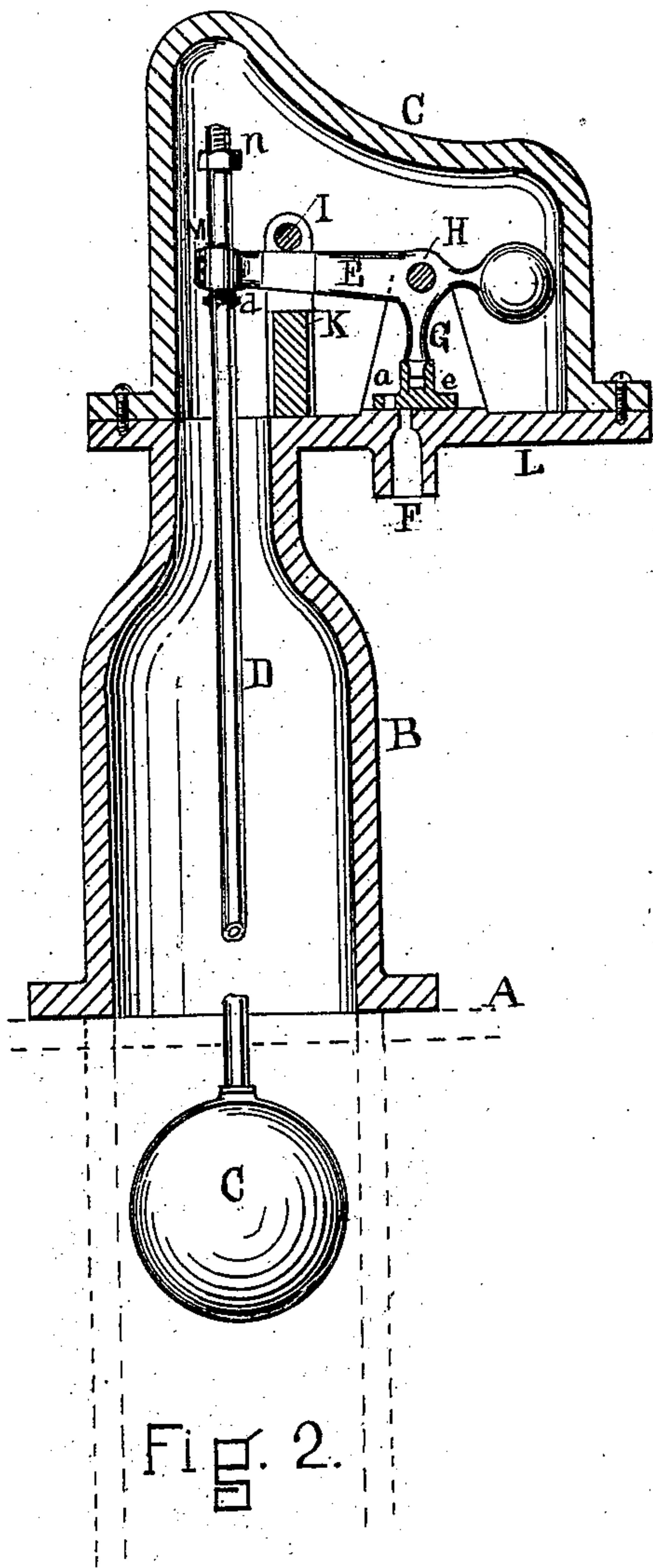
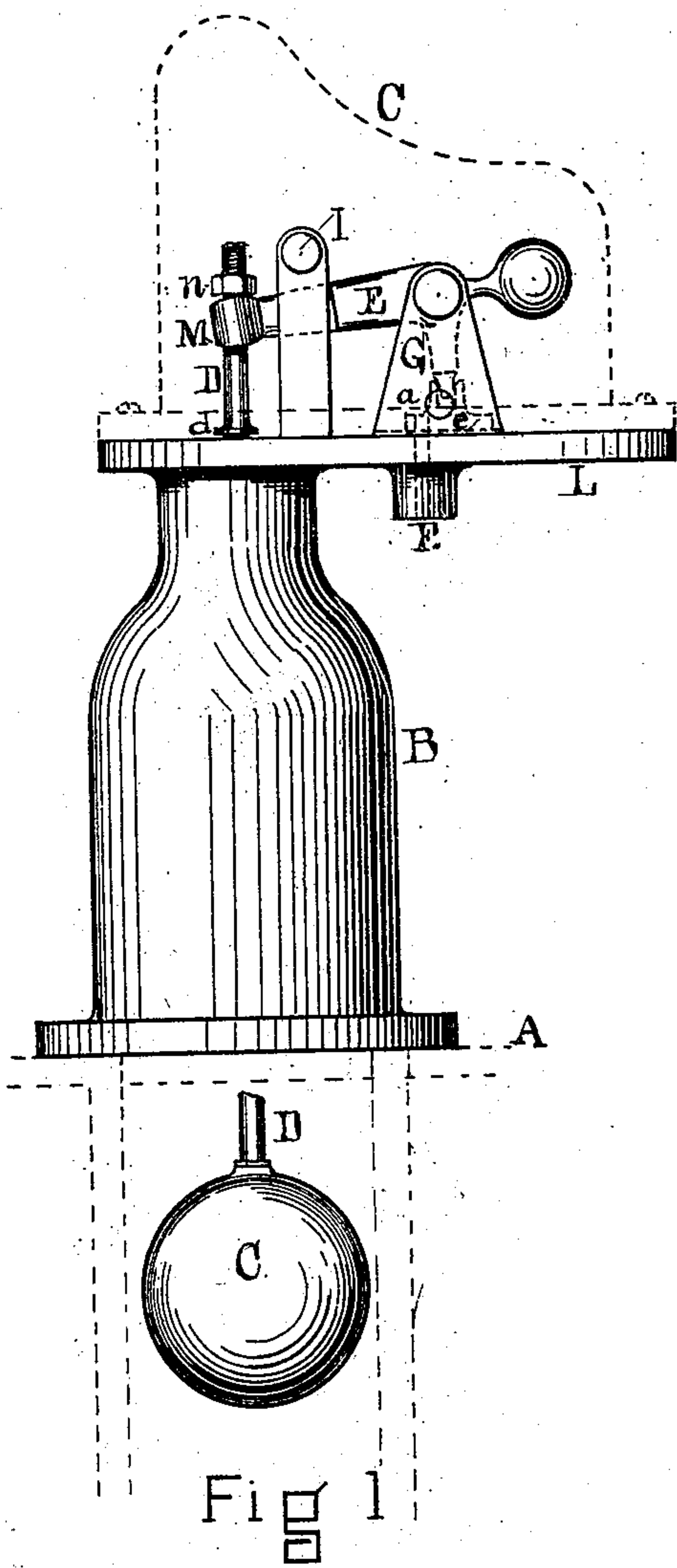


