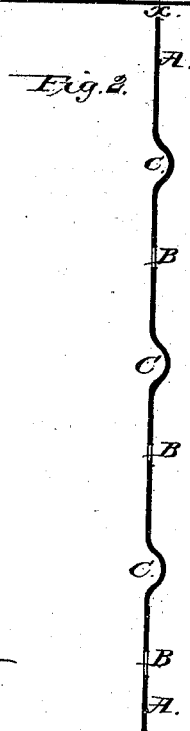
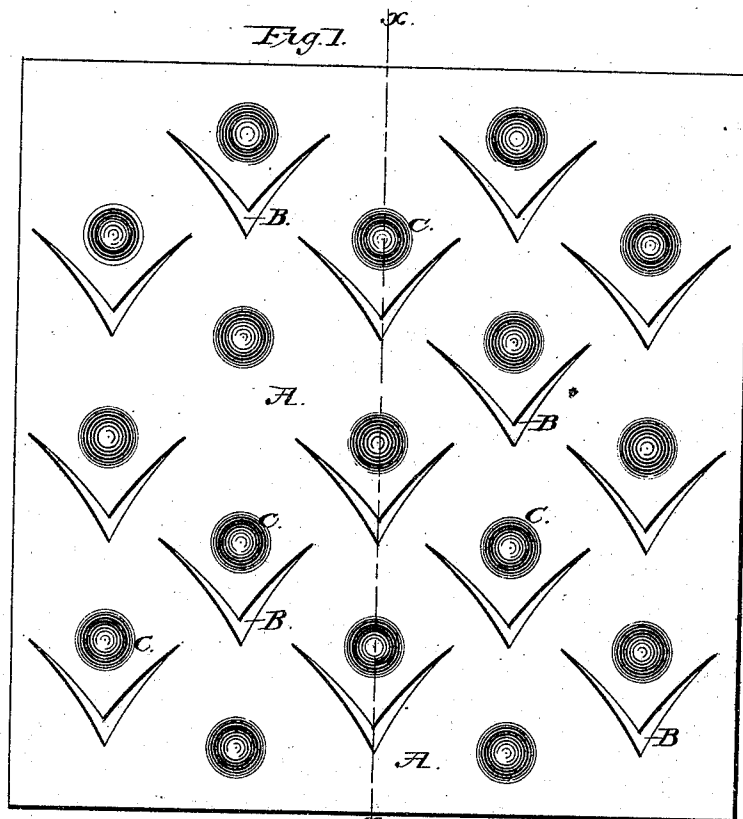


G. HAYES.

SHEET-METAL PLATES FOR SHUTTERS, &c.

No. 173,783.

Patented Feb. 22, 1876.



Witnesses:

Amson Hacker.
William Dyatt.

Inventor:

George Hayes.

UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

IMPROVEMENT IN SHEET-METAL PLATES FOR SHUTTERS, &c.

Specification forming part of Letters Patent No. **173,783**, dated February 22, 1876; application filed November 18, 1875.

CASE C.

To all whom it may concern :

Be it known that I, GEORGE HAYES, of No. 71 Eighth Avenue, in the city, county, and State of New York, have invented a new and useful Improvement in Sheet-Metal Plates for the outside covering of Fire-Proof Shutters, doors, or the panels of doors, for the inclosing of public urinals, and water-closets, and for any other required purpose.

My improvement relates to metal plates indented or embossed and pierced or punctured. These punctured openings and indentations are so peculiarly made that they impart strength to the plates, and their being ranged in an alternate or irregular position in the plate offering no impediment while expanding or contracting, causing no derangement of the surface, and taking out of it all uneven or buckled or puckered appearance, rendering the plates as strong and equal to plates that are corrugated, without reducing the area of the plate, as it does in the process of corrugating; consequently a saving of metal is effected. The present process of straightening or removing the buckle from a plain sheet of metal occupies considerable time and labor, and can only be done by the most skilled mechanic, and as my plates are straightened, embossed, and punctured at the same time a saving of both labor and material is obtained.

These metal plates, when pierced or punctured, will exclude the direct rays of the sun and rain, will admit of light and air, and will resist fire longer than any other plate, whether plain or corrugated.

My improvement consists of a plate of

metal which, by a peculiar process, I puncture and indent throughout the whole or part of the surface without regard to any particular number, or spacing, or position of the punctures or indentations. The puncture is of a V form, the point being downward, and the sides which are cut through diverge from the point in an upward-curvilinear direction, terminating three-fourths of an inch from the point, more or less. The cutters or tools with which this puncture is made have two sides, made sharp for the purpose of cutting through the metal, while the third or upper side of the tool is blunt and does not cut, and imparts to the metal plates an embossed as well as punctured surface. I also indent the sheet below each point of the puncture, giving additional strength to the sheet, and affording additional allowance for expansion and contraction.

Referring to the accompanying drawing, Figure 1 represents front view of plate. Fig. 2 represents a vertical section of same.

Similar letters of reference indicate corresponding parts.

A, the plate proper; B, the punctures; C, the indentations.

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

A new article of manufacture, consisting of a plate of metal, punctured or pierced and embossed or indented, as herein described.

GEORGE HAYES.

Witnesses:

AMSON HACKER,
WILLIAM DYATT.