

(No Model.)

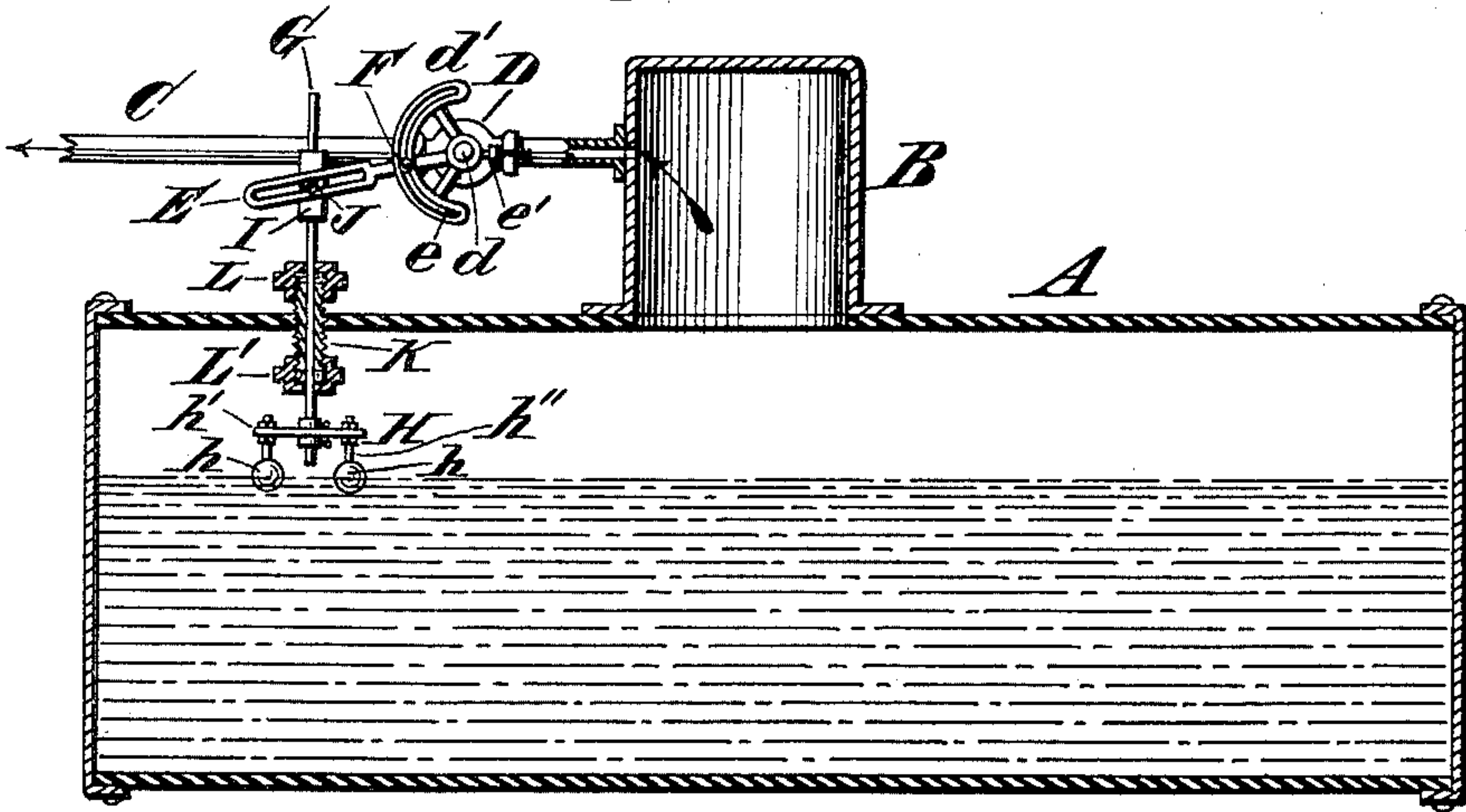
J. P. BUCKLEY.

STEAM BOILER WATER FEEDER.

