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Graham Watt & Co. Riverhead
Sevenoaks, Kent TN13 2BN(GB)**(54) **Roof ventilator.**

(57) The invention relates to a roof ventilator (1) having a base frame (3) which surrounds an upwardly directed shaft (2) and which can be secured to the roof of a building, bounding a roof opening. The roof ventilator has an outer housing (4) which can be supported on the base frame (3) and which bounds an upper outlet (5) for spent air situated with spacing above the upper edge of the shaft (2) and substantially coinciding with the shaft opening. In addition, the roof ventilator is provided with a covering device (6) which is disposed inside the outer housing (4) and which comprises flaps (9) or the like closing members (8) which are pivotally supported in a supporting frame (7) and which can be moved out of a closed position into an open position by means of a drive (13), while, in the open position of the flaps (9), the covering device (6) bounds, with its supporting frame (7), a passage (10) for spent air flowing upwards out of the shaft. In addition, a closable lateral outlet (12) for spent air is provided which can be shielded at the top, at least in places, for roof ventilation protected from atmospheric influences. In

order to have a reduced structural height of the ventilator with the possibility of ventilation protected from atmospheric influences, the covering device has a closing unit (16) which can be moved as a whole and which can be transferred into an elevated travel position to free the lateral spent-air outlet (12) and, in its lower end-of-travel position, with the flaps in their closed position, shuts off the shaft opening.

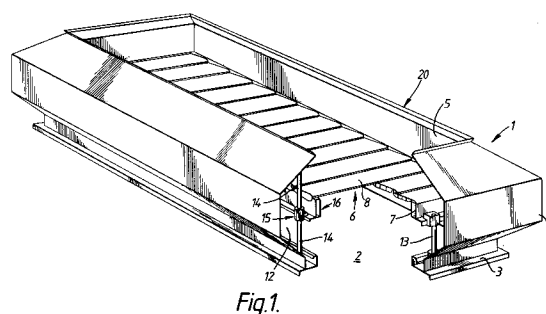


Fig.1.

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The invention relates to a roof ventilator having a base frame surrounding an upwardly directed shaft in a construction according to the preamble to claim 1.

In a roof ventilator of this kind known from DE-PS 12 76 880, the flaps for closing the outlet for the spent air flowing upwards, which are pivotable about horizontal axes, project above the outer housing in their open position so that, because of the resulting increased dimensions in height, the ventilator offers a large area exposed to the wind and is exposed to increased loading. Pivotable flaps whereby lateral outlets for spent air can be freed or closed are provided for lateral ventilation protected from atmospheric influences. In order to be able to achieve an effective ventilation in a position protected from atmospheric influences, the lateral spent-air openings, and hence also their closing flaps, have to be designed sufficiently large, which results in minimum dimensions both with regard to equipment width and to equipment height in the known ventilators. Thus altogether, the known ventilator is a device which is relatively large in construction and therefore relatively heavily stressed by wind and the like.

It is the object of the present invention to provide a roof ventilator of the kind mentioned at the at the beginning, with which, although ventilation upwards and also roof ventilation protected from atmospheric influences and hence the freeing of a lateral outlet should still be possible, nevertheless it renders effective ventilation possible with a reduced structural height.

In order to solve this problem, the roof ventilator of the kind mentioned at the beginning is distinguished by the features given in the characterising part of claim 1. With regard to further developments of the invention, reference should be made to the remaining claims.

Some ways of carrying out the invention will now be described in detail by way of example with reference to drawings which show one specific embodiment.

In the drawings:

FIG. 1 shows, in a perspective illustration partially broken away, a first roof ventilator which may be used in the present invention;

FIG. 2 shows, in a diagrammatic cross-sectional illustration, the Figure 1 ventilator in the closed position of the louvres;

FIG. 3 shows, in a diagrammatic cross-sectional illustration, the Figure 1 ventilator with lateral outlets freed and louvres closed;

FIGS. 4, 5 and 6 show an embodiment of roof ventilator according to the present invention having a housing insert member which is adjustable in height, the Figures illustrating various positions of the closing unit and of the housing

insert member, and

FIGS. 7, 8 and 9 show illustrations similar to Figures 1, 2 and 3 of a further roof ventilator with movable flaps which may be used in the invention.

