

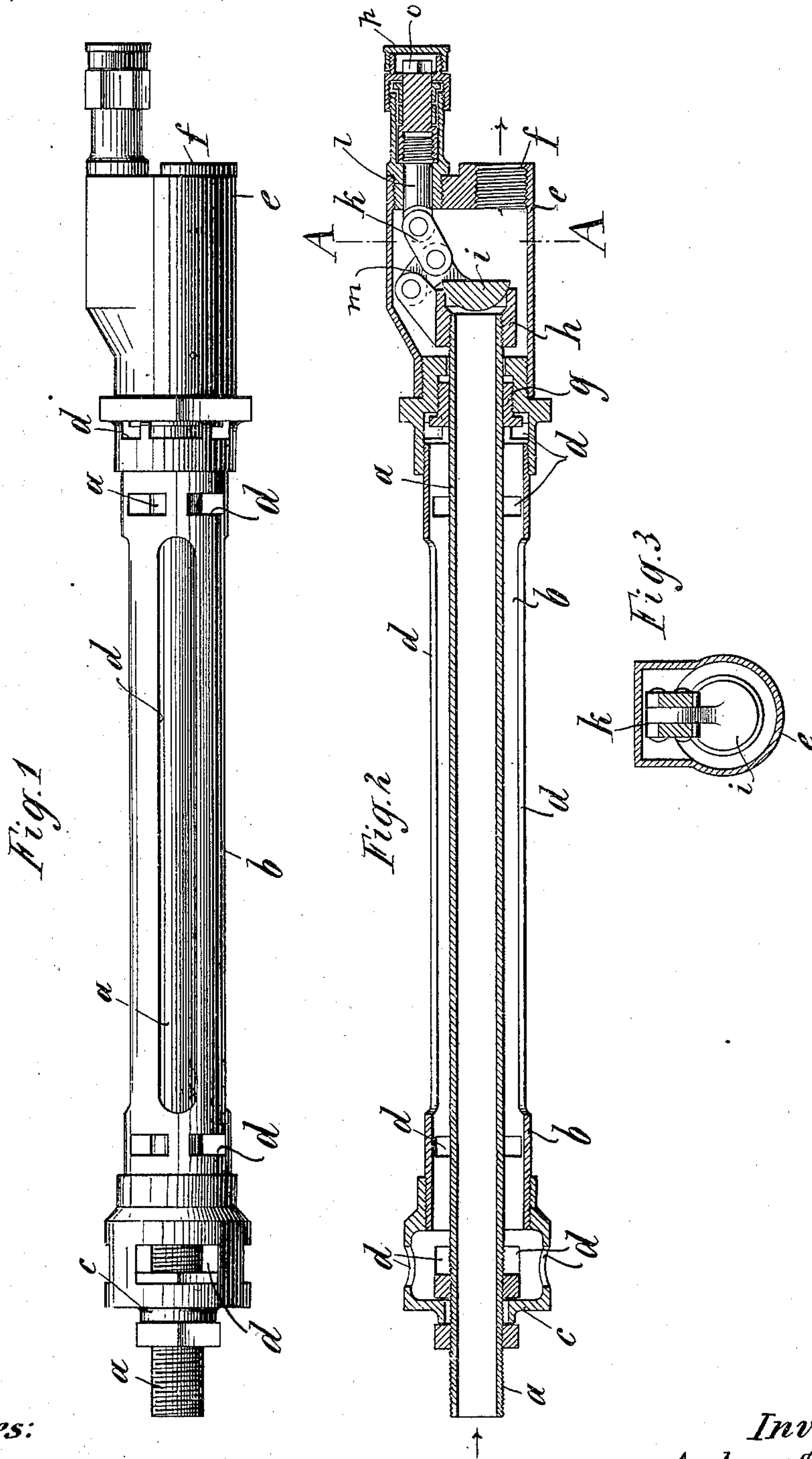
No. 662,607.

Patented Nov. 27, 1900.

A. STEINMETZ.  
STEAM TRAP.

(Application filed June 4, 1900.)

(No Model.)



Witnesses:

*Paul W. Meyer*

*Dr. Karl Schmitt*

Inventor:

*Andreas Steinmetz*

by *Carl W. Reichen*

*Attorney.*



# UNITED STATES PATENT OFFICE.

ANDREAS STEINMETZ, OF BERLIN, GERMANY.

## STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 662,607, dated November 27, 1900.

Application filed June 4, 1900. Serial No. 19,003. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREAS STEINMETZ, engineer, a citizen of the Kingdom of Prussia, and a resident of Berlin, Germany, (whose post-office address is Wilhelmshavenerstrasse 40,) have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification.

The object of the present invention is a novel steam-trap combining great efficiency with small dimensions.

Most of the steam-traps now in use are built on the principle that a tube of brass or similar material alters its length under the influence of the temperature of the medium contained in it. The end of the tube forms a valve-seat, which by variations in the length of the tube is pressed forward against or retired from a valve-disk arranged stationary, thereby intercepting or opening the passage to the outlet-pipe for the condensed steam. The function of steam-traps of this kind is not very reliable, as the variations in the length of the expansion-pipe are rather small and as it will be necessary to give this pipe a considerable length in order to insure a complete opening of the valve. The novel steam-trap forming the object of the present invention also has an expanding tube; but instead of fastening the valve to a stationary part of the device the tube is connected to the valve by aid of a lever system, causing the valve to be entirely opened even by a very slight expansion of the tube.

In the accompanying drawings, Figure 1 is a side elevation of and Fig. 2 a longitudinal cut through the steam-trap. Fig. 3 shows a cross-cut through line A A of Fig. 2.

The expanding tube *a* is fastened at one end to the slotted tube *b*, surrounding the former, while its other end glides in a stuffing-box *g*, screwed to the other tube. Connected to the stuffing-box is a trap-chamber *e*, having an opening *f*, into which the outlet for the condensed steam is fastened. Through another opening in the front wall of chamber *e* a pin *l* projects, having linked to its end a short connecting-piece *k*. To the valve-seat *h*, screwed to the free end of the expanding tube, the valve-disk *i* is linked by aid of a bent arm *m*, rigidly connected to the valve-

disk *i* and hinged with its free end to the shoulder of the valve-seat *h*. Piece *k* is hinged to the elbow of the arm *m*. The consequence of the described arrangement is that a backward motion, caused by the contraction of the tube *a*, causes the valve *i* to be raised from its seat, while by a forward motion, caused by the expansion of the tube, the valve is pressed tightly upon its seat.

In order to reduce or increase the opening capacity of the valve, the pin *l*, connected to it, may be drawn farther out of the trap-chamber or pushed deeper into it by aid of the key *o*, usually inclosed in a removable cap *p*.

The slots and openings of the outer tube are extended as far as possible to effect a good cooling of the expanding tube by aid of the surrounding air entering through these apertures *d*.

It will be readily seen that a very small contraction of tube *a* removes the valve-disk from its seat, whereas a small expansion presses the two toward each other. The length of the whole apparatus may therefore be limited.

What I claim is—

1. In a steam-trap the combination with an expanding tube, a valve-seat fastened to same and a slotted tube embracing said expanding tube, of a valve, a curved arm fastened to said valve and linked to the valve-seat, a connecting-piece hinged with one end to the elbow of the curved arm and with the other to the case of the device, substantially as and for the purpose described.

2. In a steam-trap the combination with an expanding tube, a slotted tube, a valve-seat and a valve, having a curved arm, of an intermediate connecting-piece hinged at one end to the elbow of said arm, and with the other end to an adjustable pin in the case of the device; substantially as, and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREAS STEINMETZ.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.