(No Model.)

W. ABBOTT & D. E. HUGHES.

SPARK DEFLECTOR FOR SMOKE STACKS.

No. 590,012. Patented Sept. 14, 1897.

Fig. 1.

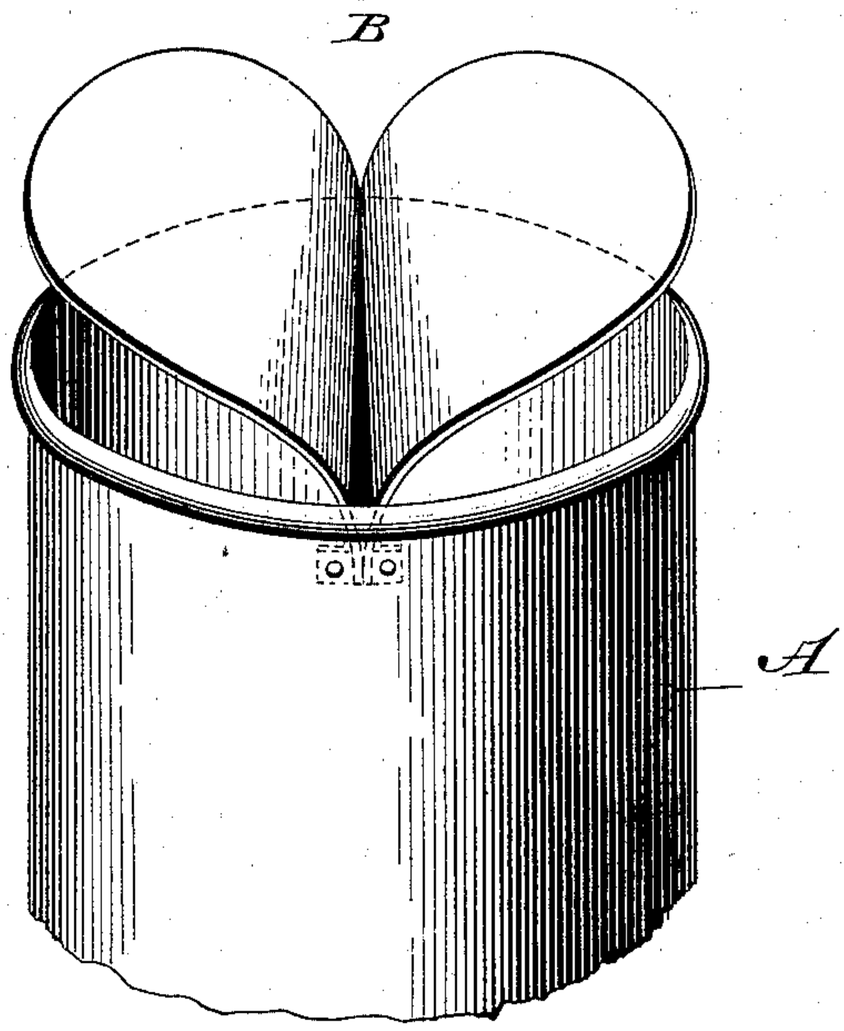


Fig. 2.

