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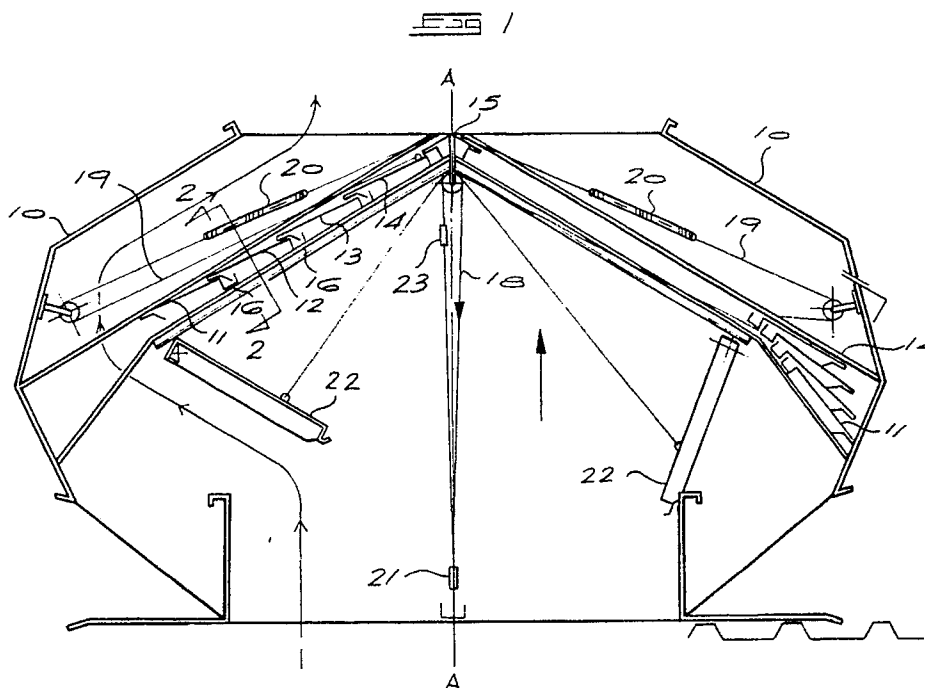
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Ventilators.

A smoke and fire roof ventilator has a gable top closed off by a series of interengaging slats (11 - 14) and held up by means including a fusible link 23. When the link 23 fuses, the slats (11 - 14) slide

down to open the ventilator aperture. In another embodiment the slats (11 - 14) are operated by the knee levers (18, 19).



EP 0 397 475 A1

VENTILATORS

BACKGROUND TO THE INVENTION

THIS invention relates to ventilators of the kind which can be used as smoke and fire ventilators.

In one known ventilator, in the event of a fire, cappings on a gable top pivot apart after the melting of a fusible link to provide an open throat through which smoke may rise. In another ventilator a door obturates an opening and is caused to slide away in the event of a fire under the action of a suitable bias. The pivoting structure is heavy and the pivots are expensive to provide. The sliding door is also heavy and usually after a fire requires to be replaced in its entirety.

SUMMARY OF THE INVENTION

According to the invention a smoke and fire ventilator for the roof of a building including an obturating member which can move away is characterised in that the member is formed by a series of sealingly interengaging strips designed to slide away unless held in place by suitable means.

The strips are preferably biased in the sliding away direction, e.g. under their selfweight or by means of a spring.

The means that hold the strips in place may include a fusible link so that on fusing of the link, the strips are no longer held.

Furthermore the strips may be mounted on an incline and be linked so that on pulling the topmost strip the rest move up the incline.

During opening movement the strips may be stacked or they may roll up in a manner analogous to a roller shutter.

One form of the invention includes knee levers pivoted to each end of the topmost strip, a shaft extending the length of the ventilator and to which the other ends of the knee levers are fixed so that rotation of the shaft causes the topmost strip to move, and means for rotating the shaft.

The ventilator may have a gable top, the levers for strips on one side of the gable top may be fixed to a sleeve rotatable on a shaft carrying the knee levers for the other side, so that the topmost strips can be moved together by turning the shaft and the sleeve in opposite senses.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a section through a ventilator showing different states to each side of a centre line,

Figure 2 is a part section on the line 2-2 in Figure 1,

Figure 3 is a top view of a roof ventilator with portions broken away,

Figure 4 is a section on the line 2-2 in Figure 3 showing closed dampers,

Figure 5 is a section on the line 3-3 in Figure 3 showing open dampers, and

Figure 6 is a section on the line 4-4 in Figure 3 showing a clear throat.

