

A. ELLIOTT.
Spark-Arrester.

No. 206,549.

Patented July 30, 1878.

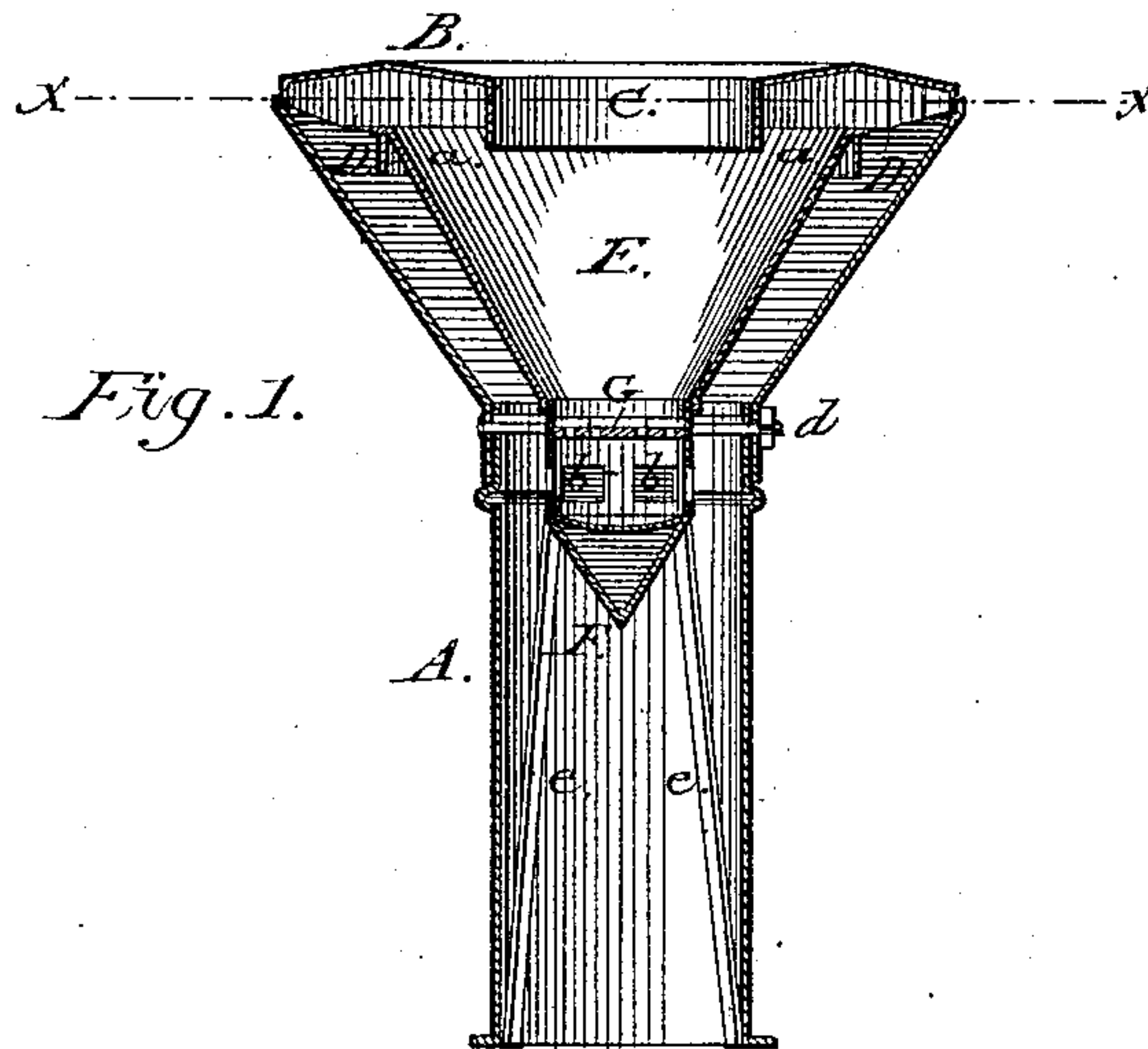


Fig. 1.

