

(No Model.)

G. R. HENDERSON.
LOCOMOTIVE SMOKE BOX.

No. 328,674.

Patented Oct. 20, 1885.

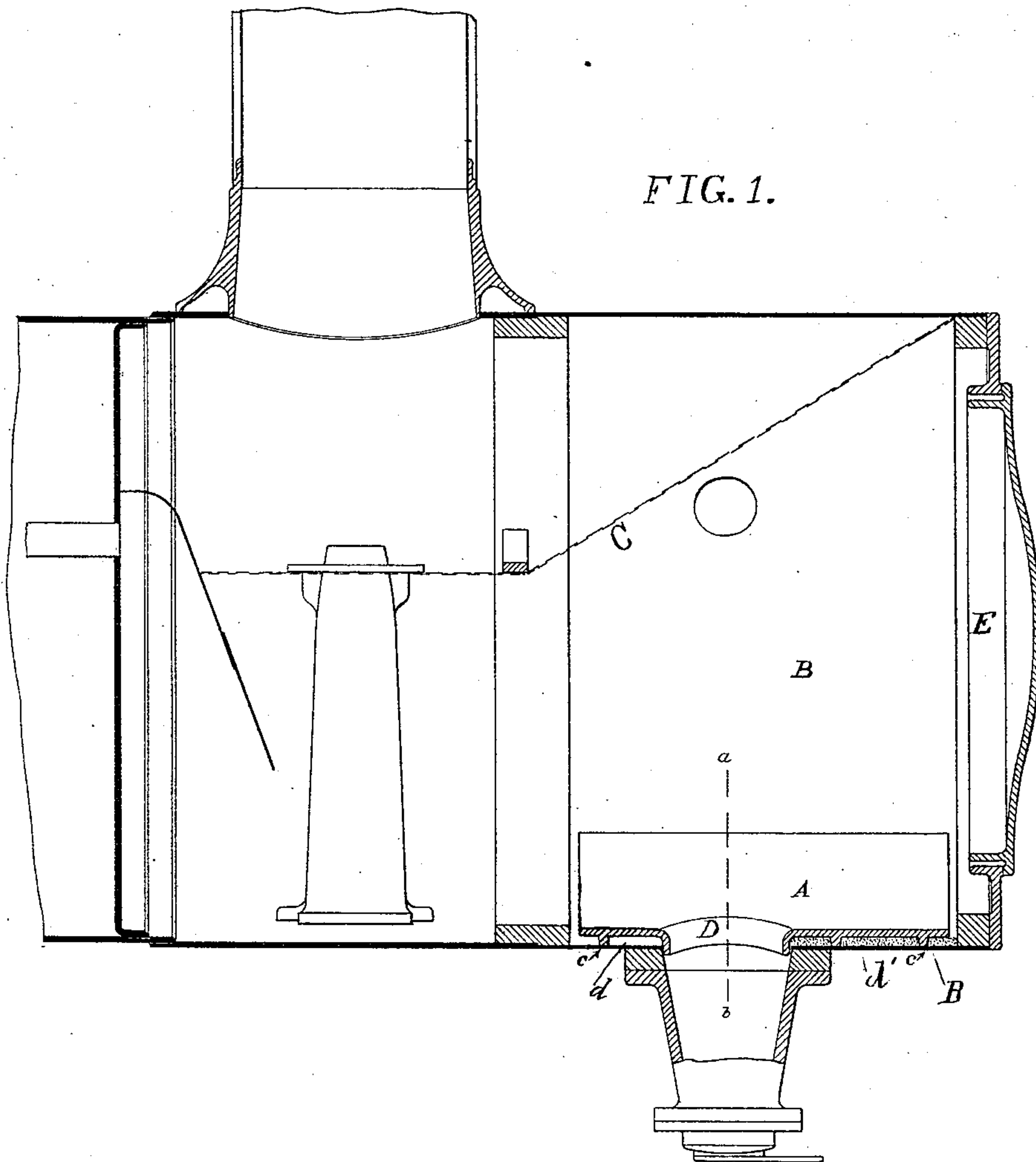
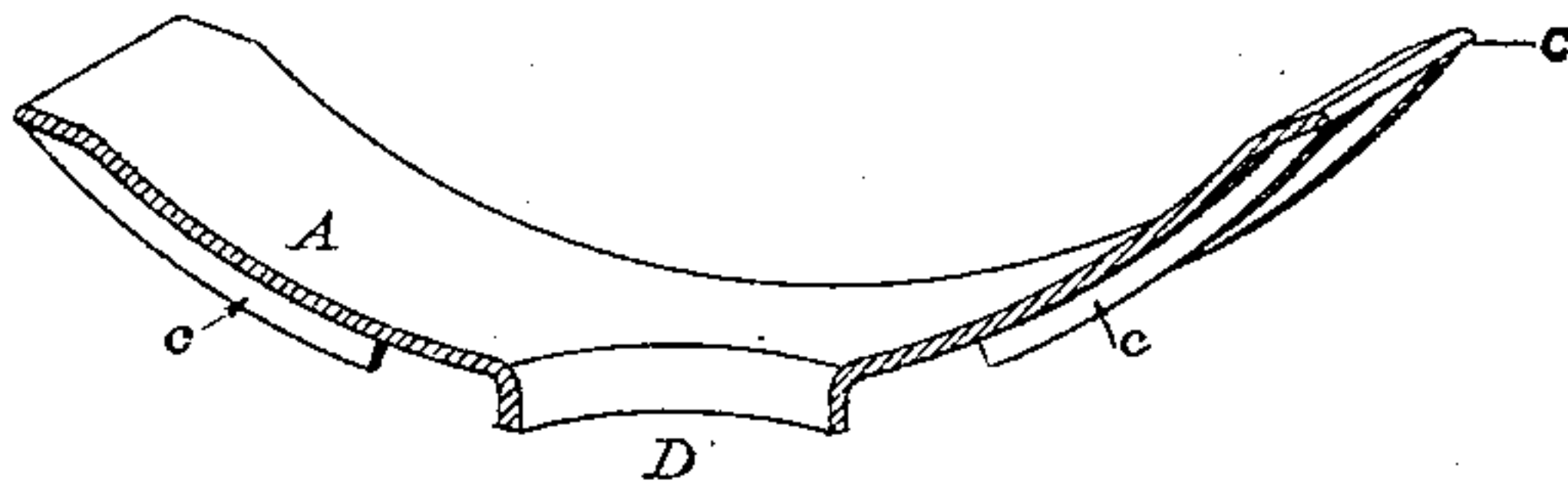


