

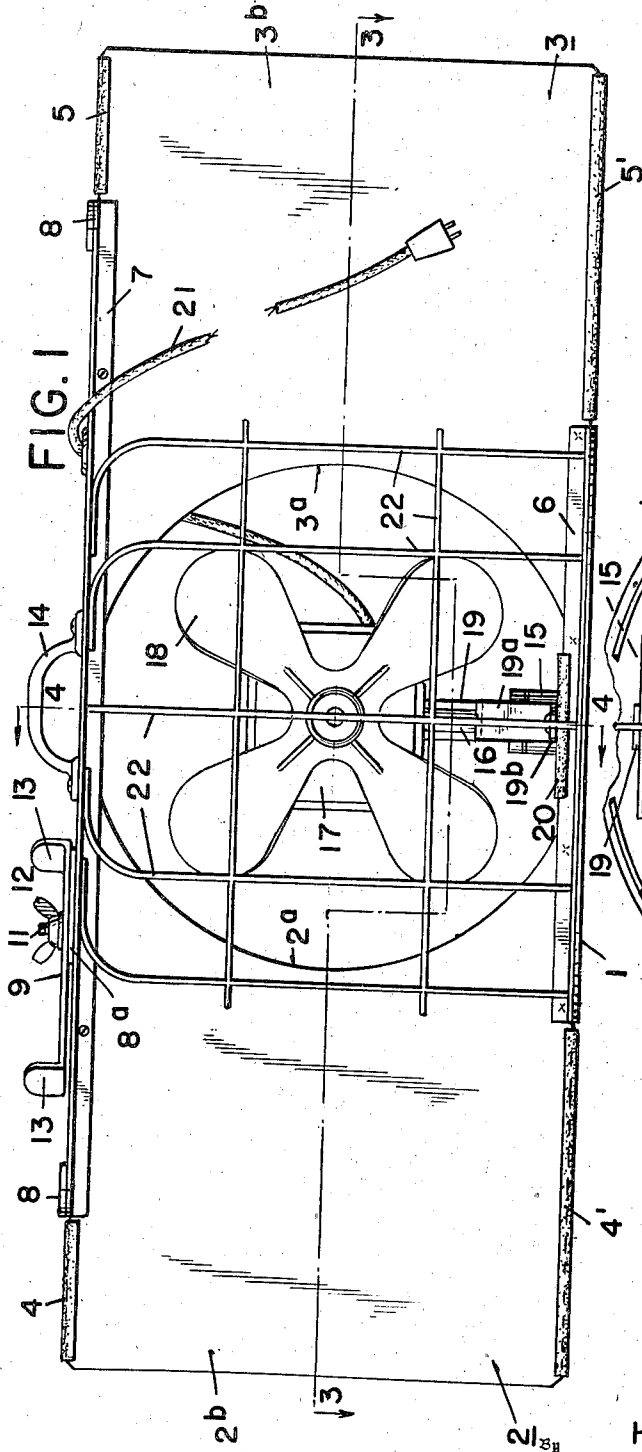
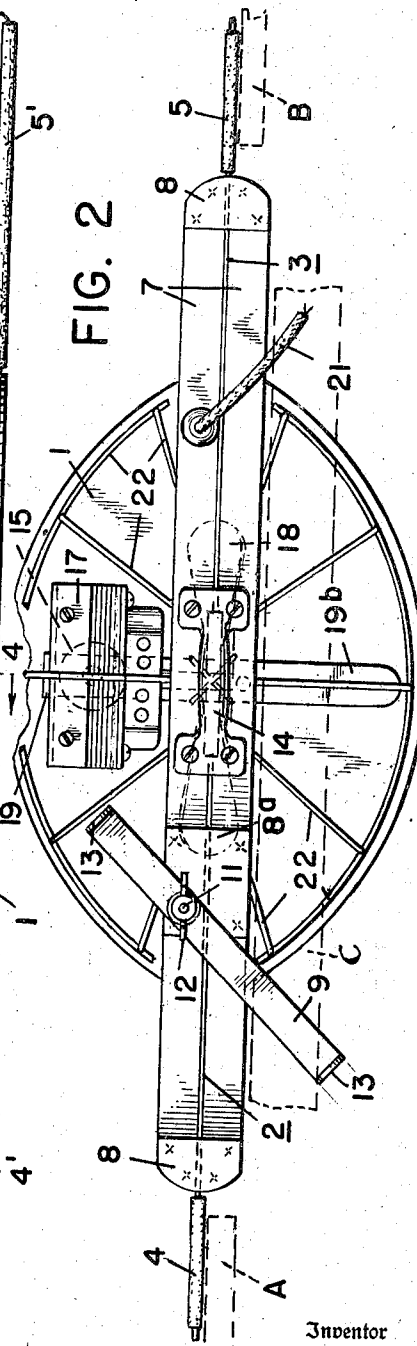
Nov. 2, 1948.

