down means 30. In this manner, with easy mounting, the flaps 5, 6 are, at the same time, locked to the associated longitudinal wall 9 or 10 in a manner which, without destroying parts of the device, can only be released with the flap 5 or 6 open.

The supporting and locking rails 22, 23 serve to support the head ends 32 of the transverse girder 8 for the pivot drives 7 and co-operate in pairs for this purpose. The upper rail 22 defines a holding groove 33 which is open downwards, while the lower rail defines a holding groove 34 which is open upwards, in which grooves the associated head end 32 of the transverse girder 8 engages with an upwardly directed and a downwardly directed locking nose 35, 36 respectively. The head ends 32 of the transverse girder 8 are first inserted with their locking noses 36 in the lower holding groove 34 of the rail 23 before the upper rail 22 is then fitted, with locking location, and fixed, for example by screwing.

In the example illustrated, in which the housing 2 is constructed in the form of a comparatively low unit and is superimposed on a frame section 4 with comparatively high longitudinal and transverse struts 13, 14, 15, 16, the upper rail 22 of each pair of rails 22, 23 is associated with the longitudinal wall 9, 10 of the housing 2 and the lower rail of the pair of rails is associated with the particular longitudinal strut 13 or 14 of the frame section 4 underneath it.

In order to facilitate subsequent positioning and to improve its location on the associated wall 9, 10 of the housing 2, the upper rail 22 is provided with an outer extension 37 in the form of a web projecting horizontally outwards which can be inserted in an insertion groove 38 in the inside of the longitudinal wall 9, 10 of the housing 2 and be located in the inserted position. This location may be effected by screwing or by means of suitable snap closures.

In the open position of the flaps 5, 6, upright baffles 39, located on the housing 2 in a suitable manner at the ends, shield the ventilation opening 1 from the unwanted entry of air into the building through wind action.

Claims

1. A ventilation device for building roofs, having a housing (2) which defines a ventilation opening (1) and the longitudinal and transverse walls (9, 10; 11, 12) of which are situated opposite one another, parallel in pairs, having a closing device with two flaps (5, 6) which are alike and are pivotally movable in opposite directions about external hinge axes (18) by means of pivot drives (7) and which, in their closed position, engage with their edges over a gutter (19) crossing the ventilation opening (1) centrally as well as over the walls (9, 10; 11, 12) of the housing (2) carrying them, at their upper edge, and completely cover the ventilation opening (1) in the housing (2) and protect it from the entry of the weather, and having a transverse girder (8) which is secured to the longitudinal walls (9, 10) and which engages under the gutter (19) and supports the pivot drives (7) for the flaps (5, 6) characterised in that the longitudinal walls (9, 10) of the housing (2) comprise supporting and locking rails extending longitudinally for a location, which is adjustable as desired axially, of the parts of the closing device.

2. A device as claimed in claim 1, characterised in that first supporting and locking rails (20, 21) for supporting bearing blocks (24, 25) for the flaps (5, 6) are each formed by an upright rib disposed parallel to the outer surface of the longitudinal wall (9, 10) of the housing (2), with spacing, on a base plate (26) projecting outwards, and the bearing blocks (24, 25) comprise an angle support which can be placed with the underside of an upright arm (28) astride an upright rib (21, 22) and which can be located, by an arm (29) bent inwards at an angle, on the upper edge of the longitudinal wall (9, 10) by means of a holding-down means (30).

3. A device as claimed in claim 1 or 2, characterised in that each flap is provided with three pivot fittings (31) each of which carries one of the pivots (27) jointly defining the hinge axis (18), two of these pivots (27) projecting in the same direction and the third pivot (27) projecting in the opposite direction from their pivot fitting (31) and engaging in correspondingly aligned bores of three bearing blocks (24, 25) which, by their arrangement, form a locking means for the flap.

4. A device as claimed in one of the claims 1 to 3, characterised in that the second supporting and locking rails (22, 23) for supporting the head ends (32) of the transverse girder (8) for the pivot drives (7) each comprise a pair of rails (22, 23), the lower rail (23) of each pair of rails defining a holding groove (34) which is open upwards and the upper rail (22) defining a holding groove (33) which is open downwards, and the head ends (32) of the transverse girder (8) each comprise one locking nose which is directed upwards (35) and one locking nose (36) which is directed downwards, which noses engage in the associated holding grooves (33, 34).

