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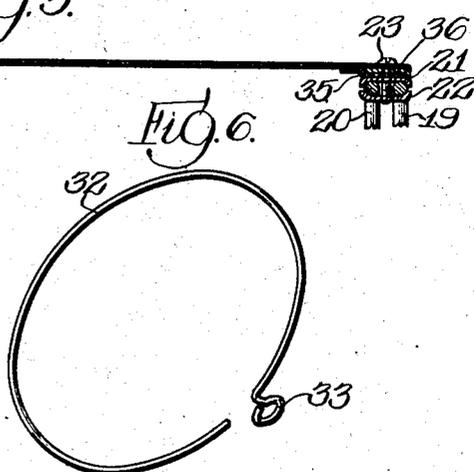
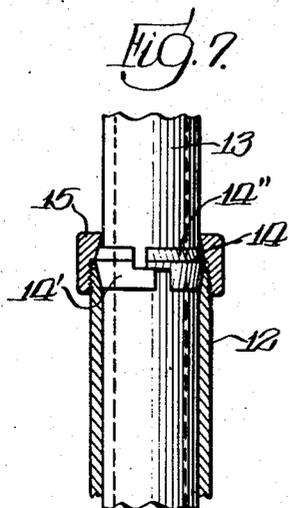
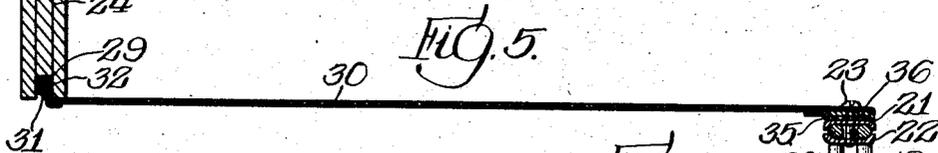
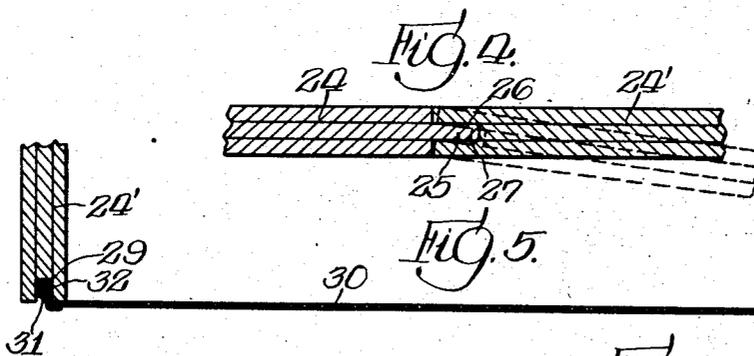
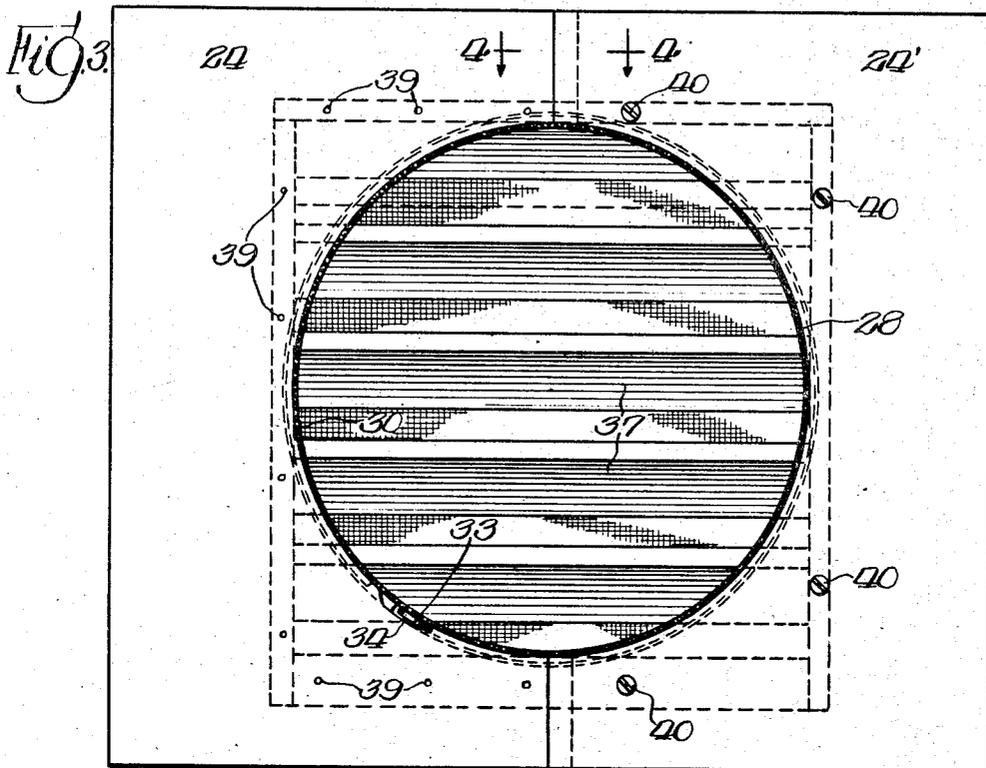
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2,165,650

PORTABLE COOLING FAN

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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PORTABLE COOLING FAN

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4 Claims. (Cl. 98-94)

This invention relates to the art of ventilating appliances for buildings, and has reference more particularly to a special type of electric ventilating fan known in the trade as a cooling fan, the purpose of which is to cool attics and upstairs sleeping rooms by expelling the heated air collecting in such rooms during the day under the heating effect of the sun's rays, and inducing an inflow of the cooler and fresh outside air.

