G. HENRY

Feed-Water Regulator.

No. 165,928. Patented July 27, 1875.

Fig. 1

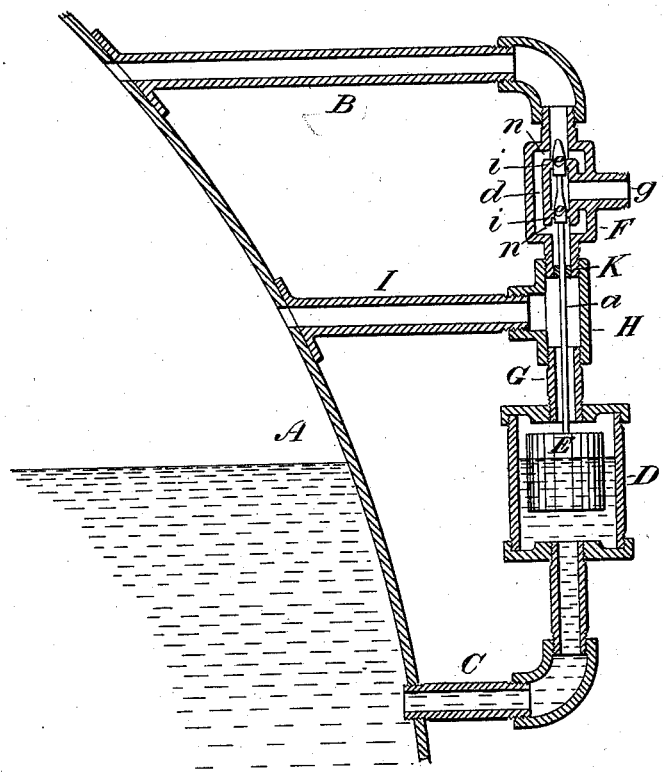
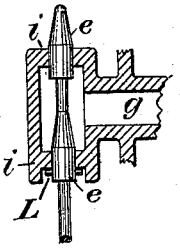


Fig. 2



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE HENRY, OF LENNOXVILLE, CANADA.

IMPROVEMENT IN FEED-WATER REGULATORS.

Specification forming part of Letters Patent No. **165,928**, dated July 27, 1875; application filed July 2, 1875.

To all whom it may concern:

Be it known that I, GEORGE HENRY, of the village of Lennoxville, in the county of Compton, in the Province of Quebec, Canada, manufacturer of watches, have invented certain new and useful Improvements on Regulators for Feed Apparatus of Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to further improvements on the invention for which Letters Patent of the United States were granted to me on the 15th day of June, 1875, and Letters Patent No. 4,779 of the Dominion of Canada were granted to me on the 4th day of June, A. D. 1875.

It is found that in the invention for which the above-named Letters Patent were issued, when the valves *e e* are opened wide the water in the chamber D is caused to raise slightly above the level of the water in the boiler A, and to obviate this inaccuracy is the object of the present invention.

In the drawings hereunto annexed similar letters of reference indicate like parts, and for the sake of clearness they correspond with the letters of reference in the drawings attached to the above-named already-granted Letters Patent of the United States and Canada.

In the drawings attached to the specification of the present application, Figure 1 is a sectional elevation of a regulator embodying my invention. Fig. 2 is a modification of valves *e*.

Letter A represents a section of the side or end of a boiler to which the regulator is attached. This side or end, as shown in the drawing, is circular; but it will be understood that it could more easily be attached on a flat surface, should the boiler possess one in a suitable position by the pipes B and C. The regulator itself consists of a chamber, D, (fixed in such a position that it will be partially full of water when the water in the boiler is at its proper height, the pipe C affording a communication between them and maintaining it at the same level in both,) containing a float, E, extending from the top of which is a spindle, *a*, having on its upper extremity the valves *e e*. These valves fit steam-tight to the valve-seats *i i* in the chamber F. The valve-chamber F is composed of an inner and outer casing, having an annular space between them, the branch *g* being connected to the center chamber between the valve-seats *i i*, and the annular space *d* is connected to the center chamber above and below the valve-seats *i i* by the ports *n*.

The pipe B connects the valve-chamber F to the boiler A above the water-level, and keeps it supplied with steam. The pipe G, through which the spindle *a* passes, also affords a communication between the valve-chamber F and water-chamber D. The branch *g* connects to the steam-pipe of any suitable steam-pump for supplying the boiler A with water.

Thus far we have followed the specification attached to the above-mentioned already-granted Letters Patent.

It is found in practice that when the float E falls, so as to open the valves *e e*, the action of the pressure within the boiler A causes the water in the chamber D to rise slightly above its natural level. To obviate this I attach to the pipe G, by means of a T or other suitable contrivance, H, a branch pipe, I, and I insert a plug, K, in any suitable position in the lower end of the chamber F. This plug has a hole bored in it of sufficient size for the spindle *a* to pass freely through, and also allows any water formed by condensation above it to fall down into the chamber D.

By this arrangement it will be seen that the whole of the steam passing into the pipe *g*, and thence to the steam-pump, is supplied from the pipe B, and by the intervention of the pipe I and plug K a separate circulation of the steam and water, to regulate the float E, is provided for.

As a modification of the valves *e e*, I prefer to make them of cylindrical form, with conical points for their guidance, so that they fill the openings in the seats *i i*. The lower one of the valves *e e* is provided with a pin, L, preventing them from rising above the position shown in the drawings.

In constructing the invention the plug K is placed on the spindle *a* before the float E is attached.

What I claim is as follows:

The water-chamber D, float E, stem *a*, valves *e e*, valve-chamber F, having steam-passage *d*, pipe G, valve-seats *i i*, and branch *g*, in combination with pipe I and plug K, substantially as and for the purposes described.

GEORGE HENRY.

Witnesses:
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