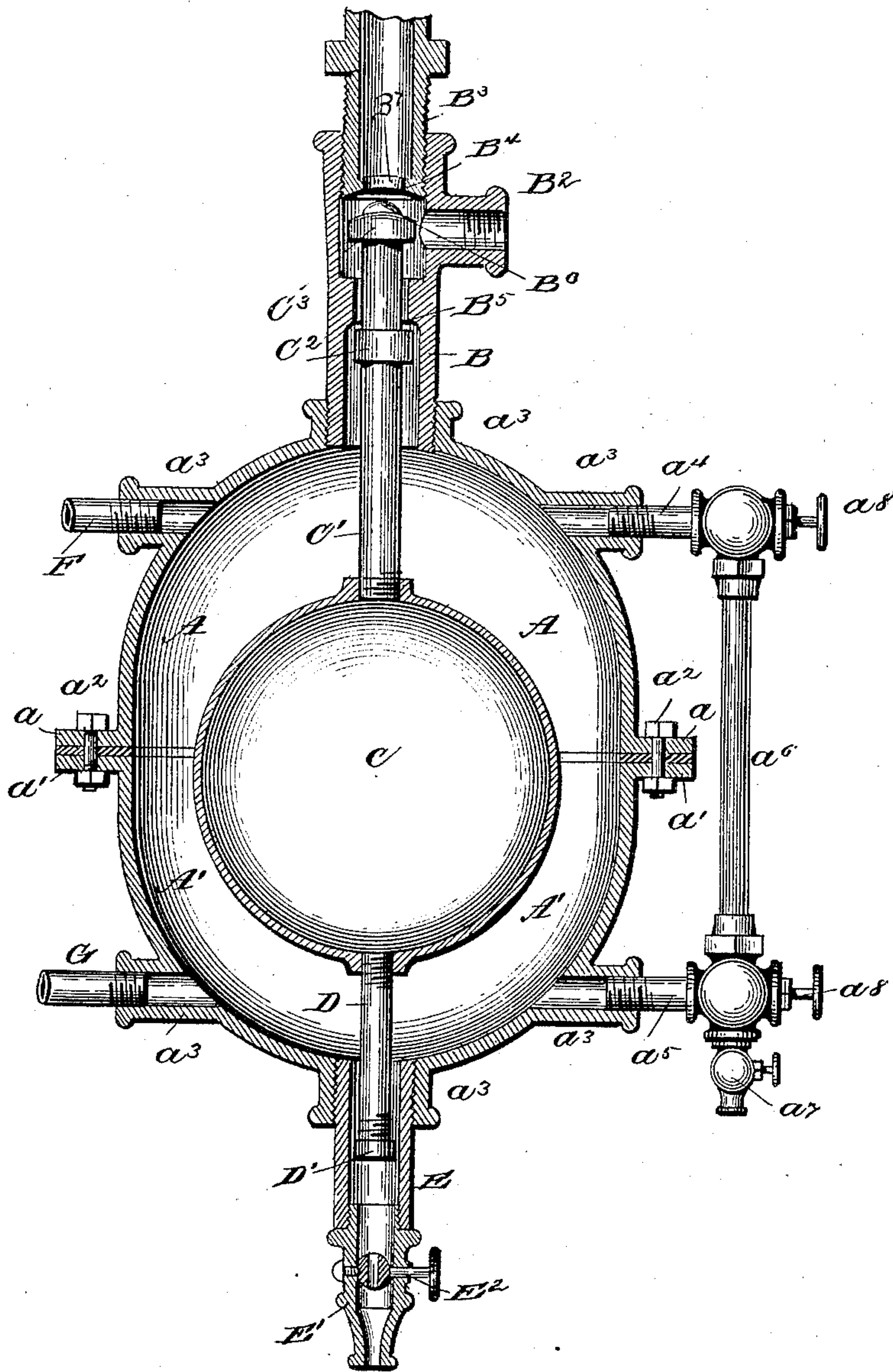


(No Model.)

P. J. KELLY.
BOILER FEEDER.

No. 436,564.

Patented Sept. 16, 1890.



Witnesses

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UNITED STATES PATENT OFFICE.

PETER J. KELLY, OF AUBURN, NEW YORK.

BOILER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 436,564, dated September 16, 1890.

Application filed January 27, 1890. Serial No. 338,302. (No model.)

To all whom it may concern:

Be it known that I, PETER J. KELLY, a citizen of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Boiler-Feeders, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in boiler-feeders designed for use in regulating the feed of water to steam-boilers, either high or low pressure water-supply, from a tank or from a city water-supply, and either with or without the use of a pump. It is designed more particularly as an improvement upon the device shown and described in my application, Serial No. 316,682, filed July 6, 1889.

