(No Model.)

D. WISER.

SPARK ARRESTER.

No. 264,501. Patented Sept. 19, 1882.

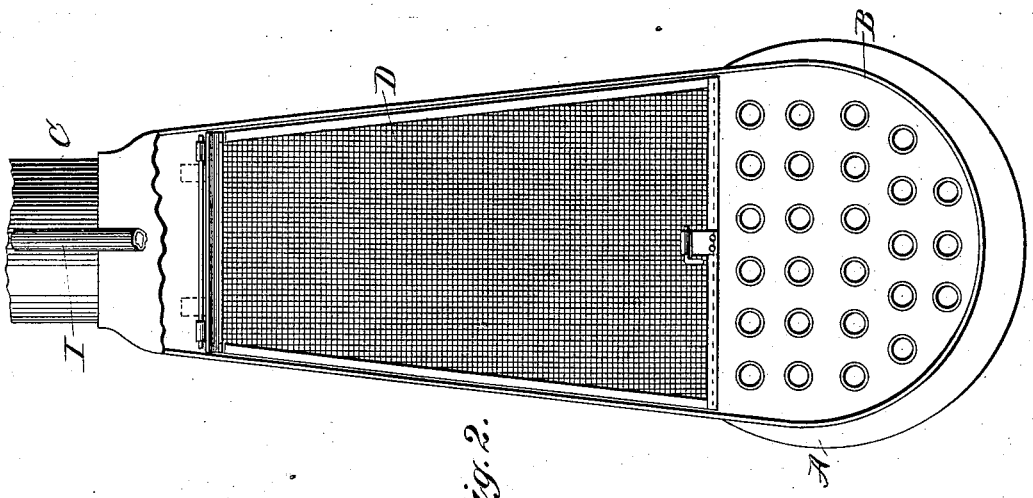

Fig. 2.

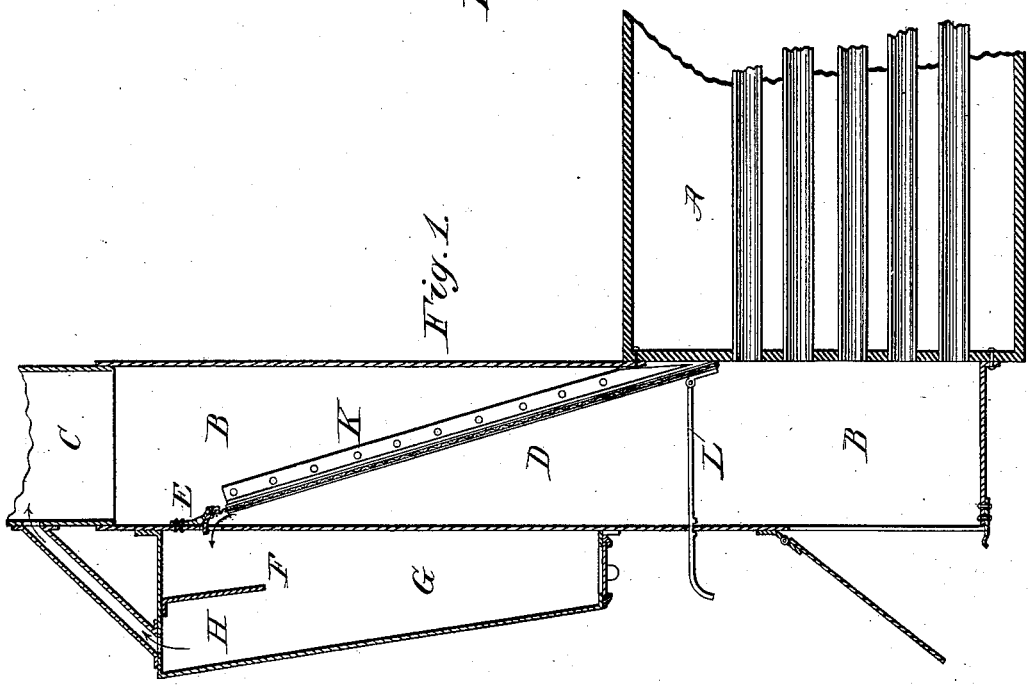

Fig. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

DAVID WISER, OF PLYMOUTH, INDIANA, ASSIGNOR OF TWO-THIRDS TO THOMAS J. HUPP AND LORIE G. CAPRON, OF SAME PLACE.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 264,501, dated September 19, 1882.

