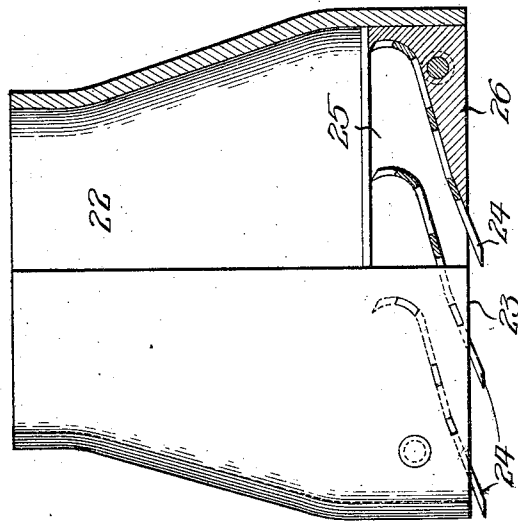
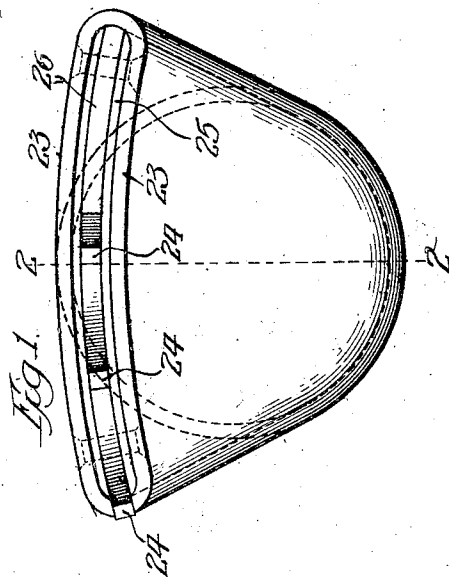
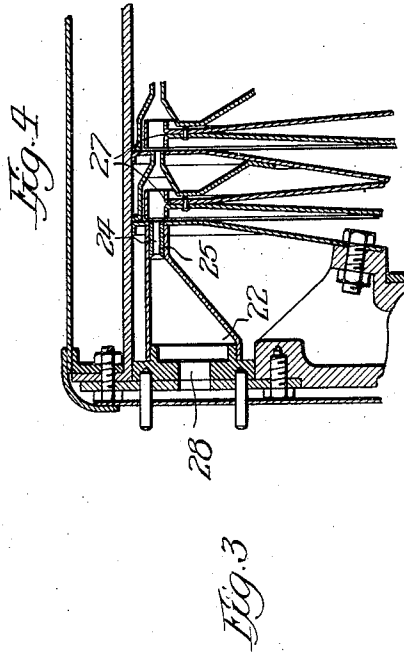
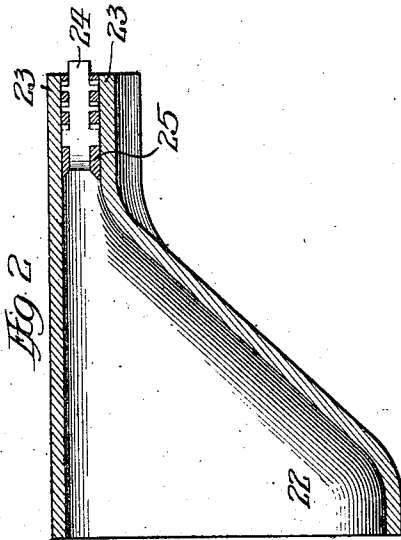


O. F. BRUMAN.
STEAM CHAMBER FOR TURBINES.
APPLICATION FILED, JAN. 2, 1912.

1,036,183.

Patented Aug. 20, 1912.



Witnesses:
Geo. C. Brown
M. Leland Young

Inventor:
Otto F. Bruman
By Barton & Folk,
Attys.

UNITED STATES PATENT OFFICE.

OTTO F. BRUMAN, OF PERLIN, GERMANY, ASSIGNOR TO ROBERT S. HOTZ, OF CHICAGO, ILLINOIS.

STEAM-CHAMBER FOR TURBINES.

1,036,183.

Specification of Letters Patent.

Patented Aug. 20, 1912.

Application filed January 2, 1912. Serial No. 668,895.

To all whom it may concern:

Be it known that I, OTTO F. BRUMAN, citizen of the Republic of Switzerland, residing at Berlin, Germany, have invented a certain new and useful Improvement in Steam-Chambers for Turbines, of which the following is a full, clear, concise, and exact description.

My invention relates to a steam chamber for receiving the steam from the inlet port of a steam turbine and delivering the same through nozzles to the blades of the first of the series of revolving wheels of the steam turbine. Its object is to secure maximum strength with a given weight of material and to attain maximum efficiency.

A further object is to provide a steam chamber of the character described that can be manufactured at low cost.

Since the steam turbine is designed to work at high pressure, the steam chamber which receives the steam from the inlet port and conducts the same through nozzles to the first of the rotary wheels of the turbine must be of very strong construction in order to withstand the pressure. Furthermore in order to reduce friction losses it is desirable that the steam enter the chamber at a low velocity, and in order that there may be high efficiency it is desirable that the steam leave the nozzles at high velocity. My invention contemplates a structure which will meet these several requirements.

My invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is an end elevation of a steam chamber embodying my invention; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a view partly in plan and partly in horizontal section; and Fig. 4 is a fragmentary section of a steam turbine, provided with my improved steam chamber.

Like reference characters denote like parts throughout the several views.

The steam chamber is preferably formed of a seamless pipe 22, one end of which is flattened to form a steam passageway having

two approximately parallel elongated walls 23, 23. Held between the walls 23, 23 are the blades 24, said blades being spaced apart and held in proper relation to each other by the usual filling pieces 25, 26. The blades and filling pieces may be secured in place by welding or riveting. The blades 24 divide the steam passage into a plurality of nozzles, which are so positioned as to direct the steam in proper relation to the blades carried by the revolving wheels 27 (see Fig. 4).

The inlet end of the steam chamber preferably retains the circular form of the pipe from which it is made, and said steam chamber tapers gradually from the inlet end thereof toward the flattened end which forms the steam passage. The steam which thus enters the steam chamber through the inlet port 28 gradually increases in velocity as it passes to the nozzles and acquires its highest velocity during its passage through said nozzles.

For turbines of different output or of different steam pressures the pipe from which the steam chamber is made can be chosen from ordinary stock of a sufficient diameter to meet the required conditions. The pipe is cut to the proper length and by heating the same can readily be flattened at one end to the form shown in the drawings. It will be understood that pipe should be chosen of such circumference that, when flattened, the perimeter thereof will be sufficient to inclose nozzles of desired cross section.

I claim:

1. A steam-chamber comprising a pipe flattened at one end and provided in its flattened end with a series of guide blades dividing said flattened end into a plurality of nozzles.

2. A steam-chamber of uniform perimeter comprising a seamless pipe flattened at one end to form a steam passage having two approximately parallel elongated walls, and means dividing said steam passage into a series of nozzles.

3. A steam-chamber of approximately

uniform perimeter and of circular cross-section at one end and flattened at its other end, said chamber gradually tapering from its circular toward its flattened end, and a
5 series of blades inclosed by said flattened end, and dividing the same into a series of steam nozzles.

In witness whereof, I hereunto subscribe my name this 4th day of December, A. D., 1911.

OTTO F. BRUMAN.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.

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