

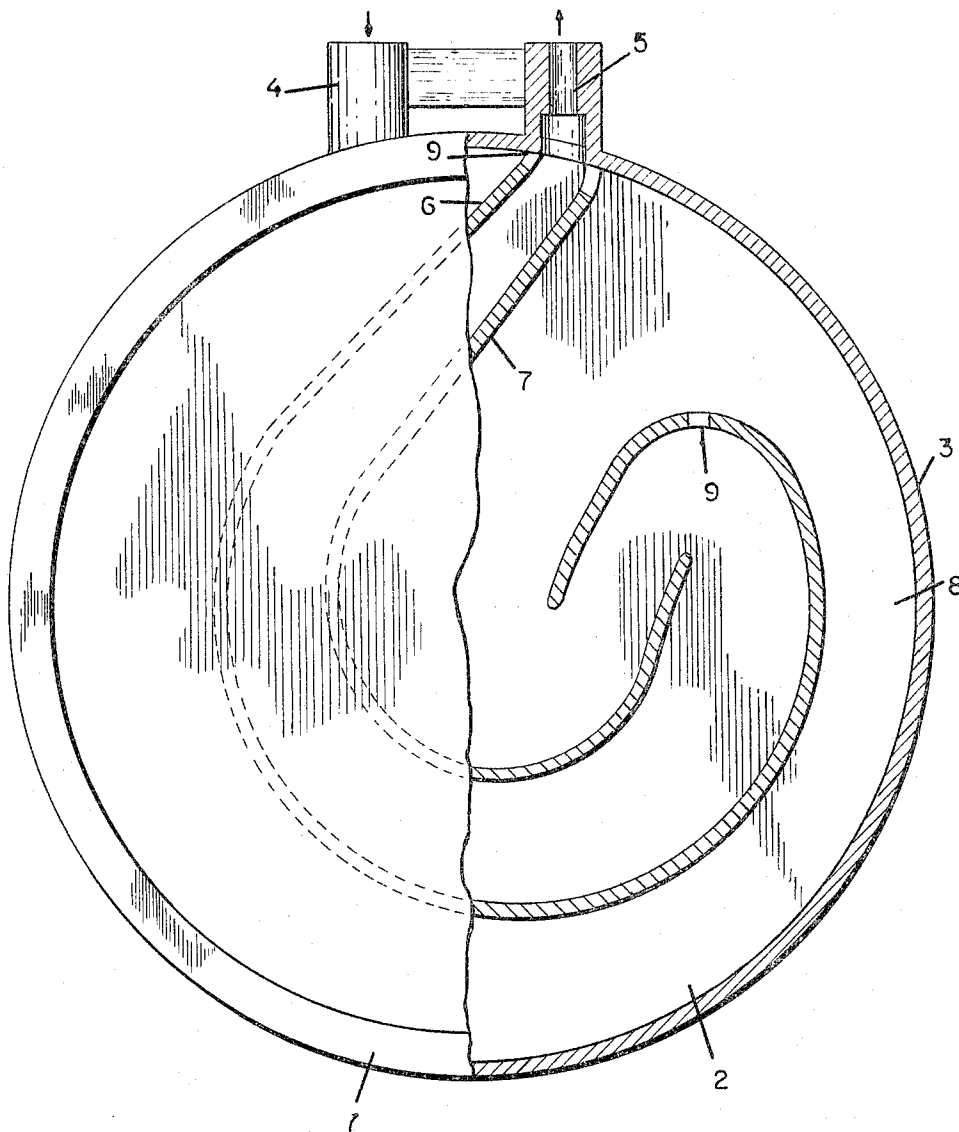
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WATER-COOLED HOT-GAS AND HOT-BLAST VALVE TONGUE

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WATER-COOLED HOT-GAS AND HOT-BLAST VALVE TONGUE

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1 Claim. (Cl. 137—340)

This invention relates to a water-cooled hot-gas and hot-blast valve tongue with guiding members provided in the cavity for the conveyance of the cooling medium or cooling water, respectively. The problem essentially to be solved by the object of the invention is to materially eliminate the contamination of the cooling chamber of the valve tongue.

