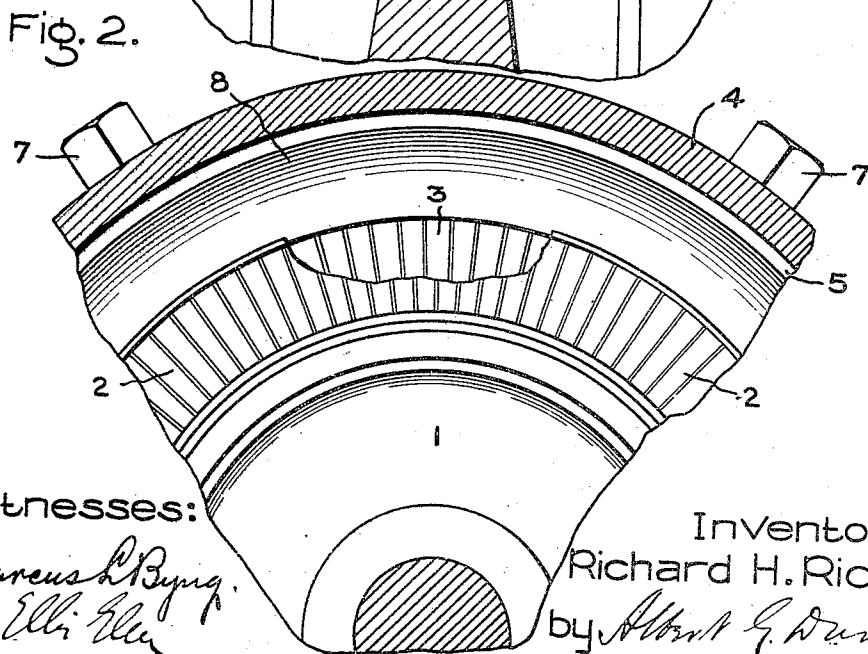
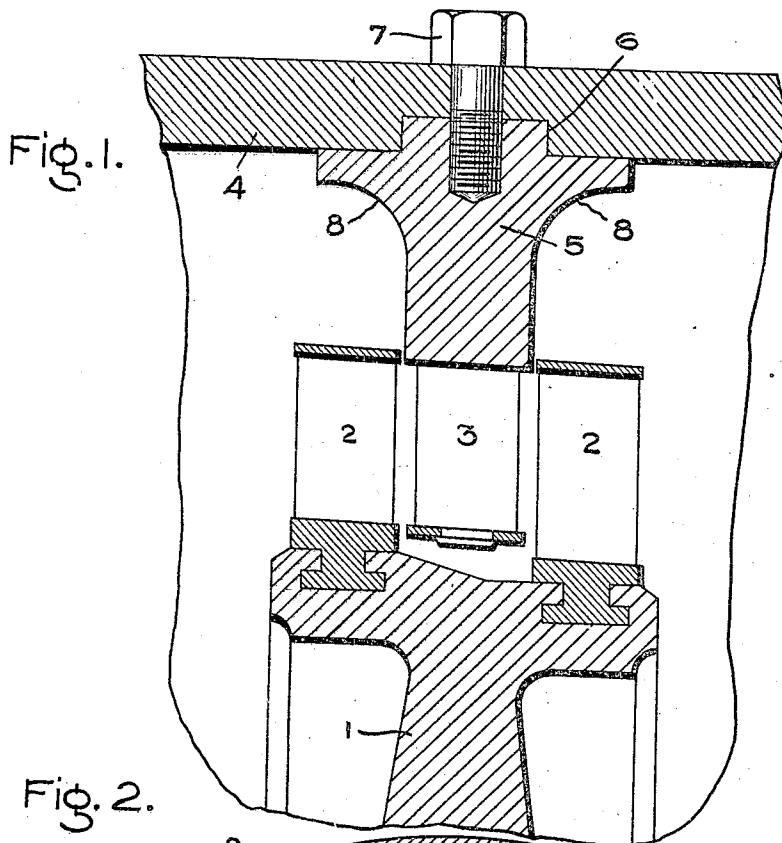


R. H. RICE.
 PREVENTING EROSION IN STEAM TURBINES.
 APPLICATION FILED SEPT. 7, 1912.

1,060,945.

Patented May 6, 1913.



Witnesses:

Marcus L. Bying.
J. Ellis Ellis

Inventor,
 Richard H. Rice,
 by *Albert G. Davis*
 Att'y.

UNITED STATES PATENT OFFICE.

RICHARD H. RICE, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

PREVENTING EROSION IN STEAM-TURBINES.

1,060,945.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed September 7, 1912. Serial No. 719,097.

To all whom it may concern:

Be it known that I, RICHARD H. RICE, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Preventing Erosion in Steam-Turbines, of which the following is a specification.

This invention relates to elastic fluid turbines, and its object is to prevent the injury caused by erosion adjacent to the intermediate buckets. The steam passing through the turbine carries more or less water, and this is thrown by centrifugal force from the ends of the rotating buckets. The water impinges upon the wall of the casing and makes its way into the joints between the shanks of the intermediate buckets and their sockets in said wall. The velocity of the particles of water causes rapid erosion of the parts against which it strikes, while the acids in the water tend to corrode said parts and rust the intermediates in their sockets, so that it becomes difficult to remove them. My invention aims to avoid these troubles by providing the intermediates with a wide base to cover the joint and by giving the sides of said base an easy concave curve, so that the water will be diverted away from the joint. Moreover I make this base of a material resistant to the corrosive and erosive action of the water, such as nickel bronze or monel metal.

In the accompanying drawings, Figure 1 is a sectional view of a portion of a turbine casing and a bucket wheel, and an intermediate embodying my invention, and Fig. 2 is a section at right angles to Fig. 1, on a smaller scale.

The bucket wheel 1 is shown as provided with two rows of buckets 2 between which are the intermediate buckets 3 mounted on the casing 4. The intermediates have a wide base 5 made of extruded metal, nickel bronze, monel metal, or the like, extending far enough on each side to catch all the water thrown off by the wheel buckets 2. The base also extends well beyond the rab-

beted joint 6 by which it is united to the casing 4, being fastened in place by screws 7. To prevent sudden impact of the water particles, and lessen the erosive effect, the sides of the base are formed with a concave curve 8 of considerable radius, so that the water will be diverted easily and gradually away from the joint and into a direction substantially parallel with the walls of the casing.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention can be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. An intermediate bucket for a steam turbine having a base provided with curved sides to divert the water coming from the wheel buckets.

2. An intermediate bucket for a steam turbine having a base wide enough to receive the water coming from two adjacent rows of wheel buckets, and concavely curved to divert said water.

3. In a steam turbine, intermediate buckets united to the casing by a rabbeted joint and having a wide base to protect said joint from the erosive and corrosive effects of water thrown off by the wheel buckets.

4. In a steam turbine, intermediate buckets united to the casing by a rabbeted joint and having a wide base to protect said joint from the erosive and corrosive effects of water thrown off by the wheel buckets, said base having its sides concavely curved to divert said water.

In witness whereof, I have hereunto set my hand this fifth day of September, 1912.

RICHARD H. RICE.

Witnesses:

JOHN A. McMANUS, Jr.,
FRANK H. JOHNSON.