

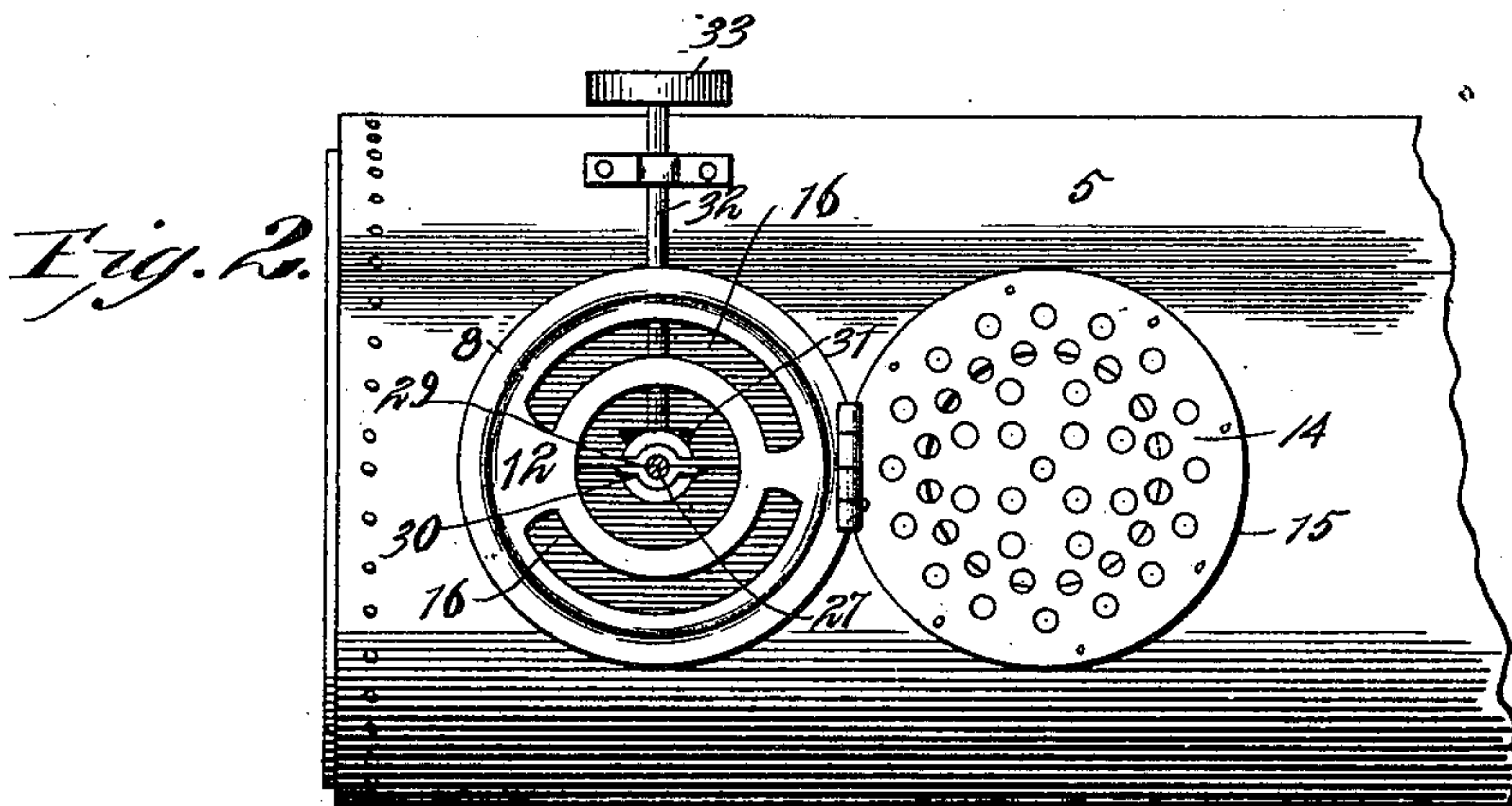