With reference to the drawings, the roof ventilator numbered in general by 1 in the drawing has a base frame 3 which surrounds an upwardly directed shaft 2 and which - not illustrated in detail - can be secured to the roof of a building for example, bounding a roof opening. An outer housing, numbered in general by 4, can be supported on the base frame 3 and bounds an upper outlet 5 for spent air which is situated with spacing above the upper edge of the shaft 2 and substantially coincides with the shaft opening. Provided inside the outer housing 4 is a covering device which is numbered in general by 6 and which has a supporting frame 7 on which louvres 8 arranged parallel side by side are movably supported as closing members in Figures 1 to 4 as well as 12 and 13, and on which flaps 9 which can be swung upwards are movably supported as closing members in the examples of embodiment shown in Figures 7, 8 and 9. Not illustrated in detail is a drive unit working preferably pneumatically or by means of an electric motor, whereby the louvres 8 or the flaps 9 can be moved out of their respective closed position into their open position. In the open position of the flaps 9 or of the louvres 8, the covering device 6 together with its supporting frame 7 defines a passage which is numbered as a whole by 10 (Figure 4) and through which, spent air flowing upwards out of the shaft can escape upwards in the direction of the arrow 11 (Figure 4).

In order to free a lateral outlet for spent air, numbered in general by 12, for ventilation protected from atmospheric influences, the examples of embodiment shown in Figures 1 to 9 have a closing unit 16 which is supported in the outer housing 4 for adjustment in height parallel to itself by means of a lifting device 13 and a guiding device 15 comprising a vertical strut 14. The closing unit 16, which is movable as a whole, can be transferred, by means of the lifting device 13 into a travel position which is elevated in comparison with its lower end-of-travel position in which it rests on the base frame, and in which the lateral outlets 12 along the longitudinal sides and ends of the supporting frame 7 are freed. The lateral outlets 12 are shielded at the top for which purpose the outer housing 4 preferably comprises housing walls, the lower portions of which have a diverging course originating from the base frame 3, along the sides of the shaft opening. These lower portions are followed in each case by middle portions which are aligned substantially vertically. In the example of embodiment shown in Figure 1, these middle por-

tions are followed by upper portions which have an alignment converging towards the upper outlet for the spent air, with such an extent that in the raised travel position of the closing unit 6 and with the lateral outlets 12 freed, ventilation is possible protected from atmospheric influences.

