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A. L. LAMBERT

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FAN

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Fig. 1.

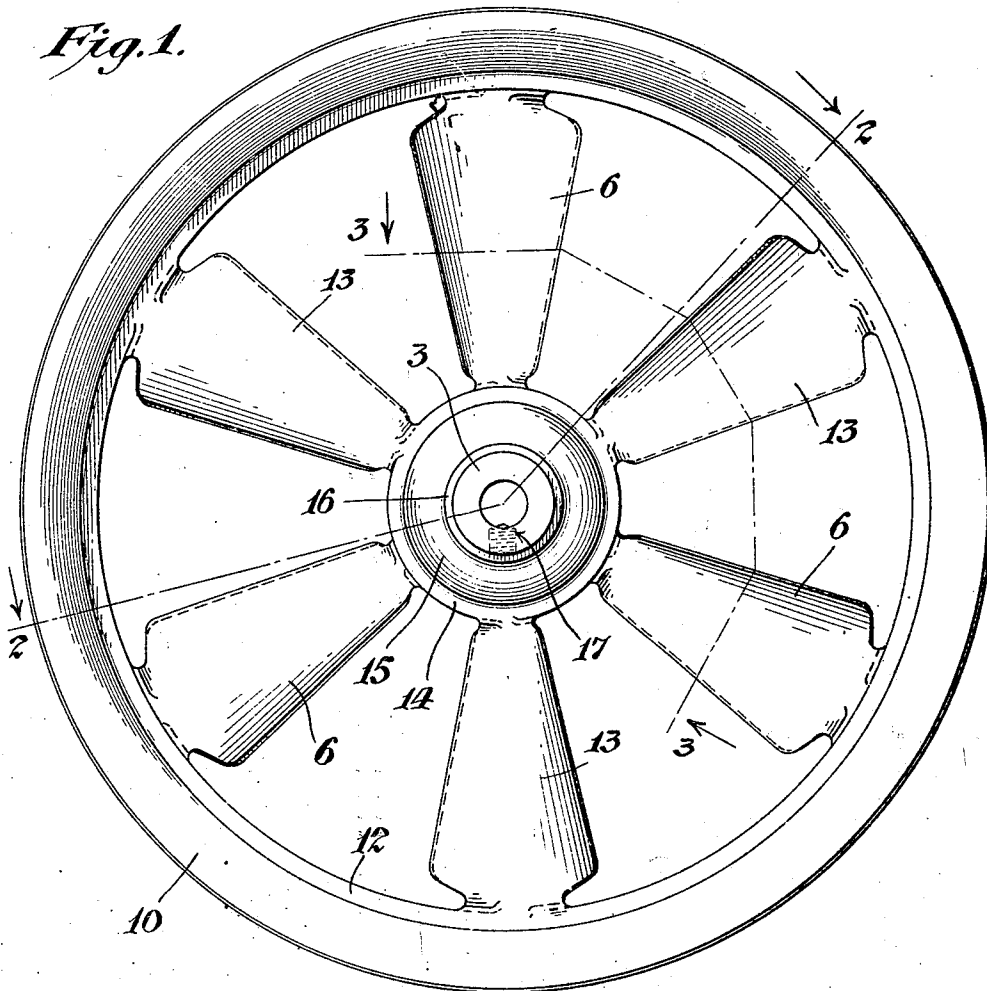


Fig. 2.

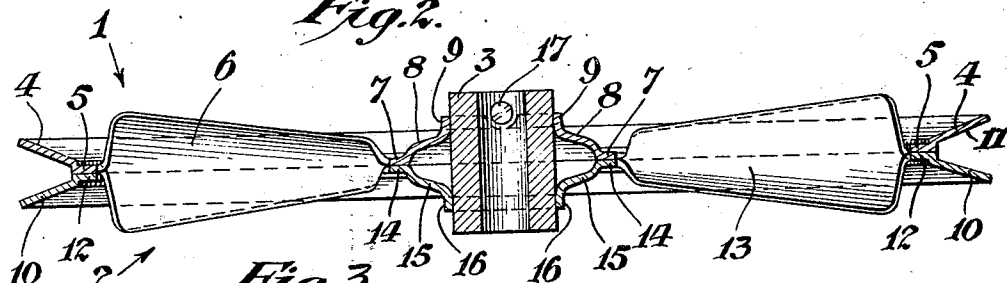
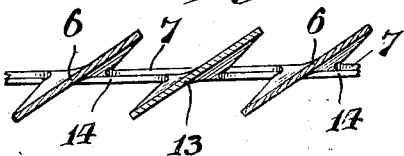


Fig. 3.



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FAN.

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This invention relates to fans, and more particularly relates to revolving fans of the type employed on motor vehicles to cause a strong draft of air through the radiator of the engine.

The principal object of my invention is to provide a fan which is especially well suited for use in connection with radiators of internal combustion engine cooling systems, to cause a strong draft of cooling air through the radiator, characterized by simplicity, lightness, durability and efficiency. A further object of my invention is to provide a fan of the character described constructed of a very few number of parts, which, in the main, comprise sheet metal stampings or pressings. A further object of my invention is to provide a fan built up of sheet metal stampings or pressings, which require but little time and expense to produce and which may be assembled readily, easily and inexpensively. Other objects of my invention will be in part obvious and in part pointed out hereinafter.