H. MORRISON
WINDOW FAN

2,452,950

Filed Feb. 6, 1947

3 Sheets-Sheet 1



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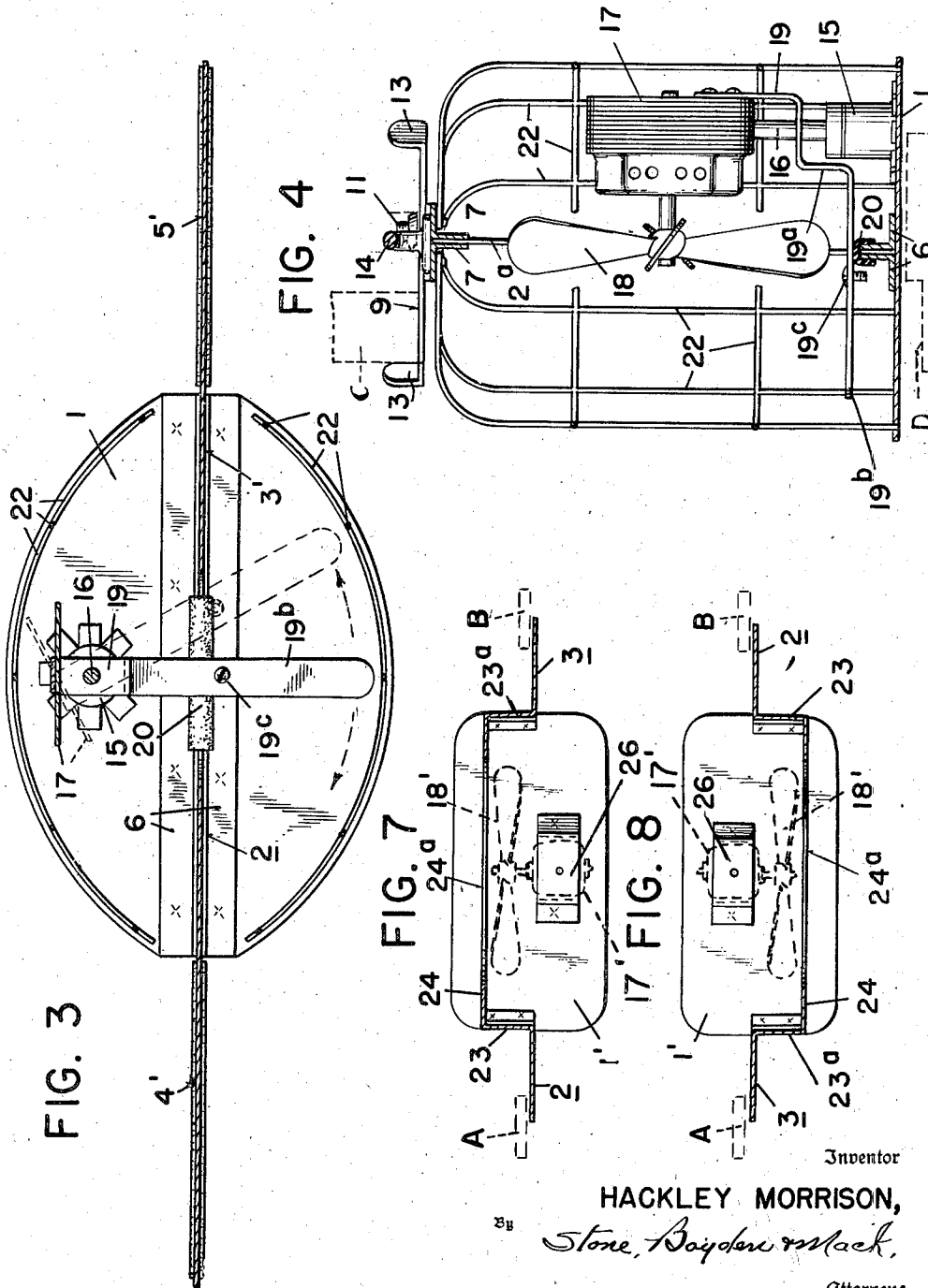
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FIG. 5

