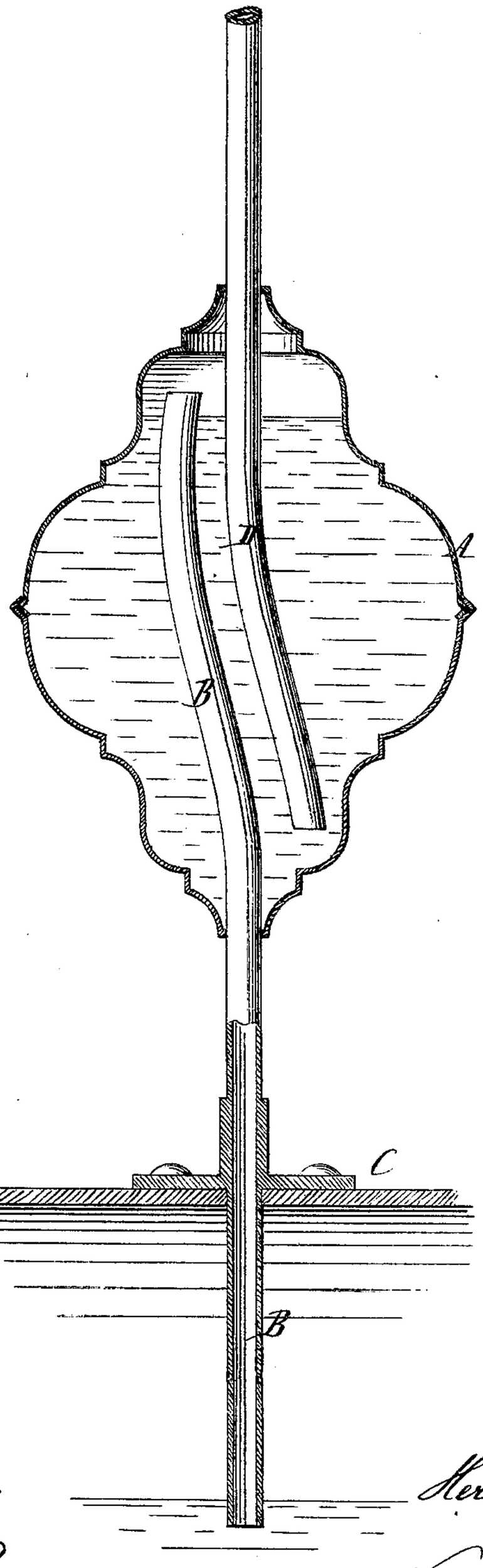
H. KAEMPF.

Improvement in Safety Attachments for Steam-Boilers.

No. 126,398. Patented May 7, 1872.



Witnesses.

Ernst Bilhuber.

E. F. Kastenhuber

Inventor.

Hermann Kaempf

per

Van Santvoord & Hauff

Attys

UNITED STATES PATENT OFFICE.

HERMANN KAEMPF, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN SAFETY ATTACHMENTS TO STEAM-BOILERS.

Specification forming part of Letters Patent No. 126,398, dated May 7, 1872; antedated April 20, 1872.

To all whom it may concern:

Be it known that I, HERMANN KAEMPF, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Safety Attachment to Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, which drawing represents a vertical central section of this invention.

This invention consists in a closed vessel, which is filled with water nearly to its top, and from which extends a pipe down below the mean water-line of the boiler, the upper end of said pipe being above the level of the water in the safety-vessel, while another pipe extends through the top of said vessel nearly down to its bottom in such a manner that when the water in the boiler sinks below the mean water-line, thereby uncovering the mouth of the pipe in the boiler, the steam will escape through this pipe, and, after ejecting the water in the safety-vessel, said steam blows out through the upper pipe; and if the pressure of the steam in boiler rises beyond the desired point, the water from the safety-vessel is forced out so as to indicate, in the first case, the want of water, and in the second case the overpressure of steam.

In the drawing, the letter A designates a vessel made of sheet metal, or any suitable material of sufficient strength to withstand the same pressure as a steam-boiler, and in any desirable form or shape. Through the bottom of this vessel extends a pipe, B, which terminates at its top close beneath the top of the vessel A, while its bottom end extends down into a steam-boiler, C, to the level of the mean water-line. Through the top of the safety-vessel A extends a second pipe, D, which terminates near the bottom of said vessel, while its upper end opens in the atmosphere.

Before a fire is made under the boiler the safety-vessel is filled with water nearly to its top, allowing the pipe B to project slightly above the level of said water, as shown in the drawing; and as long as the water in the boiler remains above the mean water-line, and the pressure in said boiler does not rise above the desired point, the water in the safety-vessel remains undisturbed; but as soon as the water in the boiler sinks below the mean water-line, the mouth of the pipe B in the boiler is uncovered, steam passes up into the vessel A, the water contained in said vessel is forced out, and the steam blows off through the pipe D, and by these means the attention of the attendant is called to the fact that the boiler requires water.

If the pressure in the boiler rises beyond the desired point without a want of water, the water from the safety-vessel is also driven out; but it is immediately supplied by other water from the boiler, and only water blows off through the pipe D, thus indicating the overpressure.

By this simple device the engineer or fireman in attendance is enabled to avoid all danger of an explosion, and an explosion of the boiler can occur only by gross carelessness of the attendant, or by a flaw in the boiler itself.

I do not claim a series of tubes of different lengths arranged within a safety-valve, so that pressure of steam upon mercury will cause the mercury to ascend and run out of the said tubes, for such is not new; but

What I claim as new, and desire to secure by Letters Patent, is—

The pipe B, extending from the level of the mean water-line in the steam-boiler C, and terminating at one end close beneath the top and within the vessel A, and operating in connection with the pipe D, its end terminating near the bottom within the said vessel A, whereby the supply of water and the overpressure of the steam in the steam-boiler are indicated, as set forth.

H. KAEMPF.

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.