(No Model.)

LA FAYETTE LILLARD.

STEAM BOILER FOR TRACTION ENGINES.

No. 284,134. Patented Aug. 28, 1883.

Fig. 1.

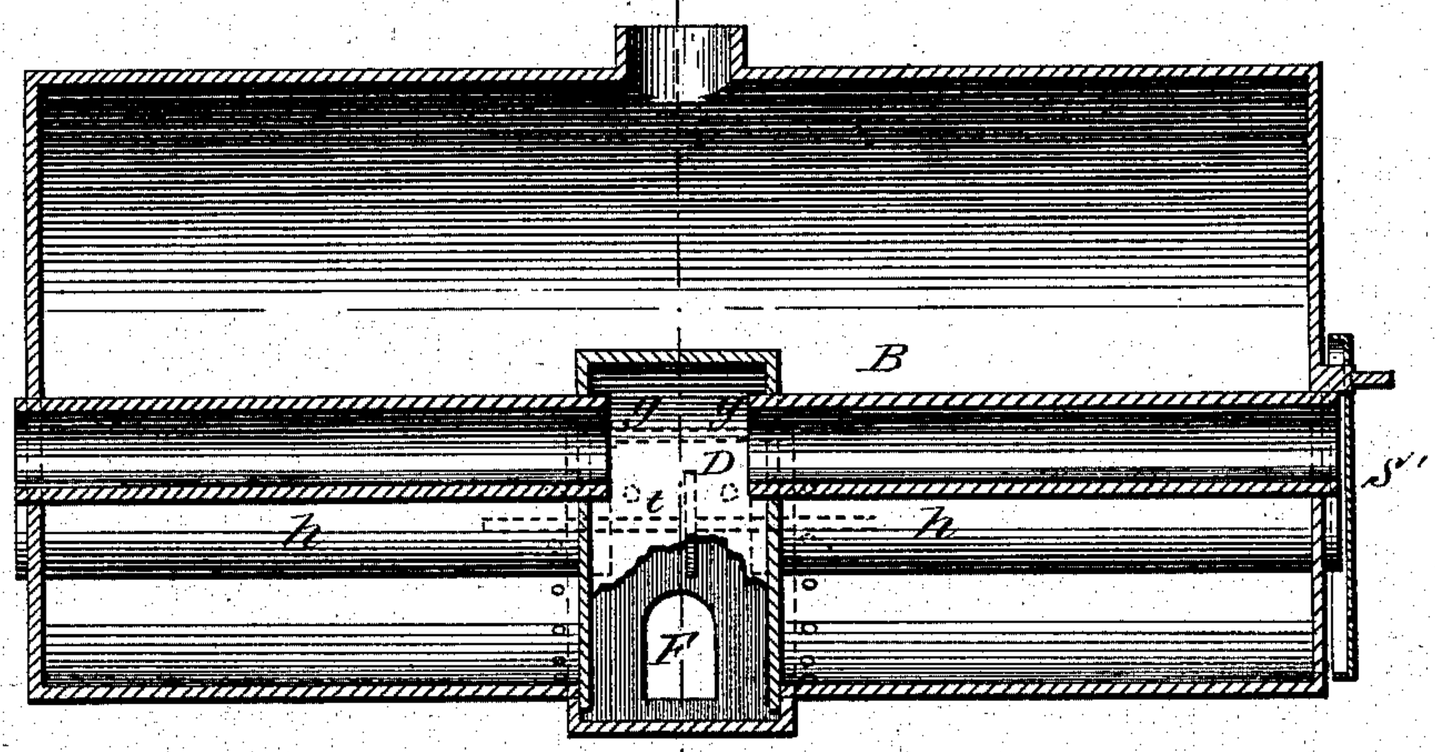
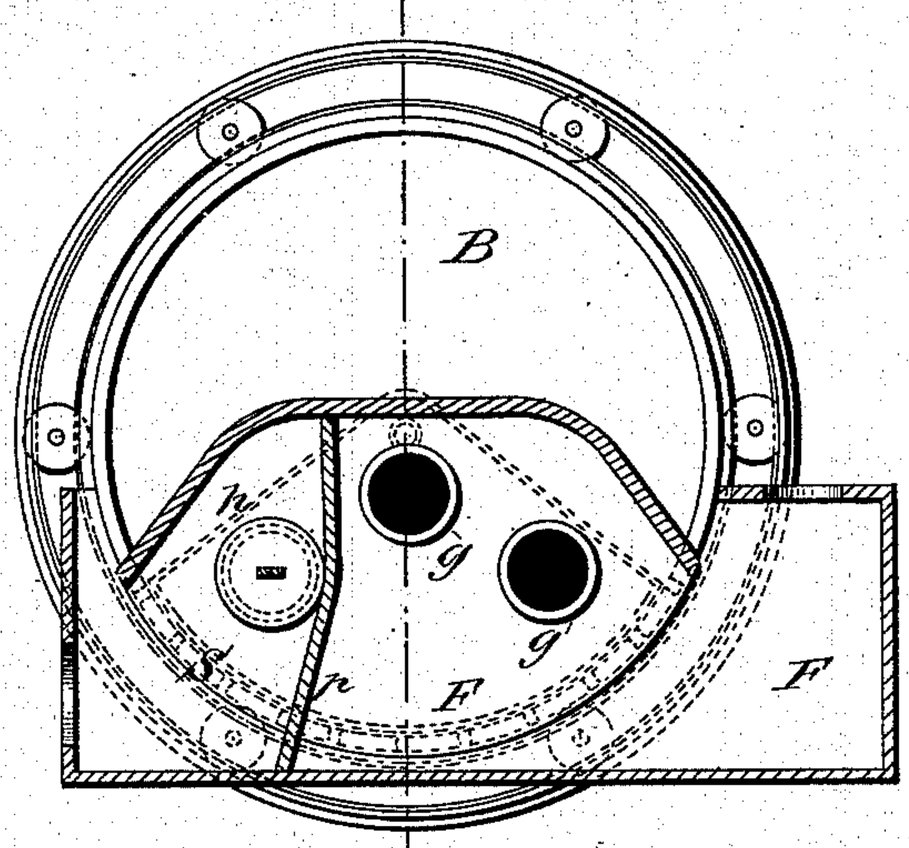


