

W. H. HOWELL.
LOCOMOTIVE HEATER.

No. 179,412.

Patented July 4, 1876.

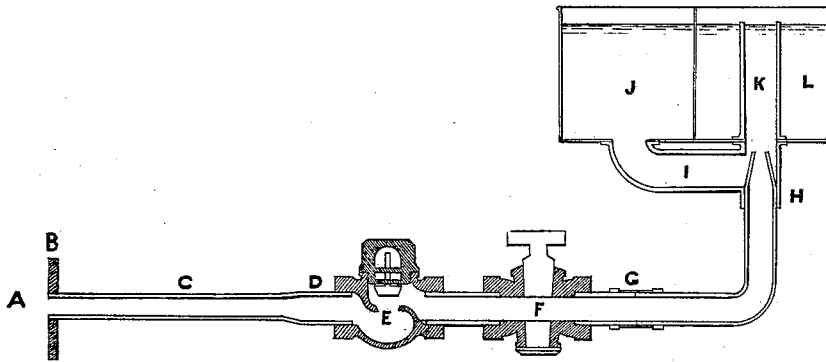


Fig. 1.

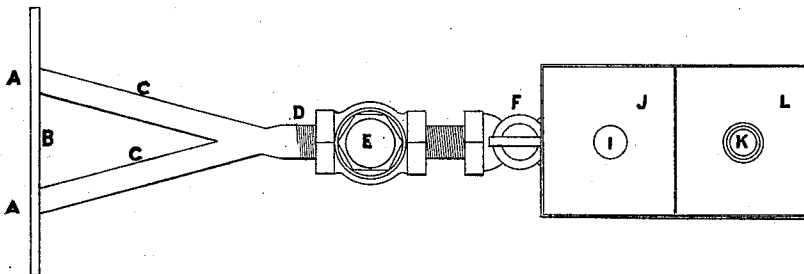


Fig. 2.

WITNESSES

Geo. Keefer
App. Orrill

INVENTOR

William H. Howell

UNITED STATES PATENT OFFICE

WILLIAM H. HOWELL, OF THOROLD, CANADA.

IMPROVEMENT IN LOCOMOTIVE-HEATERS.

Specification forming part of Letters Patent No. **179,412**, dated July 4, 1876; application filed April 15, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. HOWELL, of Thorold, in the county of Welland, Province of Ontario, Dominion of Canada, chair-maker, have invented a new and useful Improvement in Locomotive-Heaters, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to heat a sufficient quantity of water for the use of locomotive-engines by exhaust steam from said engine, thereby saving the amount of fuel required to heat the water to the degree of heat it receives from said steam.

Figure 1 is a longitudinal section embodying my invention. Fig. 2 is a plan of the same.

A A is a chamber occupied by exhaust steam from each cylinder of a locomotive. B is the locomotive-saddle. C C are pipes attached to saddle for conducting the exhaust steam. D is a junction of said pipes. E is a check-valve, preventing the flow of water from the tank when the steam-pressure ceases. F is a regulating-valve, so arranged that the supply

of steam is regulated. G is the flexible joint in pipe between the engine and tender. H is the connection of steam-pipe with the cold-water pipe I I, leading from the bottom of the main tank of a locomotive-tender to the heater K. J is the main tank in the tender. K is the pipe in which the cold water is heated as it is forced through by the pressure of steam from the exhaust into the hot-water tank L, which is partitioned off for this purpose, and from which the water is fed to the boiler, in the usual manner.

I claim as my invention—

In combination with the exhaust-pipe of a locomotive-engine, said pipe being provided with valves E F, the tank constructed with chambers J and L, and provided with pipes I and K, by means of which the water is forced up from the cold-water tank into the heater K and tank L by the exhaust steam, as and for the purpose set forth.

WILLIAM H. HOWELL.

Witnesses:

GEO. KEEFER,
WM. CARROLL.