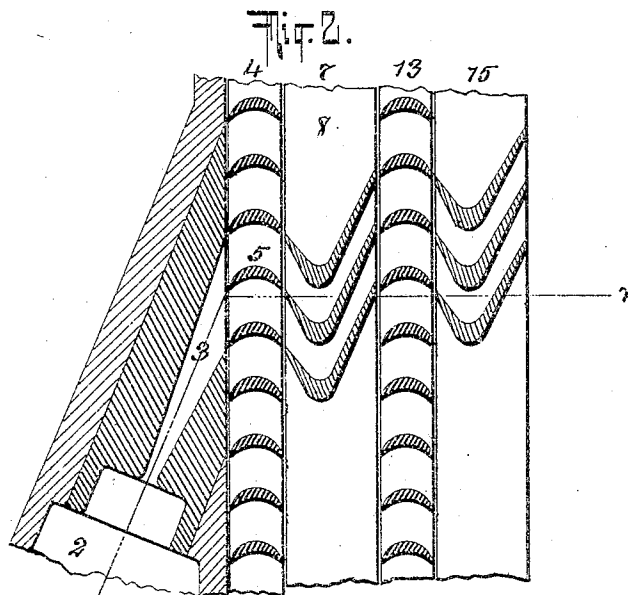
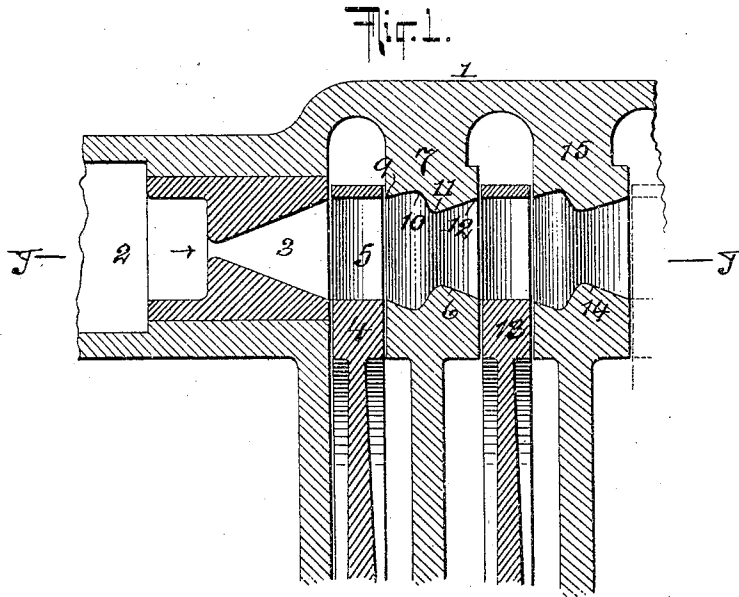


No. 778,499.

PATENTED DEC. 27, 1904.

E. MEDEN.
ELASTIC FLUID TURBINE.
APPLICATION FILED NOV. 18, 1904.



WITNESSES:

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ELOF MEDEN, OF NEW YORK, N. Y., ASSIGNOR TO DE LAVAL STEAM
TURBINE COMPANY, A CORPORATION OF NEW JERSEY.

ELASTIC-FLUID TURBINE.

SPECIFICATION forming part of Letters Patent No. 778,499, dated December 27, 1904.

Application filed November 18, 1904. Serial No. 233,281.

To all whom it may concern:

Be it known that I, ELOF MEDEN, of the city, county, and State of New York, have invented a new and useful Improvement in Elastic-Fluid Turbines, of which the following is a specification.

The invention relates to compound elastic-fluid turbines, and has for its object to modify the discharge velocity and the pressure of the fluid from a preceding wheel in such a way as to decrease the velocity, and so increase the pressure exerted by said fluid upon the next successive wheel.

The invention consists in the combination, with two or more bucket-wheels of the axial-flow type, of fluid-discharge passages located between successive wheels, each of said passages having its cross-sectional area first diverging from the inlet, then converging, and then diverging to the outlet end of said passage.

In the accompanying drawings, Figure 1 is a section, on the line *xx* of Fig. 2, of a portion of a compound turbine, showing two wheels in part and the interposed fluid-discharge passages constructed in accordance with my invention. Fig. 2 is a section on the line *yy* of Fig. 1.

Similar numbers of reference indicate like parts.

1 represents the casing of a compound turbine; 2, the inlet from which the working fluid proceeds in the direction of the arrow through the nozzle 3 to the axial-flow turbine 4. After acting on the buckets 5 of said wheel the fluid enters passage 6 in an annular opening in a partition 7. Said passages are sepa-

rated by the guide-blades 8. Each passage increases in cross-sectional area from its inlet extremity 9 to a point 10 along its length, then decreases to a point 11, and then increases from said point 11 to its outlet extremity 12. The working fluid then enters the following wheel 13, and after it has traversed the bucket-passages in said wheel it passes to passages 14 in partition 15, which passages 14 are similar to passages 6. From passages 14 the fluid proceeds to the next wheel of the compound series, and thus alternately from wheel to passage, and so to final exhaust.

The inlet extremity of each passage is equal in radial width to the outlet of one wheel, as 4, and the outlet extremity of said passage is equal in radial width to the inlet of the other wheel, as 13.

I claim—

In combination with two bucket-wheels of the axial-flow type, a passage for working fluid interposed between said wheels having its cross-sectional area gradually increasing, then gradually decreasing and then gradually increasing in the direction of flow; the inlet extremity of said passage being equal in radial width to the outlet of one wheel and the outlet extremity of said passage being equal in radial width to the inlet of the other wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELOF MEDEN.

Witnesses:

WM. H. SIEGMAN,
I. A. VAN WART.