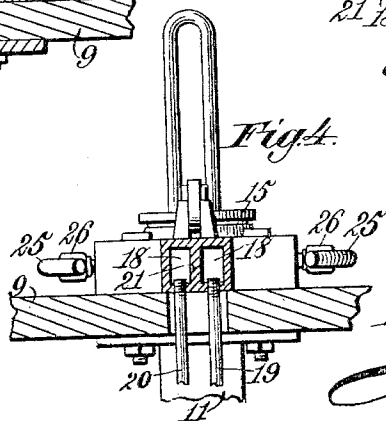
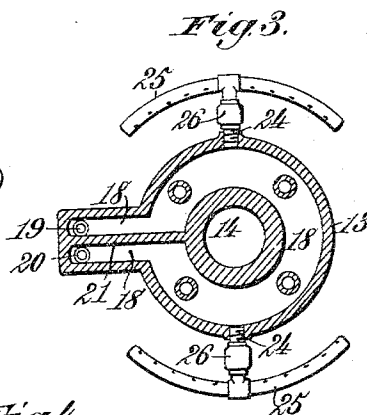
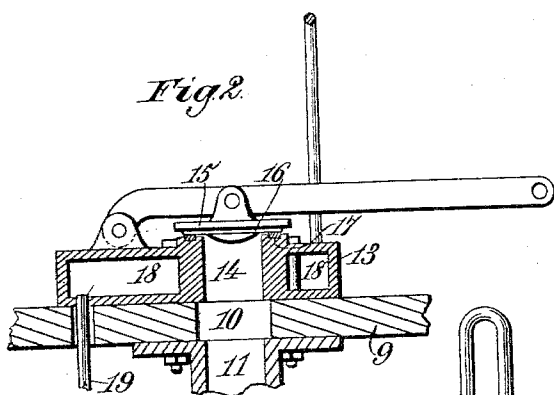
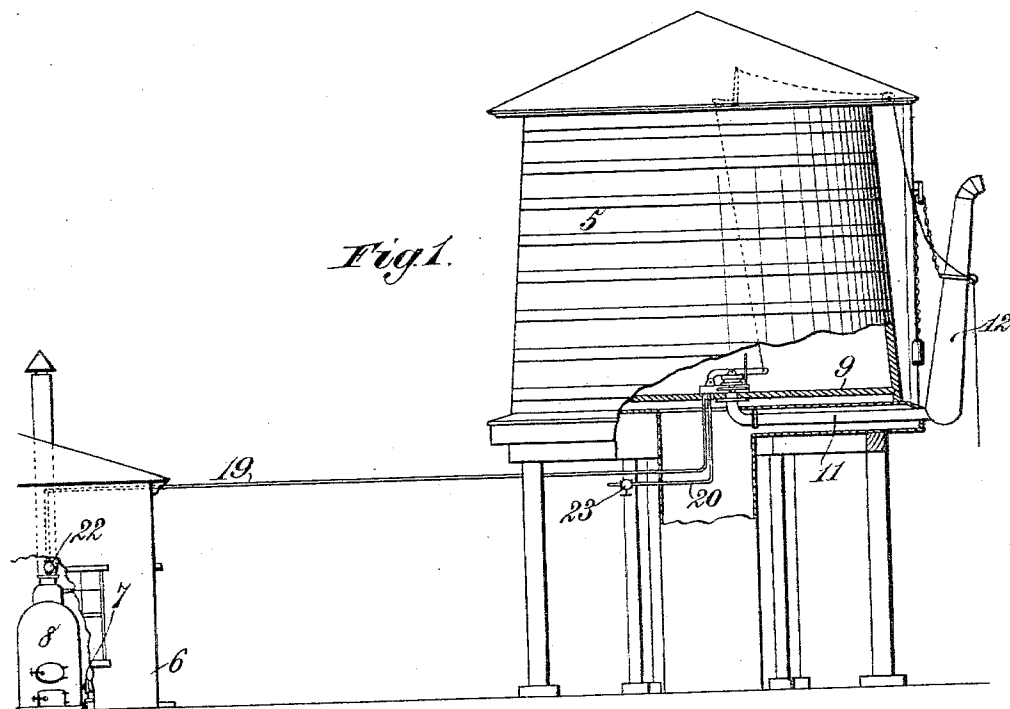


(No Model.)

S. E. LONG.
VALVE FOR RAILROAD TANKS.

No. 566,592.

Patented Aug. 25, 1896.



Witnesses.
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UNITED STATES PATENT OFFICE.

SAMUEL E. LONG, OF RICHMOND, VIRGINIA.

VALVE FOR RAILROAD-TANKS.

SPECIFICATION forming part of Letters Patent No. 566,592, dated August 25, 1896.

Application filed March 13, 1896. Serial No. 583,088. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. LONG, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented new and useful Improvements in Valves for Railroad-Tanks, of which the following is a specification.

My invention relates to valves for railroad-tanks, and has for its object the provision of means for preventing the freezing of such valves.

The invention consists in a railroad-tank valve having a passage for the circulation of steam or hot water in the valve-casing to prevent the valve from becoming inoperative by freezing to its seat, and it is also within the purpose of my invention to so construct the valve-casing as to provide for spraying steam or hot water into the tank.