In accordance with the principle of this invention, and in the preferred embodiment thereof, an electric propeller fan, preferably mounted on a portable standard similar to the standard of a portable parlor lamp, is positioned opposite a window or other wall opening on the inner side of the latter, and a hood or adapter preferably of canvas or like flexible material and having the character of a short section of hose is fastened at one end to the rim of the usual fan guard and at its other end to a panel fitted into the window frame preferably beneath the upper sash, the panel having an air discharge opening registering with the other end of the hood or adapter, so that the rear or suction side of the fan communicates only with the air in the room, and its front or discharge side communicates through the hood or adapter only with the outer air, said hood or adapter forming a discharge conduit for the air propelled by the fan. The outer side of the panel is preferably equipped with a louver covering its discharge opening to prevent rain from beating in.

Among the objects of the invention are, to provide a cooling appliance of the type described that may be very easily and quickly mounted in and removed from operative position in relation to a window, to provide an appliance that may be fully mounted without requiring the use of nails or screws to attach it to the window, to provide such an appliance readily adaptable to various sizes and heights of windows, to provide an appliance that, for its installation, will not deface the window nor require any structural change therein, and, generally, to provide a room cooling appliance of the character described that will be simple, inexpensive, and highly efficient for its intended use.

An improved embodiment of the invention is illustrated in the accompanying drawings in which—

Fig. 1 is a perspective elevation, showing the device applied to what may be assumed to be an attic or upper story window of a dwelling.

Fig. 2 is an enlarged vertical section through

the device in the plane of the fan axis, with the motor appearing in elevation.

Fig. 3 is a vertical cross section on the line 3-3 of Fig. 2.

Fig. 4 is an enlarged sectional detail through the joint of the panel on the line 4-4 of Fig. 3.

Fig. 5 is a fragmentary longitudinal section through the hood or adapter showing the means for detachably securing the same to the panel and the fan guard.

Fig. 6 is a perspective elevation of a spring wire ring employed to detachably secure one end of the hood or adapter to the panel.

Fig. 7 is a fragmentary sectional view of the vertically adjustable fan and motor support, illustrating one form of adjusting means that may be employed.

In Fig. 1, 10 designates as an entirety a window that may be assumed to be a window in the attic or an upper story of a dwelling. On the floor of the room served by the window 10 is a portable fan support comprising, in the instance shown, a heavy base plate 11 and an upright pedestal or post preferably comprising telescoping sections 12 and 13. As shown in Fig. 7, the upper section 13 telescopes within the lower section 12 and is secured at any desired height by means of a split ring 14 encircling the inner section 13, and a nut 15 that has threaded engagement with the upper end of the lower section 12. The lower portion 14' of the ring 14 has a tapering fit within the correspondingly tapered upper end of the section 12, and the upper portion 14'' of the ring 14 also has a taper fit with the correspondingly tapered inner surface of the upper portion of the nut 15. When the nut is backed off sufficiently to relieve its compression on the split ring, the upper section 13 may be raised or lowered to the desired extent, and thereupon, by screwing the nut down, the two sections 12 and 13 are locked against relative movement. An ordinary set screw or any other height adjusting means may be employed.

On the upper end of the post section 13 is mounted an electric motor 16 of a well known type, to the armature shaft of which is directly connected a propeller fan 17. Attached to the motor frame and enclosing the fan 17 is a wire guard designated as an entirety by 18, of a well known type commonly employed with propeller fans of this character. The guard herein shown comprises mating halves 19 and 20, the peripheral rings of which are united, as shown in Fig. 5, by spaced pairs of outer and inner clamps 21 and 22 and a screw 23 extending through a hole in the

outer clamp 21 and engaging a tapped hole in the inner clamp 22.

A panel preferably comprising a pair of vertically jointed sections 24 and 24' is adapted to occupy the portion of the window opening underlying either the top sash or the raised lower sash. Preferably it underlies the top sash, as shown, since, by removing the hood or adapter, the lower sash can be closed, leaving the panel in place.

Referring to Fig. 4, one of the panel sections, such as 24, is formed with a tongue 25, and the opposite edge of the other section, such as 24', is formed with a corresponding groove 26 that receives the tongue 25. The outer edge of the tongue 25 is beveled as shown at 27 so that the panel section 24' can be bent inwardly, as shown by dotted lines in Fig. 4, sufficiently to enable the outer edges of the panel to pass the sash stops and enter the sash grooves of the window frame, and when so entered the two panel sections lie in the same plane, shown by full lines in Fig. 4. The panel is formed with a central opening 28 (Figs. 2 and 3), herein shown as circular, one-half of the opening being formed in one panel section and the mating half in the other panel section. As shown in Fig. 5, the edge portion of the panel that encircles the opening 28 is formed with a groove 29 for a purpose later disclosed.

