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J. W. BEACH.

HEATING SYSTEM FOR CARS, &c.

No. 521,008. Patented June 5, 1894.

Fig. 2.

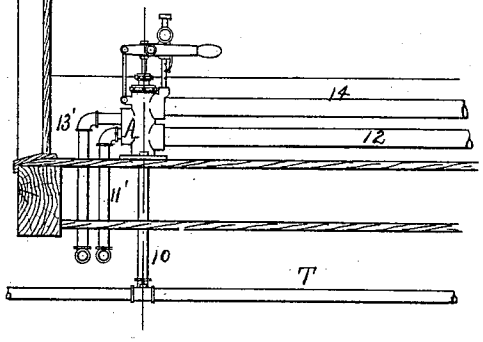


Fig. 3.

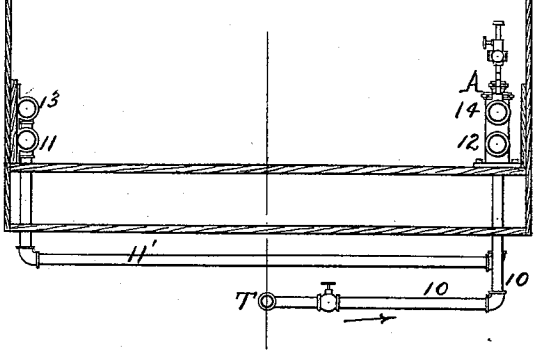
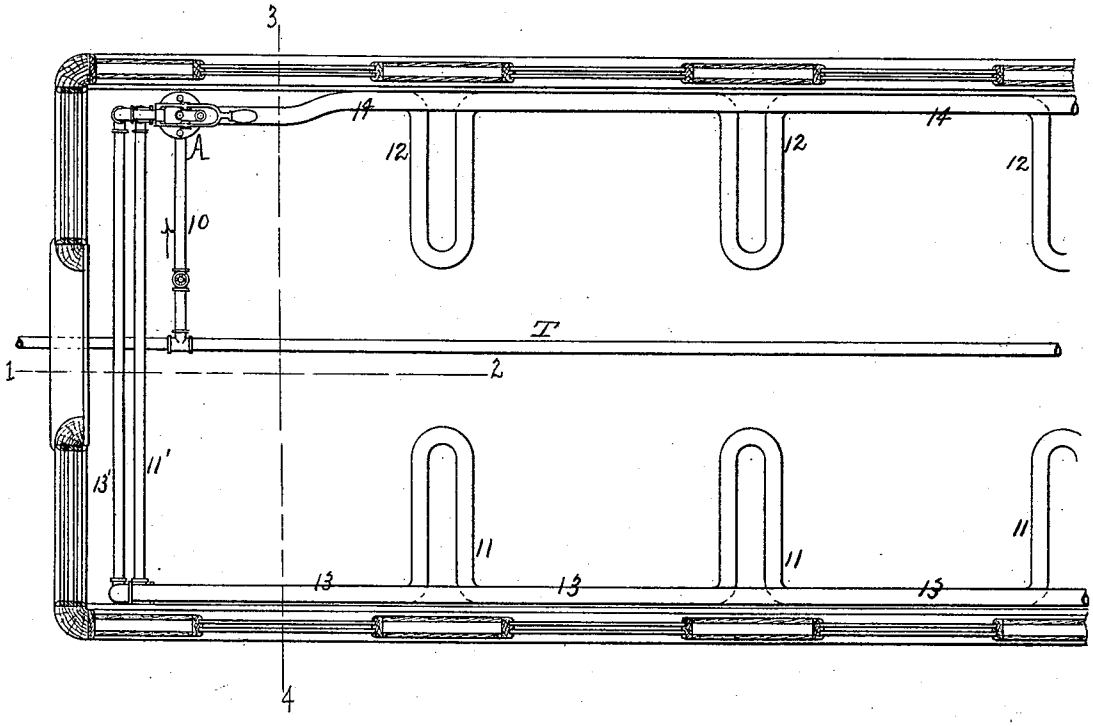


Fig. 1.



