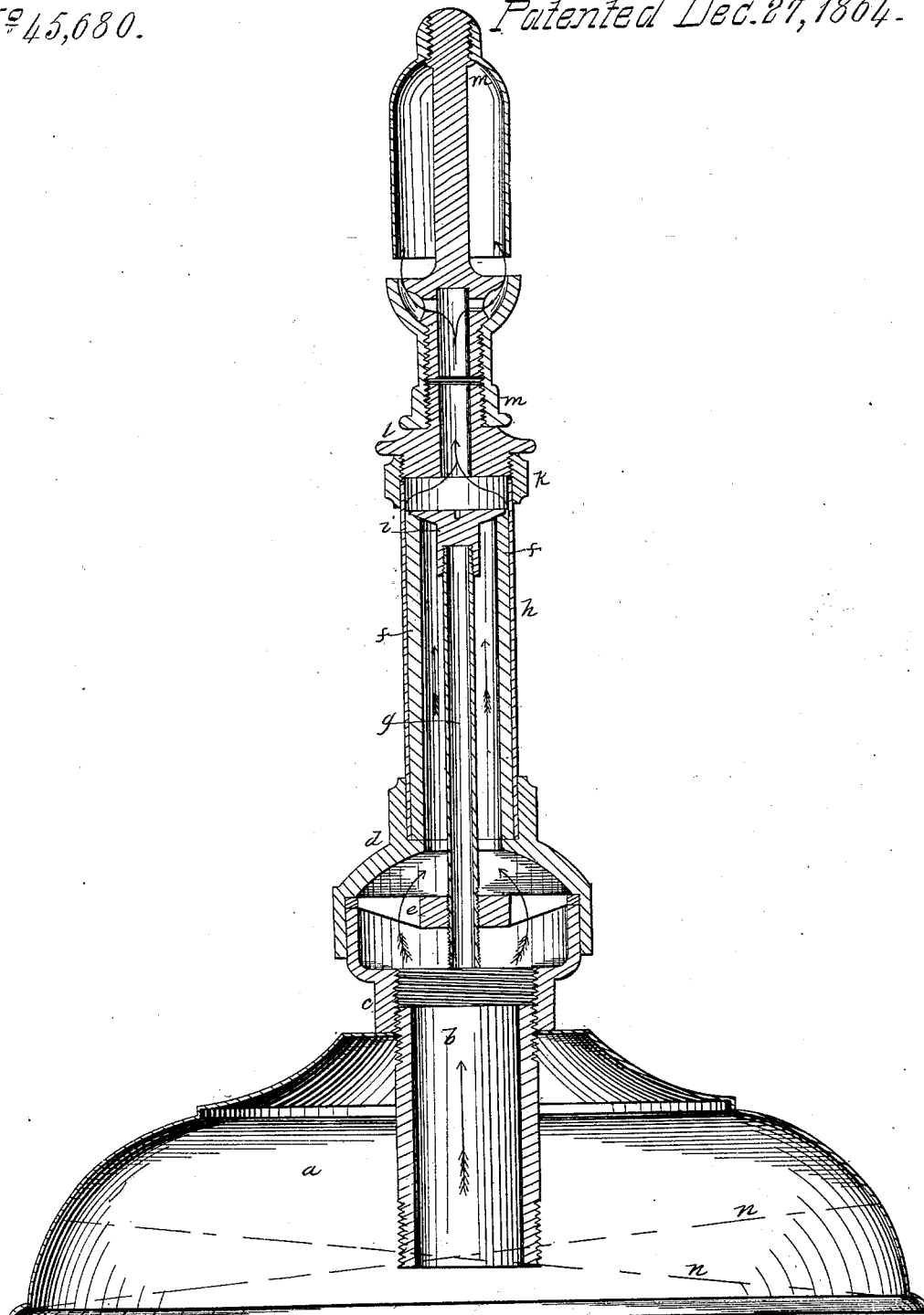


T. Shaw,

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 HIM
SELF 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.