Application filed May 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID WISER, of the city of Plymouth, in the county of Marshall and State of Indiana, have invented a new and useful Improvement in Spark-Arresters, of which the following is a full and true description and specification.

My invention relates to a process of catching and arresting the sparks and cinders which usually escape from the smoke-stack of locomotive and stationary steam-engines, thereby preventing all danger from setting fire to any combustible material in the vicinity of such engines.

The drawings attached hereto and signed by me show the principle of my invention, and the same are hereby made a part of this specification.

Figure 1 in said drawings is a transverse vertical section of the device embodying my invention. Fig. 2 is a front view of the same, showing the position of the wire screen in the breech of the smoke-stack and the manner of constructing and attaching the same.

Similar letters of reference indicate like parts in said drawings.

Letter A in said drawings represents a portion of a section of an ordinary flue-boiler of a steam-engine.

Letter B represents the breech of a smoke-stack of such boiler.

Letter C represents the smoke-stack.

Letter D represents the wire screen in position in said breech when operating as a spark-arrester.

Letter E represents the curved deflector or guide which directs the sparks and cinders into the cinder-box.

Letter F represents the mouth or orifice in the face of the breech through which the cinders pass into the cinder-box.

Letter G represents the cinder-box, constructed of sheet-iron or other proper material.

Letter H represents the partition, extending entirely across the cinder-box and downward at some distance below the mouth F.

Letter I represents the vent-pipe, connecting the cinder-box with the smoke-stack and entering the smoke-stack some distance above the upper end of the cinder-box.

Letter K represents the stays, riveted to the inner sides of the breech, which prevent the screen from being bent or curved by the draft.

Letter L represents the handle to the screen, by which it is moved backward and forward.

My invention consists of the arrangement of the wire screen D, hung on hinges at the upper end, with the curved deflector E, and the cinder-box G, and the mouth F, and the vent-pipe I, substantially as shown in the drawings; and the manner of the construction and the operation of the different parts of my invention are as follows:

The screen D is of wire-cloth or perforated iron, and cut to exactly fit in the space assigned for its work in the breech.

The deflector E is of sheet-iron, slightly curved, and is a continuation of the screen, extending across its entire top, and is firmly riveted to the side of the breech.

The mouth or orifice F is a narrow opening across the face of the breech, through which the deflector E directs the sparks and cinders.

The cinder-box G is of sheet-iron or other proper material, of any required size. It is riveted to the face of the breech and the joints closed so as to be as nearly air-tight as possible. A door or slide opens in the bottom, from which the ashes and cinders are emptied when necessary. Across the box is the hanging partition H, and from the top of the box is the sheet-iron vent-pipe I, connecting the box with the smoke-stack. This pipe is of any required size, but should be of sufficient capacity to carry freely the heated air and gases that pass through the mouth F into the cinder-box.

These several parts, being in place as shown in the drawings, operate substantially as follows: The powerful draft of the smoke-stack draws a great quantity of live sparks and cinders from the fire-box through the flues up the breech. They strike against the slanting side of the screen, and, carried by the ascending current, they glide up its surface until they strike against the solid curved top or deflector E, by which, with some aid from the draft through the mouth F, they are carried into the cinder-box G. The partition H guides them down toward the center of the box, where they are out of the line of the draft, and they drop

to the bottom and burn to ashes. The heated air, gas, and smoke that enter the cinder-box F are drawn through the connecting-pipe I into the smoke-stack, and this draft aids materially in carrying the cinders through the mouth F into the cinder-box.

In wet weather, when the condition of the atmosphere is such that the draft is lessened, the screen may be pulled to the front side of the breech and there held, thus giving free draft throughout the entire length of the breech and smoke-stack, and in case the screen itself should partially clog with ashes and cinders it can easily be cleared by shaking it.

Having thus described my invention, what I claim as new, and what I desire to secure herein by Letters Patent of the United States, is as follows:

1. In spark-arresters, the wire screen D, or its equivalent, hung on hinges and extending diagonally across the inner space of the breech, substantially as shown and described.

2. In spark-arresters, the cinder-box G, with partition H and the connecting vent-pipe I, arranged and operating substantially as shown and described.

3. In spark-arresters, the combination of the screen D, the deflector E, the mouth or orifice F, the cinder-box G, partition H, and vent-pipe I, with the breech and smoke-stack of a steam-engine-boiler, all constructed, arranged, and operating substantially as shown, and for the purposes set forth.

In testimony whereof I have hereunto set my name in the presence of two subscribing witnesses.

DAVID WISER.

In presence of—
A. C. CAPRON,
CHARLES RICHARDSON.