5. A device as claimed in claim 4, characterised in that the housing (2) with its longitudinal and transverse walls (9, 10; 11, 12) forms a structural unit superimposed on a frame section (4) with longitudinal and transverse struts (13, 14; 15, 16) and the lower rail (23) of each pair of rails (22, 23) is associated with a longitudinal strut (13, 14) of the frame section (4) and the upper rail (22) is associated with the associated longitudinal wall (9, 10) of the housing (2).

6. A device as claimed in claim 4 or 5, characterised in that the upper rail (22) is provided with an outer extension (37) and can be inserted horizontally in an insertion groove (38) in the inside of the longitudinal wall (9, 10) of the housing (2) and can be located in the inserted position.

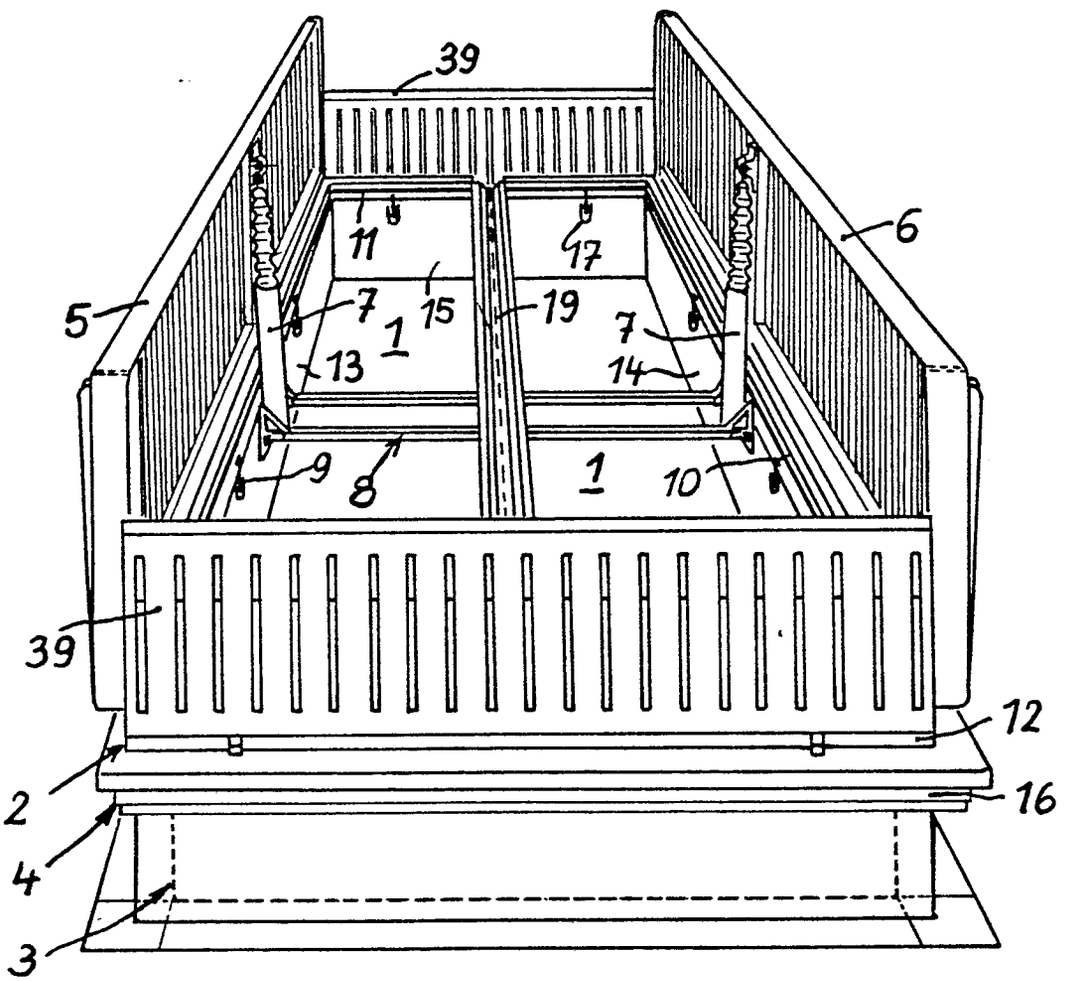

Fig.1

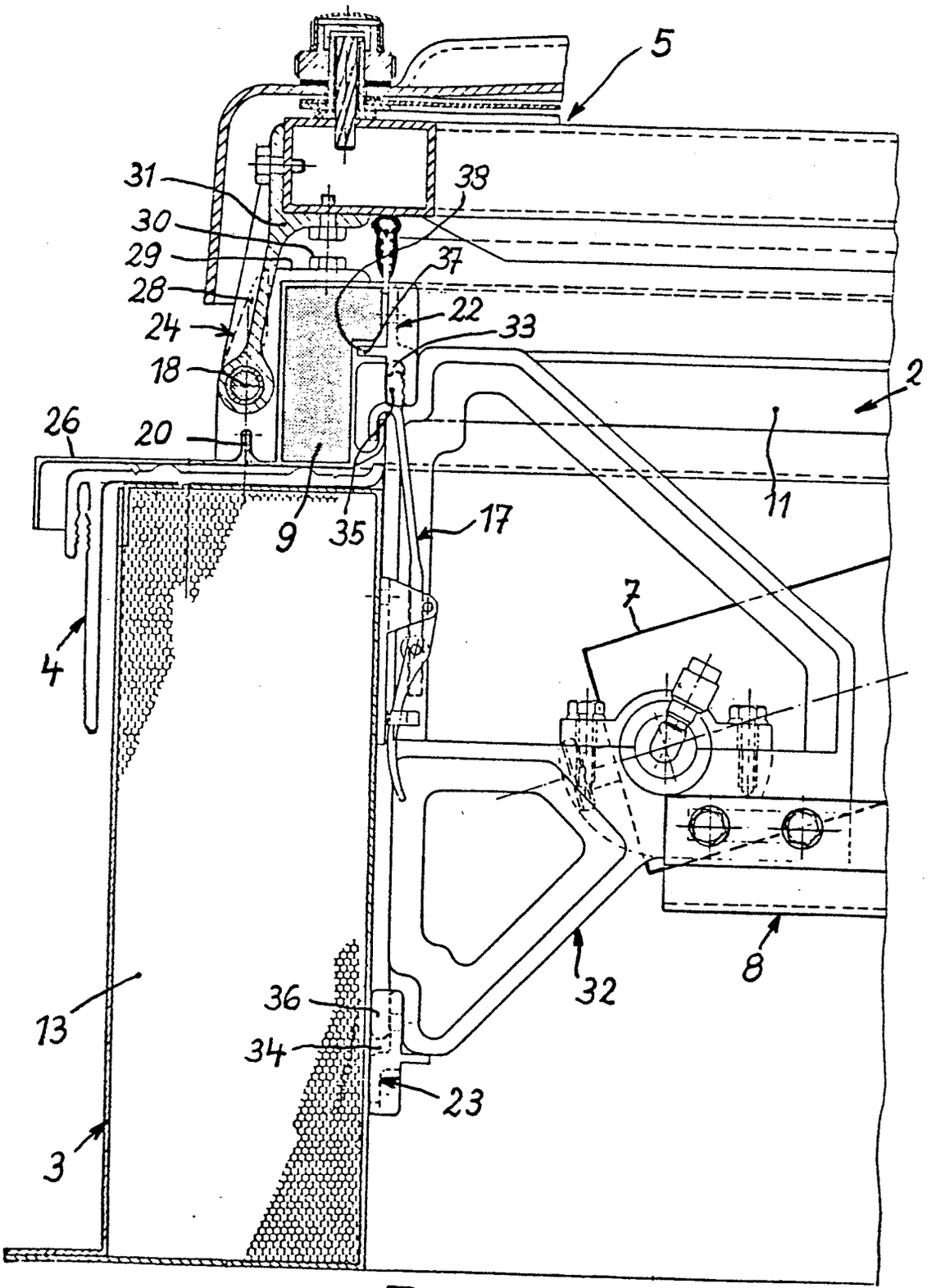

Fig. 2

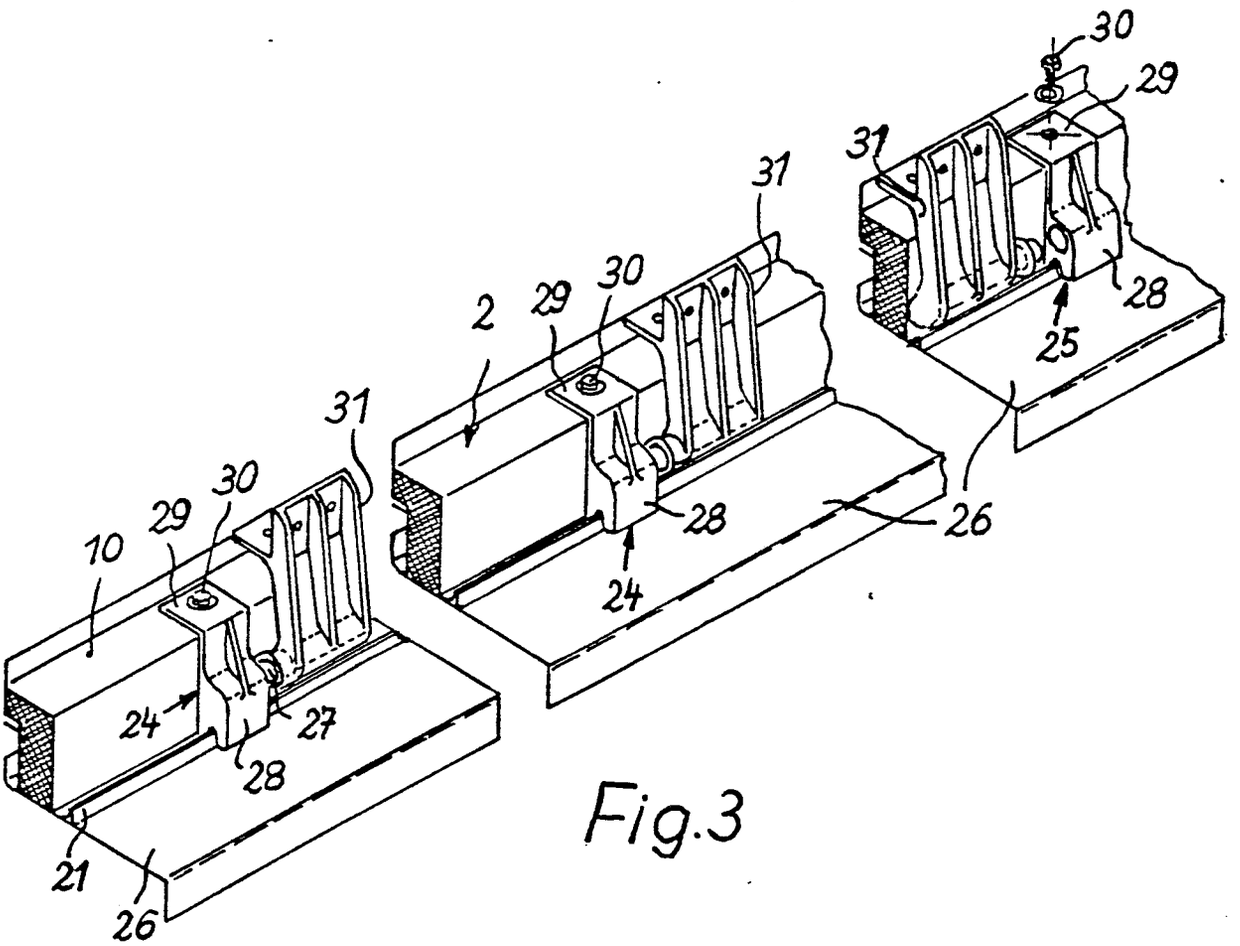

Fig.3