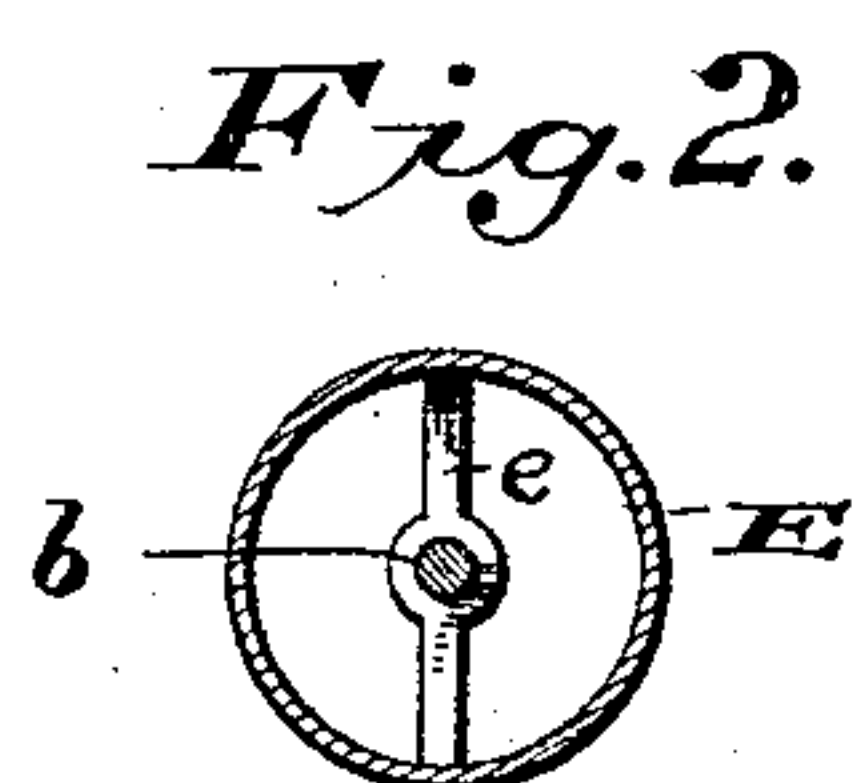
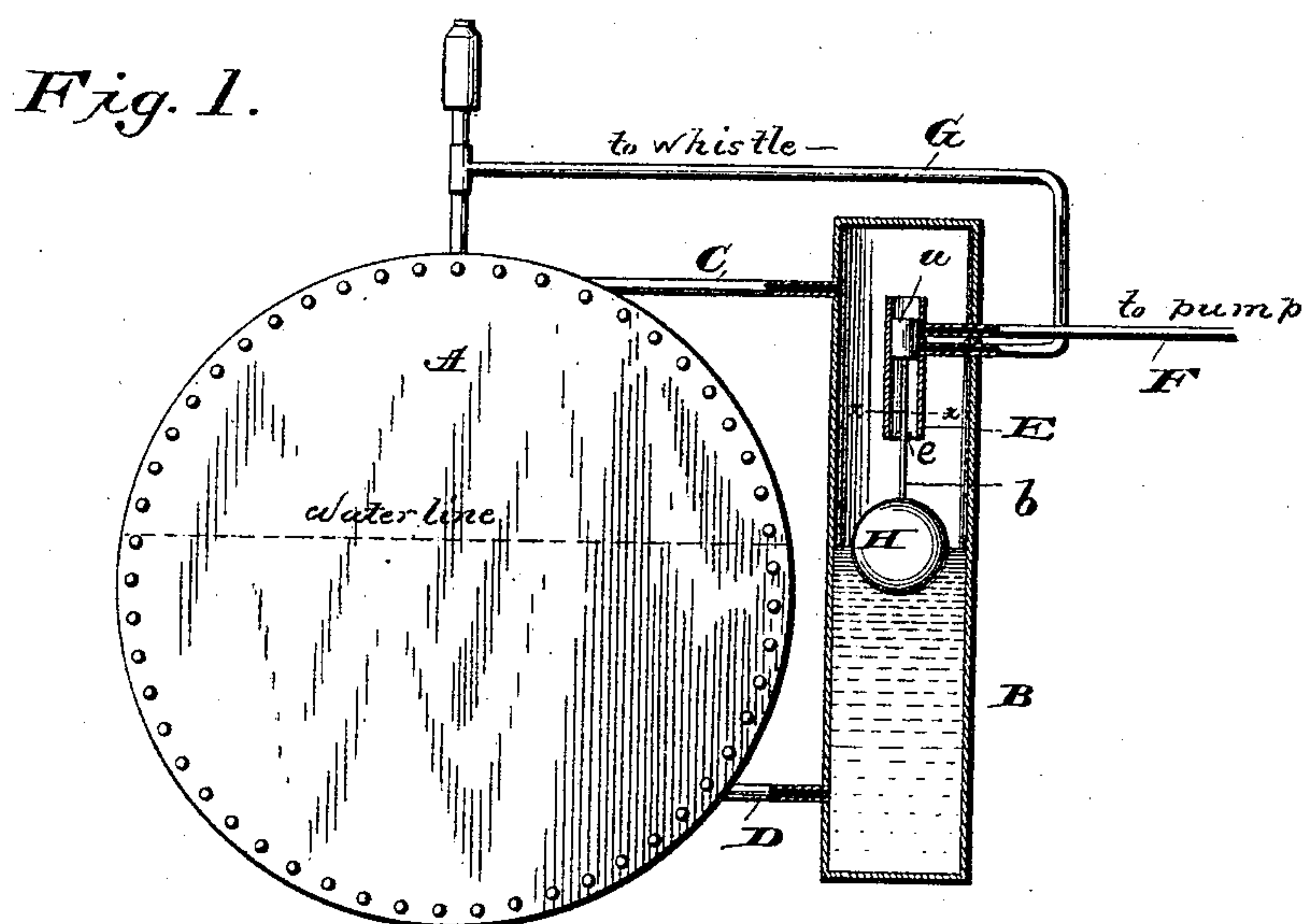


