

R. N. WILLIAMS.

Improvement in Spark-Arresters.

No. 128,693.

Patented July 2, 1872.

Fig. 1.

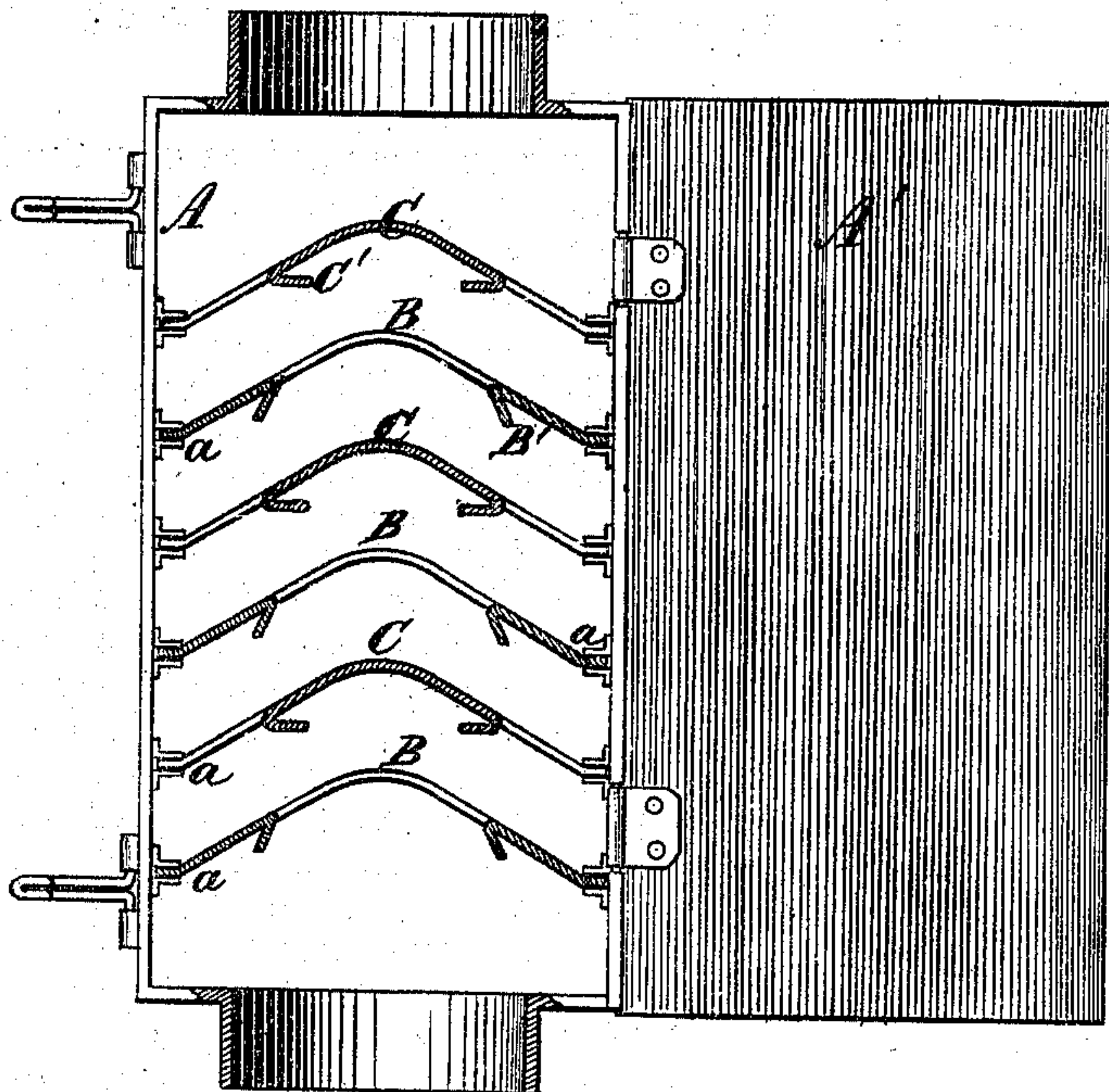


Fig. 2.

