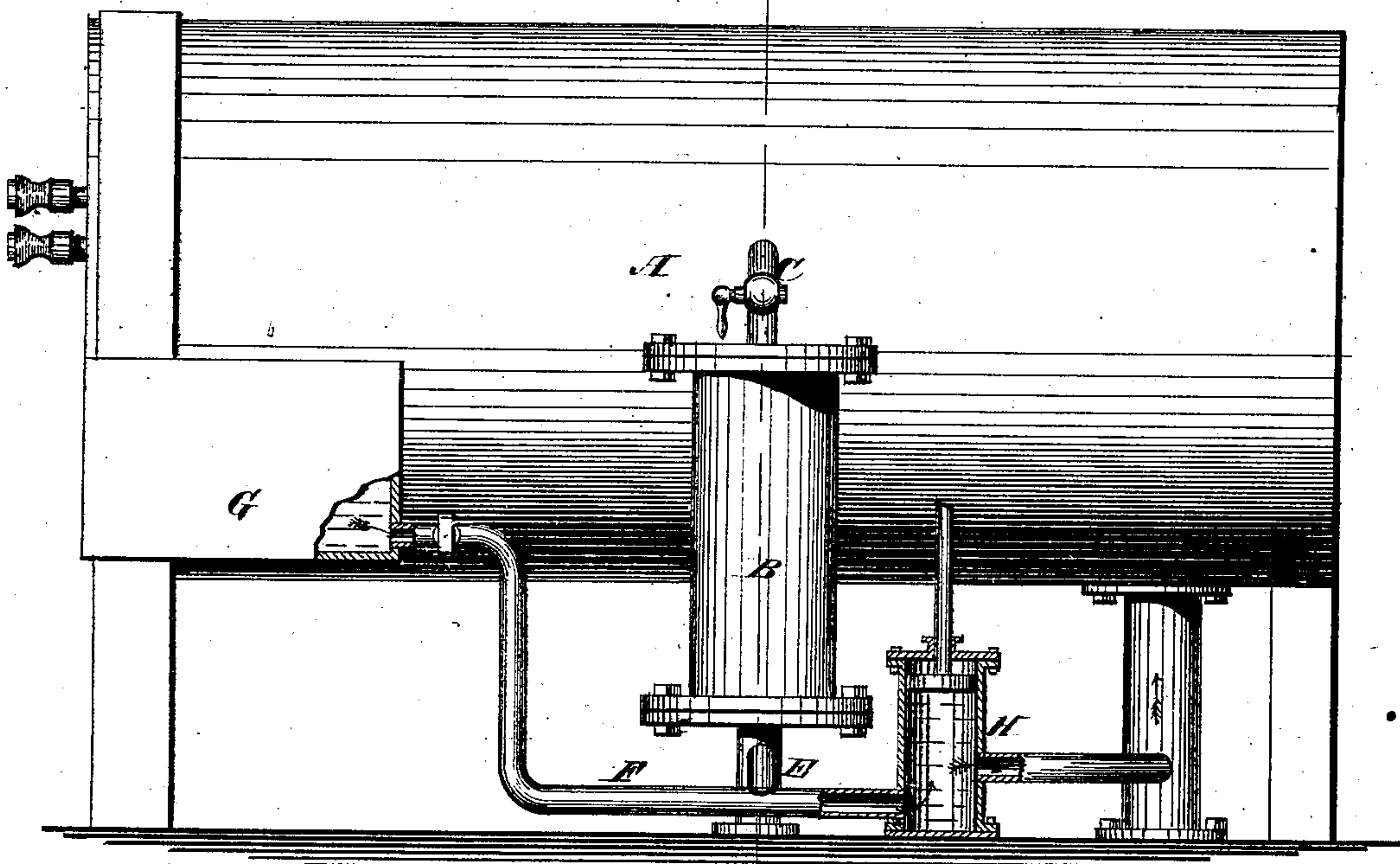


C. M. BRIDGES.  
Feed Water Regulator.

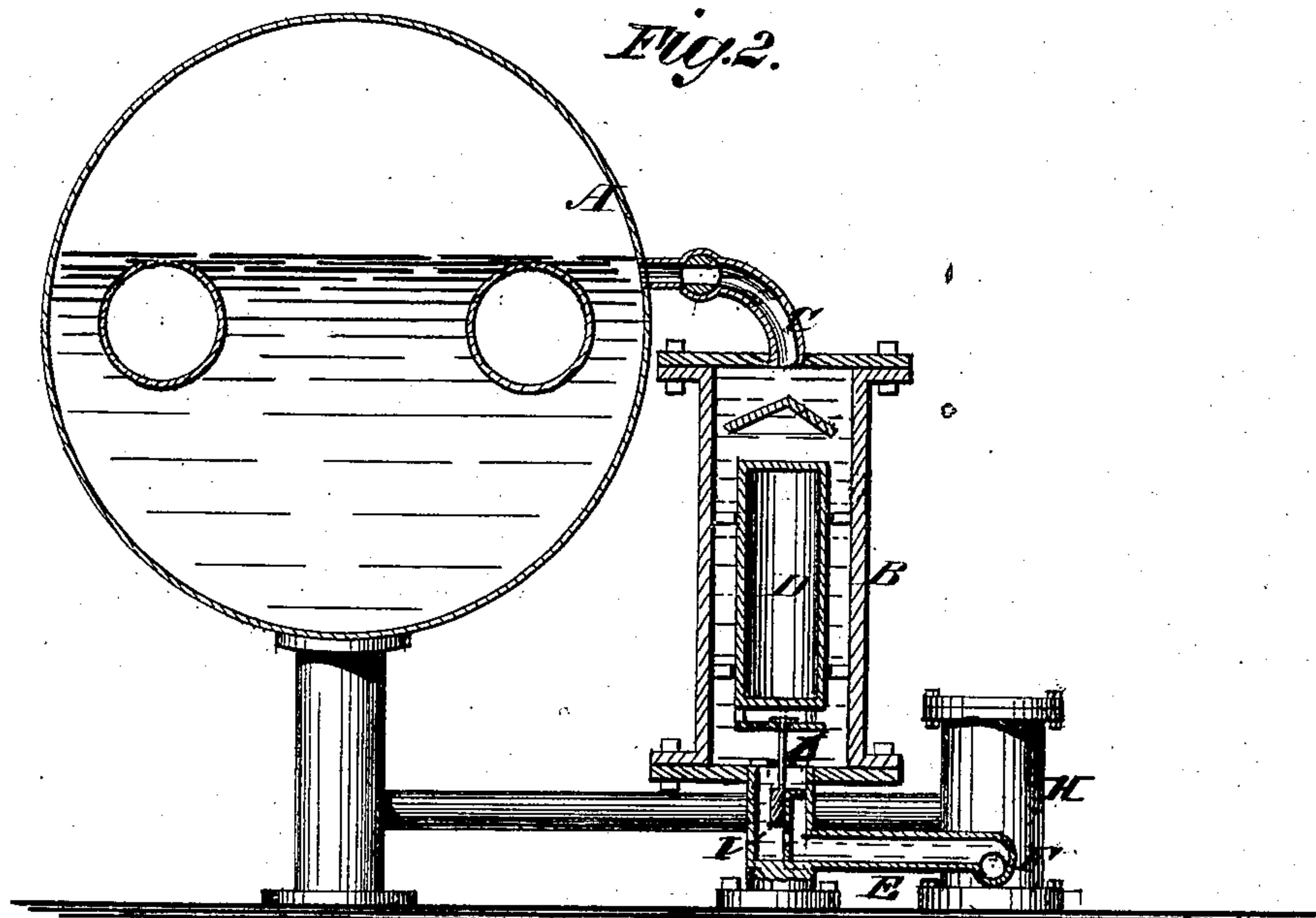
No. 167,639.

Patented Sept. 14, 1875.

*Fig. 1*



*Fig. 2*



WITNESSES:

Francis McSherry.  
A. F. Terry

INVENTOR:

C. M. Bridges  
BY Minner & Co

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CHRISTOPHER M. BRIDGES, OF LEON, IOWA, ASSIGNOR TO HIMSELF AND  
CREED BOBBITT, OF SAME PLACE.

## IMPROVEMENT IN FEED-WATER REGULATORS.

Specification forming part of Letters Patent No. **167,639**, dated September 14, 1875; application filed  
August 6, 1875.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER M. BRIDGES, of Leon, Decatur county, Iowa, have invented a new and Improved Boiler Feed-Regulator, of which the following is a specification:

My invention consists of a float in a chamber connected to the boiler at the water-level, to rise when the water fills the chamber, and open a passage from the chamber containing the float to the pump, and allow the boiler pressure to close the check-valve in the supply-pipe from the tank, and so that a circulation of the hot water of the boiler will be maintained through the pump as long as the water in the boiler is high enough to keep the chamber full and the float up; but when the water falls in the boiler below the connection with the chamber the pump will exhaust the chamber, and the float will fall and close the passage from the float-chamber, when the check-valve, being relieved of the boiler pressure, will open, thus making an automatic regulator, and at the same time facilitating the circulation of the water, so that steam makes faster and more economically.

Figure 1 is partly a side elevation and partly a sectional elevation, and Fig. 2 is a transverse section.

Similar letters of reference indicate corresponding parts.

A is the boiler. B is the float-chamber; C, the pipe connecting the float-chamber with the boiler at the water-line; D, the float in the chamber; E, the pipe connecting the float-chamber at the bottom with the pipe F, which connects the feed-tank G with the pump H, and I is a valve contrived to open connection of the float-chamber with the pump, when the float rises, and close it when the float falls. The pipe F will have a check-valve to be closed by steam-pressure when the valve I opens.

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

The float-chamber B, float D, passage E, and a valve, I, combined with the boiler and the pump, in the manner described, to open a circulating-passage through the boiler and feed-pump when the float rises, and close it when the float falls, substantially as specified.

CHRISTOPHER MARTIN BRIDGES.

Witnesses:

URIAH BOBBITT,  
A. S. UPDEGRAFF.