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HEATING SYSTEM FOR CARS, &c.

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Fig. 6.

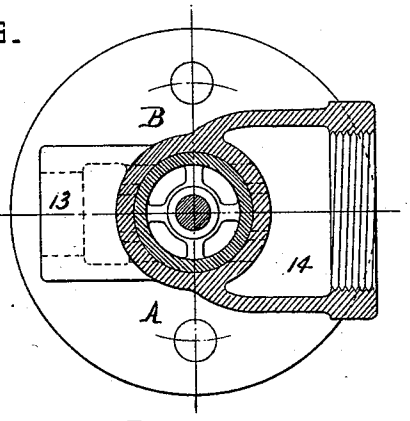


Fig. 4.

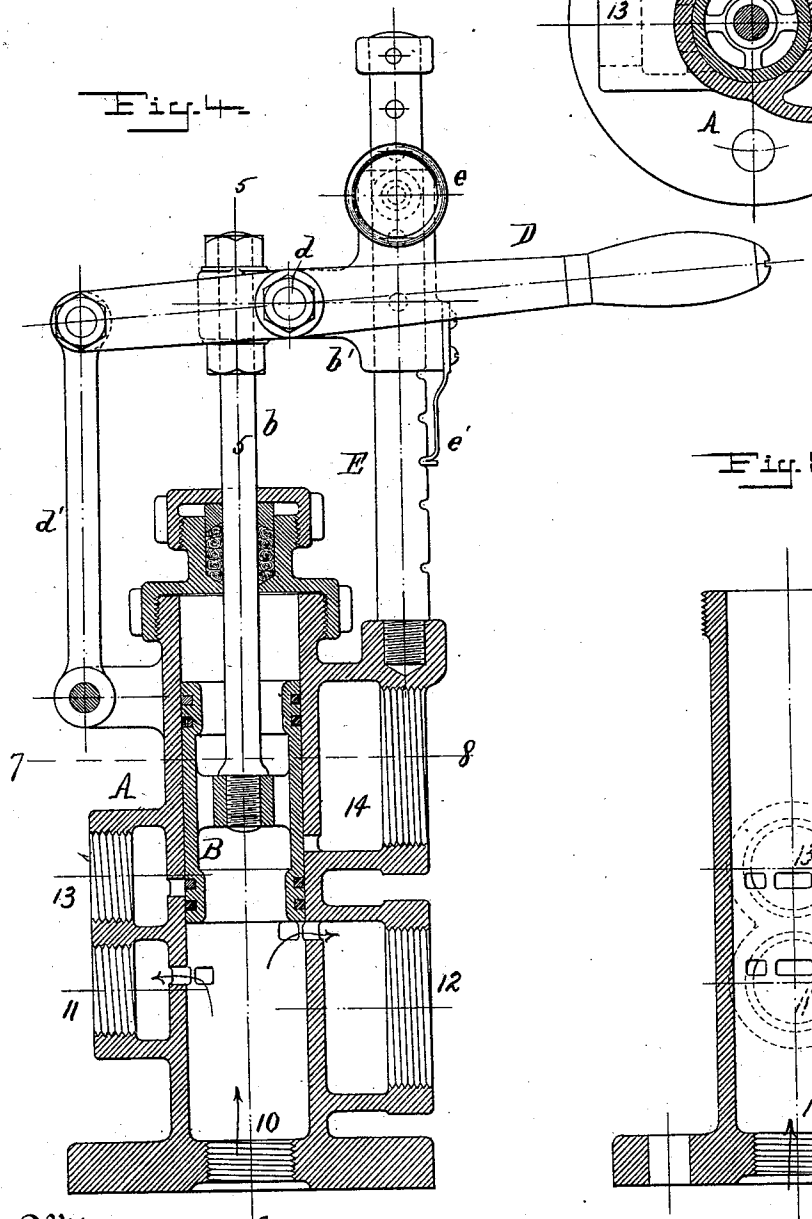
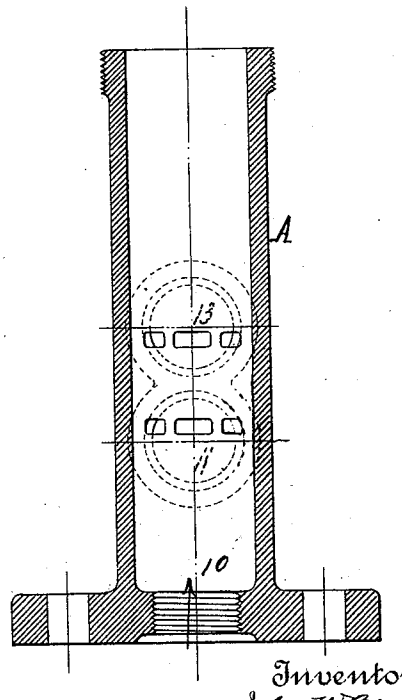


