

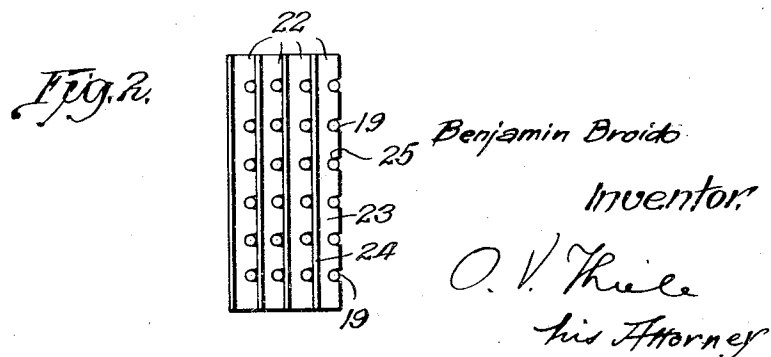
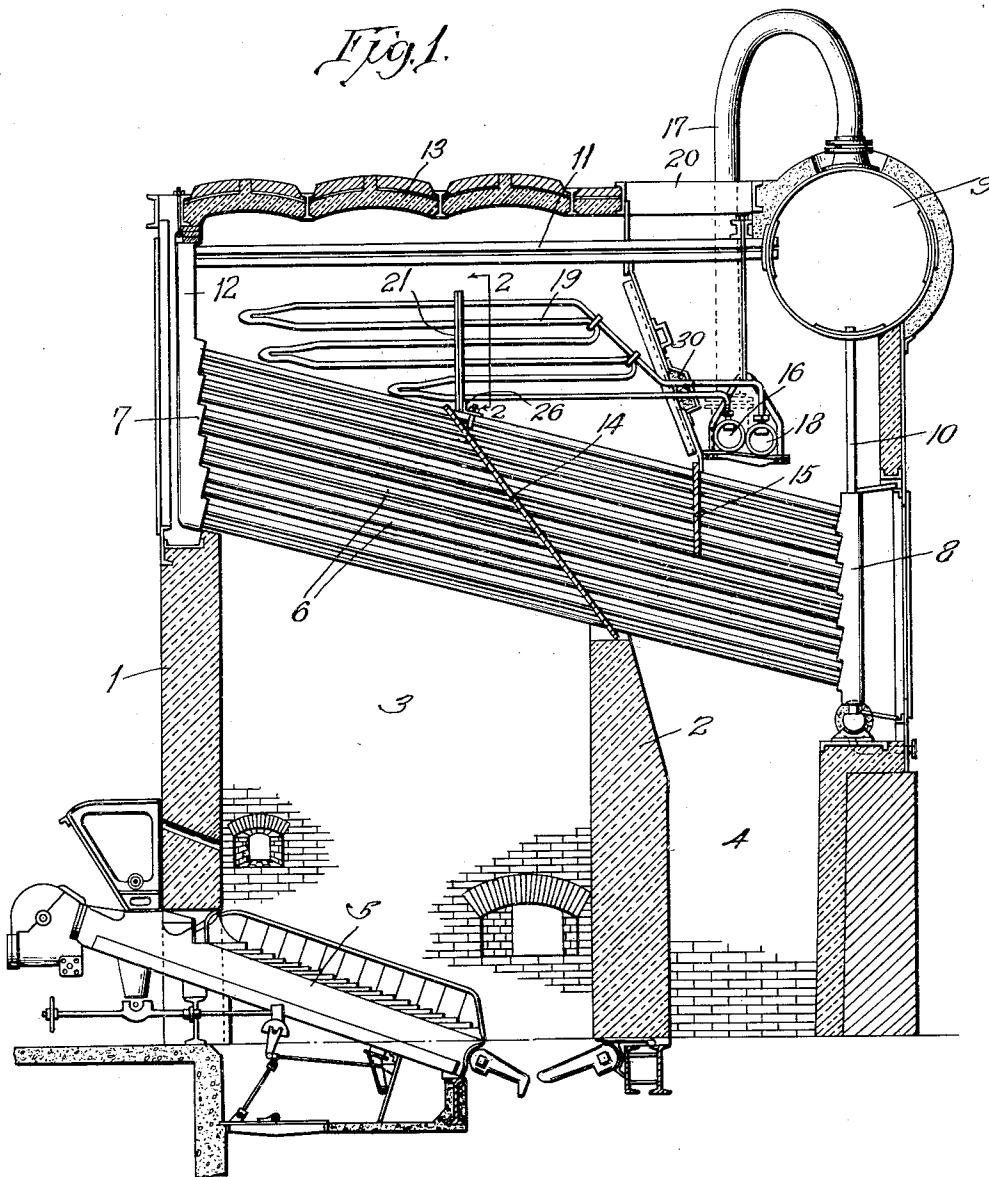
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SUPERHEATER BAFFLE

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SUPERHEATER BAFFLE.

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The present invention relates to the boiler art and more particularly to superheaters used in connection with boilers with so-called horizontal water tubes. Its object is the provision of a certain improvement in connection with such superheaters which will become apparent as the following description is read.

The invention will be clear from the following description which is to be read with reference to the accompanying drawing. In the latter, Fig. 1 is a vertical longitudinal section of a boiler having a super-heater with my invention, while Fig. 2 is a partial sectional view on line 2—2 of Fig. 1.

