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2,525,853

AIR CIRCULATING DEVICE

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FIG. 1.

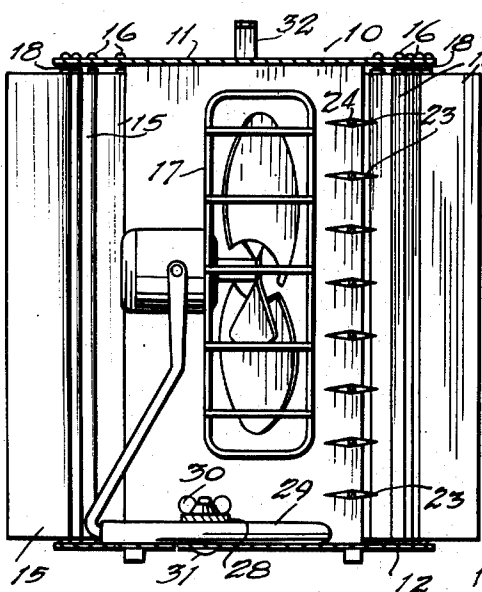


FIG. 3

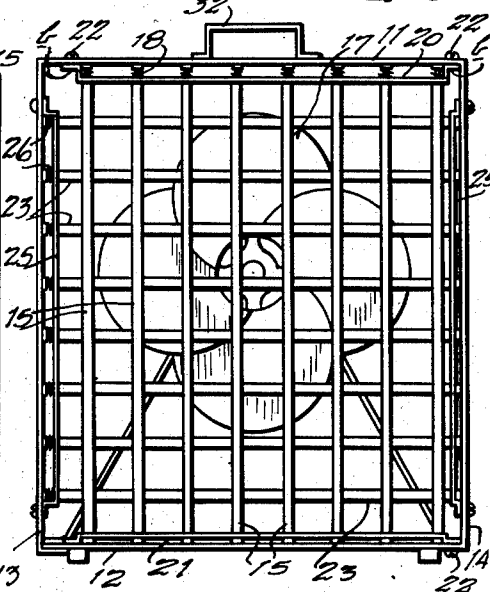


FIG. 2.

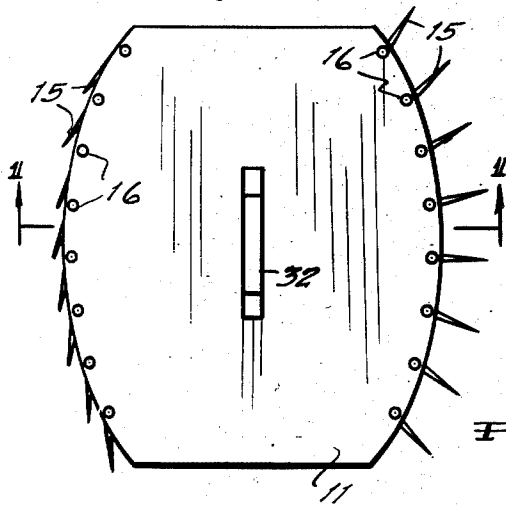


FIG. 4.

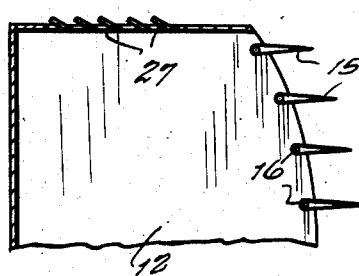


FIG. 6.

FIG. 5.

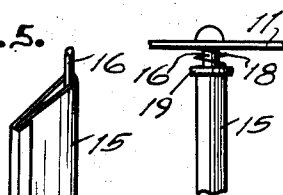


FIG. 8.

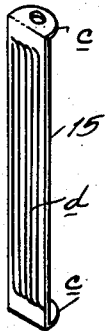
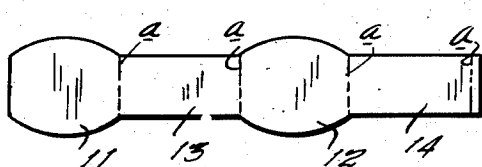


FIG. 7.



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AIR CIRCULATING DEVICE

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5 Claims. (Cl. 230—274)

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This invention relates to air cooling apparatus, or ventilating devices, and it has particular reference to a portable type of fan, and its principal object resides in the provision of a light and portable structure capable of being employed as a louvered fan or in combination with air conditioning equipment installed in windows or air ducts and embodying a system of louvers which may be adjusted to control the directional flow of air into and out of the unit as desired.

Another object of the invention resides in the provision of an air cooling device which is compactly housed within an attractive cabinet having ample openings, both front and rear, for the intake and discharge of air therethrough and having suitable adjustable closures arranged both vertically and horizontally whereby air currents passing through the device, and impelled by the fan unit therein, can be completely regulated as to volume and directional movement to provide the maximum benefit of the circulated air.

