

R. A. Wilder,
Spark Arrester,
No. 11,880,
Patented Oct. 31, 1854.

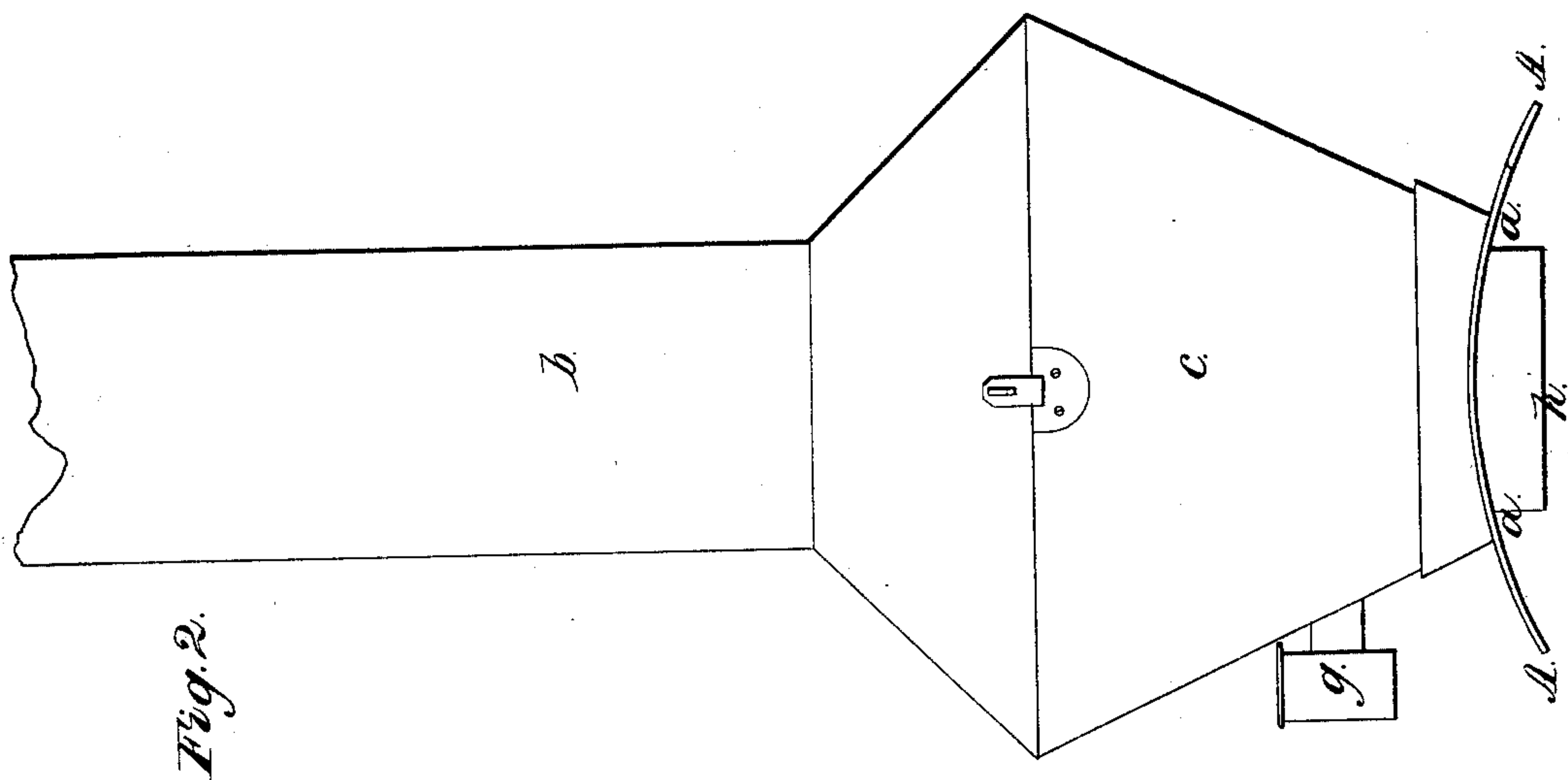


Fig. 2.