The boiler in which I illustrate my invention is of an ordinary type and may be briefly described as follows:—

The housing 1 encloses a space sub-divided by the bridge wall 2 into two parts 3 and 4. In the lower part of part 3 is located the grate 5, which may be of any desired form or construction. Above the spaces 3 and 4 are located horizontal or approximately horizontal water tubes 6, which connect front headers 7 with rear headers 8. From rear headers 8 there extend upward to drum 9 the vertical tubes 10, while horizontal tubes 11 connect this drum 9 with the upward extensions 12 of headers 7.

The top of the boiler housing is closed by the roof 13. From the upper end of wall 2 there extends the baffle 14. An additional baffle 15 is located between the baffle 14 and the right end of the boiler, this baffle extending from the top of the housing to a point within the group of boiler tubes. In the space between the tubes 11 and the bank of tubes 6 is located a superheater of usual design. This superheater comprises a header 16 connected to drum 9 by the pipe 17, a header 18 and a series of tubular superheater units or elements 19 connecting these two headers. 20 is the exit by which the gases leave the boiler for the stack.

As far as described this boiler is of a usual construction and operates in the usual way. Fuel burned on the grate 5 and in the space 3 generates hot gases which during their travel to the exit 20, on which passage they are guided by the baffles 14 and 15, impart their heat to the boiler tubes and other boiler surfaces and to the superheater. Steam generated in the boiler is liberated in drum 9, reaches the superheater header 16

through pipe 17, passes through the superheater elements 19 and is by them delivered to the header 18 in a superheated state, from which header it is then carried to the point of use.

My invention relates to a baffle which is employed in connection with the superheater. It has been suggested heretofore to extend the baffle 14 across the superheater tubes in the general manner in which my baffle 21 is seen to extend in the drawing. Such upward extension, however, has been constructed in much the same way baffles across water tubes are usually made, such as baffles 14 and 15. The result has been that when it was necessary to remove a superheater element, as for example for inspection or repair, it became necessary to tear down all or a great portion of such baffles extending across superheater tubes. The superheater elements 19 are usually secured to the headers in a readily detachable manner so that their removal is not a matter of great difficulty except for this question of the baffle. My invention provides a form of baffle which does not interfere in any way with the easy removal of the elements.

To this end I make the baffle up of sections 22 as will be more easily seen from an inspection of Fig. 2. Each section 22 is associated with and removable with one superheater element, such removal being possible without disturbing adjacent sections 22. Such a section 22, preferably made of cast iron, comprises a flat portion 23 and a reinforcing rib 24 at right angles to it. The edge of the flat portion 23 which is opposite to the rib 24 is notched as at 25, the notches being just deep enough to accommodate the several lengths of the superheater element 19. When the sections are assembled side by side they form a practically tight baffle; but when on the other hand it is desired to remove any given superheater element with its associated baffle section 22, it can be removed without disturbance of any of the other sections.

At 30 the superheater elements extend through the upward extension of baffle 15, the opening surrounding the elements being closed by means of firebrick and asbestos cement which is readily removable and easily replaced in case a superheater element is removed and replaced.

It is obviously not necessary that the baffle

21 should be at right angles to the branches of the superheater elements.

The lower end of the baffle sections 21 rest on the top row of water tubes and thus serve as supports for the superheater elements. In the form shown, an angle 26 rests on the water tubes, and is secured in place, the sections 21 being thereby prevented from moving along the water tubes.

10 What I claim is:—

1. In a device of the class described the combination of a plurality of tubular superheater elements each comprising a plurality of parallel horizontal branches all in one plane, and a baffle made up of a plurality of baffle units each comprising a plane portion, said baffle units each having a number of notches one to each branch of the associated superheater element extending inward from one of its edges, the other edge being plain through which notches the branches of the superheater elements extend, the notched edge of each unit lying against the plain edge of the adjacent unit.

25 2. In a device of the class described, the combination of a plurality of tubular superheater elements each comprising a plurality of parallel horizontal branches all in one vertical plane, a baffle made up of a plurality of baffle units each comprising a plane portion, said baffle units each having a number of notches one to each branch of the associated superheater element extending inward from one of its edges, the other edge

being plain through which notches the branches of the superheater elements extend, the notched edge of each unit lying against the plain edge of the adjacent unit, and means supporting the lower ends of the baffle units, whereby the baffle units help support the weight of the superheater elements.

3. In a boiler having approximately horizontal water tubes and in which the hot gases are directed by a baffle so that they pass upward over one portion of the tubes and then downward over another portion, the combination of said water tubes, a superheater above them comprising a plurality of aligned tubular superheater elements each element comprising a plurality of parallel branches in a single vertical plane, and a baffle extending across the superheater tubes from the upper end of said first named baffle, the superheater baffle comprising a plurality of units each comprising a plane portion and a reinforcing rib, said baffle units each having notches corresponding in number to the branches of the associated superheater element extending inward from one of its edges, the other edge being plain through which notches the branches of the superheater elements extend, the baffle units contacting to make a substantially continuous baffle, the baffle units resting on the water tubes, whereby they form supports for the superheater elements.

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