G. E. PERRY.

CENTRIFUGAL FAN WHEEL.

APPLICATION FILED APR. 7, 1911.

1,023,873. Patented Apr. 23, 1912.

Fig. 2.

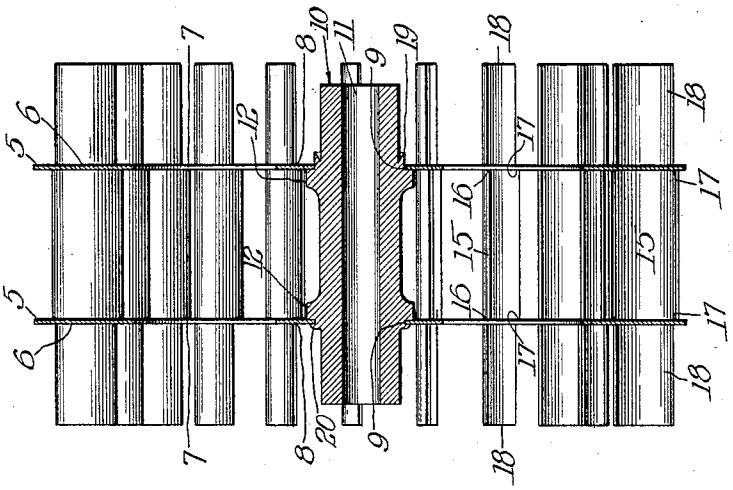


Fig. 1.

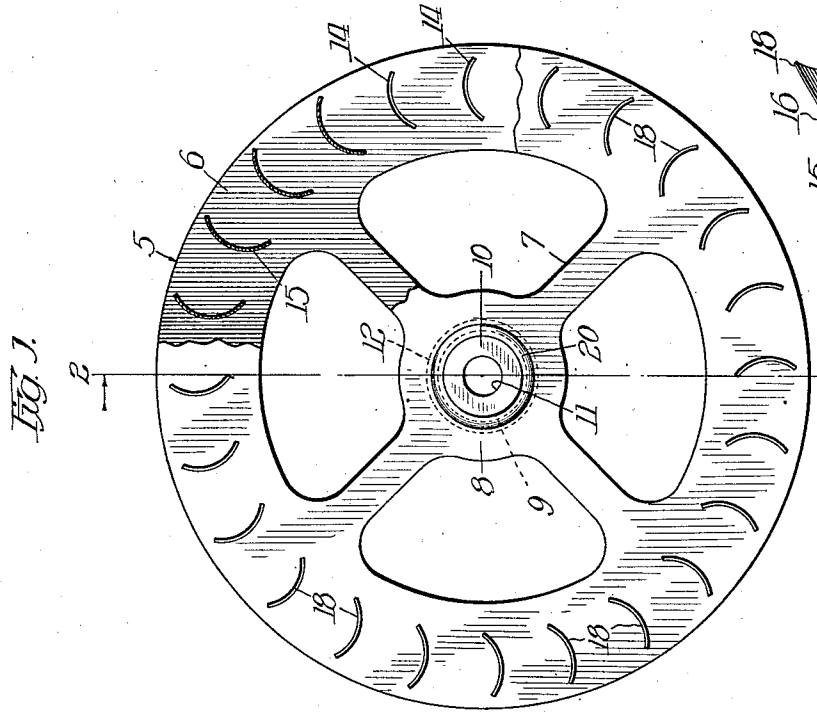
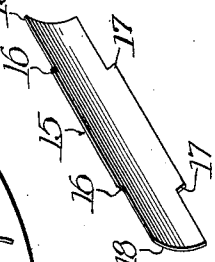


Fig. 3.



Witnesses:
Robert N. Weir
Leo J. DeMars.

Inventor:
George Elliot Perry
and Mary Foree Bain
Atty's.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE

GEORGE ELLIOT PERRY, OF CHICAGO, ILLINOIS.

CENTRIFUGAL FAN-WHEEL.

1,023,873. Specification of Letters Patent. Patented Apr. 23, 1912.

Application filed April 7, 1911. Serial No. 619,456.

To all whom it may concern:

Be it known that I, GEORGE ELLIOT PERRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Centrifugal Fan-Wheels, of which the following is a specification.

My invention relates to improvements in centrifugal fan wheels for air propelling fans, and has especial reference to the rotary wheels employed in such devices.

One of the objects of my invention is to generally improve the structure and efficiency of devices of the character referred to above.

In the drawings, Figure 1 is an elevation of the fan wheel with a part broken away to show several of the fan blades in section; Fig. 2 is a central cross section of said wheel taken on line 2—2 of Fig. 1; and Fig 3 is a perspective view of one of the fan blades.

In all of the views the same reference characters indicate similar parts.

The structure is composed in part of two circular blade-bearing disks, 5, that are duplicates in every essential respect, and therefore corresponding parts are indicated with the same characters. These disks consist of integral rings 6—6 and plural spiders 7—7, and hub parts 8—8, each perforated as at 9—9. An elongated bearing hub 10 is centrally perforated as at 11, for a shaft upon which the structure is to be supported. The hub 10 is provided with shoulders 12, of larger diameter than the center perforations, within the respective disks, which serve as distance spacers for said disks.

Each ring 6 is perforated with a series of crescent-shaped openings 14, spaced apart in regular order and having their inner edge termini in advance of radial lines drawn to bisect the outer edge termini of said slots, so as to give the concave fan blades, that are carried in said slots, the proper pitch for highest efficiency in operation.

A fan blade 15 is composed of a concave sheet of metal curved to correspond with the crescent-shaped perforations 14. The blade is provided with shoulders 16—16 substantially the same distance apart as are the shoulders 12—12 of the shaft hub 10. The shoulders 16—16 are somewhat less pronounced than corresponding shoulders 17—17, so as to bring the outer edge of the blades 15 as near the surrounding casing, within which the wheel is to be used, as may be desirable. The blades are each provided with smaller terminal ends 18, as a result of the reduction in size necessary to provide the shoulders between the center part and the respective ends. The ends 18 pass neatly through the perforations 14 in the assembled structure, as shown in Fig. 2. To secure the blade-carrying disks on the shaft hub, annular fins 19 are formed between the shoulders 12 and the reduced part of the hub and after the structure has been assembled, the fins 19 are turned over as shown at 20, as a cheap, convenient, and entirely practical means for holding the parts together. The fins 19 may be swaged, by the application of proper tools in a manner well understood in the art to an extent that they will securely hold the parts and provide sufficient frictional engagement between the shaft, hub, and disks to positively transmit the necessary power.

While I have found the structure herein described to be highly efficient in operation, it is equally advantageous from a structural point of view, being composed of the fewest possible parts, duplicated to the greatest extent, easily assembled, and strong and stable when assembled.

What I claim is:

1. A fan wheel structure comprising a series of blades, each having relatively small ends and intervening shoulders, perforated disks for receiving said blades and centrally perforated, and a shaft hub having shoulders separated correspondingly with the shoulders on said blades, against which said disks are held, and a means comprising a part of the shaft hub for holding said disks in place.

2. In a fan wheel structure, a blade-sup-

porting device comprising a shaft-engaging hub and disks fixed thereto, said disks having therein a series of crescent-shaped openings, and a plurality of blades, of shape corresponding to that of the openings, said blades each providing at its ends a reduced portion to fit into the opening and a central shoulder portion, whereby said blades are positively held in assembled position by engagement between said disks.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

GEORGE ELLIOT PERRY.

In the presence of—
MARY F. ALLEN,
W. LINN ALLEN.