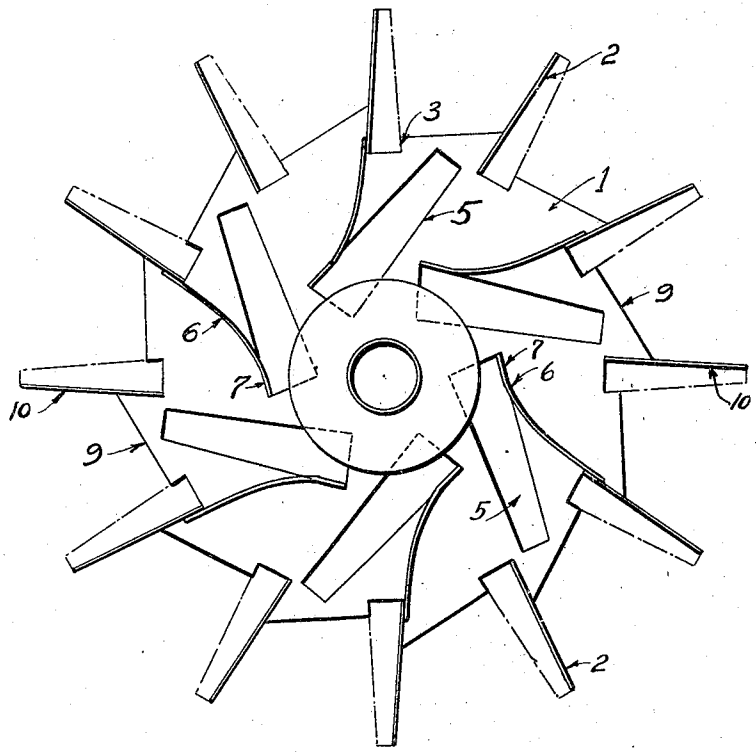
Sept. 25, 1923. 1,469,086

N. H. HENDERSON

CENTRIFUGAL FAN AND METHOD OF MAKING THE SAME

Filed July 15, 1921

Fig. 1.



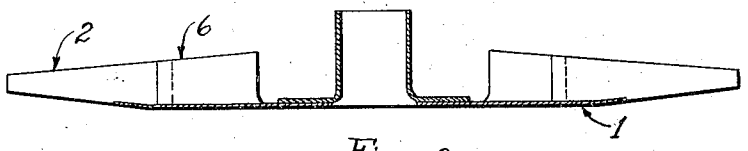


Fig. 2

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BY

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Patented Sept. 25, 1923. 1,469,086

UNITED STATES PATENT OFFICE.

NELSON H. HENDERSON, OF SYRACUSE, NEW YORK.

CENTRIFUGAL FAN AND METHOD OF MAKING THE SAME.

Application filed July 15, 1921. Serial No. 485,127.

To all whom it may concern:

Be it known that I, NELSON H. HENDERSON, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Centrifugal Fan and Method of Making the Same, of which the following is a specification.

This invention has for its object a centrifugal fan which is particularly simple in construction, economical in manufacture and highly efficient and durable in use, and the method of producing the same.

The invention consists in the novel features, and in the method hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a face view of a fan embodying my invention.

Figure 2 is a cross sectional view taken centrally on Fig. 1.

This fan comprises generally, a body discoidal in general form and formed with oblong slots inclined outwardly crosswise of radii of the body and terminating short of the edge of the body and blades or inner blade sections integral with the body and formed from the portions displaced to form the slots, the blades being arranged edgewise relatively to the body and out of alinement with the slots, and each being joined to the body at the inner ends of one of the long sides of one of the slots, each slot separating the blades along one long side of the blade, the two ends, and part way along the other long side from the outer end toward the inner end of the long side, these blades diverging out of line with the slots from the juncture of said blades with the body. The body is also provided with outwardly extending integral prongs arranged edgewise relatively to the body, the inner ends of the prongs being secured to the outer ends of said blades. The prongs constitute outer blade sections.

The method consists in forming a discoidal body 1 with outwardly extending prongs 2, slitting the body at 3 in line with one long edge of the prongs at 4 and across the inner ends of the prong, bending the prongs 2 into a position edgewise relatively to one face of the body 1, slitting the body to outline a series of slots 5 inclined relatively to radii of the body and extending crosswise of the radii of the prongs 2, the slits separating each portion or flap enclosed thereby along the ends, one long side and part way along the other long side of said portions or flaps from the outer ends thereof toward the inner ends, displacing said flaps and thereby providing the slots 5, arranging said portions or flaps 6 edgewise relatively to the body, bending the free ends of said portions or flaps toward the radial prongs 2 about the junctures 7 connecting said portions or flaps with the body and thereby forming blade sections and connecting the outer ends of said blades 6 to the inner ends of the prongs 2.

