

B. F. Perkins,

Steam Trap.

No 68,897,

Patented Sep. 17, 1867.

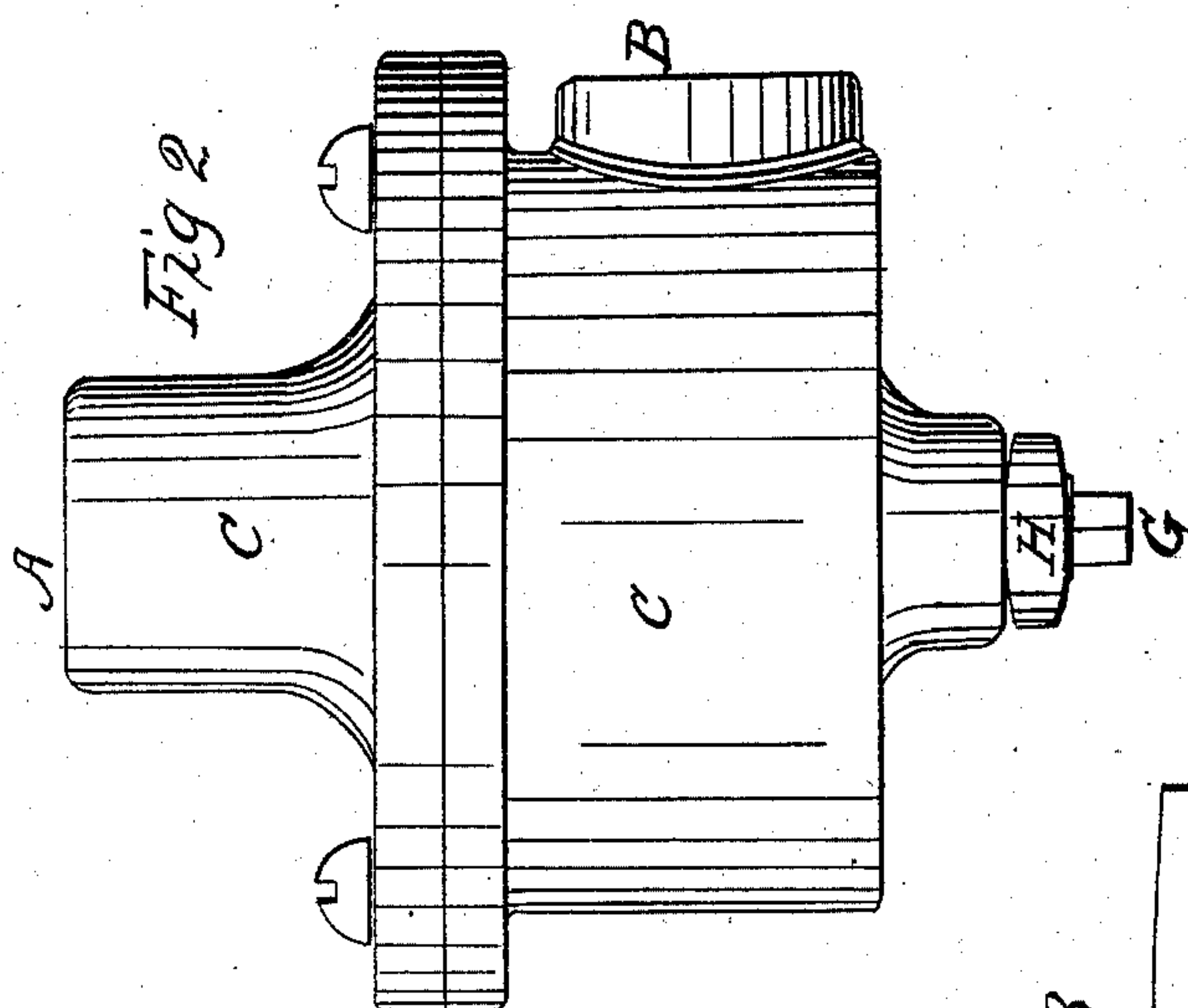
