

(No Model.)

W. PARRETT.  
ANTIFREEZING STEAM HEATER.

No. 555,223.

Patented Feb. 25, 1896.

Fig. 1.

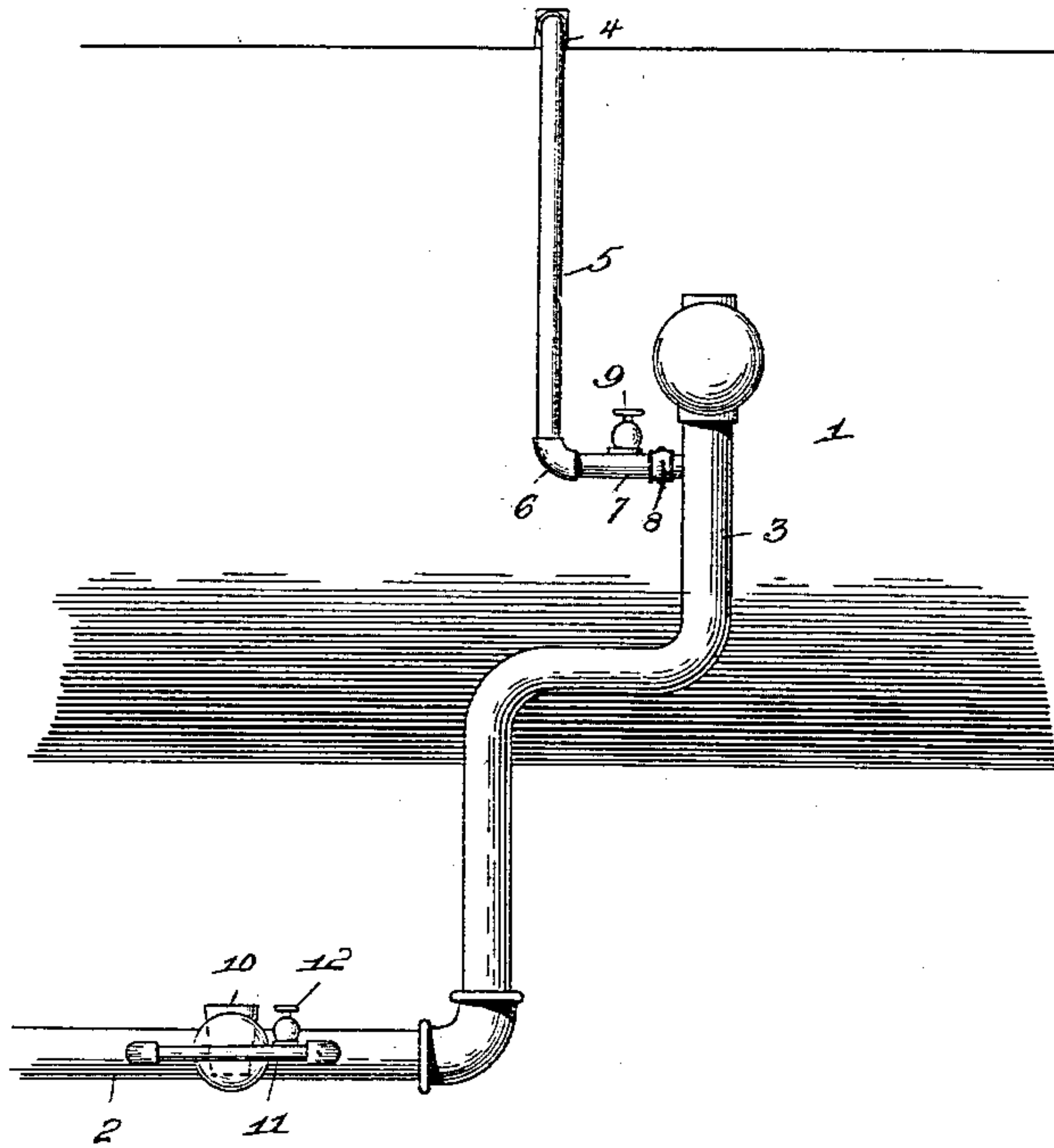


Fig. 2.

