

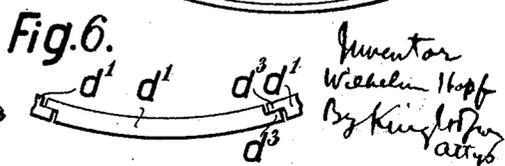
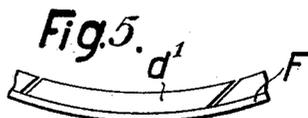
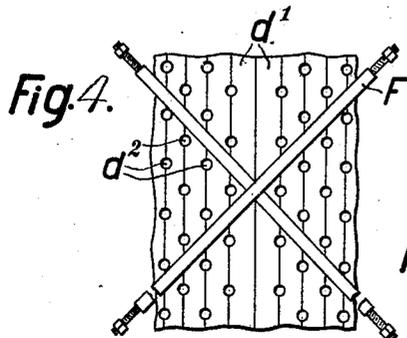
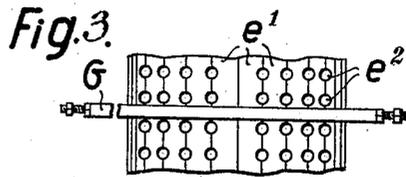
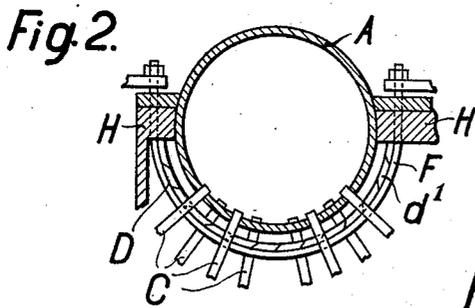
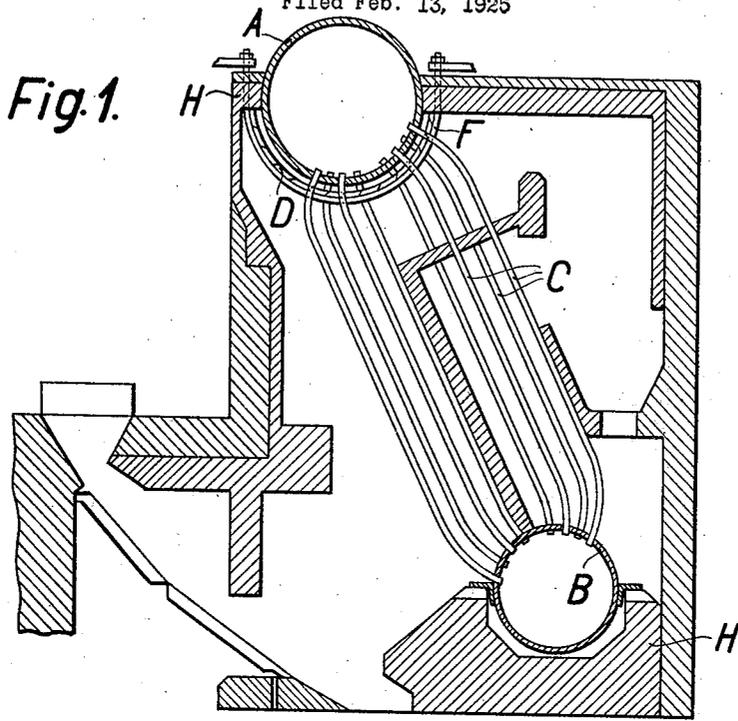
April 10, 1928.

1,665,664

W. HOPF

WATER TUBE BOILER

Filed Feb. 13, 1925



UNITED STATES PATENT OFFICE.

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WATER-TUBE BOILER.

Application filed February 13, 1925, Serial No. 8,992, and in Germany March 6, 1924.

The invention relates to a high pressure water tube boiler, consisting of at least an upper and a lower drum and a bundle of water tubes connecting them, the upper drum being protected from the direct attack of the heating gases by a protecting shell arranged concentrically to the drum at a certain distance therefrom. This shell is formed in a known manner of metal strips with half round recesses for the tubes.

The purpose of the invention is to provide a simple and suitable support for this protecting shell. This purpose is attained according to the invention by supporting the metal strips upon straps running transversely with respect to the drum, the straps being suspended at both sides of the drum and the metal strips lying free upon them.

In the drawing is illustrated an embodiment of the subject-matter of the invention by way of example,

Fig. 1 showing a cross section through the boiler,

Fig. 2 showing a section through the upper drum in enlarged scale,

Figs. 3 and 4 showing views from below, of the shell, with different arrangements of the straps, fixing the shells,

Figs. 5 and 6 showing details.

The water tube boiler consists of an upper drum A and a lower drum B connected to one another by the tubes C. The upper drum A is surrounded at its lower side exposed to the fire, by a shell D consisting of single sheet metal strips d^1 extending in the longitudinal direction of the drum A and made of a heat-proof metal. The single strips abut against each other with their edges and show semicircular recesses d^2 through which the tubes C pass. The strips d^1 are carried by straps F which are suspended from the brickwork H of the boiler. The straps F may be arranged in different

manners according to the arrangement of the water tubes. Figs. 3 and 4 illustrate two arrangements, the straps of Fig. 3 extending perpendicularly with relation to the drum axis, while, as in Fig. 4 the water tubes are staggered with relation to each other the straps F extend in an oblique direction with relation to the drum axis and are superimposed in this case diagonally in pairs.

In order to attain an absolutely gas-tight connection between the sheet metal strips, their edges may be formed in various ways. Figs. 5 and 6 show two examples therefor. According to Fig. 5 the edges of the strips d^1 are tapered at about 45° , said tapered surfaces engaging each other. According to Fig. 6 the edges are shouldered at d^3 and overlap each other.

In assembling the shell the single strips are inserted between the tubes in upright position and then turned 90° . The shell may be removed in a similar manner, without any alteration as to the rest.

I claim:

1. In a water tube boiler comprising upper and lower drums, water tubes connecting said drums, and a protecting shell arranged concentrically below said upper drum consisting of longitudinally running strips provided with recesses for the water tubes, supporting means for said shell comprising straps running transversely of said shell and suspended at both sides of the drum, said strips lying free upon said straps.

2. A boiler according to claim 1 in which said straps are arranged diagonally with respect to the axis of the drum and superimposed crosswise in pairs.

The foregoing specification signed at Hamburg, Germany, this 27th day of January, 1925.

WILHELM HOFF,