

(No Model.)

T. S. WHITE.
STRUCTURAL IRON FORM.

No. 496,464.

Patented May 2, 1893.

Fig. 1.

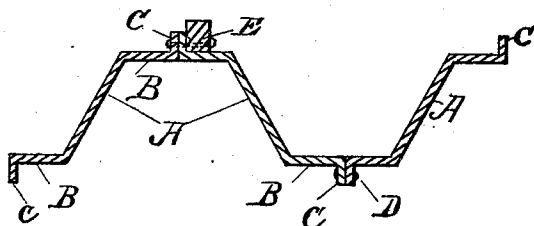


Fig. 2.

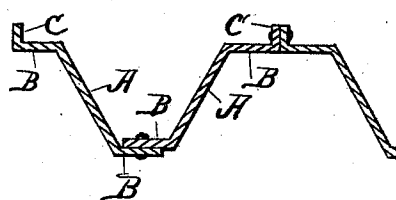


Fig. 3.

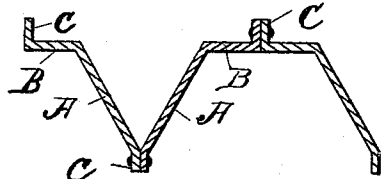
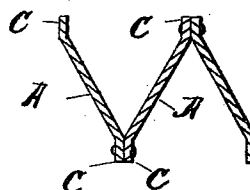


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

TIMOTHY SIDNEY WHITE, OF BEAVER FALLS, PENNSYLVANIA.

STRUCTURAL IRON FORM.

SPECIFICATION forming part of Letters Patent No. 496,464, dated May 2, 1893.

Application filed February 20, 1893. Serial No. 463,047. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY SIDNEY WHITE, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Structural Iron Forms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide a structural iron unit that may be united to like or dissimilar units to form a structural member, and that shall lead to the combination of great strength and economy of material and labor, in structures for which it is adapted.

A further and more specific object is to provide a unit that may be laid alongside like units and riveted to them to form a light, compound floor beam, of any desired width, usually corresponding to the width of the floor to be supported, and adapted to take the place of the series of heavy beams and connecting arches commonly employed in fire-proof construction and elsewhere. To attain these ends it is necessary to have a unit that may be readily rolled and easily secured to other units, that has great strength in proportion to material employed, and that has such unusual lateral reach that it may with economy be used to form a laterally continuous floor support and in this specification the phrase "laterally continuous girder" is used to denote a girder of this general class.

Referring, now, to the accompanying drawings which form a part of this specification:—Figure 1 is a cross section of such structural units laid side by side and united by rivets. Figs. 2, 3, 4, are like views of slightly modified forms of such units.

The broad idea of this invention, found in all the forms, is the use of a plane beam provided with flanges adapted to be secured to like beams, lying alongside the first, in such manner that all the beams may be rigidly united and held in planes oblique to the plane of the floor or partition in which they lie or which they form. Preferably, the flanges, when not themselves horizontal or parallel to the plane of the continuous girder, are con-

ected to the sides of the main web by integrally formed plane minor webs parallel to that plane. Units of such construction are shown in Fig. 1. In this figure, A, A, A are the central webs of several units as they appear when properly united to form a laterally continuous floor girder, and B, B, B are horizontal minor webs integrally connecting them to vertical uniting flanges C, C, C. The units are identical but alternate ones are reversed so as to bring the flanges together in pairs with the central webs inclined in succession in opposite directions. The flanges when thus brought together are rigidly united, preferably by rivets D. The series of units may be of any desired number according to the lateral span desired. Evidently, the lateral reach of each unit is dependent upon the inclination of the central web and the width of the horizontal minor webs, and slightly also upon the thickness of the parts. These elements may be varied according to the requirements of the particular use for which the units are intended. For example, in many vertical walls and partitions the obliquity and the width of the minor webs may both be comparatively great.

It is to be observed that the units may be as readily rolled as common Z-bars or corrugated iron, that few pieces and few rivets are required, and that all the components are excellently arranged to resist strain, especially since the parts parallel to the girder's plane give absolute rigidity laterally. Concrete and tiles may be placed upon the continuous floor girder precisely as they are commonly placed upon beams and floor arches, and it is also evident that strips of wood E may be secured alongside the flanges to receive the nails when wood flooring is to be employed. The lower flanges offer also, facilities for the attachment of ceiling material. Fig. 2 shows the lower flange omitted, the lower of the minor webs serving as a horizontal uniting flange. Fig. 3 shows the lower flange united directly to the plate, the lower minor webs being entirely eliminated. In Fig. 4 all the webs are dispensed with.

Other changes are obvious and I do not therefore wish to limit myself to the precise form shown. The inclined main web is es-

sential, but it is only very desirable that both the horizontal and vertical components, or part of them, should be employed.

What I claim is—

- 5 1. A laterally continuous floor girder made up of one-piece units, each having an inclined plane central web with vertical uniting flanges connected with its opposite sides or edges, said flanges being rigidly secured, respectively, to
10 the corresponding flanges of the adjacent units.

2. For laterally continuous girders, a unit having an inclined central web, a minor web,

making an angle with the same, integrally connected to one of its margins and provided 15 at its own free margin with an integrally formed vertical uniting flange, and a second uniting flange integrally connected to the opposite edge of the central web.

In testimony whereof I affix my signature in 20 presence of two witnesses.

TIMOTHY SIDNEY WHITE.

Witnesses:

G. D. DOUGLASS,
CHAS. F. BOND.