(No Model.)

G. H. BABCOCK.

STEAM BOILER.

No. 314,416. Patented Mar. 24, 1885.

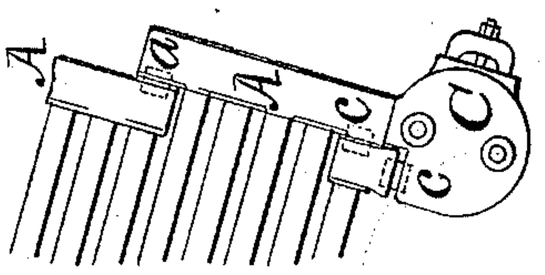

Fig 3.

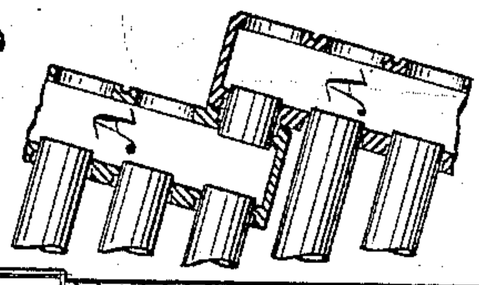

Fig 2.

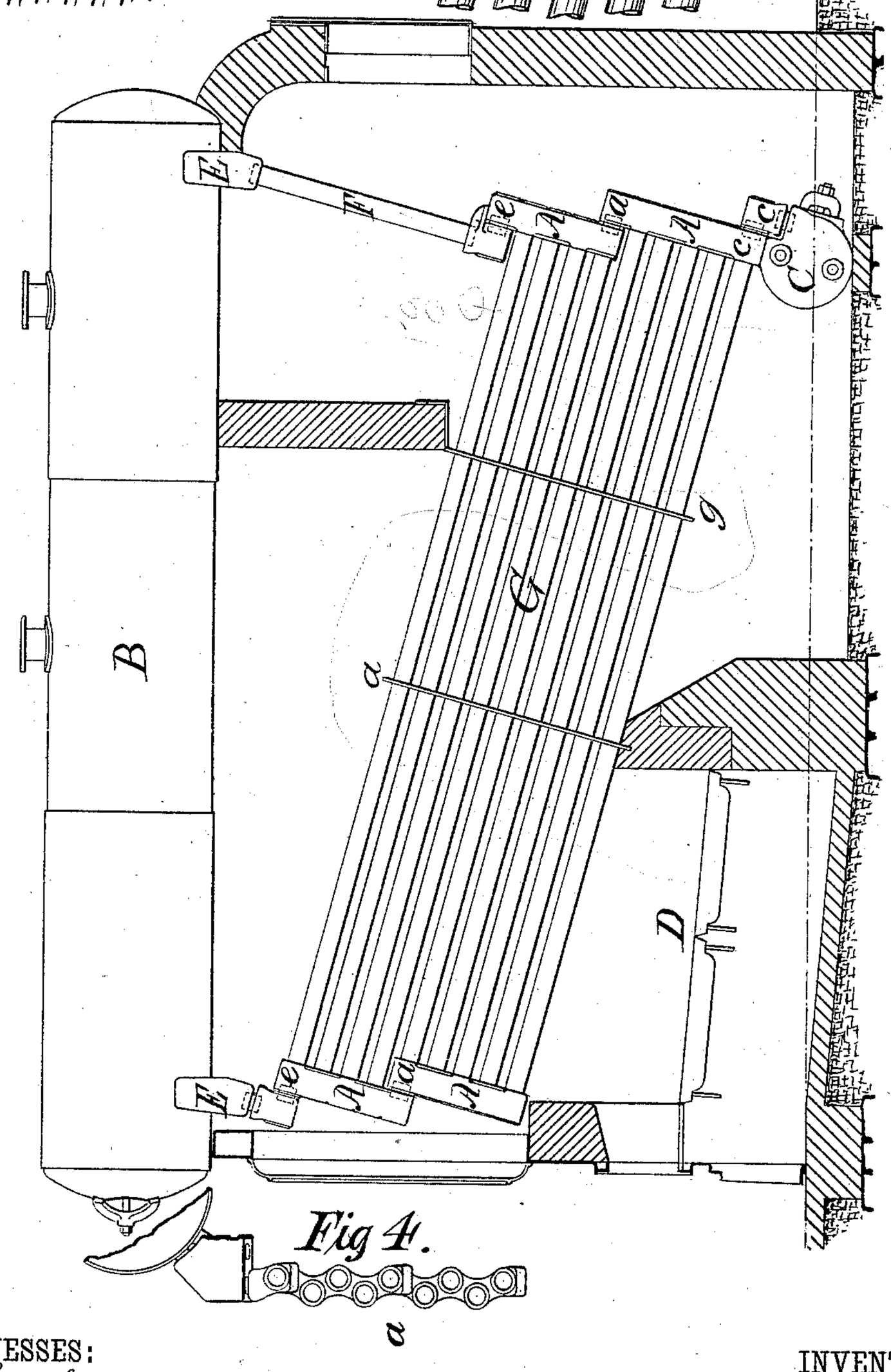

Fig 1.

Fig 4.

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GEORGE H. BABCOCK, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO THE BABCOCK & WILCOX COMPANY.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 314,416, dated March 24, 1885.

Application filed May 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. BABCOCK, of Plainfield, in the county of Union and State of New Jersey, have made an invention of certain new and useful Improvements in the Construction of Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description and specification of the same.

As my invention is especially applicable to the class of sectional water-tube boilers, I have shown and will proceed to describe it in connection with one of the well-known forms of such boiler exhibited in its other main features by several patents heretofore granted to Babcock and Wilcox.

The object of my device is to gain strength and elasticity for the boiler, convenience in its transportation and erection, cheapness in construction and repair, and efficiency and reliability in its operation.

In the drawings, Figure 1 is a side elevation (setting sectional) of a boiler embodying my improved construction. Figs. 2, 3, and 4 show details of construction and connection.

The boiler shown by Fig. 1 as exhibiting my invention in the best practical form in which I have as yet embodied it is a sectional water-tube boiler having inclined tubes G, expanded into headers A A, which are in turn united to a steam and water drum, B, at a higher level by suitable connections, E and F.

D is the furnace, and when fire is started therein circulation commences in the boiler in the usual and well-known manner. Flame-bridges *g* compel the hot products of combustion to pass in a tortuous course around and between the tubes to their outlet, and a mud-drum, C, at the lowest point of said boiler receives and retains the deposit of sediment, and has of course suitable provision for the convenient removal of the same.

