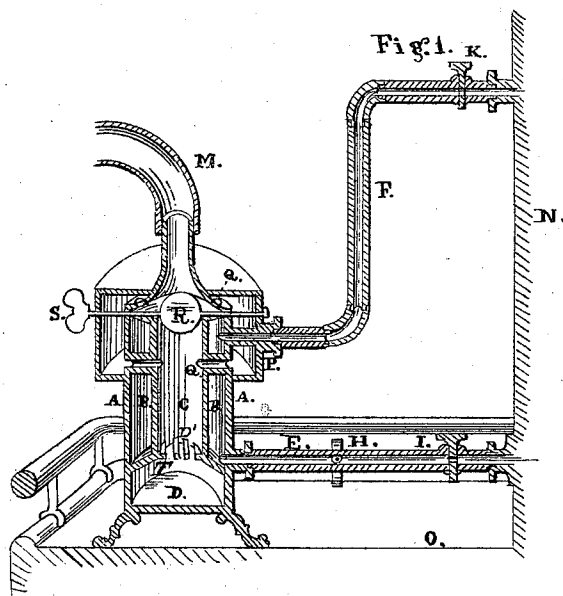


E. A. RUSSELL.

Improvement in Water-Heaters for Steam Fire-Engine Boilers.

No. 132,026.

Patented Oct. 8, 1872.



WITNESSES:

E. J. Smith
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UNITED STATES PATENT OFFICE.

EDWARD A. RUSSELL, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN WATER-HEATERS FOR STEAM FIRE-ENGINE BOILERS.

Specification forming part of Letters Patent No. 132,026, dated October 8, 1872.

To all whom it may concern:

Be it known that I, EDWARD A. RUSSELL, of Milwaukee, in the county of Milwaukee, in the State of Wisconsin, have invented certain Improvements in Water-Heater for Fire-Engines, of which the following is a specification:

Nature and Object of the Invention.

My invention is a water-heater standing on the platform or coal-reservoir of the engine, and is connected to the boiler of the engine by pipes and with a smoke-pipe from its top to the chimney in the engine-house, and is so arranged that the engine can be drawn out with the heater, leaving the smoke-pipe standing in its place. The fire to heat the water being all the time ignited, and the heater being of the same strength as the boiler, it can remain in position and be perfectly safe while the engine is working.

Description of the Drawing forming part of this Specification.

Figure 1 is a vertical sectional view of my invention attached to the boiler of a steam fire-engine.

General Description.

A is the outside shell of the heater; B, the inside shell, forming a reservoir for water; C, the fire-chamber; D, the bottom of the ash-pit; D', the grate; E, pipe which leads from the boiler to the bottom of the heater leading into the water-space; F, pipe leading from the top of the water-space in the heater to the upper part of the boiler; H, check-valve in pipe E, opening to the heater, but closed to the boiler, so that water can pass from the boiler to the heater, but not from the heater to the boiler; I, cock in the pipe E; K, cock in the upper pipe F; M, smoke-pipe; N, rear end of the boiler to the engine; O, platform or coal-reservoir, on which the heater stands; P, a shell on the outside of the upper part of the heater. This shell is made larger than the heater, so that there is an open space between

it and the heater for the fire and smoke to pass, and the bottom and top of this shell are riveted onto the shell of the heater. Q are flues passing from the fire-chamber through the water-space to the inside of this outside shell P, and also passing into the space above the water-reservoir. R, a damper at the top of the fire-chamber; S, handle and shaft to this damper R. When this damper is closed the fire and smoke will pass out through the lower flues Q and in again through the upper openings Q above the damper. This heater stands all the time on platform O, connected with the boiler, and when the cocks I and K are open, if the boiler has water in it, the water-reservoir in the heater will be filled; and to feed fuel into this heater just remove the smoke-pipe M and put the fuel in and it will fall onto the grate. T, door to the ash-pit, allowing the admission of air. As the water is heated in the reservoir of the heater it will be forced through the upper pipe F to the boiler, and the lower pipe E will supply the water again, and so the water will circulate from the boiler to the heater and from the heater to the boiler again, and keep the water in the boiler at the boiling-point; and when there is an alarm of fire there is nothing to do with the heater but to let it stand and take it along with the engine. The pipe M being left hanging, all the preparation there is to the engine and heater is to close cock L and play away. In this case it is not necessary to start a fire under the boiler until you get your engine set where you want to use it at the fire. The steam can be got up high enough to work by the time you can get the pipes in position.

Claim.

The water-heater and fire-engine boiler, with communicating-pipes E and F, all combined and arranged substantially as and for the purpose set forth.

EDWARD A. RUSSELL.

Witnesses:

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