April 19, 1960 W. H. BRASKAMP 2,933,241

WINDOW OR RING VENTILATOR

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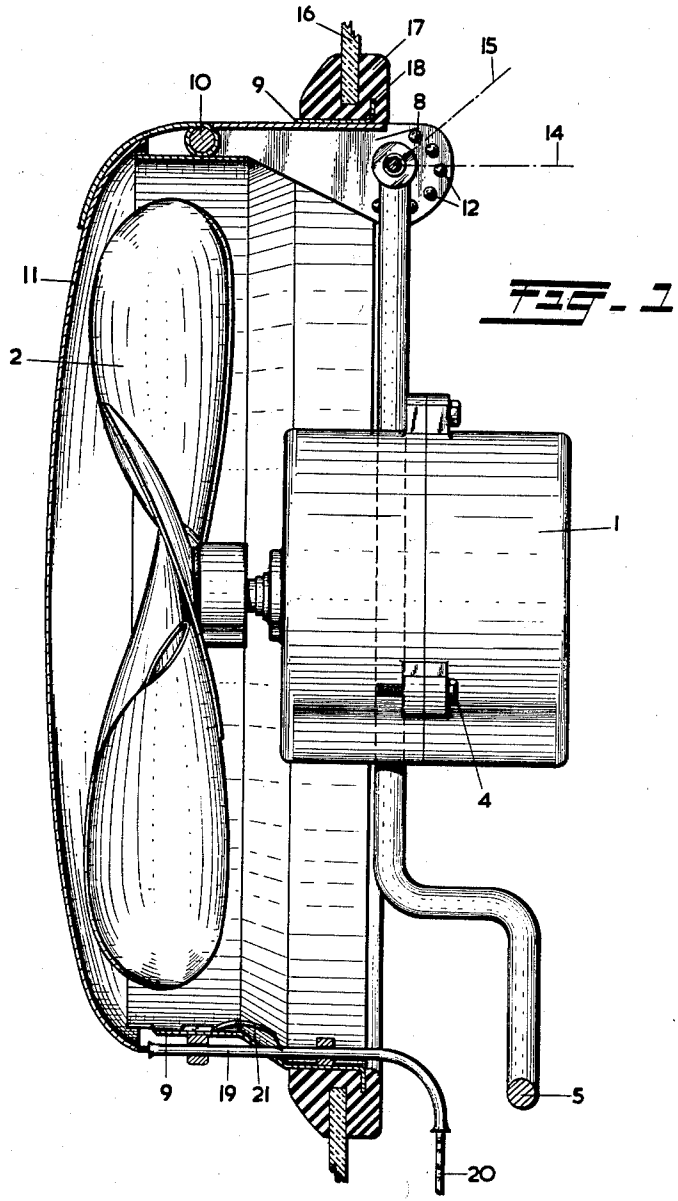


FIG. 1

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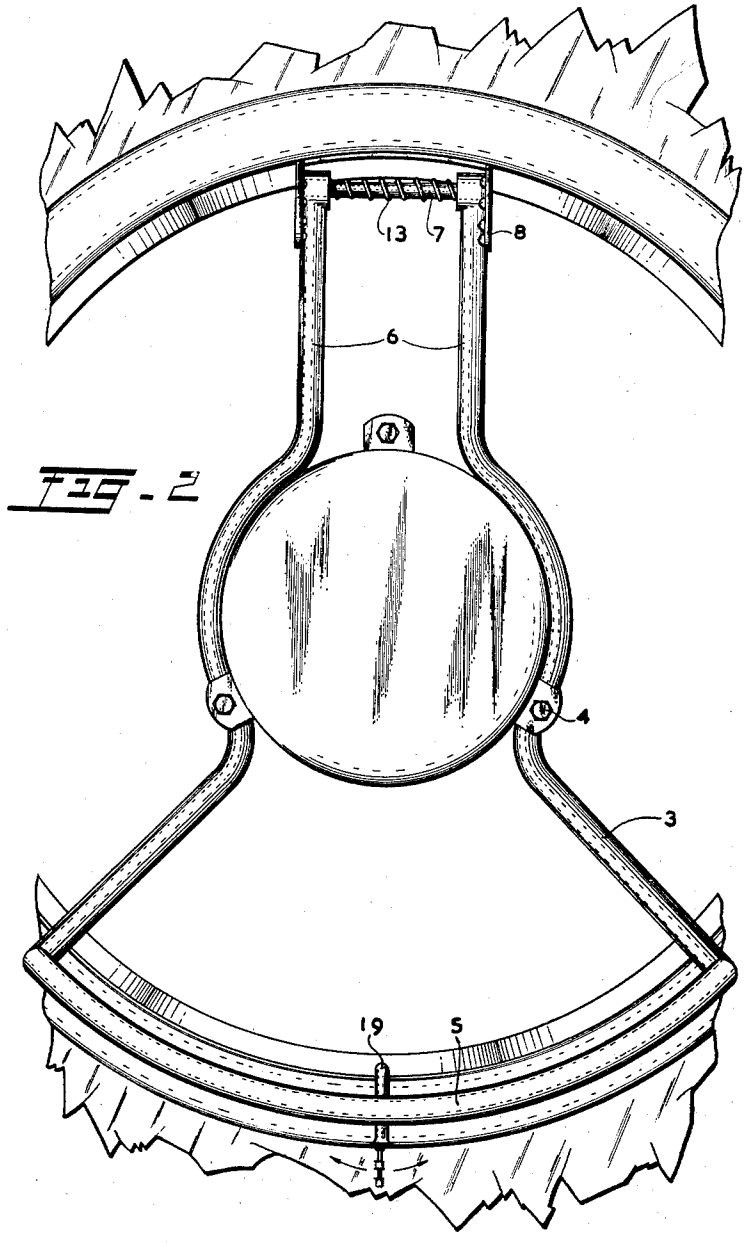


