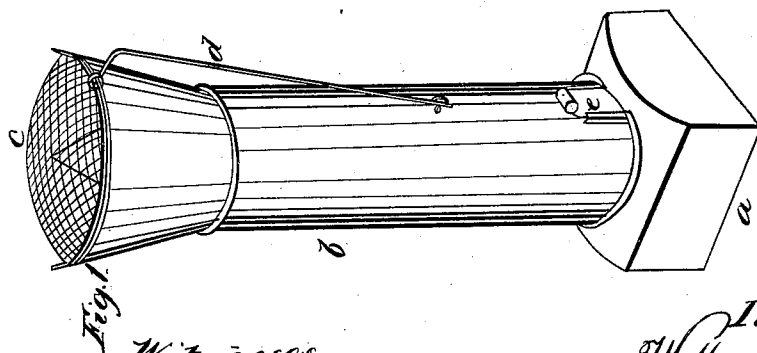
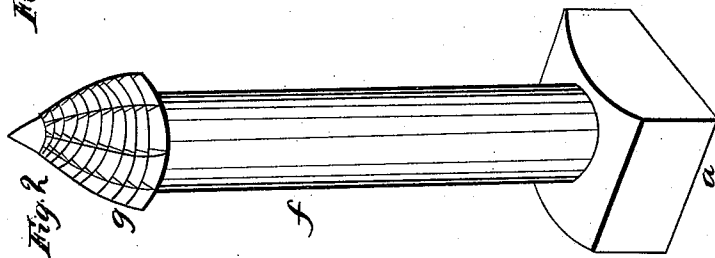
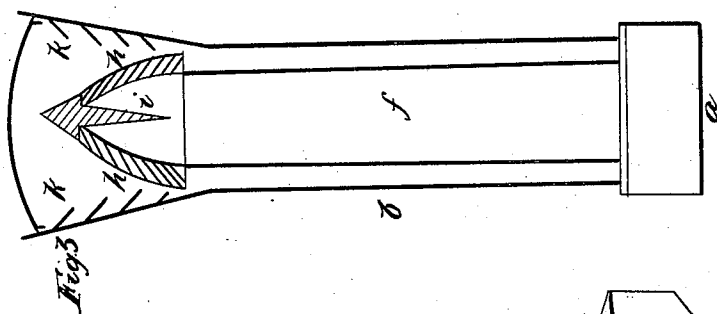


W. Duff,
Spark Arrester,
No 521, Patented Dec. 20, 1837.



Witnesses
John W. Losh
John H. Bruce

Inventor.
William Duff

UNITED STATES PATENT OFFICE.

WILLIAM DUFF, OF BALTIMORE, MARYLAND.

SPARK-CATCHER FOR ARRESTING AND EXTINGUISHING SPARKS, TO BE USED ON THE CHIMNEYS OF LOCOMOTIVES, &c.

Specification of Letters Patent No. 521, dated December 20, 1837.

To all whom it may concern:

Be it known that I, WILLIAM DUFF, of the city of Baltimore and State of Maryland, have invented a new and useful improvement on spark-catchers for arresting and extinguishing the sparks and residuum arising from the smoke-pipe of locomotive-engines and chimneys generally, and to cause a draft in chimneys, and to prevent rooms from smoking; and I do hereby declare that the following is a full and exact description.

Figure 1 in the drawing represents the chimney or smoke pipe standing on the smoke box *a*; the chimney is here inclosed by the jacket or receiver *b*. *c*, the top, is a wire screen cap to prevent any substances from passing out upward. *d*, is a rod to raise and close the screen which is on hinges, opposite the handle. *e*, door to let out the dust or residuum which has fallen from the screens. Fig. 2 represents the chimney or smoke pipe *f*, without the jacket. *g*, the Venetian cap or screen. Fig. 3 is a vertical section of the smoke box *a*, smoke pipe *f*, Venetian screen *g*, jacket *b*, and the wire screen *c*.

My principle consists in the construction and application of the Venetian screen or cap made similar to that represented in Figs. 2 and 3. It is a vertical cone; and may be round (horizontally) square or of any number of squares, as desired.

It consists of several upright stems or staves coming together above, supported at the bottom by a hoop or circle, which constitute the frame; and these staves are encircled by strips of sheet iron two or more inches wide one above the other at suitable distances apart and directed in an angle of about 45 degrees from a horizontal line, as seen at *h, h*, Fig. 3. From the inside at the top of the screen projects the inverted cone *i*, reaching to near the bottom of the Venetian screen. The bottom of this Venetian screen should be as large or larger in area than the smoke pipe, to allow a free draft.

The jacket should be made to extend as high as the top of the screen, and several strips of sheet iron circles placed around as represented at *k, k*, projecting down in an opposite angle to the strips of the screen; they prevent any dirt or substances from rising up the sides of the jacket. The whole to be made of sheet iron or any other suitable material.

I propose to use the Venetian screen for locomotive engine chimney, or any other chimneys; either to arrest and extinguish sparks; or to cure smoky chimneys, by causing them to draw well.

It may be seen by the form of the Venetian screen and its associate apparatus that the sparks and other substances will be obliged to fall into the jacket and may be discharged at the door *e*, while by the enlarged top of the screen and jacket a sufficient area is produced to cause a powerful draft. In the application of the Venetian screen to ordinary chimneys it will be seen that, let the wind blow from what point it may, it cannot puff directly down the chimney to check the regular draft, but, by the form and inclination of the Venetian strips, the wind will pass upward assisting the draft of the chimney.

I claim—

The Venetian screen, made so as to cover the smoke pipe or chimney, and thrown the sparks downward; also the application of the strips *k, k*, on the inside of the top of the jacket, which prevent any substances from rising up the sides of the jacket; all applicable to locomotive engines, to arrest sparks and extinguish them, and to cause a draft in the chimney; and the application to ordinary chimneys, to cure smoking, and to produce a draft in them.

WILLIAM DUFF.

Witnesses:

JOHN W. POST,
JOHN W. BRUCE.