

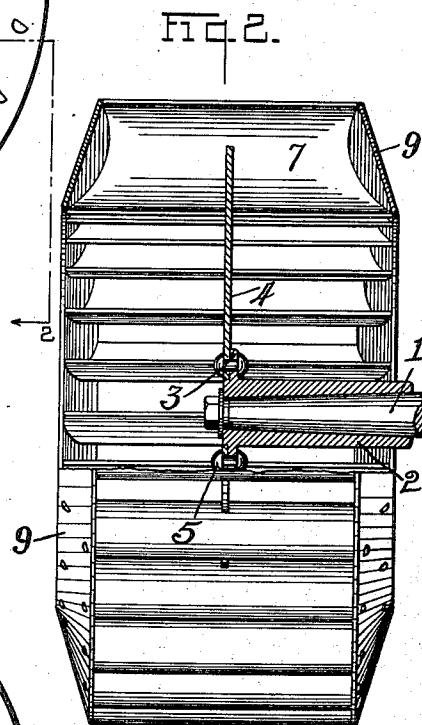
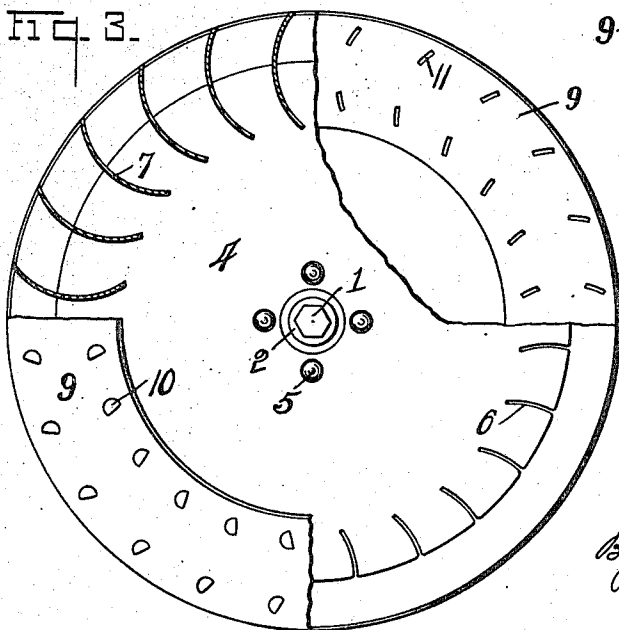
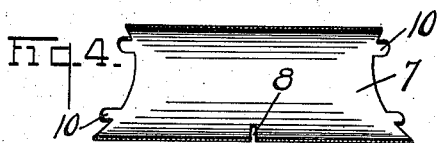
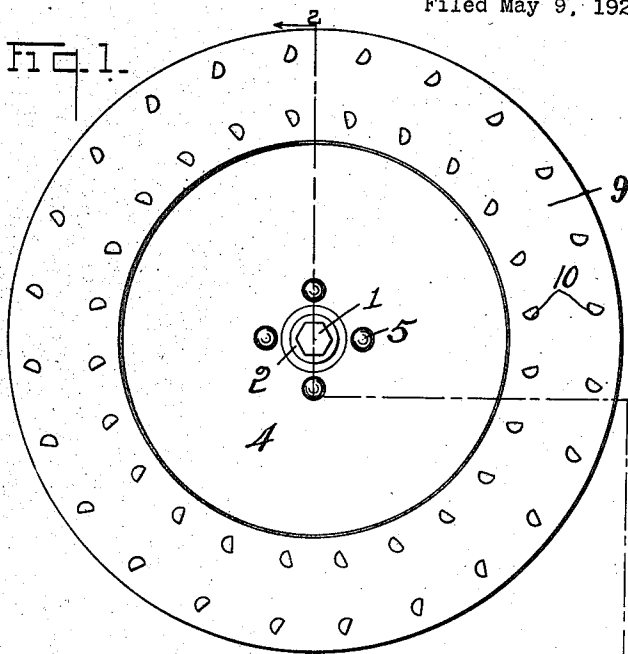
June 26, 1923.

