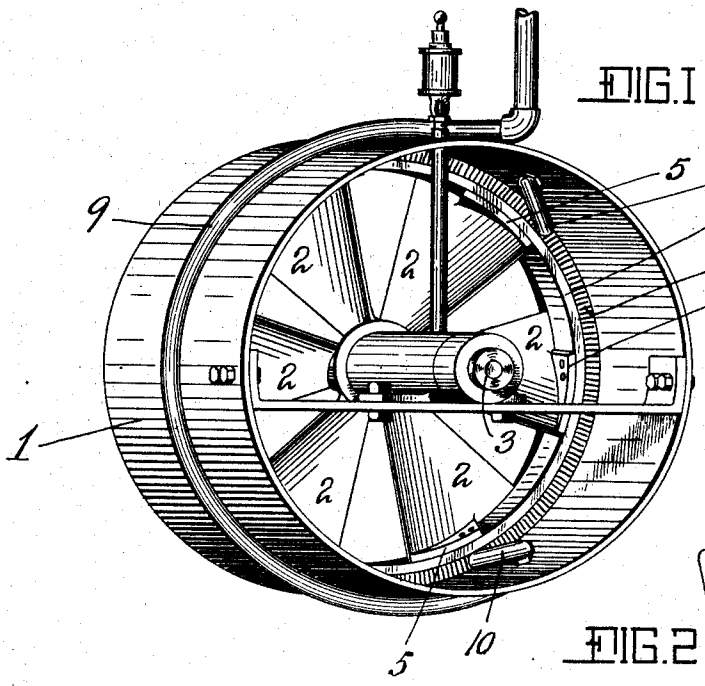
No. 864,400. PATENTED AUG. 27, 1907.

L. J. WING.

TURBINE FAN.

APPLICATION FILED FEB. 1, 1907.

FIG. 1



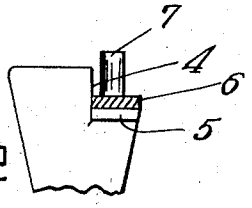
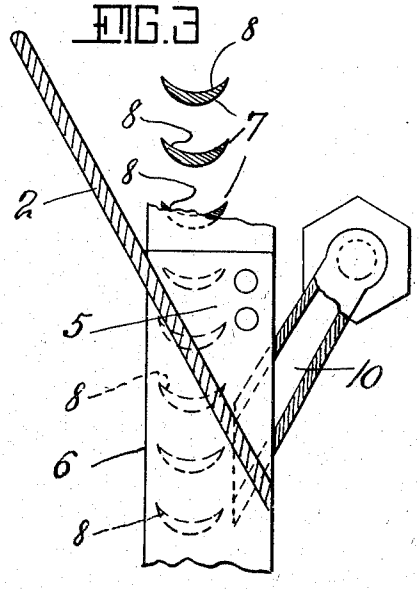


FIG. 2

FIG. 3



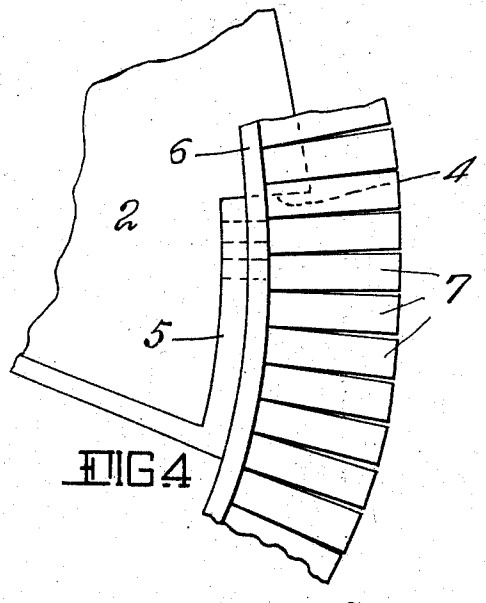


FIG. 4

Witnesses

Evan Konigsberg

E. C. Nicol

Levi J. Wing Inventor

By his Attorney

Arthur V. Beeken

UNITED STATES PATENT OFFICE.