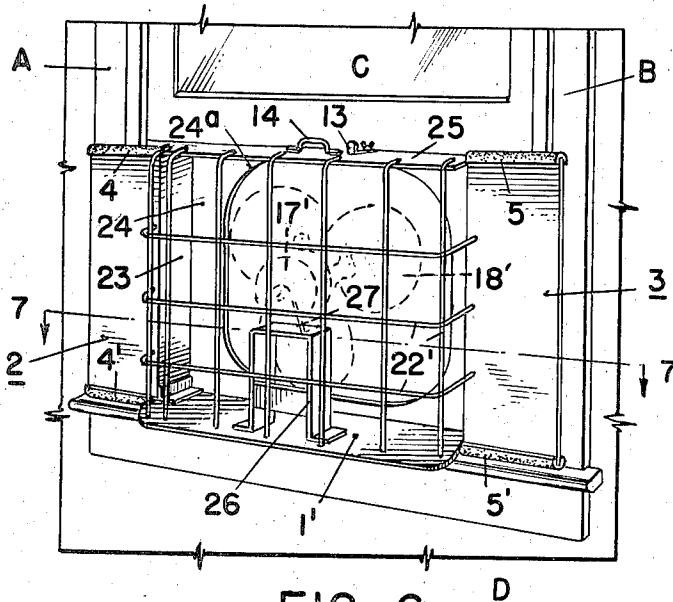


FIG. 6

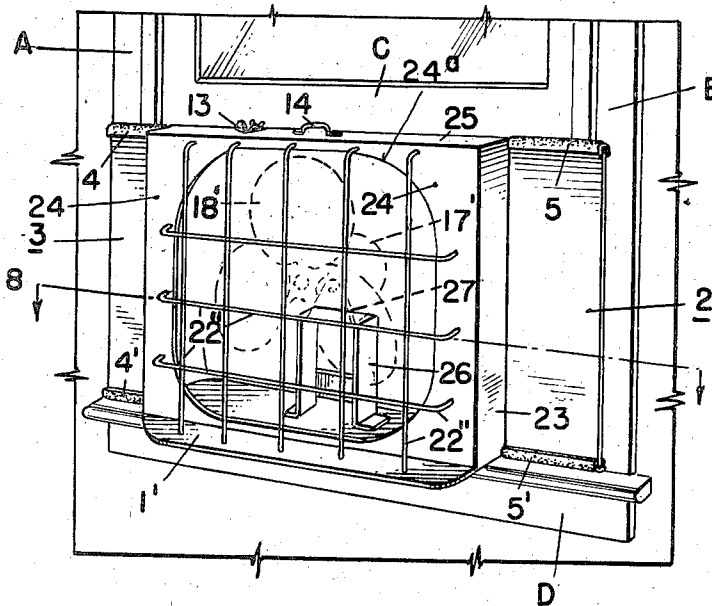


FIG. 9

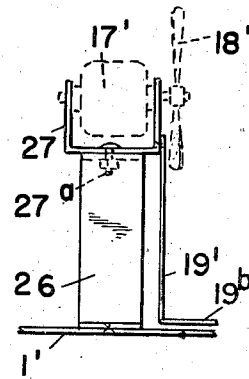


FIG. 10

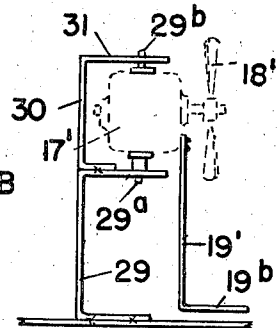
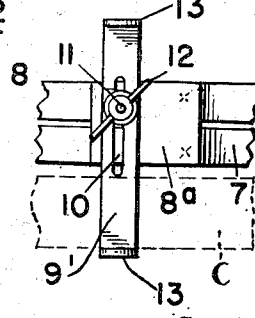


FIG. 11



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UNITED STATES PATENT OFFICE

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WINDOW FAN

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12 Claims. (Cl. 98—94)

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This invention relates to house ventilating apparatus, and more particularly to window fans.

