

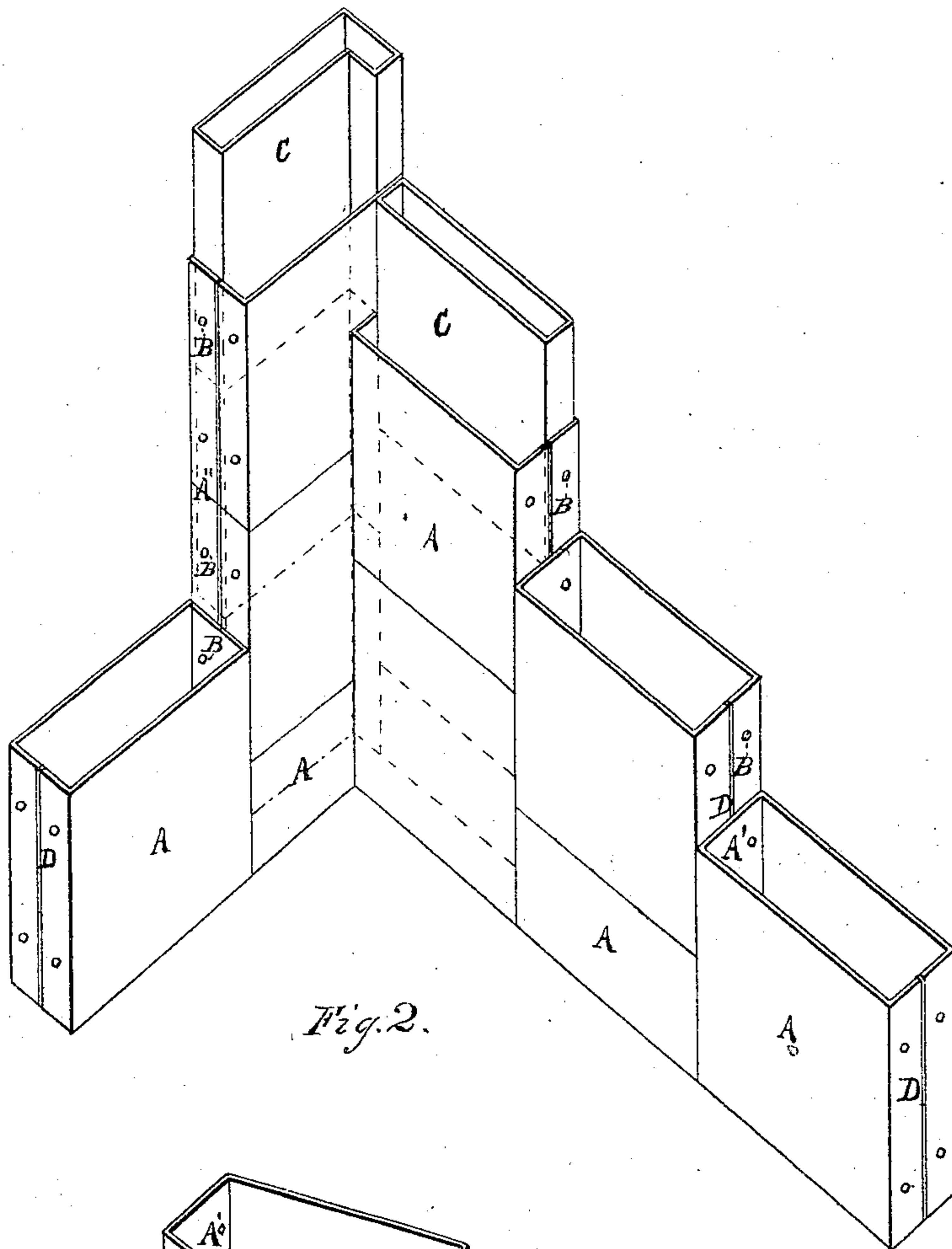
W. BESCHKE.

Construction of Buildings.

