

(No Model.)

E. M. BUTZ.

STRUCTURAL SHAPE FOR BEAMS, GIRDERS, &c.

No. 304,783.

Patented Sept. 9, 1884.

Fig. 1.

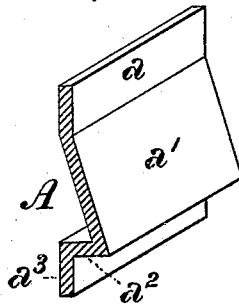
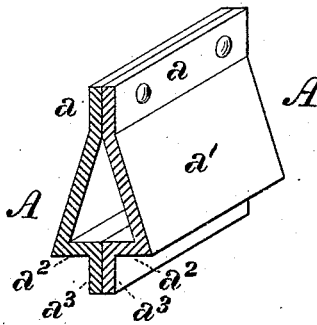


Fig. 2.



WITNESSES:

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STRUCTURAL SHAPE FOR BEAMS, GIRDERS, &c.

SPECIFICATION forming part of Letters Patent No. 304,783, 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 formed of two shapes, of section as shown in Fig. 1, having their inclined portions extending in opposite directions, respectively.

My invention relates to shapes for metal plates or bars adapted to use in beams or girders for buildings and other structures; and its object is to provide a light and strong beam having inclined sides or faces on its web, and suitable strengthening members above and below said inclined sides.

The improvements claimed are 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, having a continuous body bent into four different planes, arranged relatively as follows: The two outer portions, a and a^3 , of the plate A, which are designed to stand vertically when in use in a beam, and hence may be termed its “vertical portions,” are in or substantially in line with each other, or in parallel planes, and of the two inter-

mediate portions one, a' , is bent or inclined at an obtuse angle to the upper vertical portion, a , and the other, a^2 , bent so as to connect the lower side of the inclined portion a with the upper side of the vertical portion a^3 , thus providing in the plate an upper and a lower vertical web, an inclined web, and a transverse web. A plate so shaped may be used singly as the web of a beam or girder, but is preferably employed as a member of a built or composite beam or girder, as shown in Fig. 2, which illustrates a beam formed by the connection of two plates of the shape above described, with their inclined portions bent in reverse directions, respectively, and abutting by their vertical webs.

I claim herein as my invention—

1. A structural metal plate of shape or section as described, adapted to use in a beam or girder, the same having a continuous body bent into four different planes, and presenting in succession an upper vertical web, an inclined web, a transverse web, and a lower vertical web, substantially as and for the purpose set forth.

2. The combination, in a composite beam or girder, of two metal plates of the shape or section described, having their inclined webs bent in opposite directions, respectively, and having their vertical webs abutting one against the other, substantially as set forth.

In testimony whereof I have hereunto set my hand.

EDWARD M. BUTZ.

Witnesses:

J. SNOWDEN BELL,
R. H. WHITTLESEY.