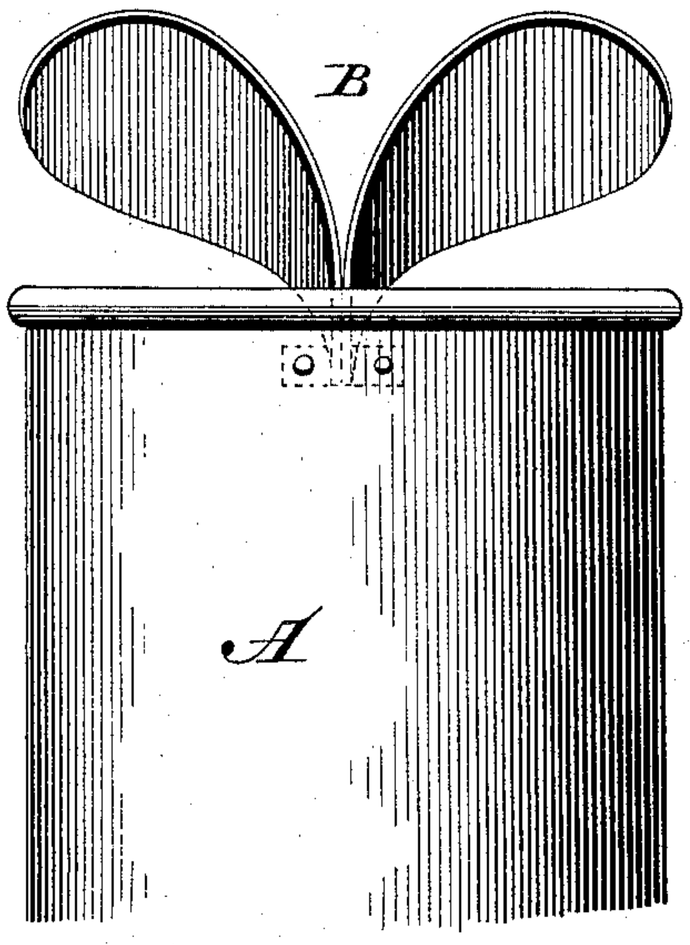
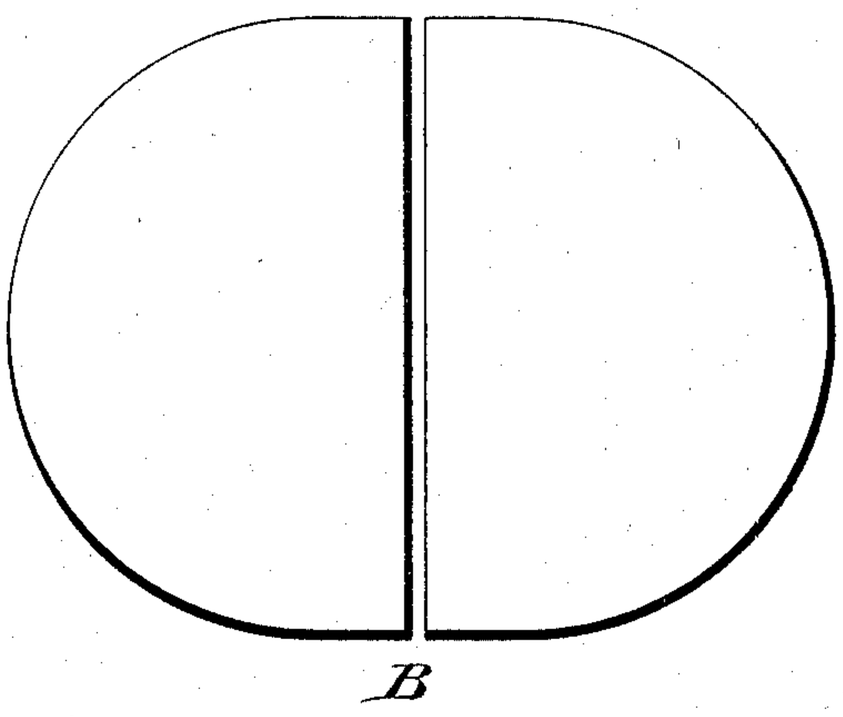


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM ABBOTT AND DANIEL E. HUGHES, OF ESPY, PENNSYLVANIA.

SPARK-DEFLECTOR FOR SMOKE-STACKS.

SPECIFICATION forming part of Letters Patent No. 590,012, dated September 14, 1897.

Application filed March 27, 1897. Serial No. 629,592. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM ABBOTT and DANIEL E. HUGHES, citizens of the United States of America, residing at Espy, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Cinder and Spark Deflectors for Smoke-Stacks; and we do hereby 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to a cinder and spark deflector for smoke-stacks.