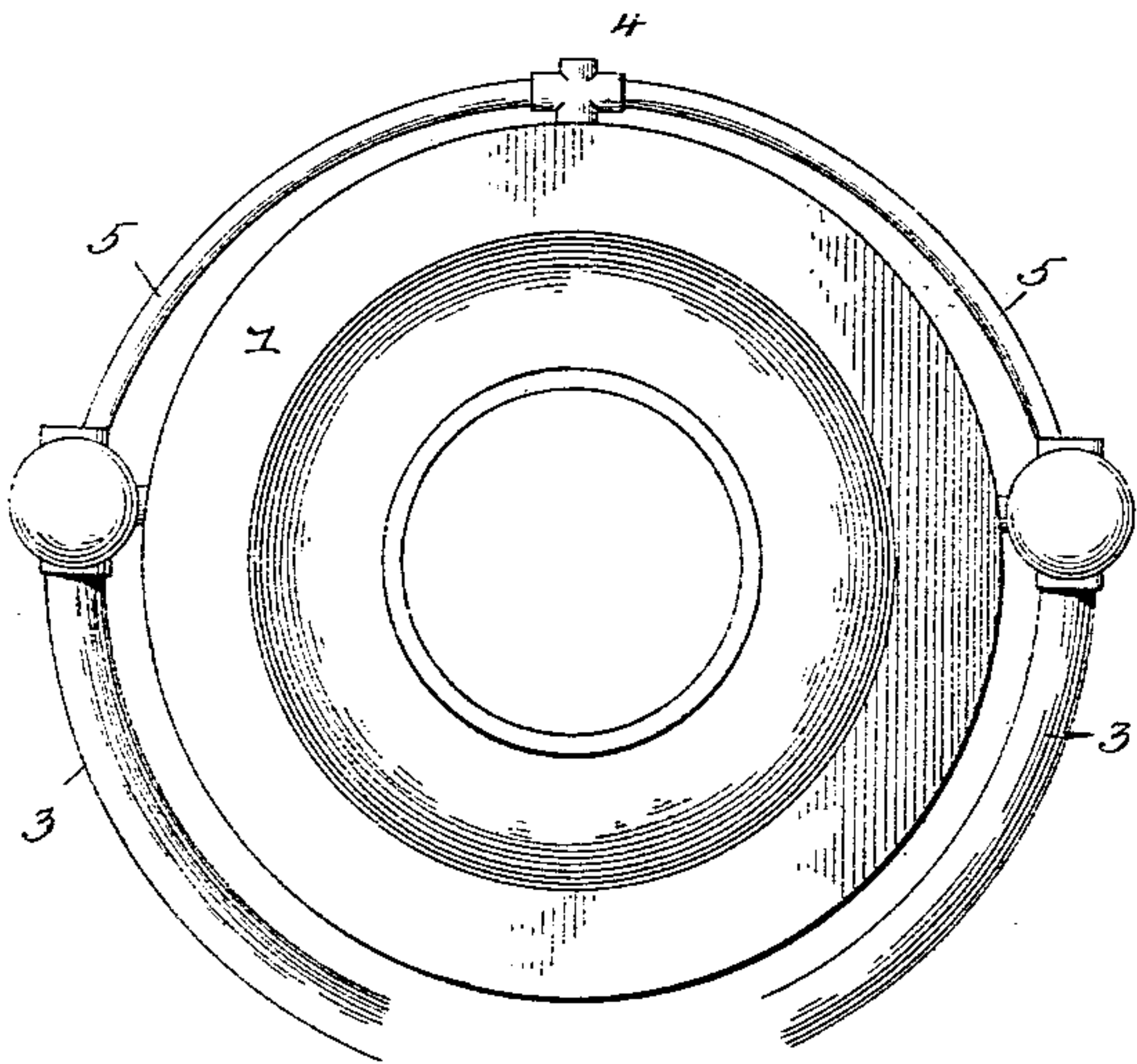
