(No Model.)

H. O'HARA.

SPARK ARRESTER AND EXTINGUISHER.

No. 527,444. Patented Oct. 16, 1894.

Fig. 1.

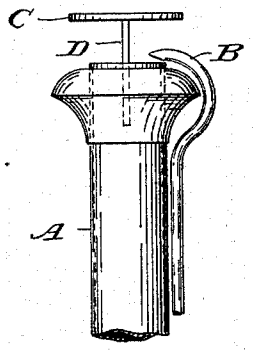


Fig. 2.

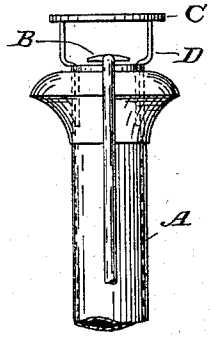


Fig. 3.

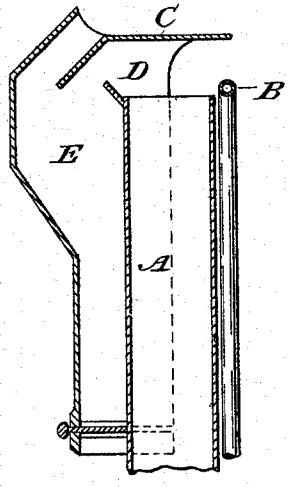


Fig. 4.

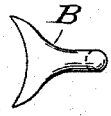


Fig. 5.

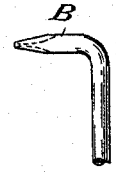
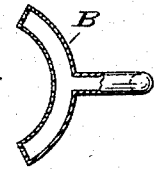


Fig. 6.



WITNESSES:

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INVENTOR

Henry O'Hara

BY Richards & R

ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY O'HARA, OF MELBOURNE, VICTORIA, ASSIGNOR OF ONE-HALF TO JOHN ALSTON WALLACE, OF SAME PLACE.

SPARK ARRESTER AND EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 527,444, dated October 16, 1894.

Application filed May 25, 1894. Serial No. 512,454. (No model.)

To all whom it may concern:

Be it known that I, HENRY O'HARA, a subject of the Queen of Great Britain, residing at Cromwell House, No. 139 Collins Street, Melbourne, in the British Colony of Victoria, have invented new and useful improvements in apparatus for arresting and extinguishing sparks and collecting the unconsumed carbon and the volatilized portion of the fumes issuing from the funnels of locomotive and other engines and from the chimneys of factory and other furnaces, of which the following is a specification.

This invention has been designed for the purpose of providing effective apparatus for arresting and extinguishing sparks as they escape from the funnels of locomotive and other engines, and from the chimneys of factory and other furnaces. It has also been designed for the purpose of preventing the escape of unconsumed carbon into the atmosphere, as is now commonly the case from factory and other chimneys, and also for the purpose of collecting the volatilized particles which are carried away with the fumes arising from the calcining or roasting of refractory and other ores. Its most marked peculiarity is that it does not interfere with the draft except in the way of increasing or improving it. Its essential novelty lies in the production of a vacuum above the top or mouth of the funnel or chimney, as the case may be, by directing one or more strong jets of steam across and immediately above the top or mouth of such funnel or chimney. This assists the draft instead of hindering or obstructing it, as in the case of most spark arresters, and furthermore it extinguishes and carries away the sparks and soot, and by reason of its moisture it causes the soot, as well as the sparks, to deposit in any convenient receptacle. When the invention is applied to kilns or furnaces for roasting or calcining refractory or other ores the volatilized particles are collected and deposited in the same way as the soot. To assist in this operation I prefer to fix one or more disks or baffle plates a short distance above the top or mouth of the funnel or chimney, so that the sparks, soot, and other volatilized particles will be deflected by it or them, and so come more directly within the influence of the steam jets. These jets may vary in number, size and shape, and they may derive their supply from any suitable source, such, for instance, as the exhaust pipe of the engine.

The accompanying drawings illustrate examples of how this invention can be carried into practice.

Figures 1 and 2 are elevations of the upper part of the funnel of a locomotive, taken at right angles to each other, and illustrating my invention in its simplest form. Fig. 3 is a vertical central section of an ordinary iron chimney, fitted with my invention, including a receptacle for the collection of the unconsumed carbon or volatilized particles. Fig. 4 is a plan, and Fig. 5 a side elevation of a nozzle which may be employed for directing the steam jet across the top or mouth of the funnel, while Fig. 6 is a horizontal section of a modified form of nozzle.

The same letters of reference indicate the same or corresponding parts in all the figures.

A represents the funnel or chimney to which my invention is to be applied, and B is the nozzle of the steam pipe, from which a jet of steam is directed immediately above and across the top or mouth of the funnel or chimney, while C represents the baffle plate or disk which is secured by brackets or other supports, D, a short distance above the top or mouth of said funnel or chimney. The effect of the jet of steam playing across the top or mouth of the funnel in conjunction with the baffle plate or disk C will be to cause the sparks to become saturated with steam and thus be extinguished before dropping on to the ground, and at the same time it alters their course.

If it is desired to save the extinguished sparks and other particles of unconsumed carbon, or the volatilized particles from roasting or calcining furnaces, they can be collected in a receptacle, E, provided for the purpose on the opposite side of the funnel or chimney to the nozzle B, the upper end of said receptacle being fitted with inclined

plates, as shown, so arranged that the sparks, &c., will be directed downward into it, or the mouth of this receptacle could be made with an inwardly projecting funnel in order to prevent the return of such sparks.

The nozzle B on the end of the steam pipe may be constructed in many different ways, as will be well understood by engineers. For instance, it may be formed by flattening the outlet from said pipe (as shown in Figs. 4 and 5), or it may consist of a short curved cross piece of pipe having perforations along its inner side, as shown in Fig. 6.

The disks or baffle plates C may be set at an incline, if so preferred, in order to direct the sparks, &c., downward, and instead of being flat they may be curved or made in any form, such as a segment of a circle, and so that they will extend from one side of the funnel or chimney to the other.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In combination with a funnel or chimney A, a steam pipe extending to the open end thereof and adapted to discharge steam across the top and a baffle plate above the chimney, said steam pipe being interposed between the end of the chimney and said baffle plate, substantially as described.

2. In combination with a chimney or funnel, a steam pipe discharging across the top thereof, a baffle plate above the end of the chimney and a receptacle alongside the chimney with an opening thereto in line with the top of the chimney opposite the position of the steam pipe, substantially as described.

HENRY O'HARA.

Witnesses:

EDWARD WATERS,

WALTER SMYTHE BAYSTON.