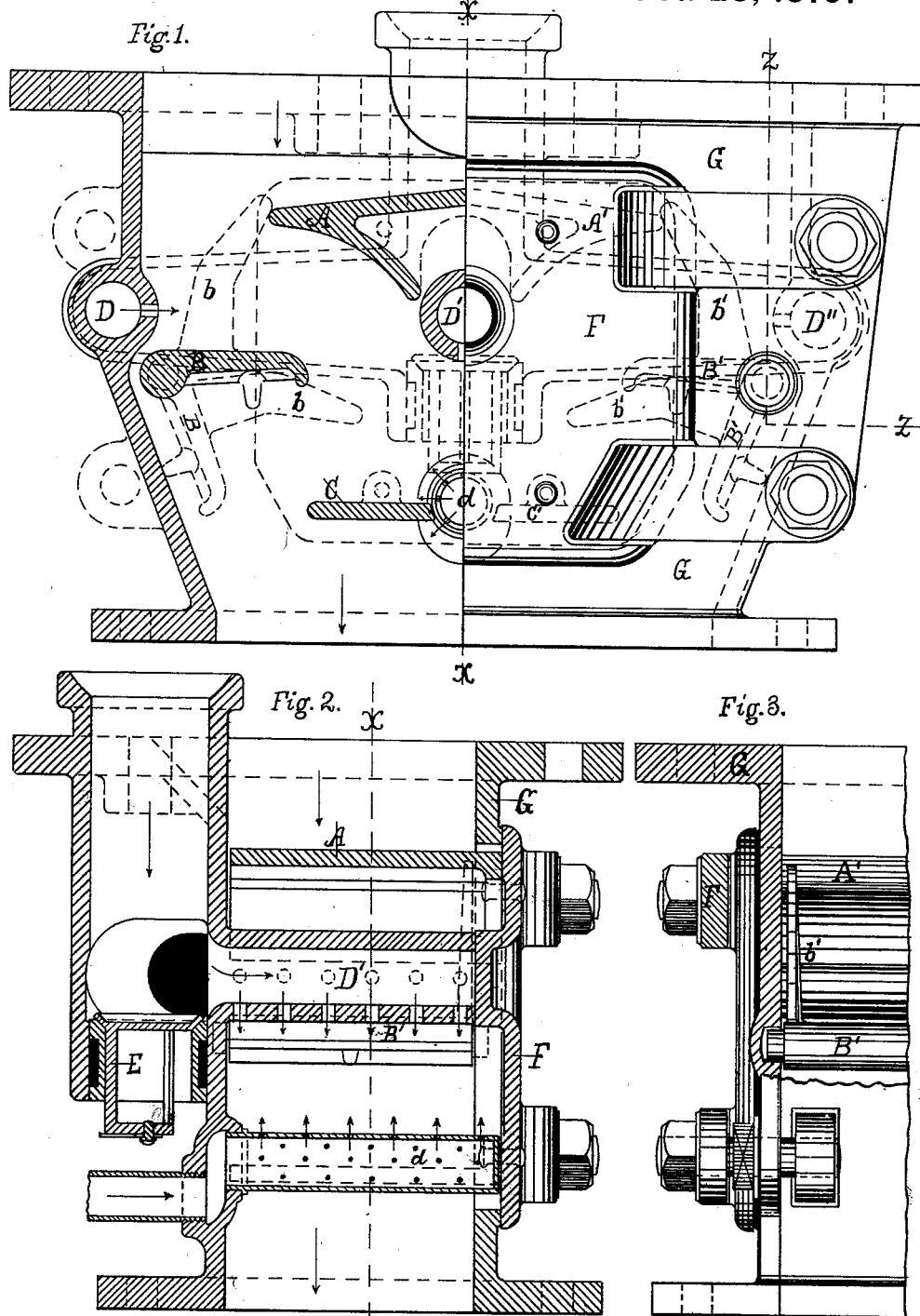


G. D. HUNTER.
Spark-Extinguisher.

No. 220,923.

Patented Oct. 28, 1879.



Witnesses;
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UNITED STATES PATENT OFFICE.

GEORGE D. HUNTER, OF BLOOMINGTON, INDIANA.

IMPROVEMENT IN SPARK-EXTINGUISHERS.

Specification forming part of Letters Patent No. **220,923**, dated October 28, 1879; application filed April 19, 1879.