FIG. 2

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WINDOW OR RING VENTILATOR

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3 Claims. (Cl. 230—259)

The invention relates to a window or ring ventilator, consisting of an electric motor and a fan mounted on the shaft thereof, said motor being supported in a cylindrical casing which has been fitted in an opening of a glass pane or the like. Ventilators of this type are universally known and serve to remove used air, vapours or smoke from rooms, such as e.g. a kitchen. Such ventilators have been secured in the glass pane or the like by fitting two sections of the cylindrical casing on either side of the glass pane and joining them together. This is a cumbersome method, for when the window ventilator is to be fitted, two men are always required to hold the two sections till they have been joined together. In such ventilators the casing of the motor is firmly fixed in the cylindrical casing, while further a cover or other shutter is present by means of which the passage can be opened or shut. Several constructions are known for opening and shutting this shutter simultaneously with the starting of the motor, all of which constructions are rather complicated and expensive.

Now the invention has for its object to furnish a window or ring ventilator that is cheaper than the known ventilators, admits of a greater variety of uses, and is easier to fit.

According to the invention this object is primarily attained by the fact that the motor in conjunction with the fan is adjustable about a horizontal transverse axis. This adjustability of the motor in conjunction with the fan has the result that the ventilator can be used not only for exhausting but also for other purposes, e.g. for introducing fresh air or as a direct propelling ventilator. The introduction of fresh air may be effected, for example, by placing the ventilator, with the shutter opened, in such a way that the fan is approximately in a horizontal plane. When the fan is swung upwards beyond this horizontal position, a direct flow, directed obliquely inwards and downwards, is produced, to which fresh air may be added, if desired, by opening the shutter completely or partially.

Although the construction might be such that the horizontal transverse axis intersects the shaft of rotation of the ventilator and the adjustment thus takes place inside the cylindrical casing, yet the simpler construction, in which according to the invention the horizontal transverse axis is near the upper edge of the cylindrical casing, is preferred. This construction is superior not only because the difficulties as to the shape and the location of the horizontal transverse axis are thus avoided, but also because it is now possible according to the invention to secure the motor to a brace, the lower part of which has been designed as a grip, the upper part forming the axis of rotation or being attached to a transverse shaft. The upper ends of the brace are preferably arrested by a spring-actuated snapping or clamping mechanism. This snapping mechanism might be formed by assembly plates for the shaft, provided with indentations or the like, in such a way that the upper ends of the brace are kept between the said indentations by a spring fitted about the shaft.

From the foregoing it is seen that it is desirable in connection with the adjustability of the ventilator for the shutter for the cylindrical casing to be operated and adjusted independently of the ventilator, and according to the invention this shutter is formed by a cover adapted to pivot about a spindle attached to the circumference of the casing, which cover is forced into the opened position by a spring and can be brought into the shut position by a pulling member. Such a shutter can be manufactured very cheaply. Such a pivoting cover can easily be adjusted to the fully opened position, the shut position or an intermediate position in combination with a given adjustment of the ventilator. The pulling member preferably passes through a pipe that has been fitted to the circumference of the casing and is adapted to rotate about its longitudinal axis, said pipe being bent downwards on the inside of the window and being provided in its central section with a transverse groove, which is engaged by a leaf spring fixed to the casing, while the section of the pulling member passing through the pipe consists of a chain of spherical or similar elements. The leaf spring, which engages the spherical elements, serves to arrest the pulling member, owing to which the cover can be fixed in the shut position or in a partially opened position, while opening can be very easily effected by pulling the pulling member somewhat obliquely, as a result of which the pipe is rotated and the edges of the groove therein lift the leaf spring, so that the latter gets out of engagement with the chain.

