

UNITED STATES PATENT OFFICE

2,390,299

AIR CIRCULATING FAN

Louis A. Gutkin, Winnipeg, Manitoba, Canada

Application December 9, 1941, Serial No. 422,283
In Canada December 9, 1940

1 Claim. (Cl. 170—173)

My invention relates to air circulating fans, the principal object thereof being to provide a fan having very light weight blades, and of a type which can readily be clipped on to a rotating piece of line-shafting, to the armature of an electric motor, or the like, to ventilate and circulate air in any place where machines are located and are driven by shafting. The invention applies particularly to power driven sewing machines located in garment workrooms which are frequently poorly ventilated.

A further object of my invention is to provide a device in which the fan blades may be adjusted at an angle to the axis of rotation of the fan so that where desired a certain volume of air may be pulled into the fan upon one side or other of the blades.

A further object of my invention is to provide a device of the character herewithin described which is simple to manufacture, which does not require any substantial outlay in tools or dies, which can be manipulated by anyone, which cannot easily break and which can be purchased for a very low price.

With the above more important objects in view and such other minor objects as may appear as the specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawing, in which:

Figure 1 is a perspective illustration of my fan upon a piece of line-shafting.

Figure 2 is an end view of my fan, showing the blades partially broken.

Figure 3 is a plan of one of the blades used in forming the hub of my fan.

Figure 4 is a plan of the other blank used in forming the hub of my fan.

Figure 5 is a sectional detail illustrating the means by which I would render my fan blades adjustable in an alternative embodiment of my invention.

Figure 6 is a perspective detail illustrating one of the radially serrated nuts or washers I would employ in making my fan blades adjustable.

Figure 7 is a perspective detail illustrating the manner in which the blades would be attached to the adjustable blade embodiment illustrated in Figure 5.

In the drawing like characters of reference indicate corresponding parts in the different figures.

The power-driven sewing machines used in garment workshops are usually positioned on either

side of a channel, along which extends the line-shafting 1 used to operate the machines. The air in such workshops, particularly in hot weather, frequently becomes very stagnant, thus preventing evaporation of moisture from the bodies of the workers, frequently impairing their efficiency through discomfort to such an extent (in hot weather) that the workers have to quit comparatively early in the day, or at least have to take time to cool off, thus cutting down considerably their earning power to themselves and to their employers.

In this context it should be borne in mind that garment workrooms are generally located in old buildings which are not air conditioned for the reason that the economics of the trade prohibit the payment of rents which would be required in new air conditioned buildings.

My invention therefore, provides an inexpensive means whereby any individual worker who feels the need for circulating the air in his vicinity, may do so by attaching the fan herewithin described and illustrated upon the accompanying drawing, to the line-shafting which rotates in the channel in front of him.

My fan comprises the blades 2 and a hub 3, the blades being approximately the shape illustrated, although obviously any shape may be used, and these blades will preferably be formed of light material, such as one or other of the varieties of building board, a plastic, a light metal alloy, or any suitable material whatsoever.

The hub of my fan is formed from two shaped blanks 4 and 5 into a cylindrical clip having a pair of finger wings 6, which may be manipulated by the worker to attach the fan to the shafting or detach it from the same.

Considering first the blank 4 illustrated in the accompanying Figure 3, it will be seen that the same embodies one of the finger wings 6 which is ribbed for stiffness along its edges, and a pair of projections 7 which are turned as at 8 in the accompanying Figure 2, to form part of the hinges through which a pin 9 extends.

Centrally upon the edge 10 of the blank 4 is an upwardly projecting portion 11 provided with a pair of apertures 12 and to this, one of the blades 2 is attached, as by means of rivets or eyelets 13.

A second projection 14 is punched up from the body of the blank and is provided with a similar pair of apertures and to this, another of the blades is attached.

The blank 5 also has a pair of projecting pieces 15, which are turned to form the inner part of a

hinge 16 (portions 7 forming the ends of the hinge), the blank 5 being provided with only one projecting piece 17 for the attachment of one of the blades 2, this piece being punched out of its center as clearly indicated, and provided with apertures similar to the portions 11 and 14.

A spring 18 is positioned in the center of the hinge and from the foregoing it will be obvious that I have provided a cylindrical hub having air circulating blades radiating therefrom which can conveniently be clipped onto a moving shaft and also, readily detached therefrom without stopping the shaft and here I would point out that suitably secured to the inner surface of my hub, is a piece of friction lining 19, such as rubber or the like, to prevent undue slippage of the fan on the shaft.

To render the blades 2 adjustable, I modify the blanks 4 and 5 by eliminating the portions 11, 14, and 17, and providing in their place, apertures through each of which extends a bolt 20 and by reference to the accompanying Figure 5, it will be seen that the portion of my blanks around the aperture through which the bolt 20 extends is domed to provide for the heads 21 of my bolts to countersink them into the blanks.

Screwed down on the bolt 20 is a radially serrated nut or washer 22 and engageable with this nut or washer is a similarly serrated nut or washer 23, which latter is secured to a right-angled bracket 24 provided with an aperture 25 in alignment with the central aperture within the nut or washer.

Over the foregoing is screwed the conventional wing nut 26 and by flattening off the wing nut and setting the blade 2 to any desired degree of

angulation and then tightening the wing nut, it will be apparent that the blade will remain in the position sketched.

Preferably, I would provide the member 22 with a screw-threaded central aperture and the member 23 with a plain cylindrical aperture somewhat larger than the diameter of the bolt 20, but if desired, the diameter of both these members may be plain and in excess of the diameter of the bolt since the light weight fan blades 2 would still remain in place in any event, so long as the wing nut 26 were tight.

Since various modifications can be made in my invention as hereinabove described and as illustrated in the accompanying drawing, and many apparently widely different embodiments of same made within the scope of the claim without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification and drawing shall be interpreted as illustrative only and not in a limiting sense and I desire only such limitations placed thereon as are specifically expressed in the accompanying claim.

What I claim as my invention is:

As an article of manufacture, an air circulating fan, said fan comprising in combination a hub in the form of a cylindrical spring clip to engage a piece of line-shafting, at least two blades secured radially thereto, said blades being composed of light weight material such as will permit of the fan being stopped from rotating on a shaft by the hand without injury and removed therefrom.

LOUIS A. GUTKIN.