H. STEINBERG.

SAFETY VALVE.

APPLICATION FILED MAR. 3, 1913.

1,091,980. Patented Mar. 31, 1914.

Fig. 1.

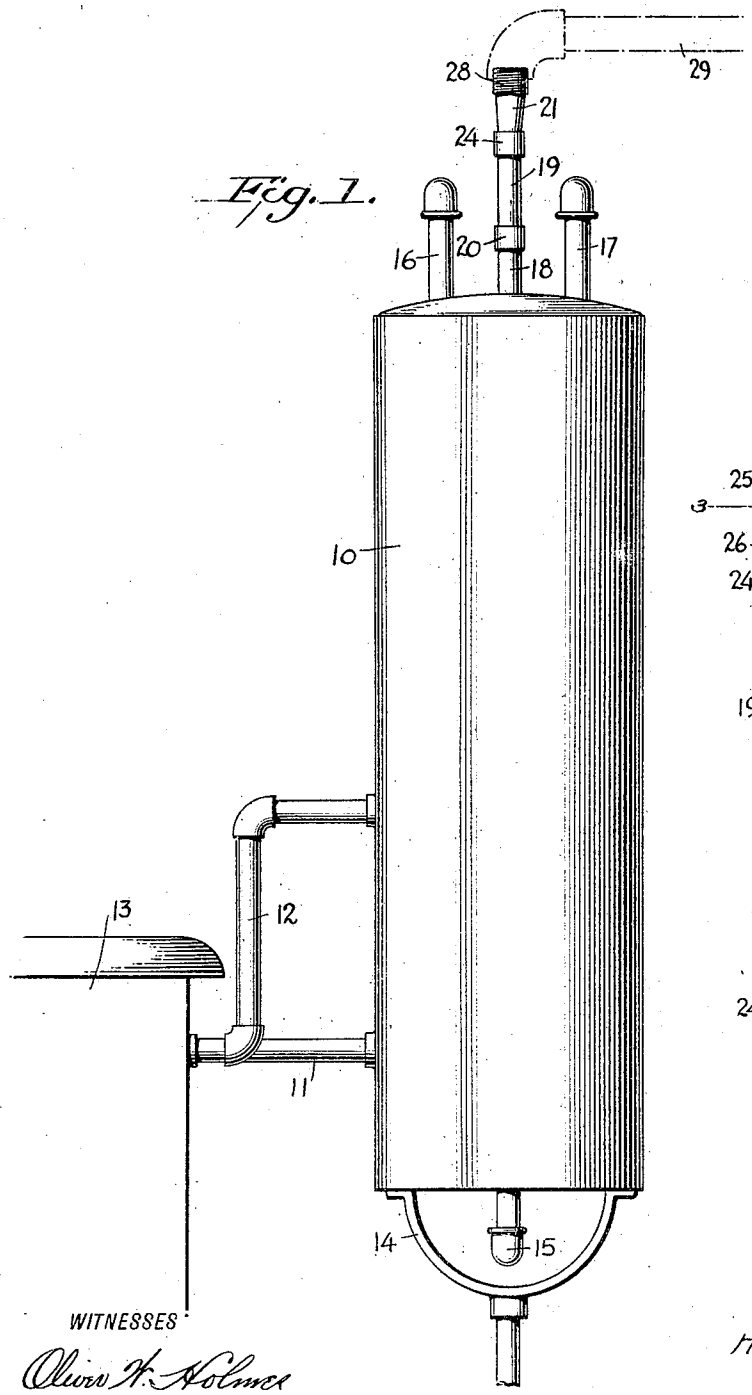


Fig. 2.

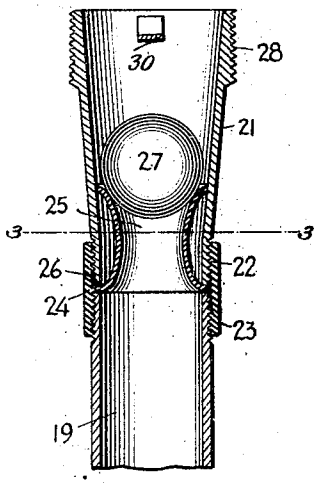
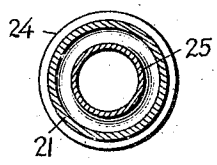


Fig. 3.



WITNESSES

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SAFETY-VALVE.

1,091,980. Specification of Letters Patent. Patented Mar. 31, 1914.

