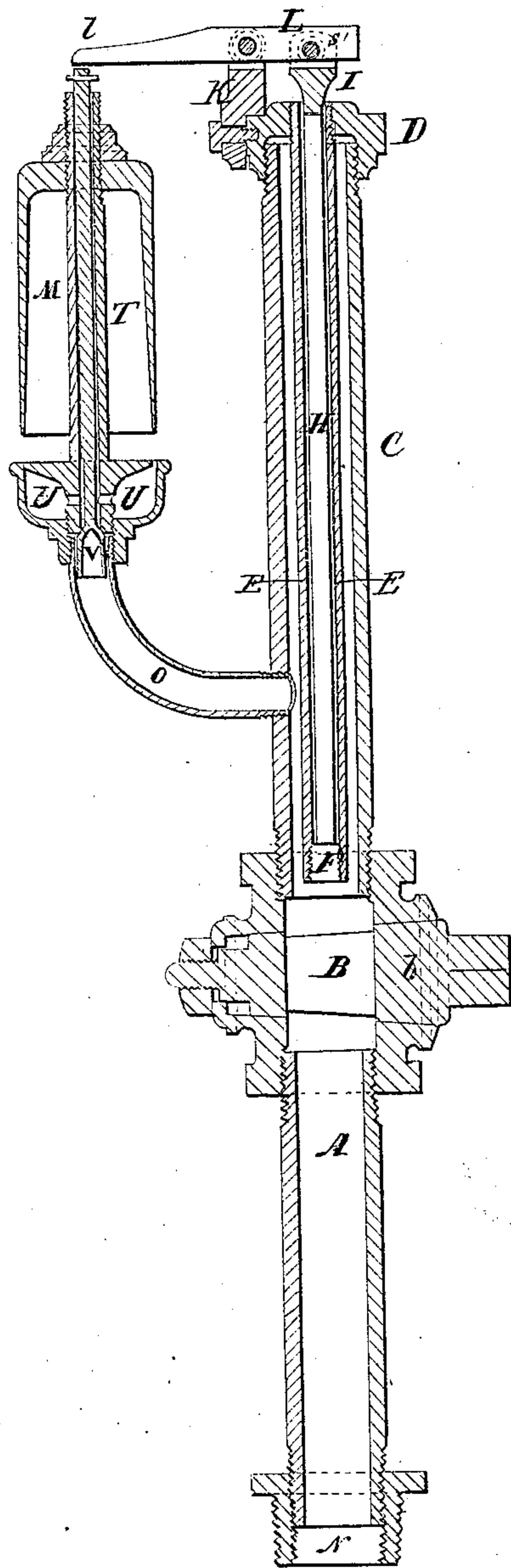


Mead & Maggi,
Steam-Boiler Indicator.

N^o 50,660.

Patented Oct. 25, 1865.



Witnesses:
Geo. W. Maggi,
C. K. Fendrich

Inventor:
Donl. C. Mead
Chas. Maggi

UNITED STATES PATENT OFFICE.

DANIEL C. MEAD AND CHARLES MAGGI, OF PITTSBURG, PENNSYLVANIA,
ASSIGNORS TO CHARLES MAGGI, OF SAME PLACE.

IMPROVEMENT IN LOW-WATER DETECTERS FOR STEAM-GENERATORS.

Specification forming part of Letters Patent No. 50,660, dated October 24, 1865.

To all whom it may concern:

Be it known that we, DANIEL C. MEAD and CHARLES MAGGI, of Pittsburg, county of Allegheny, in the State of Pennsylvania, have invented a new and Improved Mode of Detecting Low Water in Steam-Boilers; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference made thereon.

The nature of our invention consists in having a tube, E E, closed at one end, containing a loose expansion-bar, H, or tube, or any other substantially the same, inserted in a pipe, C. Said pipe may be of any desired length outside of the boiler, but must communicate with the inside and reach to within one inch of the flues or fire-line. The tube E E, containing the expansion-bar H, is open at the top but closed at the bottom. The top of the tube is screwed into a cap, D, on the head of the pipe C, so that neither steam nor water can pass. In this condition the tube containing the expansion-bar is surrounded by water at a low temperature while the boiler is in operation and as long as plenty of water exists in the boiler; but if from neglect or any other cause the water falls below the end of the pipe inside of the boiler, the water already in the pipe falls out, and, steam taking its place, leaves the tube E E subject to action of the steam, and heats it to such an extent that the expansion of the bar inside of the tube is sufficient to raise the lever L attached to the top of the pipe, and, connecting with the valve in the whistle, opens it and causes an immediate alarm.

A is an inch or any other sized gas-pipe, eighteen inches long, more or less, attached to the lower part of the stop-cock B, and connected to the boiler by the bush N.

B is a stop-cock connecting the upper and lower part of the instrument together. The cock is used for shutting off the steam and allowing the expansion-bar to cool after having the alarm.

C is the upper part of the instrument, made of inch or any other sized gas-pipe, furnished

with a screw at the bottom, for the purpose of connecting it with the cock B. It is also supplied with a cap, D, to which is attached the lever-rest K.

D is a cap made to fit the top of the pipe C, having a hole tapped in the center, into which the tube E E, containing the expansion-bar H, is screwed.

E E is the tube containing the expansion-bar, which is a column of zinc fitting loosely in the tube.

F is the bottom of the tube E E containing the expansion-bar, stopped up with a plug.

H is the zinc expansion-bar.

I is an elongated piece of brass attached to the lever L by a pin, s, and reaches to the top of the expansion-bar, upon which it rests.

K is the fulcrum or lever-rest, made fast to the cap D.

L is the lever, which by means of the expansion-bar H actuates the whistle-valve V by striking the stem T.

M is the whistle-valve.

N is a bush inserted in the boiler to receive the instrument and connect it with the inside of the boiler. A piece of pipe is screwed into the bottom of the berth, of sufficient length to reach within one inch of the flues or fire-line, thereby making a direct connection between the upper part of the instrument and the bottom of the pipe inside the boiler.

O is an elbow attached to the upper part of the instrument, upon which the whistle U U is screwed, and also conveys the steam to operate the whistle.

T is a hollow stem attached to the valve V for lightness.

U U is the steam-chamber of the whistle.

V is a hollow valve, made hollow for the purpose of closing the valve-seat as soon as water comes in contact with it, otherwise water would blow out of the whistle. This valve is self-acting, for as soon as the pressure from the steam in the boiler ceases the valve opens and releases the instrument from any water there may be in it, keeping the same clean and preventing any freezing of the pipe or instrument.

What we claim as our invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the metallic expansion bar, rod, or tube, inclosed in a case or tube one end of which is closed, which enables us to protect said expansion-bar from any direct contact with steam or wa-

ter, substantially upon the principle and in the manner as herein set forth.

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Witnesses:

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C. R. FENDERICH.