

(No Model.)

J. THOMAS.
FEED WATER REGULATOR.

No. 488,619.

Patented Dec. 27, 1892.

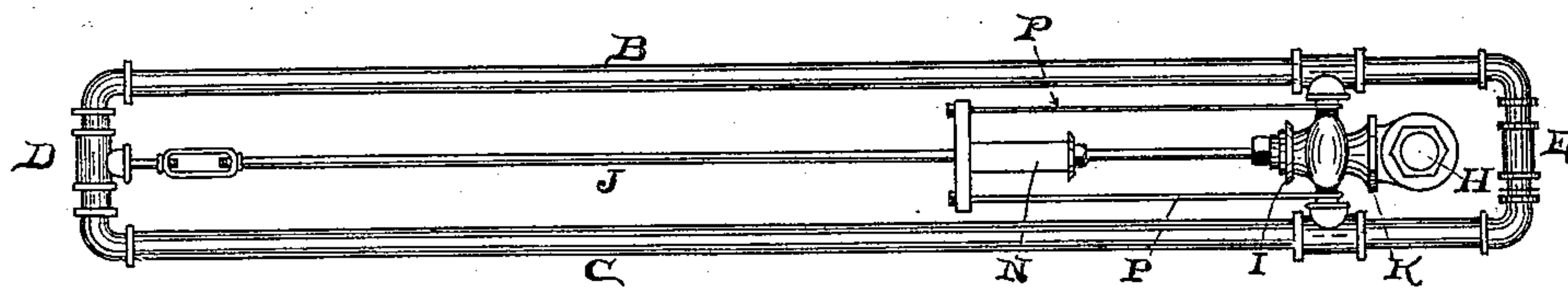


Fig. 4.