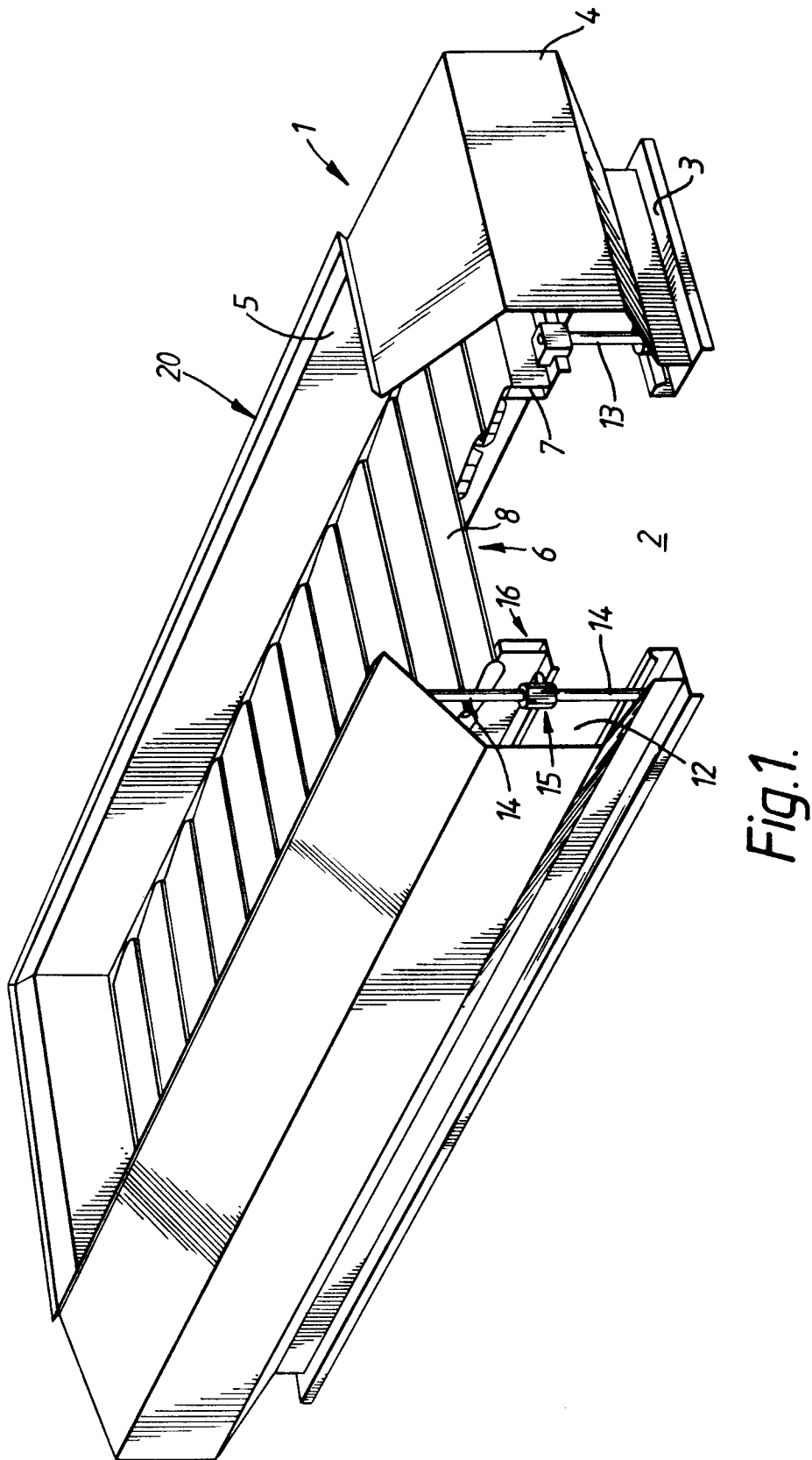
As Figures 4 to 6 illustrate, the present invention additionally provides, inside the outer housing, a housing insert member 17 which, in the raised end-of-travel position of the closing unit 16 with the outlets 12 freed (Figure 6), forms the upper portion of the outer housing wall and at the same time bounds the upper outlet for the spent air, the housing insert member 17 being supported in the outer housing 4 likewise for adjustment in height as a whole by means of a lifting and guiding device 18. As illustrated in Figure 6, in this end-of-travel position, the housing insert member projects upwards above the upper terminal edges of the outer housing 4. In the lower travel position (Figure 4), it is situated sunk in the outer housing 4. During ventilation in fine weather or in the event of ventilation being unnecessary, the structural height of the outer housing is reduced, as a result, to an extremely small dimension despite the possibility which is afforded of lateral ventilation protected from atmospheric influences. Such an extensible housing insert member 17 likewise offers the advantage, particularly with a covering device 6 comprising flaps 9, of effectively protecting opened flaps and hence their lifting device 13 from wind loading and the like.