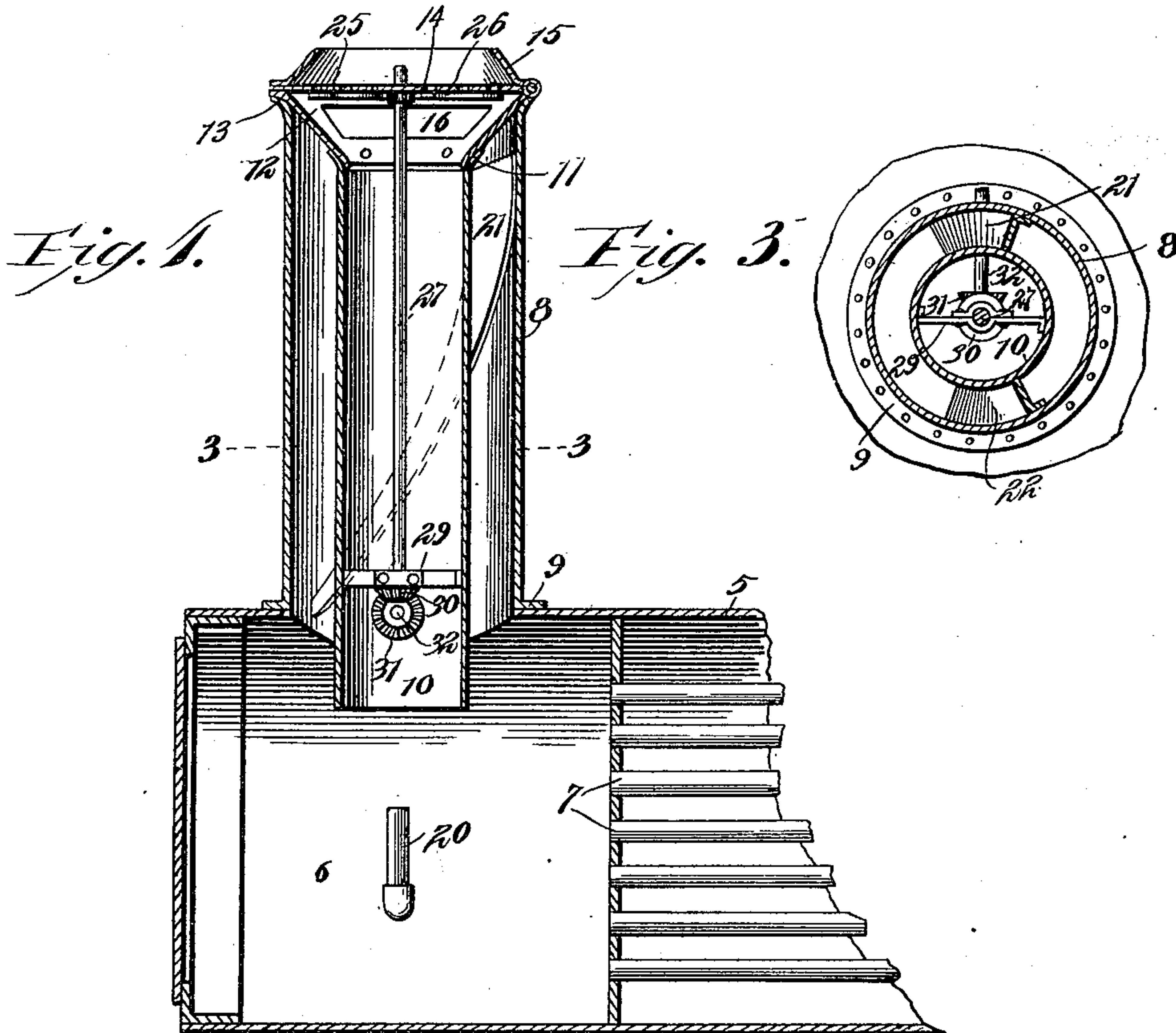
No. 662,114.