(No Model.)

W. M. COPELAND.
WATER REGULATOR FOR BOILERS.

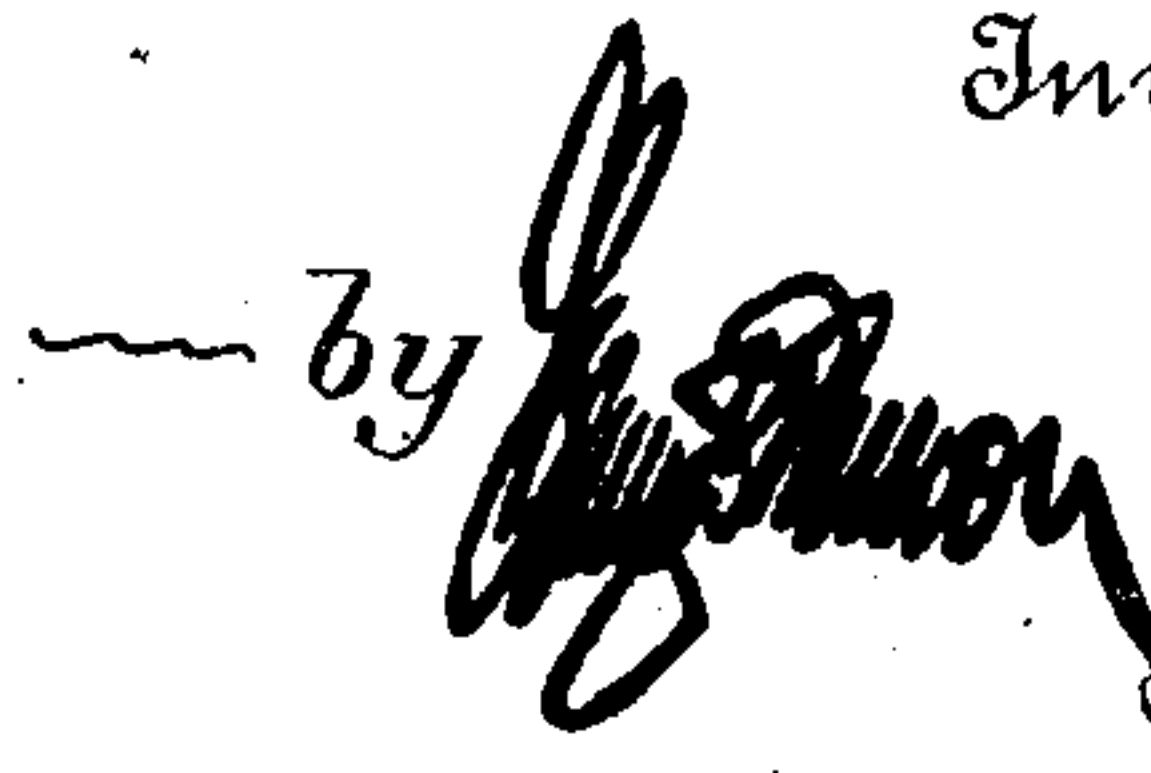
No. 436,215.

