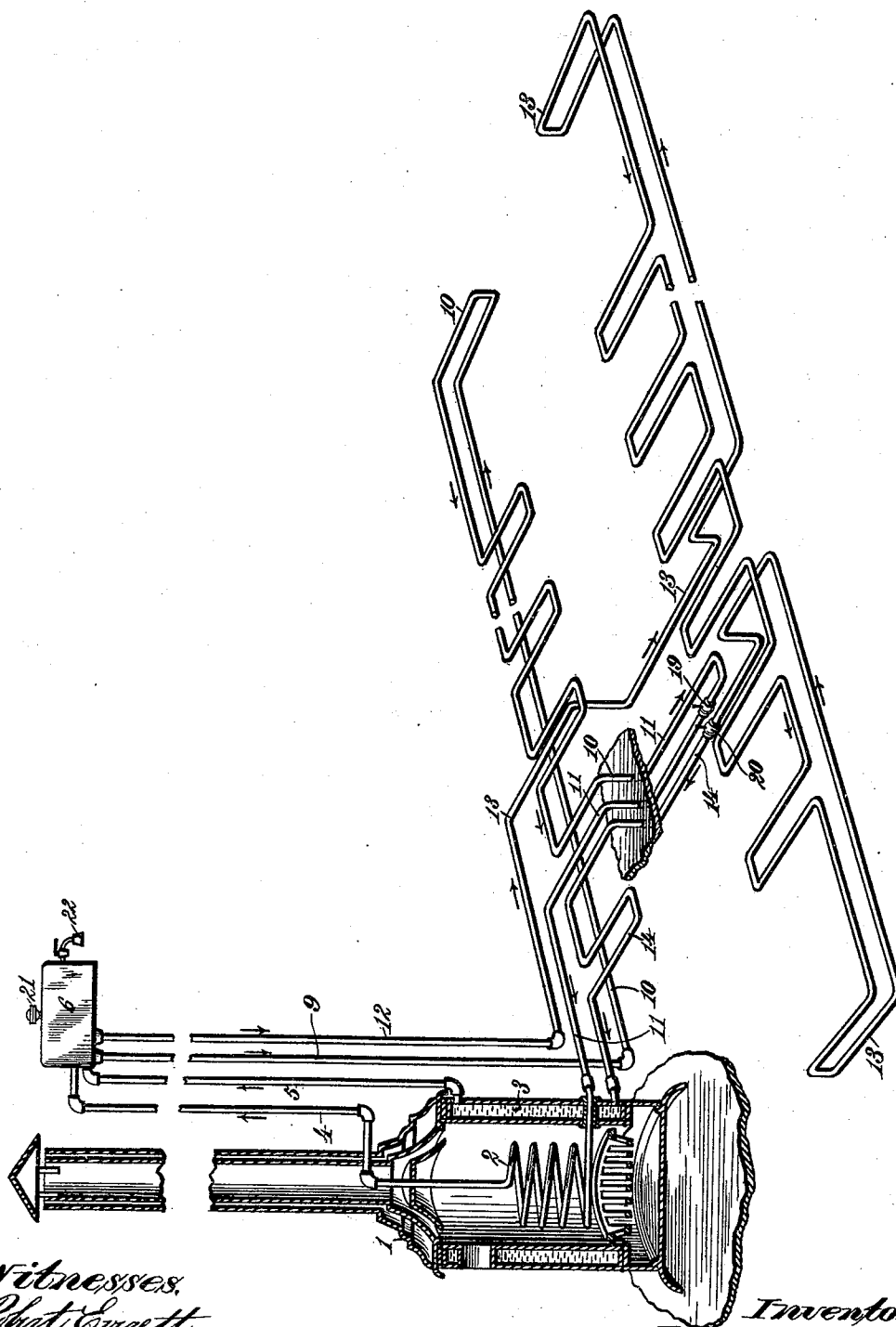


(No Model.)

J. Q. C. SEARLE.
CAR HEATING APPARATUS.

No. 461,280.

Patented Oct. 13, 1891.



Witnesses,
Robert Swett,
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UNITED STATES PATENT OFFICE.

JOHN Q. C. SEARLE, OF CHICAGO, ILLINOIS.

CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 461,280, dated October 13, 1891.

Application filed March 4, 1891. Serial No. 383,753. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. C. SEARLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Car-Heating Apparatus, of which the following is a specification.