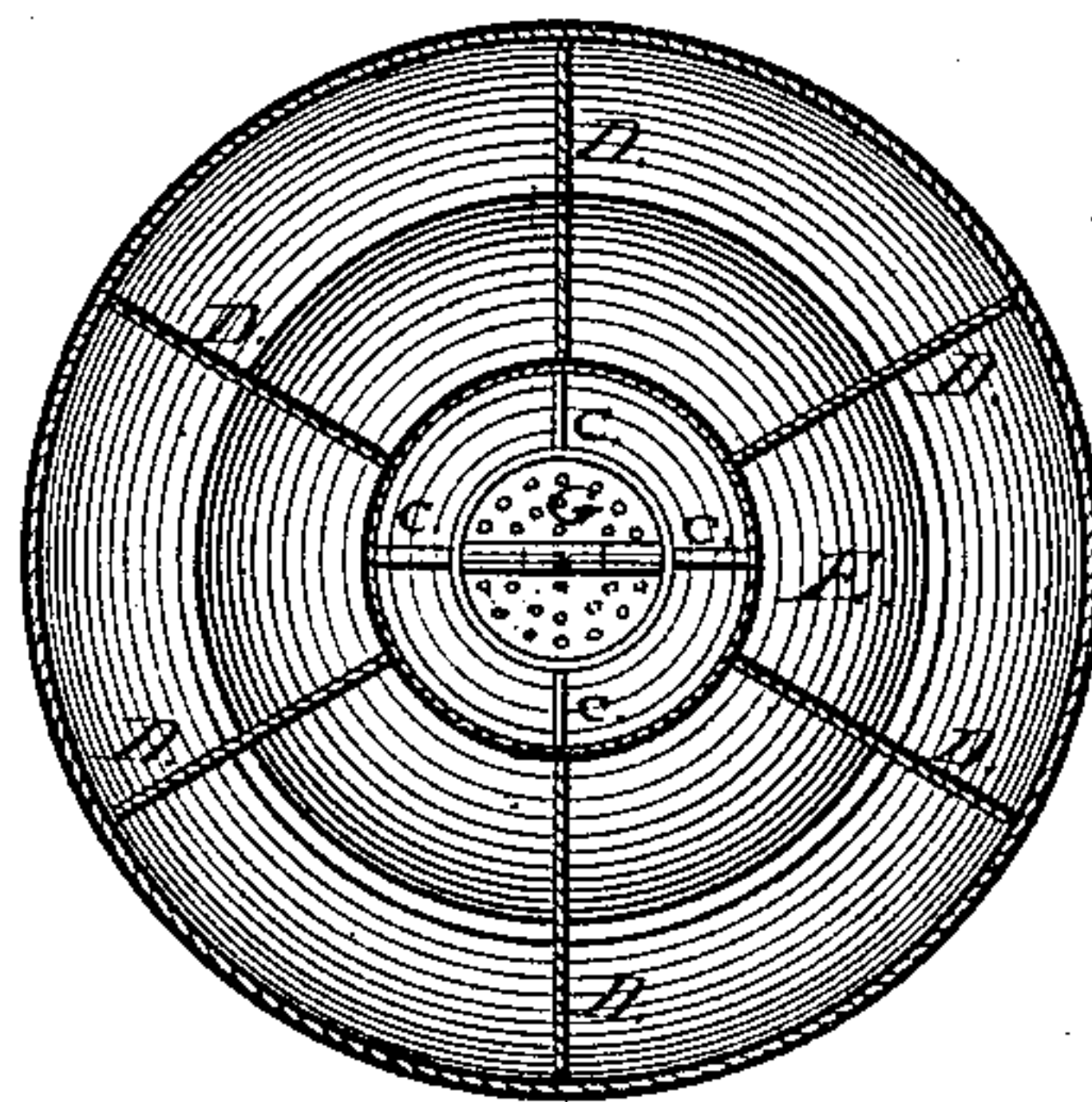
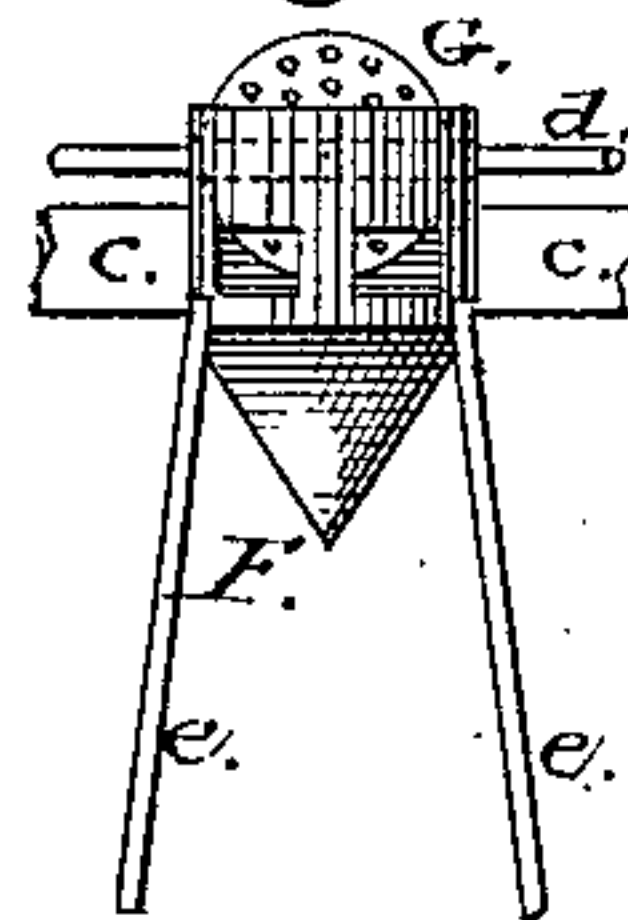


Fig. 3.