G. E. OTIS

1,459,927

FAN

Filed May 9, 1921



INVENTOR

Serald E. Otis.

By Owen Owen Crampton,
Attys.

UNITED STATES PATENT OFFICE.

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FAN.

Application filed May 9, 1921. Serial No. 468,201.

To all whom it may concern:

Be it known that I, GERALD E. OTIS, a citizen of the United States, and a resident of Moline, in the county of Rock Island and State of Illinois, have made an invention appertaining to Fans; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to fans of either the blowing or suction type and is particularly designed and intended for use in connection with ventilators of the forced draft type, such for instance as described and claimed in my copending application No. 459,642, filed April 8, 1921.

The object of my invention is the provision of a fan of the character described which is cheap, simple, strong and rigid in its construction and capable of having the parts thereof quickly and easily assembled, and which does not embody the use of rivets, bolts or screws in its blade assembly.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of a fan embodying the invention. Fig. 2 is a sectional view thereof on the line 2—2 in Fig. 1. Fig. 3 is a side elevation of the fan with different parts broken away and removed, and Fig. 4 is a side view of one of the blades.

Referring to the drawings, 1 designates a shaft having a sleeve 2 fixedly mounted thereon and forming the hub member of the fan. This sleeve is provided at its outer end, in the present instance, with an annular flange 3 to which a disk 4 is rigidly secured by rivets 5, or in any other suitable manner.

The disk 4 is provided in equi-distantly spaced relation around its periphery with a set of inwardly extending slots 6 into which the inner edges of the blades 7 are fitted, preferably centrally of their ends. Each

blade is provided with a notch or slot 8 at its inner edge adapted to register with the disk slot in which the blade is disposed, and to straddle the inner end wall of such slot. The disk 4 and blades 7 are preferably stamped from sheet metal and the slots 6 and 7 therein correspond in width to the gauge of the metal so that the parts are closely interfitted together. The outer edges of the blades preferably project a distance beyond the periphery of the disk 4.

The blades 7 are disposed between end rings or annular members 9, also of sheet metal, which in width or radial depth preferably correspond to the width of the blades, thereby providing large central openings at each side of the fan, or of the disk 4, for the entrance of air to the fan. The blades 7 and side rings 9 are rigidly secured together in a simple, rigid and efficient manner by providing each blade at its ends with one or more integral ears or spurs 10 and providing each side member 9 with corresponding slots or openings 11 for receiving the ears 10 of a blade end. The ears are adapted to closely fit the openings 11 and to project through and beyond the same, being bent over at the outer sides of the side members to rigidly unite the blades and side members, the ears for this purpose being of a bendable nature. In the present embodiment of the invention the blades 7 are shown as inwardly curved and the side members 9 as being oppositely inclined relative to the diametrical plane of the disk 4, so that the spaces between the side members are gradually outwardly restricted.

It is evident that with my fan construction the parts may be easily and quickly assembled and may be stamped from sheet steel and sheridized or galvanized after assembling to protect them and to fill them up and tighten the joints; that the manner of assembling the parts provides a rigid, cheap, durable and easily and quickly assembled construction without the use of rivets, bolts or the like, except in the present instance between the disk 4 and hub, and that the construction and manner of assembling permits any of the parts to be easily replaced.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is ca-

pable of numerous modifications and changes without departing from the spirit of the claim.

Having thus described my invention, what
5 I claim as new and desire to secure by Letters Patent, is,—

10 In a fan of the class described, a hub, a disk axially secured to the hub and projecting radially therefrom, said disk having a set of equidistantly spaced inwardly projecting slots provided in its periphery entirely around the same, a set of blades of curved form in cross-section each having a centrally disposed slot in its inner edge and

adapted to enter a slot of the disk with its 15 slot straddling the inner end wall of the disk slot, and annular side members disposed at the outer ends of the blades in rigid stud and slot connection therewith, the side members being spaced at their inner 20 edges from the hub and each extending outwardly at an incline to a radial plane whereby the spaces between the members are narrowed outwardly from the inner 25 edges of the side members.

In testimony whereof I have hereunto signed my name to this specification.

GERALD E. OTIS.