F. A. HEATH.

ROTATABLE FAN MEMBER.

APPLICATION FILED JUNE 29, 1910.

1,135,451. Patented Apr. 13, 1915.

Fig. 1.

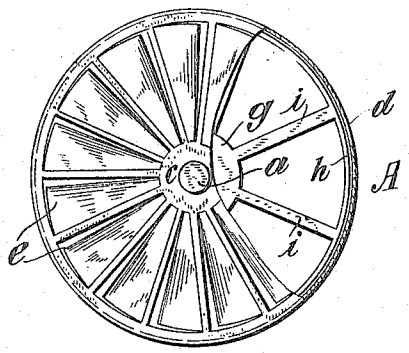


Fig. 2.

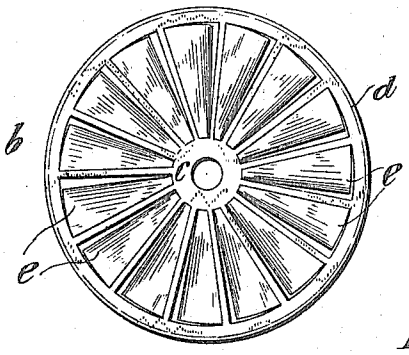


Fig. 3.

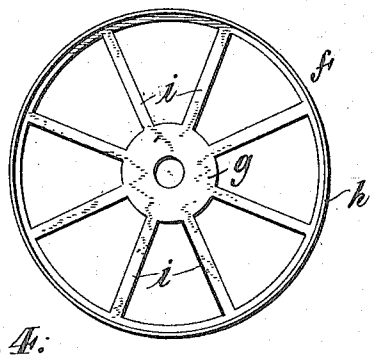
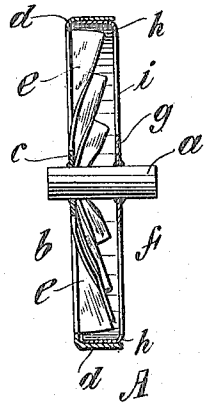


Fig. 4.



Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FORREST A. HEATH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO NEW JERSEY CARBURETER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ROTATABLE-FAN MEMBER.

1,135,451. Specification of Letters Patent. Patented Apr. 13, 1915.

Application filed June 29, 1910. Serial No. 569,523.

To all whom it may concern:

Be it known that I, FORREST A. HEATH, a citizen of the United States, and a resident of the city of Jersey City, county of Hudson, and State of New Jersey, (whose post-office address is No. 1 Exchange Place, in said city of Jersey City,) have invented certain new and useful Improvements in Rotatable-Fan Members, of which the following is a specification.

The invention in a broad aspect relates to the structural feature of a rotary fan which is operated by the flow of a fluid therethrough or which is operated from an external source of power to cause a flow of fluid through the fan and more particularly it relates to a fan for use in devices for thoroughly mixing or commingling the gaseous mixture from a carbureter previous to its entrance into the cylinder of a hydrocarbon engine. It is a desideratum to make such a fan simple and light and at the same time combine strength and rigidity. It is to this end that the invention is directed.

As showing a specific embodiment thereof reference is made to the accompanying drawings which form a part of the specification and in which—

Figure 1 shows a plan view of the fan with a portion of the fan blades broken away showing braces or arms of the strengthening member which are upon the side opposite that of the fan blades. Fig. 2 is a plan view of the fan blade member. Fig. 3 is a plan view of the strengthening member while Fig. 4 is a transverse sectional view of the fan.

The axle or central member upon which the fan A rotates is designated by reference character *a* and to this there is secured by soldering or otherwise the fan blade member *b*. This member is composed of a ring *c*, a rim *d* and fan blades *e* extending between and integral with both the ring and rim and it is the ring *c* which is secured to the axle. There is also secured to the axle *a* by soldering, but it may be held in place in other ways, the strengthening member which is designated by *f* in Fig. 3. This member is composed of a ring *g*, rim *h* and arms or braces *i* extending between and integral with both the ring *g* and rim *h*. In Fig. 4 it will be seen that the rim *h* of the strengthening member is within the rim *d* of the fan blade member, and as there is a comparatively close fit between the rims it will be apparent that the rim of the strengthening member acts as a support for the rim *d* and therefore for the fan blades *e* of the fan blade member *b*. There is also a space between the arms or braces sufficient to permit the flow of the gaseous mixture which must pass through the fan.

The material from which the fan blade member and the strengthening member are made is generally a flat sheet metal which is converted into shape by bending and severing. It will be apparent that unless the fan blades are secured to a rim which is otherwise supported or braced the material from which the fan is made must be comparatively thick in order to secure rigidity of the parts. Therefore the strengthening member having the braces or arms engages the rim of the fan blades in such manner that the braces or arms will resist any tendency to distort the fan blade rims or even the fan blades and in order to particularly aid in accomplishing this feature the rim members are made so as to fit tightly one inside of the other thereby forming a rigid structure which will be comparatively light, a feature quite advantageous specially when the fan blades must cause the rotation of the fan by a gaseous fluid medium passing therethrough.

It is evident the rims may be secured by soldering or otherwise or the rim of the fan may be within the rim of the strengthening member and in either of these cases the arms may be tension members, therefore said arms will be referred to as stress members as they may be members under tensile or compressive stresses. While I have shown the structure especially applicable to a mixing device, it is obvious that it is equally applicable to any device having a fan.

Various forms and modifications may be made without departing from the spirit and scope of my invention.

I claim as my invention:

1. A rotary fan having a central member, a rim, fan blades connected to said member and rim and stress members engaging the central member and connected to a rim, the rim to which the fan blades are con-

nected and the rim to which the stress members are connected being of such sizes that one fits within the other.

2. In a mixing device a rotary member comprising a central member, a cylindrical rim, fan blades extending between the central member and a cylindrical rim member, and stress members engaging the central member and integral with a cylindrical rim member which is bent angularly relative to the stress members.

3. In a mixing device, a rotatable mixing member comprising a cylindrical rim within which there is located radially extending fan blades that are integral with one edge portion of the cylindrical rim, the rotatable mixing member also comprising stress members extending between opposite portions of the other edge of the cylindrical rim, and a shaft to which the stress members and the inner portions of the fan blades are connected.

This specification signed and witnessed this 23rd day of June, A. D., 1910.

FORREST A. HEATH.

Signed in the presence of—

EDWIN A. PACKARD,

G. MCGRANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."