Patented Sept. 9, 1890.



William M. Copeland
Inventor

Witnesses
L. S. Elliott.
A. M. Johnson.

by  Attorney

UNITED STATES PATENT OFFICE.

WILLIAM M. COPELAND, OF STEWART'S RUN, PENNSYLVANIA.

WATER-REGULATOR FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 436,215, dated September 9, 1890.

Application filed January 23, 1890. Serial No. 337,842. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. COPELAND, a citizen of the United States of America, residing at Stewart's Run, in the county of Forest and State of Pennsylvania, have invented certain new and useful Improvements in Water-Regulators for Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in feed-water regulators and low-water alarms for boilers; and it consists in providing a boiler with a closed casing which is connected to the boiler by pipes above and below the normal water-level, said casing containing a cylinder which is connected by pipes to a steam-actuated alarm, and by another pipe to the steam-pump, the cylinder containing a sliding valve which is connected by a stem to a float, so that said valve will cut off the steam from the pump and alarm when the water is at the normal level, and when the water falls below its level admit steam to the pump. Should the pump fail to operate, the valve falls beyond the alarm-pipe, so that an alarm will be sounded, as will be hereinafter fully set forth.

In the accompanying drawings, forming part of this specification, Figure 1 is an end view of a boiler, my improvements being shown in section; and Fig. 2 is a detail sectional view taken on the line *x x*, Fig. 1.

A refers to a boiler, which may be of ordinary construction, and adjacent thereto is suitably supported a closed casing or receptacle B, which is connected to the boiler above the water-level by a pipe or tube C, and below the normal water-level by a pipe D. This receptacle B has supported therein a casing or cylinder E, which is provided at suitable points with a pipe F, which leads to

the usual water-supply pipe, and at a suitable distance below this pipe F the casing or cylinder E is provided with a pipe G, which communicates with the steam-whistle or other steam-actuated alarm.

Within the cylinder or casing E is a valve having an ordinary piston-packing, preferably made up of metallic rings, and from this valve *a* depends a stem *b*, which is attached to the float H. The lower part of the cylinder or casing E is provided with a bridge *e*, having a central perforated portion through which the stem *b* can pass and be guided.

It will be noted that the hereinbefore-described construction of a feed-water regulator and low-water alarm is extremely simple and not liable to get out of order, and that when the water in the boiler falls below the normal water-line the float will carry with it the valve *a*, so that steam will pass into the pipe F and operate the pump, and should the pump fail to operate from any cause and the water continue to fall the valve will pass beyond the pipe G, so as to operate the whistle or other steam-actuated alarm.

Having thus described my invention, I claim—

In a feed-water regulator and low-water alarm for boilers, a water and steam chamber B, having upper and lower pipes C D, adapted to be connected to the boiler above and below the water-level, said steam-chamber containing a casing having pipes which lead from the inner casing to the feed-pump and a pipe leading to a steam-actuated alarm, and a valve in said casing operated by a float in the water-chamber B, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. ^{his} × COPELAND.
mark

Witnesses:

F. E. METCALF,
JAS. T. BRENNAN.