The prongs when bent edgewise relatively to the body constitute outer blade sections and the portions or flaps constitute inner blade sections, the inner ends of the blades along the junctures 7 extend in the direction of rotation of the fan and form scoops on the intake side of the fan. As the slots 5 terminate short of the edge of the body bracing strips 9 are provided between the blades. That is the body is not divided by the slots. Also, owing to the arrangement of the slots curved blades having scoops at their inner ends are provided.

The body 1 is also provided with additional blades 10 between the blades 2. A suitable hub is attached by welding or otherwise to the body 1.

This fan is particularly advantageous in that it is stamped entirely from sheet metal and the inner blade sections are curved relatively to the outer blade section, although formed from straight slots formed in the body of the fan.

What I claim is:

1. A sheet metal fan having a discoidal body formed with oblong slots inclined relatively to radii of the body and terminating short of the periphery of the body and integral blades arranged edgewise relatively to the body and out of alinement with the slots, said blades being formed by the portions displaced to form the slots, the slots separating the blades from the body along the ends, one long side and part way along the other long side from the outer end of such blades toward their inner ends, substantially as and for the purpose described.

2. A sheet metal fan having a discoidal

body formed with oblong slots inclined relatively to radii of the body and terminating short of the periphery of the body, and integral blades arranged edgewise relatively to the body and out of alinement with the slots, said blades being formed by the portions displaced to form the slots, the slots separating the blades enclosed by the walls thereof from the body along the ends, one long side and part way along the other long side from the outer end of such portion toward the inner end, their outer portions extending in radial lines toward the juncture of said blades with the body and thereby providing blades curved at their inner ends and radially at their outer ends, substantially as and for the purpose specified.

3. A sheet metal fan having a body discoidal in general form and formed with outwardly extending outer blade sections arranged edgewise relatively to one side of the body and extending beyond the periphery of the body, and inner blade sections secured to the body and arranged edgewise relatively to said side and secured at their outer ends to the inner ends of the outer blade sections, substantially as and for the purpose set forth.

4. A sheet metal fan having a body discoidal in general outline and formed with radially extending outer blade sections arranged edgewise relatively to the plane of one side of the body and extending beyond the periphery of the body, and inner blade sections secured to the body at their inner ends out of radial alinement with the outer blade sections and having their outer end portions arranged in alinement with the outer blade sections and secured thereto, substantially as and for the purpose described.

5. A sheet metal fan having a body discoidal in general outline and formed with outwardly extending outer blade sections arranged edgewise relatively to the body and with oblong slots extending crosswise of lines extending lengthwise of the outer blade sections, and inner blade sections formed from the portions displaced to form the slots, the slots separating the inner blade sections along the end walls, one side wall and part way along the other long side walls from the outer ends of the slots toward the inner ends, said blades being arranged edgewise relatively to the body and out of alinement with the slots from the junctures of the inner ends of said inner blade sections with the body at the inner end of one long side of the slot, and the outer ends of said inner blade sections being secured to the inner ends of the outer blade sections whereby the inner blade sections are curved to form scoops at their inner ends, substantially as and for the purpose specified.

6. The method of forming a centrifugal fan consisting in slitting a discoidal blank to outline a series of oblong slots inclined relatively to radii of the body, separating each portion enclosed thereby from the body along the ends, one long side and part way along the other long side from the outer end thereof toward the inner end, displacing said portions out of the slots and arranging them edgewise relatively to the body and bending the free ends of said portions toward radial lines of the body substantially at the juncture of said portions with the body and thereby providing curved blades, substantially as and for the purpose set forth.

7. The method of forming a centrifugal fan consisting in forming a discoidal blank having outwardly extending prongs, slitting the edge of the blank in line with one long side of each prong and across the inner end of each prong, bending the prongs into a position edgewise relatively to the blank, slitting the blank to outline a series of oblong slots inclined relatively to radii of the body extending lengthwise of the prongs, these slits separating each portion enclosed thereby from the body along the ends, one long side and part way along the other long side from the outer end thereof toward the inner end, displacing said portions out of the slots and arranging them edgewise relatively to the body, bending the free ends of said portions toward the radial lines of the prongs about the junctures of said portions with the body and securing the outer ends of said portions to the inner ends of the prongs, substantially as and for the purpose described.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 20th day of April, 1921.

NELSON H. HENDERSON.