Nov. 25, 1941. L. W. SEIL ET AL 2,263,685

DISPLAY DEVICE

Filed Dec. 4, 1939

Fig. 1

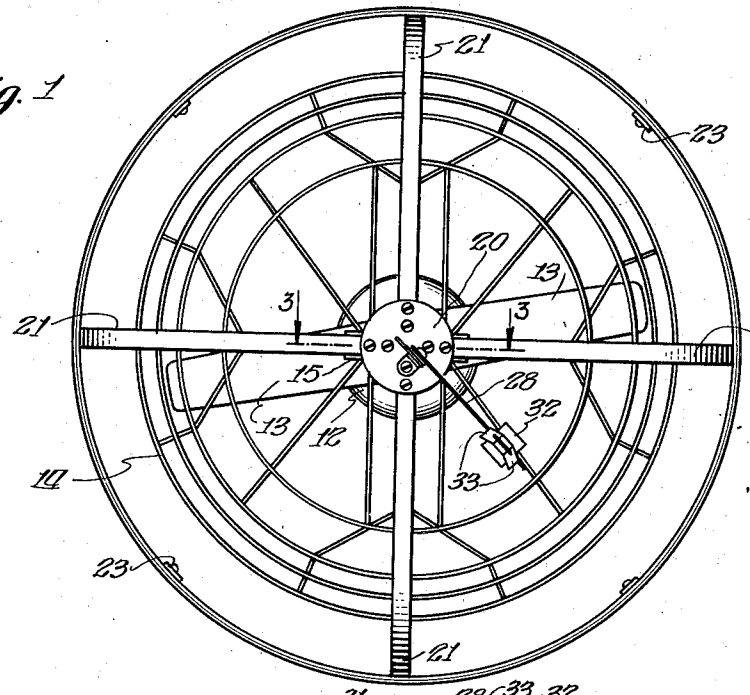


Fig. 4



Fig. 5

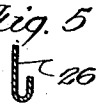
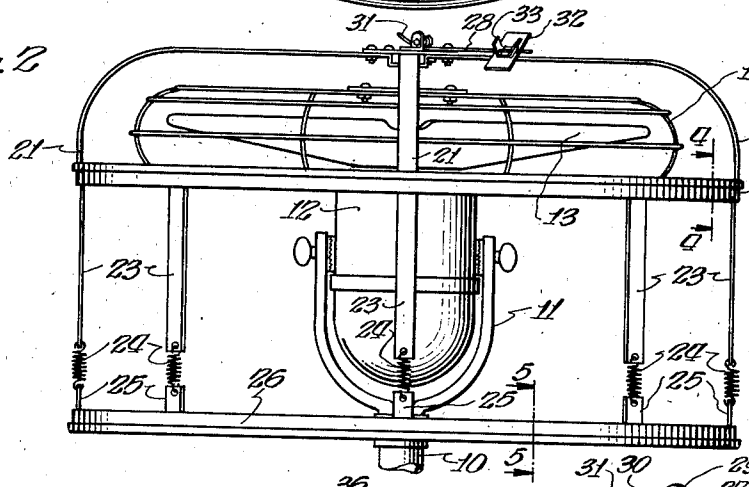


Fig. 2



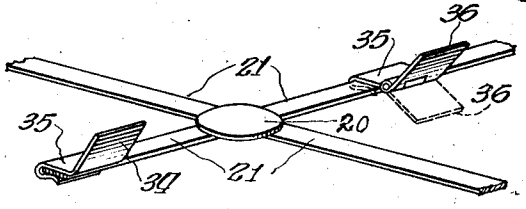
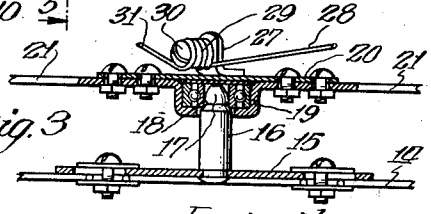


Fig 6

Fig. 3



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UNITED STATES PATENT OFFICE

2,263,685

DISPLAY DEVICE

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Application December 4, 1939, Serial No. 307,486

5 Claims. (Cl. 60—62)

The invention relates to improvements in display devices especially adapted for use in conjunction with fans; the primary object of the invention being the provision of an improved construction of the character indicated which is capable of economical production and highly efficient in use.

Another object of the invention is the provision of an improved construction of the character indicated, so constructed and arranged as to operate at substantially constant speed, notwithstanding variations in the speed of the operating fan.

Other objects will appear hereinafter.

The invention consists of the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification and in which:

Fig. 1 is a top plan view of a display device embodying the invention;

Fig. 2 a side view thereof;

Fig. 3 an enlarged section taken substantially on line 3—3 of Fig. 1;

Fig. 4 an enlarged section taken substantially on line 4—4 of Fig. 2;

Fig. 5 an enlarged section taken substantially on line 5—5 of Fig. 2;

Fig. 6 a perspective view illustrating a modified form of construction embodying the invention.

