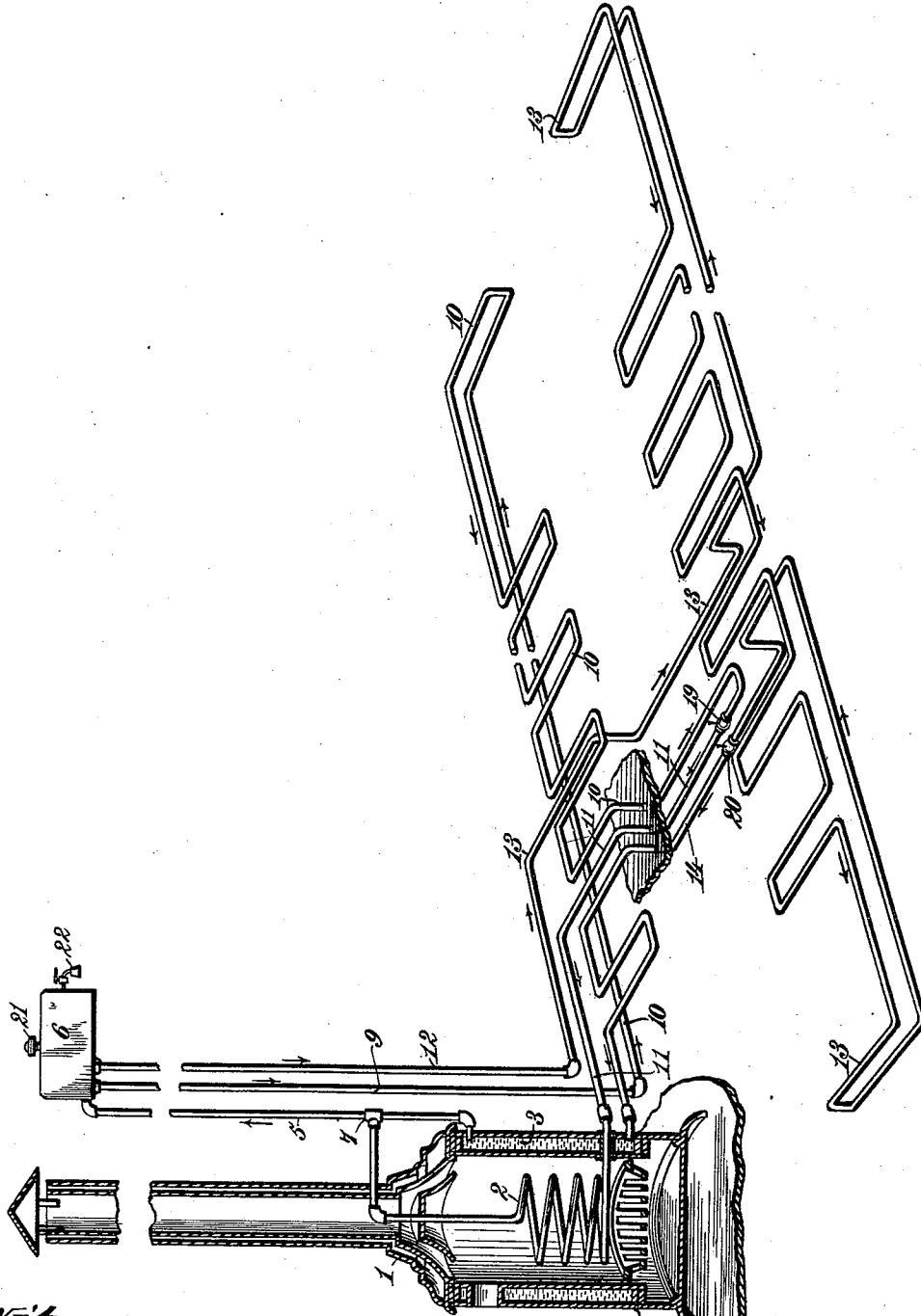


(No Model.)

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

No. 461,281.

Patented Oct. 13, 1891.



Witnesses.
Robert G. Swatt,
J. A. Kitchin,

Inventor:
John Q. C. Searle.
By *Amos L. Norris,*
Atty.

UNITED STATES PATENT OFFICE.

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

CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 461,281, dated October 13, 1891.

Application filed March 4, 1891. Serial No. 383,754. (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 pipe 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, therefore, my present invention consists in providing a hot-water warming apparatus comprising a heater, two separate and distinct heating and circulating passages, a water-uniting fitting, a single ascending pipe, a combined expansion and water-dividing chamber, two separate descending pipes, circulating-pipes that heat each side of the car separately, and two return-pipes for returning the cooled water to the separate heating and circulating passages from which it started, whereby I am enabled to increase the heating capacity of the apparatus and supply more hot water to the circulating pipes without enlarging the heater.

The apparatus may also comprise one or more cocks or valves, whereby an even circulation and an even temperature can be effected on each side of the car, which in a cold day, with a strong wind blowing against one side of the train of cars, has heretofore made it impossible to warm that side of the car.

The annexed drawing, illustrating the 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, and afterward by the return-pipes 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 and circulating passage 3, though any other approved form of heating device having two separate heating and circulating passages will answer to heat the water that warms the car.

After the water has been properly heated it is conducted through a fitting 7, a pipe 5, a combined expansion and water-dividing chamber 6, and two 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 may be returned to the separate heating and circulating passages from which it started.

It further consists in providing means whereby an even circulation and an even temperature is secured on each side of the car. To obtain this result I place in the pipes 11 and 14 a cock or valve, as 19 and 20, by means of which the circulation may be regulated.

Should the water circulate faster on one side than on 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, thereby avoiding any necessity of a separate expansion-chamber for each side of the car and the consequent increased attention of the trainmen to see that each side of the apparatus is safe and in proper condition for use.

From the foregoing description the operation and advantages of this hot-water warming apparatus will be obvious.

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 radi-

ators, 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 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 water-uniting fitting 7, a combined expansion and water-dividing chamber 6, the pipe 5, that connects said water-uniting fitting with said 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 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.

2. The combination, in a hot-water warming

apparatus, of a heater, two separate and distinct heating and circulating passages, a water-uniting fitting 7, a combined expansion and water-dividing chamber 6, the pipe 5, that connects said water-uniting fitting with said 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 expansion and water-dividing chamber, and the return-pipes 11 and 14, that return the cooled water to said heating and circulating passages, said pipes provided with one or more cocks 19 and 20, as and for the purpose specified.

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.