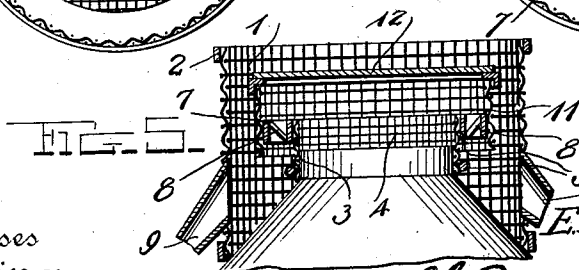
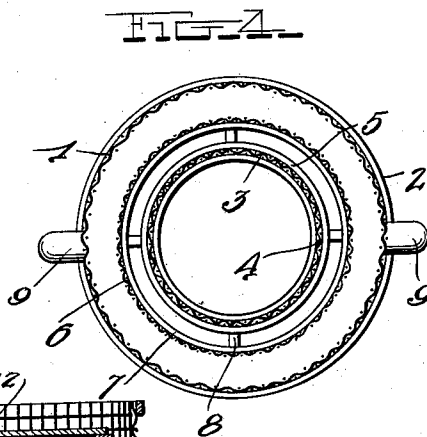
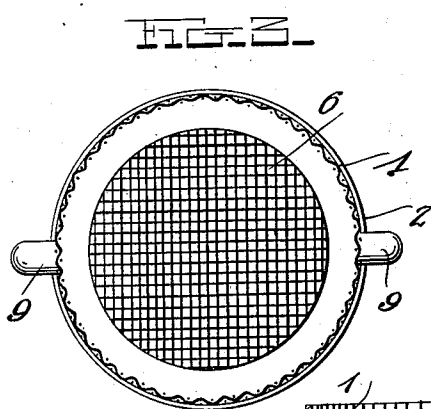
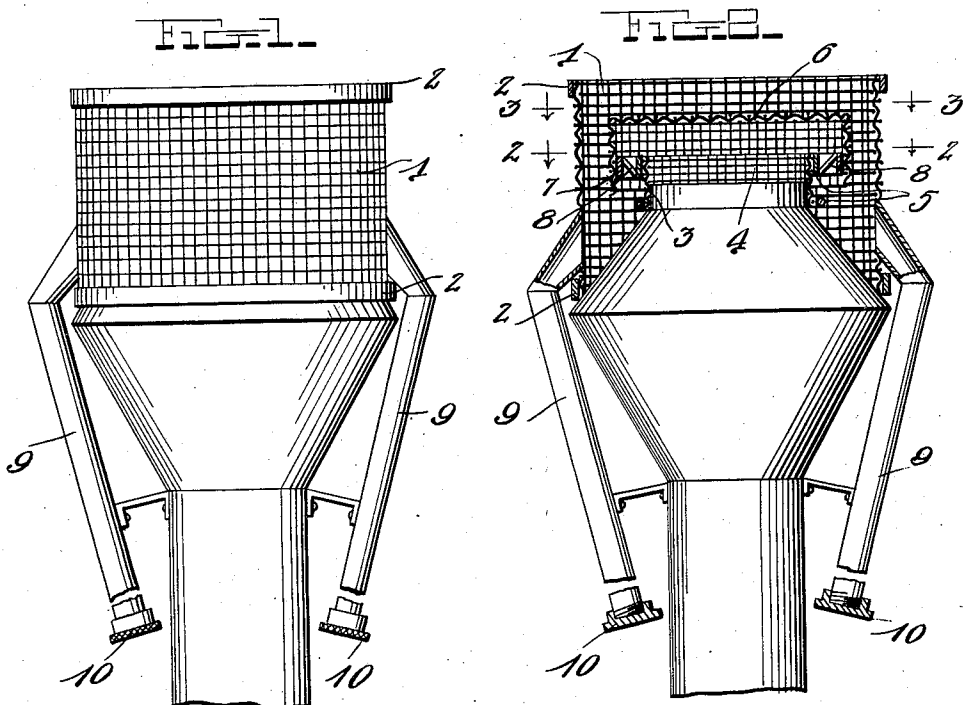


E. E. ELLSWORTH.
SPARK ARRESTER FOR SMOKE STACKS.
APPLICATION FILED MAY 25, 1911.

1,028,449.

Patented June 4, 1912.



Witnesses
J. R. Pierce
O. B. Hopkins

Inventor
E. E. Ellsworth
by *A. B. Wilson & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

ELMER E. ELLSWORTH, OF PORTLAND, OREGON, ASSIGNOR TO ELLSWORTH SPARK ARRESTER COMPANY, A CORPORATION OF OREGON.

SPARK-ARRESTER FOR SMOKE-STACKS.

