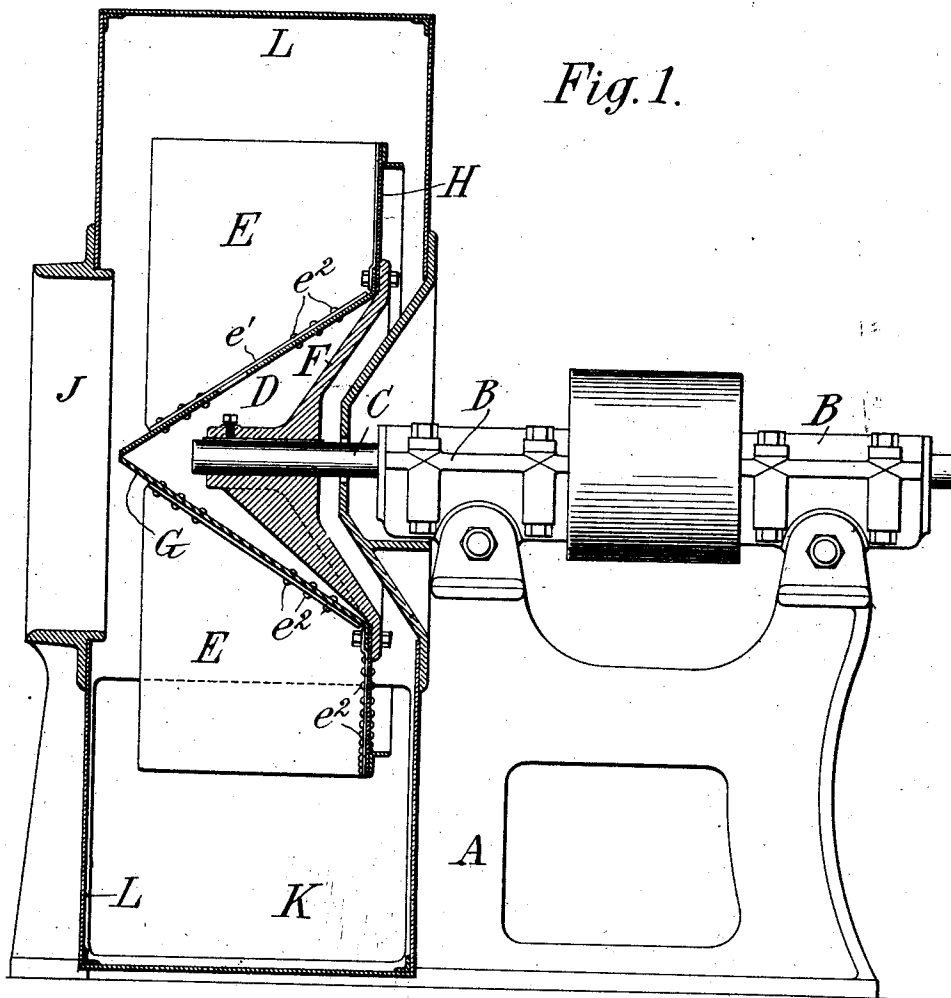


F. R. STILL.
 ROTARY FAN OR BLOWER.
 APPLICATION FILED FEB. 10, 1911.

1,054,947.

Patented Mar. 4, 1913.

2 SHEETS—SHEET 1.



WITNESSES:

Ed White
Rene' Meune

INVENTOR :

Frederick R. Still,

By Attorneys,

Fraser, Dyer & Myers

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2 SHEETS—SHEET 2.

Fig. 2.