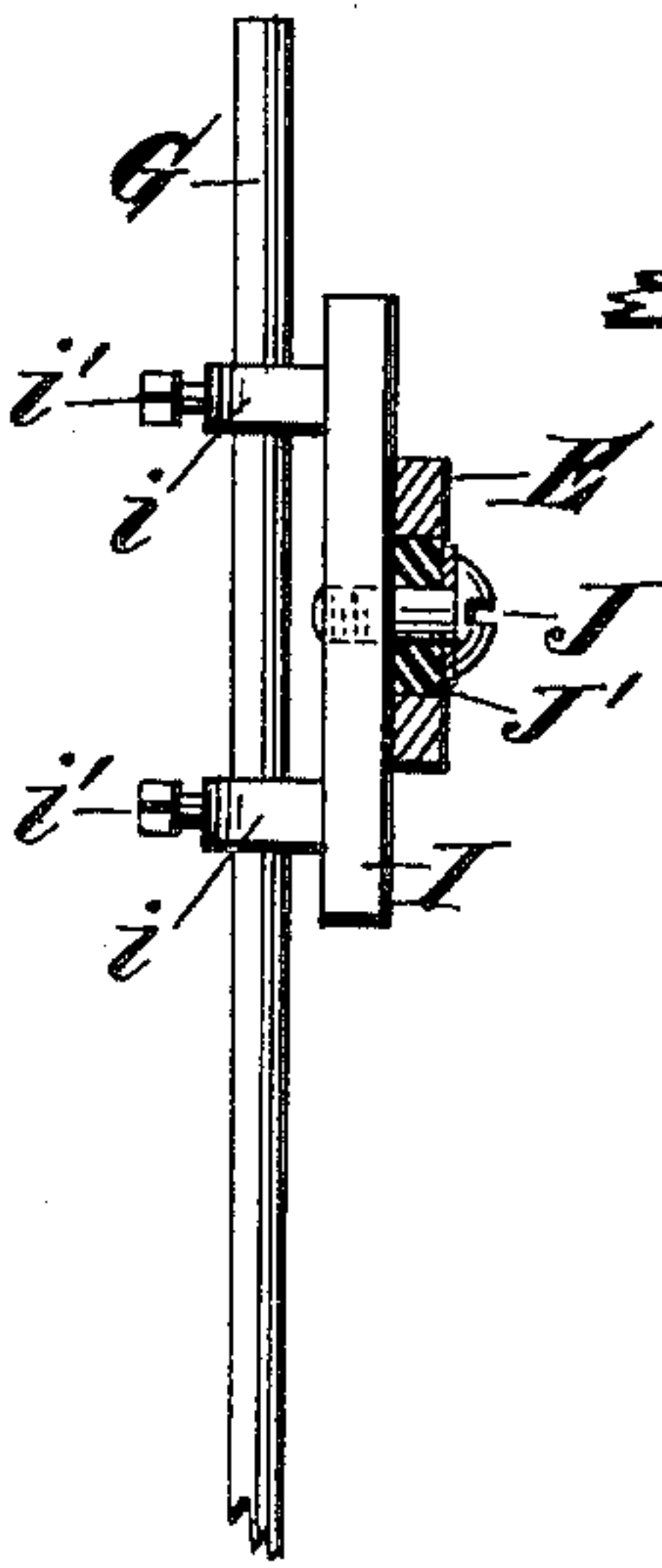
No. 325,195.

Patented Aug. 25, 1885.

