

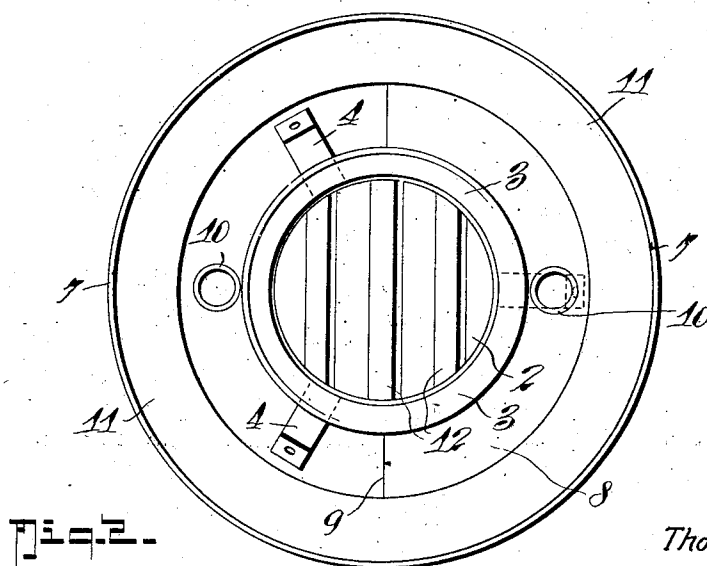
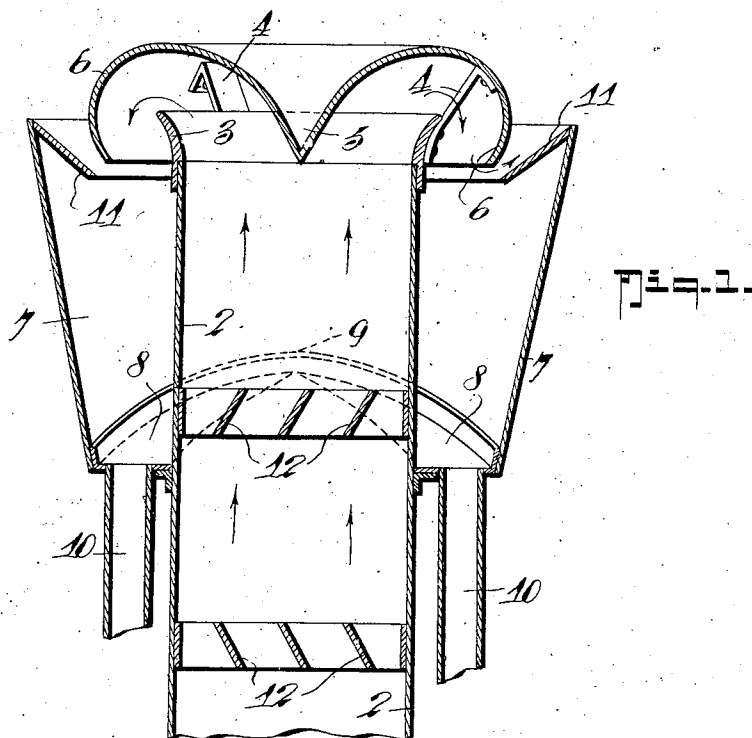
Aug. 9, 1927.

1,638,451

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SPARK ARRESTER

Filed April 2, 1926



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Patented Aug. 9, 1927.

1,638,451

UNITED STATES PATENT OFFICE.

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SPARK ARRESTER.

Application filed April 2, 1926. Serial No. 99,328.

This invention relates to a spark arrester which has been particularly designed to prevent the discharge of sparks from the smokestack of a logging engine, where it is imperative for the preservation of the forests that the danger of flying sparks be eliminated. The device is, however, obviously applicable to any smokestack where similar conditions prevail.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Fig. 1 is a vertical longitudinal section of the arrester as applied to a smokestack, and

Fig. 2 is a plan of the same with the cap removed.

In these drawings 2 represents the smokestack of the boiler, the upper end of which has an outwardly flared mouth-ring 3.

Supported from the upper end of the smokestack 2 on three or more small brackets 4 is a cap, the central portion 5 of which is an inverted cone, the axis of which is in alignment with that of the smokestack, within the mouth-ring of which the apex of the cone projects.

From the slope of the conical portion 5 the cap curves gradually outward to beyond and below the lip of the flared mouth-ring 3 and its extreme edge is re-curved backward toward the smokestack 2 below the upper edge of the mouth-ring.

Extending from without and above the lower edge 6 of the cap is a spark retaining receptacle 7, the lower end of which is contracted slightly toward the smokestack to which it is secured by a bottom ring 8. This bottom ring slopes hopperwise from a ridge 9 on each side toward a down-take tube 10 on each side quartered with the ridges 9. Through these tubes 10 the sparks are conveyed into a receptacle 45 where they may be quenched with water.

The upper edge of the spark receptacle 7 is conically sloped downward as at 11 to adjacent and a little below the lower edge of the re-curved portion 6 of the cap.

The furnace gases as they pass up the smokestack are diverted outward by the central cone 5 of the cap and by the re-curved portion 6 of the same are projected angularly downward against the outer side of the smokestack 2, as indicated by the arrows in Fig. 1. The superior inertia of

the sparks carries them downward beyond the range of the current of the less weighty gases, which escape to the atmosphere through the annular space between 6 and 11, while the sparks fall to the bottom 8 of the receptacle 7 and settle toward the pipes 10 through which they fall.

The downwardly angled portion 11 of the receptacle 7 prevents the escape of any sparks which may hug the sides of 7 and work their way up to the outlet.

To save the cap 5, 6 from undue wear by the hot gases and sparks impinging violently against it before escaping to the atmosphere, the velocity of the outpassing products of combustion is materially checked by baffles 12 removably secured in the smokestack 2 a short distance below the top 3.

These baffles 12 are less expensive than the cap 5, 6 and can be easily renewed.

Having now particularly described my invention, I hereby declare that what I claim as new and desire to be protected in by Letters Patent, is:

A spark arrester comprising the combination with the upper part of a smokestack having an outwardly flared mouth ring, a spark receiving vessel concentrically surrounding the upper part of the smokestack, the upper end of said vessel being at approximately the same level as the upper edge of the mouth ring and having a flange turned inwardly downwardly toward the smokestack to provide a restricted annular passage surrounding the mouth ring a distance below its upper edge, said receiving vessel having a bottom, spark take-off tubes entering said bottom at diametrically opposite sides thereof, said bottom having high points at diametrically opposite sides and sloping downwardly to each take-off tube, and a cap carried by the mouth ring, the central part of which cap is conical and projects downwardly into the center of the mouth ring and the outer part of which cap curves outwardly and then re-curve downwardly and inwardly, the terminating edge being located in the restricted annular passage surrounding the mouth ring, the upper edge of said mouth ring being positioned approximately at the center of recurvature of the cap.

In testimony whereof I affix my signature.

THOMAS M. NIXON.