FIG. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE R. HENDERSON, OF ALTOONA, PENNSYLVANIA.

LOCOMOTIVE SMOKE-BOX.

SPECIFICATION forming part of Letters Patent No. 328,674, dated October 20, 1885.

Application filed June 15, 1885. Serial No. 168,697. (No model.)

To all whom-it may concern:

Be it known that I, GEORGE R. HENDERSON, a citizen of the United States, residing at Altoona, county of Blair, State of Pennsylvania, have invented an Improvement in Locomotive Smoke-Boxes, of which the following is a full and accurate description, reference being had to the drawings, which form part of this specification.

My invention has reference to locomotives provided with extended smoke-boxes in which, as is well known, the unburned coal carried forward and deposited by the blast frequently becomes ignited and so intensely hot as to burn and injure the sheet composing the wall of the extended smoke-box.

The object of my invention is to protect and prevent the injury or destruction of this sheet. This I accomplish by placing in the bottom of the smoke-box a protecting-plate or false bottom, preferably of cast-iron, conforming in general outline to the shape of the box and extended high enough on its sides to protect those parts of plate which are liable to be burned. This protecting-plate, while similar in general outline to the parts of the smoke-box which it protects, does not fit closely upon the plate, but is supported upon it by means of projections or flanges, so as to leave a space between it and the true walls of the smoke-box, and this space I prefer to fill with some good non-conducting material.

Reference being now had to the drawings, Figure 1 is a longitudinal section of the front end of a locomotive provided with an extended smoke-box and having my improvement. Fig. 2 is a perspective view of my protecting-plate on the line *a b*.

A is the protecting-plate; B, the plate composing the true wall of the extended smoke-box. C is the wire-netting which prevents the escape of the unburned coal through the stack. D is the hopper through which the coal, &c., deposited in the extended smoke-box is removed. E is the man-hole in the front of the smoke-box. *c c* are the projections or flanges by which the protecting-plate A is supported on the wall B of the smoke-box. *d d'* is the space between the protecting-plate and the plate B, and which I prefer to fill with non-conducting material, as shown at *d'*.

The protecting-plate A can be easily and

cheaply made, and readily inserted in and removed from the smoke-box through the man-hole E. It is of course evident that the protecting-plate A may be made in two or more pieces, and such a construction may sometimes be advisable to facilitate its removal.

It will of course be evident that while my invention is particularly adapted to locomotive-engines, it will also be useful as applied to any boiler provided with a spark-arrester and smoke-box.

I am aware that in United States Patent No. 226,231, of April 6, 1880, a roughened plate is shown at the bottom of the smoke-box; but as shown and described in said patent this plate is but one of a number of triturating and pulverizing devices which are designed to reduce the cinder to powder and compel its escape from the smoke-box, while in my device the cinder is retained in the box, and the protecting-plate A is provided and arranged, as described, so that the combustion of the coal in the box may not injure its walls.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In the smoke-box of a locomotive or other boiler, the combination of the sheet B, composing the wall or shell of the smoke-box, with a protecting-plate, A, so supported on the wall of the smoke-box as to leave a space, *d*, between it and the sheet B, substantially as and for the purpose specified.

2. In the smoke-box of a locomotive or other boiler, the combination of the sheet B, composing the wall or shell of the smoke-box, with a protecting-plate, A, conforming in general shape to the wall of the smoke-box and separated from it by a layer of non-conducting material, all substantially as and for the purpose specified.

3. In the smoke-box of a locomotive or other boiler, the combination of the plate B, composing the wall or shell of the smoke-box, with a protecting-plate, A, having ribs or projection *c*, whereby it is kept at a distance from the sheet B, substantially as shown and described.

GEO. R. HENDERSON.

Witnesses:

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