(No Model.)

G. W. SCHILLING.

FEED WATER REGULATOR.

No. 465,212. Patented Dec. 15, 1891.

Fig. 1.

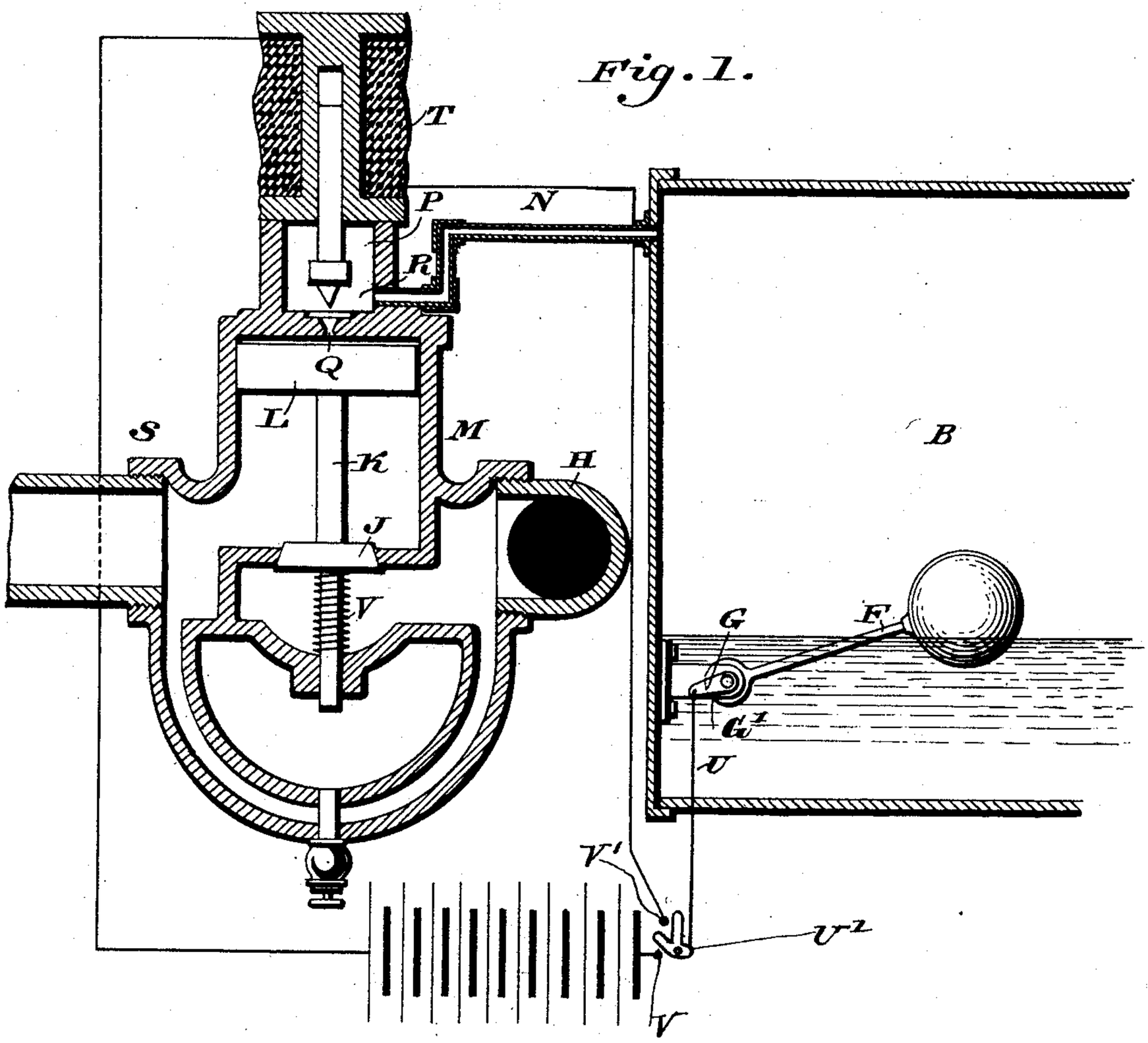
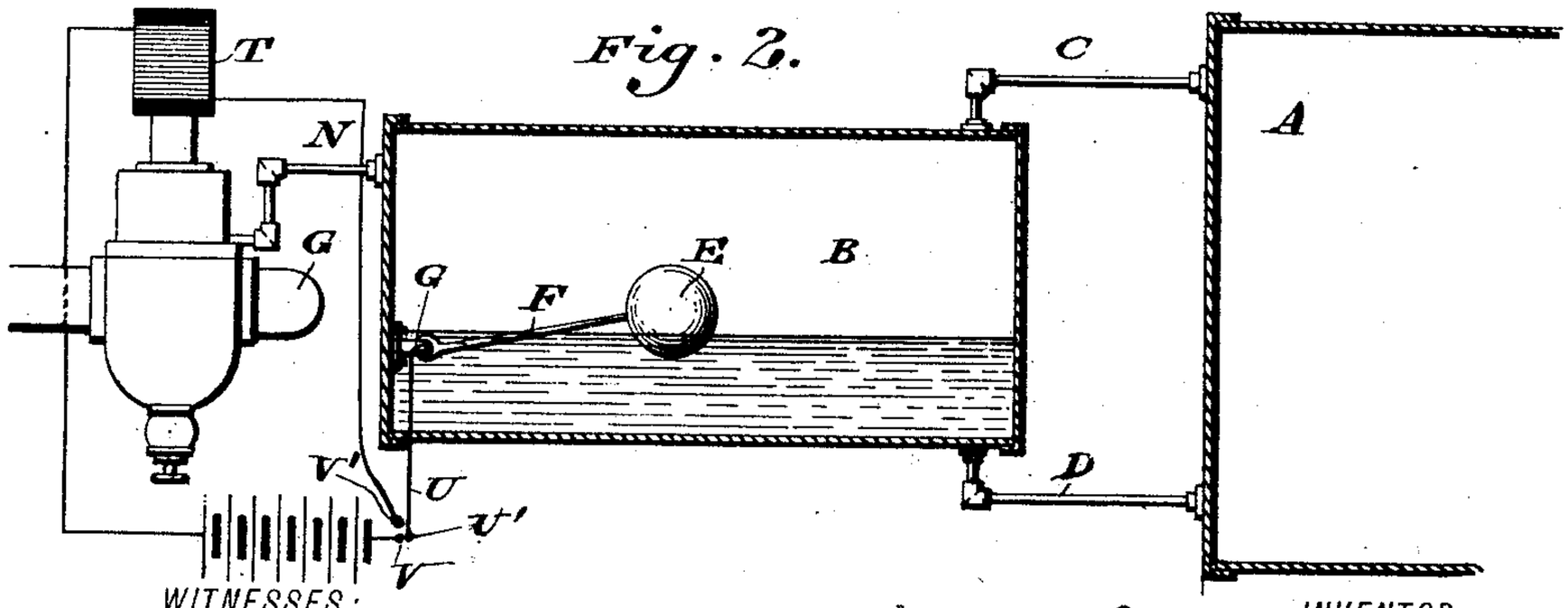


