W. SPARKS.

FAN.

APPLICATION FILED SEPT. 11, 1914.

1,137,240. Patented Apr. 27, 1915.

FIG. 1

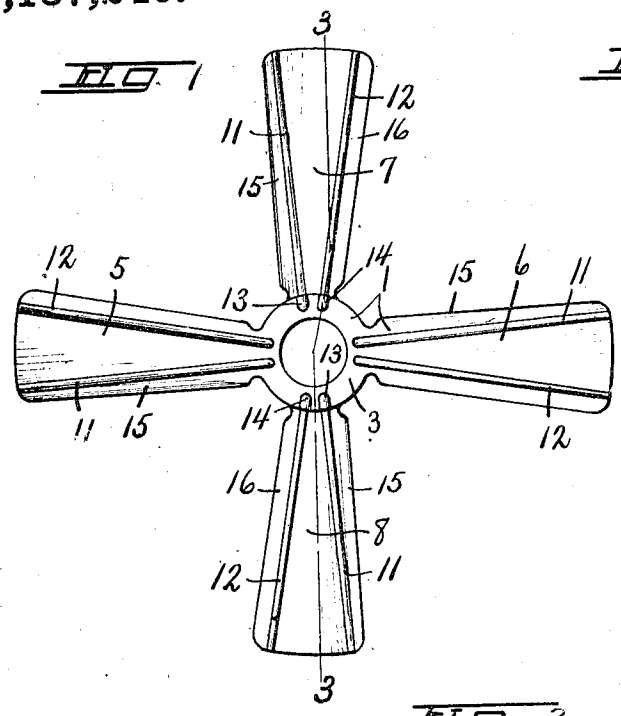


FIG. 2.

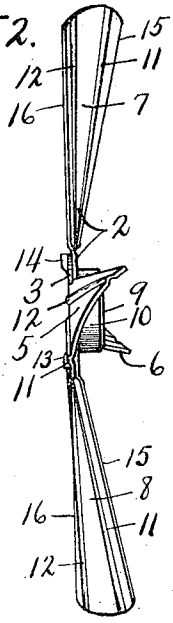


FIG. 3.

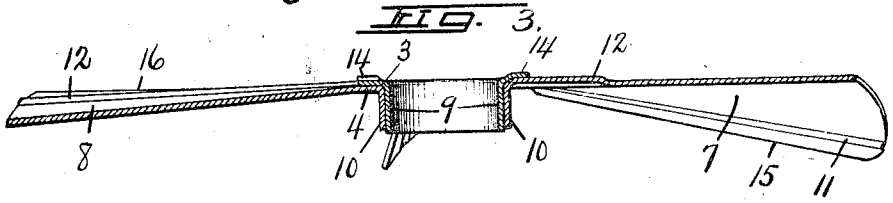


FIG. 4.

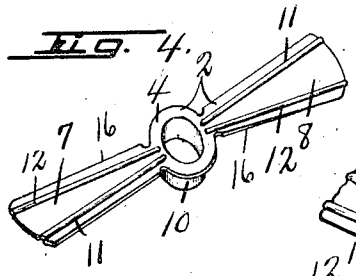


FIG. 5

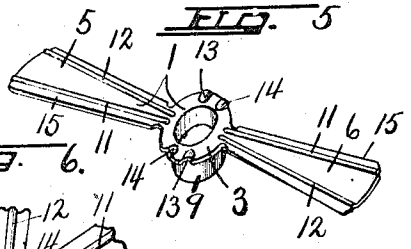
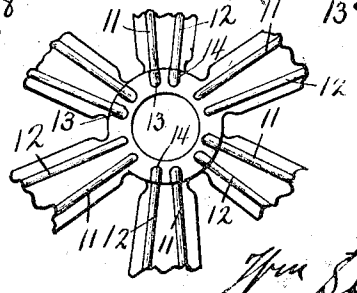


FIG. 6.



WITNESSES:

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1,137,240. Specification of Letters Patent. Patented Apr. 27, 1915.

Application filed September 11, 1914. Serial No. 861,221.

To all whom it may concern:

Be it known that I, WILLIAM SPARKS, a citizen of the United States, and resident of Jackson, in the county of Jackson, in the State of Michigan, have invented new and useful Improvements in Fans, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in rotary fans adapted to create a circulation or moving current of fluid such as air.

The primary object of the invention is to produce a relatively strong light and efficient fan at a minimum expense and thereby improve and cheapen the product.

