

No. 773,548.

PATENTED NOV. 1, 1904.

W. A. CROSS.
FAN OR BLOWER.

APPLICATION FILED AUG. 1, 1903.

NO MODEL.

Fig. 1.

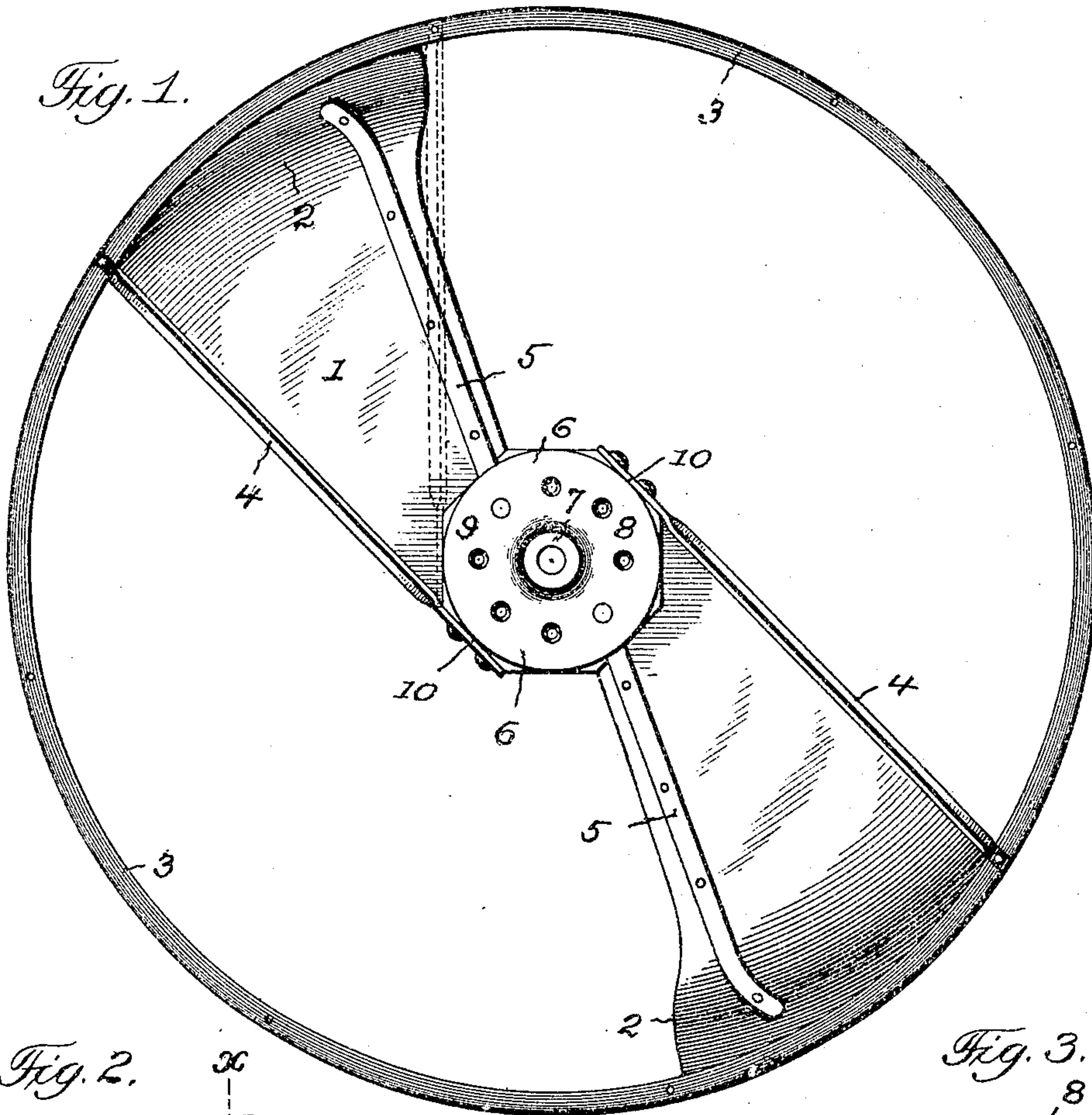
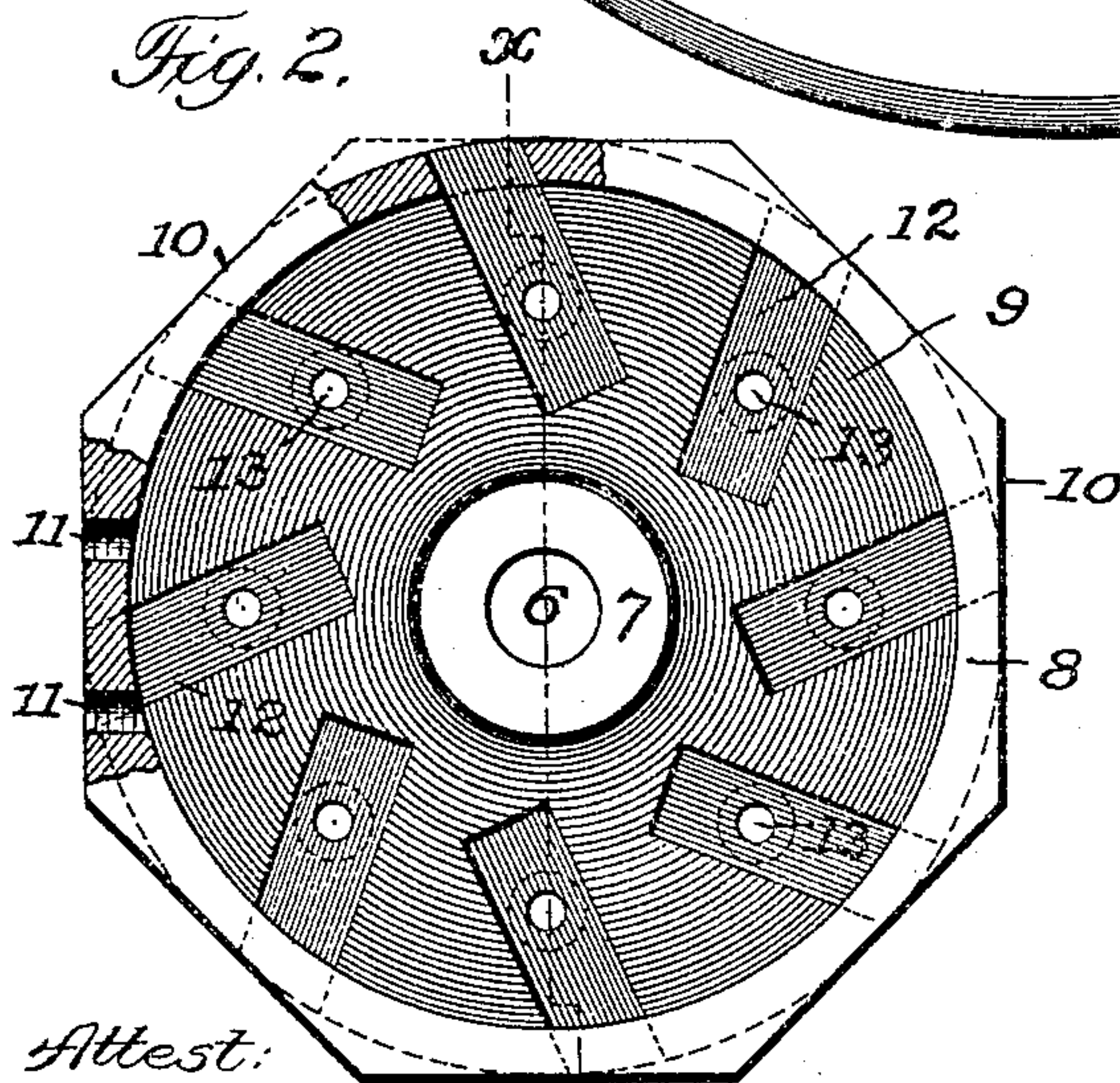