LEVI J. WING, OF EAST ORANGE, NEW JERSEY.

TURBINE-FAN.

No. 864,400. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed February 1, 1907. Serial No. 355,292.

To all whom it may concern:

Be it known that I, LEVI J. WING, a citizen of the United States of America, and a resident of East Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Turbine-Fans, of which the following is a specification.

The present invention relates generally to fans, and has more particularly reference to a combined fan and turbine motor.

The chief object of the invention is to produce a structure combining a fan, or air current producer, and a turbine motor of such a character that the exhaust steam from the turbine will mingle with the air current produced by the fan, so that the combined air and steam may be utilized for the purpose of a forced draft device for boilers, etc.

Another object is to produce a combined structure of the character set forth, simple and inexpensive in its construction.

To this end the invention comprises the features of construction, combination of parts and arrangement of elements hereinafter set forth.

In the drawings the invention is embodied in a concrete and preferred form, but changes of construction may of course be made without departing from the legitimate and intended scope of the invention.

In the said drawings: Figure 1 is a perspective view of a combined fan and turbine embodying my invention. Fig. 2 is a detail view of a portion of one of the vanes showing the recessed portion and supporting shoulder. Fig. 3 is an edge view in section of one of the vanes showing the arrangement of the buckets and the steam nozzle. Fig. 4 is an enlarged detail view of the outer portion of one of the vanes.

Similar characters of reference indicate corresponding parts in the different views.

1 indicates a casing, of any suitable construction, within which is mounted a plurality of vanes 2 on shaft 3 for producing or creating a current of air in a direction parallel to the axis of rotation of the vanes. Each vane is provided at its periphery with a recessed portion 4 and a supporting shoulder 5. Mounted upon these supporting shoulders within the recessed portion is a circumferential bucket-supporting member 6 having the buckets 7. These buckets are curved in cross section and stand so that the plane of the impact surfaces 8 is substantially parallel to the axis of rotation of the vanes.

9 indicates the steam supply pipe having the nozzles 10 or other means for causing the steam to impinge on the buckets.

When steam is supplied through the nozzles aforesaid, it will impinge on the impact surfaces of the buckets and will thereby cause the rotation of the fan. The steam after striking the buckets will then exhaust into the casing and be taken up by the current of air created by the fan.

In place of steam, compressed air or any other impelling fluid may be used. The claims should be construed accordingly.

What I claim is:

1. In a fan, the combination of a plurality of rotatable vanes having each a recessed portion at its periphery and a supporting shoulder adjacent to the recessed portion, a circumferential bucket supporting member mounted on said shoulders within the recessed portion, and buckets carried thereby.

2. In a fan, the combination of a casing, a plurality of rotatable vanes within said casing having each a recessed portion at its periphery and a supporting shoulder adjacent to the recessed portion, a circumferential bucket supporting member mounted on said shoulders within the recessed portion, and buckets carried thereby.

3. In a fan, a casing, a plurality of rotatable vanes, within said casing for creating a current of air, having each a recessed portion at its periphery and a supporting shoulder adjacent to the recessed portion, a circumferential bucket supporting member mounted on said shoulders within the recessed portion, buckets carried thereby, and means for causing a jet of steam to impinge upon the buckets aforesaid, whereby the exhaust steam will be taken up by the current of air created.

4. In a fan, a casing, a plurality of rotatable vanes, within said casing for creating a current of air in a direction parallel to the axis of rotation of the vanes, having each a recessed portion at its periphery and a supporting shoulder adjacent to the recessed portion, a circumferential bucket supporting member mounted on said shoulders within the recessed portion, buckets carried thereby, the plane of whose impact surfaces is substantially parallel to the axis of rotation, and means for causing a jet of steam to impinge upon the buckets aforesaid, whereby the exhaust steam will be taken up by the current of air created.

Signed at East Orange, New Jersey this 26th day of January 1907.

LEVI J. WING.

Witnesses:
B. L. RIDER,
AXEL V. BEEKEN.