

A SHORT HISTORY OF THE STEAM ENGINE

by

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Author of

'Robert Fulton, Engineer and Artist',
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PRINTED FOR
BABCOCK AND WILCOX, LTD.
AT THE UNIVERSITY PRESS
CAMBRIDGE

1938

A distinctive type of vertical water-tube boiler is that known by the name of its inventor, Edward Field, who with Moses Merryweather and others patented it in 1862 (No. 2956). It is composed of a number of elements (see Fig. 53), each of which consists of two concentric tubes usually placed vertically. The outer tube has a closed end and is exposed to the fire so that the steam rises in the annular space between it and the inner tube while water to replace that boiled off comes down the inside tube. The boiler was designed for steam fire-extinguishing engines where rapid steaming was imperative.

The element need not necessarily be vertical. This has led to other applications where the tubes are inclined and assembled in double-chambered headers, one part of the chamber serving to bring down the water and the other to lead away the steam to a drum or collector above. Practical difficulties were met with in the joint between the inner tube and the header; eventually these difficulties were cleverly overcome, between 1891 and 1910, by the joint efforts of G. N. L. and P. E. J. Niclausse of Paris. The boiler was used both for power stations and on board ship, but it is difficult to empty and still more to clean and these drawbacks have led to its virtual disappearance.

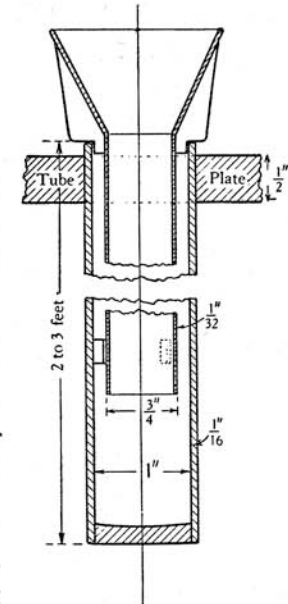


Fig. 53. Field's boiler tube, 1862.

Drawing in the Science Museum, London.