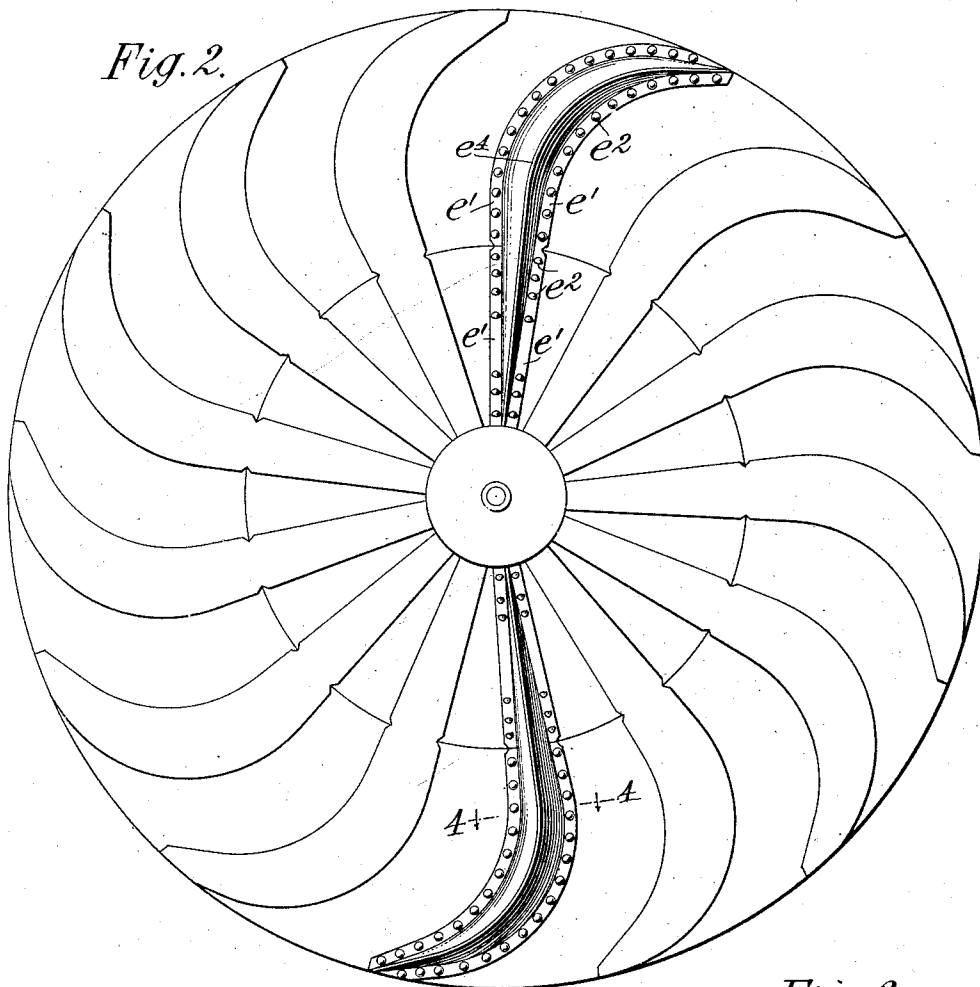
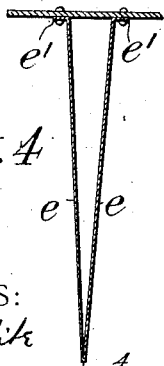
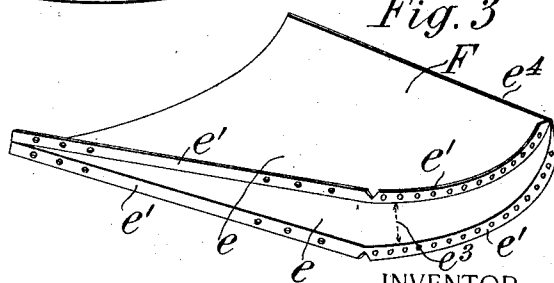


Fig. 4



WITNESSES:
 Fred White
 Rene Gruene

Fig. 3



INVENTOR :
 Frederick R. Still,

By Attorneys,
 Draper, Dink & Myers

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UNITED STATES PATENT OFFICE.

FREDERICK R. STILL, OF DETROIT, MICHIGAN, ASSIGNOR TO AMERICAN BLOWER COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF NEW YORK.

ROTARY FAN OR BLOWER.

1,054,947.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed February 10, 1911. Serial No. 607,771.

To all whom it may concern:

Be it known that I, FREDERICK R. STILL, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Rotary Fans or Blowers, of which the following is a specification.

The invention relates to rotary fans or the like, such as blowers or pumps, and aims to provide certain improvements therein.

The invention aims to provide a fan which shall be strong and durable in construction and which may be conveniently constructed.

It is of general advantage that the blades of fans and the like and the connection thereof to their support shall be strong and durable. It is, moreover, especially desirable that the construction shall possess strength and endurance where the fan is used under conditions where the blades thereof are liable to come in contact with relatively heavy or solid bodies, in order that they may withstand the resulting collisions with little or no injury. An example of such use is where the fan is used as an exhaust fan in connection with woodworking machines for removing waste from the material operated on, in which waste are liable to be blocks or pieces of wood.

