# T. E. ROBERTS.

## Spark Arresters and Consumers.

No. 154,909. Patented Sept. 8, 1874.

Fig. 1

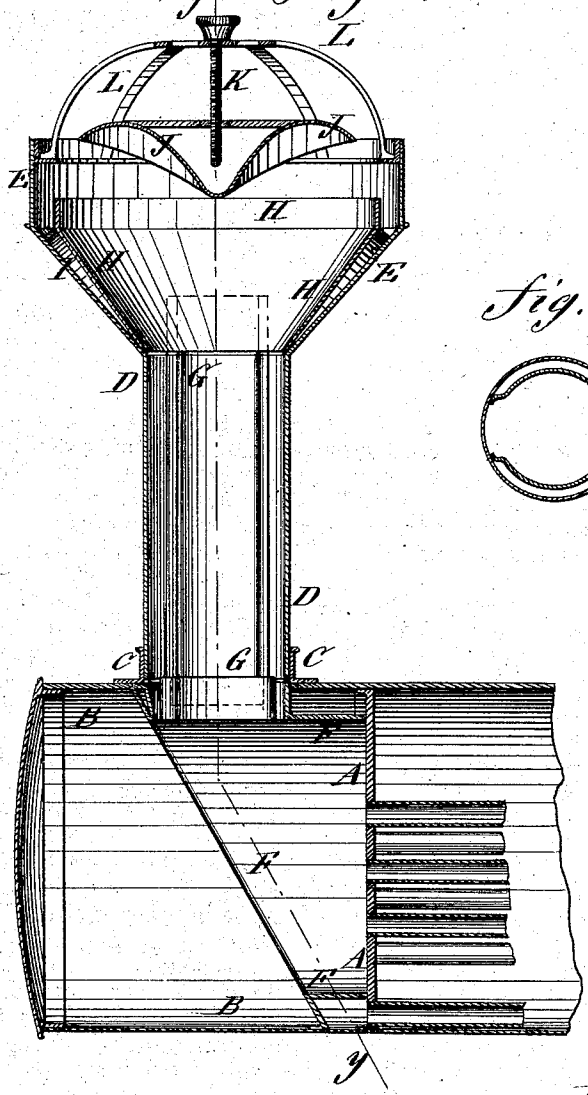



Fig. 2

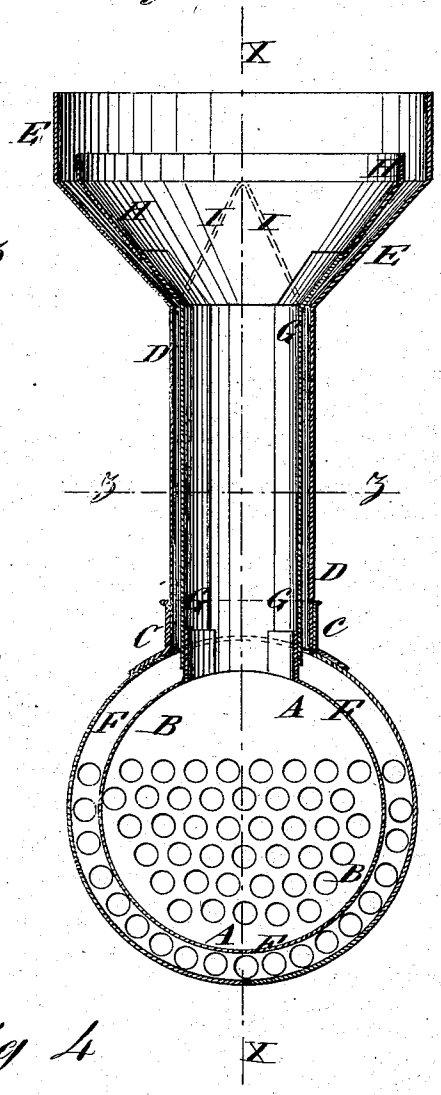
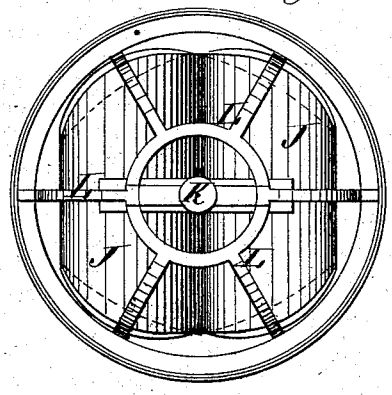



Fig. 3



Fig 4

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# UNITED STATES PATENT OFFICE.

THOMAS E. ROBERTS, OF IONIA, MICHIGAN.

## IMPROVEMENT IN SPARK ARRESTERS AND CONSUMERS.

Specification forming part of Letters Patent No. **154,909**, dated September 8, 1874; application filed July 11, 1874.

*To all whom it may concern:*

Be it known that I, THOMAS E. ROBERTS, of Ionia, in the county of Ionia and State of Michigan, have invented a new and useful Improvement in Spark Arresters and Consumers, of which the following is a specification:

Figure 1 is a vertical longitudinal section of the smoke-box and smoke-stack of a locomotive to which my improved device has been applied, taken through the line *x x*, Fig. 2. Fig. 2 is a vertical cross-section of the same, taken through the line *y y*, Fig. 1. Fig. 3 is a cross-section of the same, taken through the line *z z*, Fig. 2. Fig. 4 is a top view of the same.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claim.

A represents the flue-sheet; B, the smoke-box; C, the saddle; D, the smoke-stack, and E the enlarged top of the smoke-stack, all of which parts are constructed in the usual way. F is a jacket lining the rear part of the walls of the smoke-box B, extending close up to the flue-sheet A, and placed at such a distance from the wall of the smoke-box as to inclose the outer row of flues. The lower part of the jacket F is made narrow, and its upper part is made wide enough to surround the lower end of the smoke-stack D. G are two plates, which extend up along the opposite sides of the smoke-stack D, and which are so formed as to form spouts to conduct the sparks into the space between the jacket F and the walls of the smoke-box B. To the upper ends of the plates or spouts G is attached a ring, H, made in about the form of the enlarged top E of the smoke-stack D, but smaller, so as to leave a space between it and the said enlarged top of the smoke-stack, which space is divided into two parts by two V-shaped partitions, I, which guide the sparks into the spouts G. J is the deflector, which is made in the form of two sections of a hollow cylinder, joined to each other at their adjacent edges, and which are provided at their ends with guide-flanges, as shown in Fig. 1, and in dotted lines in Fig. 4. The deflector J is supported by a screw, K, which is swiveled to the center of the frame L, and passes through a screw-hole in a bar attached to the said deflector. The frame L is arched, and is attached to a ring secured to the upper edge of the enlarged top E of the smoke-stack D.

By this construction, as the sparks rise through the smoke-stack, they are divided and guided into the space between the ring H and the enlarged top E of the smoke-stack D, are guided by the V-partitions I into the spouts G, through which they pass into the space between the walls of the smoke-box B and the jacket F, and pass thence through the outer row of flues into the fire-box, where they are consumed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with the fire-box, outer row of tubes, and smoke-stack, of the jacket F, plates G, ring H, V-shaped partitions I I, and deflector J, all constructed and arranged substantially as and for the purpose set forth.

THOS. E. ROBERTS.

Witnesses:

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