Application filed March 3, 1913. Serial No. 751,816.

To all whom it may concern:

Be it known that I, HARRY STEINBERG, a citizen of the United States, and a resident of Huntingdon, in the county of Huntingdon and State of Pennsylvania, have invented a new and Improved Safety-Valve, of which the following is a full, clear, and exact description.

This invention has special reference to an improved safety attachment for hot water boilers and the like.

The primary object of the invention resides in the provision of a novel form of safety valve designed for attachment to a hot water boiler, especially those connected with stoves and ranges, and which will serve the purpose of permitting the escape of excessive steam pressure when the water reaches a boiling point, thus obviating explosions which commonly occur.

With the above and other objects in view the invention resides in the combination and arrangement of parts to be hereinafter more fully described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is an elevation of the improved safety attachment or valve applied to a boiler having the usual connections with a stove; Fig. 2 is an enlarged vertical sectional view through the exit pipe to which the improved valve is attached; and Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 2.

In illustrating the preferred embodiment of the invention, there is shown a hot water boiler 10 connected by supply and return pipes 11 and 12 to a stove or range 13. The boiler is supported in any suitable manner, as by means of a stand 14, and has the usual drain outlet 15.

The supply or feed pipe for the boiler is indicated by the numeral 16, and the hot water is distributed for house use to a pipe 17, but in carrying out my invention I provide the top portion of the boiler with an exit pipe 18, preferably having a removable section 19 coupled thereto, as shown at 20.

Mounted on the upper extremity of the pipe section 19 is a substantially inverted frusto-conical valve casing 21, the same being exteriorly threaded as at 22 and of the same diameter as the exteriorly threaded upper end 23 of the pipe section 19, whereby the parts may be coupled by a collar 24. Held within the valve casing is a substantially hyperbola-like or conoidal sleeve 25, the same being of circular cross section and having flaring ends. The lower flared end of the sleeve is extended outwardly, as shown at 26, and held between the ends of the pipe section 19 and the valve casing due to the clamping engagement of said parts by the coupling ring or collar 24 and the upper portion of the sleeve which snugly fits the casing and produces a valve seat. The passage through the sleeve may be closed by a relatively light weight ball valve 27 which normally seats on the sleeve, but which may freely move upward in the casing under the pressure of the steam. The exact pressure at which the valve will open may be regulated as desired by varying the weight of the valve, and it will be obvious that since the valve casing is of larger diameter than the diameter of the valve, the steam may readily escape around the latter. The upper extremity of the valve casing is preferably exteriorly threaded, as shown at 28, to serve the purpose of attaching a drain pipe or the like 29 to discharge the steam exteriorly of the house.

From the foregoing description it will be seen that I have provided a very simple attachment for hot water boilers which will remove all liability of explosions due to the presence of excess steam pressure, which is not otherwise under control. It is furthermore apparent that the device is wholly automatic in its operation and may be constructed as part of the boiler or sold as an attachment therefor. Means are also provided to prevent total or permanent displacement of the valve from its seat, such means preferably consisting of a spider or transverse strip 30 in the casing 21 above the valve. It is also obvious that the escape of the steam will not be impeded or obstructed materially when the valve engages the spider.

Having thus described my invention, what I claim is:—

1. A safety attachment for hot water boilers commonly used in connection with stoves and ranges, said boiler having an exit pipe leading centrally from the top portion thereof, comprising a substantially inverted frusto-conical valve casing carried by said pipe and forming a substantially

neck-like portion enlarged toward its upper end, a hyperbola-like sleeve having an outwardly extending lower end held between the pipe and casing and forming a valve seat at its upper end, said end snugly fitting the casing, and a relatively light weight ball valve coöperating with the seat to automatically relieve the boiler of excess steam pressure and serving to resist back pressure and forming a water seal, the interior diameter of the casing being greater than the diameter of the valve and that of the sleeve being less than the diameter of the valve.

2. An attachment for hot water boilers of the class described, comprising an exit pipe leading from the top portion of the boiler, and means carried by the pipe to automatically relieve the boiler of excess pressure, said means comprising a frusto-conical valve casing carried by said pipe, a concave sleeve fixed therein and having oppositely flared ends producing a valve seat at one end and an attaching flange at the other, a ball valve mounted in the casing and normally positioned on the seat to close the passage through the sleeve, and means arranged transversely of the casing to prevent upward displacement of the valve beyond the casing.

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

HARRY STEINBERG.

Witnesses:

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