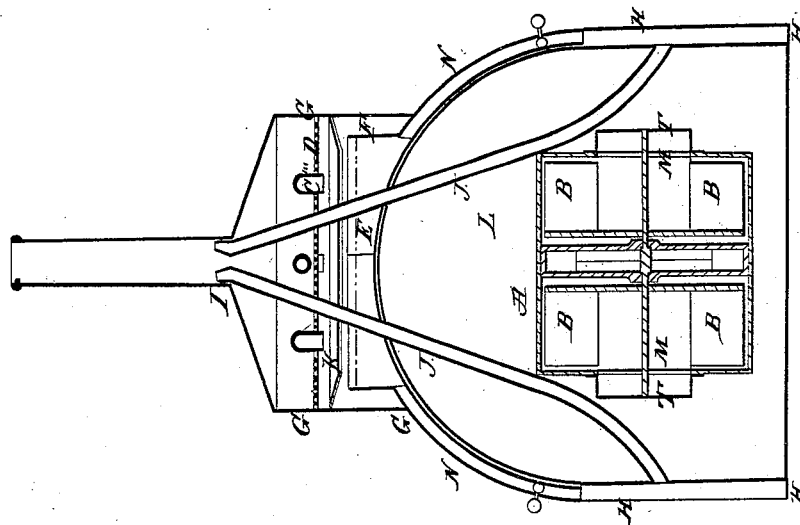
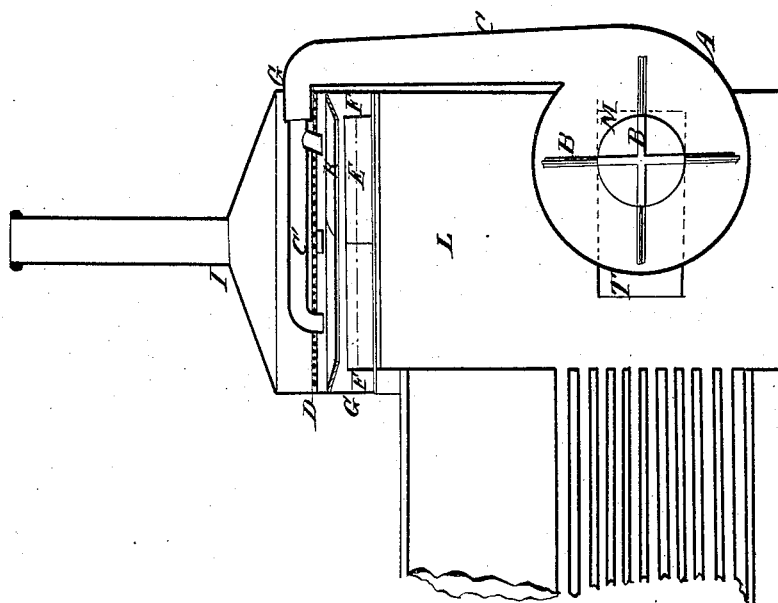


*W. P. McConnell,*  
*Spark Arrester,*  
*No. 1,892,* *Patented Dec. 10, 1840.*

*Fig. 2*



*Fig. 1*



# UNITED STATES PATENT OFFICE.

WILLIAM P. McCONNELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

## SPARK-EXTINGUISHER.

Specification of Letters Patent No. 1,892, dated December 10, 1840.

*To all whom it may concern:*

Be it known that I, WILLIAM P. McCONNELL, of the city of Washington, in the District of Columbia, have invented a new and useful Apparatus to Prevent the Escape of Sparks from Chimneys of Locomotives and other Engines, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a longitudinal section. Fig. 2 is a transverse section.

Similar letters refer to similar parts in the figures.

This improvement consists in placing a circular case A in the outer end of the smoke box L or framing, the end of the smoke box similar to a fan case, in which is placed a revolving fan B, from the circumference of which extends a conducting pipe c, which after rising to a sufficient height is bent at right angles and extended horizontally a sufficient distance and then bent or turned downward at right angles a suitable length and passed through a horizontal perforated plate D which lower end forms the outlet of said pipe. The vessel E is circular and placed below said horizontal plate, it is made to contain water and has two outlets N N, with each a stop cock, to let off the water from the vessel. The outlets pass down outside of the smoke box. Between the perforated plate D and vessel E at a sufficient distance from each of them an inclined circular rim K of metal is attached to the inside of the outer vessel G. The sparks and dust striking which are forced by the inclined sides of the rim to fall into the vessel beneath. The vessel E is surrounded by the cylindrical vessel G which is covered by the perforated plate D and has fitted to it above a hollow cylindrical cap and vertical pipe or an inverted funnel or chimney I in which is conducted the steam pipes J J to be described. A space is left between the vessel E and the inside of that of G for the sparks and dust as they flow over from F to fall into and to be carried by the tubes H H which project downward from G and are either placed before or behind the pipes N N before described. The smoke passing from the furnace in the usual manner enters the fan box by means of the aperture M Fig. 1 to which it is conducted by a trunk T when by putting the fan in motion a partial vacuum is created, the fan is put in motion by a rotary engine or any convenient

means, the smoke and sparks are driven up the conductor C and into the reservoir of water E—which arrests the sparks and dust and the smoke rises through the perforated plate D into the chimney I and escapes into the atmosphere. When the vessel E is full the sparks flow over into the space F and carried off downward by the tubes H H. The two steam pipes J J are connected with the cylinder at one end and enter the foot of the chimney I at the other. The ejection of steam from the mouth of these pipes into the chimney rarefies the air and causes the current of smoke to pass more freely from the reservoir and greatly assists the movement of the fan which I consider a valuable part of my invention.

The water is supplied to the vessel E through any suitable tube and drawn off through tubes N N before described furnished with the necessary stop cocks. The fans are constructed in pairs each pair with only one arm and that placed next to the rotary engine so as to leave an open space next the opening in the end of the case for the free admission of the smoke and sparks which will create a strong draft.

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

1. The employment of a fan in the flue of a furnace for drawing the smoke and sparks from a furnace and throwing them into a reservoir of water above which the flue terminates, in combination with the employment of one or more sets of exhaust steam tubes in a chimney placed over said reservoir and communicating with the space above the same where the flue terminates by means of a perforated plate the whole being constructed arranged and operating substantially in the manner set forth.

2. I also claim the manner in which the reservoir of water is combined with the flue c and chimney I of the locomotive. Said chimney having pipes for ejecting the exhaust steam as set forth by arranging the reservoir within a case covered by a perforated plate the flue of the furnace terminating below said plate and placing the chimney I and exhaust tubes above said case so that the connection between the draft of the flue and chimney shall be carried on through the perforated plate described.

WM. P. McCONNELL.

Witnesses:

THOS. H. DeWITT,  
E. MAHER.