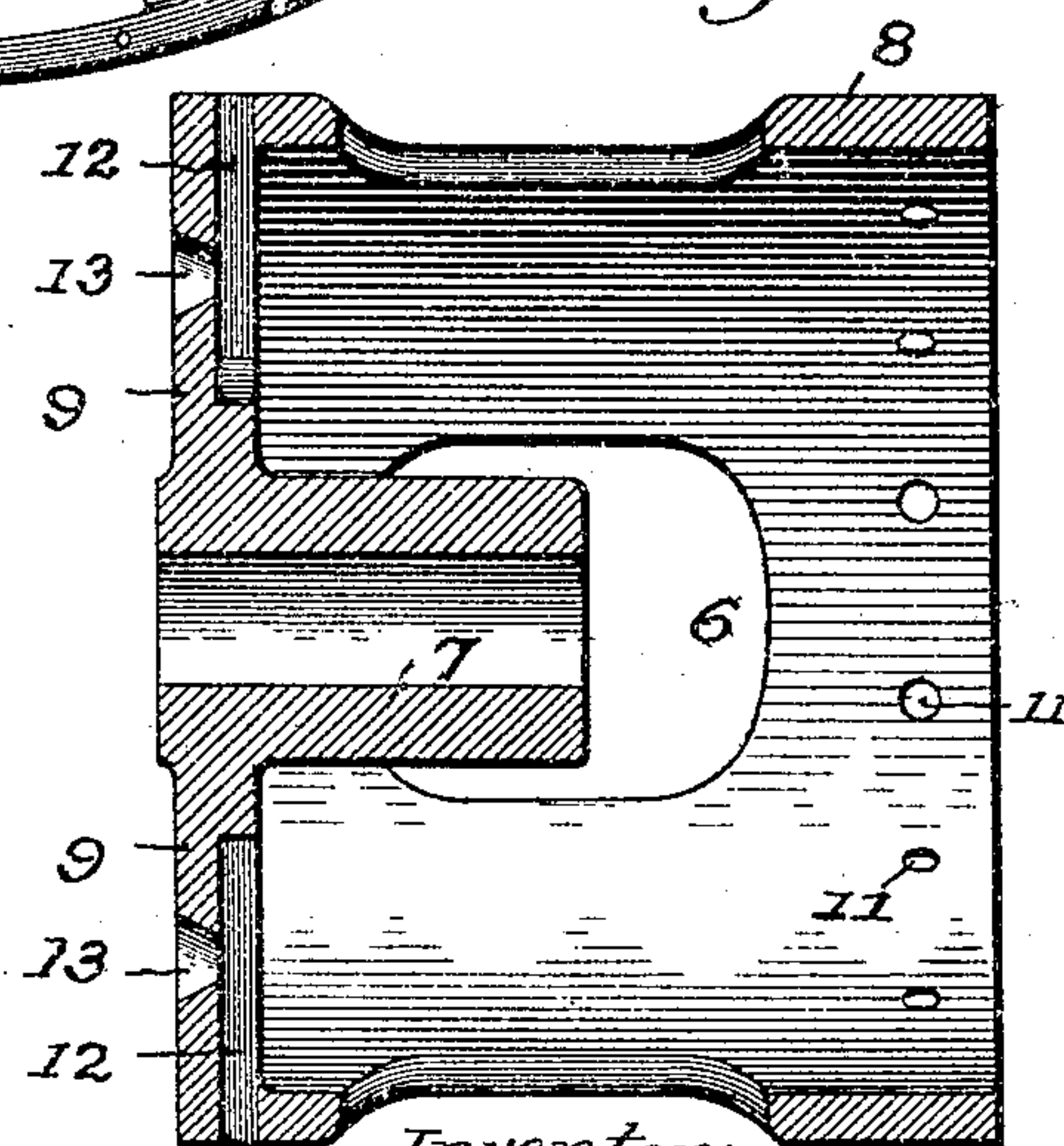
Fig. 2.



Attest:

John Enders,
M. H. Holmes.

Fig. 3.



Inventor:
William A. Cross,
by Robert Burns
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM A. CROSS, OF CHICAGO, ILLINOIS.

FAN OR BLOWER.