The general object of the invention is to provide a portable fan of this type which is constructed to be supported on the window sill, and which is reversible as a whole, so that it may be positioned in the window in such manner as to blow air either in or out, as desired.

A further object is to devise a fan of this character having a panel structure the end portions of which are formed with flat faces adapted to overlap and engage the sides of a window frame, so that no adjustment or fitting of the panel structure within the opening of the window frame is required.

A still further object is to provide improved and simplified means for securing the fan in position in the window, without the use of screws or other fastening devices, so that no tools are required, to make an installation, and there is no defacement of the window woodwork.

Yet another object of the invention is to so mount the fan itself on the base that it may be angularly adjusted relative to the panel structure, whereby the air current from the fan may be delivered in different directions into the room.

In order that the invention may be readily understood reference is had to the accompanying drawings forming part of this specification, in which

Fig. 1 is a front elevation of one form of my improved window fan;

Fig. 2 is a plan view thereof;

Fig. 3 is a horizontal section taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a vertical transverse section taken substantially on the line 4—4 of Fig. 1 looking in the direction of the arrows;

Figs. 5 and 6 are perspective views showing a slightly modified form of the fan as it appears when applied to the inside of a window, the fan being in reverse position in the two views;

Figs. 7 and 8 are horizontal sections taken substantially on the lines 7—7 and 8—8 of Fig. 5 and Fig. 6 respectively;

Fig. 9 is a side elevation of the form of fan supporting bracket shown in Figs. 5 and 6, the motor and fan being illustrated in dotted lines;

Fig. 10 is a similar view showing a slightly modified construction of bracket, and

Fig. 11 is a fragmentary plan view, showing a slightly modified construction of latch.

Referring to the drawings in detail and more particularly first to Figs. 1 to 4 thereof my improved window fan comprises a flat base 1 shown

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as of elliptical form, on which base are supported a pair of vertically disposed plates or panels 2 and 3. These panels are disposed in the median plane of the base, and project at each side beyond the base as shown in Fig. 2. The upper and lower projecting edges of the panels are preferably covered with a protecting strip 4, 4' and 5, 5', made of rubber or similar soft material.

The plates or panels 2 and 3 are secured to the base by means of a pair of angle members 6, welded to the plates and to the base, and are united at their upper edge by another and longer pair of angle members 7, tied together by connecting tabs 8 and 8a as clearly shown in Figs. 1, 2 and 4.

The adjacent end portions of the plates 2 and 3 are cut away on curved lines as shown at 2a and 3a in Fig. 1. Thus, the plates 2 and 3 constitute a panel structure having a central opening with curved edges, this opening being shown in Fig. 1 as nearly circular.

The outer projecting ends 2b and 3b of the plates 2 and 3 constituting the panel structure have flat faces on both sides. As shown in the drawings, these projecting ends of the panel structure consist simply of thin flat plates. Other forms of panel might however be employed provided the end portions have flat faces on both sides.

These flat faces of the projecting ends of the panel structure are adapted to overlap and engage the inside window trim or frame indicated by dotted lines at A and B in Fig. 2, while the base 1 rests upon the window sill D indicated in Fig. 4.

In order to retain the window fan in position in the window opening as above described, I provide a horizontal, laterally extending latch member 9 pivotally mounted on a bolt 11 carried by one of the angle members 7, at its point of reinforcement by the tab 8a. A wing nut 12 working on the bolt 11 serves to clamp the latch member in adjusted position.

The latch member carries at each end an up-standing lug 13 which is adapted to engage the outer face of the bottom rail of the lower sash, indicated in dotted lines at C in Figs. 2 and 4. A handle 14 is also secured to the angle members 7 by which handle the window fan may be conveniently lifted and carried.

Secured to the base 1 is a suitable pedestal 15 in which is mounted a post 16, to the upper end of which is secured an electric motor 17, the post 16 being rotatable with respect either to the pedestal 15 or the motor 17, so that the latter

is pivotally mounted on the pedestal. A suitable fan 13 is mounted upon the motor shaft and is positioned to force air through the opening in the panel structure formed by the curved edges 2a and 3a. Preferably, and as shown, this fan is positioned substantially within the central opening in the panel structure.