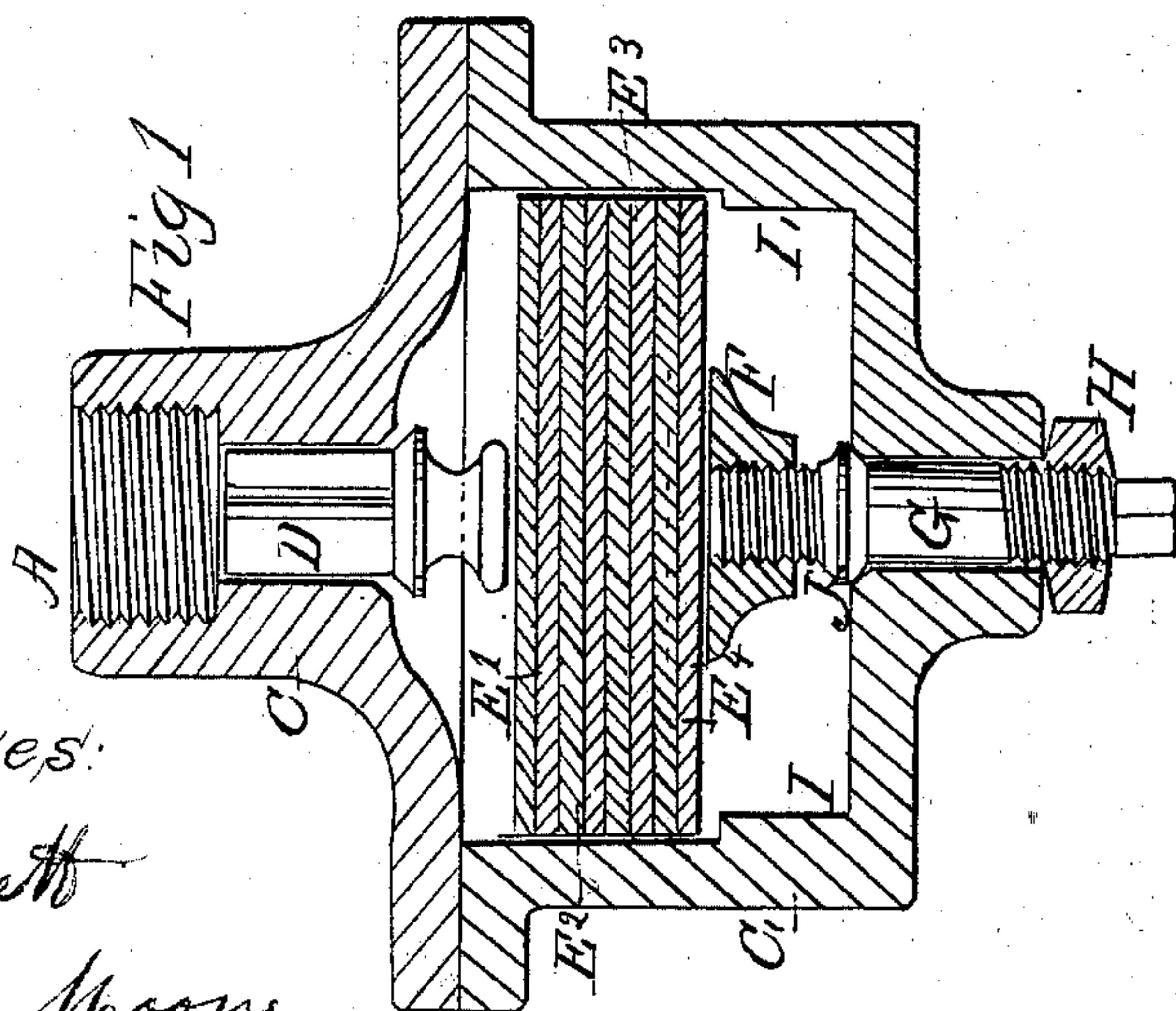
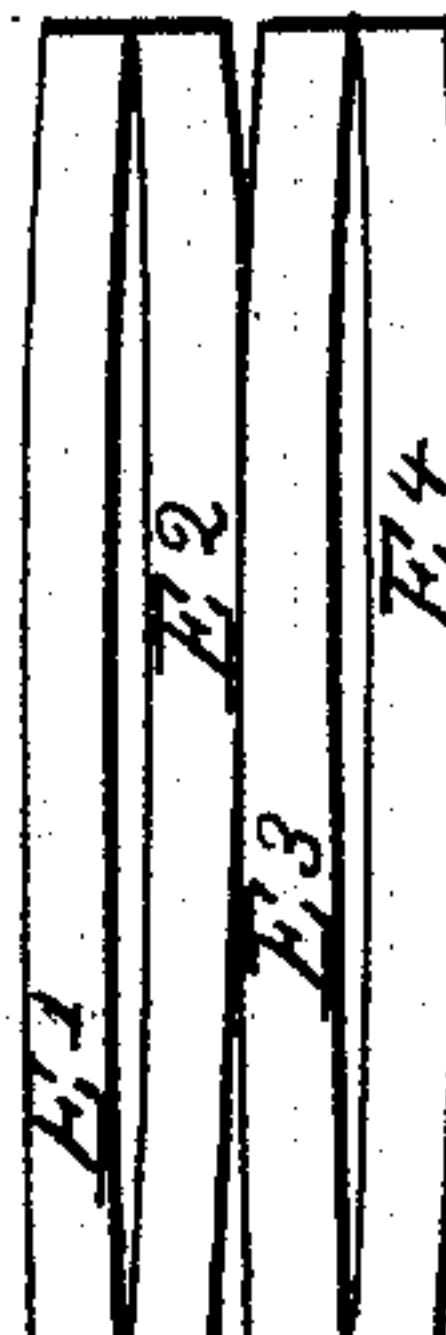


