A. MATHIS.

FAN BLOWER.

APPLICATION FILED APR. 9, 1906.

952,993. Patented Mar. 22, 1910.

Fig. 1.

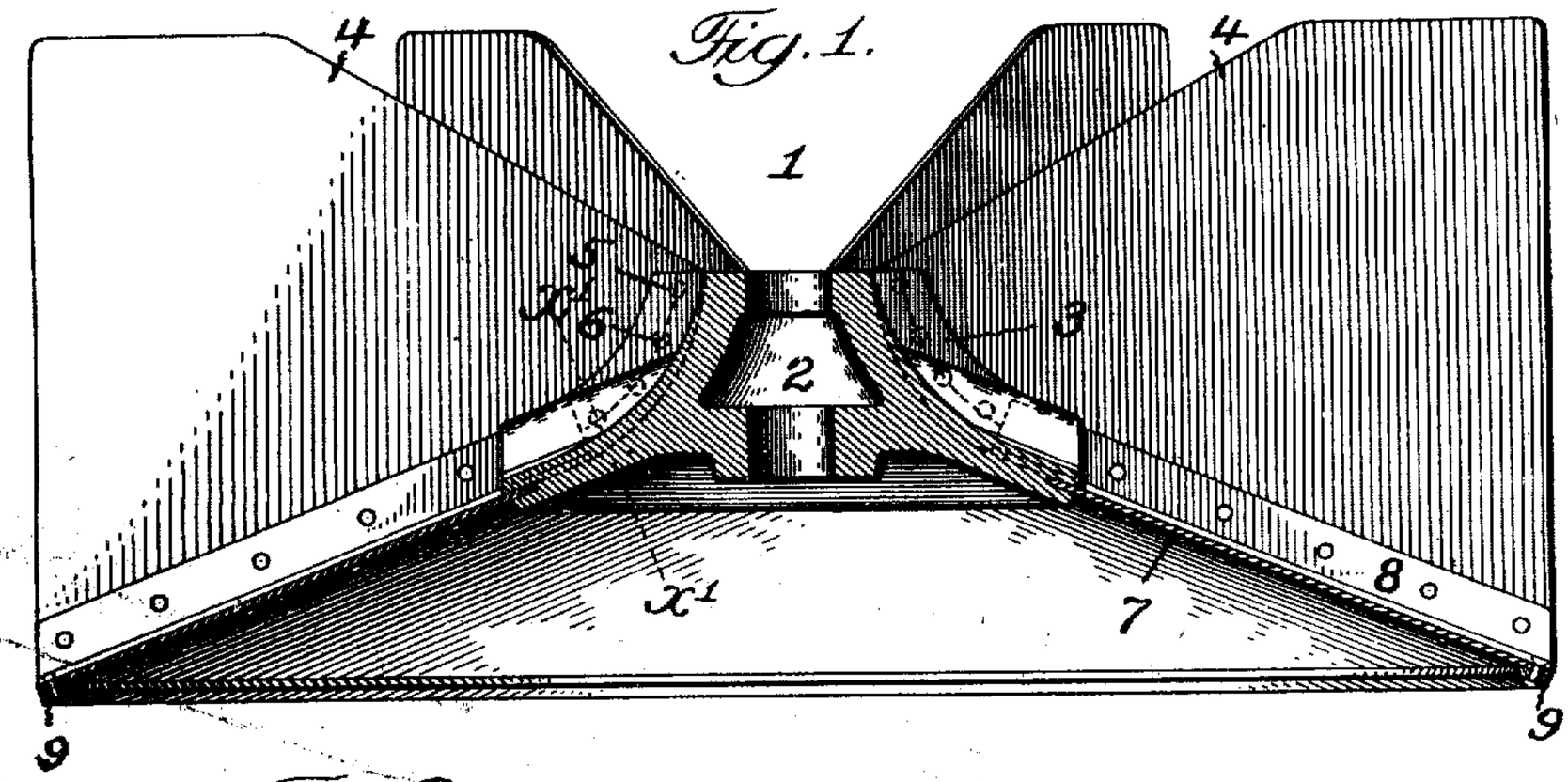

Fig. 2.