Claims

1. A roof ventilator having a base frame (3) which bounds an upwardly directed shaft (2) and which can be secured to the roof of a building, bounding a roof opening, having an outer housing (4) which can be supported on the base frame (3) and which bounds an upper outlet (5) for spent air, situated with spacing above the upper edge of the shaft (2) and substantially coinciding with the shaft opening, and having a covering device (6) which is disposed inside the outer housing (4) and comprises flaps (9) or the like closing members (8) which are pivotally supported in a supporting frame (7) and can be moved, by means of a drive (13), out of a closed position into an open position, the covering device (6), in the open position of its flaps (9), bounding with its supporting frame (7) a passage (10) for spent air flowing upwards out of the shaft (2), and having at least one lateral outlet (12) for spent air, which can be closed and can be shielded at the top, at least in places, for roof ventilation protected from atmospheric influences, charac-

terised in that the outer housing (4) comprises a housing insert member (17) which forms or continues the upper portion of the outer housing walls and bounds the upper outlet (5) for the spent air, and in that the housing insert member (18) is supported as a whole in the outer housing (4) for adjustment in height by means of a lifting and guiding device (18) and, in an upper end-of-travel position, projects upwards above the upper terminal edges of the outer housing (4) and, in its lower end-of-travel position is situated sunk in the outer housing (4).

2. A roof ventilator as claimed in claim 1, characterised in that the outer housing (4) and the housing insert member (17) form a housing unit substantially free of through gaps in between.



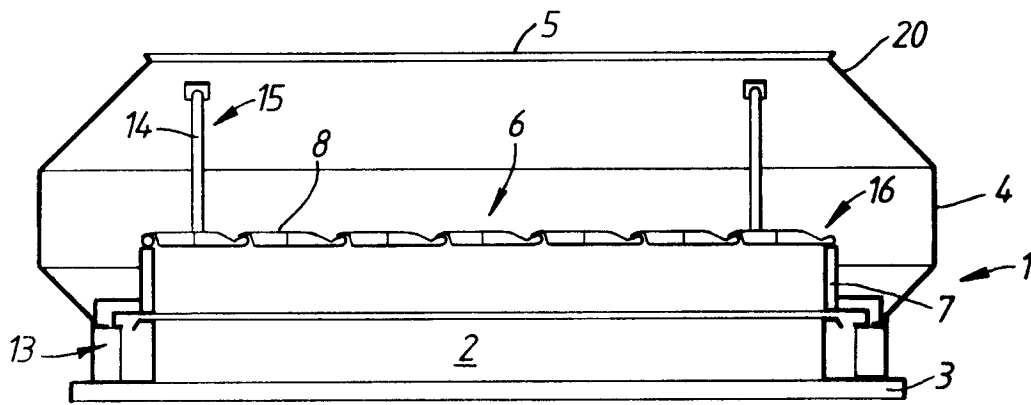


Fig. 2.

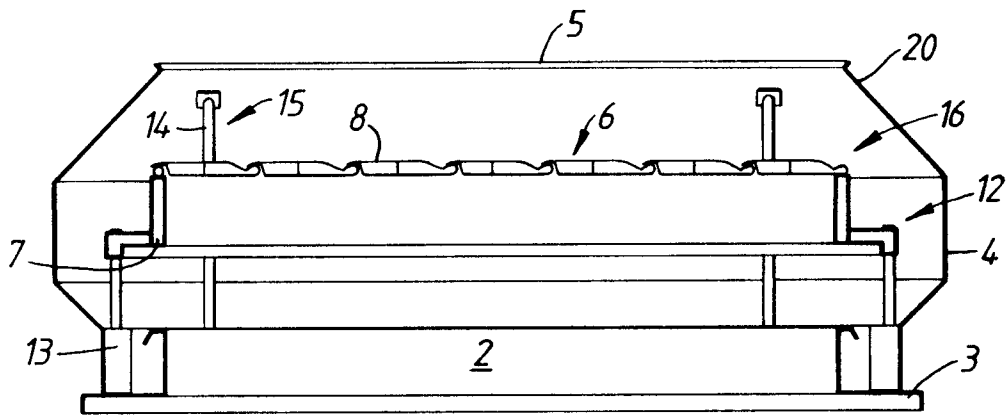


Fig. 3.

