

(No Model.)

J. W. RAMSEY.
SPARK ARRESTER.

No. 467,051.

Patented Jan. 12, 1892.

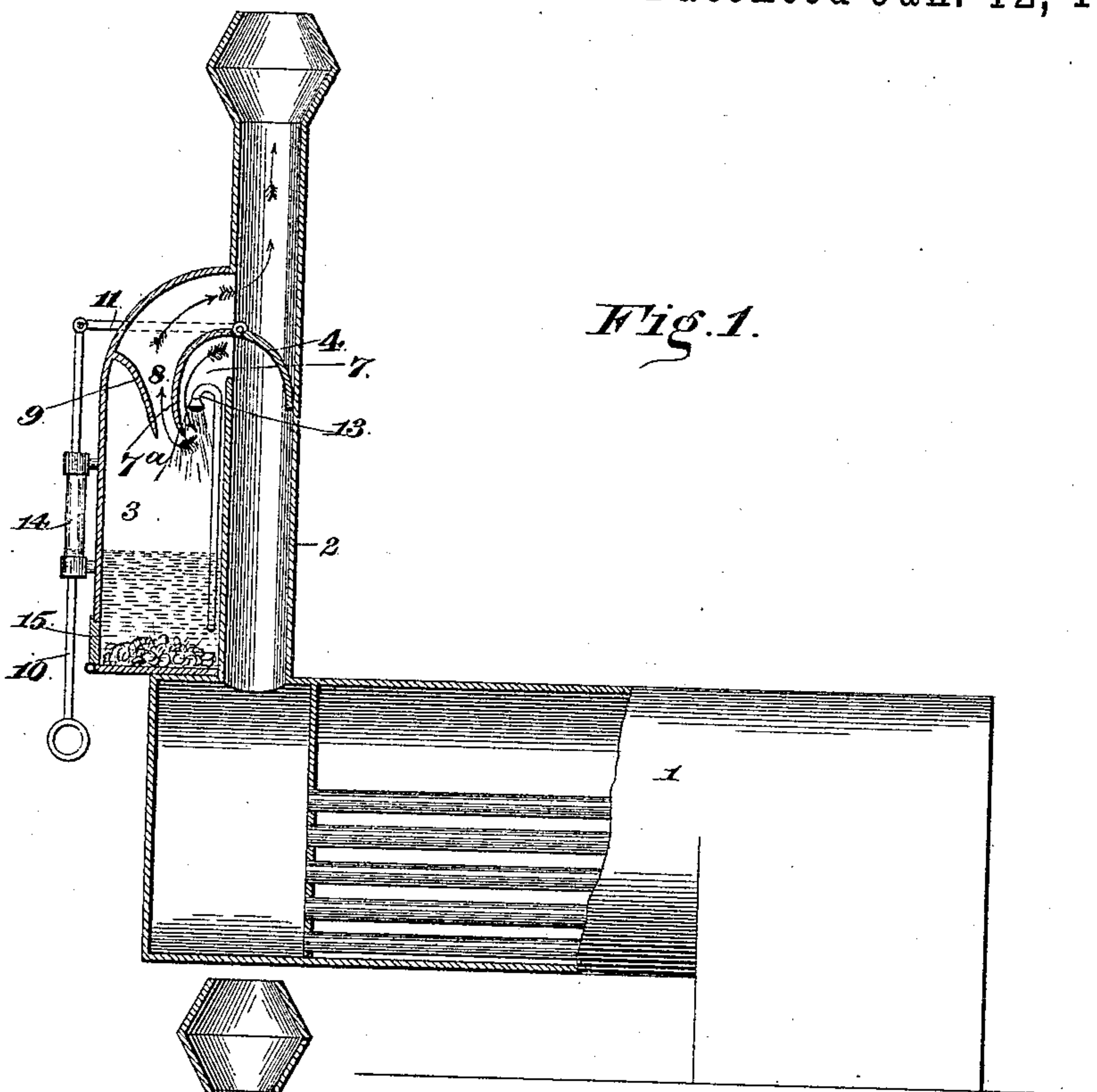


Fig. 1.

