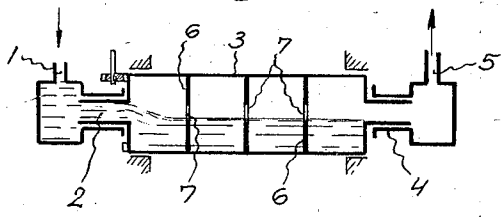
May 10, 1932. J. V. BLOMQUIST ET AL 1,857,710

ROTATING STEAM GENERATOR

Filed Oct. 20, 1930

Fig. 1



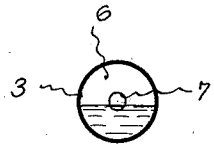


Fig. 2

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UNITED STATES PATENT OFFICE

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ROTATING STEAM GENERATOR

Application filed October 20, 1930, Serial No. 490,076, and in Sweden October 24, 1929.

Our present invention refers to improvements in steam generators provided with one or more rotating steam generating elements mounted in a fire-place and charged with a quantity of water which does not take part in the rotation so that the water level in each steam generating element or rotor takes a substantially horizontal position. In view of the very great specific evaporation obtained in steam generators of this kind, it is of the greatest importance that the inner face of the rotor shell is always wetted with a sufficient quantity of water throughout, as otherwise the heating will result in stresses which are destructive to the rotor construction.

In spite hereof, the invention has for its object to make it possible to use the generator as a locomotive boiler, in which case it will be subjected to strong accelerative or retardative actions tending to cause the water level to deviate from the horizontal plane and forcing the main bulk of water towards one end or the other of the boiler, the correct circulation of the water through the rotor being very much disturbed thereby, and the rotor will tend to be damaged by burning.

In order to do away with these inconveniences and risks the rotor, according to the invention, is provided interiorly with transverse partition walls suitably interspaced and provided with a central aperture for the passage of the steam. When running at a substantially constant speed on a horizontal track, the water level within the rotor is substantially horizontal and extends a little above the lower edges of the apertures in the partition walls, so that all compartments or chambers thus formed within the rotor are partially filled with water. Now, if for instance a retardation of the train occurs, the water in the chambers is thrown forwardly in the direction of running, and a part of the water is forced into the foremost chambers which are filled more or less according to their position in axial direction, the water level within the rear chambers taking a position inclining to the horizontal, such inclination being dependent on the amount of retardation. If no partition walls were at hand, the water, in case of a very strong retardation, would be thrown into and fill up the forward end of the rotor, the rear end of the same being left empty and damaged due to dryness. By using the said partition walls it is possible to obtain that the whole interior face of the rotor shell is sufficiently wetted throughout.

The invention is illustrated in the accompanying diagrammatical drawings, wherein

Fig. 1 shows a longitudinal section and

Fig. 2 a cross section of the rotor according to the invention.

It is to be understood that the invention is independent of the number of rotors comprising the whole boiler set in each case, as all of them are constructed in a similar manner, and the number of partition walls is also variable and mainly dependent on the length of each rotor.

Referring to Fig. 1, the feed water is introduced through the pipe 1, and by the hollow pivot 2 it is admitted to the rotor 3. The generated steam, and eventually also a certain amount of the water fed in, are delivered through the opposite hollow pivot 4, so as therefrom by means of the pipe 5 to be passed either directly to the place of consumption or at first to a super-heater in the conventional manner.

The water inlet and the steam outlet may also be provided in the same pivot and other deviations from the construction described may be used without influence on the invention itself.

According to the invention, the rotor 3 is subdivided into a convenient number of compartments by means of transverse partition walls 6 positioned at suitable distance from each other, each of such walls being provided with a central aperture 7, the lower edge of which is positioned a little below the lowest normal water level in the rotor.

What we claim and desire to secure by Letters Patent is:—

In a rotating steam boiler, a tubular steam generating element rotatably mounted in a fire place, the speed of rotation of which is controlled so that the water level within said element takes a substantially horizontal po-

sition, means for feeding water into the generating element and means for delivery of steam therefrom, a plurality of transverse partition walls positioned at suitable interdistances along the whole length of the tubular steam generating element and extending to the shell plate around the whole circumference thereof, and permanently open central apertures positioned in the partition walls so that their lower edges are a little below the lowest normal water level in the steam generating element only, in order that said apertures shall in part form permanently open communication means between the different partitions of the boiler.

In testimony whereof we have signed our names to this specification.

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