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J. SLOCUM

1,997,204

CHIMNEY SPARK ARRESTER

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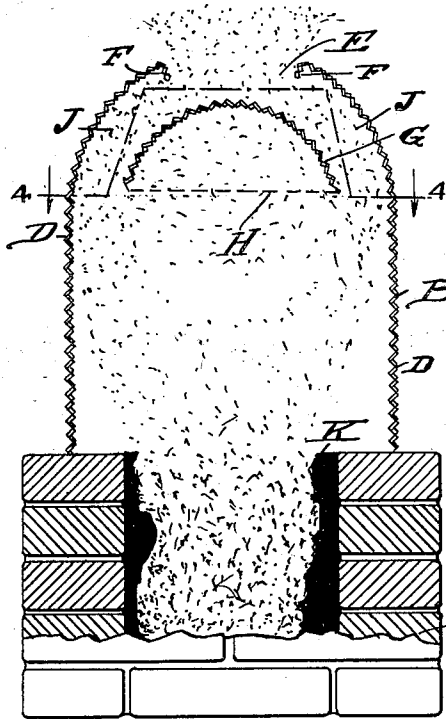


Fig. 2.

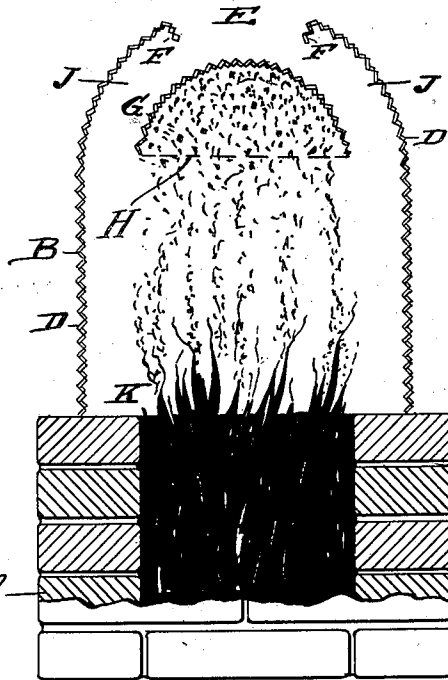


Fig. 3.

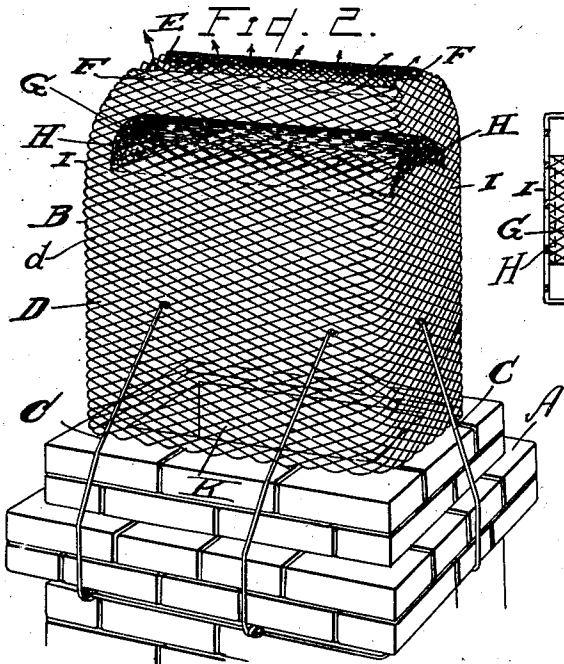


Fig. 1.

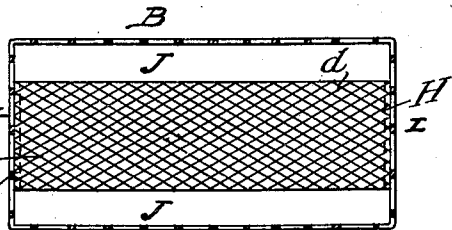


Fig. 4.

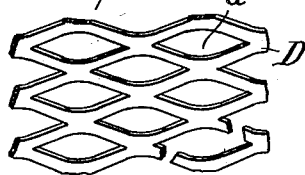


Fig. 5.

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CHIMNEY SPARK ARRESTER

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2 Claims. (Cl. 183—51)

My invention relates to chimney spark arresters, shown in the accompanying drawing and more particularly described in the following specification and claims.

One of the difficulties confronting the users of chimney spark arresters constructed of open mesh wire or expanded sheet metal, is the partial clogging of the openings with soot thereby interfering with draft created by winds passing over the top of the chimney.

This is especially true when low-grade bituminous coal, lignite or so-called brown or wood coal is used, the smoke from which is heavily impregnated with carbon and in its upward course through the chimney, clings to the walls of the chimney and to the wires or structural fabric of the spark arrester, thereby shutting off the passage of air that would otherwise create a draft up the chimney.

One feature of this invention is a baffle screen, arc-shaped in cross-section, extending the entire length of the chimney opening, with flanges at each end by which means the baffle is secured directly to the contiguous foraminous end walls of the spark-arrester.

Another object of the invention is to construct the device of smooth rust-proof cadmiumized sheet metal, thereby providing a "glass-like surface" to which soot is not apt to adhere or fill up the openings in the walls.