SPECIFICATION forming part of Letters Patent No. 773,548, dated November 1, 1904.

Application filed August 1, 1903. Serial No. 167,824. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. CROSS, 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 Fans or Blowers, of which the following is a specification.

The present invention relates to the rotary fan form of air-movers, and has for its object to provide a simple and effective construction and arrangement of parts whereby the series of individual fan-blades are secured to the central hub or carrier in a manner which insures the proper pitch or inclination of the fan-blades and affords lightness and strength of parts with an economical and substantial connection of the parts together, the construction at the same time affording a ready detachment and replacement of a disabled part, all as will hereinafter more fully appear, and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is a front elevation of a fan embodying the present invention, all but two of the blades being removed for the sake of affording a better illustration of the present construction. Fig. 2 is an enlarged end elevation of the central carrying-hub, with parts broken away and in section. Fig. 3 is an enlarged longitudinal section of the same at line *x x*, Fig. 2.

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

Referring to the drawings, 1 represents the series of radial inclined fan-blades and each comprising a triangular plate of metal set at an incline to the plane of rotation and formed with a curved flange 2, which is adapted to confine the air moving through the fan against outward radial discharge, to thereby increase the efficiency of the fan.

3 is an outer ring secured to the margins of the flanges 2 aforesaid and adapted to hold the fan-blades in proper relative position.

4 represents tie-bars extending tangentially from a central hub, hereinafter described, to the rim 3 aforesaid with their outer ends secured to said rim by rivets or other like fastening means. Such tie-bars are adapted to

maintain the ring 3 in proper concentric relation to the central carrying-hub of the fan and at the same time form supports for one of the sides of the fan-blades, which are secured to said tie-bars by a series of rivets or other like fastening means.

5 represents bars or shanks extending tangentially from the central hub aforesaid and attached to the faces of the fan-blades 1 near the sides of said blades which are opposite to the sides at which the aforesaid tie-bars 4 are secured.

6 is the central carrying-hub, which in the present invention consists of a central annular sleeve 7 for attachment to the motor or other driving-shaft, an outer sleeve 8, concentric with said annular sleeve 7, and a connecting-web 9 at one end, as shown in Figs. 2 and 3.

10 represents a series of facets formed on the periphery of the aforesaid outer sleeve 8 and at the end of the same opposite to the connecting-web 9. Such facets are adapted for the tangential attachment of the inner ends of the tie-bars 4, which are secured in place by screws or rivets passing through said bars and through orifices 11 in said outer sleeve.

12 represents a series of tangential sockets or recesses formed partly in the outer sleeve 8 and partly in the end connecting-web 9 of the central hub. Such recesses are adapted for the tangential attachment of the inner ends of the series of bars or shanks 5 before described and which are secured in place by screws or rivets passing through said bars and through orifices 13 in the end connecting-web 9, as shown.

With the described construction and arrangement of parts the proper position of the bars 4 and 5, as well as the proper angle of the fan-blades 1, is efficiently and readily attained in an assemblage of the parts with the avoidance of any great labor or fitting of the parts. At the same time the construction permits of the easy removal and replacement of a disabled part when such contingency arises.

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

1. A fan-blower comprising in combination,

a series of fan-blades having two series of inner attaching-shanks arranged in separated relation, a central carrying-hub provided with facets at one end for the tangential attachment of one series of said shanks, and with tangential sockets at the other end for the tangential attachment of the other series of said shanks, and attaching-bolts for securing said shanks in place, substantially as set forth.

10 2. A fan-blower comprising in combination, a series of fan-blades having two series of inner attaching-shanks arranged in separated relation, a central carrying-hub comprising outer and inner sleeves in separated relation

and integrally connected together by a web 15 at one end, the said hub being provided with facets at one end for the tangential attachment of one series of said shanks, and with tangential sockets at the other end for the tangential attachment of the other series of 20 said shanks, and attaching-bolts for securing said shanks in place, substantially as set forth.

Signed at Chicago, Illinois, this 29th day of July, 1903.

WILLIAM A. CROSS.

Witnesses:

ROBERT BURNS,
M. H. HOLMES.