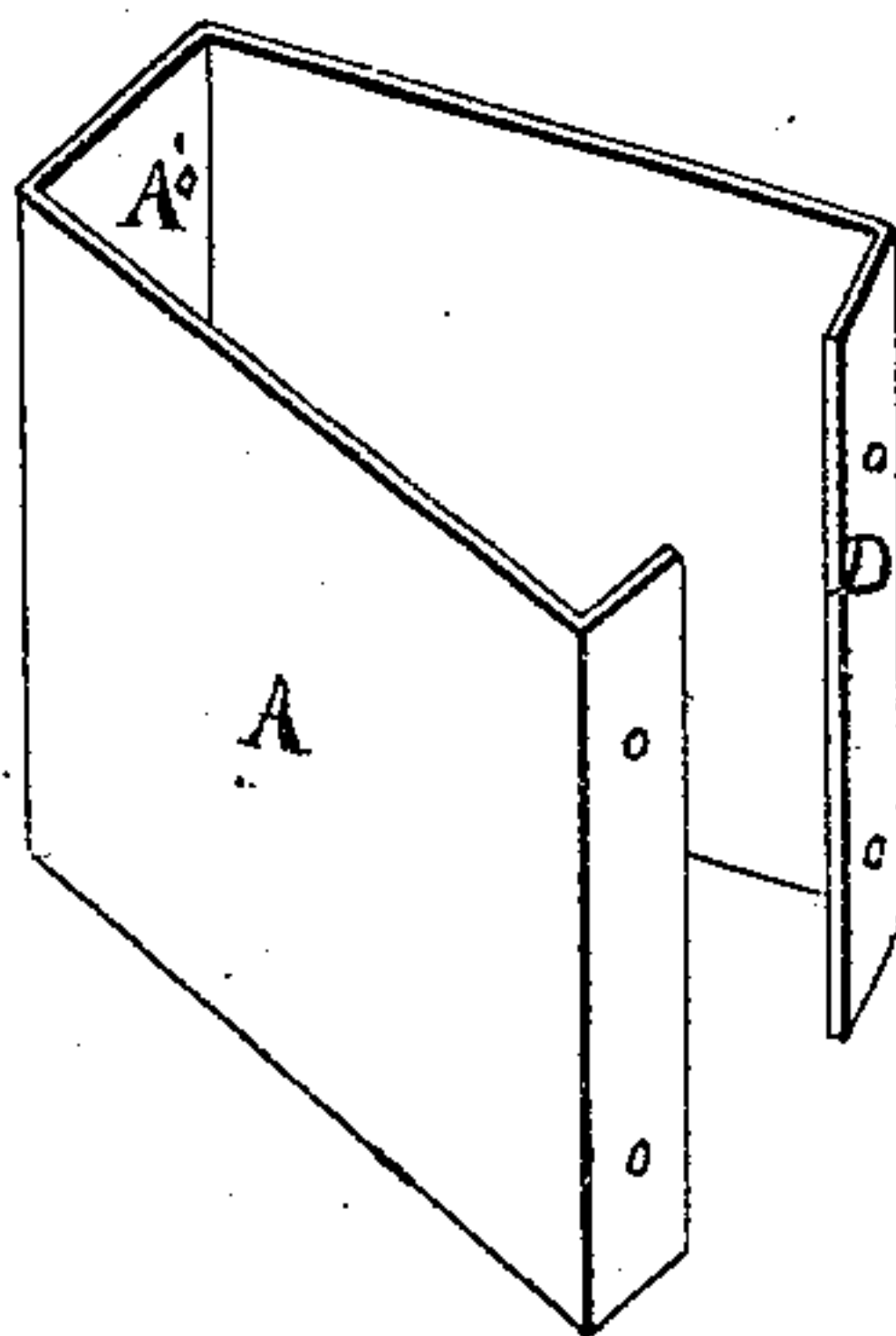
No. 136,407.

Patented March 4, 1873.

*Fig. 1.*



*Fig. 2.*



Witnesses.

H. W. Howard  
George R. Patterson

Inventor.

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# UNITED STATES PATENT OFFICE.

WILLIAM BESCHKE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF HIS RIGHT TO SAMUEL SELLERS, OF SAME PLACE.