To all whom it may concern:

Be it known that I, GEO. D. HUNTER, of Bloomington, in the county of Monroe and State of Indiana, have invented certain new and useful Improvements in Spark-Extinguishers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a one-half ($\frac{1}{2}$) cross-section on line *xx* in Fig. 2, and half-front view of my improved spark-extinguisher. Fig. 2 is a sectional view on line *xx* in Fig. 1. Fig. 3 is a broken section on line *zz* in Fig. 1.

Similar letters of reference indicate corresponding parts.

The invention is an improvement in the class of spark-extinguishers made independent from a smoke-stack on the locomotive.

The object of my invention is to construct a spark-extinguisher using the shelf principle, in connection with exhaust-steam, water, or both.

The nature of said improvements I shall now proceed to describe more fully.

In the drawings hereto annexed, A A' represent incline shelves or planes to convey the sparks which fall on them onto the drop-shelves B B' at each end of the extinguisher.

B B' are side drop-shelves, over which are directed jets of exhaust-steam or water, hinged and held to position by the arms *b b'*.

b b' are arm-projections on the front side of the drop-shelves B B', extending upward to bear upon or against the incline-shelves A A', to replace and hold the drop shelves B B' in position.

C C' is a lower shelf or shelves, to prevent the sparks from passing out too readily, checking the sparks or cinders sufficiently for the exhaust-steam or water from the port D' to play on them.

D D' D'' are connected ports, each having a row of jet-holes, through which the exhaust-steam or water is discharged for extinguishing

and forcing the sparks or cinders through the extinguisher.

d is an independent port to convey water at any or all times into the extinguisher, to aid in the extinguishing of the sparks if or when desired, and provided with any number of jet-holes to throw water in as many or any directions wanted.

E is a valve, intended to rise when the engine is in motion, and reversed to admit air to the engine and prevent the drawing of the sparks into the jet-holes into the ports D D' D''.

F is the front lid, to which are made with or fastened to it the incline-shelves A A' and lower shelf or shelves, C C', and is fastened in place by nuts on the stud-extension of the four tap-bolts, which fastens the front cover, G, with the extinguisher.

G is the front cover, with an opening for the admittance of the incline-shelves A A' and the lower shelf or shelves, C C', and is also provided with two recesses for receiving a pinion on the front side of the drop-shelves B B', and is fastened independent from the front lid, F.

The extinguisher is connected with the exhaust-nozzle by a pipe, to convey a portion of the exhaust-steam to the ports D D' D'' and to the smoke-box, which receives the sparks, and which fall from the incline-shelves A A' to the drop-shelves B B', and are then carried by the exhaust-steam or water from the ports D D' D'' to the lower shelf or shelves, C C', and out.

It will be observed that by this construction, there will be no trouble in cleaning the extinguisher, for should it clog or stop up, caused by a boiler-tube bursting, and an excessive amount of sparks in the smoke-box, it is only necessary to take off the front lid, F. The incline-shelves A A', the lower shelf or shelves, C C', being made fast to it, comes out with it, and the drop-shelves B B', fall as indicated by dotted lines. The front cover, G, remains undisturbed.

To replace the lid F, place the incline-shelves A A' under the arm-projections *b b'* of the drop-shelves B B' and raise up to position. This raises the drop-shelves B B' to place. Then

push the lid F to place, and fasten with nuts taken off.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, in a spark-extinguisher, of the shelves A A', B B', and C C', constructed and arranged to receive and discharge exhaust steam or water, in the manner and for the purpose hereinbefore set forth.

2. The combination, in a spark-extinguisher, of the shelves A A', B B', and C C', and the independent port *d*, having perforations, constructed and arranged to operate substantially in the manner and for the purpose hereinbefore set forth.

3. The combination, in a spark-extinguisher, of the drop-shelves B B' and the ports D D', provided with perforations, constructed and arranged in the manner and for the purpose hereinbefore set forth.

4. The combination, in a spark-extinguisher,

of the incline-shelves A A', lower shelf or shelves, C C', cover G, and the front lid, F, constructed and arranged to operate in the manner and for the purpose hereinbefore set forth.

5. The combination, in a spark-extinguisher, of the shelves B B' and arm-projections *b b'*, constructed and arranged to operate in the manner and for the purpose hereinbefore set forth.

6. The combination, in a spark-extinguisher, of the valve E and the ports D D' D'', constructed and arranged to operate in the manner and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEO. D. HUNTER.

Witnesses:

WALTER E. WOODBURN,
NAT. U. HILL.