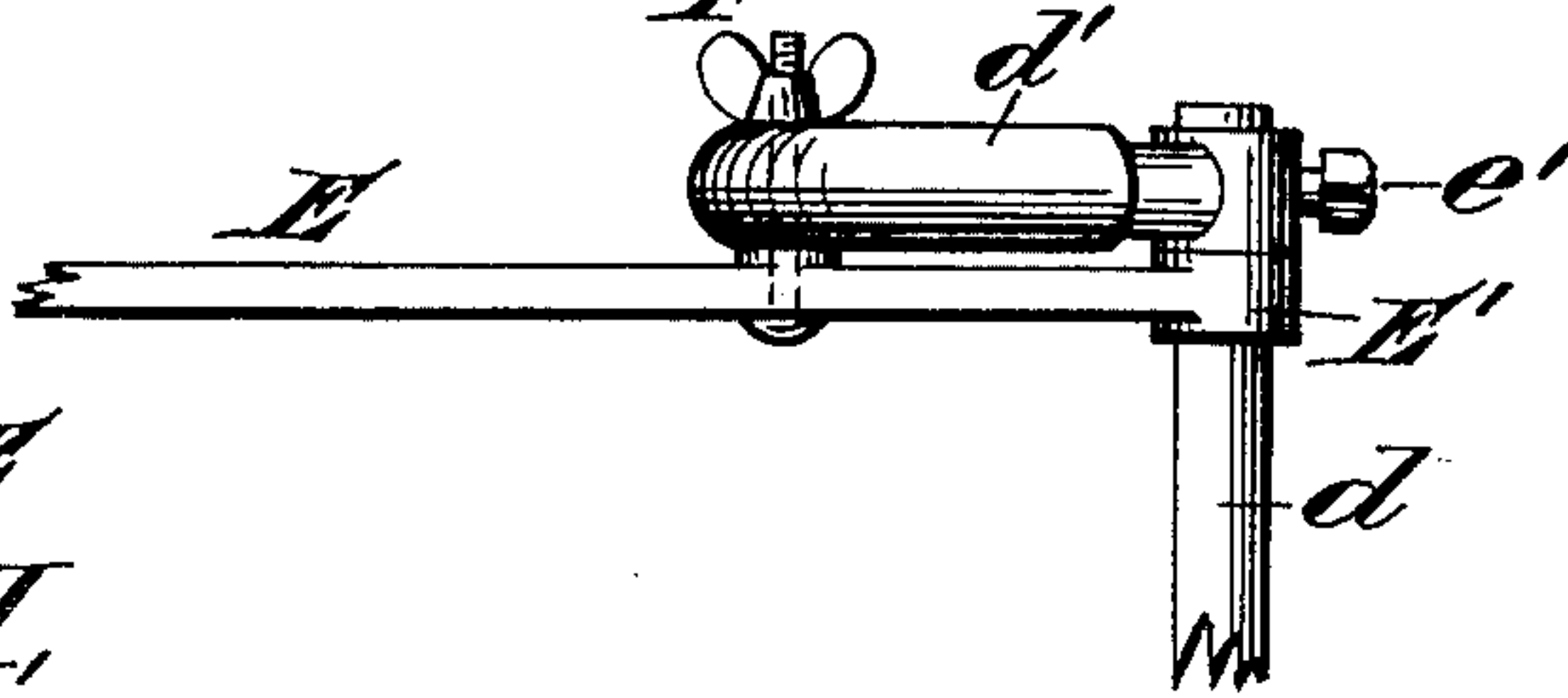
*Fig. 1.*



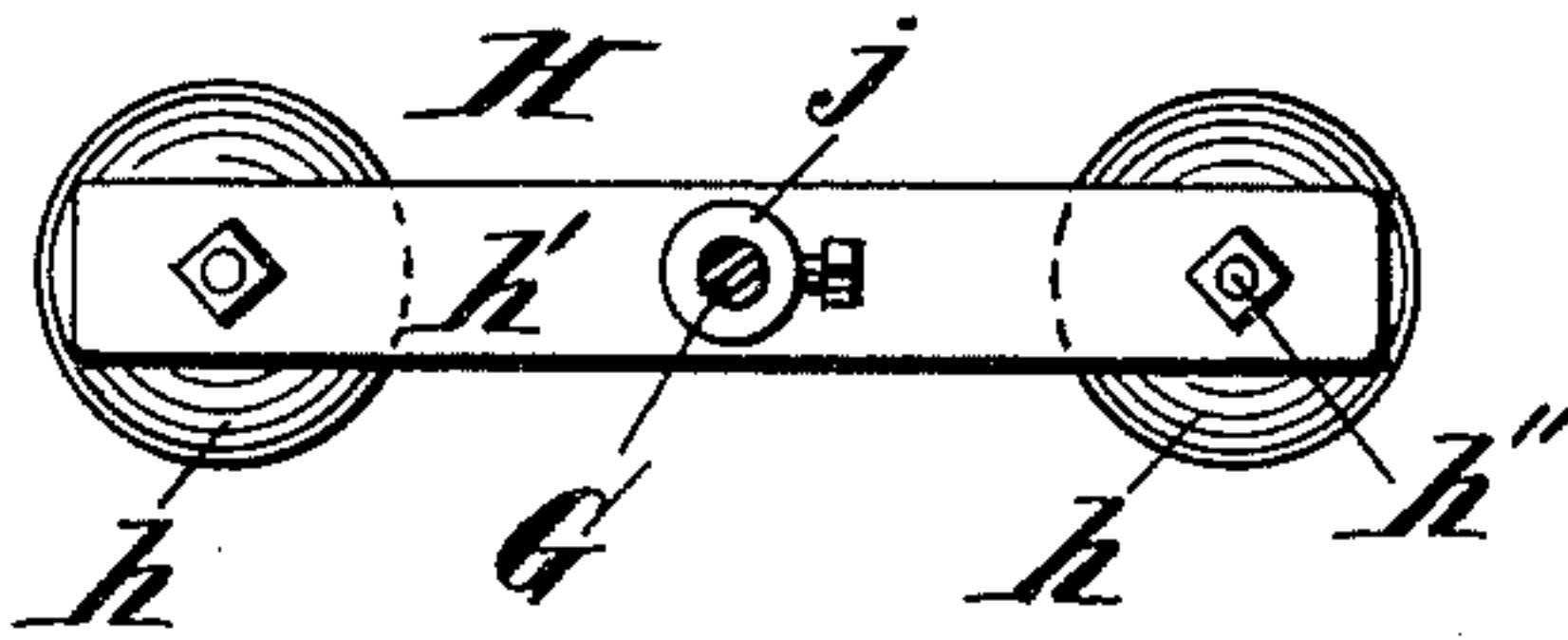
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



ATTEST

*Chas. E. Kissick*

*L. M. Wells*

INVENTOR

*John P. Buckley,*  
*by John D. Jones,*  
*his Attorney.*

# UNITED STATES PATENT OFFICE.

JOHN P. BUCKLEY, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO  
PETER ECHERT, OF SAME PLACE.

## STEAM-BOILER WATER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 325,195, dated August 25, 1885.

Application filed May 9, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN P. BUCKLEY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Automatic Steam-Regulator for Steam-Boiler Water-Feeders, of which the following is a specification.

My invention relates to an automatic steam-regulator for steam-boiler water-feeders; and it consists in the combination, with a steam-boiler, the steam-supply pipe leading into the feed-water pump, and a steam-regulating valve in said pump-supply pipe, of a vertical rod or stem suitably mounted in a tube which taps the boiler, a float at the lower end of said stem within the boiler, and an arm connecting the upper or outer end of said stem with the handle of said steam-regulating valve, whereby the supply of steam to the feed-water apparatus is regulated by the level of the water in the boiler, all as fully described hereinafter.

In the accompanying drawings, Figure 1 is a longitudinal central section of a steam-boiler with my improved water-feeder steam-regulating device attached in place thereto. Fig. 2 is a detail elevation, partly in section, showing the manner of loosely connecting the arm on the steam-valve with the upper portion of the float-rod or stem. Fig. 3 is a detail side elevation of a broken off portion of the valve-stem and the arm connecting its handle with the float rod, showing the manner of adjustably connecting the said arm with the said valve-handle. Fig. 4 is a plan view of the float, including a cross-section of its stem.

A represents an ordinary steam boiler, and B its dome.

C represents a steam-pipe leading, as customary, from the dome to the pump or water-feeder, (which I deem unnecessary to show herein.)

D is an ordinary globe-valve located in pipe C, for regulating the supply of steam to the feed-water pump. It is in connection with this valve that my invention is particularly adapted.

The usual valve for closing off the steam entirely from the pump when not in use is

located in the steam-pipe C, between the valve D and the pump-cylinder.