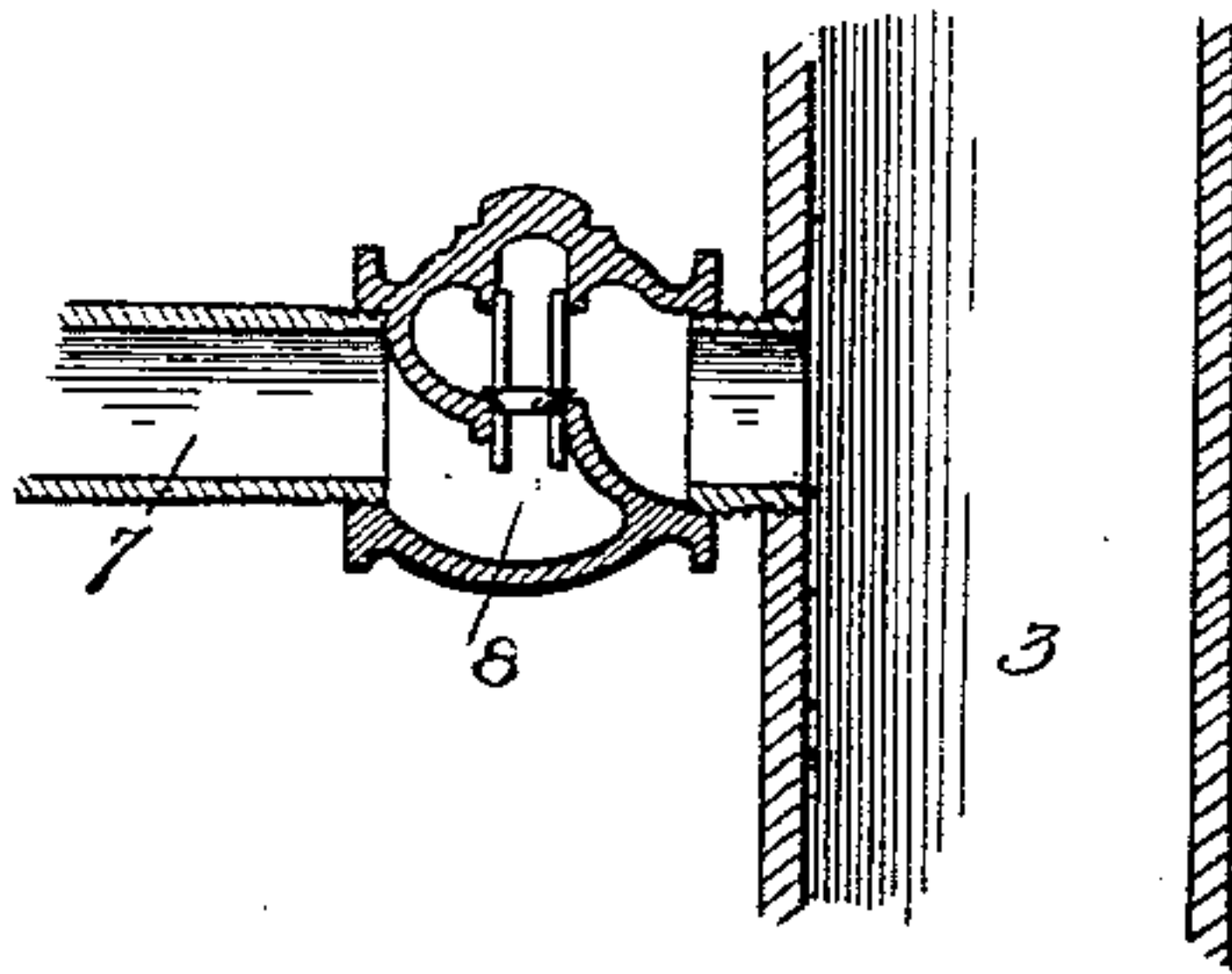


