J. SCHMIDT.

STEAM OR GAS TURBINE WHEEL.

No. 596,792. Patented Jan. 4, 1898.

Fig. 2.

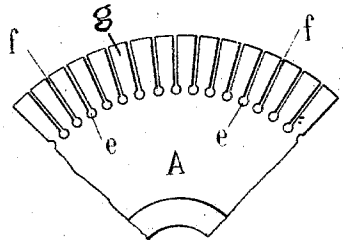


Fig. 1.

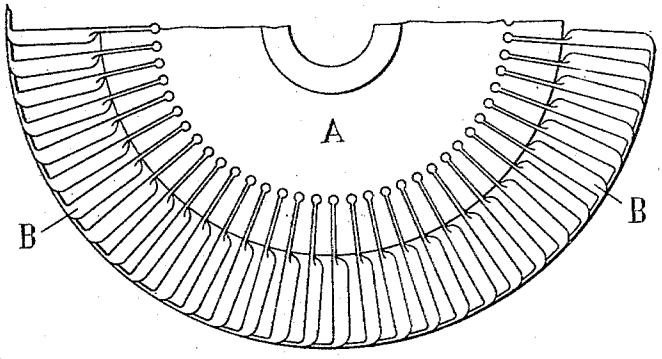


Fig. 4.

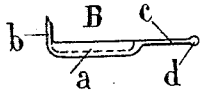


Fig. 5.

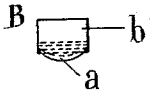
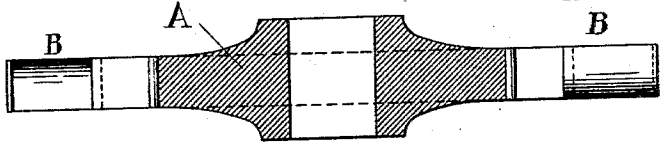


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN SCHMIDT, OF STOCKHOLM, SWEDEN.

STEAM OR GAS TURBINE WHEEL.

SPECIFICATION forming part of Letters Patent No. 596,792, dated January 4, 1898.

Application filed February 27, 1896. Serial No. 580,964. (Model.)

To all whom it may concern:

Be it known that I, JOHN SCHMIDT, a citizen of the Kingdom of Sweden, residing at Stockholm, in said Kingdom of Sweden, have invented certain new and useful Improvements in Steam or Gas Turbine Wheels, of which the following is a specification.

The present invention refers to an improvement in steam or gas turbine wheels; and it consists of a special construction of the body and of the buckets which are inserted in the body, as will be fully described hereinafter and then finally pointed out in the claims.

In the accompanying drawings, Figure 1 shows a side view of a part of a turbine wheel with its inserted buckets. Fig. 2 is a side view of a part of the wheel without the buckets. Fig. 3 is a transverse section through the turbine wheel, and Figs. 4 and 5 show a bucket in side and end view, respectively.

Similar letters of reference indicate corresponding parts.

A indicates the body of the wheel, and B the buckets. These latter each consists of a transversely concaved or curved blade *a*, an abutment, shoulder, or part *b* at its outer end for closing the bucket-compartments at the circumference of the wheel, and a thin flat elongated shank *c*. Said shank is provided at its extremity with a transverse rib or bulb *d*, while the body of the wheel is provided with radiating or approximately radiating undercut and elongated tongues *g*, all arranged in the same plane with the body of the wheel and acting to retain the buckets on the body of the wheel. Said tongues *g* are formed by making in the body of the wheel at a considerable distance from its periphery transverse holes or bores *e*, corresponding with the ribs or bulbs *d*, and from which radial or nearly radial grooves extend to the circumference of the body. The buckets are inserted one by one by introducing their shanks sidewise in the grooves or slots and the end holes or bores. The wheel may then be subjected to side pressure, if necessary, in order to cause the shanks *c* to fill up the grooves or slots *f* perfectly.

By my improved construction of turbine wheel the body can be made massive and in one piece and individual and loose buckets can be employed which can be manufactured sufficiently long and in the desired form, which is impossible when the buckets are manufactured by being cut out from a massive disk or body.

Having thus described my invention, what I claim is—

1. A body for rapidly-rotating steam or gas turbine wheels, the same consisting of an integral solid disk provided at its circumference with slots radiating from the hub of the disk and extending through the disk from side to side, the outer ends of said slots being straight and opening out through the circumference of the disk, while their inner ends are enlarged, said slots being also adapted to receive the ribs or bulbs and the shanks of separate buckets, substantially as set forth.

2. A bucket for rapidly-rotating steam or gas turbine wheels, having an elongated shank of the width of the bucket and which at its outer part is provided with a transverse rib or bulb, while between the said rib and the body of the bucket it is straight, said shank being adapted to be inserted into a correspondingly-formed slot in the body of the solid wheel, substantially as set forth.

3. In a rapidly-rotating steam or gas turbine wheel, the combination of the body of the wheel, made solid, in one piece, and provided at the circumference with radial or approximately radial slots, enlarged at their inner ends, and buckets, each having a concave part, an abutment for closing the bucket-compartment radially, and a shank provided with a transverse rib or bulb at its outer part, said buckets being adapted to be inserted into the slots in the body, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN SCHMIDT.

Witnesses:

WALDEMAR BOMAN,

HUGO PALMQUIST.