Fig. 5.



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J. W. BEACH.

HEATING SYSTEM FOR CARS, &c.

No. 521,008. Patented June 5, 1894.

Fig. 6.

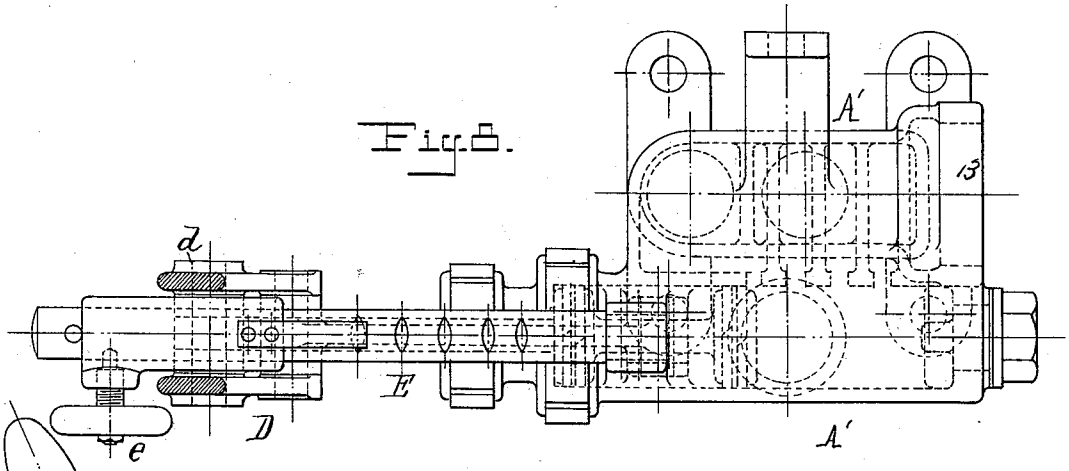
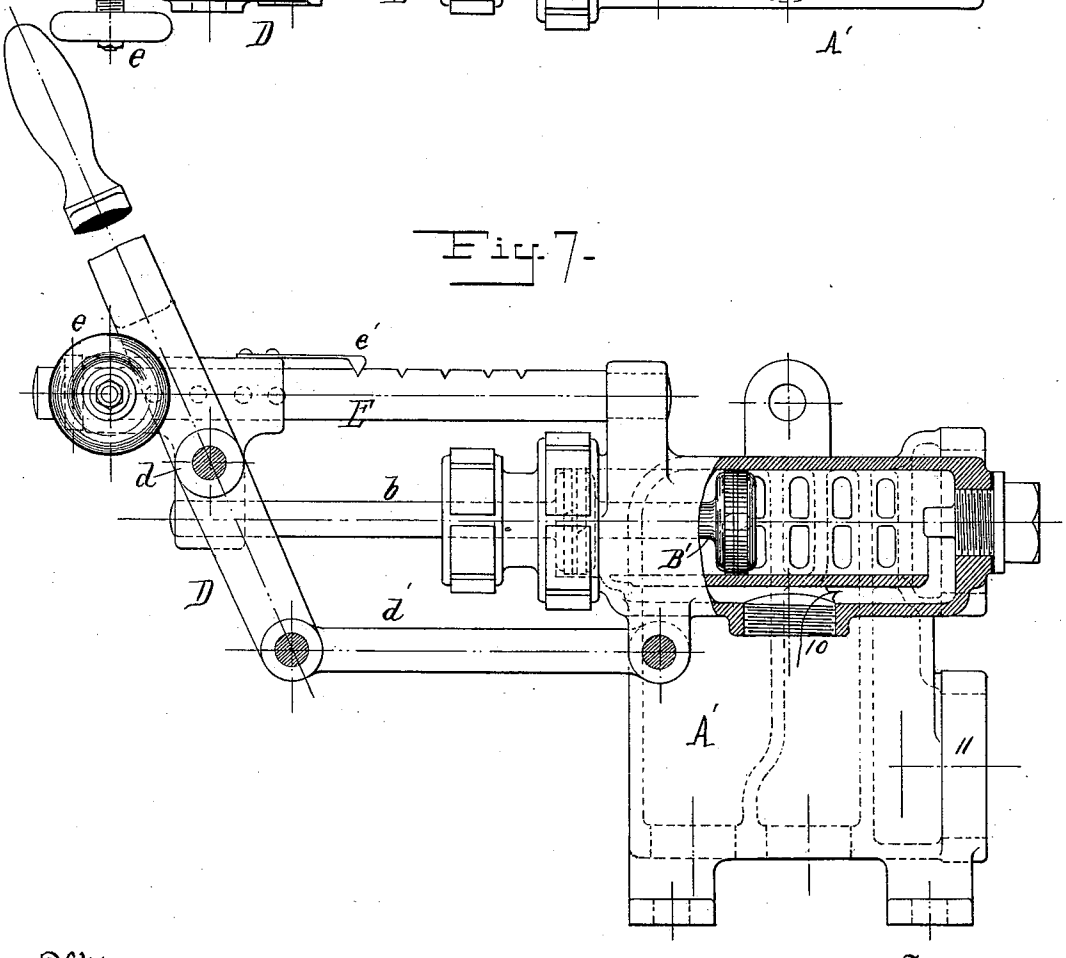


