

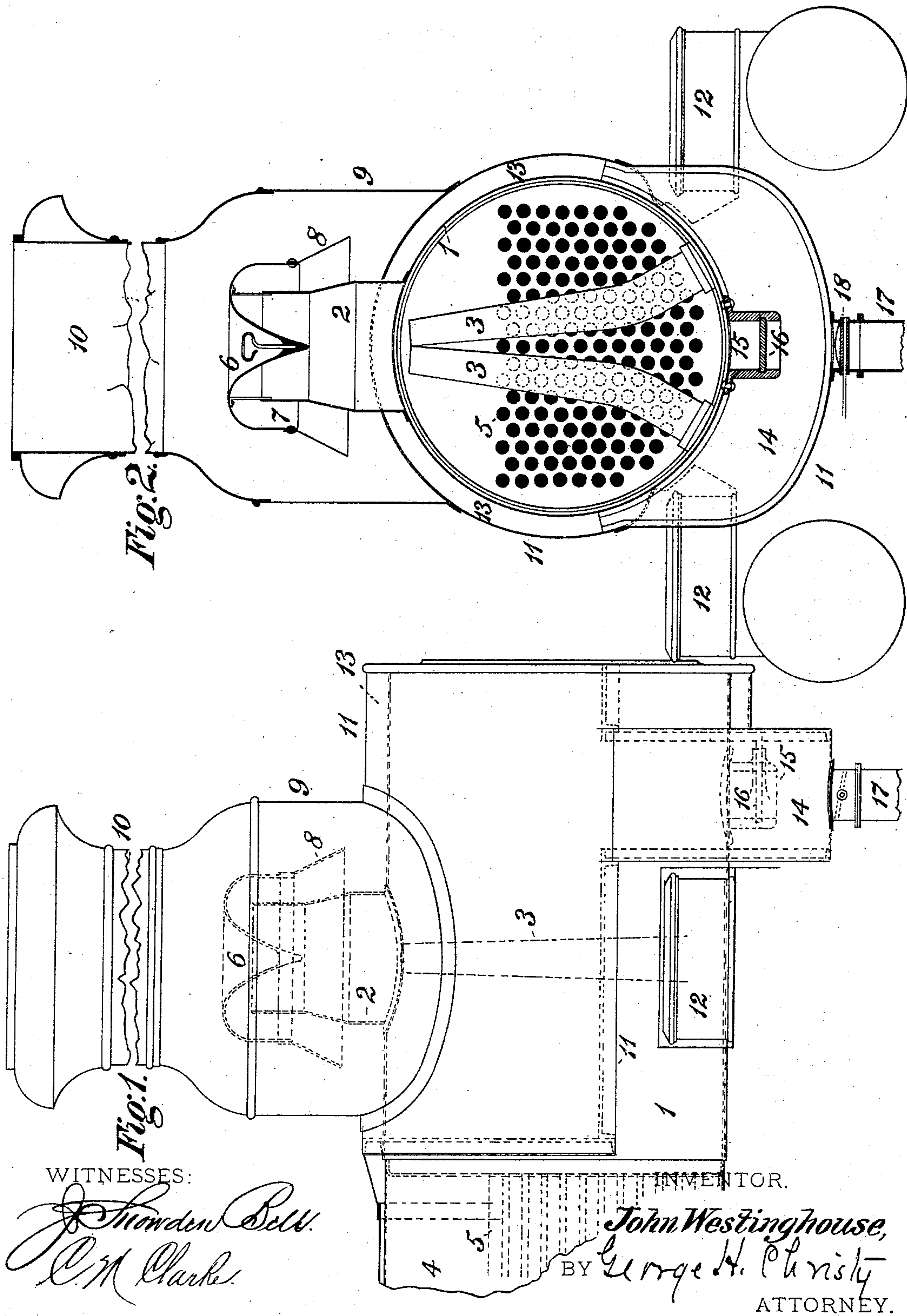
(No Model.)

J. WESTINGHOUSE.

SPARK ARRESTER.

No. 327,366.

Patented Sept. 29, 1885.



WITNESSES:

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JOHN WESTINGHOUSE, OF SCHENECTADY, NEW YORK.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 327,366, dated September 29, 1885.