The object is to provide a deflector of such character that in use it will operate effectively to deflect cinders and sparks escaping under exhaust-steam pressure from the smoke-stack outward and beyond the engine and cars a sufficient distance to prevent their being drawn back into the windows of the cars by the draft or suction caused by the passage of a train over the track, and, furthermore, to produce a deflector of the character described which will not interfere with the draft of the stack or extend beyond the vertical wall thereof.

In carrying our invention into effect we employ two pieces of metal, preferably of sheet-iron, semicircular in form and secured together at their straight edges. These pieces are bent and curved in such manner as to present two flukes or wings, presenting deflecting-surfaces substantially volute in shape, with the shortest curve at the rear of the stack and the longest curve at the front. By this arrangement the cinders in escaping will be divided by the edges of the pieces of metal and be deflected upward and outward. The forward impetus given them will cause them to shoot laterally a sufficient distance to clear the following cars.

The thinness of the metal employed and the disposition of the deflector within the stack is such as to avoid the presentation of any obstruction to the escape of smoke or steam or interfere with the draft of the stack.

The device may be secured in any suitable manner in the stack and may, if desired, be made removable, so as to permit of a new one being replaced for one that is broken or worn out.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts, Figure 1 is a view in perspective of a portion of a smoke-stack viewed from the rear and showing a deflector in place therein. Fig. 2 is a view viewed from the front of the stack, and Fig. 3 is a view in plan displaying the shape of the sections constituting the deflector before assemblage.

Referring to the drawings, A designates a smoke-stack which in the present embodiment of our invention will be the smoke-stack of a locomotive, although it is to be understood that the device is applicable to stationary smoke-stacks as well.

B designates the deflector, consisting of two sections, each semicircular or approximately so in plan. In constructing the deflector these two sections are secured together along their straight edges, as by being riveted or otherwise, and are then bent or curved to the form shown in Fig. 1, which is substantially obcordate in shape when viewed in perspective—that is to say, the two leaves or sections are bent to form substantially two volutes with the greatest curve at the rear of the stack and the smallest curve at the front, this arrangement being adopted for the reason that the downdraft through the stack caused by the movement of the engine will naturally cause the escaping cinders to hug the rear wall of the stack, so that if the curves of the deflector were long at the rear portion of the stack the effect would be that the cinders would be deflected only to such an extent as to cause them possibly to clear the locomotive, but not the cars. By having the greatest curve therefore at the rear the cinders will be forced forward to the front of the stack and thence escape laterally and be scattered wide of the locomotive a sufficient distance therefrom to clear the cars no matter at what speed the train may be running.

In placing the deflector it will simply be necessary to arrange it centrally of the stack and with the line formed by the meeting edges of the sections parallel with the long diameter of the boiler. It may be secured in

the stack in any suitable manner, as by providing L-shaped cleats riveted to the interior of the stack and to the sides of the deflector.

While we have described the deflector as made of two pieces of metal, it is to be understood that we do not limit our invention to this precise construction, as a single piece of metal may be made to answer the same purpose.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A cinder-deflector for locomotive smoke-stacks comprising two wings or flukes each bent in the arc of a circle or volute so as to extend in opposite directions upwardly and outwardly immediately over the stack, said wings or flukes inclining from the front downwardly, substantially as shown.

2. A spark and cinder deflector for locomotive smoke-stacks comprising two substantially semicircular plates bent to present inverted arcs which spring in opposite directions upwardly and outwardly from the straight edges of the plates, said straight edges abutting and being connected at their ends to the inner walls of the smoke-stack on different planes so that the inverted arcs or plates will incline from their forward edges downwardly, the plates carried by the stack being of such a size that they do not project materially beyond the wall of the stack, substantially as shown and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM ABBOTT.
DANIEL E. HUGHES.

Witnesses:
JOHN N. GORDON,
RUSH ZAN.