With the foregoing and other objects in view which will appear as the description proceeds, the invention further resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes may be made in the precise embodiment of the invention herein disclosed without departing from the spirit of the same.

In the drawing accompanying this specification:

Figure 1 is a diagrammatical perspective view of the spark arrester, mounted on the top of a chimney.

Figure 2 is a diagrammatic, vertical cross-sectional view of the structure shown in Figure 1, disclosing the arc-shaped baffle screen supported in spaced relation to the overlapping arc-shaped portion of the side walls of the device, thereby providing a circuitous passage through which smoke travels around the baffle and out through the exit gap in the wall overlapping the baffle-screen.

Figure 3 is a similar cross-sectional view indicating how the arc-shaped baffle screen and the

arc-shaped overlapping side walls of the spark arrester while providing an unobstructed circuitous passage for smoke from a normal fire, also serve to control and return to the chimney opening dangerous sparks and flaming embers shot upwardly against the underside of the arc-shaped baffle screen and overlapping inclined walls of the spark arrester when fired under the urge of explosive forces resulting from abnormal fire conditions.

Figure 4 is a horizontal sectional view on a relatively smaller scale,—taken on or about line 4—4 of Figure 2, showing the arc-shaped baffle screen secured to the end walls and spaced from the side walls of the spark arrester to provide passages for smoke around and above the baffle screen.

Figure 5 is a fragmentary piece of expanded metal, of which the spark arrester and baffle-screen is preferably constructed.

Referring now to the letters of reference on the drawing for indicating the several parts:—

"A" denotes a chimney. "B" the spark arrester in its entirety, secured by suitable anchoring means C to the walls of the chimney.

The foraminous side walls D, have arc-shaped upper portions bent toward each other, their opposing ends being spaced apart to provide a smoke exit E, extending the entire length of the device. A lip or flange F, projects downwardly from each of the opposing ends of the arc-shaped portions of the walls D, to assist in preventing the escape of sparks or burning embers through the smoke exit E and to deflect the embers back into the chimney opening.

Spaced from the side walls D, and their overlapping top portions is an arc-shaped baffle-screen G, having downwardly bent flanges H, at each end whereby the baffle screen is secured to the foraminous end walls I, of the device.

The spaces J—J, between the baffle-screen G and the foraminous side walls D—D, of the device provide a circuitous passage for smoke discharged through the chimney opening K, which extends the full length of the spark arrester,—the cross-sectional area of these passages being approximately equal to or greater than the chimney opening over which the spark arrester is mounted. While these two open passages are sufficiently large to carry all the smoke delivered to and through the arrester, smoke may also pass through the openings *d*, in the foraminous walls of the device.

It will be noted that the side edges of the baffle screen,—viewed in cross-section,—and spaced as

they are from the side walls of the spark arrester, provide on each side of the baffle-screen an unobstructed passage for smoke between the baffle and the foraminous side walls of the device. It will also be obvious that upwardly bound sparks, resulting from burning soot covering the walls of the chimney, or flaming embers expelled by explosive force through ignition against the underside of the arc-shaped baffle-screen, will be deflected by the baffle-screen inwardly and downwardly into the chimney opening.

The pair of unobstructed smoke passages that have been provided, have a smoke exit gap or opening E, through the arc-shaped portion of the side walls of the baffle-screen,—the opposing ends of the overlapping walls being bent downwardly to provide a pair of deflecting flanges F, F, which serve to divert sparks or like matter onto the upper surface of the arc-shaped baffle-screen,—from which they gravitate into the chimney opening.

The passage-ways J, J for smoke, between the baffle-screen and the outer walls of the spark arrester are sufficiently large to pass all of the smoke delivered from the chimney,—in addition to this there are the plurality of small openings or foramina in the walls of the device through which smoke may also pass.

One purpose of the circuitous course provided for the passage of smoke, is to insure against the discharge of chimney sparks of any perceptible or dangerous size through the exit gap or opening in the arc-shaped wall overlapping the baffle-screen;—the downwardly bent lips on

each side of said opening serving as a further preventative against the escape of sparks or cinders through the openings.

Having thus described my invention, what I claim is:—

1. A spark arrester comprising a foraminous body, adapted to be mounted over the egress opening of a chimney, having unslitted walls extending vertically from the chimney opening, with two of its opposing walls arched at the top toward each other, and spaced medially and longitudinally the entire length of the body portion, for the egress of smoke; and a single unslitted baffle-screen extending the length of the spark arrester and secured to its end walls and spaced from and concentric with the upper portion of the arched walls, to provide passages of substantially uniform cross-sectional area, extending the entire length of the body portion.

2. A spark arrester comprising a foraminous body, adapted to be mounted over the egress opening of a chimney, having unslitted walls rising vertically from the chimney opening, two of its opposing walls being arched at the top toward each other, and spaced medially and longitudinally the entire length of the body portion, with downwardly extending flanges at their opposing ends; and an unslitted foraminous baffle-screen, spaced from, and concentric with the upper arched portion of the side walls, providing a passage of substantially uniform cross-sectional area throughout the passage, and extending the entire length of the body portion.

JAMES SLOCUM.