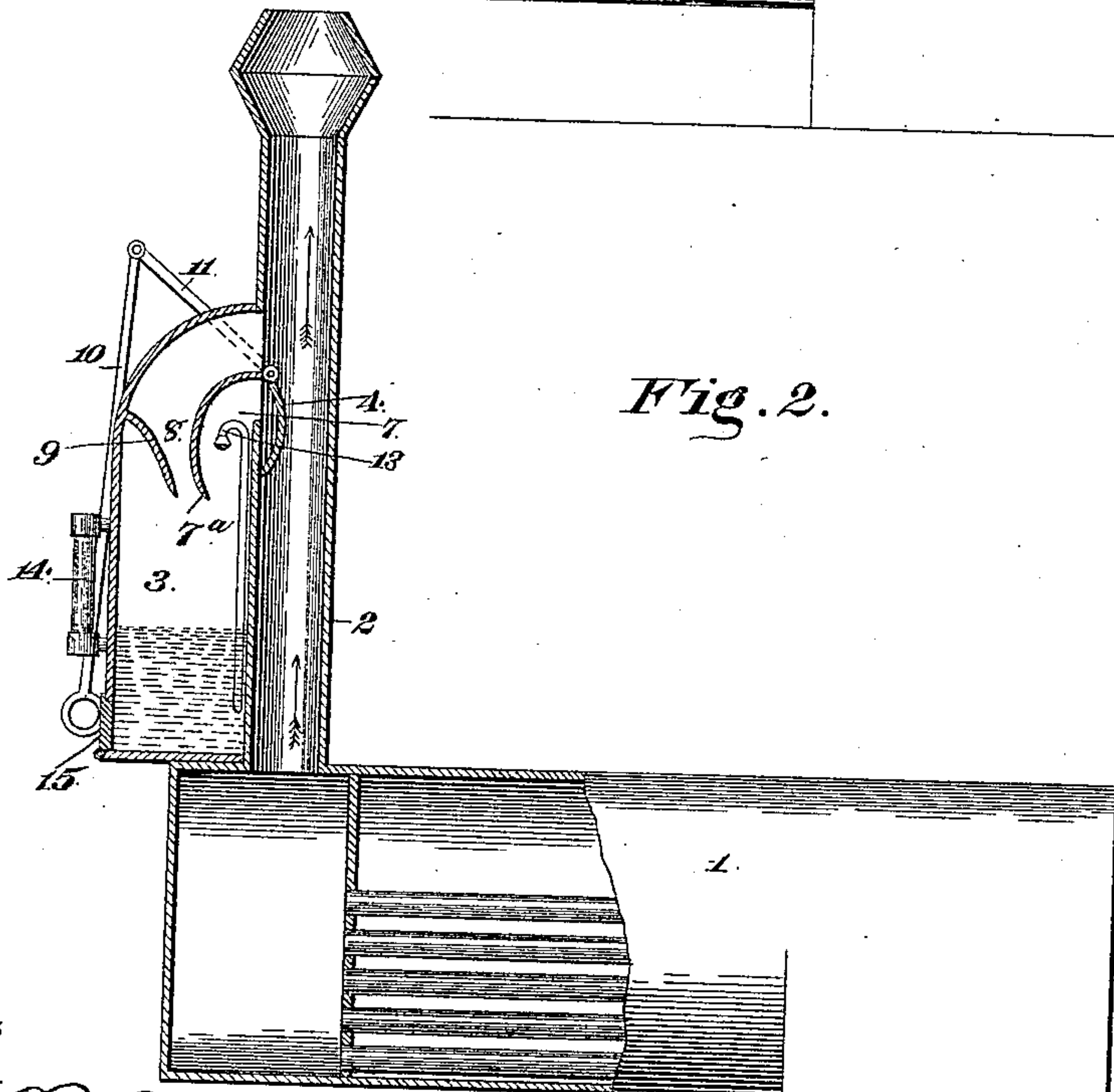


Fig. 2.

Witnesses

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JAMES W. RAMSEY, OF PARAGOULD, ARKANSAS.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 467,051, dated January 12, 1892.

Application filed October 27, 1891. Serial No. 410,039. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. RAMSEY, a citizen of the United States, residing at Paragould, in the county of Greene and State of Arkansas, have invented a new and useful Spark-Arrester, of which the following is a specification.

The invention relates to improvements in spark-arresters.

