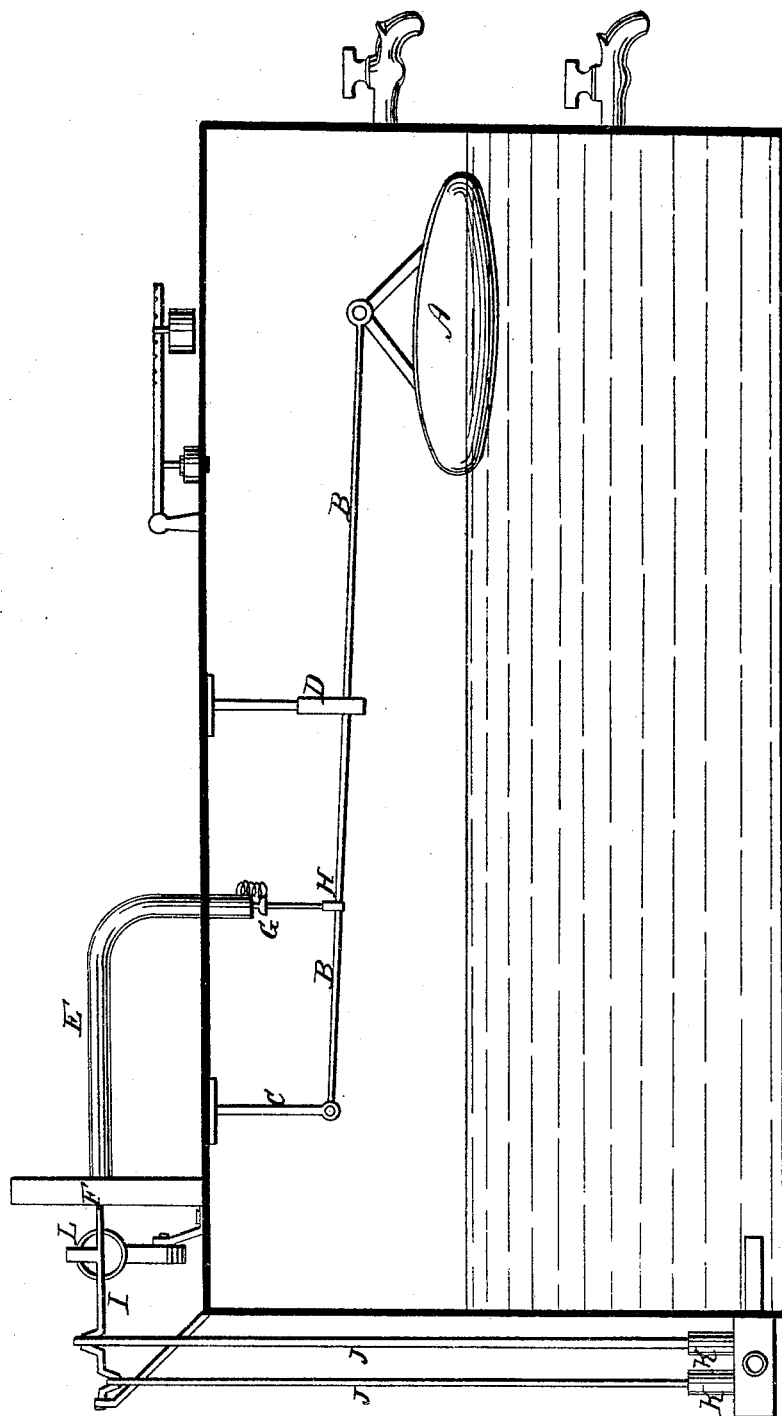


*I. N. Coffin,*  
*Steam-Boiler Water-Feeder,*  
*No. 1,353, Patented Sep. 30, 1839.*



# UNITED STATES PATENT OFFICE.

ISAAC N. COFFIN, OF WASHINGTON, DISTRICT OF COLUMBIA.

## MODE OF PREVENTING EXPLOSIONS OF STEAM-BOILERS FROM DEFICIENCY OF WATER.

Specification forming part of Letters Patent No. 1,353, dated September 30, 1839; Reissued April 26, 1845, No. 69.

*To all whom it may concern:*

Be it known that I, ISAAC N. COFFIN, of the city of Washington, in the District of Columbia, have invented certain improvements in the construction of the boilers of steam-engines, by means of which improvements the dangers of explosion from deficiency of water in such boilers will be lessened if not entirely obviated; and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in the so adapting of a float within the boiler to a valve, escape tube, rotary engine, and pumps, as that by the lowering of the water in the boiler, and the consequent depression of the float, a portion of the steam shall escape, and in so doing shall give motion to the rotary engine, and through this to a pump, or pumps, for supplying the boiler with water.

The accompanying drawing represents the interior of a boiler, one side of which is removed for the purpose of exhibiting the operating parts.

A is a float, which may be made of metal or other suitable material. This is attached to a rod B, B, which at its opposite end works on a joint by which it is connected to the support C. The support D, has a slot in it through which the rod passes, and by which it is guided as it moves up or down.

E is an escape tube, the inner end of which opens into the steam chamber of the boiler, and its outer end is connected to a steam wheel, or rotary engine F, which may operate in the manner of what is known as Avery's rotary engine, or in any of the other known modes in which such engines whether rotary or reciprocating are made to operate. To the inner end of the escape tube E, is adapted a valve G, which is opened, or closed by the action of the float upon the rod

or levers B B. The valve G is to be kept in contact with the end of the tube E, by means of a spiral or other spring when not forced down by the descent of the float. The lower end M, of the stem of the valve G, is not attached to the rod B, B, but is furnished with a slot, or long mortise, within which said rod can play up and down to the distance required for the free motion of the float, so that the valve shall not be disturbed by it until the float sinks to such a depth as shall render it proper to open the valve, when the rod B, B, is brought into forcible contact with the lower end of the slot, or mortise, in H.

A crank shaft I, which is driven by the rotary engine, works the pump rod, or rods, J, J, of a supply pump, or pumps K, K, constructed in the ordinary manner of constructing pumps for supplying boilers with water.

L, is a bell which will be caused to sound an alarm as soon as the shaft I, begins to revolve, there being a tappet, or projecting piece, on said shaft for that purpose.

The ordinary safety valves, and gage cocks, are used with this boiler, as with others.

What I claim as my invention in the above described apparatus, is—

The combination of the float with the valve, steam tube, rotary steam engine, and supply pump, so arranged substantially as herein described, that the depression of the float within the boiler, caused by the deficiency of water, shall open a valve, and that the steam which escapes through said opening, shall drive the rotary engine, and thereby operate the supply pumps.

ISAAC N. COFFIN.

Witnesses:

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