In some known ventilators the casing is supported in the glass pane with the interposition of a ring of rubber or similar material engaging in the form of a U about the edge of the opening in the glass. Now according to the invention the fitting can be considerably simplified by the fact that near this ring the casing has its maximum diameter and is provided on the inside with a flange that is directed radially outwards, which flange is enclosed in a radial circumferential groove of the rubber ring. The ventilator can now be fitted by one man because no section to be fixed has to be held on the outside, the fitting being performed by first placing the rubber ring in the opening in the glass and then inserting the ventilator with its casing into the rubber ring until the flange that is directed radially outwards rests against it, upon which the rubber ring is pulled over the flange and the casing is thus fitted in the glass pane.

The invention thus furnishes a cheaply manufactured ventilator, which can be fitted much more easily and which also has the advantage that it can be placed in various positions, an advantage by which its efficiency is appreciably increased.

The invention will now be elucidated more in detail with reference to the drawings.

Fig. 1 is a cross-section.

Fig. 2 is a rear elevation of a part of the ventilator.

The ventilator shown in the drawing consists of the motor casing **1** and the fan **2**. The motor casing is secured to a brace **3** by means of the screws **4**, which at the same time keep together the sections of the casing of the motor, the lower part of said brace being designed as a grip **5**, while the upper ends are rotatably and movably supported in bearings about a shaft **7**, which is fixed in a fitting brace **8** secured on the inside of the cylindrical casing **9** of the ventilator. The fitting brace **8** has been extended towards the front, where it carries the shaft **10** for the shutter **11** in the form of a cover. This cover **11** is continually forced into the opened position by a spring—not shown—about the shaft **10**. The sides of the fitting brace **8** are provided with indentations **12** and about the shaft **7** has been fitted a helical spring **13**, which

keeps the ends of the brace legs **6** pressed between the indentations **12**. When the grip **5** is moved outwards and upwards, the legs **6** bound inwards and then spring between a subsequent set of indentations, as a result of which the ventilator is locked in a different position. In this way the ventilator can be adjusted in an approximately horizontal position or in a position in which it is directed obliquely upwards and inwards, as indicated by the lines **14** and **15** respectively.

The ventilator has been fitted in an opening of a glass pane **16**, with the interposition of a rubber ring **17** engaging in the form of a U about the edge of the opening in the glass. The casing has been so constructed that it has its maximum external diameter near the internal diameter of this rubber ring, except for a radially directed flange **18**, which is engaged by a lip of the rubber ring **17** in order to keep the casing in its place.

In the lower part of the cylindrical casing **9** a thin pipe **19**, adapted to rotate about its own axis, has been fitted, which pipe has been bent downwards on the inside of the window and through which passes a pulling member **20** consisting of spherical elements. Attached to the casing **9** is further a leaf spring **21**, which engages a groove in the pipe **19** and in this way arrests the chain of spherical elements. When the pipe is rotated as indicated by the arrows in Fig. 2 by obliquely pulling the pulling member, the leaf spring **21** is lifted and brought out of engagement with the spherical elements, as a result of which the chain can slide through the pipe and the cover **11** is enabled to open under the influence of the spring at the shaft **10**.

In the position shown in the drawing the ventilator is not operating. When now the cover **11** is opened and the motor started, the ventilator will serve as an exhausting ventilator. When the ventilator is given a horizontal position by operating the brace **5**, an air current is directed downwards which, when the cover **11** is e.g. shut, propels downwards warm air rising from a heating radiator, thus distributing it more effectively, whilst, when the cover **11** is opened, the air current flowing along the passage and produced by the ventilator causes fresh air from outside to be sucked into the room. When the ventilator is raised further still and the cover **11** is opened, fresh air can also be sucked into the room in this way, while in addition the cooling effect of the ventilator is felt directly. When in this position the cover **11** is shut, only the downwardly directed cooling air current produced by the ventilator is used, which moreover results in a more effective distribution of the heat in a heated room.

It is further stated that the features described above can also be applied when the ventilator has not been fitted in a glass pane, but e.g. in a plate of a different material or even in a wall or a tube passing through a wall.

What I claim is:

1. A ventilator adapted for being mounted in an opening in walls and panes of glass and the like comprising a cylindrical housing, means for fixing said housing in position in said opening, a brace on the housing, brace legs depending from said brace and pivotally connected to the latter for rotation about a substantially horizontal axis, said legs traversing said housing and including portions constituting a grip, a motor supported on and between the legs, and a fan on the motor and normally accommodated in said housing, said grip providing for adjusting the position of said fan, said brace comprising spaced plates including corresponding alignments of spaced embossments, the legs being positioned between the plates, the ventilator further comprising a spring urging the legs between adjacent embossments on the respective plates whereby the legs may be fixed in position.

2. A ventilator as claimed in claim 1, wherein said brace includes a horizontal bearing, said legs including uppermost portions pivotal in said bearing.

3. A ventilator as claimed in claim 1, comprising a shutter for closing the housing and pivotal on said brace and means extending through the housing for controlling the shutter.

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