An object of the invention is that of providing an air cooling unit which may be economically constructed and provide adequate air control without the use of thermal switches, regulated by temperatures, or other expensive devices, ordinarily provided for controlling the air volume and temperature to insure the desired result.

Broadly, the invention contemplates the provision of an economical, light and attractive air cooling unit in which an electric fan of any conventional type may be installed and the entire unit moved about the premises and utilized in any desired position or location with a minimum of effort, and a device which affords adequate control of the volume and directional flow of the air by the simple adjustment of the novel arrangement of louvers.

While the foregoing objects are paramount, other and lesser objects will become manifest as the description proceeds, taken in connection with the appended drawings wherein:

Figure 1 is a vertical transverse sectional view of the invention, taken on lines I—I of Figure 2, illustrating the arrangement of horizontally spaced louvers in the front of the cabinet, showing the arrangement of vertically spaced adjustable louvers, and showing the position of the removable fan arranged in the cabinet.

Figure 2 is a plan view of the cabinet illustrating the adjustability of the vertically arranged louvers in the front and rear of the cabinet.

Figure 3 is a front elevational view of the invention, showing the vertical and horizontal ar-

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range of the adjustable louvers and illustrating the fan.

Figure 4 is a fragmentary lateral cross-sectional view of the cabinet illustrating a modified form thereof and showing a series of stationary louvers in one end while the back of the cabinet is shown closed.

Figure 5 is a fragmentary perspective view of one of the vertical louvers.

Figure 6 is a front elevational view fragmentarily showing the tensioned pivotal mounting of the vertical louvers.

Figure 7 schematically illustrates the layout of the housing which may be stamped in a single sheet of metal and formed as a unit, and

Figure 8 is a perspective illustration of a modified form of one of the vertical louvers having embossments therein for rigidity.

The invention primarily comprises a cabinet 10 which is preferably open on both sides, or the front and rear, and it is preferable to economically form the cabinet 10 from a single strip of metal by stamping the same in substantially the shape illustrated in Figure 7. By this procedure the cabinet 10 may be assembled quickly and economically while providing a substantial structure. The top and bottom portions 11 and 12 may be oval, circular, or hexagonal in form, as desired, and connected by the narrower end portions 13 and 14, the strips being broken at right angles on the dotted line *a* to form the cabinet 10.

Obviously, the cabinet 10 may be constructed by forming the top and bottom members 11 and 12 independently and vertically connecting these members by the vertical arrangement of spaced louvers 15 which are pivotally mounted between the top and bottom members 11 and 12, in the manner illustrated in Figures 1 and 2, and such louvers may extend entirely around the assembly, across the ends as well as the front and rear sides of the cabinet 10. The top and bottom members 11 and 12, as well as the side members 13 and 14, may be properly embossed to insure adequate rigidity for the structure.

The adjustable louvers are illustrated in detail in Figures 5 and 6 and may be formed of a double thickness of sheet materials and streamlined so that their outer edges are relatively thin. Each vertical louver is rigidly supported on a shaft 16 which is pivoted at each end in the top and bottom members 11 and 12 of the cabinet 10 so that the louvers 15 can be moved individually to any position desired, as shown in Figures 2 and 4, to control the directional flow of air through the cabinet 10. By this ar-

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arrangement the back of the cabinet may be closed or partially closed, as shown in Figure 2, in accordance with room temperatures or the required volume of air sought to be blown out by the fan 17 in the cabinet 10. The amount of air circulated by the fan 17 depends upon the volume drawn in from the rear of the cabinet and if it is desirable to increase or decrease this volume the louvers 15 at the rear of the cabinet 10 can be adjusted accordingly.

It is desirable to mount the louvers 15 so that they may have a tensioning device at one or both ends by which the members 15 can be adjusted and retained in their adjusted position. In Figure 6 is fragmentarily illustrated one of the louvers 15, its supporting shaft 16, and a fragmentary portion of the top 11 through which the shaft 16 is pivoted. A spring 18 is arranged between the top 11 and about the shaft 16 and bears downwardly against a washer 19 arranged on the top of the louver 15 to frictionally hold the louver 15 in its adjusted position.

A modified form of the arrangement for mounting the louvers 15 is shown in Figure 3, all of the louvers 15 being mounted in a unitary structure, the upper and lower ends of the shafts 16 thereof, being pivotally arranged in mounting brackets 20 and 21 which consist of long narrow strips conforming to the contour of the top and bottom members 11 and 12 of the cabinet 10 and secured at each end by screws 22. The ends *b* of the members 20 are bent so as to offset the main body portions of the brackets 20 to space these portions from the top and bottom members 11 and 12 of the cabinet 10 and accommodate the tensioning devices 18 arranged along the top of the louver assembly, in the manner illustrated in Figure 3.