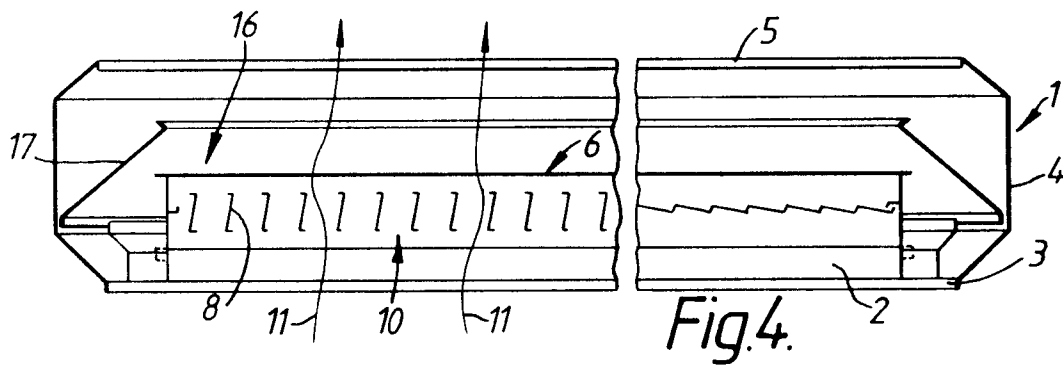


Fig. 4.

