

(No Model.)

E. M. BUTZ.

STRUCTURAL SHAPE FOR BEAMS, GIRDERS, &c.

No. 304,781.

Patented Sept. 9, 1884.

Fig. 1.

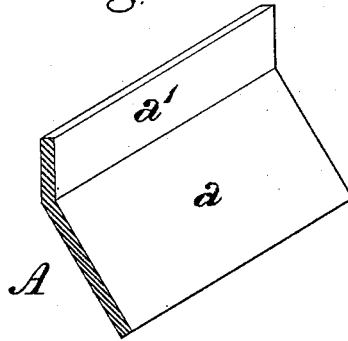
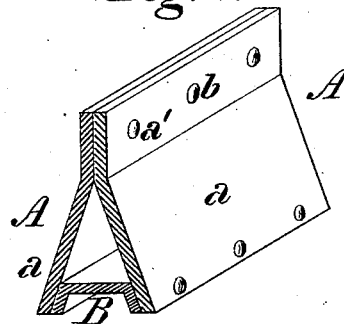


Fig. 2.



WITNESSES:

J. Thomson Bell.
C. M. Clark.

INVENTOR.

Edward M. Butz,
BY *George H. Christy*
ATTORNEY.

UNITED STATES PATENT OFFICE.

EDWARD M. BUTZ, OF ALLEGHENY, PENNSYLVANIA.

STRUCTURAL SHAPE FOR BEAMS, GIRDERS, &c.

SPECIFICATION forming part of Letters Patent No. 304,781, dated September 9, 1884.

Application filed December 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. BUTZ, a citizen of the United States, residing at Allegheny, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Structural Shapes for Beams, Girders, &c.; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a section in perspective of a metal shape plate or bar adapted for use in beams or girders embodying my invention, and Fig. 2 a similar section of a beam illustrating an application thereof.

The object of my invention is to provide a beam or girder which will possess the qualities of strength, lightness, and capacity to act as a skewback or abutment for arches in buildings and other structures.

The improvement claimed is hereinafter fully set forth.

To carry out my invention, I form of rolled metal a plate, A, of the shape in section shown in the figures—to wit, that of a flattened V, having a longer side or inclined portion, *a*, inclined at an obtuse angle to its shorter side *a'*—which, in use, is designed to stand vertically, and will be therefore termed its “vertical” portion. Said plate so shaped, Fig. 1, may, under certain conditions, constitute singly the web of a beam or girder, but is employed under my present invention as a lateral member in a built or composite beam or girder proper for buildings, bridges, or other structural purposes, as shown in Fig. 2, in which two of the shapes A, before described, the inclined portions *a* of which are bent in opposite directions, respectively, relatively to

their vertical portions *a'*, are connected together at a suitable distance from the outer edges of said vertical portions, by bolts or rivets *b*, passing through the latter, and are similarly secured at their opposite sides to a connecting channel-plate or web, B, thereby forming a hollow composite beam, having an inclined face, *a*, on the lower portion of each side of its web. In a beam of such construction, when employed as a supporting-girder for a fire-proof floor and ceiling, the outer faces of the inclined portions *a* may serve as skewbacks or abutments for arches sprung from one girder to another, and the space between the inner surface of said inclined portions may be utilized as an air-chamber for promoting the maintenance of normal temperature in the girder. The combination of a girder, having inclined faces on its web and an intermediate space, with other members of a floor and ceiling, is illustrated by me in an application for Letters Patent, Serial No. 114,427, for improvements in fire-proof buildings, of even date herewith, the specific construction of such girder being set forth in another application, Serial No. 114,429, also of even date herewith, and marked “Case B.”

I claim herein as my invention—

The combination, in a composite beam or girder, of two metal plates of the shape or section described, said plates being united directly through their vertical portions and intermediately by a plate connecting their inclined portions adjacent to the outer edges thereof, substantially as set forth.

In testimony whereof I have hereunto set my hand.

EDWARD M. BUTZ.

Witnesses:

J. SNOWDEN BELL,
R. H. WHITTLESEY.