Rigidly secured to the motor 17 is an arm 19 formed with a horizontally extending portion through which the post 16 freely passes. From this portion the arm is provided with a downwardly extending portion 19a and with a relatively long horizontally extending portion 19b. This latter portion bears upon and is in frictional engagement with a strip 20 of rubber or the like secured to the upper meeting edges of the angle members 6 as clearly shown in Figs. 3 and 4. Thus by moving the free end of the arm 19b, the motor and fan may be swung or angularly adjusted about the pivot post 16 so that the angular position of the fan relative to the panel structure may be varied as desired. Thus the fan may be set to deliver a current of air horizontally in any desired direction. A stop pin 19c is set into the arm 19b in such position as to engage the upper edge of the angle members 6, or the rubber strip 20, and thus limit the angular movement of the arm and the fan as shown in Fig. 3. The fan is maintained in adjusted position by the frictional engagement of the arm with the rubber strip 20.

Current is supplied to the motor by means of a flexible conductor cord 21, which may be plugged into any suitable outlet.

The entire motor and fan is enclosed within a wire guard or cage 22. As clearly shown in Figs. 2 and 3 this guard or cage conforms substantially with the shape of the base 1 and extends along its edges on both sides of the fan. Thus accidental contact with the fan or motor is effectively prevented.

From the foregoing description, it will be seen that my improved window fan is reversible as a whole, and that either side of the projecting ends 2b and 3b of the panel structure may be positioned against the window frame A, B as shown in Fig. 2. Thus, when in one position the fan will blow air into the room, and when in the reverse position will blow air out of the room. Thus the fan may be picked up by the carrying handle 14 and set in a window opening in either desired position. It is held in the window opening by means of one of the lugs 13 on the latch member 9 engaging the outer face of the lower edge of the window sash C as shown in Fig. 4.

By reference to Fig. 2 it will be noted that the latch member 9 is mounted on the panel structure at a point intermediate its ends and that it may be adjusted pivotally on the bolt 11. It will further be noted that the end portions of the latch member 9 are of different lengths. The making of the end portions of different lengths is for the purpose of enabling the latch member to cooperate with window sash of various thicknesses. The latch member 9 may be swung around the bolt 11 as a pivot and thus reversed so that either the long end or the short end may be positioned to extend under the edge of the sash. After having lowered the sash so that it rests upon the selected end portion of the latch member, the latch member is adjusted angularly on its pivot until the lug 13 is brought into snug engagement with the outer face of the sash as shown in Figs. 2 and 4, and thereupon the latch member is locked in position by tightening the wing nut 12. This securely holds the fan in place. One lug 13 serves

as a finger grip in manipulating the latch to bring the other lug into proper engagement with the sash.

It will thus be noted that my improved window fan can be placed and secured in position in a window opening without the use of any tools whatsoever, and without in any way defacing the woodwork. It will further be noted that, in contrast to the customary method of fitting the panel structure into the inside of the window opening, the panel structure of my improved fan is designed to simply overlap and lie against the window frame. Thus no adjustment or alteration of any kind is required.

While in Figs. 1 to 4 above described, I have shown a window fan in which the panel structure lies in a single plane, I have illustrated in Figs. 5 to 8 a slightly modified construction in which parts of the panel structure lie in different planes.

Referring to these figures, it will be seen that the end portions 2 and 3 of the panel structure lie in the same plane as before, but between these end portions is an intermediate portion 24 which is offset laterally with respect to the plane of the end portions, and is provided with an air opening 24a. Furthermore the end portions and the offset central portion are united by edge portions 23 disposed at right angles to the other portions thus constituting a somewhat box-like structure. The upper edge of this box-like structure is closed by a strip 25 (Figs 5 and 6), while the lower edge rests upon and is secured to the base 1'.

As in the previously described construction, this slightly modified panel structure is reversible as a whole and both sides of the end portions 2 and 3 have flat faces, either of which may be placed in engagement with the window frame A, B. Figs. 5 and 7 show the window fan in one position and Figs. 6 and 8 show it in the reversed position.

In these figures I have also illustrated a different form of support for the motor. Instead of the post and pedestal of Figs. 1 to 4 I have shown the motor as supported on an inverted U-shaped bracket 26 secured to the base 1'. Resting on the top of this bracket is another U-shaped bracket 27 pivotally mounted on the bracket 26 as by means of a bolt 27a. The motor 17' and fan 18', shown in dotted lines, are mounted in the bracket 27.

An arm 19' having a horizontal extension 19b is secured to the bracket 27, as shown in Fig. 9 and thus the motor and fan may be angularly adjusted on the pivot 27a, in the same manner as described in connection with the arm 19b in Figs. 1 to 4.

