

W. G. VIALL.
FAN WHEEL.
APPLICATION FILED MAR. 18, 1912.

1,096,079.

Patented May 12, 1914.

Fig. 1.

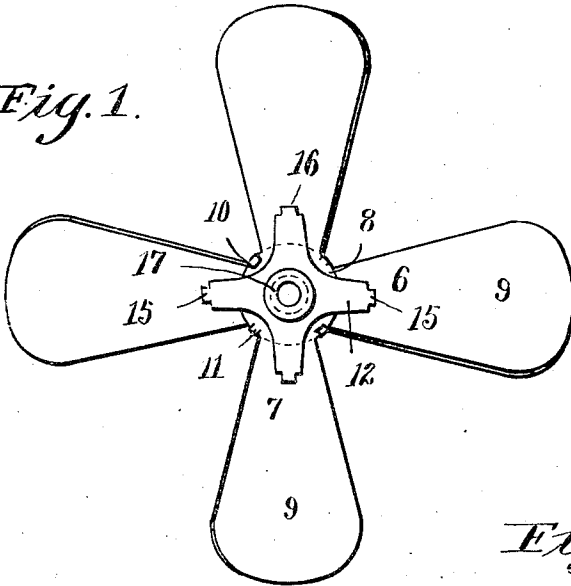


Fig. 2.

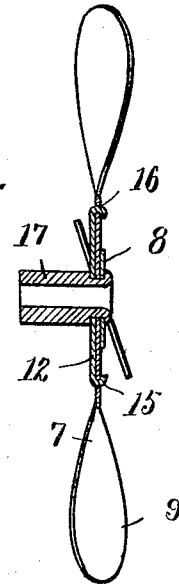


Fig. 3.

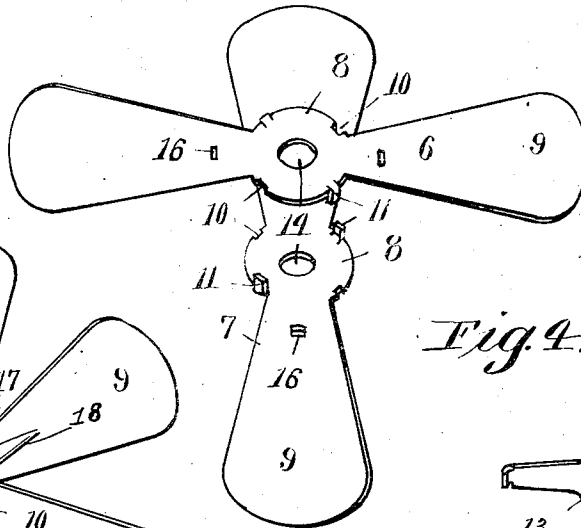


Fig. 5.

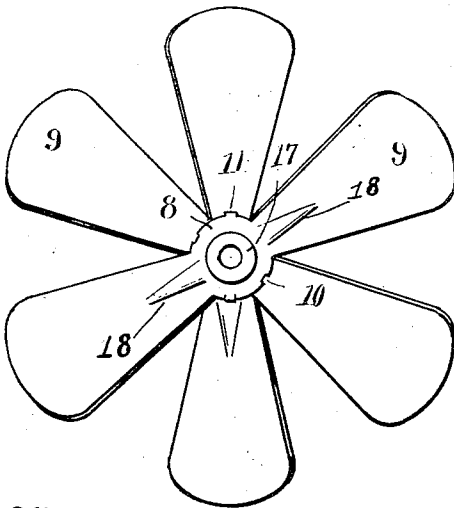
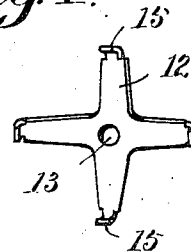


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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FAN-WHEEL.

1,096,079.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM G. VIALI, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fan-Wheels, of which the following is a specification.

This invention relates to new and useful improvements in fans and more particularly to fan wheels such as are employed upon electric or other power driven fans.

It is the purpose of my invention to improve upon fan wheels of the above class by simplifying and cheapening their cost of manufacture; to design a fan which is particularly adapted for electric fan work and which can be formed of a comparatively few number of parts that are adapted to be stamped up from sheet metal and can be quickly assembled by comparatively cheap labor thereby insuring the production of a complete electric fan that can be put upon the market at a comparatively small cost.

The invention further consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departure from the spirit or sacrificing any of the advantages of the invention.