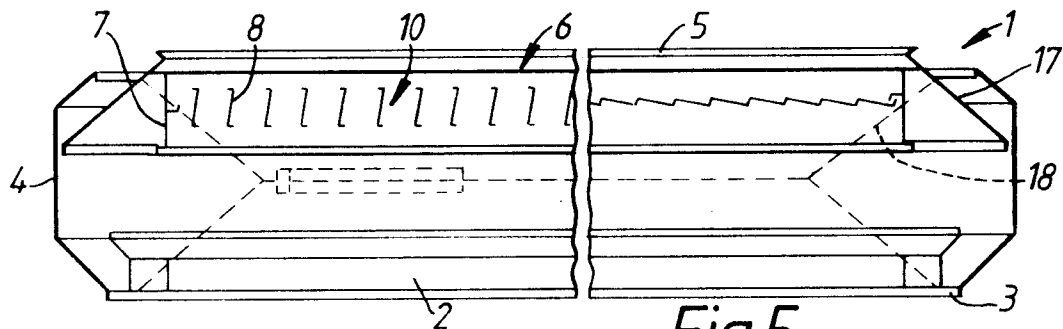
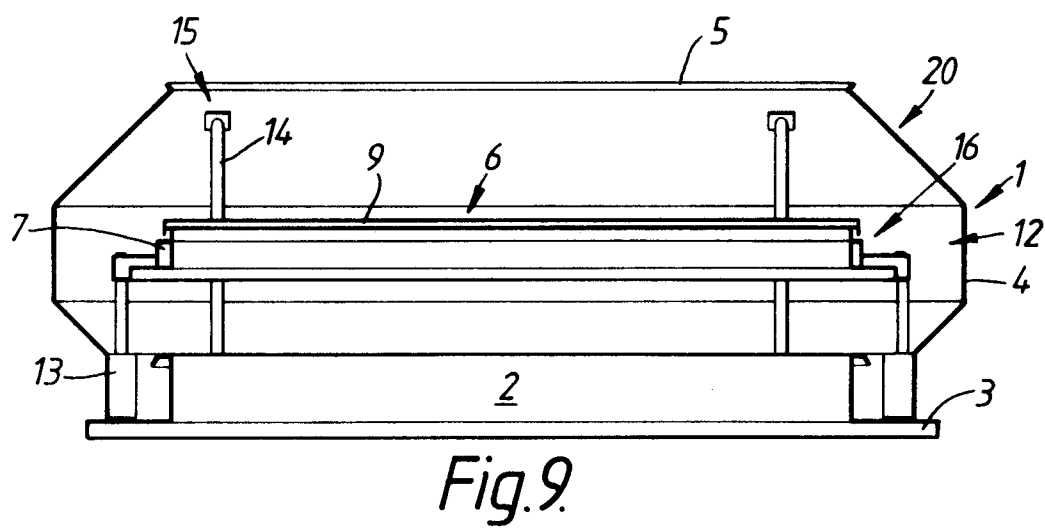
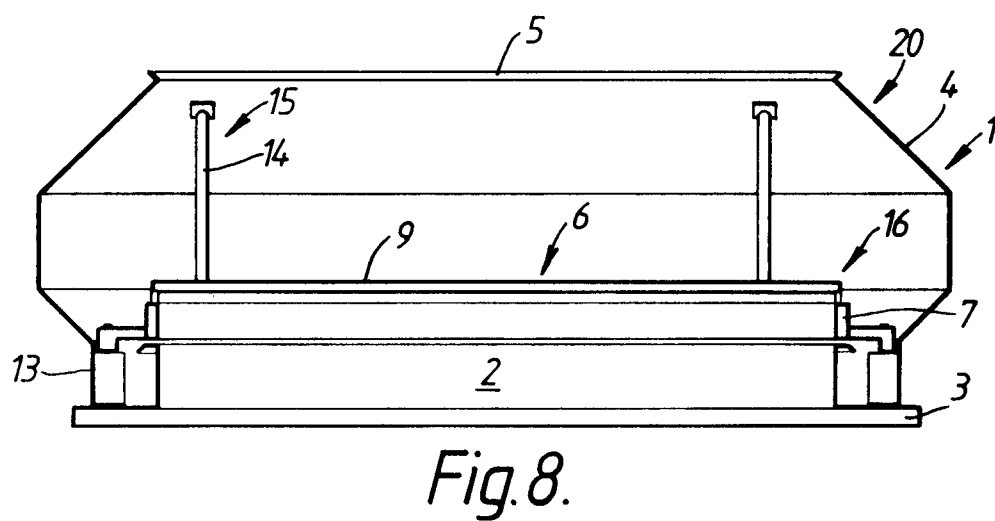
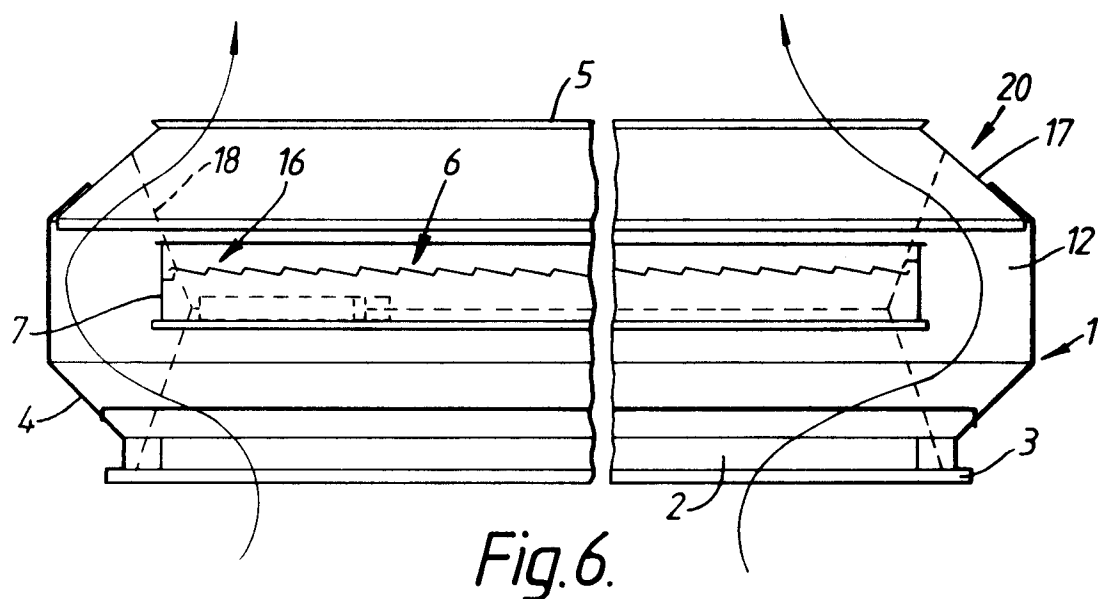


Fig. 5.



