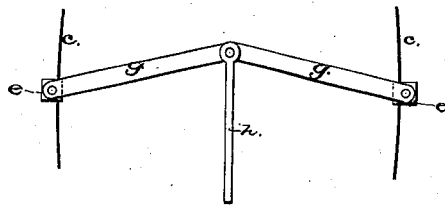
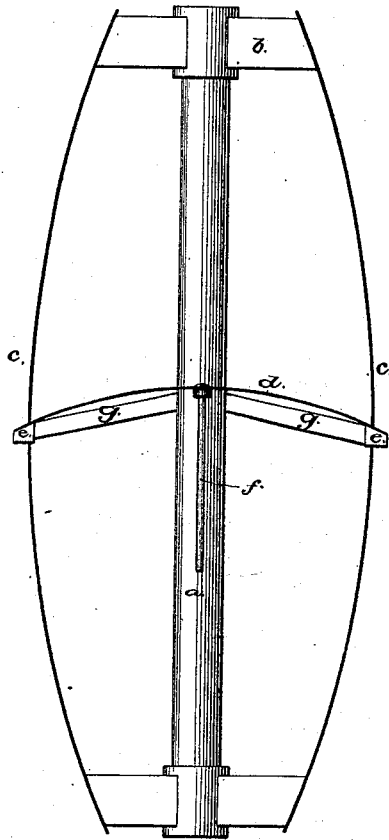


C. F. PIKE.  
Steam-Traps.

No. 196,764.

Patented Nov. 6, 1877.

*Fig. 1.*



*Fig. 2.*

*Attest:*

*Jacob Labe,  
Chas. F. Henis*

*Inventor:*

*Chas. F. Pike*

# UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. **196,764**, dated November 6, 1877; application filed June 30, 1877.

*To all whom it may concern:*

Be it known that I, CHAS. F. PIKE, of Philadelphia, State of Pennsylvania, have invented a device for operating the valve of a steam-trap by expansion, of which the following is a specification:

The object of my invention is to produce a device by which the increased length of a tube caused by expansion may be multiplied sufficiently to operate the valve of a steam-trap.

Figure 1 is a side elevation of the device. Fig. 2 is a modification of the small curved bar *d*.

*a* is a tube. *b b* are supports. *c c*, Figs. 1 and 2, are curved bars. *d* is a small curved bar. *e e*, Figs. 1 and 2, are connecting-pieces. *f* is a rod to communicate motion to a valve on the lower end of the tube *a*. *h*, Fig. 2, is the same as *f*, Fig. 1.

The supports *b b* are secured upon the ends of the tube *a*. The curved bars *c c* are fastened to the supports *b b*. Then, by means of the connecting-pieces *e e*, the small curved bar *d* is held firmly in place. On the lower end of the tube *a* is placed a valve of any desired construction. The steam enters the tube *a* at its upper end, heating and expanding the tube. This carries the ends of the bars *c c* from each

other, causing the centers of the bars to move toward the tube *a*. This movement of the centers of the bars *c c* brings the ends of the small curved bar *d* nearer together, causing it to move the rod *f*. The rod *f*, being connected to a valve on the end of the tube *a*, its motion closes it. When the water caused by condensation fills the tube *a* it cools and contracts it, reversing the operation above described, opening the valve, allowing the water to escape. This operation is repeated automatically.

The bar *d* can be fastened to the bars *c c* in various ways.

The small curved bar *d*, instead of being made in one piece and sprung in its center by the motion of the curved bars *c c*, can be constructed as shown in Fig. 2 at *g g*.

What I claim is—

The combination of the tube *a*, having longitudinal bars *c c* attached thereto, and curved bar *d*, provided with a rod for communicating motion to a valve, as and for the purpose specified.

CHAS. F. PIKE.

Witnesses:

JACOB SALÉ,  
CHR. F. HENIS.