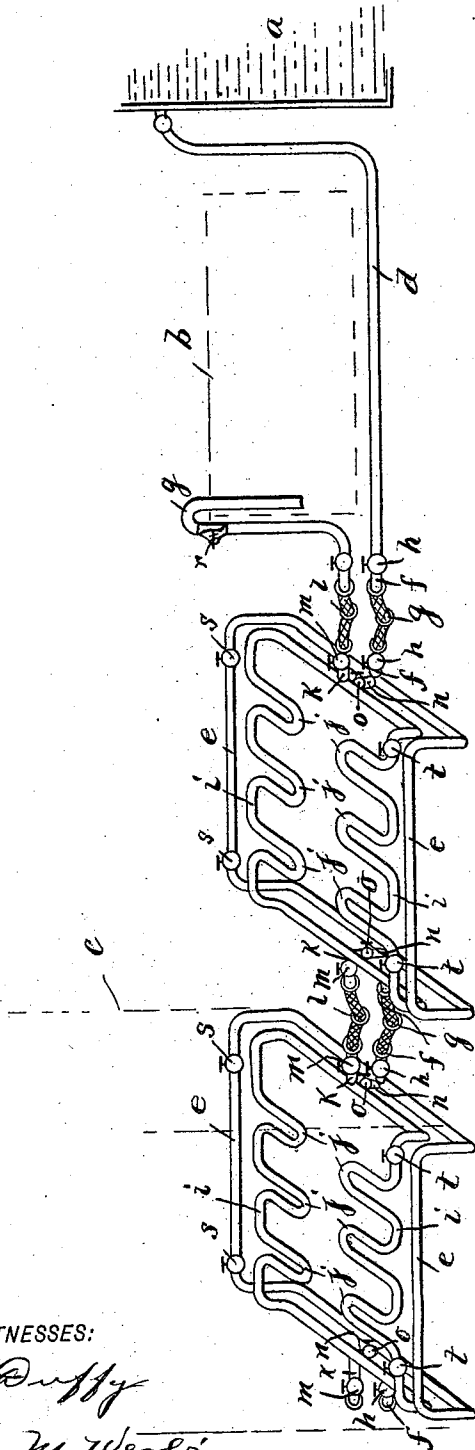


(No Model.)

E. A. QUISENBERRY.
CAR HEATER.

No. 501,483.

Patented July 11, 1893.



WITNESSES:

E. C. Duffy

Chas M. Wells

INVENTOR

E. A. Quisenberry

BY

O. C. Duffy

ATTORNEY.

UNITED STATES PATENT OFFICE.

EDWARD A. QUISENBERRY, OF LEXINGTON, VIRGINIA.

CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 501,483, dated July 11, 1893.

Application filed August 22, 1892. Renewed June 17, 1893. Serial No. 478,007. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. QUISENBERRY, of Lexington, in the county of Rock-bridge and State of Virginia, have invented certain new and useful Improvements in Car-Heaters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in car heaters.

The object of the invention is to provide an improved arrangement whereby the heat in or amount of heat supplied to each car can be readily and easily regulated by a very simple and easily understood means and arrangement.

The invention consists in certain novel features of construction and in combination of parts more fully described hereinafter and particularly pointed out in the claims.

The accompanying drawing shows in diagram, the arrangement of pipes and regulating valves.

In the drawing the reference letter *a*, indicates a locomotive boiler.

b, indicates the water tank of the tender.

c, indicates the cars.

d, indicates a supply conduit or pipe extending from the locomotive boiler preferably at a point below the water line thereof, rearwardly so that its rear end at the end of the tender can be detachably connected by suitable couplings with the train pipes.

The outgoing or supply train pipes *e*, are doubled or looped throughout the length of each car, each pipe forming a continuous loop. The ends of each loop extend transversely of the ends of the car and are provided with the projecting ends *f*, having flexible ends and coupling members *g*, so that the various supply pipes of the cars are connected to form a continuous conduit throughout the train. Each projecting end is provided with a cut off valve *h*, for obvious reasons.

