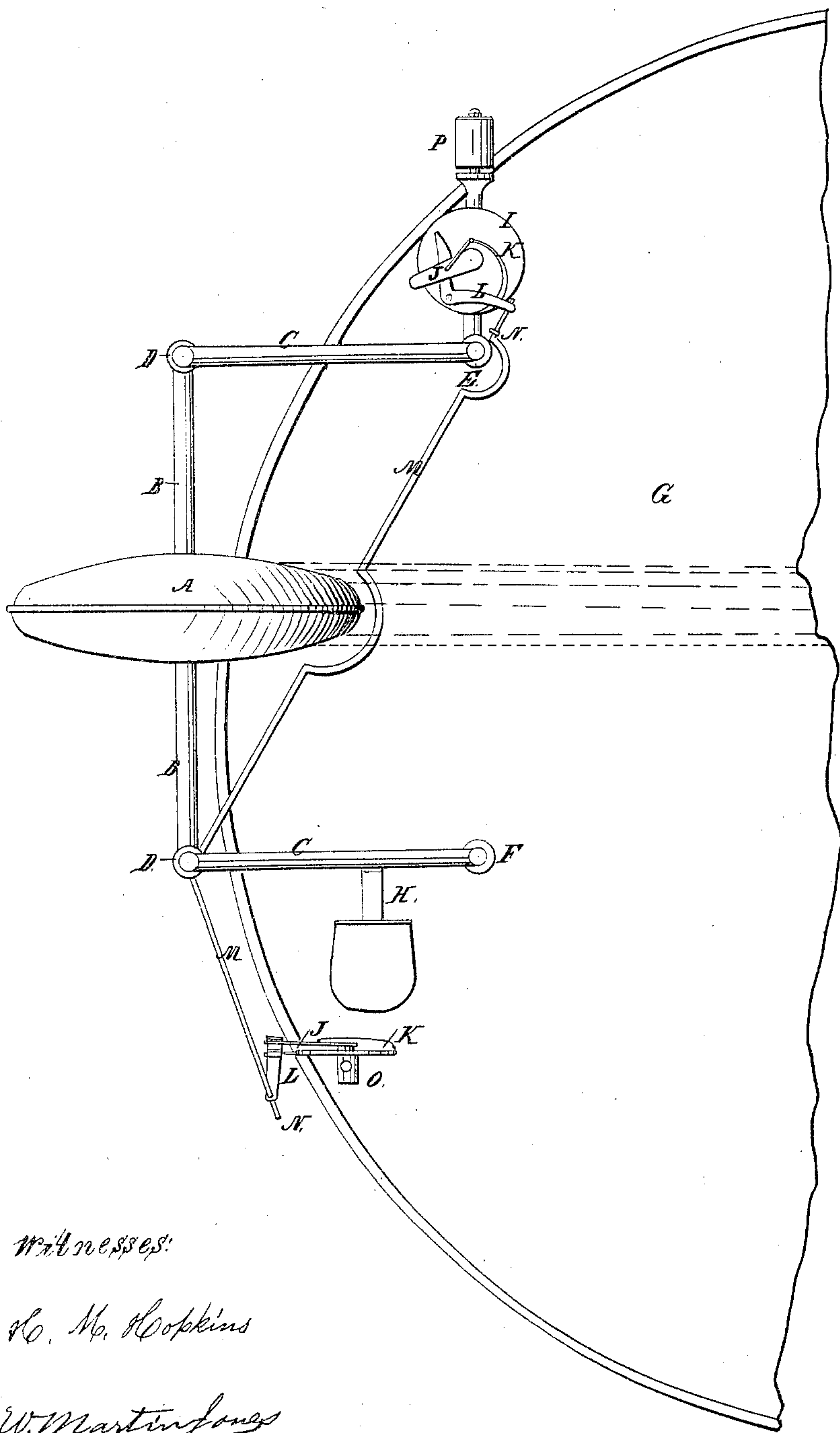


No 82,222.

Steam-Boiler Indicator.

Patented Sep. 15, 1868.



Witness:

H. M. Hopkins

W. Martin Jones

Inventor:

Ans. In Hopkins.

United States Patent Office.

GEORGE M. HOPKINS, OF ALBION, NEW YORK.

Letters Patent No. 82,222, dated September 15, 1868.

IMPROVEMENT IN LOW-WATER INDICATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE M. HOPKINS, of Albion, in the county of Orleans, and State of New York, have invented a new and useful Improvement in Low-Water Alarms for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

A designates a shallow vessel, of any convenient form, into which the pipes B B are screwed or otherwise fastened.

C C are pipes, which are connected with the pipes B B by the swivel-joints D D.

The pipes C C are also connected at E and F by swivel-joints to pipes which run directly into the boiler. (A section of the boiler is represented by G.) E is above the water-line, and F is below.

H designates a spring, which is placed beneath the lower pipe, C, and is of sufficient strength to counter-balance the weight of the vessel A and the pipes connected with it.

I represents a stop-cock; it is operated by the lever J, to which is connected the spring K. This spring is sufficiently strong to open the stop-cock I.

The spring-catch L retains the lever J, and keeps the stop-cock closed.

M is a rod, which is connected with the lower swivel-joint D, and passes through the spring-catch L. This rod has a collar on it at N.

O represents a stop-cock, similar to I, having a spring-catch and rod, designated by the same letters as at I.

The vessel A is held in such a position, by the pipes connected with it, that its upper surface is level with the water-line.

It will be seen that, as there is a free connection between the boiler and the vessel A, through the pipes C C and B B, the water must stand on the same level in the vessel A that it does in the boiler G, and when the water is at a proper height in the boiler, the vessel A is full, and compresses the spring H.

When the water is low in the boiler, it passes out of the vessel A, and allows the spring H to raise it, as the swivel-joints E, F, and D D allow it to move freely up and down. When it is raised sufficiently high, the collars N N strike the spring-catches L L, and open the stop-cocks O and I, turning on the water at O, which is to feed the boiler, and steam at I, which passes through the whistle P, and gives the alarm.

The stop-cock O may be connected, so as to open and close with the motion of the vessel A, if desired.

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

1. The vessel A, in combination with the pipes B B and C C, and the swivel-joints D D and E F, operating in the manner substantially as shown and described.

2. The stop-cocks I and O, having the spring-catches L L, in combination with the vessel A, arranged to operate substantially as shown and described.

3. The vessel A, in combination with the whistle P and intermediate devices for giving alarm, and regulating the supply of water, as above set forth.

Signed by me, this first day of July, 1868.

GEO. M. HOPKINS.

Witnesses:

H. M. HOPKINS,

C. M. TOUSLEY.