July 4, 1939. H. T. REYNOLDS 2,165,069

FAN

Filed Jan. 27, 1937

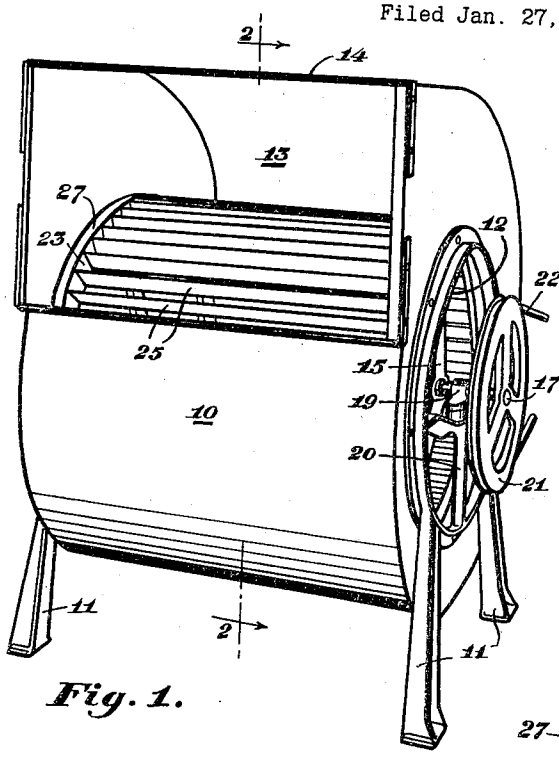


Fig. 1.

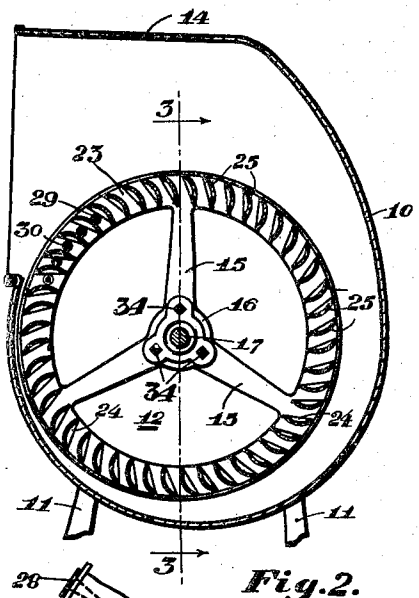


Fig. 2.

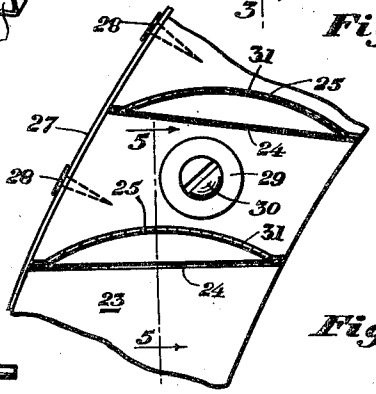


Fig. 4.

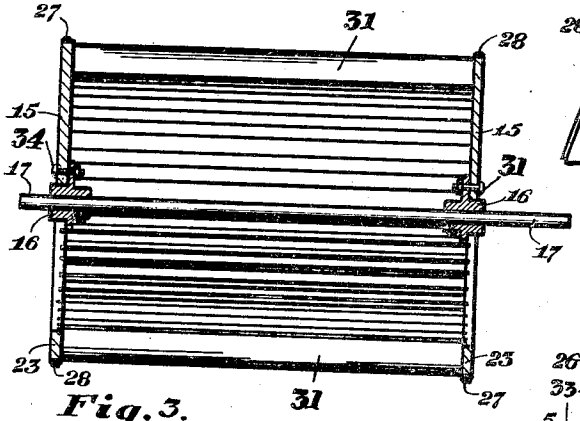


Fig. 3.

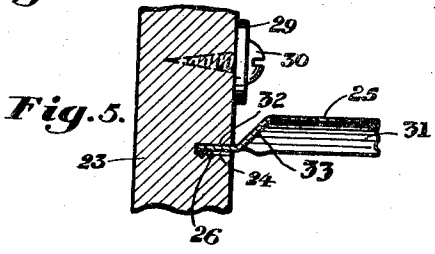


Fig. 5.