Fig. 2.



La Fayette Lillard

Witnesses
Jno Bell
James Kirkpatrick

Inventor.

UNITED STATES PATENT OFFICE.

LA FAYETTE LILLARD, OF DIXON, CALIFORNIA.

STEAM-BOILER FOR TRACTION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 284,134, dated August 28, 1883.

Application filed January 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, LA FAYETTE LILLARD, a citizen of the United States, residing at Dixon, in the county of Solano and State of California, have invented a new and useful Boiler for Steam Traction-Engines, of which the following is a specification.

My invention relates to improvements in traction-engine boilers in which a safety-damper is used to control the heating of flues; and the objects of my improvements are, first, to prevent the collapsing of the flues either when the traction-engine is running on a sideling place or when it is swamped, with some of the flues out of water; second, to afford facilities for utilizing the greatest amount of heat. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical and longitudinal section of boiler. Fig. 2 is a vertical cross-section of boiler.

Similar letters refer to similar parts throughout the two views.

F is fire-box at middle of boiler B. S is smoke-box, separated from fire-box by the partition P. Heating elements pass from fire-box F through the flues *g g* to small smoke-boxes *s' s'*, (only one shown in drawings,) and thence through the return-flues *h h* to the large smoke-box S. Within the smoke-box S is the safety-damper D, attached to a reciprocating bar, *t*, which slides in the flues *h h*. This safety-damper can be made to close either return-flue, thus preventing the flues of either end of the boiler from overheating. If the furnace F S be covered with water when the boiler is in a horizontal position, it will remain covered with water when one end of the boiler is considerably elevated. The boiler B is cylindrical in shape, and contains two sets of flues extending from the furnace F S to the ends of the boiler, as shown in Fig. 1. It will be seen from Fig. 1 that the furnace is at right angles with the boiler, and in order to get sufficient length of fire-box and a large heating-surface the furnace extends below the boiler and projects from it on either side. In all other respects the boiler should be made like ordinary locomotive-boilers. The said furnace being at the middle of the boiler, it is very easily completely surrounded with water, and it is out of the way of the driving-wheels. The extra weight being at the middle of the boiler, it will balance well on its bearings.

As shown in Fig. 2, the top of furnace within the boiler should be curved in order to give extra strength and to insure the furnace's being always covered with water.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, in a traction-engine boiler, of a double set of return-flues, *h h*, with a safety-damper, D, attached to a bar which reciprocates within the smoke-box S and between the return-flues *h h*, substantially as shown, for the purpose specified.

LA FAYETTE LILLARD.

Witnesses:
W. R. FERGUSON,
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