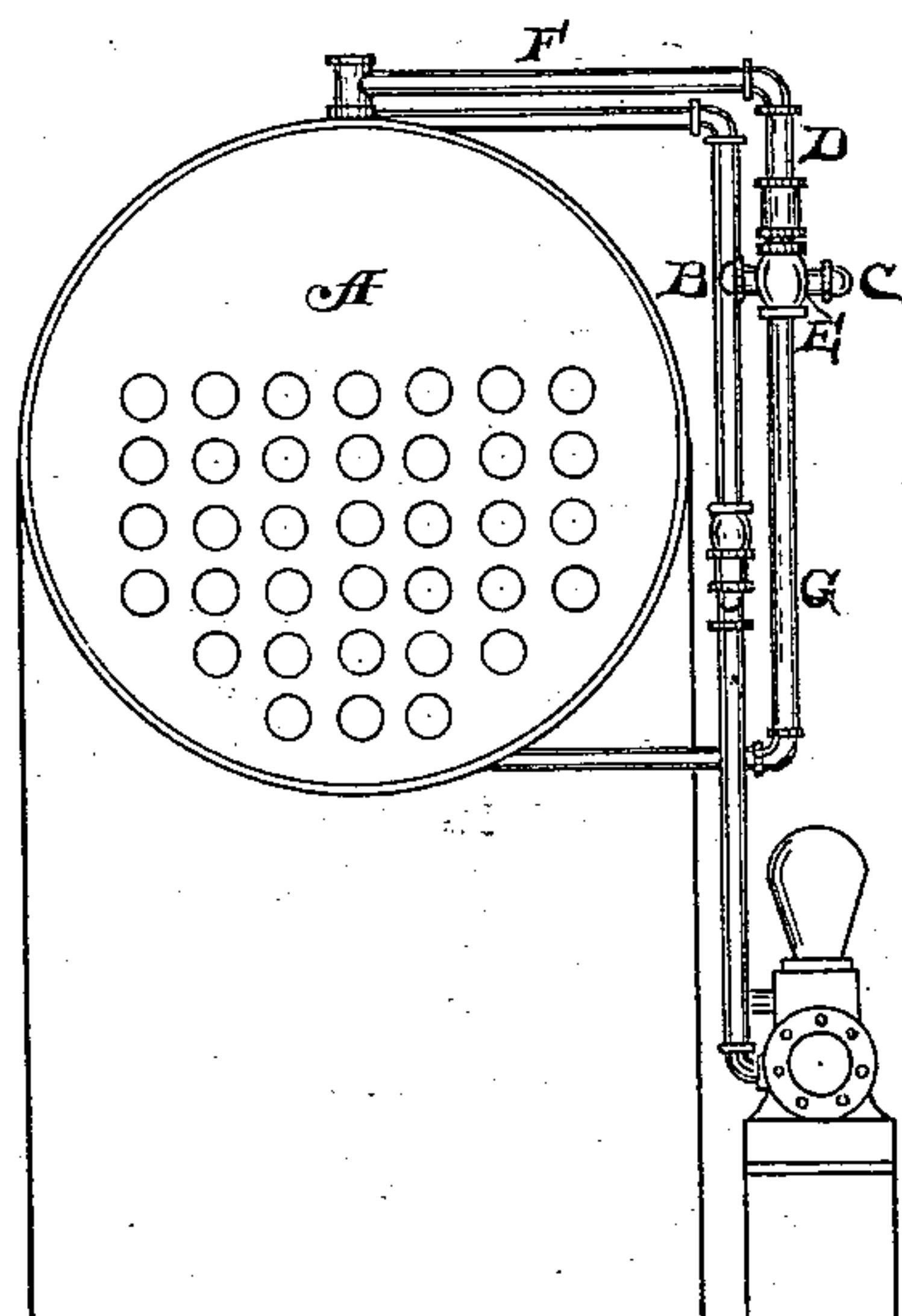


Fig. 3.