A wire cage or guard 22' is shown in Figs. 5 and 6 as enclosing the rear side of the box forming the central portion of the panel structure, and conforming substantially to the contour of the base, as in Figs. 1 to 4, while in Fig. 6 is shown a second wire cage or guard 22'', covering the opening in the front wall of the box-like portion of the panel structure. Thus, again, a cage is provided on each side, and the entire motor and fan unit is completely protected.

A slightly modified construction is shown in Fig. 10 in which two U-shaped brackets 29 and 30, disposed in horizontal position and superposed and welded together, are illustrated. The motor 17' is pivotally mounted on aligned pivots 29a and 29b, the latter being mounted in the upper arm 31 of the bracket 30.

As before, an arm 19' having an extension 19b is provided for angularly adjusting the motor and fan, but in this case the arm is shown as attached directly to the motor.

By reference to Figs. 7 and 8 it will now be understood that the purpose of having the central portion 24 of the panel structure offset is to provide a greater space within which to mount the fan and motor. When using fans and motors of larger size, it is necessary to employ this offset construction in order to give sufficient room between the mid portion of the panel structure and the opposite edge of the base to accommodate the motor and fan. It will be noted that, in the embodiment shown, the motor is mounted at a point on the opposite side of the median line of the base from that on which the mid portion of the panel structure lies.

Although the forms of panel structure shown in Figs. 1 to 4 on the one hand and Figs. 5 to 8 on the other, differ somewhat in construction, they both embody the same broad principle, namely, a panel structure having projecting end portions provided with flat faces on both sides, so that the apparatus as a whole is reversible with respect to the window, and may be placed in position with either side of the panel structure in engagement with the window frame.

In Fig. 11, I have shown a slightly modified construction of latch. In this construction, the latch, designated 9', is provided with a longitudinally extending slot 10, working freely over the bolt 11. By loosening the nut 12, the latch 9' may be shifted endwise, so as to bring the lug 13 into engagement with the outer face of the sash, and may then be clamped in position, by tightening the nut. The latch may likewise be reversed, so that either selected end may be employed, depending upon the thickness of the sash. In this construction, it is not necessary to swing the latch angularly. The latch member and lug constitute in effect a horizontally movable hook, engaging the lower edge of the sash.

What I claim is:

1. A window fan comprising a base member of substantial width adapted to rest on a window sill, a panel structure carried by and extending vertically above said base member and having a central opening, a motor driven fan, means mounting said fan directly on said base member in a position to force air through said opening, the end portions of said panel structure having flat faces on both sides constructed to overlap and engage the window frame, whereby said base member and panel structure as a whole is reversible with respect to the window opening, and the fan may be caused to blow air either in or out, as desired, and sash engaging means for holding the panel structure in position.

2. A window fan comprising a base member of substantial width adapted to rest on a window sill, a panel structure carried by and extending vertically above said base member and having a central opening, a motor driven fan, means mounting said fan directly on said base member in a position to force air through said opening, the end portions of said panel structure projecting laterally beyond said base member and having flat faces on both sides adapted to overlap and engage the window frame, whereby said base member and panel structure as a whole is reversible with respect to the window opening, and the fan may be caused to blow air either in or out, as desired, and means for holding the panel structure in position against the window frame.

3. A window fan comprising a base adapted to rest on a window sill and symmetrical on both sides of a central vertical plane, a vertical panel structure carried by said base and having a cen-

tral opening, a motor driven fan mounted on said base and disposed to force air through said opening, the end portions of said panel structure having flat faces on both sides adapted to overlap and engage the window frame, whereby said base and panel structure as a whole is reversible with respect to the window opening, and the fan may be caused to blow air either in or out as desired a wire cage on both sides of the panel structure, conforming substantially with the contour of said base and completely enclosing the motor and fan and means for holding the panel structure in position.

4. A window fan comprising a base adapted to rest on a window sill, a vertical panel structure carried by said base and having a central opening, a motor driven fan mounted on said base and disposed to force air through said opening, the end portions of said panel structure having flat faces adapted to overlap and engage the window frame, and a horizontally movable latch member mounted on said panel structure adjacent the upper edge thereof and having an upstanding lug at its end adapted to engage the outer face of the bottom rail of the lower sash.