This invention relates to improvements in that class of hot-water warming apparatus shown and described in my patents, No. 311,534, February 3, 1885, and No. 340,825, April 27, 1886, in which the water is heated in a single coil and made to circulate through separate and distinct lines of pipes on each side of the car and requiring but one expansion-chamber for the heating apparatus in each car; but owing to the increased size and length of railway-cars as now constructed it is found desirable that increased heating capacity be provided and more hot water supplied to the circulating-pipes without enlarging the heater.

To this end my invention consists in providing a hot-water warming apparatus comprising a heater, two separate and distinct heating and circulating passages, a combined uniting, expansion, and water-dividing chamber, two separate descending pipes, two separate and distinct lines of circulating-pipes that heat each side of the car separately, and two separate return-pipes for returning the cooled water to the separate heating and circulating passages from which it started, whereby I am able to increase the heating capacity of the apparatus and supply more hot water to the circulating-pipes without enlarging the heater.

The annexed drawing, illustrating my present invention, is a perspective of a hot-water warming apparatus with the heater in section, showing the combination of parts whereby the water that is heated in two separate and distinct heating and circulating passages is conducted to the circulating-pipes that heat each side of the car separately, after which the cooled water is returned to the separate heating-passages from which it started.

The numeral 1 designates a heater provided with a heating-coil 2 and a separate heating-passage 3, though any other approved form of heating and circulating device having two separate heating and circulating passages

will answer for heating the water that warms the car.

After the water has been properly heated it is conducted through pipes 4 and 5, a combined water-uniting, expansion, and water-dividing chamber 6, and descending pipes 9 and 12 to the circulating-pipes 10 and 13, that heat each side of the car separately, and by the pipes 11 and 14 the cooled water is returned to the separate heating and circulating passages from which it started, and which said return-pipes may or may not be provided with one or more cocks for effecting an even circulation and an even temperature on each side of the car, as herein set forth.

To secure an even circulation and an even temperature on each side of the car I place in the pipes 11 and 14 a cock or valve, as in and 20, by means of which the circulation may be regulated.

Should the water circulate faster through the pipes on one side than the other, one of the valves may be partly closed, and the circulation thereby retarded enough to cause both flows to reach the heater in about the same time.

The expansion-chamber 6 is provided with a safety-valve 21 to prevent explosions and a funnel-cock 22 for supplying any loss of water to the entire apparatus at one point, as all parts of the apparatus communicate with said expansion-chamber 6, thereby avoiding any necessity of a separate expansion-chamber for each side of the car and the consequent increased attention of the train-men to see that each side is safe and in proper condition for use.

The advantage of the hot-water warming apparatus having two separate heating and circulating passages, a combined uniting, expansion, and water-dividing chamber, and two separate sets of heating and circulating pipes will be obvious, as thereby but one combined water-uniting, expansion, and water-dividing chamber is required and the construction and operation of the apparatus is greatly simplified. In this construction also only one safety-valve and one funnel-cock is required for the apparatus in each car, and the care and attention of the train-men is thus very much lessened without the risk of accident from explosions.

I do not herein broadly claim the combination of a furnace, a plurality of independent liquid-heating passages therein, a plurality of independent radiators communicating with the liquid-heating passages, and a temperature-equalizing chamber, pipe, or passage communicating with the upper ends of the said liquid-heating passages and with the radiators, as such constitutes the subject-matter of my application for Letters Patent filed October 9, 1890, Serial No. 367,565.

Having thus described my present invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. The combination, in a hot-water warming apparatus, of a heater, two separate and distinct heating and circulating passages, a combined uniting, expansion, and water-dividing chamber 6, the pipes 4 and 5, that connect said heating and circulating passages with said combined uniting, expansion, and water-dividing chamber, the circulating-pipes 10 and 13, that heat the car, the pipes 9 and 12, that connect said circulating-pipes with said combined uniting, expansion, and water-dividing chamber, and the return-pipes 11 and 14, that return the cooled water to the separate heat-

ing and circulating passages from which it started.

2. The combination, in a hot-water warming apparatus, of a heater, two separate and distinct heating and circulating passages, a combined uniting, expansion, and water-dividing chamber 6, the pipes 4 and 5, that connect said heating and circulating passages with said combined uniting, expansion, and water-dividing chamber, the circulating-pipes 10 and 13, that heat the car, the pipes 9 and 12, that connect said circulating-pipes with said combined uniting, expansion, and water-dividing chamber, and the return-pipes 11 and 14, that return the cooled water to the separate heating and circulating passages from which it started and provided with one or more cocks 19 and 20, whereby an even circulation and an even temperature may be produced on each side of the car.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

JOHN Q. C. SEARLE. [L. S.]

Witnesses:

N. R. BAKER,

JAMES A. RUTHERFORD.