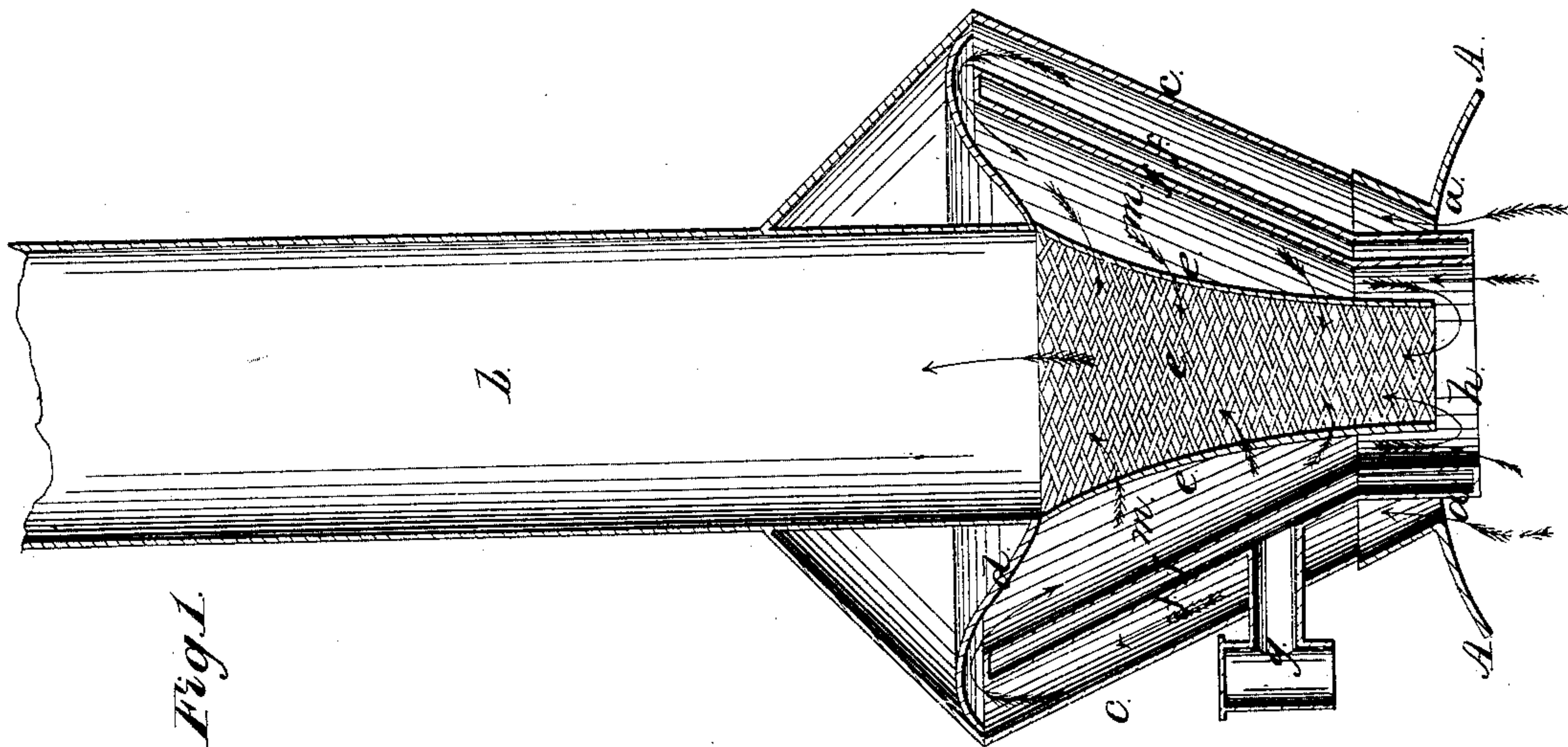


Fig. 1.

UNITED STATES PATENT OFFICE.

R. A. WILDER, OF SCHUYLKILL HAVEN, PENNSYLVANIA.

ARRANGEMENT IN SPARK-ARRESTERS FOR HEATING FEED-WATER.

Specification of Letters Patent No. 11,880, dated October 31, 1854.

To all whom it may concern:

Be it known that I, R. A. WILDER, of Schuylkill Haven, in the county of Schuylkill and State of Pennsylvania, have invented a new Spark Arrester and Heater, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings, of which—

Figure 1 is a vertical section and Fig. 2 a front view of the smoke pipe.

My invention consists in the arrangement of the flues, water space, and spark arrester, and the cooling of the smoke and sparks and the heating of the water preparatory to its entrance to the boiler, in a more efficient manner.

From the cylindrical hole in the top part of a fire box A, A, extends upward a cone *c, c* the cap of which curves down into a perforated cone *e e* of smaller diameter than the cone *c c* and concentric with it. The cone *e e* forms at the same time the lower end of the smoke pipe *b* which rests on the upper cap *d d* of cone *c c*. Within the space between the cones *c c* and *e e* there is, concentric with them, a double cone *f, f, f, f*. The space formed within the concentric

sides of this double cone does not communicate with the space between the cones *c, c* and *e, e*, as it is closed on top and bottom. The space within the sides of the double cone communicates, by means of a pipe *g*, with the water in the boiler, and is consequently filled with water. The smoke and heat pass from the fire box partially through the aperture *a a*, upward between *c c* and *f f* and underneath *d, d* toward the perforated cone *e, e*; and partially through the hole *h* upward through flue *m*. By these means the smoke etc. is made to heat the boiler water contained in the space *f f* before it escapes through the perforated cone *e e* into the tube *b*.

The effects of this concentric arrangement of the flues, water space, and spark arrester are the cooling of the smoke and sparks and the heating of the water preparatory to its entrance to the boiler and these are most effectually performed.

What I claim as my improvement is—

The arrangement of the water space *f f*, the flue spaces *m* and *c* and the perforated cone *e* all concentric with each other in the manner and for the purposes set forth.

R. A. WILDER.

Witnesses:

CHAS. WITMAN,
HENRY W. POOLE.