In accordance with my invention, I construct the fan of two similar sheet metal stampings and a hub. These stampings are exactly alike. They are disk-shaped, and are so formed that the fan is completed by securing two of these stampings together flatwise, one reversed with respect to the other, and securing them to a suitable hub.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings, forming a part of this application and illustrating one possible embodiment of my invention. Referring to the drawings, Fig. 1 is a front view of a fan embodying my invention; Fig. 2 is a sectional view thereof and is taken on the angular line 2—2 of Fig. 1, across the fan; and Fig. 3 is a sectional view thereof taken across the blades on the angular line 3—3 of Fig. 1. Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring to the drawings, the fan consists of two similar sheet metal stampings or pressings 1 and 2 suitably secured to a hub 3, the hub preferably being turned. Each of the stampings 1 and 2 supplies one transverse half of the inner and outer rims and pulley groove of the fan. Each stamping also provides one-half of the number of

blades. For instance, stamping 1 provides the pulley groove wall 4, outer rim side 5, three of the blades, 6, half 7 of the inner rim, and an annular leg 8, which ends in an annular flange 9, which seats against and is secured to the hub 3 on one side of the fan. The other stamping 2, which is exactly the same as the stamping 1, except that it has been turned about and rotated with respect to stamping 1, supplies the other half 10 of the pulley groove 11, the other half 12 of the outer rim, the other three blades 13, the other half 14 of the inner rim, and has a similar annular leg portion 15, which ends in an annular flange 16, which seats against and is secured to the hub 3 on the other side of the fan. The two similar stampings may be secured together very firmly and conveniently by welding the outer and inner rim halves together. These sections may also be secured to the hub very easily and securely by welding the flanges 9 and 16 thereto.

The hub 3 may be provided with a conventional threaded perforation 17 for a set screw, whereby the fan may be secured in place on a shaft or the like.

The blades of the fan may be positioned at the correct or desired deflecting angle by the stamping operation.

It will be noted that the rims are of double thickness, but that the blades are only of single thickness; thus lightness is secured in the blades, which do not need to be structurally strong, and strength is secured at the rims and where the attachment is made to the hub, at which places strength and rigidity are desired. The blades being integral at both ends with the rim portions are firmly and securely held in place.

From the above it will be apparent that a multitude of the stampings can be made easily and quickly, and that it is a very simple matter to place and secure two of these stampings together and attach a hub thereto to produce a fan which is ready for use. The necessity of applying rims and blades as separate elements is entirely avoided. The blades serve as spokes between the rims. Thus the outer rim and pulley groove wall of each section is strengthened and braced at three points equidistantly spaced from each other. In a complete fan there are six such spokes supporting the pulley groove and outer rim.

As many changes could be made in the above construction and as many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:—

1. In a fan of the character described, circumferentially aligned blades and a two-ply rim, some of the blades being in one piece with one ply of the rim and other blades being in one piece with the other ply of the rim.

2. In a fan of the character described, circumferentially aligned blades and a two-ply rim, alternate blades being in one piece with one ply of the rim and intermediate blades being in one piece with the other ply of the rim.

3. In a fan of the character described, circumferentially aligned blades, a two-ply rim at the outer ends of the blades, and a two-ply rim at the inner ends of the blades, some of the blades being in one piece with one ply of each rim and other blades being in one piece with the other ply of each rim.

4. In a fan of the character described, circumferentially aligned blades, a two-ply rim, some of the blades being in one piece with one ply of the rim and other blades being in one piece with the other ply of the rim, and a pulley groove wall integral with each ply of the rim.

5. In a fan of the character described, circumferentially aligned blades, a two-ply rim at the outer ends of the blades, a two-ply rim at the inner ends of the blades, some of the blades being in one piece with one ply of each rim and other blades being in one piece with the other ply of each rim, and an annular forked hub attachment portion, one fork of said portion being in one piece with one ply of the inner rim and the other fork of said attachment portion being in one piece with the other ply of said inner rim.

6. In a fan of the character described, circumferentially aligned blades, a two-ply rim at the outer ends of the blades, a two-ply rim at the inner ends of the blades, some of the blades being in one piece with one ply of each rim and other blades being in one piece with the other ply of each rim, an annular forked hub attachment portion, one fork of said portion being in one piece with one ply of the inner rim and the other fork of said attachment portion being in one piece with the other ply of said inner rim, and a pulley groove, one wall of

the pulley groove being in one piece with one ply of said outer rim and the other wall of the pulley groove being in one piece with the other ply of said outer rim.

7. A fan of the character described, built up of two similar disk-shaped sheet metal stampings secured together flatwise, and a hub to which said stampings are secured, each stamping including some of the fan blades complete, the blades of each section in circumferential alignment with the blades of the other section.

8. A device for the purpose specified, which comprises a pair of sheet metal wheel sections secured together back to back and which are provided with bent out complete blades and with angularly flared flanges around their peripheral edges, said flared flanges arranged to be matched together to form a circumferential pulley groove, the blades of each section being in circumferential alignment with the blades of the other section.

9. A flywheel of sheet metal construction consisting of two identical wheel sections and provided with pressed out complete fan blades, the blades of each section being in circumferential alignment with the blades of the other section.

10. A flywheel of sheet metal construction consisting of two identical wheel sections, each of which is provided with one-piece pressed out fan blades and a belt groove around the peripheral edge of said wheel which is formed by cooperating rim portions of the sections, the blades of each section being in circumferential alignment with the blades of the other section.

11. A fan, comprising a pair of circular disks slotted from the center out toward the periphery and distorted to provide integral fan blades which provide a relatively great number of fan blades of relatively great width, the blades provided by each disk being in circumferential alignment with the blades provided by the other disk.

12. A fan, comprising a pair of circular disks that are cut from the center out toward the periphery and the metal intervening between the cuts obliquely distorted while the metal of the two disks along the periphery is flanged outwardly, the said two disks being fitted together with the distorted portions forming integral blades of relatively large width and the fan's peripheral portion matched together to form a belt groove, the blades formed by each disk being in circumferential alignment with the blades formed by the other disk.

This specification signed this 3rd day of February, 1926.

ALBERT L. LAMBERT.