## IMPROVEMENT IN CONSTRUCTION OF BUILDINGS.

Specification forming part of Letters Patent No. 136,407, dated March 4, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM BESCHKE, of Philadelphia, State of Pennsylvania, have invented a new and Improved Method of Uniting and Binding Building Materials, when such materials are in the form of square, polygonal, or cylindrical hollow sections, of which the following is a specification:

My invention consists of a building or other structure composed of hollow sections of metal so arranged that, when said material is used in sheet form, the equalization of the strength of the connection between the sections is secured by covering with full surfaces joints made by the meeting ends of sheets shaped as sections, substantially as described in the specification; also, in so arranging these hollow sections in series that the continuous joints are vertical and the short broken joints are horizontal, the sections which are open at the top and bottom being thus made to support one another, and each section of each series breaks or covers the horizontal joints between the adjacent sections in each neighboring series. There may be other hollow sections inside these external sections to give increased strength.

In the accompanying drawing I have shown a wall constructed of square or nearly square sections of iron, in this case bent wrought-iron, which I will suppose to be the substance used, though the hollow sections may be formed of cast-iron and other fire-proof materials.

Figure 1 is a perspective view of two walls of a building, showing my improved arrangement and mode of construction; Fig. 2, a detached view of a hollow wrought-iron section.

A are the hollow sections; B, the rivets; C, the interior hollow sections, forming flues or tubes for heating and ventilating. D are the joints formed by the edges of the sheet or plate metal used to form section A.

When the wrought-iron is used, the sheet is first bent into the desired shape, a rectangle in section being preferred, as shown at A. The sections are then set on end, as in Fig. 1, the open ends being at the top and bottom, and they are so arranged with respect to each other that the flat full surface A, Fig. 2, of each section breaks or covers the joint D in the end of each adjacent section, and, also, so

that each section in each vertical series breaks or covers the horizontal joints of the adjacent sections in the neighboring series; a double breaking of joints thus occurs. Simultaneously with the erection of these external sections A the somewhat similar internal sections C are erected, each internal section breaking or covering the horizontal joint of the surrounding sections. These internal sections C form flues or tubes for heating, and at the same time brace and support the external sections A, as desired. If the building is to be very large it would be advisable to use them in all of the sections to get the increased strength.

When it is desired to make a curved structure or building the sections may be curved accordingly to a cylindrical concave on the inner side and a cylindrical convex on the outer side, or the reverse.

The same series of sections may be employed horizontally in the construction of the floors and roof as I have above described for the walls; or the sections may be polygonal in shape, by preference hexagonal. In the latter case the sections are open at the bottom and top and joined at the sides. The whole forms a floor or roof of great lightness with vast supporting strength.

I prefer to cover the floors and roof, especially when the open-work of polygonal form is used, with metallic or other plates which break joints with each other; these plates to be in two layers, the lower layer laid flat on the floor or the roof, so applied that each plate breaks joint with its neighbor, and the upper layer so applied that each plate in it not only breaks joint with its neighbor, but also breaks or covers the joints of the underlying plates.

Though I describe this arrangement, I do not claim it as new.

The advantage of setting the sections A on their ends is, that they will bear more weight and pressure, and they break joints, as shown in Fig. 1, the continuous joints of the series being vertical, and the short broken joints horizontal.

The sections may be made of any suitable metal, though I prefer iron or other fire-proof or incombustible material of like nature, and may be shaped into either a square, cylindrical, or polygonal form.



The sections or the building may be used as a skeleton to be covered, coated, lined, or filled with plates, cement, or any material, either fire-proof, or both fire and water proof.

A building constructed as above described may be unscrewed, taken down, and transported with ease without injury to any of the parts.

The sections may be galvanized before being used—that is, when made of iron.

I wish it distinctly understood that I do not claim, broadly, the use of hollow sections for building purposes, being well aware that the same have before been used in various forms.

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

1. In a structure composed of hollow sections of metal or similar fire-proof material, if used in sheet form, the equalization of the strength of the connection of the sections by covering with full surfaces joints made by the meeting ends of sheets shaped as sections, substantially as described.

2. In a building or structure composed of a series of hollow sections, the arrangement of these series so that the continuous joints are vertical and the short broken joints are horizontal, substantially as described.

WILLIAM BESCHKE.

Witnesses:

H. V. BUCKLEY,

W. H. REDHEFFER.