1,028,449.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed May 25, 1911. Serial No. 629,323.

To all whom it may concern:

Be it known that I, ELMER E. ELLSWORTH, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Spark-Arresters for Smoke-Stacks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in spark arresters for smoke stacks.

One object of the invention is to provide a spark arrester adapted to be applied to the stacks of locomotives, traction engines or the like or to any other form of stack whereby the sparks and cinders passing through the stack will be caught and retained and which will not interfere with the draft for the free passage of smoke and steam from the stack.

Another object is to provide an improved means whereby the accumulated sparks and cinders caught by the arrester may be readily removed.

With these and other objects in view the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a side view of a smoke stack showing the application of the invention; Fig. 2 is a central vertical section of the same; Fig. 3 is a cross section on the line 3—3 of Fig. 2; Fig. 4 is a similar view on the line 2—2 of Fig. 2; Fig. 5 is a side view of the upper end of a stack showing a vertical sectional view of a modified form of the invention.

My improved spark arrester is herein shown as being applied to a locomotive smoke stack and said arrester comprises an outer or cylindrical section 1 in the form of a wire netting band the meshes of which are of such size as to prevent the passage of sparks or cinders. The section or band 1 is reinforced at its upper and lower edges by annular metal bands or rings 2 which are secured to the wire netting in any suitable manner. Arranged within the outer section 1 is an inner section 3 comprising an inner netting band 4 having reinforcing rings 5 secured to its upper and lower edges as

shown. The band 5 is adapted to fit upon the extreme upper end of the stack while the outer band or section 1 which is spaced a suitable distance from the inner section is adapted to rest on the upper surface of the funnel of the stack to which said outer section is secured in any suitable manner.

Arranged over the upper end of the stack and spaced a suitable distance therefrom and from the inner band 4 is a cap 6 formed of wire netting and having secured to the inner surface of its side walls an annular reinforcing ring or band 7. To the band or ring 7 and upper ring 5 of the inner band 4 are secured supporting brackets or plates 8 which support the cap 6 and space the same a suitable distance from the band 4 and upper end of the stack.

Connected to the outer section 1 are a series of spark or cinder conducting pipes 9, said pipes having flared upper ends and inwardly extending lower ends to the extremities of which are secured closing caps 10 whereby the cinders and sparks caught or collected by the pipes will be confined in the lower portions of the latter and may be removed therefrom when desired by removing said caps 10.

In Fig. 5 of the drawings is shown a slightly modified construction of the spark arrester which is particularly adapted for use where coal is used for fuel. In the form of the invention shown in Fig. 5 the cap 11 has its upper side in the form of a solid metal plate 12, said cap 11 otherwise corresponding to the cap 6 shown in Fig. 2 of the drawings which latter form of the cap is especially adapted for use when wood is employed for fuel.

By constructing and arranging my improved arrester as herein shown and described it will be seen that the sparks and cinders passing through the stack will strike against the caps 6 or 11 and will be deflected back into the stack or between the cap and the inner band 5 and will fall onto the funnel or upper end of the stack within the outer section 1 and will be discharged therefrom into the pipes 9 from which they may be removed in the manner described. By constructing the deflector of wire netting of the proper mesh, the smoke and steam will be permitted to readily pass from the stack and the draft through the latter

will not be impaired while all danger of fires resulting from the discharge of live sparks and cinders from the stack is entirely obviated

5 As clearly shown, the enlarged receiving ends of the pipes 7 are positioned above the lower edge or ring 2 of the cylindrical section 1, forming an annular spark and cinder retaining space above the receiving ends of
10 the pipes, whereby after the arrester has been in use for a short time, sparks and cinders will primarily fill the space between the lower edge of the hood, forming a non-conducting connection between the inclined top
15 of the stack, the latter properly directing the sparks and cinders to the pipes after the annular receiving space has been filled.

From the foregoing description taken in connection with the accompanying drawings,
20 the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be
25 resorted to without departing from the principle or sacrificing any of the advantages

of the invention as defined in the appended claim.

Having thus described my invention, what I claim is:

The combination with a smoke stack having a conically converging top, of a cylindrical screen clamped to the top of said stack, a reinforcing ring around the top of said cylindrical screen, a second ring concentric with and spaced around said first ring, brackets connecting the rings and supporting the outer one, a screen cap supported at its lower portion by said outer ring in spaced relation to the stack and inner screen, an outer screen band provided with reinforcing rings at top and bottom surrounding and spaced from said cap and resting on the inclined top of the stack, and pipes for disposing of the sparks caught. 30 35 40 45

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

ELMER E. ELLSWORTH.

Witnesses:

H. N. ALDRICH,
BERT W. BEATTY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."