O. BANNER.

TURBINE BLADING.

APPLICATION FILED AUG. 14, 1912.

1,068,622. Patented July 29, 1913.

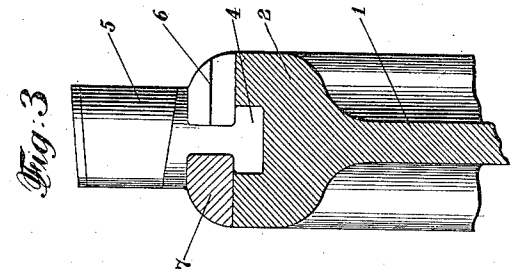

Fig. 3

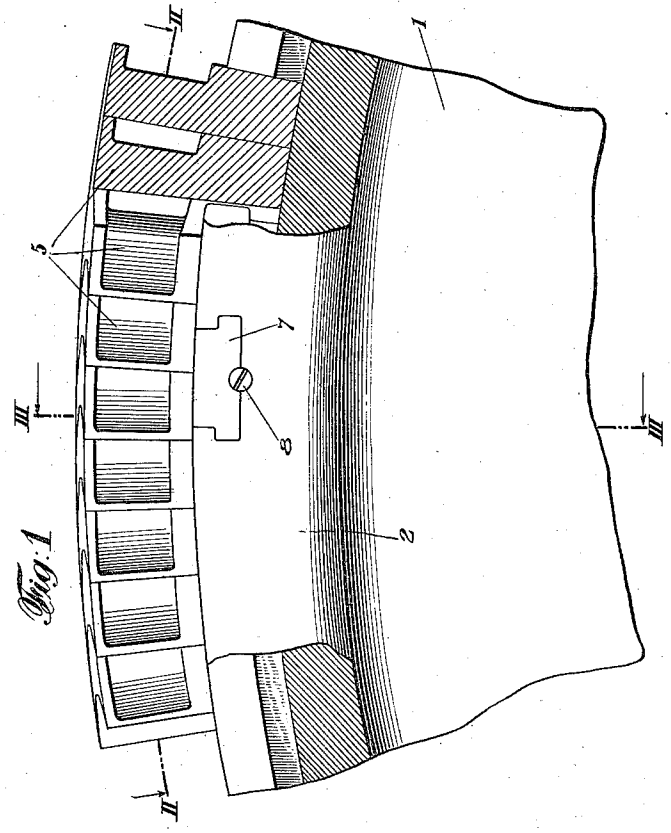

Fig. 1

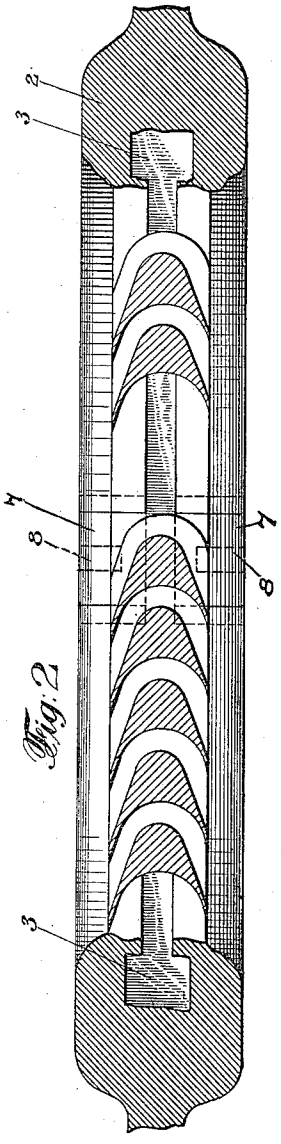

Fig. 2

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UNITED STATES PATENT OFFICE.

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TURBINE-BLADING.

1,068,622. Specification of Letters Patent. Patented July 29, 1913.

Application filed August 14, 1912. Serial No. 714,949.

To all whom it may concern:

Be it known that I, OTTO BANNER, a subject of the German Emperor, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented a certain new and useful Improvement in Securing Devices for Turbine-Blading, of which the following is a specification.

This invention relates to the construction of turbine rotors and more particularly to a means of securing the blades of such a rotor thereto.

The object of the present invention is to provide a strong and simple means for securing a series of blades in the periphery of such a rotor.

With this object in view I have devised a construction the practical embodiment of which is shown in the accompanying drawings in which—

Figure 1 shows a side elevation partly in section, of a portion of a turbine rotor embodying my invention. Fig. 2 shows a section on the line II—II of Fig. 1 and Fig. 3 shows a transverse section through the rotor on the line III—III of Fig. 1.

The rotor as shown comprises a disk 1 the outer edge of which is enlarged into a blade holding ring or rim 2 in the periphery of which, for its whole circumference is an inverted T shaped undercut slot 3 in which fit the correspondingly shaped bases 4 of the blades 5. To allow the insertion of the bases of the blades in the slot 3 a second undercut slot is made transversely across the periphery of the rim 2, this slot extending in depth to the shoulders of the peripheral slot 3 and being of slightly greater length than the depth of one of the blades. In assembling the blades in the slot, they are dropped in radially at the transverse slot 6 and moved along into the slot 3, the shoulders of the slot 3 engaging their bases and holding them against radial movement. To secure the last blade in position blade retaining blocks 7 are inserted into the slot 6 on each side of the blades. These blocks are of such a size and shape as to complete the peripheral slot 3, and their inner edges engage the bases of the last blade or blades and hold them in position. Radial movement of these blocks 7 is prevented by the fact that the slot 6 is undercut and is larger at the bottom than at the top while transverse movement is prevented by screws 8 which engage the lower part of the blocks and the rim 2. By this construction a fastening for the blades is obtained which does not depend for its resistance to the enormous centrifugal pull on the blades, on any threaded securing means, the undercut slot and retaining block fitting it providing a construction nearly as strong as an entirely continuous rim.

It is to be understood that the present showing and description discloses only one specified modification of my invention and other forms and modifications are included in the spirit and scope of the invention as expressed in the claims.

What I claim is:

1. In combination, a turbine rotor disk having an undercut slot in its periphery, and a second undercut slot transversely of said first slot and communicating therewith, blades having bases fitting in said peripheral slot, a fastening block on each side of said blades having projecting parts engaging the undercut portions of said transverse slot, and means to secure said blocks in position.

2. In combination, a turbine rotor disk having in its periphery an undercut slot with a retaining shoulder therein, and a second undercut slot transversely of said first slot and extending to the shoulder of said first slot, blades having bases fitting in said peripheral slot, and blade retaining blocks on each side of said blades, having bases of greater width than the upper parts thereof to engage the undercut portions of said transverse slot and prevent radial movement of said blocks.

In testimony whereof, I have hereunto set my hand.

OTTO BANNER.

Witnesses:

ROBERT E. KIEFFER,

GEORGE CUMBERLEDGE.

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