H. LIECHTY.

SPARK ARRESTER.

APPLICATION FILED APR. 2, 1907.

930,200.

Patented Aug. 3, 1909.

Fig. 1.

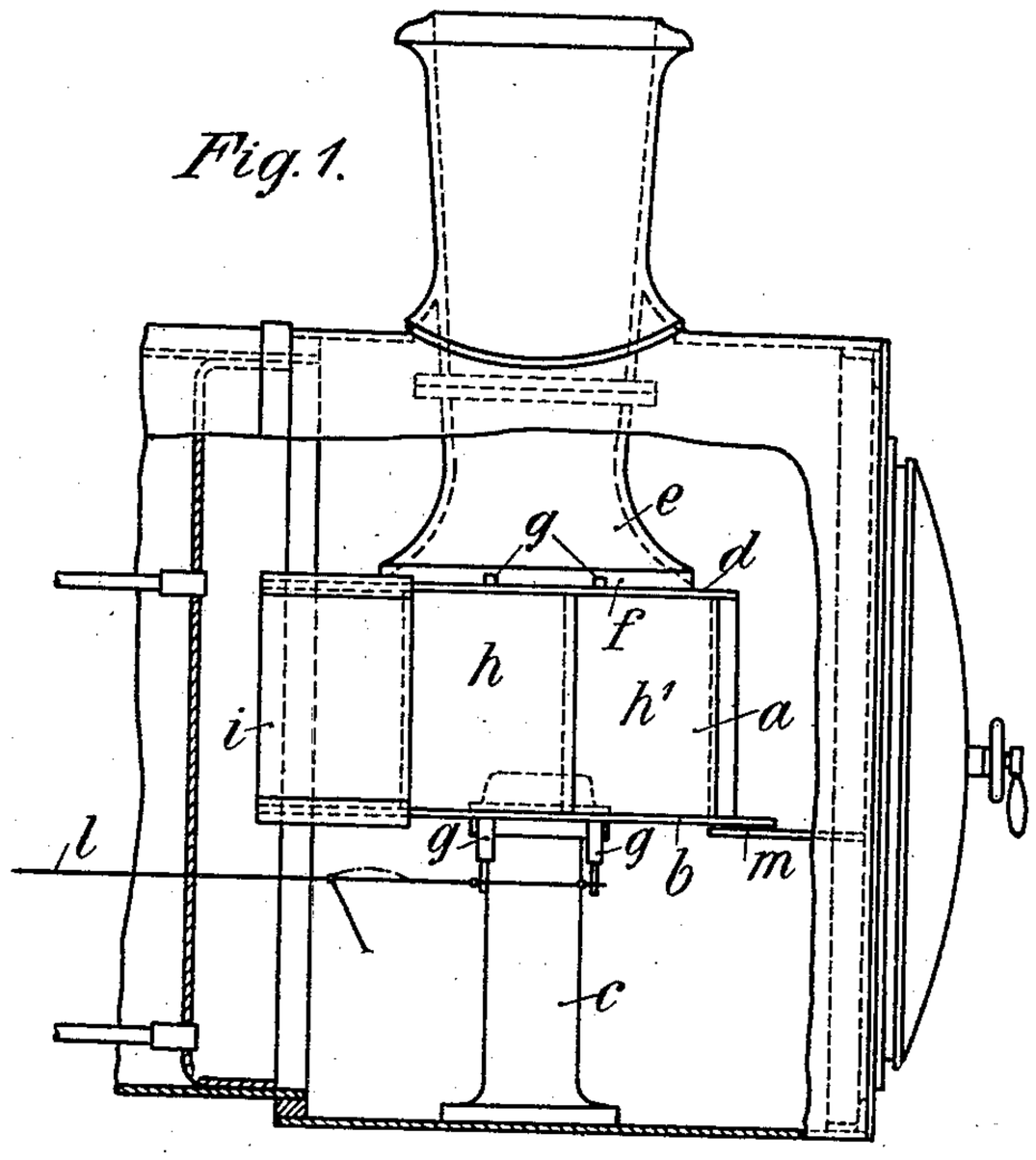
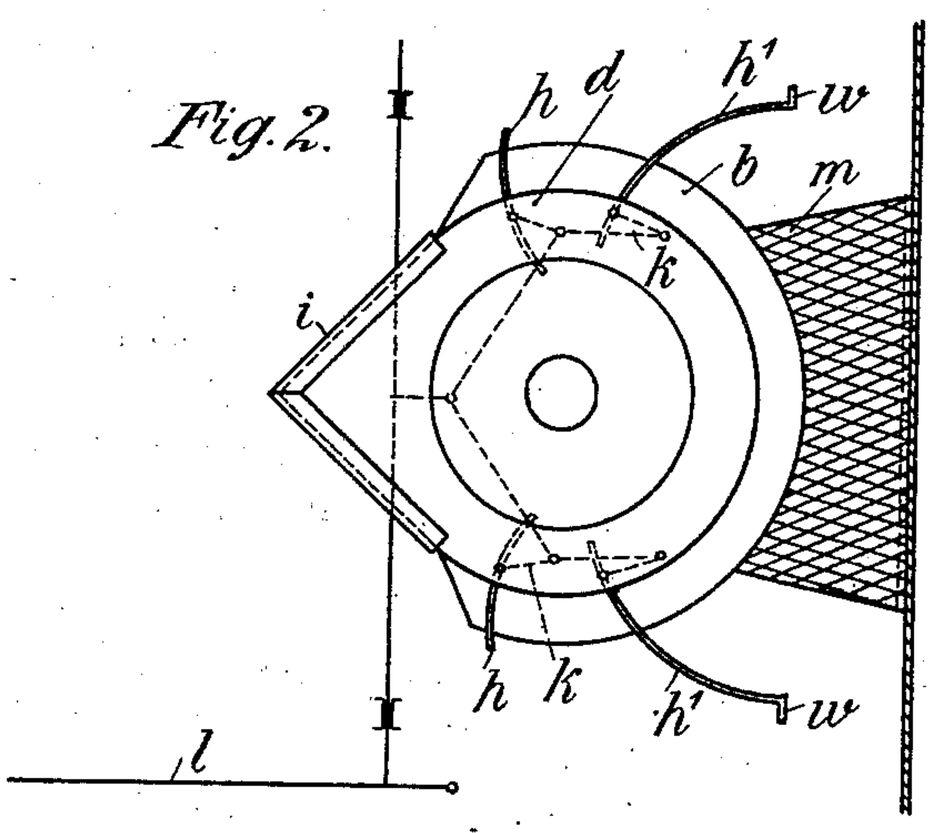