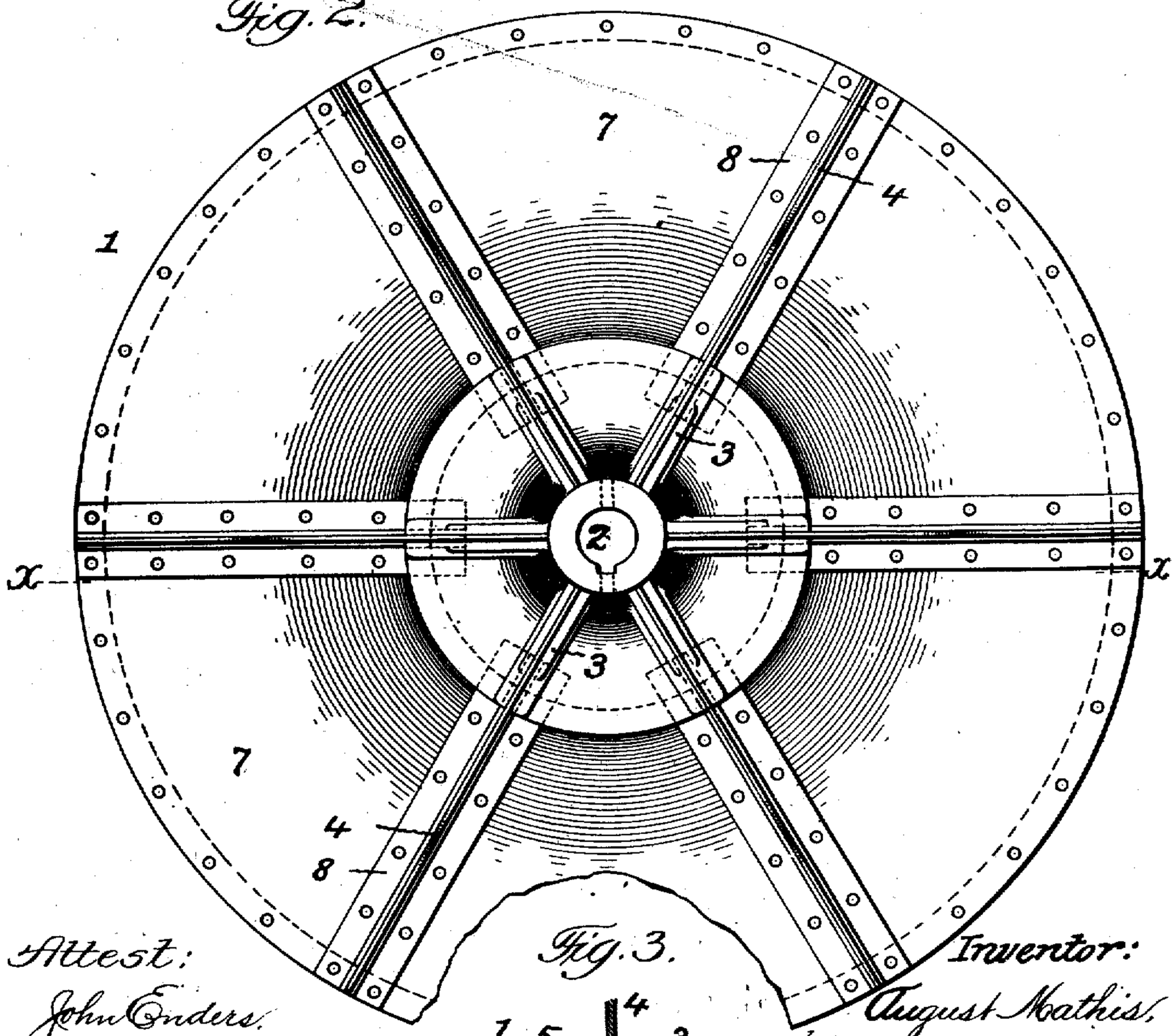

Fig. 3.

Attest:

John Enders.

M. H. Holmes.

Inventor:

August Mathis.

by

Robert Burns

Attorney.

UNITED STATES PATENT OFFICE.

AUGUST MATHIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO MATHIS BROTHERS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF INDIANA.

FAN-BLOWER.

952,993. Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed April 9, 1906. Serial No. 310,569.

To all whom it may concern:

Be it known that I, AUGUST MATHIS, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fan-Blowers, of which the following is a specification.