DESCRIPTION OF EMBODIMENTS

In Figure 1 to the left of a centre line A-A a ventilator is shown in a normal operating position while on the right of that line the throat of the ventilator is shown open to the sky.

The ventilator is of a known kind having body members 10 flanking a gable topped central part. As shown, each gable part during normal operation is covered by a series of strips 11, 12, 13 and 14. The strips inter-engage as shown on the left in Figure 1 to form a continuous surface from the ridge 15 downwardly. The inter-engaging formations include longitudinal gutters 16 which discharge into collecting gutters formed by guide channels 17 as shown in Figure 2.

The top strip 14 is connected to a cable 18 and to a cable 19. The cable 19 is attached to a biasing spring 20 so that on release of tension on the cable 18 the strips are pulled down to the position shown on the right in Figure 1. The cable 18 may be slacked off for testing purposes. However, it includes a fusible link 21. During a fire the link 21 melts and the cable 19 pulls the strips downslope.

The illustrated ventilator has a pair of dampers 22 which are also cable operated to open (on the left) or close (on the right). The relevant cable system incorporates a fusible link 23. On melting of the latter link, the dampers assume the closed position shown on the right in Figure 1, so that in the event of a fire the ventilator throat is unobstructed and open to the sky.

In other embodiments of the invention strips such as those illustrated close openings which in the normal course of events do not have ventilation ducts by-passing them as in the illustrated embodiment. The essence is that the obturating member is composed of a series of inter-engaging strips.

The ventilator of Figure 3 to 6 has body members 10 flanking a gable topped central part and raised above a roof to provide a gap below the body members 10.

As shown in Figures 4 and 5 each side of the sloping roof of the gable during normal operation is

covered by a series of slats 11, 12 and 13. The slats interengage as shown in Figures 2 and 3 to form a continuous surface from the ridge 15 downwardly. When the top slat 11 is held, it prevents the other slats from sliding down. If the slats are in the down position as shown in Figure 6, pulling the top slat 11 up also pulls up the slats 12 and 13.

Below the slat 13 there is a damper slat 14 which can move up and down independently of the other slats. The slat 14 can be pulled up by means of a cable incorporating a fusible link. If the cable is slackened off, the slat 14 slides down under its selfweight or under the bias of a spring or springs, not shown.

The top slats 11 are connected to knee levers 18 and 19 respectively at each end of the ventilator. The levers 18 are fixed to a rotatable shaft 20 extending the length of the ventilator while the levers 19 are fixed to a sleeve 21 which can rotate freely around the shaft 20. Quadrants 22 are secured to the shaft 20 and the sleeve 21 and can be rotated by means of cables 23 extending from a pull cable so that on pulling on the pull cable the shaft 20 and the sleeve 21 rotate in opposite senses to cause the slats 11 on both sides of the gable to move at the same time.

A fusible link is incorporated in the pull cable.

Each slat 14 is connected to a pivoted deflector 26 by means of a link 27. With a slat 14 in its lowermost position its deflector 26 is closed as shown in Figures 4 and 6. With the slat 14 open, the deflector 26 is also open as shown in Figure 5. In addition the slat 14 and the deflector 26 can assume intermediate positions.

The illustrated ventilator can be caused to assume a number of conditions. The first is shown in Figure 4 in which the gable top is complete, the slats 14 are closed and the deflectors 26 are closed. The second normal condition is shown in Figure 5 in which the slats 14 and the deflectors 26 are open. Then there are conditions intermediate the first and second conditions to provide variable ventilation.

Figure 6 illustrates an abnormal condition in which the gable top has slid away and the throat is open. In this condition the slat 14 and the deflector 26 are also in their closed positions. This condition can arise as a voluntary act of the operators for testing purposes by relaxing the pull cable. Alternatively this condition may arise during fires by fusing of the fusible links. Normal conditions can be restored from the voluntary open throat condition by pulling on the pull cables. For restoration after a fire the fusible links have to be replaced.

