March 8, 1927.

C. SCHENCK

1,620,293

WELDED BEAM

Filed April 27, 1926

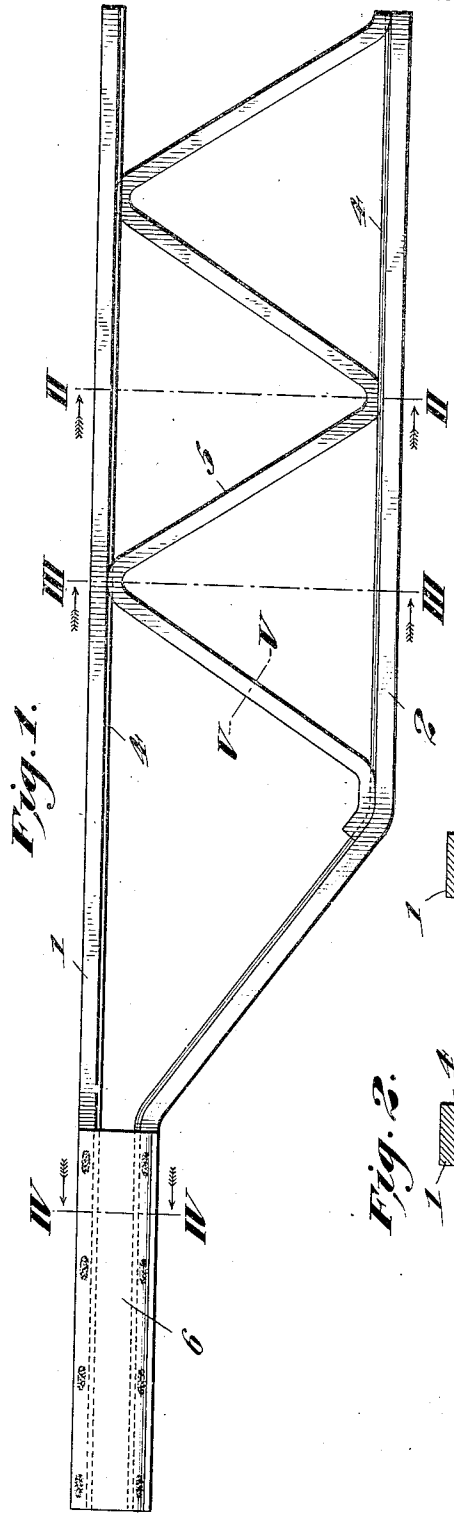


Fig. 1.

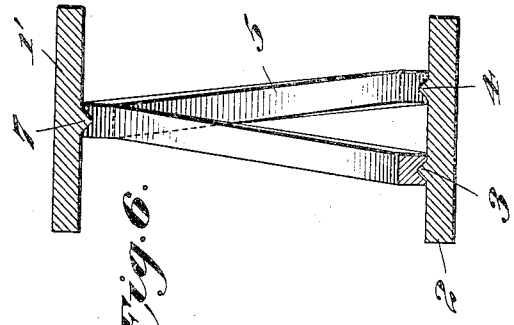


Fig. 6.

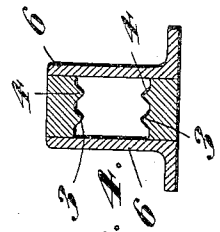


Fig. 4.



Fig. 5.

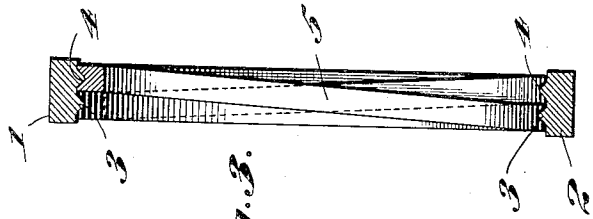


Fig. 3.

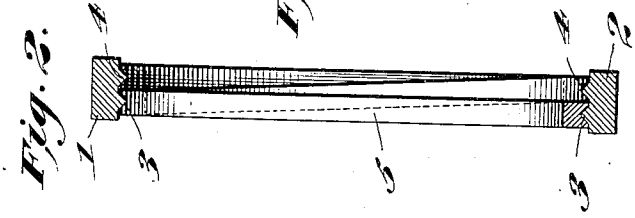


Fig. 2.

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Patented Mar. 8, 1927. 1,620,293

UNITED STATES PATENT OFFICE.

CHARLES SCHENCK, OF BETHLEHEM, PENNSYLVANIA, ASSIGNOR TO BETHLEHEM STEEL COMPANY.