Fig. 7.



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J. W. BEACH.

HEATING SYSTEM FOR CARS, &c.

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Fig. 11.

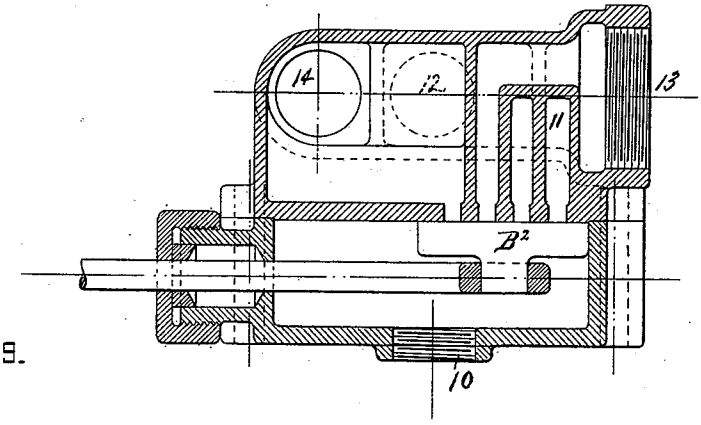


Fig. 9.

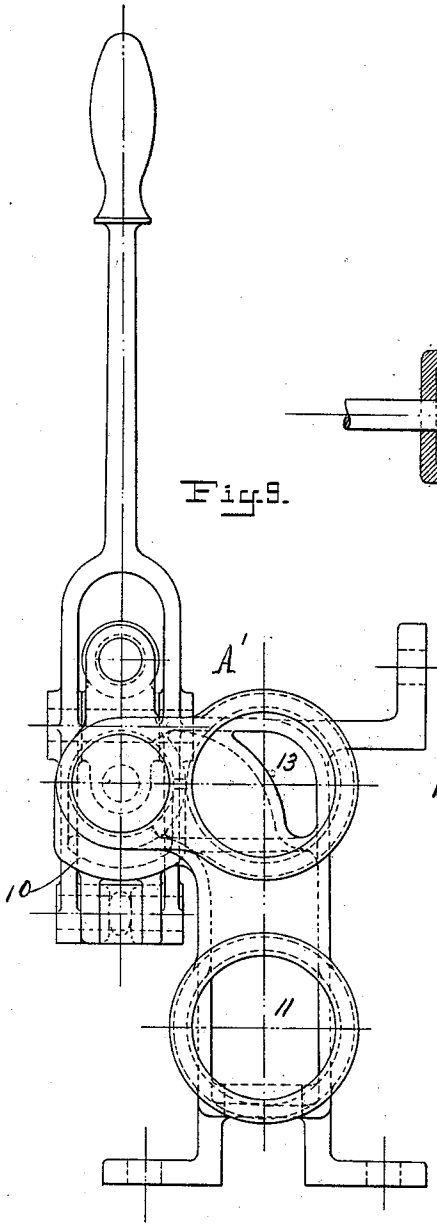
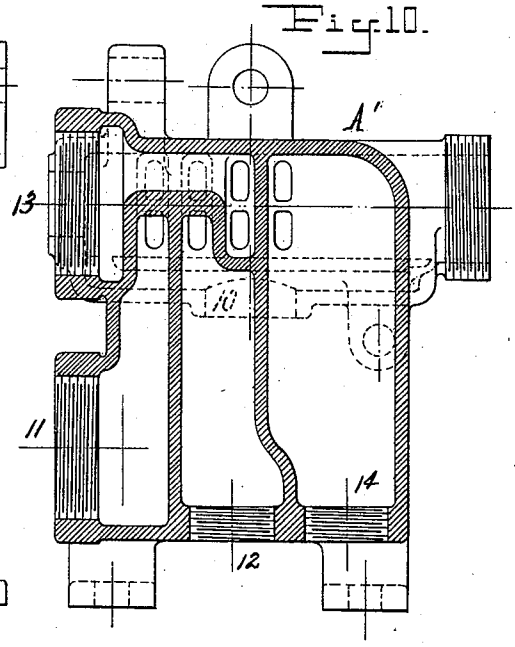


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN W. BEACH, OF NEW YORK, N. Y.

HEATING SYSTEM FOR CARS, &c.

SPECIFICATION forming part of Letters Patent No. 521,008, dated June 5, 1894.

Application filed January 2, 1892. Serial No. 416,834. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. BEACH, a citizen of the United States, and a resident of New York city, New York, have invented an Improvement in Heating Systems for Cars, of which the following is a specification.

The object of my invention is to construct a simple and convenient mechanism for steam or other heating systems for cars whereby any desired number of a series of pipes in a car may be conveniently shut off from the supply of heating fluid to permit of the regulation of the heat in the car by thus decreasing or increasing the amount of radiating surface.

In the accompanying drawings, Figure 1 is a sectional plan view of part of a railway car provided with my improvement, but with the flooring of the car shown as taken out, for the more convenient representation of the piping. Fig. 2 is a longitudinal section on the line 1—2, Fig. 1. Fig. 3 is a transverse section on the line 3—4, Fig. 1. Fig. 4 is a vertical section of my preferred form of controlling