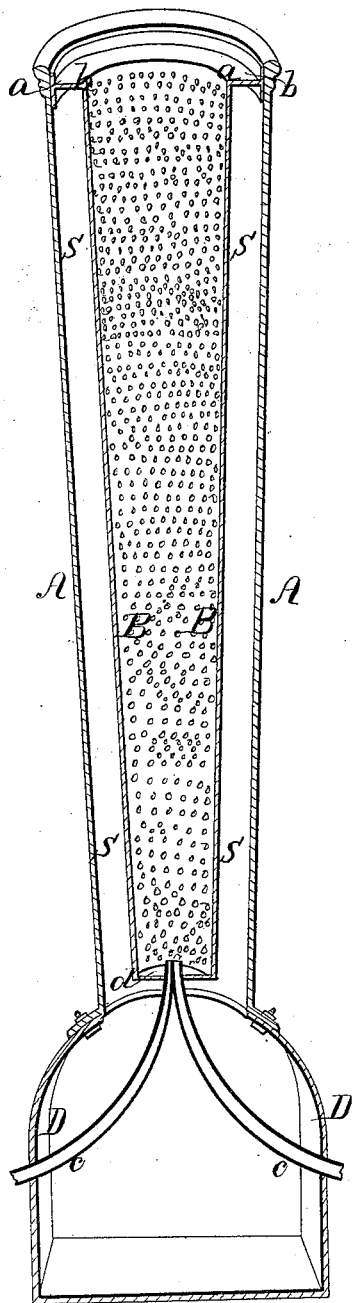


*W. Knight,  
Spark Arrester.*

*No. 1,378.*

*Patented Oct. 26, 1839.*



# UNITED STATES PATENT OFFICE.

WILLIAM KNIGHT, OF CHAMBERSBURG, PENNSYLVANIA.

## SPARK-ARRESTER.

Specification of Letters Patent No. 1,378, dated October 26, 1839.

*To all whom it may concern:*

Be it known that I, WILLIAM KNIGHT, of Chambersburg, in the county of Franklin and State of Pennsylvania, have invented a  
5 new and useful improvement in the manner of constructing apparatus for arresting and extinguishing the sparks which ordinarily escape from the flues of locomotives and other steam engines; and I do hereby declare that the following is a full and exact  
10 description thereof.

The accompanying drawing is a sectional view of my apparatus, A, A, being the smoke pipe, rising from the fire box D, D. The  
15 smoke pipe may vary in size, but what I have used has been seven feet seven inches in height, eighteen inches in diameter at its lower, and twenty-six inches at its upper end. Within the smoke pipe I place a second pipe, or tube, of metal B, B, which may  
20 be in length equal, or nearly equal, to that of the smoke pipe, leaving a space of three, four, or more inches between the two, as shown at S, S.

25 D, D, is the smoke box upon which the chimney is situated.

The space S, S, is closed at its upper end by a plate of metal extending over it, as at *a, b*; the inner pipe B, B, is open at its upper  
30 end, and closed at its lower, *d*, where the exhaust pipes C, C, from the steam cylinder enter it. The pipe or tube B, B, may be made of wire gauze, but I prefer to make it of thin sheet metal, which I perforate  
35 with numerous holes, in the manner of a grater, said holes being as numerous as possible, and extending over its whole surface. This interior tube I denominate the extinguisher.

The exhaust steam is not introduced into 40 the main, or smoke pipe, but into the extinguisher only. The sparks, after passing through the boiler tubes into the smoke box, are carried up into the smoke tube, or chimney, with the smoke and heated air from the  
45 fire, and the large perforated space from the numerous holes in the extinguisher allows the draft to pass into it freely, aided by the current of exhaust steam passing through this tube. The sparks which may pass  
50 through the perforations in the extinguisher are too small to be productive of any injury; the larger sparks either burn out, or fall back into the smoke box, whence they may  
55 be removed when necessary.

Having thus fully described the manner in which I construct my apparatus for arresting and extinguishing the sparks from locomotive and other steam engines, what I claim therein as my invention and desire to  
60 secure by Letters Patent is—

The perforated tube B, B, extending the whole length, or a considerable portion of the length of this smoke pipe and having its lower end closed, excepting the apertures  
65 for the admission of the tubes through which the exhaust steam from the cylinders are admitted to pass into it. The whole being combined, constructed, and arranged, substantially as herein set forth.

WM. KNIGHT.

Witnesses:

LOUIS DEINZ,  
SIMON ATTER,  
GEO. MURRAY.