WELDED BEAM.

Application filed April 27, 1926. Serial No. 104,871.

My invention consists essentially of a structural beam having two longitudinal members connected by a zigzag web member, the bends of which are welded at intervals to different ribs laterally spaced on the opposing faces of the members, whereby the web member is staggered relative to the general direction of the beam.

The primary objects of the invention are to secure by means of the staggered web member greater resistance to lateral flexure while at the same time securing ease of assembly by electric welding.

Referring to the accompanying drawings:

Fig. 1 is a longitudinal elevation of the beam;

Figs 2, 3, 4, and 5 are sections taken on the lines II—II, III—III, IV—IV, and V—V, respectively of Fig. 1; and,

Fig. 6 is a section similar to Figs. 2 and 3 of a modification.

In the embodiment of the invention first shown, the two longitudinal members, 1 and 2, are each provided with parallel ribs 3 and 4 on their opposing faces. The web member 5, zigzag in form, is electrically welded at its bends to alternate ribs of the longitudinal members to permit of the web member being staggered in the general direction of the beam. To illustrate, if the connection between the web member 5 is with rib 3, the next joint or connection with member 2 will also be with rib 3, while the succeeding two joints with the two longitudinal members will be with rib 4, this alternation being continued throughout the length of the beam.

The web member is here shown as being square in cross section but obviously the particular shape is of no material significance so far as the invention is concerned.

The ends of the longitudinal members are united and supported by plates 6.

In effecting the staggering of the web member, it is not essential that it be joined to the ribs in the particular sequence just indicated. It is only necessary that at definite intervals the bends uniting with the longitudinal members be with different ribs, laterally spaced. For example, the web member might be connected with members 1 and 2 through union with rib 3 for the first four bends, and then with ribs 4 on these members for the succeeding four bends, etc.

Furthermore, it is not essential that there be two ribs on each longitudinal member. There might be three or even more in which case a variety of staggered arrangements could obviously be produced.

Then too, it is not even requisite that each member have a plurality of ribs. For instance, as is indicated in Fig. 6, one of the longitudinal members 1′ may have the single rib 7, the staggered effect being produced by joining the strut first with rib 3, then with rib 7, and then with rib 4, according to the desired interval.

In welding the joints, such a method as that disclosed in the patent to Lachman, 1,085,089, is employed. An electric current is passed through each joint and pressure is applied to cause the rib to become more or less embedded in the web member.

Of course, it is not new to stagger the web member of a beam or girder but my invention resides in the way in which I secure the advantage of such a structure with means for easily assembling by electric welding. It should be noted that the ribs perform a triple function. They furnish strength to the longitudinal members; they permit of the localized heating necessary in electrical welding because of their limited contacting surface; and they furnish the laterally spaced surfaces of juncture for permitting of the staggered arrangements.

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

1. A structural beam comprising two longitudinal members, the opposing faces of each provided with a plurality of longitudinal ribs, an integral, continuous zigzag web member welded at its bends alternately to the ribs on the longitudinal members and staggered relative to the general direction of the beam.

2. A structural beam comprising two longitudinal members, one of said members having a plurality of ribs facing the other member, an integral continuous zigzag web member joined at its bends to the longitudinal members, being welded to alternate ribs of the ribbed member and being staggered relative to the general direction of the beam.

3. A structural beam comprising two longitudinal members, one of said members having a plurality of longitudinal ribs

facing the other member, an integral continuous zigzag web member joined at its bends to the longitudinal members, being welded at intervals to different ribs of the ribbed member and being staggered relative to the general direction of the beam.

4. A structural beam comprising two longitudinal members, the opposing faces of each having a plurality of longitudinal ribs, an integral continuous zigzag brace member welded at intervals to different ribs of each of the longitudinal members, and being staggered relative to the general direction of the beam.

5. A structural beam comprising two longitudinal members, one of said members having a plurality of laterally spaced ribs, facing the other member, an integral continuous zigzag web member joined at its bends to the longitudinal members, the web member being welded alternately to the ribs of the longitudinal members to thereby give it a staggered relationship to the general direction of the beam.

6. A structural beam comprising two longitudinal members, one of said members having a plurality of laterally spaced ribs facing the other member, an integral, continuous zigzag web member joined at its bends to the longitudinal members, being welded at intervals to different ribs of one of the longitudinal members and staggered relative to the general direction of the beam.

In testimony whereof I hereunto affix my signature this 22nd day of April, 1926.

CHARLES SCHENCK.