Fig 3



Witnesses:

S. F. Barrett

Curtis Moore

Inventor:

B. F. Perkins

United States Patent Office.

BENJAMIN F. PERKINS, OF HOLYOKE, MASSACHUSETTS.

Letters Patent No. 68,897, dated September 17, 1867.

IMPROVEMENT IN STEAM-TRAPS.

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, BENJAMIN F. PERKINS, of Holyoke, county of Hampden, and State of Massachusetts, have invented a new and improved Steam-Trap, to better accomplish the discharge of air and water of condensation, and retain the steam in steam apparatus in general; 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, in which—

Figure 1 is a front elevation in section.

Figure 2, a side elevation, and

Figure 3 an elevation of the plates, representing the form they take on becoming heated and expanded.

The same letters indicate like parts in each of the figures.

My invention consists in the construction and arrangement of parts as herein described. C and C' are the outside case, of any convenient form, the two parts being screwed or bolted together. A is the inlet, and B the outlet; D is a valve, made in any of the known forms, but I prefer a three-winged valve, as represented, for closing the inlet A. E 1-2-3-4 are compound plates made of two unequal-expanding metals, as brass and steel, these being the cheapest and most durable, the two being closely fitted and riveted together and arranged as follows: E 1 with the brass side up, E 2 with the brass side down, E 3 with the brass side up, E 4 with the brass side down. I and I' are ribs on the inside of the case C', to prevent lateral motion of the plates E and prevent their being displaced in any way. G is a spindle passing through the bottom of case C', with a valve-shaped shoulder, as at J, fig. 1, to prevent leakage. On the top of G is a nut, F, with flanges on two sides to envelop E 4, and prevent the nut F from revolving when the spindle G is turned. H is a nut on the lower end of spindle G, on the outside of case C', to fasten the spindle G in any position required. The lower end of spindle G is squared to receive a wrench for turning the same.

Having fully described the construction of my trap, the operation is as follows: When the plates E 1-2-3-4 are cool the valve D is always open, so that air and water of condensation can freely pass through, but on the approach of steam the plates E 1-2-3-4 become heated and take the form as represented in fig. 3, E 1-2-3-4, the brass taking the convex, and the steel the concave form in all cases. This closes the valve D, preventing the further egress of steam. Turning the spindle G will raise the nut F; that raising the plates E 1-2-3-4 will adjust the valve D, so that the water of condensation can be passed from the trap at any temperature.

The advantage of this arrangement is a very compact, cheap, durable, and efficient trap; when not in use always open; readily adjusted when in operation; not affected by the frost; when properly adjusted the nut H will retain it in that position. With this arrangement of plates, I am enabled to make a very compact trap, with unlimited power, action, and capacity, thus combining many good qualities.

Having fully described my invention, its construction and operation, what I claim as new, and desire to secure by Letters Patent, is—

1. I claim a steam-trap operated by two or more compound plates, so arranged that the expansion or contraction of one is conveyed to the second, and of those two to the third and last and valve D, as represented at figs. 1 and 3, E 1-2-3-4.

2. Also the spindle G and nuts F and H, the whole arranged and combined as herein described and for the purpose specified.

B. F. PERKINS.

Witnesses:

S. F. BARRETT,

CURTIS MOORE.