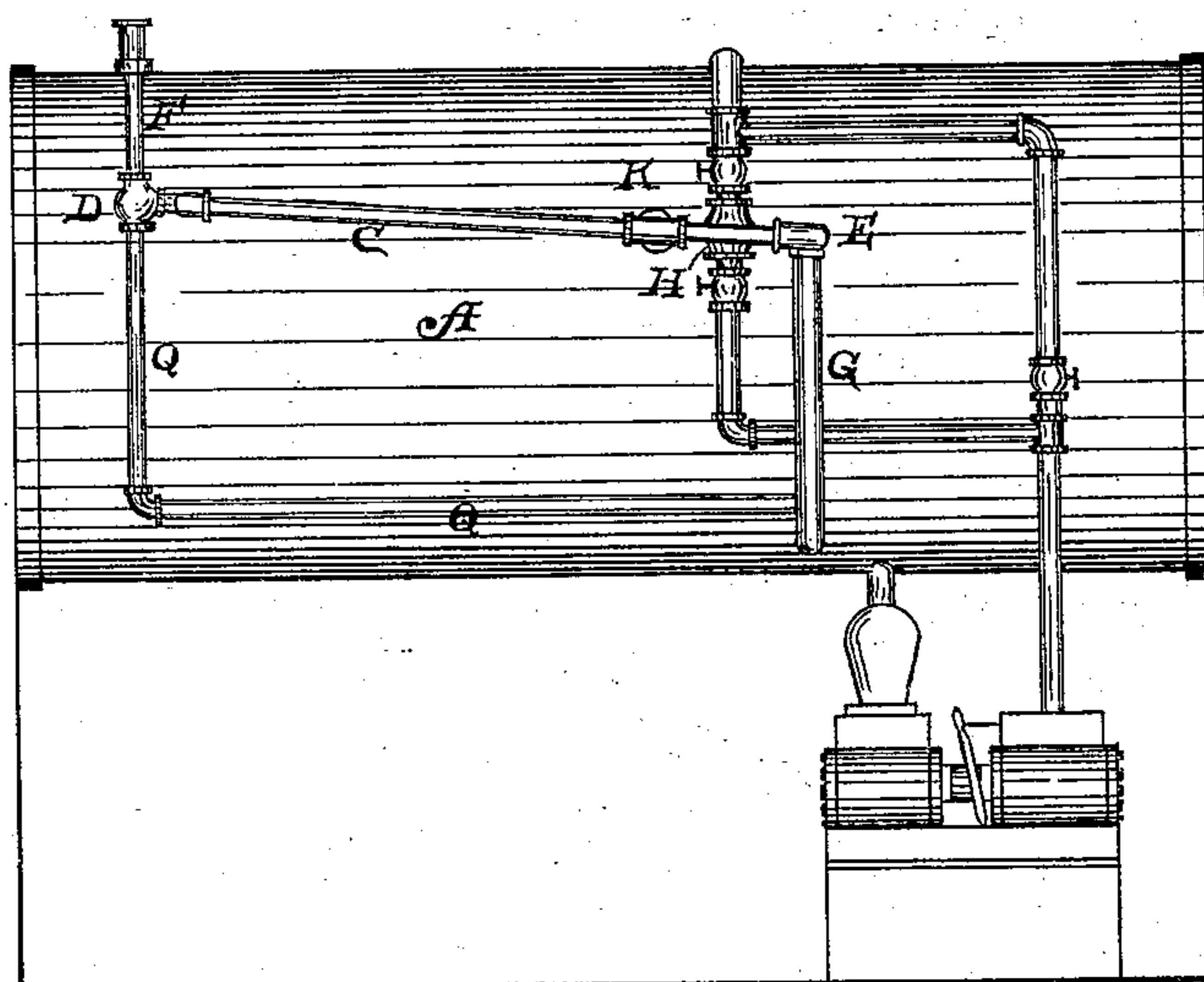


Fig. 2.