Fig. 2.



Witnesses.

Arthur E. Jumper.

W. R. Schultz.

Inventor:

Hermann Liechty

by Dawson Bissell Att'y.

UNITED STATES PATENT OFFICE.

HERMANN LIECHTY, OF BERNE, SWITZERLAND.

SPARK-ARRESTER.

No. 930,200. Specification of Letters Patent. Patented Aug. 3, 1909.

Application filed April 2, 1907. Serial No. 366,018.

To all whom it may concern:

Be it known that I, HERMANN LIECHTY, a citizen of the Canton of Berne, Switzerland, residing in Berne, Switzerland, have invented a certain new and Improved Spark-Arrester, of which the following is a specification.

This invention relates to a spark arrester for locomotives or the like, in which the surfaces in the smoke-box for diverting the sparks are more opposed to the gases coming from the furnace the greater the suction in the smoke box, that is the more the plates or the like that constitute the diverting surfaces allow the gases to pass up the chimney.

The drawings illustrate one form of the invention, Figure 1 being a side elevation of a locomotive smoke-box partly broken to show the device according to the invention, and Fig. 2 a plan of the device removed from the smoke-box.

The spark arrester comprises a chamber *a*, of which the bottom *b* is a metal ring fixed to the upper end of the blast pipe *c*, and the top *d* is a metal ring fixed to a downward extension *e* of the chimney. The wall of the chamber near the boiler end is composed of an upright plate *i*, while the side walls consist of plates forming wings *h* and *h'* which revolve on vertical pivots held between the bottom and top of the chamber. By opening and closing these wings the draft induced through the fire by the steam blast can be regulated. Owing to this lateral arrangement of the wings, the latter are opposed to a greater extent to the flying sparks the greater the cross section, which is dependent on their adjustment for the passage of the combustion gases exhausted from the smoke-box into the chimney, that is to say the greater the vacuum in the smoke box the greater the velocity of the sparks. In other words, wings *h*, *h'*, when closed, form a continuous cylindrical wall intermediate rings *b*, *b*, and adjoining plates *i*, so that the smoke box is entirely cut off from the chimney. If it is desired to create a draft in the fire chamber, wings *h*, *h'*, are simultaneously turned to a greater or less extent, to establish communication between the smoke box and the chimney. As the wings are unfolded or opened to assume a position more or less transverse to the direction of the draft, the sparks, (entering from the left, Figs. 1 and 2), on encountering the wings, will be prevented from entering the chimney. Furthermore, the wings are advantageously arranged so that the chamber formed by them has the largest cross section for the passage of the smoke gases near the smoke-box door, thus affording the sparks the longest path possible. The wings may be adjusted from the foot-plate by the aid of the system of levers *l*, *k*, while a shield *m*, secured to smoke box door *n*, prevents the sparks from directly entering the rear of chamber *a*.

The details of the spark arrester may, of course, be varied. For example, the wings may be different, both in number, shape and arrangement from those shown. The adjustment of the wings may be differently arranged, and the chamber instead of being round may be square or may be only part of a chamber.

What I claim as new and desire to secure by Letters Patent is:—

In a device of the character described, the combination with a smoke box provided with a stack, of an upper and lower ring located therein and spaced apart, wings journaled between said rings, an upright plate connecting the rings at the back of the smoke box, a shield projecting forwardly from the lower ring, a blast pipe opening into said lower ring, and means of communication between the stack and the space between the rings.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

HERMANN LIECHTY.

Witnesses:
E. LOEN,
P. HAENN.