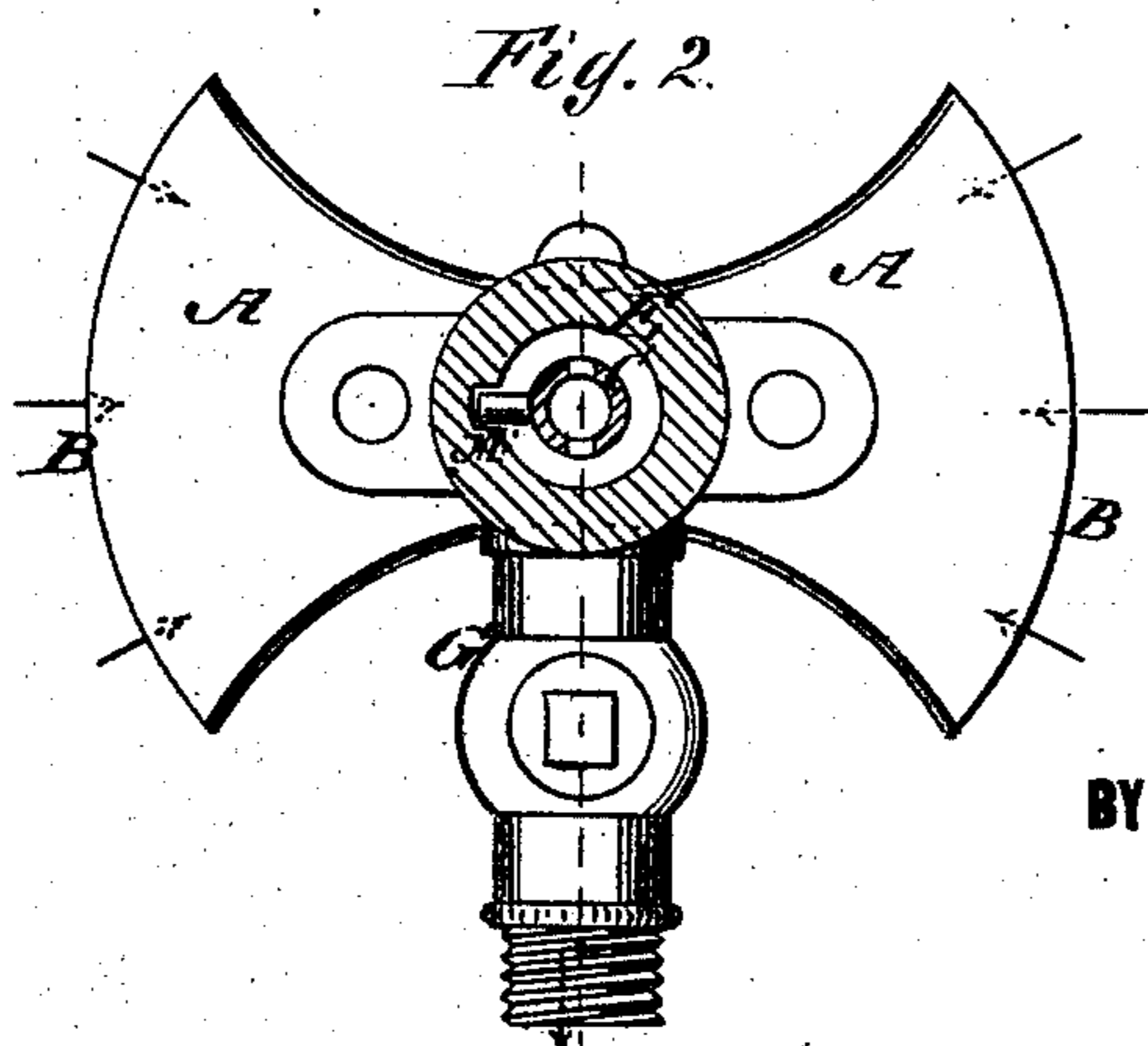
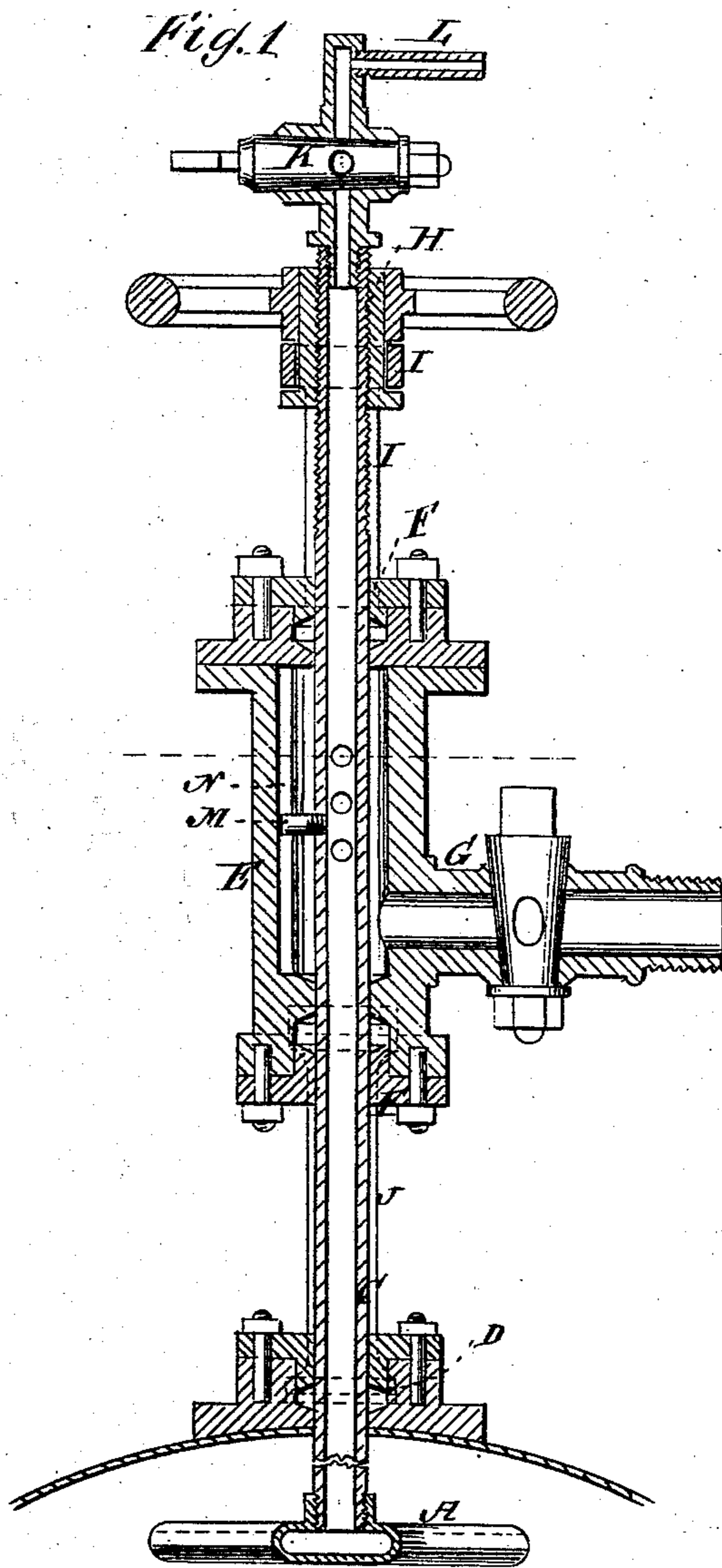


