Nov. 12, 1957 C. L. MATTHEWS 2,812,900

FAN GUARD

Filed Nov. 16, 1954

Fig. 1.

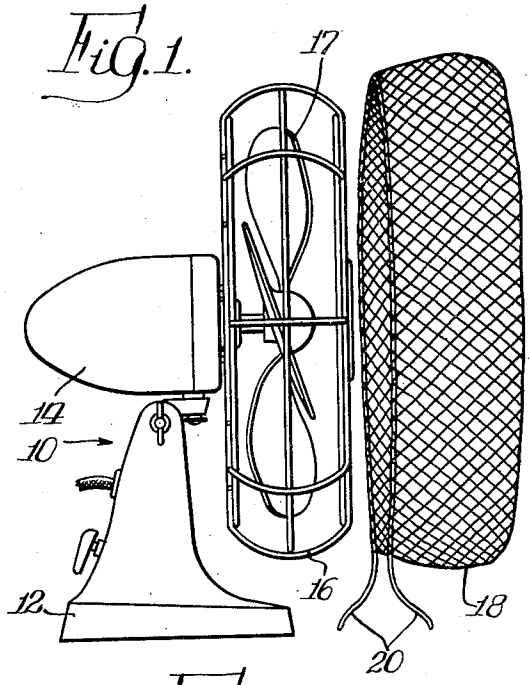


Fig. 3.

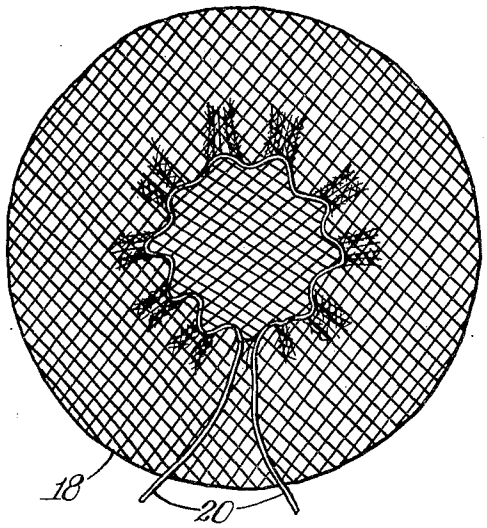
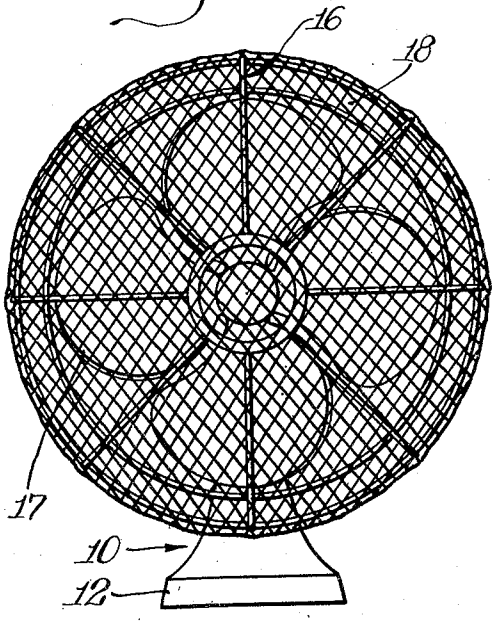
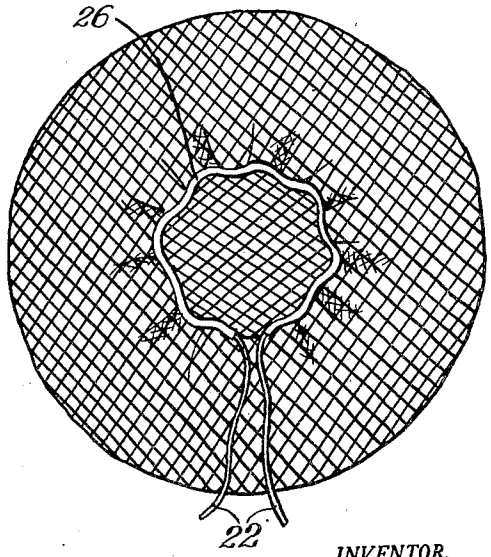


Fig. 4.

Fig. 2.





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United States Patent Office 2,812,900 Patented Nov. 12, 1957

2,812,900

FAN GUARD

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Application November 16, 1954, Serial No. 469,088

1 Claim. (Cl. 230—275)

This invention relates generally to electrically driven rotary fans for circulating air and more particularly to protective guards for the blades of such fans.

It is well known that the blades of an electric motor-driven rotary fan are usually made of relatively rigid metal and as such are a source of danger to objects or human beings coming into contact therewith. Attempts have been made in the past to form such blades of a resilient material such as rubber in order to prevent the hazard of metal blades. However, this has been found to impair beyond practical limits the efficiency of the fan, and most fans in popular use have metal blades with a wire guard in the form of a grill or frame around the blades in order to provide some measure of protection during operation. However, further protection is often desirable since such a frame is frequently not of fine enough mesh for fans used where children may be present or where window curtains, clothing, or the like may be in proximity to the fan.