Special objects and advantages will appear from the following description taken in connection with the accompanying drawings in which—

Figure 1 is a front elevation of a fan made in accordance with this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a cross section on line 3—3 Fig. 1. Fig. 4 is a view of one of the blade-forming members. Fig. 5 is a view of the coacting blade-forming member. Fig. 6 is a front elevation partly broken away illustrating the manner of forming fans with various numbers of blades.

The fan shown in Fig. 1 comprises a pair of crossed-plate light members, 1 and 2, of sheet metal or similar material having their central sections, 3 and 4, respectively, in contact with each other, and preferably substantially circular in shape, although many and various forms may be used. The opposite end portions of the plates, 1 and 2, are adapted to form blades, 5 and 6, and 7 and 8, respectively.

The section, 3, of the plate, 1, is pressed out to form a substantially circular opening having a laterally extending flange, 9, around its edge adapted to form a hub for the fan and the central portion of the plate, 4, is likewise pressed out to form an opening of slightly greater diameter than the opening through the plate, 1, and having a laterally extending flange, 10, around its edge adapted likewise to form a hub for the fan. The flange, 9, is then fitted into the flange, 10, so that the central sections, 3 and 4, are in substantial contact thereby forming a hub of a double thickness of the metal and preferably, 9 and 10, are each cylindrical in form and telescope one within the other and the contacting parts, 3 and 4, or the flanges, 9 and 10, respectively or both may be connected to each other in any suitable manner as by welding or soldering, etc.

Each of the blades, 5, 6, 7, and 8, are preferably notched or grooved upon their opposite edges at substantially the points where they meet the central sections, 3 and 4, respectively for the purpose of facilitating the deflecting of the blades as hereinafter described, and these blades preferably widen as they extend outwardly from the central sections and are preferably each provided with a pair of reinforcing ribs, 11 and 12, respectively, gradually diverging as they extend outwardly from the sections, 3 and 4, respectively and formed by pressing up portions of the blades and of the central sections, 3 and 4, and the central section, 3, is preferably provided with opposite pairs of spaced grooves or channels, 13 and 14, respectively for interlocking engagement with the ends of the ribs, 11 and 12, respectively on the blades, 7, and 8.

The edge —15— of each of the blades 5, 6, 7, and 8 is deflected laterally to the same side of the united central sections 3 and 4, the desired angle to produce the maximum or desired efficiency in fluid movement and the edge —16— of the blades 7 and 8 is deflected laterally in the opposite direction, a distance substantially equal to the thickness of the center section 3 so that these edges will lie in substantially the same plane as the undeflected edges of the blades 5 and 6, extending from the central section —3.

It will be apparent that with the form of the invention here illustrated in which the hub is entirely upon one side of the central sections, 3 and 4, that preferably the blades are deflected entirely to the same side of the plane of the central section; nevertheless, I do not limit myself to that construction as the blades may be deflected to either side of the plane of the central sections, 3 and 4, or so as to extend upon both sides of that plane with any relative arrangement without affecting the operativeness of the invention, or departing from the spirit of the same as set forth in the appended claims.

In Fig. 6, I have illustrated a fan of six blades constructed in accordance with this invention, by utilizing three crossed or interengaged plates, each plate constituting two blades of the fan and having hubs nest-

ed or telescoped in the same manner as illustrated in the former figures and it should be understood that fans of this invention may be constructed with any number of blades desired, which number may be odd or even, without departing from the spirit of this invention as also set forth in the appended claims.

What I claim is:

1. A fan comprising separate blade forming members having portions in contact provided with interengaging ribs and grooves, and telescoping portions extending substantially perpendicular to said contacting portions.

2. A fan comprising separate blade forming members having portions in contact with each other in substantially the plane of rotation of the fan, and portions disposed at substantially right angles to the plane of rotation of the fan and coacting to form a hub.

3. A fan comprising separate blade-forming members having portions in contact with each other and telescoping portions extending substantially perpendicular to said contacting portions.

4. A fan comprising separate blade-forming members having portions in contact, and telescoping cylindrical portions having their axes at right angles to the planes of the contacting portions.

5. A fan composed of cross plates having telescoping portions coacting to form a hub, said plates having their ends deflected substantially wholly to that side of the plane of one end of the hub upon which the hub is located.

6. A fan composed of crossed-plates having telescoping hubs.

7. A fan composed of crossed-plates, each plate provided with a laterally extending flange, one of said laterally extending flanges telescoping within the other.

8. A fan composed of separate plates lying in intersecting planes, each plate having a hub, said hubs telescoped.

In witness whereof I have hereunto set my hand this 31st day of August, 1914.

WILLIAM SPARKS.

Witnesses:
LILLIAN WUNDERLICH,
W. B. PATCH.