*d* represents the valve-stem, and *d'* the manipulating handle thereon. I have shown the rim of the handle *d'* as being semicircular and connected by arms or spokes with the hub thereof. It is obvious that the rim could be a complete circle, as customary, and not alter the operation of the valve. The only object in making the handle sectional, as shown, is to save metal, which is not therefore intended as any particular feature of my invention or any part of the claim.

*e* is a slot in the rim of handle *d'*.

*e'* is a set-screw for adjustably and detachably connecting the handle in place upon the valve-stem, to determine the steam passage-way in the valve.

E represents a slotted arm having an eye, *E'*, at one end, which fits loosely upon the valve stem, and at its other end is adjustably connected by a thumb-screw, F, with the valve-handle *d'*. This adjustable connection of the arm E and the valve-handle permits a very sensitive adjustment of the valve, and therefore a similar supply of steam to the pump as the water rises or falls in the boiler.

G represents a vertical rod or stem having at its lower end, within the boiler, a float, H, which rises or falls with the level of the water in said boiler.

I represents a plate having upon one of its sides perforated lugs or eyes *i*, which fit upon the upper portion of stem G, and are adjustably secured thereto by set-screws *i'*, so as to adapt the device to such varying heights of water in the boiler as are desired. Plate I is loosely connected with arm E by a screw, J, and a trundle or roller, J', said roller traveling in the slot in said arm, so as to permit the float-rod to move vertically in its tube-bearing K. The tube K is screw-threaded and taps the boiler for attachment.

L is a stuffing box at the upper end of tube K, and L' a guide-cap at the lower end of said tube, in both of which the float-rod moves. The float H is preferably composed of two hollow metal balls, *h h*, and a horizontal bar, *h'*, with rods, *h''*, for suspending said balls.

*j j* are adjustable collars on the float-rod,



one above and the other below the bar *h'*, to secure said bar in place. Two balls are used by me to secure a more perfect equilibrium or balance, and therefore a perfectly free  
5 vertical movement of the float-rod.

In the operation of my device the steam passing from the boiler through the pump-supply pipe is suitably regulated by the rise or fall of the water in the boiler through the  
10 instrumentality of the float, the float-rod and the arm connecting the float-rod with the valve-stem. A uniform height of water will at all times be maintained in the boiler, owing to this direct connection with the operating  
15 volume of steam on its way to the pump, the valve being actuated by the slightest rise or fall of water, either opening said valve wider or bringing it nearer to a close.

What I claim is—

20 1. In a steam boiler water-feeder, the combination, with the boiler provided with a steam-dome, of a steam-pipe provided with a globe-valve leading from the steam-dome to the feeding device, a tube leading into the interior  
25 of the boiler, said tube being provided with a stuffing-box at one end and a guide-cap at the other, a vertical rod passing through said stuffing-box and guide-cap and provided with a float at its lower end within the boiler,  
30 and means at the upper end for connecting said rod adjustably with said globe-valve within said steam-pipe, substantially as and for the purpose set forth.

2. In a steam-boiler water-feeder, the com-

bination, with a boiler and a steam-pipe, of a 35 globe-valve within said pipe provided with an arm secured thereto, a vertical rod passing through suitable bearings into said boiler, the lower end of said rod being provided with a  
40 suitable float, and at the upper end with a plate, one side of which is provided with perforated lugs or eyes, and means for securing said rod within said eyes, and the other side of said plate being provided with suitable  
45 means for securing said plate to said arm of said globe-valve, substantially as and for the purpose set forth.

3. In a steam-boiler water-feeder, the combination, with the boiler and steam-pipe, of a  
50 globe-valve within said pipe, and provided with a handle adjustably secured thereto, and an arm fitting loosely on the stem of said globe-valve at one end, and provided with a slot at the other, and means for securing said  
55 arm to said handle at any desired point, a vertical rod passing through suitable bearings into the interior of said boiler, said rod being provided with a float at its lower end and with a plate at its upper end, and a trundle  
60 secured to said plate and engaging with the slot in the end of the arm of said globe-valve, substantially as and for the purpose set forth.

In testimony of which invention I have hereunto set my hand.

JOHN P. BUCKLEY.

Witnesses:

PETER ECHERT,  
JOHN E. JONES.