Well known in the prior art is the installation of guiding members in the form of fins or the like in the cavity of the tongue, said cavity forming the cooling chamber. These guiding members determine the path of the cooling water. Moreover, cross section contractions have been installed previously in the cooling water path in order to decrease deposits of impurities in the cooling chamber which impurities have been taken along by the cooling water and which deposits have been caused by the increasing speed of the cooling water in the path. These narrowed passage cross sections have been provided, however, indiscriminately in descending or rising cooling water paths whereby the operating conditions were in no way fulfilled since the dirt particles were carried along more readily in the downward path than in the upward paths.

This invention, therefore, proposes an arrangement of the guiding members in the valve tongue cavity wherein the passage cross sections between the guiding members for the cooling water are larger in the downward directed course of the flow than in the upward course of the flow. In this way, the separation of dirt particles is appreciably eliminated through the entire path of the cooling water since in the upward directed paths, which are mainly jeopardized by sediment deposits, the dirt particles are taken along due to the high velocity of the flow of the cooling water so that the cooling chamber of the valve tongue is kept considerably free from dirt. The installation of the guiding members is usefully effected in that the passage cross sections formed by the guiding members constantly enlarge or narrow respectively in the descending and rising path of the cooling water. Two guiding members are advantageously provided at a distance from each other proceeding away from the cooling water outlet aperture approximately in spiral form towards the tongue center. Between said guiding members the cooling water flows off while its inflow is directed into the area between the peripheral wall of the tongue and the outer guiding members.

Another object of the invention is that the guiding members serve at the same time as spacing and as stiffening means.

With the above and other objects in view which will become apparent from the following description a preferred form of the invention is shown in the drawing which illustrates a valve tongue partly in elevation and partly in cross section.

In the drawing, the front walls are designated as 1 and 2 and the peripheral wall of a hollow valve tongue

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body as 3, said body comprising at its apex on the peripheral wall 3 inlet and outlet connections 4 and 5 for the cooling water, said connections being closely situated each to the other.

In the cavity of the valve tongue are located two baffles 6 and 7 which extend from the cooling water outlet connection 5 and at a distance from each other in a spiral loop to the tongue center, said baffles completely filling the width of the tongue cavity so that a cooling medium channel 8 is created which itself is formed by the peripheral wall 3 and the outer baffle 6 of the spiral loop on the one hand and by the two baffles 6 and 7 on the other hand.

This cooling medium channel, which begins at the inlet connection 4 and ends at the outlet connection 5 has with equivalent arrangement of the guiding members 6 and 7 a larger passage cross section in its downward directed stages than in its upward stages which has the effect that the cooling water in the channel flows faster in the upward direction so that impurities suspended in the cooling water are taken along and cannot settle. At zones of the cooling water path where the probability of steam or air cushion formation exists, openings 9 are provided in the baffles 6 and 7 through which occasional gases may escape.

It is thought that the invention and its advantages will be understood from the foregoing description and it is apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing its material advantages, the form hereinbefore described and illustrated in the drawings being merely a preferred embodiment thereof.

I claim:

A water-cooled hot-gas or hot-blast valve tongue comprising a casing having a cavity with an inlet and outlet for cooling water, an outer and an inner shorter guiding member spaced relative to each other in said cavity extending away from said cooling water outlet spirally about the center of said cavity, the spiral of said outer guiding member from its starting point at said outlet to its free end constantly moving closer to the outer peripheral wall of said casing, said free end of said spiral of said outer guiding member surrounding in an arc directed downwardly in said cavity the free end of said shorter inner guiding member, said inner guiding member from its starting point at said outlet constantly moving away from said outer guiding member, whereby cooling water flows between said guiding members and the supply of cooling water takes place in the space between the peripheral wall of said casing and said outer guiding member.

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