device, drawn to a larger scale. Fig. 5 is a vertical section of the valve casing on the line 5—6, Fig. 4, but with the piston, piston rod and stuffing box cap removed. Fig. 6 is a sectional plan view on the line 7—8, Fig. 4. Fig. 7 is a side view, partly in section, of a modified form of valve device. Fig. 8 is a plan view with the operating lever in section. Fig. 9 is an end view of the same. Fig. 10 is a vertical sectional view through the steam passages. Fig. 11 is a sectional plan view of another modification.

Referring to Figs. 1, 2 and 3, T is the train pipe for the supply of steam or hot air to all the cars, and on each car a valved branch pipe 10 from the train pipe extends up to a controlling valve device A at any suitable point in the car, but I prefer to have it as shown near the end of the car at one side. The car is shown as provided in this instance with four series of radiating pipes 11, 12, 13, 14 on opposite sides of the car and extending throughout its length, but the number of these pipes may be increased or diminished as found desirable. These pipes may simply run longitudinally with the car as illustrated in the case of those marked 13, 14 or they may be provided with any suitable number of loops or lateral branches, as illustrated in the case of the pipes 11 and 12. At the opposite end of the car from that at which the pipes are connected through the controlling valve to the train pipe, there may be provided suitable check valves and drip valves, which however form no part of my present invention and are not shown.

