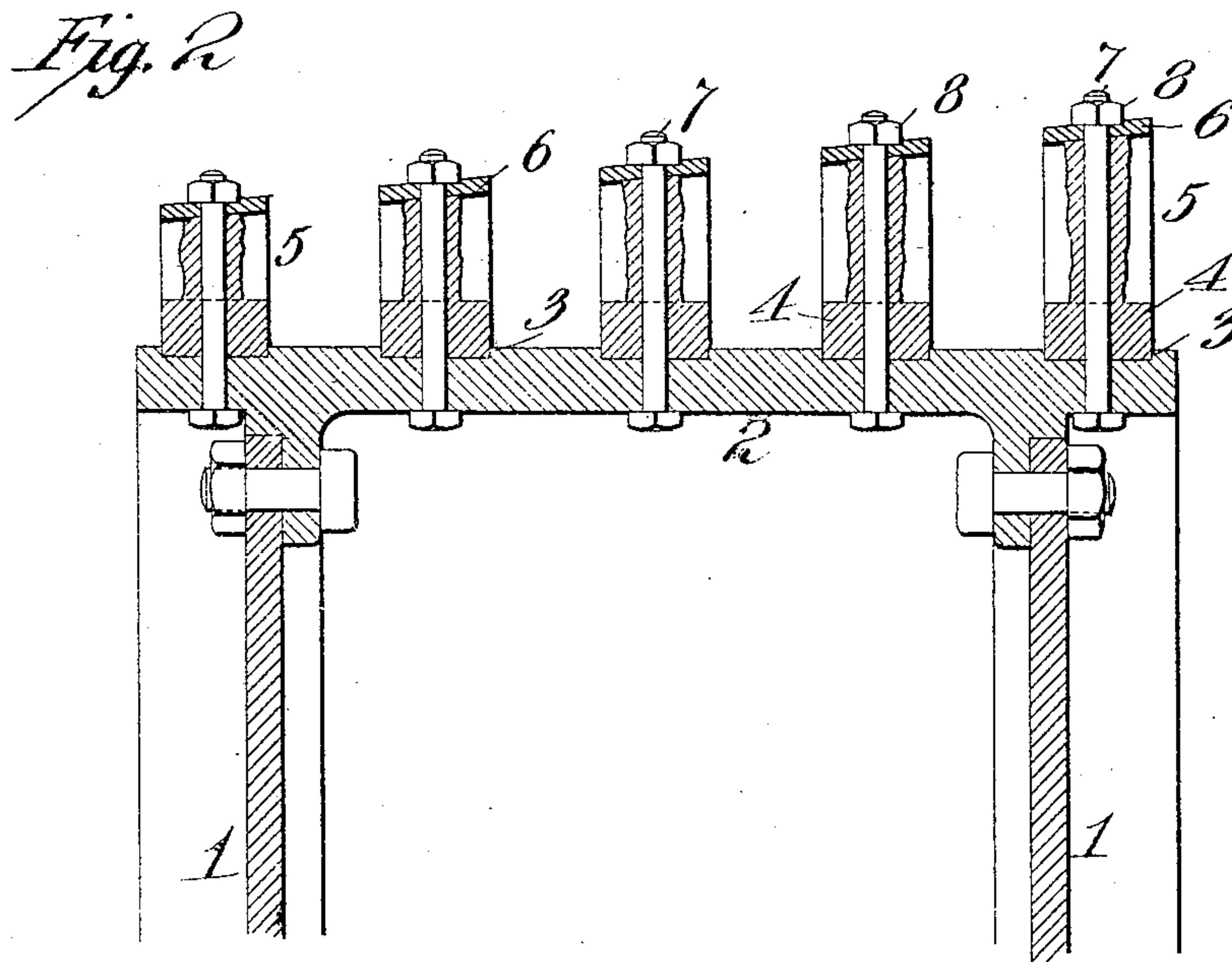
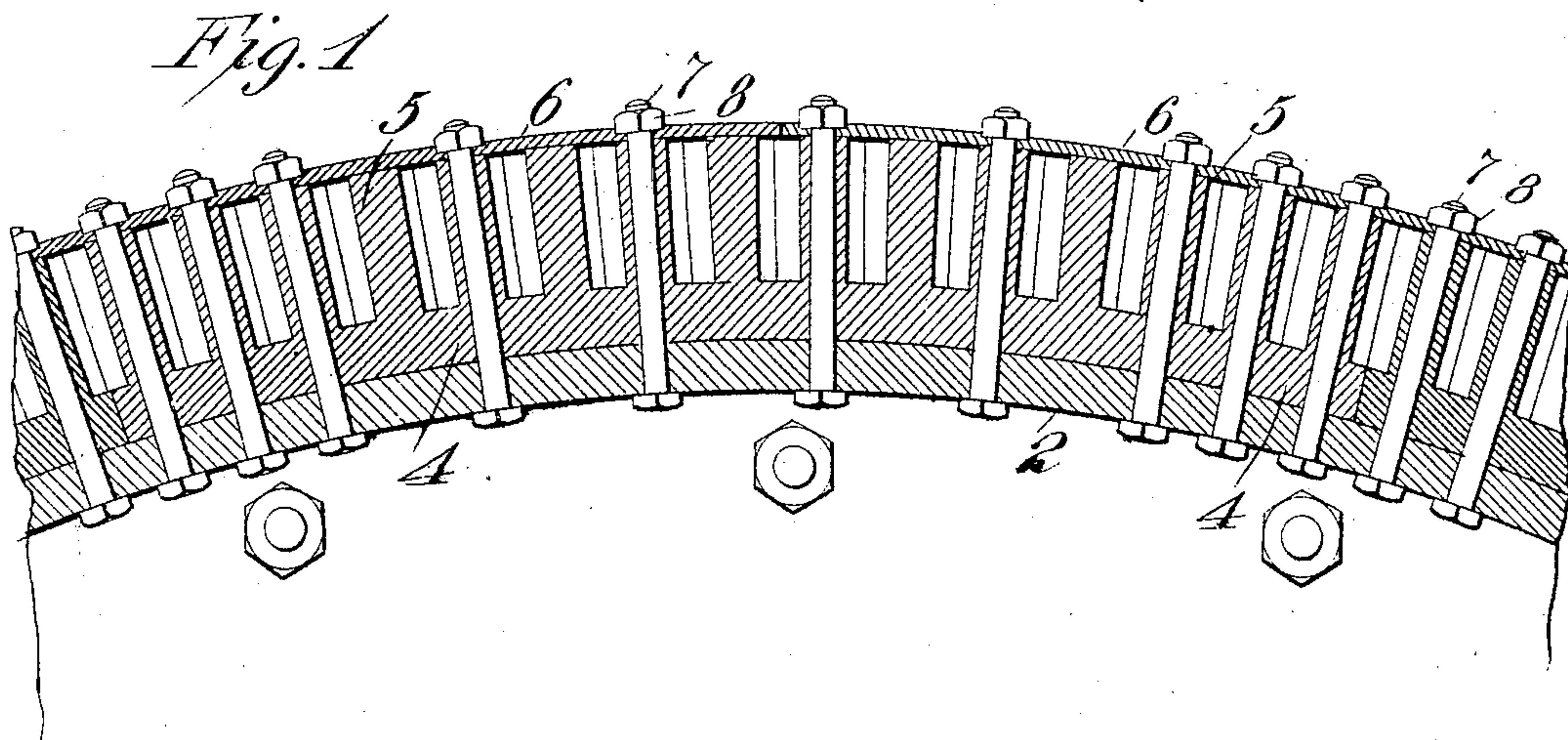