With the foregoing objects in view the blades of the fan are made of two or more thicknesses or sheets or plates of material united to one another and to their support in such manner that the respective thicknesses, sheets or plates act as braces or reinforcements for one another. In order to attain a firm and strong connection between the blades and the hub, the latter may be provided with a conical or other suitable projection, in addition to the usual disk or flange, whereby a connection of considerable extent is secured.

The invention has been illustrated as embodied in a construction, such as referred to above by way of example, and will more particularly be described in connection with such illustration.

In said drawing, Figure 1 represents a side elevation, partly in section, of a fan, with its mounting, embodying the present invention. Fig. 2 is an enlarged face view of the fan-wheel or rotor. Fig. 3 is a perspec-

tive view of one of the blades, and Fig. 4 is a section of one of the blades on the line 4-4, Fig. 2.

Referring to the drawing, A represents any suitable base or frame having bearings B-B for the shaft C which carries the fan-wheel. The wheel comprises a support D and blades E, E. The blades are made up of a plurality of thicknesses or sheets of metal *e, e*, connected to one another and to the support D in such manner as to brace or reinforce one another. The sheets *e, e* are preferably provided with flanges *e'*, *e'* at the edges where they are connected to the support and the connection is preferably effected by means of bolts or rivets *e²*. The sheets or thicknesses *e, e* are preferably separated or spaced apart at the edges where they are connected to the hub or base, leaving a space *e³* between the different sheets or thicknesses and are preferably connected together, preferably at one or more of their edges, as *e⁴*. Thus constructed, one of the sheets or thicknesses acts as a truss or reinforcing element for the other, a strain on one sheet or thickness being transmitted and sustained by another. Furthermore, the blades will possess a certain elasticity and dents and mutilations which may be produced in one sheet or thickness of the blade will not be transmitted to other sheets or thicknesses.

The blades may be formed of either a single sheet of material folded to constitute the several thicknesses, or may be formed of a plurality of sheets united in a suitable manner. Furthermore, the sheets or thicknesses may be given any suitable contour or shape so that the blades may have the proper contour to effect their functions.

The support for the blades may be of any suitable form, but in order to provide an extended connection for the blades it may be made in the form of a cone having an annular flange or disk at its base. As here shown, the base comprises a hub or web F, which fits on the shaft C, and a cone G and an annular flange or disk H fastened to the rim of the hub or web F as by rivets. The flanged edges *e'* of the sheets or thicknesses *e, e* of the blades are fastened to the parts G and H of the support.

The fan may be housed within a casing L

having inlet and outlet openings J and K therein.

The invention is applicable to other forms of blades and to fans or propellers in general, and while I have illustrated and described but one embodiment of the invention, it is not to be understood as limited thereto, as many changes and modifications may be made therein without departing from the spirit thereof.

What I claim is:—

1. A fan wheel having blades formed of two thicknesses of plate joined at the peripheral edge to close the space between them, and spaced apart at the supported edge of the blade.

2. A fan wheel having blades which are approximately radial near the hub and curved forward toward the periphery, with its blades formed of two thicknesses of plate joined at the free peripheral edge to close the space between them, and spaced apart at the supported edge of each blade.

3. A fan wheel comprising blades and a support, the latter comprising a hub and disk, the blades attached to said support at the back and having free front edges and free peripheral edges, each blade formed of two thicknesses of plate joined at the free edges of the blade, and spaced apart and

united to the support on the supported edges of the blade.

4. A fan wheel comprising blades and a support for said blades, said support comprising a disk and a central conical projection thereon, and each of said blades being composed of two thicknesses of plate joined at the peripheral edges of the blade and spaced apart at the attached edges of the blade, and there united to said support, whereby they act to brace each other.

5. A fan wheel having blades each of which is composed of a single piece of metal plate bent upon itself, the bent-over portions of said plate being connected at the outer edge of the blade by the bend and the inner edges of said bent-over portions being spaced apart, whereby each acts to brace the other, the edges of said bent-over portions being brought together at a free edge of the blade and united to close the space between them.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

FREDERICK R. STILL.

Witnesses:

ARTHUR C. FRASER,
THOMAS F. WALLACE.