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UNITED STATES PATENT OFFICE.

AUSTIN ELLIOTT, OF WARRENSBURG, MISSOURI.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. **206,549**, dated July 30, 1878; application filed June 4, 1878.

To all whom it may concern:

Be it known that I, AUSTIN ELLIOTT, of Warrensburg, in the county of Johnson and State of Missouri, have invented certain new and useful Improvements in Spark-Arresters; and I do hereby declare that the following is a full, clear, and exact description of my 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 letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 represents a vertical longitudinal section of my improved invention, and Figs. 2 and 3 detail views of the same.

Similar letters of reference indicate like parts in the several figures.

My invention relates to improvements in spark-arresters applicable to smoke-stacks connecting with the furnaces of steam-boilers, but more particularly adapted for use in connection with locomotive-engines; and the invention consists in providing the smoke-stack with a crown or top having a series of downwardly-projecting flanges, which sets or rests over a flaring-mouthed flue, which is provided with a downwardly-projecting ring or flange on its outer edge, said flue terminating at its base in a hollow cone-shaped bottom, which is provided with openings and projecting flanges on its sides, the whole being suspended in the smoke-stack by suitable braces and provided with a screen or perforated plate above the openings in said cone-shaped bottom, the object being to divert the sparks and cinders down through the flanges on the crown or top into the flaring-mouthed flue upon the screen or perforated plate in the bottom of the same, where the cinders are broken up and the fire in them extinguished by the descending steam, which also forces the residue or ashes down through the openings in the cone-shaped bottom into the ash-pit, all as will be hereinafter more fully described, and pointed out in the claims.

Referring to the drawings, A represents the smoke-stack containing my improvements, of which B represents the crown or top provided with central opening C and downwardly-projecting flanges D, which form six separate compartments or sections, as shown

in Fig. 2, said crown or top B resting over the flaring-mouthed flue E, as shown in Fig. 1. The flue E is provided on its outer edge with a downwardly-projecting ring or flange, *a*, which serves the double purpose of acting as a check to the larger sparks flying up from the furnace, causing them to fall to the bottom of the ash-pit, as well as serving to turn the force of the ascending steam from the exhaust-pipes around in the right direction into the flanges D on the crown B, so as to be deflected from thence down into the flue E, the bottom of which terminates in a hollow cone, F, having openings *b* and projecting flanges *c* on its sides, as shown in Figs. 1 and 3, above which openings is arranged a circular screen or perforated plate, G, supported and held in place by a rod, *d*, passing through the same and through the flue E and smoke-stack A, as shown, to close or open said screen when desired. This flue E is arranged and held within the smoke-stack A by means of braces *e*, as shown in Fig. 1.

The construction of my invention being as described, it will be observed that as the steam and products of combustion pass up the smoke-stack A the cone-shaped bottom F deflects the same up between the flaring sides of the flue E and the walls of the smoke-stack A, and the larger coals or cinders are checked by the downwardly-projecting flange *a* and thrown back to the bottom of the furnace, while at the same time the flange serves to deflect the current into the sections or compartments formed by the flanges D on the crown B, and from thence the sparks and cinders are deflected down into the flue E upon the screen G, where they are broken up, pulverized, and the fire in them destroyed by the downward flow of the steam, which also forces the residue or ashes down through the screen G and out through the openings *b* in the cone-shaped bottom, from whence they fall into the ash-pit below, or are carried off by the draft. The interior of the hollow concaved cone F receives what little pressure there is from the downward flow of the steam through the screen G, and further serves to eject the steam out again in an upward direction through the openings *b*, so as not to retard or affect the draft of the chimney.

I do not desire to broadly claim herein the flaring-mouthed flue having the downwardly-projecting ring or flange, as such is described and shown in Letters Patent No. 202,424, granted to me under date of April 16, 1878; nor do I desire to claim, broadly, the cone-shaped bottom, as I am aware that such has been heretofore known; but,

Having thus described my invention, what I claim as new and useful is—

1. In a spark-arrester for steam-engines, the flaring-mouthed flue E, having flange *a* around its outer edge, and terminating in a cone-shaped bottom, F, having openings *b*, and provided with screen G, operated by rod *d*, the whole being held and supported by braces *e*, in combination with the crown or top B, having central opening C and downwardly-pro-

jecting flanges D, substantially as and for the purpose specified.

2. In a spark-arrester for steam-engines, the combination of the crown or top B, having central opening C and downwardly-projecting flanges D, and flaring-mouthed flue E, having flange *a*, cone-shaped bottom F, provided with openings *b*, and screen G, with the smoke-stack A, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

AUSTIN ELLIOTT.

Witnesses:

GEO. D. WEIDEMEYER,
P. A. BELL.