No. 779,911.

PATENTED JAN. 10, 1905.

C. G. CURTIS.
ELASTIC FLUID TURBINE.
APPLICATION FILED AUG. 1, 1902.



Witnesses:

Jas. F. Coleman
Wm. Robt. Taylor

Inventor

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UNITED STATES PATENT OFFICE.

CHARLES G. CURTIS, OF NEW YORK, N. Y.

ELASTIC-FLUID TURBINE.

SPECIFICATION forming part of Letters Patent No. 779,911, dated January 10, 1905.

Application filed August 1, 1902. Serial No. 117,959.

To all whom it may concern:

Be it known that I, CHARLES G. CURTIS, a citizen of the United States, residing in the borough of Manhattan, city of New York, State of New York, have invented a certain new and useful Improvement in Elastic-Fluid Turbines, of which the following is a description.

The object I have in view is to produce a simple and effective construction for the movable vanes of elastic-fluid turbines and for securing them in position upon the turbine-wheel.

In the accompanying drawings, Figure 1 is a radial section at right angles to the shaft through the wheel-rim and centrally through a set of movable vanes, and Fig. 2 is a radial cross-section through the wheel-rim and the several sets of movable vanes carried thereby.

1 1 are disks which form the web of the wheel, and 2 is the wheel-rim secured by bolts to said disks. The wheel-rim is cut with channels 3 on its outer surface, which channels receive the curved vane-bases 4. These vane-bases are made in suitable lengths, a number of vane-bases occupying each channel in the wheel-rim and together encircling the entire wheel. The movable vanes 5 are cut integral with the vane-bases 4 and project outwardly therefrom. The vanes are encircled by bands 6, which are also preferably made in sections. The vane-sections are secured to the wheel-rim by bolts 7, which pass from the inside of the wheel-rim through the vane-bases, through

the centers of the vanes, and through the encircling band 6 and are provided with nuts 8, placed on their outer ends. By means of these bolts and nuts 7 8 the encircling band 6 is secured to the vanes, and the vane-sections are rigidly secured in the channels in the wheel-rim.

What I claim is—

1. In an elastic-fluid turbine, the combination with a channeled wheel-rim, of disks forming the web of the wheel and secured to the rim by bolts, vane-sections formed of curved vane-bases and vanes integral with such bases and projecting outwardly therefrom, and bolts passing through the wheel-rim, the vane-bases and the vanes and securing the vane-sections to the wheel-rim, substantially as set forth.

2. In an elastic-fluid turbine, the combination with a channeled wheel-rim, of vane-sections formed with curved bases 4 and vanes 5 integral with such bases and projecting outwardly therefrom, an encircling band 6, and bolts 7 passing radially through the wheel-rim, the vane-base, the vanes and the encircling band, securing the band upon the vanes and securing the vane-sections to the wheel-rim, substantially as set forth.

This specification signed and witnessed this 25th day of July, 1902.

CHARLES G. CURTIS.

Witnesses:

JNO. ROBT. TAYLOR,
JOHN LOUIS LOTSCH.