C. M. VAN TINE.  
STEAM BOILER ATTACHMENT.

No. 181,501.

Patented Aug. 22, 1876.



WITNESSES

Frank L. Parker  
James Howe, Jr.

INVENTOR  
C. M. Van Tine  
by J. H. Adams  
Atty.

# UNITED STATES PATENT OFFICE

CHARLES M. VAN TINE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO  
WILLIAM P. HUNT, OF SAME PLACE.

## IMPROVEMENT IN STEAM-BOILER ATTACHMENTS.

Specification forming part of Letters Patent No. **181,501**, dated August 22, 1876; application filed  
July 1, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES M. VAN TINE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Steam-Boiler Attachments, of which the following is a specification:

My invention relates to an improvement in steam-boiler attachments, having especial reference to its application to certain devices described in Patent No. 157,051, granted to N. Wiard, November 17, 1874.

In the said patent the exhaust-valve in the valve casing or chamber is actuated by means of a lever attached to a float, through the center of which passes vertically a spiral spring, by which it (the float) is suspended, the exhaust-valve being so connected in relation to the said lever as to be caused to move with every motion of the float, as the latter is effected by the fluctuating movement of the water in the water-chamber, as described in the above-mentioned patent.

It is the object of my invention to simplify the construction of the float and its connection with the exhaust-valve and gear, and to so connect the float-rod with the lever that actuates the exhaust-valve as to admit of a limited movement of the float without effecting a corresponding movement of the exhaust-valve.

Referring to the drawings, Figure 1 represents an elevation of the upper portion of the water-chamber and valve-casing embodying my improvement, and Fig. 2 is a vertical section of the same.

A represents the upper portion of a boiler, to which the upper portion of the chamber B is attached, the lower part of the same extending down into the boiler, as shown in dotted lines. C represents a float, arranged in the chamber that extends within the boiler. The float C is attached to the rod D, that extends upward within the chamber B, and passes through an opening in the long arm of a weighted lever, and so as to move freely therein. The upper end of the rod D is provided with a screw-thread, upon which is fitted a nut, *n*, as shown, and at a short distance below, on the said rod, is a projection or shoulder, *d*, so that when the float is lifted

by the water in the chamber in which it is confined, the rod D is carried up, and the shoulder *d* raises the lever E and causes the slide-valve *e* to close the exhaust-opening F; and as the water descends in the said chamber, the float falls, and the nut *n*, coming in contact with the end of the lever E, draws the same down, and thus causes the port *a* in the slide-valve *e* to cover the opening F and allow the steam to escape. The nut *n* may be adjusted on the rod D so as to admit of any desired play of the rod D through the lever, and thus prevent the valve *e* from moving with every fluctuating movement of the float.

The lever E passes through a slot in the standard K, and its up-and-down movement is limited by a stop, I, above, and the solid portion of the standard K below. The lever E has its fulcrum at the point H, below which projects an arm, G, the lower end of which is fitted into the top of the slide-valve *e*, which is moved back and forth by means of the lever E. The valve *e* is provided with an opening or port, *a*, which is brought in position over the opening F to open the valve.

It will thus be seen that, by means of the adjustable connection of the float-rod D to the lever E, I avoid the difficulty incident to a rigid connection of the rod to the lever, whereby the fluctuating movement of the float causes an undue and unnecessary movement of the exhaust-valve.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The slide-valve *e*, in combination with the lever E and adjustable float-rod D, substantially as and for the purpose set forth.

2. The combination of the float-rod D, provided with the adjusting-nut *n* and the shoulder *d*, with the lever E and the stops I K, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

C. M. VAN TINE.

Witnesses:

J. H. ADAMS,  
E. A. STOCK.