R. WAUGH.  
Surface Blow-Offs.

No. 154,734.

Patented Sept. 1, 1874.



WITNESSES:

*E. Wolff*  
*O. Edgwick*

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ROBERT WAUGH, OF NEW ORLEANS, LOUISIANA.

## IMPROVEMENT IN SURFACE BLOW-OFFS.

Specification forming part of Letters Patent No. 154,734, dated September 1, 1874; application filed June 20, 1874.

*To all whom it may concern:*

Be it known that I, ROBERT WAUGH, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Surface Blow-Off, of which the following is a specification:

My invention consists of a kind of hollow flat skimmer, with wide openings to receive the surface-water from all directions, suspended in the boiler from an outside support, in which it is vertically adjustable, and provided with a test-cock at the top, by which to determine the position of the skimmer relatively to the water to receive the scum from the surface, and also provided with a blow-off cock, through which the scum will be expelled, the arrangement being such that the escape-passage will not be affected by the rising and falling of the pipe.

Figure 1 is a sectional elevation of my improved blow-off pipe, taken on the line *xx* of Fig. 2; and Fig. 2 is a horizontal section, taken on the line *yy* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents a hollow flat skimmer, with openings at B, adapted to receive the surface-water, and connected to the lower end of a pipe, C, which extends up through a stuffing-box, D, also through a tube, E, with stuffing-boxes F and a cock, G, and also through an adjusting wheel and nut, H, suspended on a standard, I, supported on the top of tube E, which is itself supported above the boiler by rods or standards J. On the top of the tube is a small try-cock, K, and a discharging-noz-

zle, L, by which the height of the skimmer, relatively to the surface of the water, can be readily determined, as if it is above the water steam only will be discharged.

The bore of tube G is larger than the tube C, and the latter has perforations within for the escape of the water, in blowing off, to the cock G. The tube E is as long as, or a little longer than, the range of the water-level in the boiler, so that the skimmer may be shifted up or down, as required by the height of the water, without interrupting the flow.

In using this apparatus, it will be gradually lowered as the operation progresses and the water lowers in the boiler.

M is a stud in the tube C, running in a groove, N, in the tube E, to prevent tube C from turning by nut H.

By its use the scum which rises to the surface of the boiling water may be so thoroughly removed that a boiler running four or five times longer without cleaning out than boilers not provided with it will still be cleaner than such boilers.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with a steam-boiler, of the skimmer A, vertically-adjustable pipe C, pipe E, blow-off cock G, and test-cock K, substantially as shown and described.

ROBERT WAUGH.

Witnesses:

JOHN M. WIEMANN,  
H. MILLSPAUGH.