Similar characters of reference denote like or corresponding parts throughout the several figures of the accompanying drawings forming a part of this specification, and upon which,

Figure 1, shows a rear view of my improved form of fan wheel complete. Fig. 2, is a central vertical sectional elevation of the fan wheel shown in Fig. 1. Fig. 3, is a perspective view of the two principal parts of the fan detached, but in the proper relative position to be assembled. Fig. 4, is a detached perspective view of a central brace member of the wheel, and, Fig. 5, is a further plan view of a six blade fan wheel embodying the features of my invention.

The essential features of my invention are such as to permit of the same being carried out in the construction of fan wheels having a different number of blades, as for instance, four or six. In this connection it would be

noted that the design is carried out in the formation of a fan wheel having an even number of blades and whereby the two oppositely disposed members are formed integral and the intervening members arranged crosswise thereof.

Referring in detail to the characters of reference marked upon the drawings it will be noted that the four blades of the fan shown in Figs. 1, 2 and 3, are formed of but two parts designated as 6 and 7. Each of said parts including a hub portion 8 and blades 9—9 disposed outward and angularly from the opposite sides of the said hub portion. These two blade members 6 and 7 are alike in construction so far as size and proportions are concerned and include notches 10—10 formed in the opposite edges of the hub portions, which notches are stamped or cut out when the blades are blanked. Tongues 11—11 are also struck up from the intervening edge portions of the hub. These notches and tongues are so arranged that when the two blade members are laid together in the manner shown in Fig. 3, the said tongues of the one member will register with the notches of the other blade member in a way to permit the said tongues to be turned over upon the outside of the blade to securely hold the two parts together thereby forming four distinct points of engagement of the two members in a way to firmly secure the same together.

In addition to the foregoing means of connecting the blades I also employ a brace member 12, shown in Figs. 1, 2 and 4, which is provided with a central hole 13 of a size similar to that of the holes 14 in the blade members so that when the said member 12 is attached the holes will properly register and form a continuous hole through the three assembled parts. The several end portions 15 of the brace 12 are disposed to one side to engage the holes 16 in the shank portions of the several blades, and which ends are turned over upon the opposite sides of the blades in a way to firmly secure the brace in position as shown in Fig. 2. This hub brace member may be formed of the same thickness or of somewhat heavier stock than that of the blades, as preferred, thereby forming a hub portion for the fan wheel of any desired thickness. The blades are mounted upon the reduced end of a sleeve 17 as shown in Figs. 1 and 2, and which is turned back upon the face of the blades in

a manner to firmly secure the parts together. The fan wheel is thus formed of but four parts complete including the sleeve or hub member, ready for attachment to a spindle of a motor. A six blade fan wheel can be formed in substantially the same way by the formation in the blade and hub portions of suitable tongues and notches spaced to insure the engagement and connection of the several blades. In the construction of a six blade fan wheel the brace member can be omitted if desired, since the increased amount of stock due to the thickness of the additional blade gives added thickness to the hub portion of the wheel and thereby strengthens the same.

In the form illustrated in Fig. 5 I have shown a rib 18 formed in the shank of the blade to strengthen the same. This form of improvement is equally as well adapted to the blades shown in the other figures as will be apparent.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. In a fan wheel of the class described, the combination with two or more sheet metal blade members arranged crosswise of each other and having suitable holes therein, a centrally arranged brace member having arms disposed outward beside each blade and having their ends projected through the holes of and secured to the blades.

2. In a fan wheel of the class described, the combination of two or more sheet metal blade members arranged crosswise of and flat against each other, a centrally arranged brace member arranged flat against one of the blades and having arms disposed outward against the front side of and whose ends are secured to the side faces of the said

blades, and a hub upon which the blades and brace member are secured.

3. In a fan wheel of the class described, the combination of two or more sheet metal blade members arranged crosswise of each other, and each having notches and tongues in the hub portions of the blade members said tongues being adapted to enter the notches and be bent over upon the blades for securing the same together, a centrally arranged brace member having arms disposed outward along side of and secured to each of the said blades.

4. In a fan wheel of the class described, the combination of two or more sheet metal blade members arranged crosswise of each other and each including two paddles and having notches and tongues extended through the notches and bent over upon the hub portions of the blade members for securing the same together, and a hub member for securing the blades together.

5. In a fan wheel of the class described, the combination of two or more sheet metal blade members each including two blades and arranged crosswise of each other, and having oppositely arranged notches and tongues in the edge of the hub portions of the blade members for securing the same together a brace member having arms disposed outward against the side of and secured to each of the said blades to hold them in position.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 8th day of March A. D., 1912.

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Witnesses:

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