In the annexed drawings, illustrating the invention, Figure 1 represents a portion of a railway water-station, in part sectional elevation, showing the arrangement of my improved tank-valve and means for preventing its freezing. Fig. 2 is an enlarged vertical elevation through the bottom of the tank, the water-outlet pipe, and the casing of the tank-valve. Fig. 3 is a horizontal section of the tank-valve casing with spraying attachments. Fig. 4 is a partly-vertical section at a right angle to the view in Fig. 3.

Referring to Fig. 1 of the drawings, the numeral 5 designates an elevated water-tank, such as employed at railway water-stations, and 6 represents a pump-house with steam-pump 7 and boiler 8, as usual.

In the bottom 9 of the tank is an outlet 10, Fig. 2, communicating with a water-discharge pipe 11 leading to a counterbalanced shifting spout 12 of the ordinary kind used for supplying the tender of a locomotive with water.

Over the tank-outlet 10 is arranged a tank-valve casing 13, provided with a through passage 14, controlled by the usual hinged valve 15 and its suitable lever and tackle connections, which may be arranged in a well-known manner, as indicated in Fig. 1. The valve 15 may have a rubber facing 16 and Babbitt-metal seat 17, as usual.

In order to prevent freezing of the tank-valve 15 to its seat, there is provided in the

valve-casing 13 a substantially circular passage 18 for circulation and radiation of a heating medium, such as steam or hot water. Steam is preferably employed when the water-tank 5 is arranged to be kept supplied by the operation of a steam tank-feeder pump. In this case steam may be taken from the boiler 8 through a pipe 19, leading to the circulating-passage 18 of the tank-valve casing. After circulating in the valve-casing passage 18, adjacent to the valve 15, the steam or hot water may be permitted to escape through an outlet-pipe 20 for steam or hot water, as shown in Figs. 1, 3, and 4. A partition 21, Figs. 3 and 4, is provided in the circulating-passage 18, at a point between the pipes 19 and 20, to compel a circulation of the heating medium in and through the tank valve casing. By this means the tank-valve casing is maintained at such temperature as to avoid any liability of the tank-valve becoming inoperative from freezing.

Where the water-tank 5 is not provided with a steam-pump 7 and boiler 8 any other suitable source of steam or hot water may be provided for supplying the tank-valve casing with a heating medium in cold or freezing weather. For instance, the coil of an ordinary Baker heater may be connected with the pipes 19 and 20 that communicate with the tank-valve casing, or these pipes may be connected with a small boiler heated by any convenient means.

The steam or hot-water supply pipe 19 is preferably provided with a hand-valve 22, Fig. 1, for controlling the supply of heating medium to the tank-valve casing, and the pipe 20 has a similar valve 23, Fig. 1, to control the exhaust.

As an additional means for obviating any liability to freezing of the tank-valve the valve-casing 13 may be tapped at convenient points for connection with short pipes 24, carrying at their outer ends spray-distributors 25, Figs. 3 and 4, which are located in the lower part of the water-tank 5 and adapted to deliver therein a portion, or the whole, of the exhaust from the circulating-passage of the tank-valve casing. In each of the pipes 24 is an ordinary check-valve 26, and by partly, or altogether, closing the valve 23 of the exhaust-pipe 20 steam or hot water from

the circulating-passage 18 of the tank-valve casing 13 may be allowed to enter the water-tank. It is preferable to only partly close the valve 23, thereby securing a more uniform distribution of heat throughout the tank-valve casing and yet permitting a portion of the heating medium to escape into the tank-water.

It is obvious that by the means provided for causing the circulation of a heating medium in the casing of the tank-valve the annoyances and delays resulting from the freezing of such valves at railway water-stations may be readily avoided.

What I claim as my invention is—

1. The combination with a tank-valve having its casing provided with a passage for circulation of steam or hot water, to prevent freezing of the valve to its seat, of a spray-distributor leading from said circulating-passage of the valve-casing and projected within the tank to spray steam or hot water therein, and a check-valve for said spray-distributor, substantially as described.

2. The combination with the tank of a railway water-station, and its discharge or outlet valve having a casing provided with a passage for the circulation of steam or hot water around said valve to prevent freezing of the valve to its seat, of a valved pipe for supply-

ing steam or hot water to said circulating-passage, a valved exhaust-pipe leading from said circulating-passage, and a spray-distributor located within the tank and communicating with said circulating-passage of the valve-casing to spray steam or hot water into the tank, substantially as described.

3. The combination with the elevated tank of a railway water-station, and its steam-supply pump and boiler, of a tank-outlet valve having its casing provided with a passage for the circulation of steam or hot water around said valve to prevent freezing of the valve to its seat, spray-distributors leading from said circulating-passage of the valve-casing for delivering hot water or steam into the tank, a pipe leading from the boiler to the said circulating-passage of the tank-valve casing and provided with a hand-valve to control the supply of steam or hot water, and a valved exhaust-pipe leading from said circulating-passage of the tank-valve casing, substantially as described.

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

SAMUEL E. LONG.

Witnesses:

JAMES L. NORRIS,
THOS. A. GREEN.