Application filed May 28, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN WESTINGHOUSE, residing at Schenectady, in the county of Schenectady and State of New York, a citizen of the United States, have invented or discovered certain new and useful Improvements in Spark-Arresters, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a side view, in elevation, of the forward portion of a locomotive-boiler illustrating the application of my invention; and Fig. 2, a vertical section through the same at the line *xx* of Fig. 1.

My present invention relates to improvements in spark-arresters of the type illustrated in Letters Patent of the United States No. 298,807, granted and issued to me under date of May 20, 1884, and its object is to facilitate the arrest and retention of such of the lighter and smaller sparks and cinders as may pass from the deflecting-casing into the stack and tend to escape therefrom.

To this end my invention, generally stated, consists in the combination of a locomotive-boiler smoke-box and a spark-receptacle surrounding the smoke-box and communicating at top with the stack and at bottom with a discharge-pipe; also, in the combination, with the smoke-box of a locomotive-boiler, of a discharge-flue opening into the base of the stack, a deflecting-cone and casing located above said flue, and a spark-receiving chamber surrounding the smoke-box and communicating at top with the stack-base. The improvements claimed are hereinafter fully set forth.

In the practice of my invention I provide a short discharge-flue, 2, which is secured to the top of the smoke-box 1 of a locomotive-boiler, 4, in or about in line with the center of the exhaust-pipes 3, said flue being of sufficient diameter to afford free escape for the gaseous products of combustion delivered from the tubes 5. A deflecting-cone, 6, formed of a conical plate of metal having an outwardly and downwardly curved rim, is, as in my Letters Patent No. 298,807, above referred to, connected to the discharge-flue adjacent to its exit end, the apex of the cone being located within and concentric with the flue, so as to form an annular discharge-opening, 7, around

the same, and a casing, 8, which is open at both ends and in the form of a frustum of a cone, is connected at its smaller end to the rim of the deflecting-cone 7. A cylindrical base, 9, of such diameter as to afford an annular discharge-passage of proper area around the casing 8, incloses the discharge-flue, cone, and casing, and a plain open stack, 10, is secured to the upper end of the base 9.

The stack-base, which is open at bottom, is secured upon a segmental casing, 11, surrounding the top and sides of the smoke-box 1, and extending downwardly on the same for such distance as may be sufficient to properly clear the steam-chests 12, said casing forming an independent spark chamber or receptacle, 13, between its inner surface and the smoke-box, which chamber communicates at its top with the stack-base, and receives and retains such light sparks and cinders as may pass out of the discharge-flue 2, and are downwardly deflected by the cone 6 and casing 8. The casing 11 is extended entirely around the smoke-box in front of the cylinders, so as to form at that point a discharge-chamber, 14, into which the sparks and cinders which lodge in the smoke-box may be dropped through a port or nozzle, 15, provided with a door or valve, 16, and the solid matter which accumulates in the chamber 14 may be dumped therefrom at desired intervals through a bottom discharge-pipe, 17, governed by a valve, 18.

In operation the heavier particles of unconsumed fuel will be deposited in the forward portion of the smoke-box, which may be extended for a proper distance, governed by the character of the fuel employed and the degree of perfection of combustion attained in the fire-box, to provide sufficient space for their reception, and can thence be discharged through the port 15 and pipe 17 from time to time, as required. The lighter particles which may pass out of the discharge-flue 2 are deflected into the independent chamber 13, which provides ample space for retaining them without liability to being lifted by the exhaust until such time as it may be convenient to remove them through the discharge-pipe 17.

I claim herein as my invention—

1. The combination, with a locomotive-boiler smoke-box, of a spark-receptacle formed

between the smoke-box and an external casing, forming an independent spark-chamber, which communicates at its top with the stack-base, and is provided with a bottom discharge-pipe
5 located adjacent to the front of the smoke-box, substantially as set forth.

2. The combination of a locomotive-boiler smoke-box provided with a valved discharge-port adjacent to its forward end, a casing surrounding said smoke-box and forming an independent spark-chamber communicating with the stack-base, and a bottom discharge-pipe leading out of said chamber adjacent to the smoke-box discharge-port and governed
10 by a door or valve, substantially as set forth.
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3. The combination of a locomotive-boiler smoke-box, a discharge-flue leading out of the top of the smoke-box and opening into the stack-base, a deflecting-cone and casing located above said flue, and a spark-receiving
20 chamber surrounding the smoke-box and communicating with the stack-base, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN WESTINGHOUSE.

Witnesses:

JOHN CANTINE,
HENRY Y. BRADT.