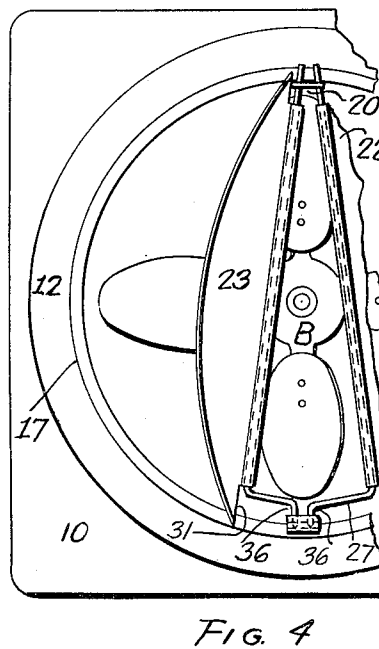
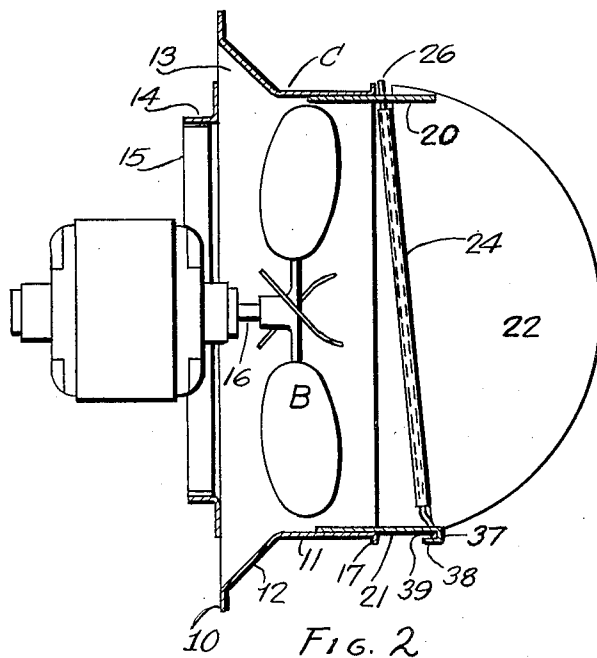
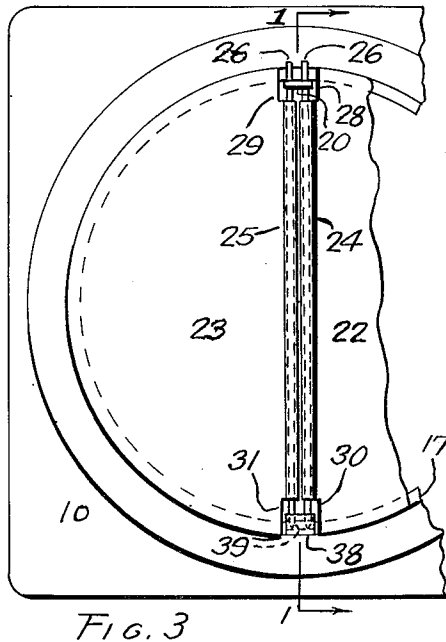
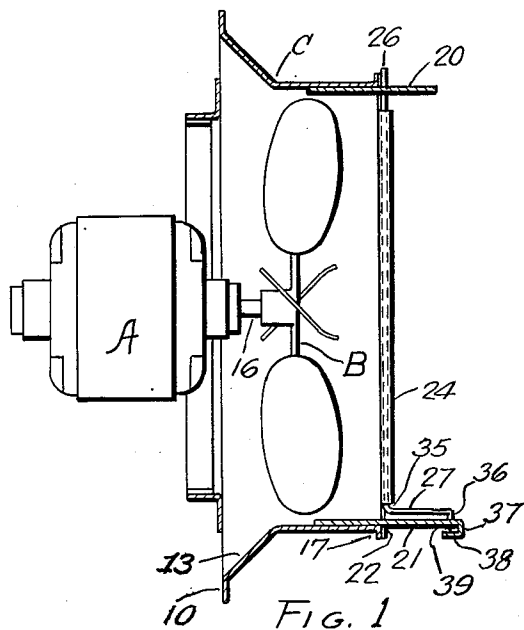


