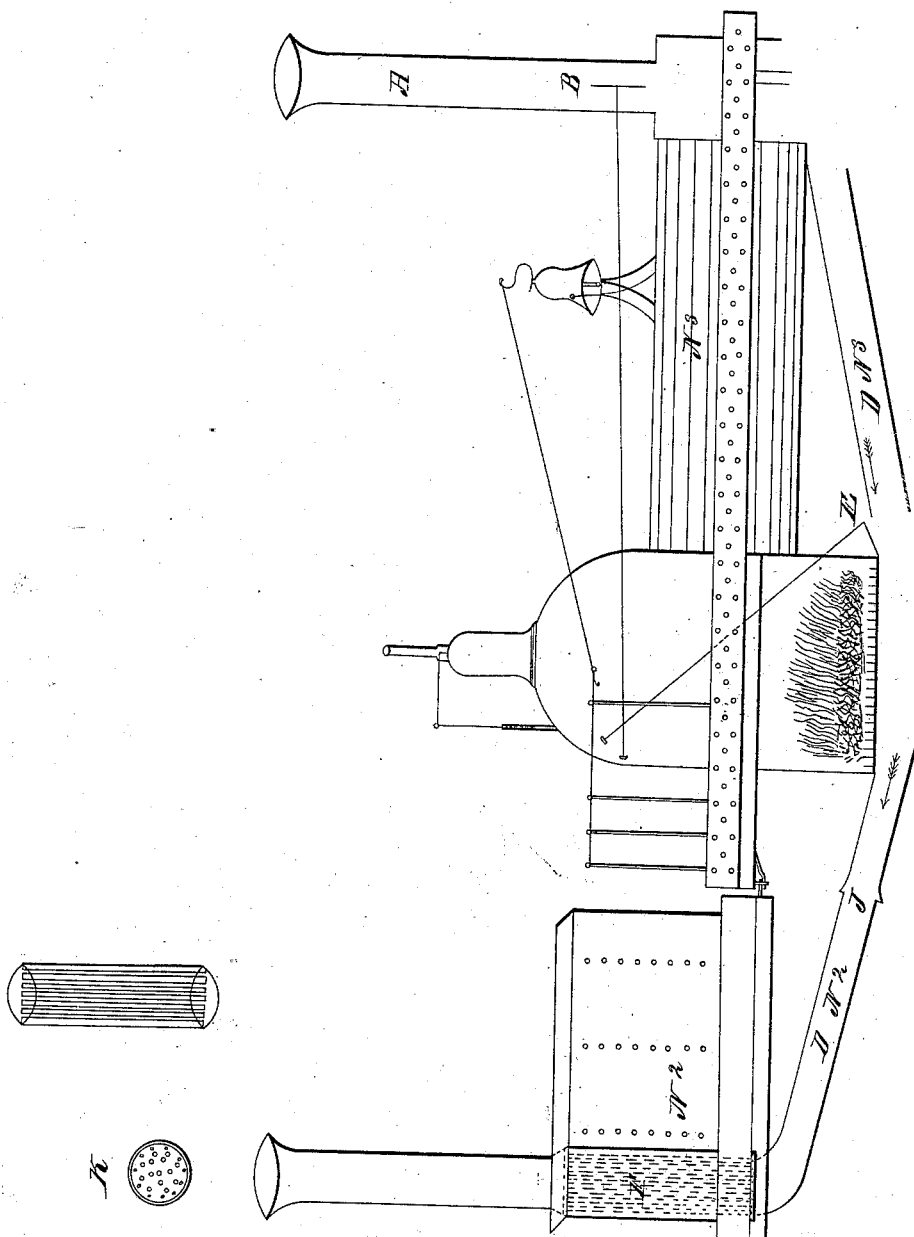


*A. Ayres,*  
*Spark Arrester.*  
*N<sup>o</sup> 2,472.      Patented Feb. 28, 1842.*



# UNITED STATES PATENT OFFICE.

ABRAHAM AYRES, OF HICKSVILLE, NEW YORK.

## APPARATUS EMPLOYED IN LOCOMOTIVE-ENGINES FOR ARRESTING AND CONSUMING SPARKS, &c.

Specification of Letters Patent No. 2,472, dated February 28, 1842.

*To all whom it may concern:*

Be it known that I, ABRAHAM AYRES, of Hicksville, in the county of Queens and State of New York, have invented a new  
5 and useful Improvement on Locomotive-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed  
10 drawings, making a part of this specification, in which—

Figure 1, represents a locomotive engine. Fig. 2 the fender. Fig. 3 a passenger car.

15 Letter A is the smoke pipe to allow the smoke to pass off when the engine is standing still; B, a damper to be closed when the engine is under headway; C, exhaust pipes on an improved plan; D, No. 1, a pipe to convey the smoke, sparks, coals, and hot air  
20 into the ash pan and furnace; E, a damper to admit air into the furnace; D, No. 2, a

continuation of pipe D, No. 1, to admit heat into the tubes in the tender; F, a number of copper tubes passing through the fender for the purpose of heating the water; G, a pipe 25 to be used for heating the cars and conveying the smoke behind the train when F and D, No. 2, are not used.

What I claim as my invention, and desire to secure by Letters Patent, is— 30

The application of a smoke pipe on locomotive engines, for the purpose of conveying the smoke, sparks, coals, and hot air into the furnace, heating the water in the tender, and leading the smoke pipes under the 35 bodies of the cars, so as to allow the smoke to escape behind the train.

ABRAHAM AYRES.

Witnesses:

PETER HENRY DREYER,  
V. CORNELL.