It has for its object, among other things, to simplify and cheapen the device and to provide for the ready draining of the float when occasion may require.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawing, which, with the letters of reference marked thereon, form a part of this specification, and in which is shown a central vertical section of a regulator constructed in accordance with my invention.

Referring to the drawing by letter, A A' are two castings substantially hemispherical, or rather each a little more than a hemisphere, so as to form an elongated chamber, as shown. These castings have flanges a a' , through which are passed the bolts a^2 , provided with suitable nuts serving to bind the sections or castings together, any suitable packing being introduced to render the joints steam and water tight. These castings are formed with suitable internally-threaded bosses or necks a^3 for connection with the pipes hereinafter described. a^4 a^5 represent pipes connected to two of these necks or bosses and leading through the upper and lower sections of the chamber or receptacle formed by the castings A A', respectively, to the water-glass a^6 to indicate the water-line within the sphere or chamber. A drip-cock a^7 is provided for drain-

ing the glass a^6 . These pipes a^4 a^5 are provided with suitable valves a^8 , as indicated.

B is a three-branch coupling, one branch of which is screw-threaded into the boss a^3 at the top of the section A. The horizontal branch B² of this coupling is internally threaded, as shown, and is designed to receive a pipe connecting it with the pump. (Not shown.) The upper vertical extension of this coupling has connected therewith a nipple or pipe B³, the lower end of which is concaved to form a curved seat B⁴ for the valve hereinafter described. This nipple is designed to be connected with the boiler—that is, with the dome thereof—to conduct dry live steam into the coupling.

C is a float, and C' its stem or rod, which extends upward through the coupling B and is provided with two valves C² and C³, the lower one C² of which finds a seat against the under side of the diaphragm B⁵ within the coupling B, the other or upper valve C³ finding its seat in one direction against the upper edge of said diaphragm and in the upper direction against the concave seat B⁴ of the nipple B³, above described. The upper face of the valve C³ is convexed, as shown, being held to its rod by means of a screw B⁶, having a rounded head, which is adapted to fit in the aperture B⁷ in the lower end of the nipple B³.

To the lower end of the float I attach a pipe D, the lower end of which is screw-threaded to receive a detachable cap or cup D', which extends within the nipple E, having a screw-threaded engagement with the boss a^3 of the casting A', said nipple being provided with a detachable nozzle E', carrying a suitable valve E².

F is a pipe adapted to be connected with the boiler to convey steam therefrom to the steam and water chamber formed by the castings A A'. G is another pipe connecting the lower portion of the chamber with the boiler.

An apparatus constructed as above described, if properly connected with a boiler, the level of the water within the chamber will be the same as that within the boiler, and the float C will rise and fall with changes of the level, and will carry with it the valve C³, so that said valve may open or close the lateral passages of the upper coupling, whereby the

introduction of water within the chamber may be accomplished. Suppose, for instance, that the boiler is to be supplied with water from the pump, (not shown,) the water entering through G and the steam through the pipe F. Both coming from the boiler the pressure from one will counterbalance that of the other, and the float C will assume a position sufficiently elevated to raise the valve C³, so as to close the transverse passage of the upper coupling B. Now as the water-level, which under such circumstances would be substantially at the equatorial line of the chamber, begins to fall by reason of the fall of the water in the chamber in the production of steam the float C and the valve C³, carried by the stem of said float, also fall, opening the passage of the upper coupling, which connects with the live-steam space of the boiler and with the pump, thus permitting the entrance of live steam through the nipple B³ and pipe B² to the pump, which is operated by the steam until the water-level is raised sufficiently to elevate the float and its valve and close the passage in the nipple B³.

The float is liable in time to accumulate water which it is desirable to remove. To do this, it is only necessary to detach the nozzle E' and remove the cap D' of the pipe D, when

the water within the float will drain out, after which the cup may be replaced and the nozzle then screwed on.

The concave seat for the convex valve C³ provides for ready seating of the valve should the stem thereof be any other than a direct vertical line.

The valve C² is used more as a safeguard to stop the flow of any water that might enter the coupling in the case of leakage or from other causes.

What I claim as new is—

1. The combination, with the chamber and its connections, of the float, a pipe connected with the lower end thereof, and a removable cap on the lower end of said pipe, substantially as and for the purpose specified.

2. In a regulator, the combination, with the chamber and its connections, of the nipple, the lower portion of the chamber, a drain-cock thereon extending through the nipple, and a removable cap on the lower end of said pipe, substantially as and for the purpose specified.

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

PETER J. KELLY.

Witnesses:

CHAS. G. ADAMS,
G. W. BENHAM.