As illustrated in the drawings the radiating pipes 12, 14 are connected directly at their ends to the casing of the controlling valve device A, while the pipes 11 and 13 on the opposite side of the car are connected to the same controlling valve device by cross pipes 11′ and 13′ which are preferably carried underneath the flooring of the car from one side to the other, as fully shown in Figs. 1, 2 and 3. This controlling valve A is so constructed and provided with a hand lever that the steam may be admitted to one, two or more or all of the pipes as desired, according to the amount of radiating surface needed to give the desired temperature to the car, or the valve may be moved to cut off all the pipes from the steam supply. By this means the one valve can be readily got at and readily manipulated by the brakeman or other person to control the temperature of the entire car.

The detailed construction of the controlling valve which I prefer to use is illustrated in Figs. 4, 5 and 6, the several steam passages to which the several radiating pipes are to be connected being numbered in these figures for convenience with numbers corresponding with those of the respective pipes, shown in Figs. 1, 2 and 3. Thus in Figs. 4 and 5 the passage marked 10 is the inlet for the steam from the train pipe to the central chamber containing the balanced piston valve B. This valve is carried by a piston rod *b* which passes through a stuffing box cap on the casing and has at its upper end a guide bracket *b′* traveling on a guide rod E carried by the casing. This guide bracket *b′* is provided with a set screw *e* by which the bracket may be secured to the guide rod E in any position to which it and the piston valve may be adjusted. I prefer also to provide a spring tongue *e′* to enter notches made in the edge of the guide rod E to more easily determine the different positions to be given to the valve to open the different ports for admitting steam to the different pipes in the car. This spring tongue

may also serve to hold the lever in its adjusted positions without the set screw *e*.

In Fig. 4 the valve is shown as raised to the position to admit steam to the passages to pipes 11 and 12. By raising the valve a little farther steam may also be admitted to the passage to the pipe 13 and by raising it one step farther steam may be admitted to all the sets of piping. On the other hand, by moving the valve B in the opposite direction the supply of steam to the different pipes may be sucessively cut off. The pipes on opposite sides of the car are so connected up with the successive ports in the valve casing that as the valve is moved the steam or other heating medium will be admitted to or cut off from the pipes on opposite sides of the cars alternately.

For the convenient manipulation of the valve, I provide a handled lever D pivoted to the casing through the medium of a connecting link *d'* and having a pivotal connection *d* with a piston rod or its bracket.

The controlling valve device illustrated in Figs. 7, 8, 9, and 10 is different in shape from that shown in Fig. 4, but is in its operation in all essential particulars the same as that shown in Fig. 4, and the various steam passages are marked with corresponding numbers. Thus the steam is admitted at 10, Figs. 7 and 10, and the ports leading to the passages to the pipes 11, 12, 13 and 14 are controlled by the horizontally moving valve B' which is shown as a double piston valve which may be adjusted as shown by the same devices, as already described with reference to Fig. 4.

In the modification shown in Fig. 11, the ports leading to the steam passages to the pipes 11, 12, 13 and 14 are shown controlled by a flat valve B^2 in place of the piston valves already described, but the construction and operation of these modifications will be understood without any further explanation.

I claim as my invention—

In a car heating system the combination with a plurality of heating pipes, arranged on opposite sides of the car, the train pipe, a single valve casing on each car, provided with a main inlet connected with the train pipe, a plurality of outlets corresponding in number to the said heating pipes, arranged successively on the casing, connections from the casing to the heating pipe, and a single valve controlling the admission of heating fluid to the pipes on both sides of the car and to any desired number of such pipes, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN W. BEACH.

Witnesses:
HUBERT HOWSON,
JOHN REVELL.