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AUTOMATIC FAN DAMPER
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AUTOMATIC FAN DAMPER

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2 Claims. (Cl. 230—274)

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The present invention relates to an electric fan with a housing having two semi-circular damper blades at the outlet which are opened by the blast of air from the fan and closed by gravity and used generally for moving air into or out of a building or room through an opening in the wall, around which the device is mounted.

Objects of the present invention are to provide pivot rods which are suitably secured to the inner edges of the damper blades, the bottom rods being formed by bending them forwardly and then downwardly a distance forward from the first bends and slidably extending the ends through openings in the lower bracket, the ends being preferably cone shaped and adapted to rest on the bracket and act as a support for the dampers, the upper and lower pivots being closely spaced transversely whereby when the blades are closed their adjacent edges are in juxtaposition.

Another object of the present invention is to provide and mount the two damper blades which when open, will provide a free flow passageway for the discharged air.

A further object of the present invention is to cut away portions at the corners of the damper blades in order to provide room for the pivot support brackets and having means whereby when the dampers are fully opened, one of the pivot supports will act as a stop for the blades.

Generally stated objects of the present invention are to provide a device of the character which is simple, easily manufactured at low cost, efficient and pleasing in appearance.

To these and other useful ends my invention consists of parts, combinations of parts or their equivalents and mode of operation as hereinafter described and claimed and shown in the accompanying drawings in which:

Fig. 1 is a side elevational view of my improved device with the housing and fan blade brackets sectioned on lines 1—1 of Figure 3, showing one of the damper blades closed.

Fig. 2 is a view similar to Figure 1 showing one of the damper blades open.

Fig. 3 is a front elevational view of a fraction of my improved device with the dampers in a closed position.

Fig. 4 is a front elevational fractional view of my improved device with the blades open.

As thus illustrated the motor of my improved device is designated in its entirety by reference character A, the fan blade assembly is designated in its entirety by reference character B. The housing in its entirety is designated by reference character C.

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The housing of my device is shaped preferably as illustrated in the figures, the rear flanges 10 of which are adapted to be easily secured to the wall of the room or building by means of suitable screws or bolts, the flange having holes therein for this purpose. The circular part of the housing is designated by reference numeral 11 and the portion between members 10 and 11 is designated by reference numeral 12 thus forming a shape which is pleasing in appearance and providing a flared inlet as at 13 which improves the efficiency of the fan. Motor A is supported on flange 10 by means of suitable supporting members 14 and 15, member B being mounted on the front end of motor shaft 16 and is positioned within housing member 11 and near the rear edge thereof. The front edge of member 11 has a narrow outwardly turned flange 17 for holding this edge in a true circle.

Thus it will be seen by scrutinizing the figures that there is provided a large and easy path for the air as it approaches the rear end of member 11; that member 11 may be made in a suitable diameter conducive to efficiency and appearance and that the front end of member 11 with flange 17 forms a suitable means for supporting the damper blade brackets and for providing a suitable surface against which the blades rest when closed.

I secure a bracket 20 to the inside surface on the upper side of member 11 and another bracket 21 to the inside surface at the bottom of member 11. Members 20 and 21 are transversely centrally and vertically positioned. I provide two semi-circular damper blades 22 and 23 which are made from flat stock having a diameter when closed which registers with the outer diameter of flange 17. When these dampers are closed, their adjacent edges are in juxtaposition as clearly illustrated in Figure 3. The inner edges of members 22 and 23 are rolled into a circle as at 24 and 25 so as to embrace rods 26—26 at their tops and the upturned portion of rods 27—27. Rods 26 slidably extend through suitably positioned openings in member 20. Members 22 and 23 are cut away at their upper corners as at 28 and 29 so the damper blades will not touch member 20 except when they are wide open as shown in Figure 4.