A plurality of spaced horizontally arranged louvers are arranged in the front of the cabinet 10, as shown in Figures 1 and 3, and preferably have their pivoting mounting shaft 24 arranged through their axes, as shown in Figure 1, so that these members can be partially rotated on their pivots for up or down adjustments. Obviously, the louvers 23 may be independently or collectively actuated as desired, it being necessary only to connect all of the louvers 23 by a common lever (not shown) which may be actuated to move the louvers 23 as a unit. However, it is desirable that these be independently operative in order to properly and effectively direct air currents up or down, as desired.

The louvers 23 may be mounted on brackets 25 vertically arranged on each end of the cabinet 10, as shown in Figure 3, and installed or removed as a unit in the same manner as the vertical arrangement of louvers 15 are arranged in the structure shown in Figure 3. Springs 26 may be provided on one or both ends of the shaft 24 of the louvers 23 to provide tensioning devices similar to the members 18 of the vertical arrangement of louvers 15. In Figure 8 is illustrated another form of louver which is formed from a single thickness of material and bent at each end *d* to provide a pivotal mounting on the shafts 16 or 24 and may be employed in either the horizontal or vertical arrangement of louvers. The louver 15-23, shown in Figure 8, is preferably provided with longitudinal embossment *d* to afford the desired rigidity.

Obviously, the cabinet 10 may be closed at its rear, as shown in Figure 4, if desired, and stationary louvers 27 formed in its end members

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13 and 14. It is necessary, however, that some opening be provided in the rear of the cabinet 10 and behind the fan 17 to insure the proper function of the latter. The fan 17 may be of a conventional type, capable of being removed if desired and utilized outside of the cabinet 10. In Figure 1 the fan 17 is illustrated in the cabinet 20 and secured by a strap 28 arranged across its base 29 and held by a thumb nut 30 on a bolt 31 extending through the bottom 12 of the cabinet 10. A suitable handle 32 is arranged in the top 11 of the cabinet 10 for convenience in handling the apparatus.

Maniestly, the structure herein shown and described is capable of considerable modification from time to time by persons skilled in the art without departing from the spirit and intent of the invention or the scope of the appended claims.

20 What is claimed is:

1. In a portable air cooling device, in combination with a cabinet formed of a single strip of sheet metal having top and bottom portions and integral side portions and clamping means therein for a pedestal fan, a plurality of vertically arranged and horizontally spaced louvers independently mounted for pivotal adjustment in said top and bottom portions, said louvers being arranged in front of and behind said fan, a plurality of horizontally arranged louvers adjustably spaced in front of said fan and behind said vertically arranged spaced louvers, and means tensioning said louvers whereby each can be independently adjusted as desired.

35 2. In a portable air circulating device, in combination with a cabinet having a fan removably supported therein and top and bottom portions, the said cabinet being formed in a single strip with side portions vertically connecting said top and bottom portions, a plurality of vertically arranged and spaced louvers in the front and rear of said cabinet, each of said louvers having independent pivotal mountings in the said top and bottom portions and capable of fixed adjustments, and a plurality of spaced horizontally positioned adjustable louvers arranged behind said vertical louvers in the front of said cabinet.

40 3. In a portable air circulating device, in combination with a conventional portable fan and a portable housing therefor, the said housing being formed from a single strip of sheet metal, a plurality of vertically arranged and spaced louvers, having tensioned pivotal mountings, supported between the top and bottom of said housing and capable of independent adjustments to fixed positions, and a plurality of horizontally spaced adjustable louvers arranged rearwardly of and adjacent to said vertical louvers in the front of said housing and in front of said fan.

45 4. In a portable air cooling device, in combination with a fan and a portable housing therefor, the said housing having its front and rear open, a set of vertically arranged and spaced louvers in the front of said housing, each of said louvers having pivotal mountings for independent adjustment, means comprising another set of vertically arranged adjustable louvers supported in the rear of said housing behind said fan for regulating the flow of air through said housing, and a plurality of horizontally arranged and spaced louvers supported for independent adjustment behind and adjacent to said vertical louvers in the front of said housing.

50 5. In an air circulating device, in combination with a fan and portable housing therefor, front

and rear openings in said housing, a plurality of vertically arranged louvers adjustably spaced in the front of said housing, a horizontal arrangement of spaced and adjustable louvers in the front of said housing and behind said vertically arranged louvers, and means comprising a set of vertically arranged pivotally adjustable louvers in the rear of said housing for controlling the passage of air therethrough.

CARL F. BAUER. 10

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