1. A smoke and fire ventilator for the roof of a building including an obturating member which can move away characterised in that the member is formed by a series of interengaging strips designed to slide away unless held in place by suitable means.

2. The ventilator claimed in claim 1 in which the strips are biased in the sliding away direction.

3. The ventilator claimed in claim 2 in which the means that hold the strips in place includes a fusible link so that on fusing of the link, the strips are no longer held.

4. The ventilator claimed in any one of the above claims in which during opening movement the strips are stacked or roll up in a manner analogous to a roller shutter.

5. The ventilator claimed in any one of the above claims which the strips are mounted on an incline and are linked so that on pulling the topmost strip the rest can move up the incline.

6. The ventilator claimed in claim 5 including knee levers pivoted to each end of the topmost strip, a shaft extending the length of the ventilator and to which the other ends of the knee levers are fixed so that rotation of the shaft causes the topmost strip to move, and means for rotating the shaft.

7. The ventilator claimed in claim 6 which has a gable top and in which the levers for strips on one side of the gable top are fixed to a sleeve rotatable on a shaft carrying the knee levers for the other side, so that the topmost strips can be moved together by turning the shaft and the sleeve in opposite senses.

Claims

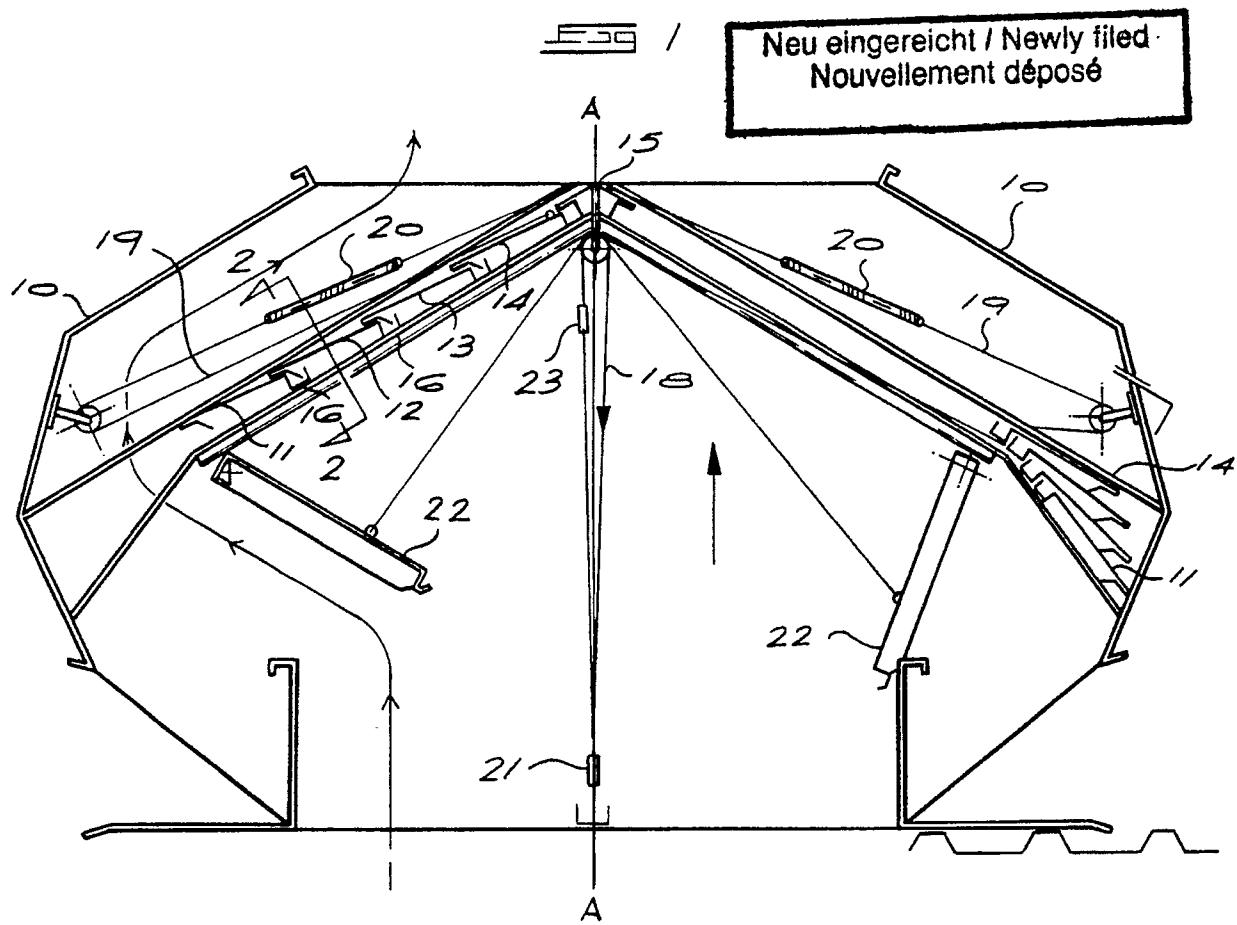
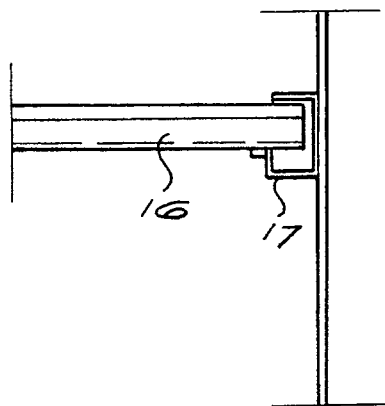
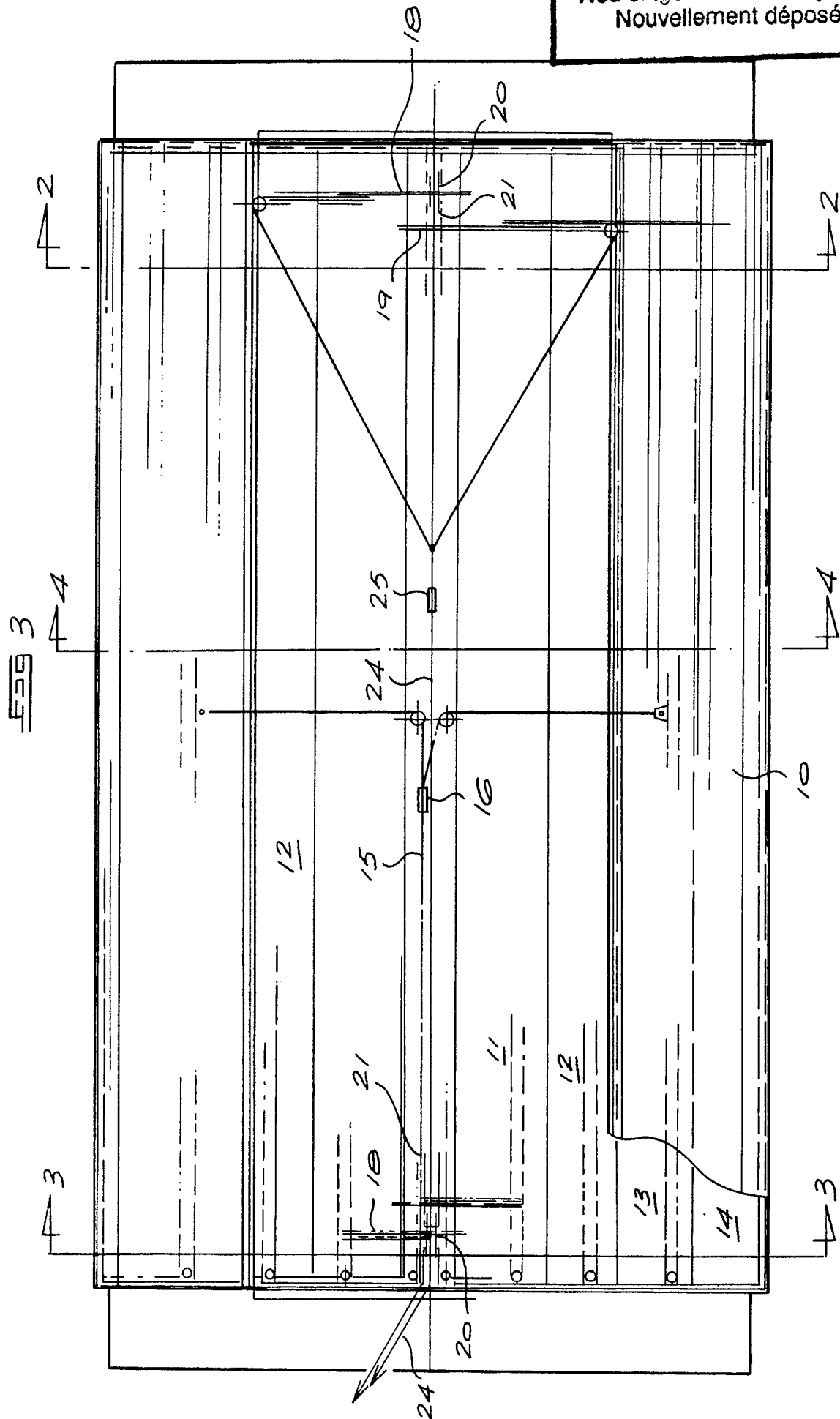