The embodiment of the invention illustrated in Figs. 1, 2, 3, 4 and 5, comprises a suitable post or pedestal 10 having a supporting fork 11 at its top, adjustably supporting a fan motor 12, which in turn supports a fan 13 as indicated. The guard 14 of usual form is arranged around the fan 13 and is provided at its top with a center plate 15 supporting a vertical stud 16 having a ball-like head 17 on which a ball-bearing 18 is mounted to provide for free rocking movement in any direction and rotating thereon. A center plate 20 of a display frame is secured to the ball-bearing 18, as best shown in Fig. 3, so as to be free to rock and rotate freely on the axis of the ball-bearing. Radiating frame bars 21 are secured as shown to the center plate 20 and project outwardly and curve downwardly over and around the fan guard 14 as shown. An annular channel member 22 is secured as indicated to the lower ends of the arms 21 and depending arms 23 are secured to the channel member 22. Tension springs 24 are secured as shown to the lower ends of the arms 23 and yieldingly support lugs 25 on another annular channel member 26 as indicated. By this arrangement a display frame is provided which is free to rotate horizontally about the fan 13 and is also free to adjust itself into level position in case the supporting post 10 is slightly out of vertical position. When desired, the channel member 26 may be moved downwardly against the resistance of the springs 24 to permit of the insertion of advertising cards or other display material in the channels of the members 22 and 26. When released the channel member 26 will be drawn upwardly by the springs 24 to clamp the inserted matter securely between said channels, as will be readily understood.

A supporting bracket 27 is arranged as shown on the center plate 20 of the display frame and an operating arm 28 is provided at its inner end with a coil 29 constituting a pivot sleeve, which, in turn, is pivotally mounted on a stud screw 30 projecting laterally from the bracket 27. At its inner end the operating arm 28 is provided with an angular stop finger 31 arranged to contact with the plate 20 to limit the upward swing of the arm 28, as will be readily understood. A propulsion vane 32 is provided with a spring clamping bracket 33, the sides of which are perforated, as indicated, to permit the free passage of the rod 28 and whereby the vane 32 is rendered longitudinally and angularly adjustable on the rod 28, as will be readily understood. By this arrangement when the fan 13 is operated by the motor 12 to project an upward blast of air through the display frame and against the vane 32, a propulsive effect will be exerted on the vane 32 if the said vane is adjusted to a proper angle with reference to the direction of said blast as indicated in Fig. 2. The upward blast from the fan will also exert an upward thrust on the arm 28, tending to swing the same upwardly, depending upon the intensity of the blast and the angle at which the vane 32 is positioned. Obviously, as the arm 28 thus swings upwardly it alters the angular relation of the vane 32 to the blast and also moves said vane closer to the vertical rotation axis of the display frame so as to lessen the propulsive effect on the vane due to the increase in the intensity of the air blast. Obviously, by properly adjusting the vane 32 on the rod 28 the effect due to any increase in the intensity of the blast may be substantially nullified so that the rotation of the display frame will be held automatically substantially constant notwithstanding variations in speed of the fan 30. Thus a variable speed fan may be employed without materially varying the speed of rotation of the display frame. In this way an attractive and effective

display device is provided, especially adapted for presenting and displaying moving signs, advertising cards or other small articles.

In the modification illustrated in Fig. 6, a propulsive vane **34** is arranged at a fixed angle to a clamping base **35**, which is radially adjustable on one of the bars **21** of the display frame. A similar vane **36** is hingedly connected with the clamping base **35** and is radially adjustable on the diametrically opposite frame bar **21**, as shown. Otherwise the construction is the same as that already disclosed. By this arrangement the air blast from the fan **13** will impart a substantially constant propulsive effect or thrust to the vane **34**, tending to rotate the display frame in one direction. At the same time a propulsive effect will be imparted to the other vane **36**, which will either assist or oppose the effect of vane **34**. When the vane **36** is hanging at a downward angle, as indicated by dotted lines in Fig. 6, the propulsive effect thereof will be such as to assist that of the vane **34**. However, when the intensity of the air blast is such as to swing the vane **36** upwardly into the full line position indicated in Fig. 6, the effect of the vane **36** will be to resist that of the vane **34**, so that the resultant total propulsive effect of the air blast will remain substantially constant. By this arrangement and by radially adjusting the vanes **34** and **36** on their supporting bars, the speed of rotation of the display frame may be again rendered substantially constant, notwithstanding variations of the speed of the fan and the intensity of the air blast.

While we have illustrated and described the preferred forms of construction for carrying the invention into effect, these are capable of variation and modification without departing from the spirit of the invention. We therefore do not wish to be limited to the precise details disclosed, but desire to avail ourselves of such variations and modifications as fall within the scope of the appended claims.

We claim:

1. A device of the class described comprising a support; a frame mounted on said support to rotate on a vertical axis; a fan mounted on said support and arranged to project a blast of air upwardly through said frame; a propulsion vane so mounted on said frame as to cause rotation thereof by said blast; and means also operable by said blast for automatically regulating the effect of said blast to maintain the same substantially constant.

2. A device of the class described comprising a support; a frame mounted on said support to rotate on a vertical axis; a fan mounted on said support and arranged to project a blast of air upwardly through said frame; an operating arm mounted on said frame to swing upwardly; and a propulsion vane on said arm.

3. A device of the class described comprising a support; a frame mounted on said support to rotate on a vertical axis; a fan mounted on said support and arranged to project a blast of air upwardly through said frame; an operating arm mounted on said frame to swing upwardly; and a propulsion vane angularly and longitudinally adjustable on said arm.

4. A device of the class described comprising a support; a frame mounted on said support to rotate on a vertical axis; a fan mounted on said support and arranged to project a blast of air upwardly through said frame; a propulsion vane mounted on said frame at a definite angle to the direction of said blast; and another vane hinged to said frame to be swung automatically by increase in intensity of said blast to diminish the propulsive effect of said first mentioned vane.

5. A device of the class described comprising a support; a frame mounted on said support to rotate on a vertical axis; a fan mounted on said support and arranged to project a blast of air upwardly through said frame; a radially adjustable propulsion vane mounted on said frame at a definite angle to the direction of said blast; and another radially adjustable vane hinged to said frame to be swung automatically by increase in intensity of said blast to diminish the propulsive effect of said first mentioned vane.

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