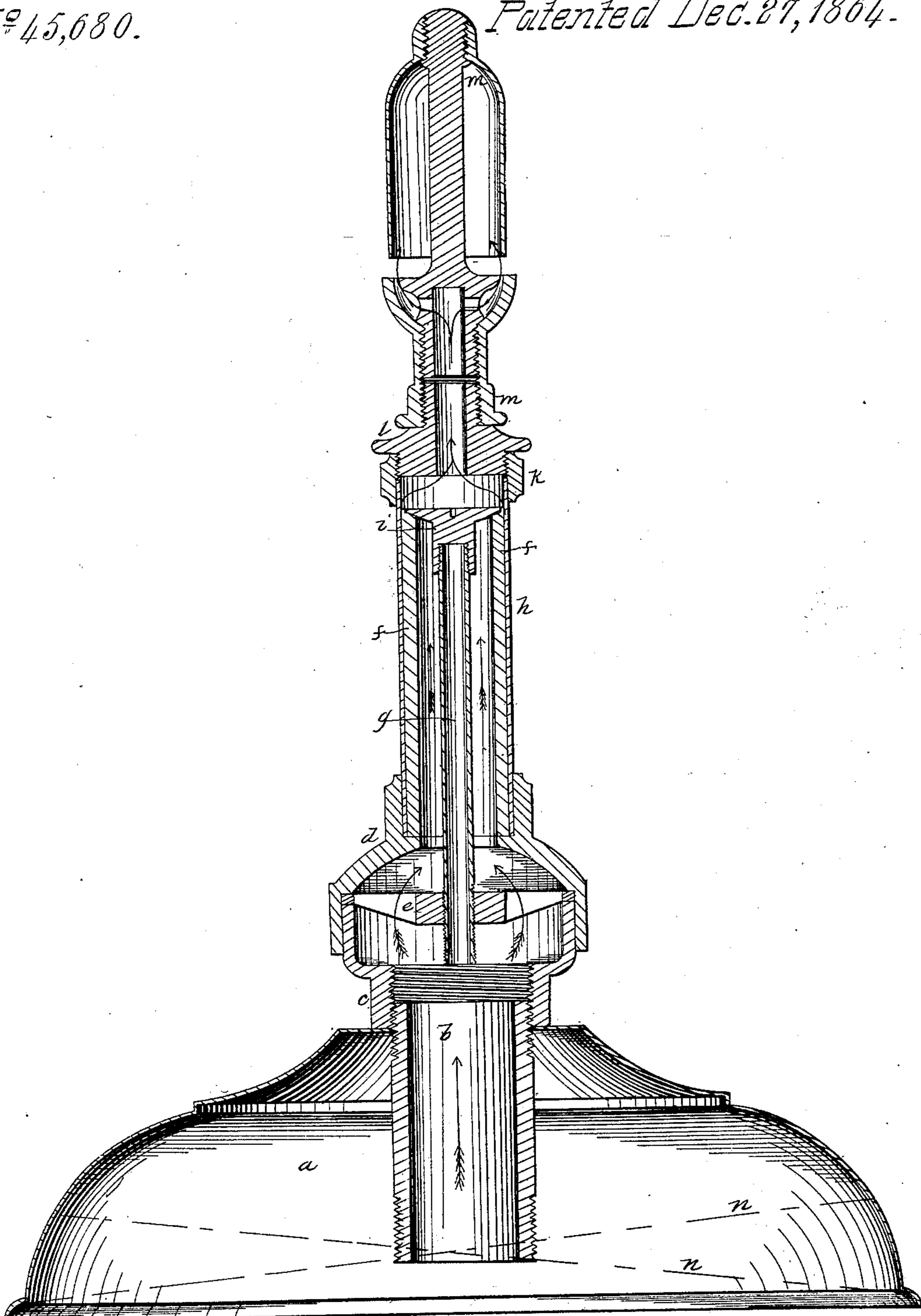


T. Shaw,

Steam-Boiler Indicator.

N^o 45,680.

Patented Dec. 27, 1864.



Witnesses,
Edw. Howard Mitchell
Geo. Chesley

Inventor.
Thomas Shaw

UNITED STATES PATENT OFFICE.

THOMAS SHAW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND PHILIP S. JUSTICE.

IMPROVEMENT IN IN LOW-WATER SIGNALS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. 45,680, dated December 27, 1864.

To all whom it may concern:

Be it known that I, THOMAS SHAW, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and improved mode of signaling when water is low in steam-boilers; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists in the employment of a metallic rod in combination with a wooden cylinder or bearing, for the purpose as hereinafter described.

In order to enable others to use and practice my invention, I will proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms a part of this specification, the sketch represents a vertical section through the center of the apparatus, of which *a* represents the top of a boiler; *b*, a pipe communicating therewith, to which is screwed cup *c*, on the top of which is an inverted cup, *d*. Intervening cup *d* and *c* is a crown piece or bearing, *e*, into which is screwed pipe *g*. On upper end of said pipe is a valve, *i*, which closes down upon the top of a cylinder of wood, *f*. Said wood is inclosed in brass pipe, *h*, to prevent bursting the same. Brass pipe *h* is securely soldered at its lower end to cup *d*,

and at its upper end to ring *k*. *l* is a brass cap screwed into ring *k*, on top of which is screwed an ordinary steam whistle, *m*.

It will be observed that when the lower end of pipe *b* is located in the middle of a marine boiler horizontally there is more certainty of having a water-lever, as the water in that part of the boiler is in a state of rest, as compared with the sides and ends, as indicated by the red lines *n*, when the vessel containing the boiler is rolling in a "sea."

It will also be observed that when the water-surface is below the lower end of pipe *b* the steam will enter the same, and the heat of the steam will elongate metallic rod *g*, but will have no effect upon the wood bearing *f*; hence the valve *i* will be lifted off its seat and allow the steam to blow the whistle *m*. The current and passage-way thus produced is indicated by red arrows.

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

The employment of a metallic rod in combination with a wood bearing, when arranged to operate substantially as and for the purpose set forth.

THOMAS SHAW. [L. S.]

Witnesses:

EZRA CHESEBRO',

J. HOWARD MITCHELL.