Patented Nov. 20, 1900.

E. CORY.
SPARK ARRESTER.

(Application filed July 21, 1900.)

(No Model.)



Witnesses
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Geo. H. Chandler

Eber Cory Inventor
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UNITED STATES PATENT OFFICE.

EBER CORY, OF BOONE COUNTY, INDIANA.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 662,114, dated November 20, 1900.

Application filed July 21, 1900 Serial No. 24,419. (No model.)

To all whom it may concern:

Be it known that I, EBER CORY, a citizen of the United States, residing in the county of Boone and State of Indiana, have invented a new and useful Spark-Arrester, of which the following is a specification.

This invention relates to spark-arresters in general, and more particularly to that class used in connection with locomotive and other steam boilers, one object of the invention being to provide a construction wherein the cinders will be returned from the top of the smoke-stack to the bottom of the smoke-box, a further object of the invention being to provide means for preventing clogging of the perforated top plate of the stack.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a sectional view taken vertically through a smoke-stack and showing the present invention applied thereto. Fig. 2 is a top plan view of the device applied to a smoke-stack upon a boiler and showing the hinged top or cap raised. Fig. 3 is a section on line 3 3 of Fig. 1.

Referring now to the drawings, 5 represents a locomotive-boiler, at the forward end of which is the usual smoke-box 6, having the fire-tubes 7 leading thereto, and upon the forward end of which boiler is fixed the smoke-stack 8 through the medium of a base-flange 9 on the stack.

In the smoke-stack and concentric therewith is fixed a smoke-pipe 10, which leads from a point below the lower end of the stack to a point below the upper end thereof, the upper end of the smoke-pipe being flared, as shown at 11. A frusto-conical partition 12 is fixed to this flared portion 11 of the smoke-pipe, said partition flaring upwardly and having its upper edge fixed to the flare 13 of the stack 8, and at the upper end of the partition is disposed a perforated disk 14, which is the bottom of an upwardly-tapered cap 15, which is hinged at one edge to the edge of the partition, this disk forming a foraminous cover for the upper end of the pipe. This hinged cap permits access when desired to the upper end of the smoke-pipe.

In the sides of the partition 12 are formed arc-shaped openings 16, forming communica-

tion between the upper end of the stack and the interspace between it and the smoke-pipe, so that when the boiler is in operation the discharged cinders may rise through the smoke-pipe and, striking against the perforated disk, will fall back and pass down through the openings 16 and between the stack and smoke-pipe into the smoke-box.

The exhaust-pipe 20 is disposed below the smoke-pipe to discharge therein and force an upward draft therethrough, and in order that the falling cinders may not come under the influence of the exhaust-steam to be again carried up the smoke-pipe two partitions 21 and 22 are disposed in the interspace between the smoke-stack and the smoke-pipe and extend helically from the rear side of the stack, at the upper end thereof, to the front side at the lower end, so that the cinders will fall thereon and will be discharged from the lower end thereof into the front of the smoke-box and beyond the exhaust-pipe. The cinders may be withdrawn from the smoke-box in the usual manner.

Those cinders which pass through the perforated disk or plate 14 will tend to lodge on the upper face of the disk after striking the convergent sides of the cap, and to prevent them from thus collecting and clogging the perforations a rotatable scraper is provided. This scraper comprises arms 25 and 26, which lie against the under face of the disk and extend radially from a rotatable shaft 27, which is journaled in a bearing formed centrally of the disk and in a second bearing upon a bracket 29 adjacent to the lower end of the smoke-pipe, said shaft lying concentric with the smoke-pipe, as shown. At the lower end of the shaft is fixed a bevel-gear 30, with which meshes a gear 31, carried by a shaft 32, passed inwardly through the sides of the smoke-stack and smoke-pipe, and which shaft has a belt-wheel 33 at its outer end to receive a belt to rotate the shaft and correspondingly move the scraper-arms.

It will be understood that in practice various modifications of the specific construction shown may be made and that any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A spark-arrester comprising a stack, a pipe disposed within and spaced from the walls of the stack, a foraminous cover for the pipe, openings leading from the pipe to the stack below the cover, scraper-arms rotatably mounted against the cover and means for rotating the arms.

2. A spark-arrester comprising a stack, a smoke-pipe within the stack and separated therefrom by an interspace, a foraminous cover for the pipe, openings leading from the pipe to the interspace, below the cover, scraper-arms rotatably mounted against the cover, means for rotating the arms, and partitions between the pipe and stack and disposed to convey cinders spirally from the rear of the stack to the front side thereof.

3. In a locomotive-boiler, the combination with the smoke-box of a stack mounted thereon and communicating therewith, an upwardly-tapered cap for the stack and hinged thereto, said cap having a foraminous bot-

tom, a smoke-pipe within and concentric with the stack, an upwardly-flaring partition connecting the upper ends of the stack and pipe, said partition having openings therein to connect the pipe with the interspace between it and the stack, spirally-disposed partitions disposed between the pipe and stack and leading from the upper end of the stack at the rear to the lower end at the front thereof, said pipe extending below the stack and into the smoke-box, an exhaust-pipe below the pipe to exhaust thereinto and scraper-arms rotatably mounted against the perforated bottom of the cap and having means for operating them.

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

EBER CORY.

Witnesses:

WM. H. BUNDAY,
CHARLIE BRAY.