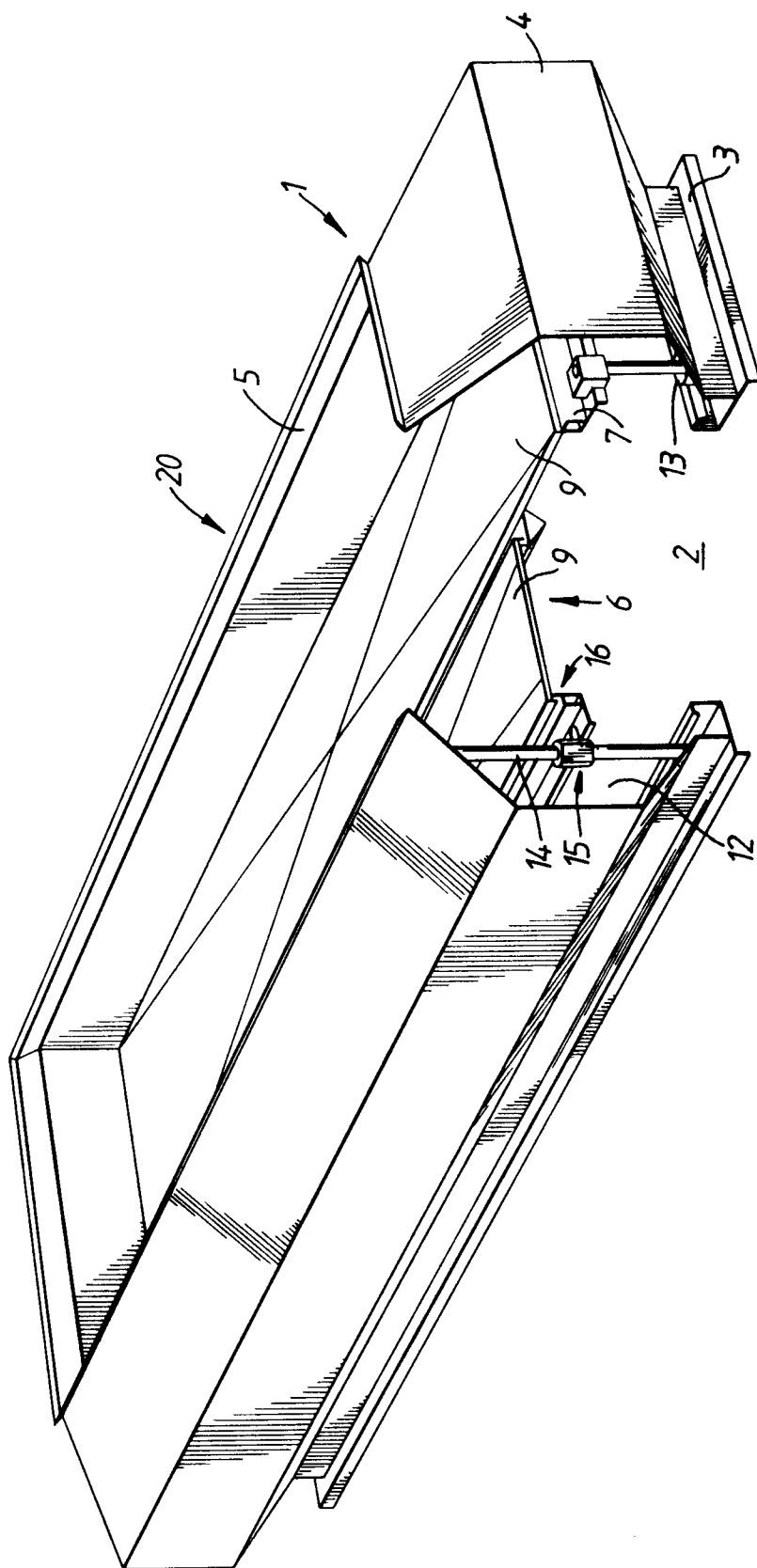


Fig. 7.