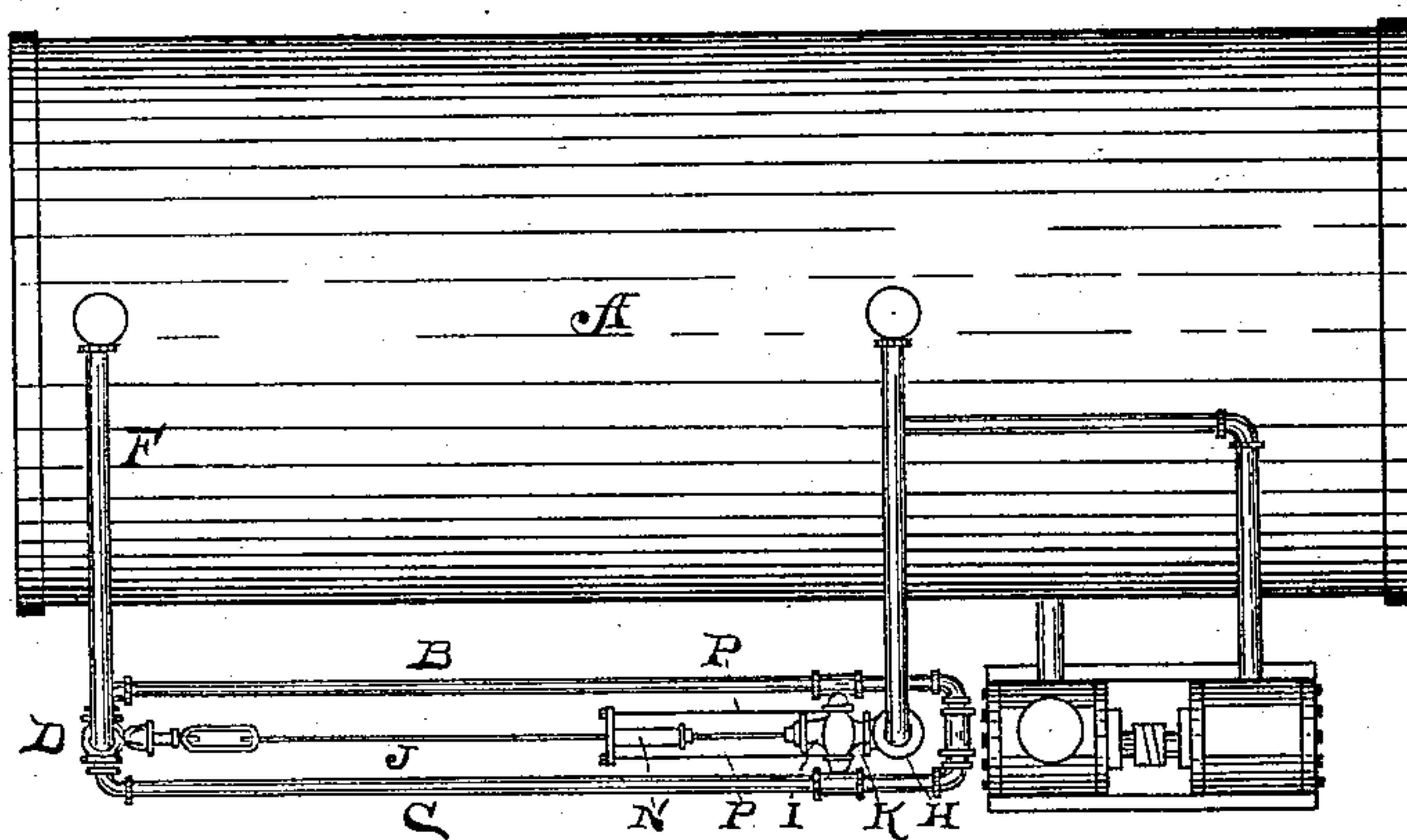


Fig. 1.

witnesses

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UNITED STATES PATENT OFFICE.

JOSHUA THOMAS, OF CLEVELAND, OHIO.

FEED-WATER REGULATOR.

SPECIFICATION forming part of Letters Patent No. 488,619, dated December 27, 1892.

Application filed May 26, 1892. Serial No. 434,517. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA THOMAS, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Feed-Water Regulators for Boilers, of which the following is a specification.

This invention relates to improvements in feedwater regulators for steam boilers, patented June 16, 1891, No. 454,088, the nature and objects of which will fully appear from the subjoined description when considered in conjunction with the accompanying drawings—
in which—

Figure 1 is a top or plan view of a boiler and pump having my invention attached. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation of the same. Fig. 4 is an enlarged detached plan view of the regulator.

A represents a steam boiler of ordinary construction.

B C are copper pipes joined at their ends by cross-heads D and E. These pipes are placed on a level with the desired water level in the boiler and are connected by a pipe F at one end to the top of the boiler for steam, and the opposite end is attached by a pipe G, with the bottom of the boiler for water. The pipes B C, it will be observed are on a slight incline, so that the steam and water meet on a level with the water in the boiler.

H is the regulating valve located at one end of the pipes B C, supported by a yoke K, having a stuffing box I through which the valve stem J passes, and reaches the full length of the machine, and is attached to the cross-head E, by means of a turnbuckle joint L. On the valve stem is fixed a collar, *m*, and a strong spiral spring N.

O is a cross bar through which the stem passes, and is joined to the yoke K, by rods P P, having hooks which catch onto the yoke. This spring holds the valve shut with a pressure equal to a ton's weight.

Q is a trap pipe connecting the pipe F and cross head E with the pipe G, and is provided for conducting condensed water from pipe F, and prevent it passing into the pipes B C, for the purpose of avoiding the heat of the condensed water mingling with the water which comes into them from pipe G, and retarding the cooling and contracting of the copper pipes B C, as it is desired that the expansion and contraction of said pipes shall be prompt.

The steam to the pump is passed through the regulating valve and by the means of this device the boiler has complete control of the motion of the pump by opening and closing the valve, causing the pump to start or stop or run fast or slow as the boiler requires more or less water, thereby always maintaining the water at the proper level in the boiler.

Having described my invention, I claim:

The combination of boiler A, pipes B C, joined by crossheads D E, crosshead D connected by pipe F with top of boiler, crosshead E connected by pipe G with bottom of boiler, pipe Q connecting pipe F with pipe G; the valve H supported by the yoke K, valve stem J passing through stuffing box I in yoke K and having collar *m*, spring N and rods P P connecting crossbar O with the yoke; the stem being connected with crosshead D by turnbuckle L, all constructed to operate substantially as described.

JOSHUA THOMAS.

Witnesses:

GEO. W. TIBBITTS,
E. JAY PINNEY.