Accordingly, it is an object of the present invention to provide a simple and inexpensively formed auxiliary guard for the blades of a fan.

Another object of the invention is to provide a protective guard for fan blades which may be used with different fans and even fans of differing sizes.

Still another object of the invention is to provide a protective guard for fan blades which furnishes adequate protection for such blades without unduly reducing circulation of air thereby.

Yet another object of the invention is to provide an auxiliary guard for the blades of a fan which resists accumulation of dirt but which may be easily cleaned should the need arise.

A feature of the invention is the provision of a flexible cotton net of selected mesh size and roughly formed into the shape of a sack with drawing means about the opening thereof so that the net may be secured to the wire frame surrounding the fan blades of a usual electric motor-driven rotary fan as an auxiliary guard for such blades.

Another feature of the invention is the provision of such a flexible net impregnated with plastic to render it somewhat stiff for improving the protective function and rendering it impervious to dirt.

Still another feature is the provision of a piece of flexible netting with variable means for attaching the netting to the wire frame which usually surrounds the fan blades of a rotary electric fan in order to permit use of the netting on fans of different sizes as an auxiliary guard therefor.

Further objects, features and the attending advantages thereof will be apparent upon consideration of the following description when taken in conjunction with the accompanying drawings in which:

Fig. 1 is an exploded view of a rotary electric fan and the auxiliary protective guard;

Fig. 2 is a perspective view of a rotary electric fan with the protective guard of the present invention installed thereupon;

Fig. 3 is a rear view of the protective guard; and

Fig. 4 is a rear view of an alternate construction of the protective guard.

In practicing the invention there is provided an auxiliary protective guard for a fan. The guard comprises a flexible net formed roughly into the shape of a sack so that it may be placed around the wire grill or frame surrounding the blades of a fan, and secured in such a position by a suitable drawstring. This flexible net may also be impregnated with plastic material to provide increased stiffness and to reduce any tendency for soiling.

The fan **10** shown in Fig. 1 includes a pedestal base **12** and a suitable driving motor **14** to which is secured a protective wire or grill work **16**. The blades **17** of the fan are rotated within the frame **16** which provides some measure of protection for objects near the fan. Further protection is provided by installing the auxiliary protective guard **18** of the present invention. This is done by merely placing the open end of the guard which is roughly formed into a sack, over the frame **16** of the fan and then tightening the drawstring **20** and tieing the same to secure the guard **18**. The fan will then appear as shown in Fig. 2.

In forming the guard of the invention it has been found preferable to cut a disc of material which is large enough to cover the frames of fans throughout a size range with which the guard of the invention is intended to be used. One type of material which was found suitable is cotton fishnet with ⅜ inch mesh and having a yield of 73 square feet per pound. This forms a guard suitable for many purposes, although a mesh of larger or smaller size may be utilized, depending upon the protection necessary and the permissible reduction and diffusion of air circulation. The drawstring **20** may be threaded through the circular disc of netting at the periphery thereof after which it may be drawn up and will appear as shown in Fig. 3.

It is preferable to impregnate the disc of netting with a suitable plastic material in order to increase the stiffness thereof and to provide a smooth surface so that dirt will not accumulate thereon and so that the guard may be easily cleaned should such be necessary. A plastic suitable for this material consists of a 20 percent solution of polymer C3V20M dissolved in a solute of methanal. (Polymer C3V20M is a product of the Monsanto Chemical Company, Springfield, Mass.) The netting may then be dipped in such a solution and dried at 150° F. to drive out the solute. Squeeze type rollers may also be used to remove any excess of the plastic solution accumulated in the dipping process. It is obvious that other types of material may be successfully used to impregnate the netting, and the named method is given merely by way of example.

As shown in Fig. 4, it is also possible to attach the drawstring **22** to the fan guard **16** by means of a suitable tape **26** sewn around the netting. It would also be possible to secure the protective guard to the grill work of a fan by means of suitable clips and tension springs extending across the rear of such grill work.

As is apparent the invention provides a highly satisfactory auxiliary guard for a fan in that it may be simply and inexpensively formed. Furthermore, such an auxiliary guard may be simply attached to a fan and a given protective guard may be utilized on fans of varying sizes since the drawstring arrangement as shown provides great flexibility in the attachment of the guard. Of course, it is possible to form the guard of material having various mesh sizes so that the desired degree of protection is easily obtained. The auxiliary guard is also rendered entirely practical since it may be stiffened and rendered impervious to dirt by impregnation with a suitable plastic which plastic may be of any desired color thus providing aesthetic appeal.

The invention provides, therefore, a highly satisfactory

auxiliary protective guard for a rotary, motor-driven, electric fan.

I claim:

A protective guard for a fan having a rotatable blade and a framework defining a volume in which the blade may rotate, said protective guard comprising a net of substantially ⅜ inch mesh of cotton fishnet and adapted to cover the framework at least partially, said net being impregnated with plastic for reducing flexibility thereof, and means for fastening said net to the framework.

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