It will be noted by observing Figure 3 that rods 26 are free to move vertically in member 20, the vertical position of members 22 and 23 being determined as follows:

The lower corners of members 22 and 23 are cut away as at 30 and 31 so these members will

not contact member 21 when the damper blades are closed as shown in Figure 3. Lower rods 27 are turned outward as at 35 (see Figures 1 and 4), the outer ends are turned downward as at 36. These outer ends slidably extend through closely spaced holes in member 21. Member 21 at its outer end is bent downwardly and rearwardly as at 37 and 38. The lower ends of members 27 are pointed as at 39, the points being positioned so the damper blades will be held in the positions shown when closed or opened. Thus the dampers are supported on these points so very little resistance will be offered to the turning movement of the damper blades.

It will be noted that points 39 are a distance forward of the vertical plane of rods 26. Thus this position represents the amount of gravity relative to the weight of members 22 and 23 which will act to close the damper blades and hold them closed as illustrated in Figures 1 and 3 until motor A is started. In other words if a straight line is drawn between points 39 and rods 26 the angle of this line represents the axis on which the damper blades turn.

By observing Figure 4 it will be seen that the damper blades will tend to close by gravity; that they will be stopped by member 20 when in the position shown in Figure 4; that because of points 39 there never will be enough friction against the movement of the damper blades to prevent their sensitive operation; that when the dampers are closed there are practically no openings for the passage of air; that curved portions 24 and 25 are on the outer side of the damper blades so the blades will lie flat on flange 17 when the blades are closed. Thus it will be seen that applicant's automatic fan damper meets all of the requirements recited in the preamble of this specification.

Having thus shown and described my invention, I claim:

1. A fan and an automatic damper therefor comprising in combination, a housing having a fan therein and means for driving the fan to force air forwardly therethrough, forwardly extending upper and lower brackets secured to opposite sides of the outlet end of the housing and being positioned in vertical alignment, two semi-circular damper blades adapted to close the outlet end of the housing when the fan is not operating, the upper corner of said damper blades having upwardly extending rods secured thereto, openings in said upper bracket adjacent the forward end of the housing adapted to slidably and rotatably engage the rods, the lower corners of said damper blades having secured thereto other rods which extend forwardly a distance

when the damper blades are in a closed position and then downwardly a distance from the damper blades, said lower bracket having openings a distance from the front end of the housing through which said downwardly extending ends of the other rods rotatably and slidably extend, a stop bracket positioned below the openings in said lower bracket, the downwardly extending ends of said last rods being cone shaped and adapted to rest on said stop bracket, whereby when the fan is operating, the blast of air from the fan will act to counteract gravity and cause the damper blades to open the outlet end of said housing for free passage of air therethrough.

2. A fan and an automatic damper therefore comprising in combination, a housing having a fan therein and means for driving the fan to force air forwardly therethrough, forwardly extending upper and lower bracket secured to opposite sides of the outlet ends of said housing and being positioned in vertical alignment, two semi-circular damper blades adapted to close the outlet end of said housing when the fan is not operating, the upper corners of the damper blades having upwardly extending rods secured thereto, openings in said upper bracket adjacent the forward end of the housing adapted to rotatably engage the rods, the lower corners of said damper blades having secured thereto other rods which extend forward a distance when the damper blades are in a closed position and then downwardly a distance forward of the damper blades, said lower bracket having openings a distance forward from the front end of the housing through which the downwardly extending ends of the other rods rotatably and slidably extend, means adapted to form a free support for said damper blades, whereby when the fan is operating, the blast of air from the fan will act to counteract gravity and cause the damper blades to open the outlet end of the housing for free passage of air therethrough.

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