FIG 2



Nouvellement déposé



Nouvellement déposé

FIG 4

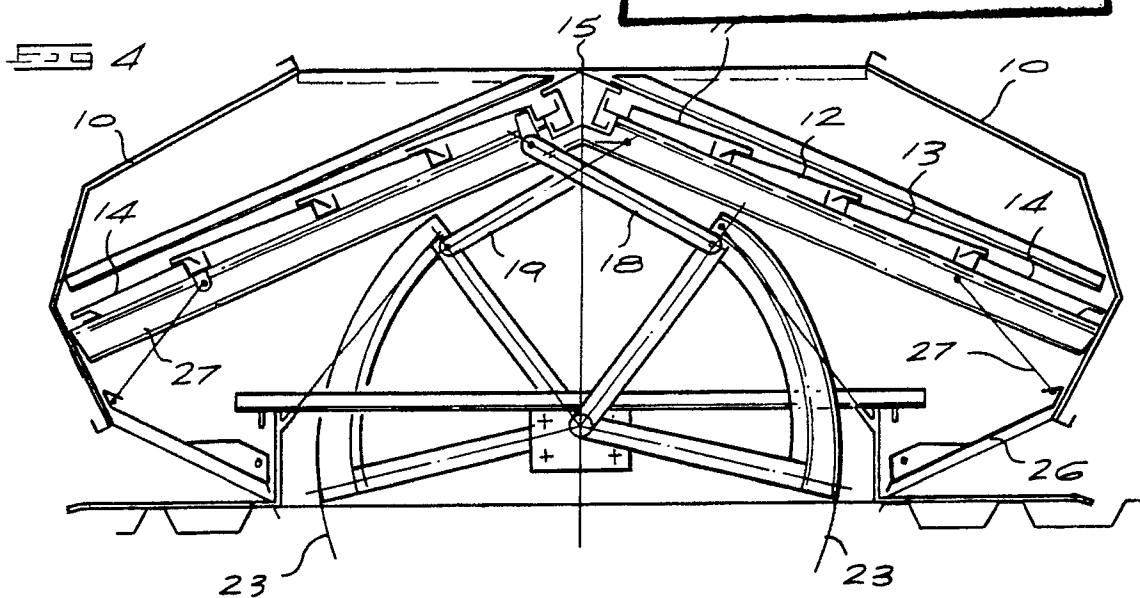


FIG 5

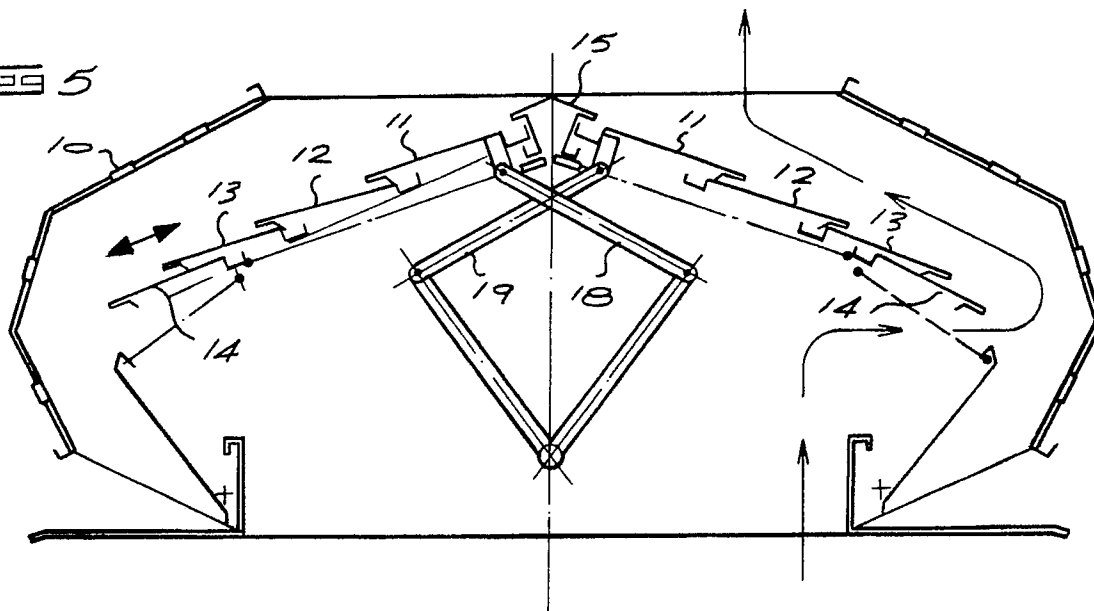
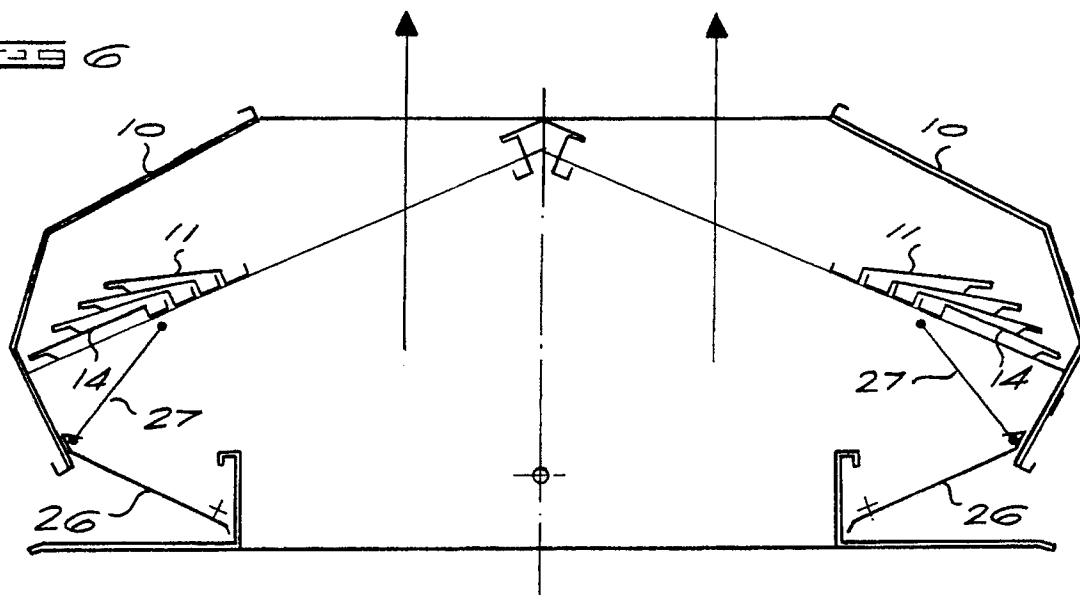


FIG 6





DOCUMENTS CONSIDERED TO BE RELEVANT			EP 90305005.2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.')
X	<u>DE - B - 2 461 944</u> (GAL) * Claims; column 2, lines 9-34; fig. *	1-3	F 24 F 13/10 F 24 F 7/02
A	--	5	
X	<u>FR - A - 2 239 577</u> (AIR BALANCE, INC.) * Pages 1,2; claims; fig. 1-6 *	1,2,4	
A	--	3	
X	<u>AT - B - 335 126</u> (HÖGANÄS) * Claims; page 2, lines 48-60; fig. 1,2 *	1,2	
A	--	4	
A	<u>US - A - 3 350 996</u> (ROSE) * Totality *	1,2,4	
			TECHNICAL FIELDS SEARCHED (Int. Cl.')
			F 24 F
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 23-08-1990	Examiner LANG
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	