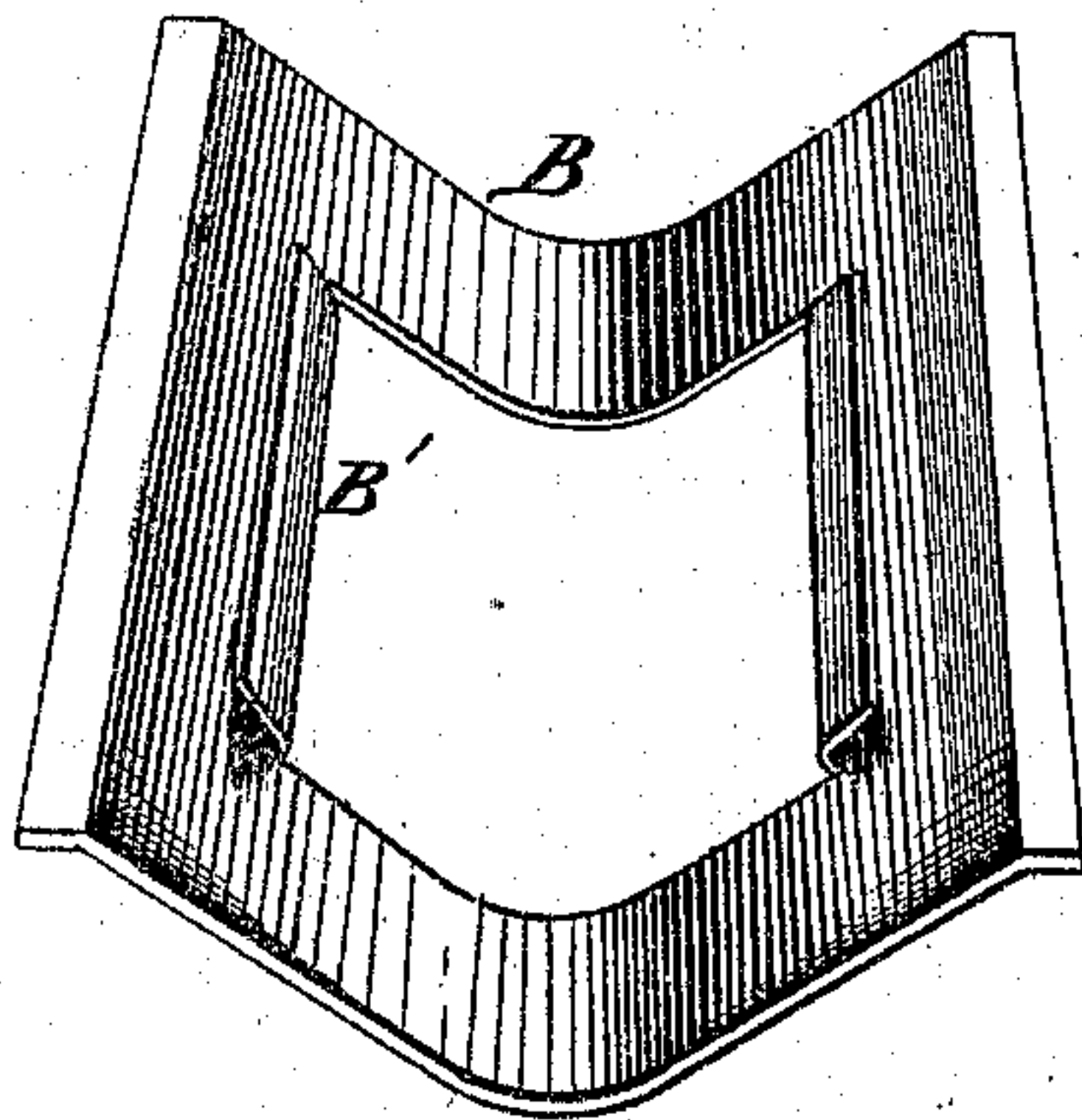
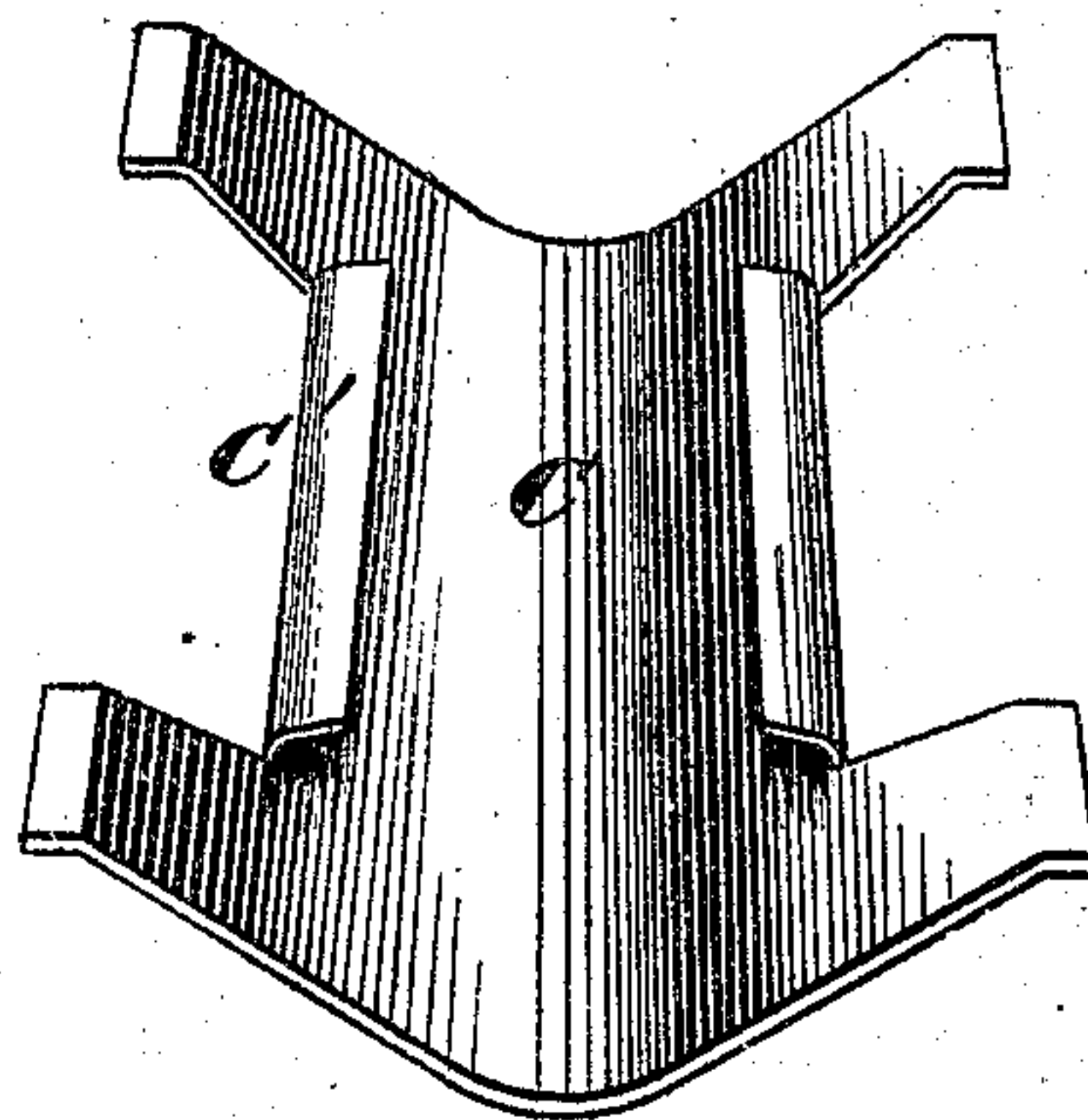


