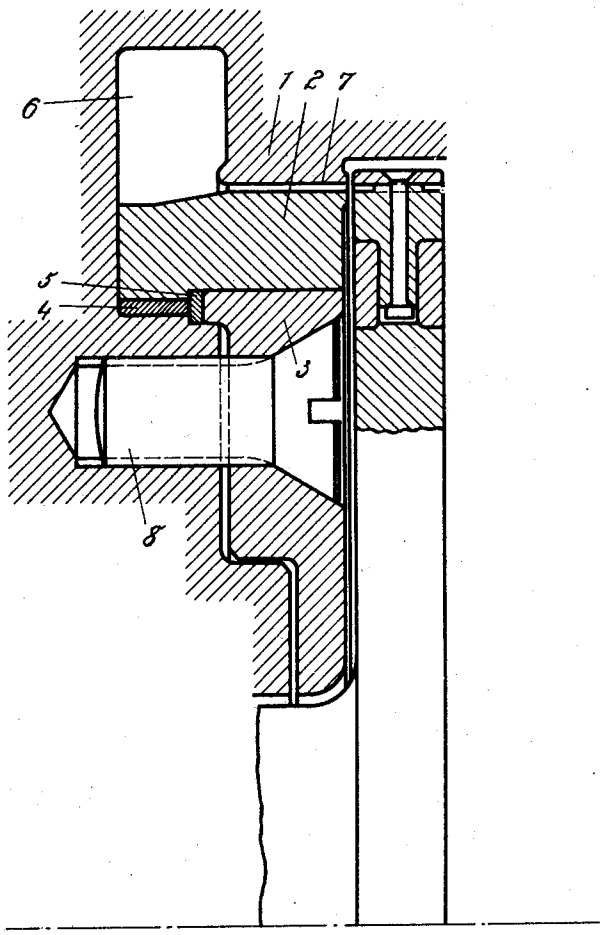
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NOZZLE CONSTRUCTION FOR STEAM TURBINES

Filed Feb. 12, 1927



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UNITED STATES PATENT OFFICE.

GUSTAV MENZ, OF BERLIN-CHARLOTTENBURG, GERMANY, ASSIGNOR TO SIEMENS-SCHUCKERTWERKE GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, OF BERLIN-SIEMENSSTADT, GERMANY, A CORPORATION OF GERMANY.

NOZZLE CONSTRUCTION FOR STEAM TURBINES.

Application filed February 12, 1927, Serial No. 167,742, and in Germany February 17, 1926.

My invention relates to inlet nozzles for steam turbines having the nozzles machined into the nozzle carrier.

If great pressure differences exist in front and at the back of inlet nozzles of steam turbines a secure attachment of the nozzles is sometimes rather difficult.

The difficulties are eliminated according to my invention by milling or otherwise machining the nozzles into a complete or undivided solid ring.

An embodiment of my invention is illustrated by way of example in the drawing affixed hereto.

The single figure of the drawing shows a cross-section through one half of the nozzles.

Referring to this figure it will be seen that the steam flows from the channel 6 in the casing 1 into the nozzles 7. These nozzles are machined into a solid ring 2 which is inserted into the turbine casing 1. The turbine may work with full or partial steam admission. A particularly good attachment of the ring 2 within the casing 1 is attained by shrinking the nozzle ring into the casing without making use of a special guide wheel body. The attachment of the ring 2 in the manner specified permits, however, of leaks as well as relative displacements. According to a further development of my invention the nozzle ring is secured in position by a further locking ring. This ring is indicated in the drawing by the numeral 3, it is tightened up by cone head screws 8 and thereby forces a packing ring 5 against a shoulder on the ring 2 as well as on the casing 1. In order to make quite sure of a tight seal a ring 4 of soft metal is inserted between the adjacent surfaces of the casing 1 and the ring 2 by caulking. The invention is particularly applicable to super-pressure turbines.

Various modifications and changes may be made without departing from the spirit and the scope of the invention, and I desire, therefore, that only such limitations shall be placed thereon as are imposed by the prior art.

I claim as my invention:—

1. In a steam turbine the combination of a casing, a nozzle carrier having nozzle grooves in its outer periphery and forming a complete solid ring located in the turbine casing, and having its outer periphery shrunk against the inner periphery of the turbine casing, which forms one of the nozzle sides, and means for tightening the ring at its inner surface against the casing so that the steam admitted to the nozzles can flow only substantially in the axial direction of the turbine.

2. In a steam turbine the combination of a casing, a nozzle carrier having nozzle grooves in its outer periphery and forming a complete solid ring located in the turbine casing, and having its outer periphery shrunk against the inner periphery of the turbine casing, which forms one of the nozzle sides, and a soft metal ring caulked between the inner ring surface and the casing so that the steam admitted to the nozzles can flow only substantially in the axial direction of the turbine.

3. In a steam turbine the combination of a casing, a nozzle carrier having nozzle grooves in its outer periphery and forming a complete solid ring located in the turbine casing, and having its outer periphery shrunk against the inner periphery of the turbine casing, which forms one of the nozzle sides, and a soft metal ring caulked between the inner ring surface and the casing so that the steam admitted to the nozzles can flow only substantially in the axial direction of the turbine, a locking ring for forcing the nozzle carrier against the casing and a packing ring between said locking ring and the carrier.

In testimony whereof I affix my signature.

GUSTAV MENZ.