30 designates the hood or adapter which preferably consists of a short tubular section of canvas or like flexible material and has the function of a conduit for the air propelled outwardly by the fan. On the outer end of this hood 30 is formed a hem 31 that receives a split ring 32 (Fig. 6) of spring wire. The hem 29 and the wire 32 are sprung into the groove 29, the elasticity of the wire ring holding the end of the hood in the groove. The ring 32 has a laterally projecting handle 33 that projects through a short cut-out 34 (Fig. 3) in a side of the groove 29, so that when it is desired to remove the hood from the panel, this can readily be done by compressing the ring 32 sufficiently to spring it out of the groove.

The other end of the hood 30 is also formed with a hem 35 (Fig. 5) that receives a metal band 36 of a size to fit over the mating peripheral wires of the guard sections 19 and 20 and their outer clamps 21; and this end of the hood is attached to the fan guard by the same screws 23, which effect a binding action of the clamps, all as clearly illustrated in Fig. 5. With the hood or adapter 30 thus secured at one end to the panel in register with the panel opening and at its other end to the periphery of the fan guard, it is clear that the hood forms a discharge conduit for the warm air driven off by the fan, all of said air necessarily flowing through the window opening to the outside, and the suction effect of the fan is limited to the air within the room.

For protection against rain, the outer side of the panel is preferably equipped with a louver frame such as is best illustrated in Figs. 2 and 3, and designated as an entirety by 37. This louver overhangs and covers the panel opening, and the outer edges of the louver blades are preferably covered by a screen 38. Where this louver is employed with a jointed panel such as described, one side section of the louver frame is permanently attached to one of the panel sections, such as 24, as by nails 39, while the other section of the louver frame is left free until the panel has been inserted in place and its two sections

brought into a common plane. The other side of the louver frame is then secured to the other section of the panel as by screws 40, which hold the panel rigidly in place.

The device is readily removed from the window when its use is not required by first detaching the hood or adapter from the panel by compressing and removing the ring 32, and then, by withdrawing the screws 40, the panel itself may be flexed and readily withdrawn from the window opening, if its removal is desired.

When this device is used to cool an attic or an upper story of a dwelling, it is associated in the manner described with one of the windows of the room to be cooled, all of the other windows of the same room being opened. Windows and/or doors of the main floor and/or basement are also opened, as also any doors of stairways between the attic or other room to be cooled and the lower rooms or basement. Thus, as the blanket of heat is pulled off from the upper floor or floors, fresh cool outside air flows in through the other open window or windows and upwardly from the lower floor or floors to replace the warm air driven off, thus substantially lowering the temperature of the room or rooms served by the appliance and making them tolerable as sleeping rooms.

Structural variations in the details of the structure shown and described may, of course, be resorted to without departing from the substance and scope of the invention as defined in the claims.

I claim:

1. A room cooling appliance of the character described, comprising, in combination, a rotary propeller fan and fan motor, means for supporting said fan and motor opposite a window opening, a panel adapted to occupy said window opening, said panel having an opening, a guard encircling said fan, a tubular canvas conduit for the air propelled by said fan, a spring ring detachably securing one end of said conduit in said panel opening, and removable means for attaching the other end of said conduit to the periphery of said guard.

2. A room cooling appliance of the character described, comprising, in combination, a rotary propeller fan and fan motor, means for supporting said fan and motor opposite a window opening, a panel adapted to occupy said window opening, said panel having an opening, a guard encircling said fan, a tubular canvas conduit for the air propelled by said fan, said conduit extending forwardly of said fan and having hems at its ends, a spring ring in one of said hems detachably securing one end of said conduit in said panel opening, a metal band in the other hem, and screws attaching said band to the periphery of said guard.

3. A room cooling appliance of the character described, comprising, in combination, a rotary fan and fan motor, means for supporting said fan and motor opposite a window opening, a panel adapted to occupy said window opening, said panel formed in two vertically jointed sections whereby it may be flexed to enter its side edges in the sash guide grooves of the window and having an opening formed partly in one section and partly in the other, and a flexible conduit for the air propelled by said fan, said conduit at one end attached to said panel in register with said panel opening and at its other end surrounding said fan.

4. A room cooling appliance of the character described, comprising, in combination, a rotary

fan and fan motor, means for supporting said fan and motor opposite a window opening, a panel adapted to occupy said window opening, said panel formed in two vertically jointed sections whereby it may be flexed to enter its side edges in the sash guide grooves of the window and having an opening formed partly in one section and partly in the other, a flexible conduit for the air propelled by said fan, said conduit at one end at-

tached to said panel in register with said panel opening and at its other end surrounding said fan, and a louver frame on the outer side of said panel covering said panel opening, one portion of said louver frame being permanently attached to one of said panel sections and its other portion being detachably secured to the other panel section.

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