The return heating pipes *i*, are formed in a corresponding manner to the supply pipes in the form of continuous loops having their

ends extending transverse of the car ends. These return pipes are provided with the heating coils *j*, suitably arranged within the cars. The return pipe ends are usually located in the same vertical planes as but above the supply pipe ends and are provided with the outwardly extending ends *k*, having flexible sections and coupling means *l*, so that all the return pipes of the various cars can be coupled together to form the return conduit of the train. These ends *k*, are also provided with the cut off valves *m*, so that the ends can be closed when the couplings are broken. Vertical pipes *n* connect the corresponding ends in each car of the looped supply and return pipes, and each vertical cross pipe is provided with a cut off valve *o*. In operation the valves in all of these connecting pipes *n*, are closed except the one at the rear end of the last car of the train which is open so that the heating medium can flow throughout the length of the supply conduit and then up through said end connecting pipe into the heating and return conduit. By the arrangement disclosed any car can be the rear car of the train and it makes no difference which end of the car forms its front end. The return conduit connects with the pipes, on the tender extending down into the water tank thereof with its discharge end near the bottom or at least below the water line of the tender. This pipe *q*, on the tender is provided with a spring valve *r*, yieldingly tending to prevent the outflow of water from the train pipes into the tender tank, and thereby maintaining a pressure in the train pipes and preventing a too rapid flow of the water there-through under low pressure.

One side of the supply pipe in every car is permanently open that is preferably has no valves, while the opposite side of each looped supply pipe is provided with two valves *s*, *s*, near its ends and usually in the car so that they can be easily operated from the interior of the car. The return heating pipes are provided with valves *t*, *t*, after the same plan. One side of each looped return pipe (preferably the side next to the open side of the supply pipe) is provided with the two valves *t*, *t*, near its opposite ends so that that side of the loop within the car can be entirely shut off, while the other side of the loop is entirely open and

without closing valves. By means of this arrangement the heat in each car can be nicely regulated. By closing the valves *s, s*, in a car one side of the supply pipe is cut off from the heating supply and the radiating surface is correspondingly reduced in the car, the heat supply to the remainder of the train flowing through the other side of said pipe. If it is desired to still further reduce the radiating surface in the car the valves *t, t*, can be closed thereby shutting out one side of the heating return pipe. The radiating surface is thus reduced one half, and can be easily and quickly regulated.

The system here illustrated is particularly to heat the cars by radiation from hot water forced through the train pipes by the pressure in the boiler. The water after passing through the train pipes is discharged into the tender tank. The heat in each car can by this means be independently regulated. The pipes in one car can be shut off as completely as possible while the pipes in the next car to the rear or to the front can be opened completely.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A car heating system comprising the supply conduit having the single connections between the cars and looped in the cars so that the two sides of the conduit extend longitudinally of the car and at their ends connected with said single connections, one side

of said conduit being permanently open through the car, a cut off valve in the other side of said conduit, the return conduit having the single connections between the cars and looped in the cars so that the two sides of the conduit extend longitudinally of the car and at their ends connect with said single connections, one side of said conduit being permanently open, and a cut off valve in the other side of said return conduit as and for the purposes set forth.

2. A car heating system the supply conduit having the single valved connections between the cars, and looped in the cars, the sides of each loop extending longitudinally of and on opposite sides of the car, one side of the loop having a cut off valve, the return pipe having the single valved connections between the cars and looped in the cars, the sides of each loop extending longitudinally of and on opposite sides of the car, and a cut off valve in the side of each return loop on the opposite side of the car from the side of the supply loop having a cut off valve, as set forth, the supply and return loops in each car connected at their ends by valved connections, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EDWARD A. QUISENBERRY.

Witnesses:

C. J. BELL,
J. P. MOORE.