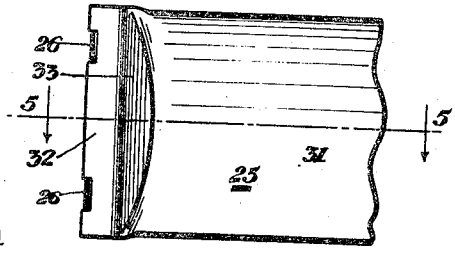


Fig. 6.

Witness:

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Patented July 4, 1939 2,165,069

UNITED STATES PATENT OFFICE

2,165,069

FAN

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Application January 27, 1937, Serial No. 122,490

1 Claim. (Cl. 230—134)

The present invention relates to fans and more particularly to blowers or exhaust of the character used in conjunction with air conditioning.

The primary objects of the instant invention are to provide a fan of the character above indicated which is mechanically substantially noiseless in operation; to provide such a fan which may be used either as a blower or as an exhaust; and, to provide such a fan which is economical in manufacture, is efficient in use and which may be readily and conveniently installed in service.

An illustrative embodiment of the invention is shown in the accompanying drawing, wherein:

Figure 1 is a perspective view of the fan within its housing;

Figure 2 is a sectional view thereof on line 2—2 of Figure 1;

Figure 3 is a sectional view on line 3—3 of Figure 2;

Figure 4 is an enlarged fragmentary sectional view of several of the blades of the fan in their assembled relation with one of the spaced pair of blade supporting rims;

Figure 5 is a sectional view thereof on lines 5—5 of Figures 4 and 6; and

Figure 6 is a fragmentary plan view of the end portion of one of the blades.

Referring then to the drawing wherein like parts of the structure shown are designated by the same numerals in the several views, a fan housing generally designated 10, is here shown as supported at its opposite ends by means of spaced pairs of opposite outward angularly disposed legs 11. The housing has a pair of openings 12 through each of its opposite sides and an opening 13 through its front side below the hood or canopy 14.

A fan within the housing comprises a pair of wheels 15, each preferably formed of built-up veneers or ply-wood and each of which wheels are secured at their hubs in spaced parallel and vertical relation to a shaft 17 in any suitable manner as by the hub members 16 to which the shaft is keyed and which hub members are each here shown as bolted by threaded bolts 34 to the spokes of their respective wheels 15.

The opposite ends of the shaft are each supported within a bearing 19 mounted on a vertical support 20 secured to each opposite side of the housing and opposite each opening 12 thereof and a variable speed friction drive wheel 21, carrying a belt 22 connected with a suitable source of power such as an electric motor not shown, is carried by the shaft at one end thereof.

The rims 23 of each wheel are provided with a plurality of spaced kerfs 24 in their oppositely disposed inner side surfaces and a plurality of blades 25 preferably of metal and arcuately formed in cross section intermediate their respective opposite ends are interjacently disposed between the spaced rims 23, the opposite ends of each blade 25 being provided with spaced flanged lips 26 set into and tensionally retained within oppositely disposed pairs of kerfs.

The rim 23 of each wheel 15 is preferably reinforced by a band of strap metal 27 secured to the periphery thereof as by tacks 28 and means for balancing each wheel 15 is here shown as provided for by washers 29 secured to the rim 23 of each wheel 15 by screws 30.

It will be seen that the cross-sectionally arcuate main or middle portion 31 of each blade is integrally connected with its flat opposite end portions 32 respectively by the blade's intermediate web portions 33 which thus stiffen said arcuate middle portion and with said end portions provide a rigid mounting for the blade on the wheels.

It will thus be seen that the fan herein shown and described is mechanically substantially noiseless in operation because of its balanced blade supporting wooden rims, that the fan may be used either as a blower or as an exhaust, and that it is economical in manufacture, efficient in use, and may be readily and conveniently installed in service.

While but one specific embodiment of the invention has been herein shown and described, it will be understood that certain details of the construction shown may be altered or omitted without departing from the spirit of the invention as the same is defined by the following claim.

I claim:

A fan comprising: a plurality of integrally formed blades each having a cross-sectionally arcuate middle portion, comparatively flat opposite end portions and web portions between the middle portion and the end portions respectively for rigidly connecting the same and stiffening the arcuate middle portion; and a pair of spaced wheels having a connecting shaft and at their inner sides a plurality of circularly arranged kerfs corresponding with the end portions of the blades and holdingly receiving the same in the assembled position of the fan's said parts.

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