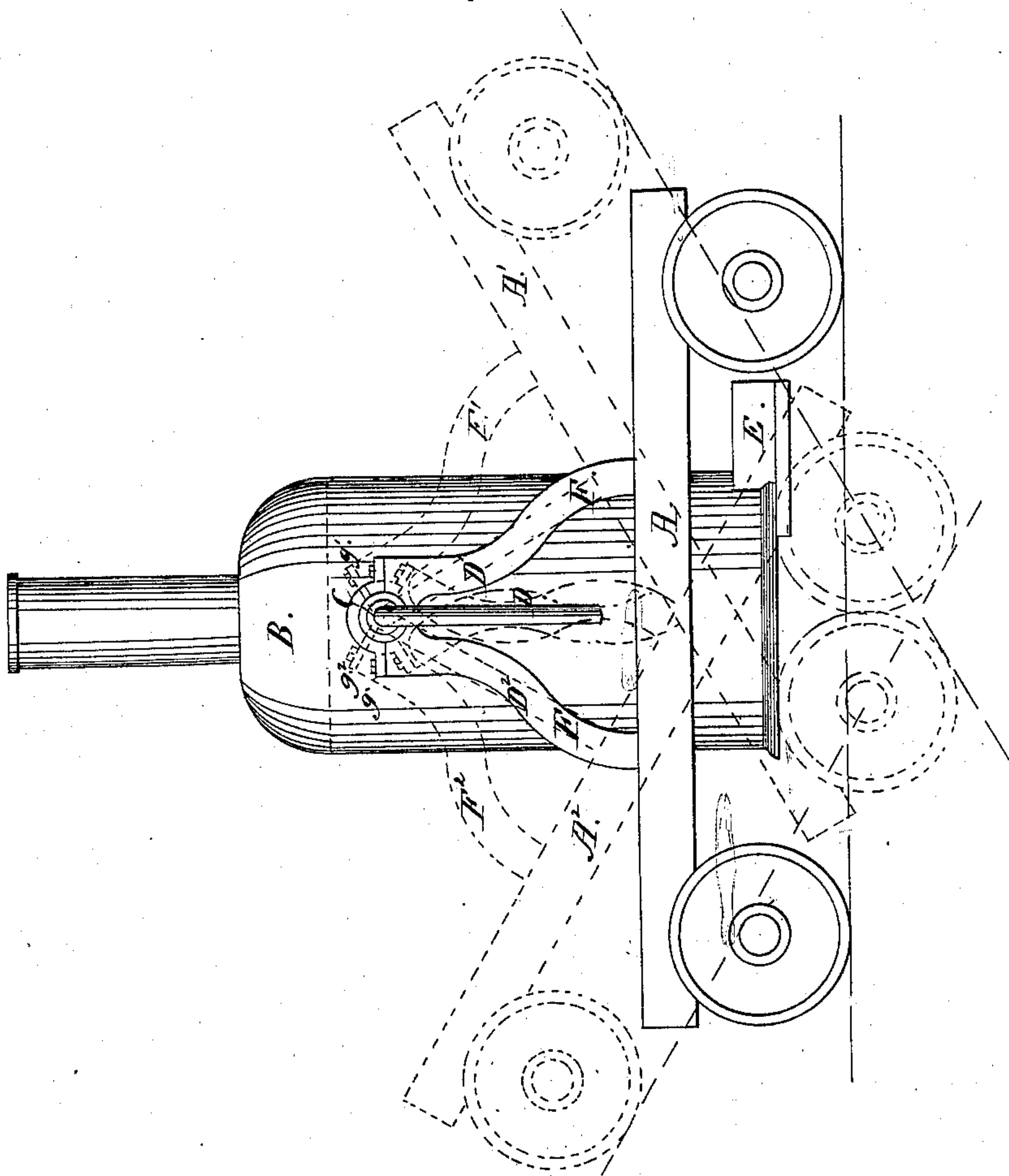


H. Ruddick,
Portable Locomotive Boiler,
No 70,364, *Patented Oct. 29, 1867.*



Witnesses:
Thos. W. Parke
Chas. F. Bateman

Inventor:
Hamilton Ruddick

United States Patent Office.

HAMILTON RUDDICK, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 70,364, dated October 29, 1867.

IMPROVEMENT IN STEAM-GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HAMILTON RUDDICK, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Boilers for Climbing and Traction Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing forming a part of this specification.

In traction engines or climbers the varying angle with the horizon, which the boiler may take, may be such that the tubes and fire-sheet are not protected by water, and a fatal accident is then sure to occur in time.

My improvement consists in so arranging and hanging the boiler that it shall always preserve its original angle with the horizon, and at the same time the carriage may assume a different angle. To effect this I employ a perpendicular boiler, with a low centre of gravity, hung upon trunnions, delivering its steam through a trunnion pipe oscillating with the carriage, and moving freely in a stuffing-box of the trunnion with a reciprocating rotary motion.

In the drawing, A is the frame of the engine, having erected upon it a sort of gallows-frame F, at the top of which is a journal-box, *g*, to receive the trunnion *c*. The boiler B is, as shown, perpendicular, with perpendicular tubes. In front of the ash-pit, at the bottom, is a platform, E, on which the engine-driver may stand when necessary. Well up above the centre of gravity of the boiler are the trunnions *c*, communicating by an interior canal with the steam space within the boiler, which trunnions in a railway engine would be single, but in a traction engine might be rested on a hollow ring, having other trunnions at a quadrant's distance, and at right angles, to preserve the perpendicularity of the boiler against lateral irregularity of the road. Through a stuffing-box in these trunnions comes the steam pipe D, firmly attached to frame A, and allowing the boiler to assume always the perpendicular, as shown, although the frame A may take the positions shown by dotted lines, as A¹ A². The steam pipe in this case would assume the position shown at D¹ D², and the gallows and journal-box the positions shown at F¹ F² *g*¹ *g*².

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

In traction and climbing engines, when the engine is rigidly connected with the carriage, a boiler hung on trunnions, and delivering steam through said trunnions to pipe D, connecting the same with the engine, substantially as and for the purpose described.

HAMILTON RUDDICK,

Witnesses:

THOS. WM. CLARKE,
CHARLES J. BATEMAN.