Fig. 2.



WITNESSES:

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GEORGE W. SCHILLING, OF PHILADELPHIA, PENNSYLVANIA.

FEED-WATER REGULATOR.

SPECIFICATION forming part of Letters Patent No. 465,212, dated December 15, 1891.

Application filed January 27, 1891. Serial No. 379,242. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. SCHILLING, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Feed-Water Regulators, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in automatic devices for controlling the supply of feed-water in boilers, &c.; and it consists of novel means, substantially as described, whereby steam from the boiler operates a valve in the supply or feed pipe thereof.

It further consists of the combination of parts hereinafter described.

Figure 1 represents a vertical section of mechanism for controlling the supply of feed-water to a boiler embodying my invention. Fig. 2 represents a partly sectional and partly side view of the parts shown in Fig. 1 with a portion of a boiler attached, said boiler being shown on a reduced scale.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a boiler, and B a vessel or tank forming a water-gage, the latter being in communication with the boiler by means of the pipes C and D. Within the gage B is a float E, having its arm F connected with a shaft G, suitably journaled in the sides of the boiler. In the supply-pipe H, which leads from any suitable source of supply to the said boiler, is secured a valve J, the stem K of which carries a head L, which fits and works in a portion of the casing M adjacent to the valve-chamber. A pipe N leads from the upper portion of the gage B to a small chamber P in the upper part of the casing M, said chamber having an outlet-opening Q, controlled by a metallic balance-valve R, said valve being within the chamber P and controlling the opening Q in said chamber.

S designates an electric circuit of usual character, and T an electro-magnet in said circuit, having a recessed core, in which the stem of the valve R is guided. On the end of the shaft G, which passes through a stuffing-box of usual construction on the boiler, is rigidly secured an arm G′, having attached thereto a rod U, the lower end of which is provided with a contact-piece U′, adapted to contact with the electrodes V V′ of the electric circuit when the water in the boiler is at low-water mark and the float is lowered, so as to close said electric circuit, and thereby operate the valve R, so as to open said pipe N and opening Q to permit the entrance of the steam into the chamber P and its escape therefrom, so as so bear against the head L, and thus open the valve J, turning on the supply of water, or else closing said pipe N and opening Q, any steam entering the chamber passing above the disk of the valve R assisting the weight of the valve in closing it, whereupon the spring V of the valve J closes the latter, and thus prevents any further flow of water into the boiler.

It will be seen that the parts as described insure the automatic operation of the valve J, so that the supply of water is reliably controlled.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A boiler having a water-gage with float, a supply-pipe with a valve therein, a pipe leading from the steam portion of the gage to the valve-chamber of the supply-pipe, an electric circuit containing an electro-magnet, and a contact-piece, substantially as described, connected with said float for opening or closing the said steam-pipe, said parts being combined substantially as described.

2. The combination of a water-gage having a float, a water-pipe with a valve-chamber having a pipe connection with the upper portion of said gage, and a valve in said chamber, provided with a stem having a head thereon, and an electric circuit having an electro-magnet, and a contact-piece connected with and moved by said float and adapted to close said circuit, substantially as described.

3. A water-gage with float therein, a water-supply pipe with a valve-chamber having a self-closing valve therein, said valve having a stem with a head or disk thereon, a pipe leading from the upper part of said gage into said valve-chamber above said head, and an electric circuit normally open, and a contact-piece connected with and operated by said float for opening and closing said last-men-

tioned pipe, said parts being combined substantially as described.

4. A water-gage with a float therein, a water-supply pipe with a casing having a valve-chamber with a self-closing valve, said valve being provided with a stem and head, a chamber in said casing above said valve-chamber and having an opening above the said head, a valve for said opening, electrical means connected with and operated by said float, substantially as described, for opening and closing said valve, and a pipe leading from said water-gage to said upper chamber, said parts being combined substantially as described.

5. The combination of a water-gage having a float therein, a water-supply pipe with a casing having a valve-chamber therein, and a separate chamber above said valve-chamber, a valve with stem and head in said valve-chamber, and an opening in the bottom of said upper chamber above said head, a valve in said upper chamber for opening and closing said opening, an electric circuit with electro-magnet for operating said latter valve, and means, substantially as described, connected with the float for opening and closing the circuit, substantially as described.

GEORGE W. SCHILLING.

Witnesses:
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