The object of the present invention is to provide a spark-arrester for engines having long smoke-stacks, like saw-mills, factories, and the like, though it is applicable to all stacks, to prevent live cinders passing out the same, which spark-arrester may be adjusted to provide a straight draft to enable a fire to be readily started, and which the parts may be readily adjusted to provide either a spark-arrester or a straight draft, as desired.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a vertical sectional view of a boiler and smoke-stack provided with a spark-arrester constructed in accordance with this invention, the deflecting-damper being closed to form a spark-arrester.

Fig. 2 is a similar view, the damper being open to provide a straight draft.

Referring to the accompanying drawings, 1 designates a boiler designed to be employed in a saw-mill, factory, or the like where long smoke-stacks are used, and having arranged adjacent its smoke-stack 2 a chamber 3, communicating at its upper end with the smoke-stack. The sparks and products of combustion, together with the smoke, pass up the smoke-stack and out the same when a hinged deflecting-damper 4 is open; but when the same is closed the smoke and other products of combustion are directed by the damper 4 through a passage 7 into the chamber 3, whence they pass out through an opening 8, formed by the curved deflector 7^a and a similar deflector 9. The deflectors 7^a and 9 are arranged at the upper end of the chamber, and the sparks and cinders strike against the same

and fall to the bottom of the chamber, while the smoke passes out through the opening formed by them into the smoke-stack with which the upper end of the chamber 3 communicates. The damper 6 is curved and is hinged in the open upper end of the chamber, and when closed forms a continuation of the adjacent rigid deflector 8 and provides with the same a tortuous passage for the smoke. A rod 10 is connected with an arm 11 of the damper and is adapted to operate the same to provide a direct draft to enable a fire to be readily started and steam to be gotten up and to close the damper to cause the smoke and products of combustion to pass through the arrester.

In order to carry the sparks, cinders, and other products of combustion through the passage 7 into the chamber 3, a jet 13 is employed and is arranged in the passage 7 to spray water on the smoke and cinders. The pipe of the jet extends along the inner vertical wall of the chamber 3 and is designed to communicate with a suitable tank or other supply, and is also designed to be connected with a blower to give the desired force to the water. The jet is covered with a fine wire-gauze to prevent the pipe becoming clogged with cinders and the like, and it forces the smoke and products of combustion through the passage 7 into the chamber 3, which is partially filled with water to extinguish sparks and prevent live sparks passing upward to the smoke-stack. A glass gage 14 is arranged on one side of the chamber to indicate the amount of water within the latter, and the chamber is provided with a large valve 15, through which the water and the cinders which accumulate in the chamber are drawn to empty the latter.

When it is desired to start a fire and to raise steam, the damper is opened, as illustrated in Fig. 2 of the accompanying drawings. This causes a straight draft through the smoke-stack, and as soon as the fire gains sufficient headway the damper is closed and the smoke-stack is immediately converted into a spark-arrester.

The device is not adapted for locomotives

and short smoke-stack engines, but is particularly designed for all classes of mills, factories, and other works and plants which employ smoke-stacks of considerable length, and with these it will be found of great advantage.

What I claim is—

1. The combination, with a smoke-stack, of a chamber arranged adjacent thereto and having its upper end communicating therewith, the deflectors arranged in the upper end of the chamber and forming an exit-opening communicating with the smoke-stack, and a damper hinged to one of the deflectors and arranged to close the smoke-stack to cause the smoke and products of combustion to pass into the chamber and adapted to be opened to provide a straight draft, and means for controlling the damper, substantially as described.

2. The combination, with a smoke-stack, of a chamber having its upper end communicating therewith, the curved deflectors 7^a and 9, arranged in the upper end of the chamber and providing passages 7 and 8, a hinged deflecting-damper arranged to form a continuation of the deflector 7^a and adapted to open and close the smoke-stack and provided with

an arm, and a rod hinged to the arm, substantially as described.

3. The combination, with a smoke-stack, of a chamber arranged adjacent thereto and having its upper end communicating therewith, the deflectors arranged in the upper end of the chamber and forming entrance and exit passages, a damper hinged to one of the deflectors, and a water-jet arranged in the entrance-passage, substantially as described.

4. The combination, with a smoke-stack, of a chamber having its upper end communicating therewith, the curved deflectors 7^a and 9, arranged in the upper end of the chamber and providing passages 7 and 8, a hinged deflecting-damper arranged to form a continuation of the deflector 7^a and adapted to open and close the smoke-stack, substantially as described.

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

JAMES W. RAMSEY.

Witnesses:

J. R. MILLER,

T. B. KITCHENS.