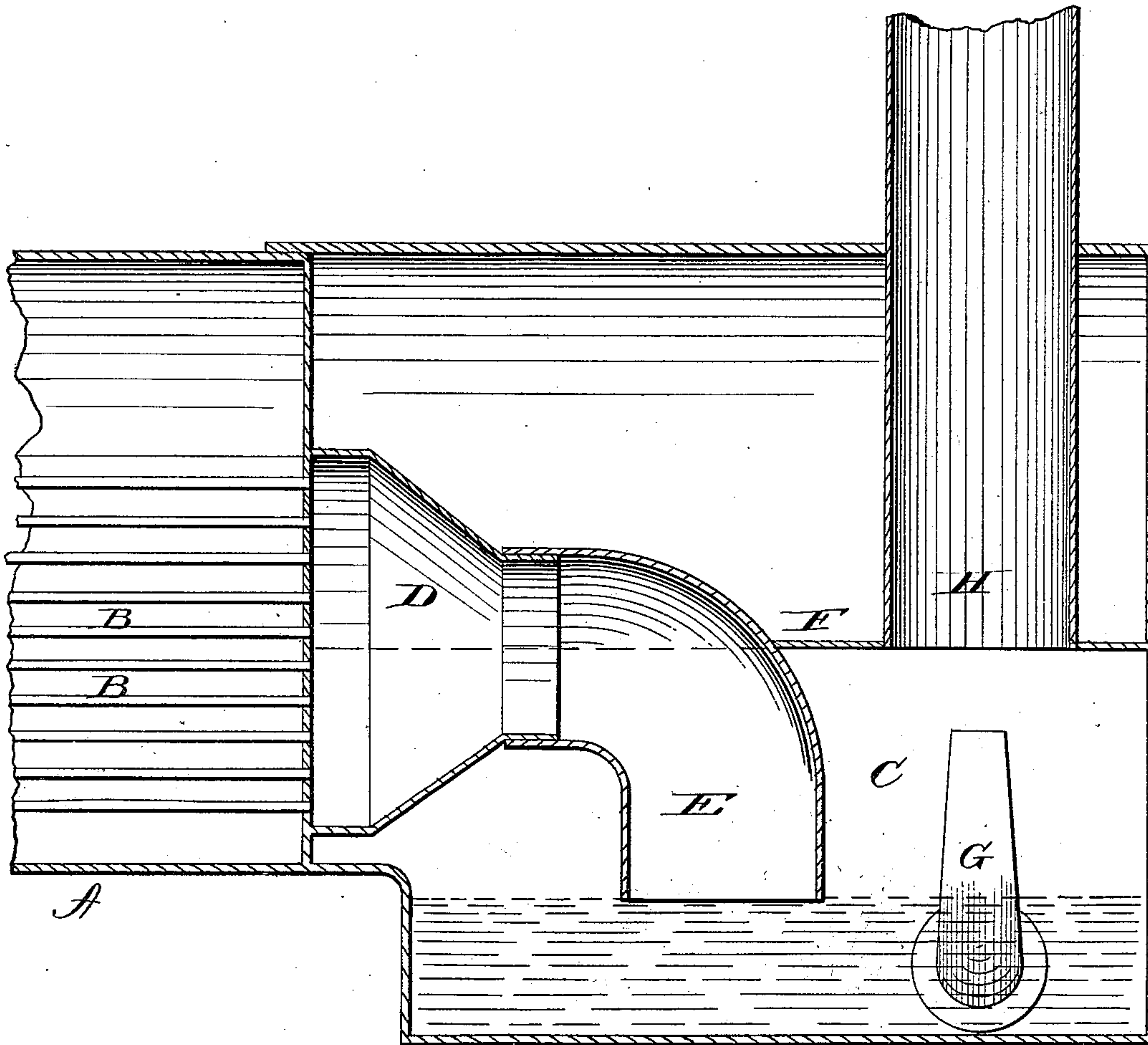


D. P. WRIGHT.  
Spark-Arrester for Locomotives.

No. 228,431.

Patented June 1, 1880.



Witnesses:  
P. L. Curand  
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att

# UNITED STATES PATENT OFFICE.

D. PRATT WRIGHT, OF RUTHERFORD PARK, NEW JERSEY.

## SPARK-ARRESTER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 228,431, dated June 1, 1880.

Application filed February 9, 1880.

*To all whom it may concern:*

Be it known that I, D. PRATT WRIGHT, of Rutherford Park, in the county of Bergen, and in the State of New Jersey, have invented certain new and useful Improvements in Spark-Arresters for Locomotives; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention relates to the construction of spark-arresters for locomotives; and it has for its object to increase the draft and to prevent the escape of sparks and cinders, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

A represents the forward end of the boiler, with flues B B. C is the smoke-box, which is made a little longer than is usually the case; but this length will vary with different style or make of locomotives.

D is a conical bonnet, made in sectional pieces, of chilled iron or other suitable material. It is made air-tight and bolted to the flue-sheet, and includes in its flare all the tubes, and can be easily removed at any time in case the flues need attention.

E is a pipe, made of suitable material, with a quarter-turn, one end of which slides over the neck of the bonnet D, and said pipe is made of an area equal to the tube area. This pipe is turned down toward the bottom of the smoke-box, and may be made any length necessary. Into this smoke-box is pumped water, which may be maintained at any depth desired.

G G are the exhaust-nozzles, which are made taller than and depending upon the amount of water carried in the smoke-box, the size and capacity of cylinder, &c.

F is a horizontal partition dividing the smoke-box longitudinally, to reduce the volume of the smoke-box, so as to make more in-

tense draft. This may or may not be necessary, depending upon the size of the nozzles, cylinders, driving-wheels, speed, &c.

H is the smoke-stack, a plain cylindrical tube, with no interior netting, cone, or similar devices. This smoke-stack is brought down and fastened to the plate F.

The cinders, fire, dirt, &c., being drawn through the tubes or flues of the boiler, enter the bonnet D, pass through the pipe E, and are thrown into the water at a great velocity. The cinders, quenched, then sink or float on or in the water, while the gases, &c., which are not taken up or soluble in the water, are driven out of the stack by the action of the exhaust in the usual manner.

The water, as it evaporates, is pumped or injected into the smoke-box until it is even or above the bottom of the pipe E.

The products of combustion pass over or through the water, and as long as a surface of water is exposed to cinders, &c., passing out the pipe D, whether it reaches to the bottom of the tube or not, no cinders, dirt, or fire will pass out the smoke-stack by the action of the exhaust.

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

1. In a spark-arrester, the bonnet D and pipe E, in combination with the boiler A and smoke-box C, for carrying the products of combustion downward, all constructed and arranged substantially as and for the purposes herein set forth.

2. In a spark-arrester, the combination of the boiler A, smoke-box C, with partition F, forming a water-tank below the same, the stack H, hood or bonnet D, and pipe E, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of January, 1880.

D. PRATT WRIGHT.

Witnesses:

WILLIAM EARLE,  
JACOB S. VARICK.