Fig. 3.



Witnesses.

A. Ryppert
J. Wm. Hester

Inventor.

R. N. Williams
Edw. D. Dyer
Attorneys

UNITED STATES PATENT OFFICE.

ROBERT N. WILLIAMS, OF LEWISTOWN, PENNSYLVANIA.

IMPROVEMENT IN SPARK-ARRESTERS.

Specification forming part of Letters Patent No. 128,693, dated July 2, 1872.

Specification describing a certain Improvement in Spark-Arresters, invented by R. N. WILLIAMS, residing at Lewistown, in the county of Mifflin and State of Pennsylvania.

The subject of my invention is a spark-arrester, which is more especially designed for use in connection with stoves and furnaces, but which is equally well adapted for the smoke-stacks of locomotive and marine boilers. My improvement consists in the employment in a suitable chamber, to be attached to the flue or stack, of a series of concavo-convex shelves or deflectors, through which the unconsumed products of combustion are made to pass in a tortuous manner, every alternate deflector having an opening in the center, while the intermediate ones are constructed with openings near each end. Thus in passing up through one of the deflectors the products of combustion strike the solid portions of the next one above before they are allowed to pass through it, causing the separation of the sparks and cinders from the lighter smoke, and their deposition upon the deflectors. To still further increase the efficiency of the device I form projecting lips or flanges upon the under side of the deflectors near the openings therein, so as to form eddies at those points.

Figure 1 is a sectional elevation of my improved spark-arrester, showing the door of the chamber swung open. Figs. 2 and 3 represent in perspective the two forms of concavo-convex deflectors employed in the construction of the spark-arrester.

The chamber A is provided with a short end of pipe at each end for connection to the smoke-pipe. It is preferably made square, though it may have any other desired form in cross-section, and provided with a door, B, through which access may be had to its interior for the purpose of cleaning it and removing the deposits on the shelves or deflectors B and C. These are made of the concavo-convex form indicated, with horizontal flanges to

enter between guides *a* on the interior of the chamber, by which they are firmly held in place. In arranging them in the chamber, they are disposed with their convex side up, as shown, and any number, from two upward, may be employed, according to circumstances. The deflectors B are provided with an opening in the center, while in those marked C two openings are formed, one in each end, the combined areas of such two openings being about equal to the one in the deflectors marked B, and the openings in the several deflectors stand in such relation to one another that the unconsumed products of combustion are compelled to pass in a tortuous manner through the chamber, striking against the solid portions of each deflector, which causes the proper separation of the sparks and cinders. These are deposited upon the several deflectors, and must be removed from time to time. B' and C' refer to projecting flanges upon the under side of the deflectors, which form recesses in connection therewith to aid in arresting the solid or heavier particles carried up with the smoke. The form of the deflectors may be somewhat modified, but as long as they are in the form of an inverted trough they will act substantially like those shown, and, consequently, be substantially the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the case A and concavo-convex deflectors B and C, substantially as and for the purpose specified.

2. The projecting lips or flanges on the under side of the deflectors, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name this 11th day of March, A. D. 1872, in the presence of two subscribing witnesses.

ROBERT N. WILLIAMS.

Witnesses:

GEO. MURREY,
JOHN L. HIMES.