This invention relates to fan blowers, and more especially to the exhaust type of such blowers; and has for its object to provide a simple and efficient structural formation and combination of parts in the rotary member of a fan whereby a plane and smooth surface is attained on the active face of said member to avoid a serious defect in fan members as usually constructed, to wit: the clogging up of the fan by fibrous material passing through the fan; and which at the same time provides a very strong, durable and economical connection of the component parts of the fan member to each other, all as will hereinafter more fully appear.

In the accompanying drawings:—Figure 1 is a transverse section on line *x*—*x* Fig. 2 of the fan member of a blower having the present invention applied. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged detail section, on line *x*—*x*, Fig. 1.

Similar numerals of reference indicate like parts in the different views.

Referring to the drawings:—1 is the rotary fan member of a blower, adapted to revolve within a fan casing of any usual construction, and preferably of the form having a single inlet trunk or opening in its front wall. 2 is the carrying hub of said fan member, having the usual concave and cone form shown in Fig. 1; such hub, in the present invention is provided on its concaved and conical periphery with a series of pairs of integrally formed ribs 3, arranged in separated relation to form a series of intermediate recesses for the reception of the inner ends of the series of radially arranged vanes or blades of the fan member, as hereinafter more fully set forth.

4 are the vanes or blades of the fan member, formed of plate metal, with their inner edges fitted to the aforesaid recesses between the ribs 3; near such attaching edges, the said vanes or blades are formed with a series of orifices 5, adapted to receive cross studs 6 integral with the ribs 3.

In the present invention the assemblage of the above parts is effected by casting the carrying hub 2, the ribs 3, and the studs 6, upon and through the vanes or blades 4, while the latter are properly supported in a mold of suitable construction.

7 is a circular conical annulus of plate metal secured at its inner edge to the outermost edge of the hub 2 in the casting process before described, and so that the metal of the hub will embrace the side edges of said annulus in manner illustrated in Fig. 1 to afford rigid and substantial connection of the parts.

8 are a series of angle bars forming connections between the annulus 7 and the vanes or blades 4, and riveted to such parts in the usual manner to afford a rigid and substantial attachment of the parts together. In the preferred construction of the present invention, the inner ends of said angle bars 8 are embedded in the metal of the hub 2, as illustrated in Figs. 1 and 3, during the casting operation before referred to, so as to afford a strong and economical attachment between the parts.

9 is a ring of metal secured to the annulus 7, near its periphery, with a view to impart lateral stiffness thereto.

With the present construction a strong and durable attachment of the parts is attained in a ready and economical manner, and at the same time a smooth surface is provided on the active face of the carrying hub 2, with an entire avoidance of the usual projecting bolts or rivets heretofore employed to attach the parts together, and upon which passing fibrous material would catch to clog up the blower and render the same inoperative to a greater or lesser degree. Another feature of merit in the present improvement, is that all centrifugal stress is imposed on the wrought metal outer parts of the fan member, and in consequence can be provided against with a maximum amount of strength and a minimum amount of weight of the parts.

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

1. A rotary fan member comprising, a cast metal hub having a tapering periphery and provided with a plurality of pairs of integrally formed ribs on said periphery,

and a series of plate metal fan blades secured at their inner ends between pairs of said ribs by casting the hub and ribs upon said blades.

2. A rotary fan member comprising, a cast metal hub having a tapering periphery and provided with a plurality of pairs of integrally formed ribs on said periphery, and a series of cross-studs between each pair of ribs, and a series of plate metal fan blades formed with a series of orifices for the reception of the studs aforesaid, said blades being secured at their inner ends between pairs of said ribs by casting the hub, ribs and studs upon said blades.

3. A rotary fan member comprising, a cast metal hub having a tapering periphery and provided with a plurality of pairs of integrally formed ribs on said periphery, a conical annulus forming an extension of the hub, and a series of plate metal fan blades secured at their inner ends between pairs of said ribs by casting the hub and ribs upon said blades and annulus.

4. A fan member for blowers, comprising a concave cone shaped cast metal hub having pairs of integrally formed ribs on its surface in separated relation to form a series of recesses, a conical annulus at the outermost edge of the hub, a series of plate metal blades, angle bars connecting the annulus and vanes together, the annulus, blades and angle bars being attached to the hub along their entire inner ends in the manner described.

Signed at Chicago, Illinois, this 7th day of April 1906.

A. MATHIS.

Witnesses:
ROBERT BURNS,
M. H. HOLMES.