Fig. 3.



Inventor

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Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM PARRETT, OF GALENA, ILLINOIS.

## ANTIFREEZING STEAM-HEATER.

SPECIFICATION forming part of Letters Patent No. 555,223, dated February 25, 1896.

Application filed May 14, 1895. Serial No. 549,299. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM PARRETT, a citizen of the United States, residing at Galena, in the county of Jo Daviess and State of Illinois, have invented a new and useful Antifreezing Steam-Heater, of which the following is a specification.

This invention relates to an improvement in devices for preventing the injectors and pumps of locomotive steam-engines from freezing.

The object of the present invention is to provide a simple and inexpensive attachment for locomotive steam-boilers by means of which live steam will be automatically admitted to the injector-pipes and the branch pipes during the time that the injector is out of operation for the purpose of preventing the injector-pipe and branch pipes from freezing in cold weather.

To accomplish the above object the invention consists in certain novel features and details of construction and arrangement, as hereinafter fully described, illustrated in the drawings, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a locomotive steam-boiler together with the injector-pipe and its branches, showing also my improvements applied. Fig. 2 is an end view of the boiler, showing the steam-pipe partially surrounding the boiler. Fig. 3 is an enlarged sectional view showing the manner in which the self-acting valve at the junction of the steam-pipe with one of the branch pipes operates.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 represents the steam-boiler of a locomotive-engine or a sufficient portion thereof to illustrate the application of the present invention. 2 designates the injector-pipe, which has the usual branches 3, extending upwardly upon either side of the boiler, said branch pipe being connected with the boiler upon either side at or near the horizontal center thereof, said parts being constructed and arranged in the ordinary manner.

In order to apply this invention the boiler 1 is tapped or perforated at any suitable point

upon the top, sides, or ends, as preferred or found convenient, and provided with a T-coupling 4, by means of which access may be obtained to the steam-space of said boiler. From this T-coupling, which in the present drawings is shown located at the top of the boiler, a pair of steam-pipes 5, disposed upon opposite sides of the boiler, extend in close proximity to and downwardly upon either side of said boiler to points slightly beneath the horizontal plane of the upper ends of the injector branch pipes 3, where said steam-pipes are provided with elbows 6 and with horizontal extensions 7, leading into and communicating with the branch pipes.

Near the junction of the steam-pipes 5, or the horizontal extensions 7 thereof, with the branch pipes upon each side of the boiler are arranged self-acting valves 8, which are slidably or otherwise mounted in such manner as to open outward from the steam-pipes toward the branch pipes in a way that will permit the steam to enter the branch pipes and at the same time prevent the water from entering the steam-pipes. Suitable valves 9, located, preferably, in the horizontal extensions 7 of the steam-pipes, provide for entirely cutting off the steam in warm weather, when the antifreezing attachment is no longer needed.

In order to permit the steam to pass by the check-valve in the injector-pipe, which valve is shown at 10, a small bridge-pipe 11 is passed around the casing of said valve, communicating with the injector-pipe upon either side thereof. This branch pipe is also provided with a stop-cock 12 for closing the passage in said pipe when the heater is not in use, as in the summer time. The valve 9 may, if preferred, have a rod connected therewith and extending thence into the engine-cab within convenient reach of the engineer, thereby enabling him to control the said valve from the cab for regulating the amount of steam which passes into the branch pipes. It is preferred and generally desirable to set the valve 9 in position to admit only a sufficient quantity of steam to the branch pipes to keep said pipes and the injector warm, under which arrangement the injector may be started without the necessity of closing the regulating-valve, thus adapting the device to act automatically.



In operation, after sufficient water has been admitted to the boiler and the supply cut off in the usual manner, the steam is forced down through the pipes 5 and operates to automatically open the self-acting valves 8, whence it passes into the branch pipes 3 and down into the injector-pipe, bridge-pipe, &c., thus keeping said pipes and the water therein sufficiently warm to prevent any liability of their freezing.

The device above described is very simple and inexpensive in construction and will be found reliable and efficient in practice.

It will be apparent that various changes in the form, proportion or minor details of construction and arrangement may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a device for preventing the injector-pipes of steam-engine boilers from freezing, a steam-pipe interposed between and communicating with said pipes and the steam-space of the boiler, in combination with a self-acting valve located within said steam-pipe and at or near the point of junction of the steam-pipe with the branch of the injector-pipe, substantially as described.

2. In a device for preventing the injector-pipes, &c. of steam-engine boilers from freezing, a steam-pipe surrounding or partially

surrounding and closely embracing the steam-boiler and communicating with the steam-space thereof at a point intermediate its ends, and connected at its ends to the injector branch pipes, in combination with a self-acting valve located in said steam-pipe and adapted to permit steam to pass from the steam-pipe into the injector-pipes and to prevent water from passing from the injector-pipes into the steam-pipe, and an adjustable valve connected with the steam-pipe for regulating the amount of steam passing to the injector-pipes &c., substantially as described.

3. In a device for preventing the injector-pipes, &c. of steam-engine boilers from freezing, a steam-pipe interposed between and communicating with the steam-space of the boiler and the injector-pipe, in combination with a self-acting valve located at the junction of the steam-pipe with the injector-pipe, a valve for regulating the amount of steam passing to the injector-pipe, a bridge-pipe spanning the check-valve in the injector-pipe and a stop-cock for opening and closing said bridge-pipe, substantially as specified.

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

WILLIAM PARRETT.

Witnesses:

GEORGE WYKOFF, Sr.,  
PAUL KERZ.