5. A window fan comprising a base adapted to rest on a window sill, a vertical panel structure carried by said base and having a central opening, a motor driven fan mounted on said base and disposed to force air through said opening, the end portions of said panel structure having flat faces adapted to overlap and engage the window frame, and a horizontally extending, longitudinally movable latch member mounted on said panel structure adjacent the upper edge thereof and having an upstanding lug at its end adapted to engage the outer face of the bottom rail of the lower sash.

6. A window fan comprising a base adapted to rest on a window sill, a vertical panel structure carried by said base and having a central opening, a motor driven fan mounted on said base and disposed to force air through said opening, the end portions of said panel structure having flat faces adapted to overlap and engage the window frame, and a horizontally extending latch member supported on said panel structure adjacent the upper edge thereof and having an upstanding lug at its end, said latch member being pivotally mounted for angular adjustment so that said lug may be brought into engagement with the outer face of the bottom rail of the lower sash, and means for holding said latch in adjusted position.

7. A window fan comprising a base adapted to rest on a window sill, a vertical panel structure carried by said base and having a central opening, a motor driven fan mounted on said base and disposed to force air through said opening, the end portions of said panel structure having flat faces on both sides adapted to overlap and engage the window frame, whereby said base and panel structure as a whole is reversible with respect to the window opening, and a horizontally extending latch member adjustably mounted intermediate its ends at the upper edge of said panel structure, an upstanding lug at one end of said latch member adapted to be brought into engagement with the outer face of the bottom rail of the lower sash, and means for clamping said latch member in sash engaging position.

8. A window fan comprising a base member of substantial width adapted to rest on a window sill, a vertical panel structure carried by and extending upwardly from said base member, and

having a central opening, the end portions of said panel structure having flat faces adapted to engage the sides of the window frame, means for holding said panel structure in engagement with the window frame, a motor driven fan, means pivotally mounting said fan directly on said base member, at one side of said panel structure, to swing in a horizontal plane, and means for angularly adjusting said fan on its pivot with respect to said panel structure, said fan being so disposed as to force air through said opening in any angular position to which it may be adjusted.

9. A window fan comprising a base member adapted to rest on a window sill, a vertical panel structure carried by and extending above said base member, and having a central opening, said base member projecting on both sides of said panel structure, the end portions of said panel structure having flat faces adapted to engage the sides of the window frame, means for holding said panel structure in engagement with the window frame, a motor driven fan, means pivotally mounting said fan directly on said base member at one side of said panel structure to swing in a horizontal plane, said fan being disposed to force air through said opening, a lever rigidly connected with said fan and extending parallel with said base member adjacent thereto, whereby said fan may be angularly adjusted on its pivot, and a friction member positioned to be engaged by said lever to hold said fan in adjusted position.

10. A window fan comprising a base member of substantial width adapted to rest on a window sill, a vertical panel structure carried by and extending upwardly from said base member, and having end portions projecting laterally beyond said base member, said end portions being provided with flat faces adapted to engage the sides of the window frame, and lying in the median plane of said base member, the central portion of said panel structure being offset laterally a substantial distance from such plane, said central portion having an opening, a motor driven fan, means supporting said fan directly on said base member at a point on the opposite side of said median plane from said offset portion, said fan being positioned to force air through said opening, and means for holding said panel structure in position.

11. A window fan comprising a base member of substantial width adapted to rest on a window sill, a vertical panel structure carried by and extending upwardly from said base member, and

having central and end portions, said end portions projecting laterally beyond said base member and provided with flat faces adapted to engage and overlap the inside trim of the window frame, said end portions lying in a common plane, the central portion of said panel structure being substantially parallel with but offset laterally a substantial distance from such plane, said central portion having an opening, a motor driven fan, means supporting said fan directly on said base member, said fan being positioned to force air through said opening, and means for holding said panel structure in position.

12. A window fan comprising a base member of substantial width adapted to rest on a window sill, a vertical panel structure carried by said base member, and having central and end portions, the latter projecting laterally beyond said base member and provided with flat faces adapted to engage the sides of the window frame, said end portions lying in a common plane, the central portion of said panel structure being offset laterally a substantial distance from such plane, said central portion having an opening, and a motor driven fan, means supporting said fan directly on said base member, said fan being positioned to force air through said opening, a wire guard on one side covering said opening, and a wire guard on the other side enclosing said motor and conforming substantially to the contour of said base member.

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