July 2, 1929. B. C. WOODFORD 1,719,255

AIR GUARD FOR SUCTION FANS

Filed June 2, 1928

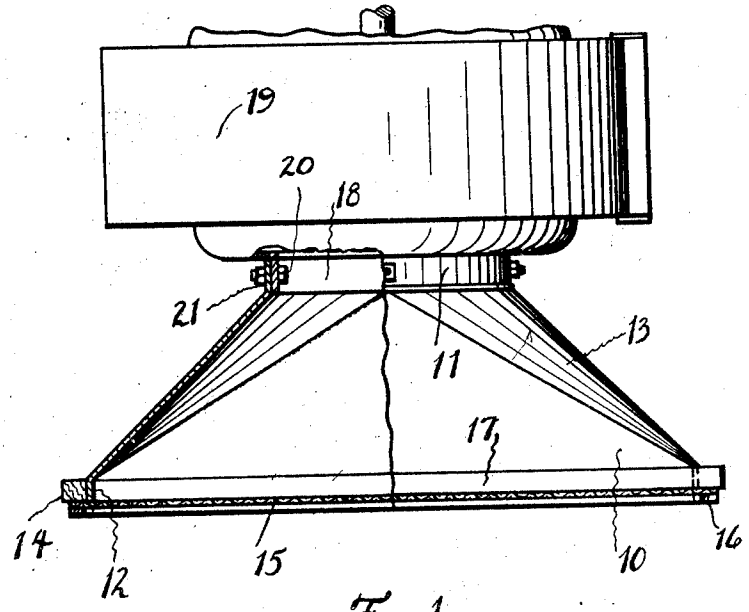


Fig 1

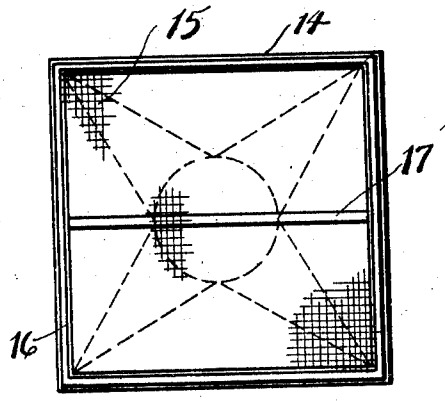


Fig. 2

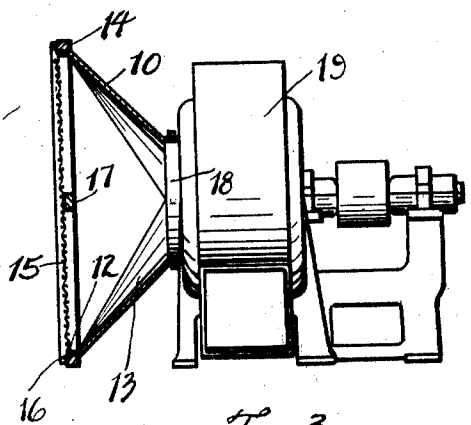


Fig. 3

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UNITED STATES PATENT OFFICE.

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AIR GUARD FOR SUCTION FANS.

Application filed June 2, 1928. Serial No. 282,334.

This invention relates to new and useful improvements in air guards for suction fans.

One object of the invention is to provide a guard for use on suction fans which draw their air from places where considerable lint, fibres and the like is likely to be sucked into the fan; said guard acting to exclude such lint, fibre and the like from the fan.

It is common practice to provide a screen for the intake of a suction fan, but where the fan is installed in a place in which the air is laden with lint and the like, as in a cotton gin house, the suction is usually so strong as to cause the lint to collect on the surface of the screen and form a barrier, impervious to the passage of air.

A particular object of the invention is to provide a guard having a vertical screen of such area as to defeat the suction capacity of the fan to cause the lint to adhere to said surface, thus freeing the lint and permitting it to pass down the surface of the screen and assuring at all times a maximum volume of air.

Another object of the invention is to provide a guard having an air hopper arranged to direct admitted air to a central outlet connected with the intake of the fan and to admit said air over a comparatively broad area, thus assuring an unrestricted and adequate supply.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is shown and wherein:

Fig. 1 is a view of a suction fan guard construction in accordance with the invention and partly in plan and partly in section and attached to a fan,

Fig. 2 is a front elevation of the same, and

Fig. 3 is a side elevation of the fan, the guard being in section.

In the drawings the numeral 10 designates an air hopper having a central circular opening surrounded by an annular collar 11. The hopper flares outwardly to a rectangular marginal flange 12.

In order to merge the general rectangular shape of the hopper into the circular shape to fit the collar 11, transition pieces 13 extend from the corners of the flange to the collar. By this means a symmetrical hopper is formed.

A frame 14 of wood or other suitable material surrounds and is secured to the flange 12. A screen 15 of wire fabric or other suitable material and of proper mesh is stretched over the mouth of the hopper and secured to the frame by small battens 16. The screen may be reenforced by a central mullion 17 placed horizontally within the flange and against the inner surface of said screen.

The collar 11 is snugly fitted around the flange 18 of the air intake of a suction fan 19. The hopper is secured to the fan by bolts 20 passing through the flange and said collar and secured by nuts 21. The hopper is supported by the fan.

The screen has an area so much in excess of that of the air intake of the fan, as to defeat the building up of sufficient suction at the fan surface, to cause lint and other fine fibres and particles to adhere to the outer surface of said screen. This large screen surface will freely admit air and while lint and the like will be arrested by the screen, such lint will shed from the screen and thus not interfere with a maximum air supply.

It is important that the area of the screen be ample and that it be spaced a sufficient distance from the air intake of the fan to dissipate the suction and thus shed the lint or other material. A guard of this character is self-cleaning and requires no attention from the ginners or operators, yet assures a continuous and adequate supply of clean air.

Various changes in the size and shape of the different parts, as well as modifications and alterations, may be made within the scope of the appended claim.

What I claim, is:

The combination with a fan casing having a supporting flange at its suction intake, of a guard attachment comprising a tapering hopper, a frame mounted at the larger end thereof and provided with a single screen surface to permit the free passage of air therethrough, a flange at the smaller end of said hopper seated upon the supporting flange, and means for securing said flanges together.

In testimony whereof I affix my signature.

BRONSON C. WOODFORD.