W. J. A. LONDON.

TURBINE BLADING.

APPLICATION FILED OCT. 1, 1913.

1,178,452. Patented Apr. 4, 1916.

Fig. 1.

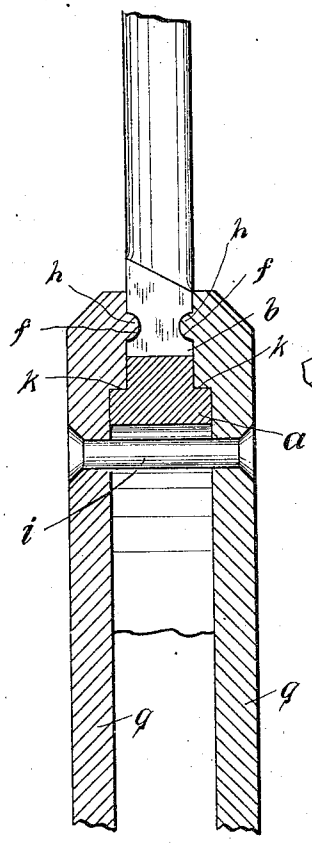


Fig. 2.

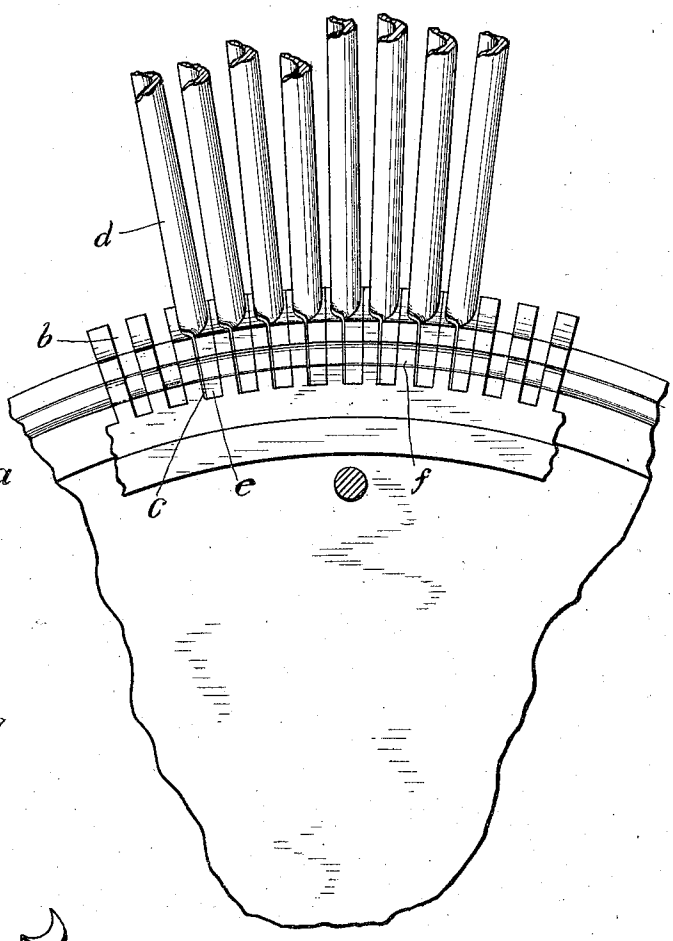
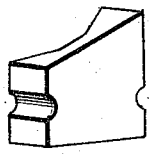


Fig. 3.



Fig. 4.



WITNESSES:

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WILLIAM J. A. LONDON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE TERRY STEAM TURBINE COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TURBINE-BLADING.

1,178,452. Specification of Letters Patent. Patented Apr. 4, 1916.

Application filed October 1, 1913. Serial No. 792,775.

To all whom it may concern:

Be it known that I, WILLIAM J. A. LONDON, a subject of the King of England, and resident of Hartford, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Turbine-Blading, of which the following is a specification.

This invention relates to a novel means for securing blades or vanes to the rotor of a turbine.

In the drawings—Figure 1 is a transverse sectional view of part of a rotor showing the blade-fastening means. Fig. 2 is a side view thereof with one of the side plates removed. Figs. 3 and 4 are detail views showing the blade roots and packing pieces.

Referring to the drawings *a* denotes the rim of the rotor which may be a continuous ring or may be of segments butted end to end. This rim is transversely slotted in its outer periphery as at *b* to receive the roots *c* of the blades *d*, and usually packing pieces *e*, it being understood that the roots have flat front and irregular rear faces, the packing pieces fitting in back of the roots and filling the slots *b*.

When all of the blades and packing pieces have been assembled on the rim, circumferential grooves *f* are cut in the rim, roots and packing pieces at both sides. Side plates *g*, *g*, having beads *h*, *h*, which fit in the grooves *f*, *f*, are next applied and clamped to the rim in any convenient manner as by the headed pins *i*. The rim is provided with circumferential side shoulders *k*, *k*, to which the side plates *g*, *g*, are fitted to withstand the centrifugal force occasioned by the rotation of the rotor.

At the center of the side plates a suitable hub may be provided by which the rotor may be mounted on a shaft. The outer ends of the blades may be shrouded in any desired manner as is usual in structures of this sort.

The securing means hereinabove described constitute an extremely strong and secure fastening which may be economically manufactured, and one in which the parts are well supported against the heavy strains to which they are subjected.

I intend to secure herein any changes or modifications in the structure which come within the scope of the appended claims.

I claim as my invention:—

1. In a blade-fastening device of the character described, a rim transversely slotted in its periphery, blades with roots located in said slots, alined grooves in the sides of said rim and the edges of said roots, plates secured to the sides of said rim, and beads thereon adapted to fit said grooves

2. In a blade-fastening device of the character described, an annular rim having transverse slots in its outer edge, laterally extending shoulders at the sides of the rim below the slots, circumferential grooves in the sides of the slotted portion of the rim, blades with their roots located in the slots and with their edges grooved in alinement with the grooves in the rim, side plates fitted to said rim and provided with shoulders adapted to engage the shoulders on the rim, and beads adapted to fit in the grooves in the rim and blade roots.

3. In a device of the character described, a shaft, a rim transversely slotted, blades with roots fitting said slots, opposed side plates fastened to the shaft and between the periphery of which said rim is located, interlocking parts on said plates and rim, and interengaging parts on said plates and roots.

4. In a blade-fastening device of the character described, a rim having its outer edge transversely slotted, blades with roots fitting in said slots, side plates located against the sides of the rim, means for holding them in position, interengaging parts on said plates and rim, packing pieces located in the slots back of the blade roots, and interlocking parts on said plates and said blade roots and packing pieces.

5. In a device of the character described, a shaft, a rim provided with lateral shoulders at its base and transversely slotted in its periphery, blades with roots fitting said slots, circumferential grooves in the sides of the slotted portion of the rim, notches in the blade roots alined with said grooves, plates secured to said shaft and supporting said rim between them, shoulders on the plates engaging the shoulders on the rim, and beads on the plates fitting in the grooves and notches in the rim and blade roots.

6. In a device of the character described, a shaft, a rim provided with lateral shoulders at its base and transversely slotted in

its periphery, blades with roots fitting said slots, circumferential grooves in the sides of the slotted portion of the rim, notches in the blade roots alined with said grooves, plates secured to said shaft and supporting said rim between them, shoulders on the plates engaging the shoulders on the rim, beads on the plates fitting in the grooves and notches in the rim and blade roots, and means located just inside of said rim for clamping said plates onto said rim.

WILLIAM J. A. LONDON.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."