The essential part of my invention relates to the construction of the headers A A, which in most boilers of this pattern have been formed in sections running vertically the entire length of the tubes, or have been so joined by vertical connections as in practice to form a continuous vertical or but slightly-inclined pipe; but while preferably (though not necessarily) following the sinuous shape to give a staggered arrangement to the tubes, Fig. 4, I form these headers in short vertical sections adapted, as shown, to respectively overlap each other, and to be conveniently nippled or in any way connected together (as at points *a a*) in line with their respective upper and lower tubes—*i. e.*, at right angles with the vertical connection above referred to. By this arrangement and construction any required number of sections can be conveniently used, horizontal space is economized, the alternate connection and the shorter header obviously increase both strength and elasticity, the tubes connected with the headers and the headers with each other and with their steam and mud-drum connections by the cheap and effective method of expanding, and each tube thereafter reached without difficulty directly for cleaning and repairs through the ordinary hand-holes. Finally, the improved header is not only more easily made and conveniently handled and transported, but in case of damage or accident through carelessness or ill usage its repair or replacement will be both easier and cheaper.

Alternative methods of connection are shown by Figs. 2 and 3; but I do not confine myself to any method of connection or to any number of sections or proportion of tubes to each.

I claim as my invention—

1. In a sectional boiler, the overlapping headers communicating with each other, substantially as shown and described.

2. In a sectional boiler, the combination of overlapping headers with a steam and water reservoir, substantially as described.

3. In a sectional steam-generator, the combination of overlapping headers with a mud-drum communicating with the same, substantially as shown and described.

GEO. H. BABCOCK.

Witnesses:

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