W. S. HUTCHINSON.

GIRDER.

APPLICATION FILED JAN. 5, 1918.

1,369,340. **Patented Feb. 22, 1921.**

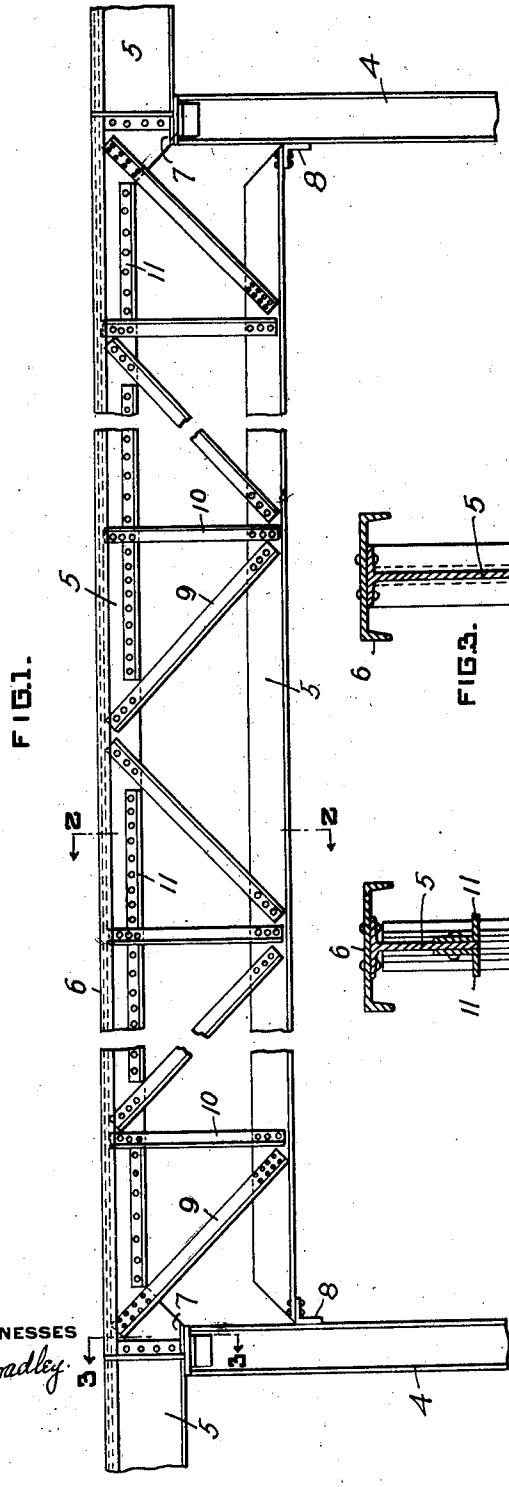


FIG. 1.

FIG. 3.

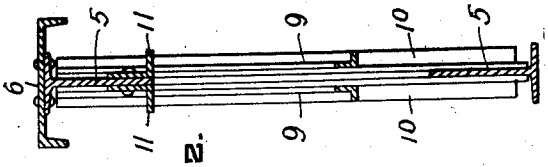


FIG. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

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GIRDER.

1,369,340. Specification of Letters Patent. Patented Feb. 22, 1921.

Application filed January 5, 1918. Serial No. 210,505.

To all whom it may concern:

Be it known that I, WILLIAM S. HUTCHINSON, a citizen of the United States, and a resident of Bethlehem, in the county of Northampton and State of Pennsylvania, have made a new and useful Invention in Girders, of which the following is a specification.

This invention relates to girders.

In the use of girders, and especially crane girders, it is now customary to use one depth of girder for the short spans and another girder of greater depth for the long spans and to vary the crane columns to suit the different girders.

An object of this invention is to provide means whereby standard columns may be utilized throughout a job as well as standard crane beam sections, thus facilitating the securing of the material and the fabricating of the same.

This, as well as other objects which will readily appear to those skilled in this art, I attain by means of the invention described in the accompanying sheets of drawings in which Figure 1 is a fragmentary view in elevation of two short spans and a long span supported on standard crane columns, Fig. 2 is a transverse section on line 2—2 of Fig. 1 and is drawn on a larger scale, and Fig. 3 is a transverse section of the top chord of the long span at the point indicated by line 3—3 of Fig. 1 and is drawn on the same scale as Fig. 2. This section is typical of the complete girder provided for the short spans.

In carrying out this invention standard crane columns 4 are utilized and the short spans are formed by standard I beam sections 5 to the top of which a channel section 6 is riveted as is now common. In order to form the long spans the same I beam section is utilized and this is longitudinally cut along its center axis (preferably by means of an oxy-acetylene torch) so as to leave a seat 7 at each end. The upper chord of the girder, the seats 7 of which rest on the column 4, is formed by the upper half of I beam section 5 and to this a channel section 6 is also riveted. The lower half of the I beam is dropped a distance to give sufficient depth to the girder and is supported on columns 4 by means of angle brackets 8 riveted to the columns and to the lower half of the section. The separated sections are connected by means of cross braces 9 and 10 (preferably angles) riveted to the two sections. The lower edge of the web of the upper section is reinforced by angles 11.

It will be understood that the cross braces are located on both sides of the web portions of the built up girder and the angles 11 as well on both sides of the web of the upper section.

From this construction it will be seen that a minimum amount only of detailing is necessary in designing both the columns and girders. The invention is adaptable to varying spans and loads as the level of the bottom flange of the cut beam can be determined to suit any conditions.

Having thus described my invention what I claim is—

1. A girder comprising top and bottom chords and connecting struts and diagonals, said top and bottom chords consisting of portions of a structural shape, the ends of said top chord including a short length of the complete section of said shape and the remainder of said top chord and all of said bottom chord including said portions spaced from each other.

2. In building construction, spaced columns, a truss supported thereon which includes a single rolled, structural member having a portion intermediate its ends cut from said ends and from its upper part and spaced therefrom to provide a lower chord for said truss, said upper part providing an upper chord for said truss, each end of said upper part being supported at one point on one of said columns and the corresponding end of said portion being supported at another point on the same column.

3. A truss consisting of a rolled, structural member provided with transverse cuts, spaced from each end thereof and extending part way through the member, and a longitudinal cut uniting the inner ends of said cuts, that portion of the member between said cuts being spaced from the remaining portion and united therewith by suitable struts and diagonals.

4. A rolled structure flanged at each side and cut through one flange intermediate the ends thereof and longitudinally of the web portion throughout a portion of its length, so as to form two members, one having a top flange extending throughout its length and a bottom flange at each end thereof, in combination with members for securing said severed portions together.

5. A built up girder comprising a top

chord cut from an I beam section to provide integrally formed end members having top and bottom flanges, a lower chord shorter than said upper chord and spaced therefrom and connecting members secured to said upper and lower chords.

6. A built up girder comprising a top chord cut from a standard rolled section to provide integrally formed end members having top and bottom flanges, a lower chord shorter than said upper chord and spaced therefrom, and connecting members secured to said upper and lower chords, in combination with support columns for said girders, the upper end of each of which is engaged by one of the end members of the top chord.

7. A built up girder comprising a rolled structure flanged at each side and cut through one flange and longitudinally of the web portion to form a top chord, having a top flange extending throughout its length and a bottom flange at each end thereof, and a bottom chord shorter than the top chord and having a bottom flange extending throughout its length, in combination with web members secured to the top and bottom chords.

In testimony whereof, I have hereunto subscribed my name this 20th day of Dec., 1917.

WILLIAM S. HUTCHINSON.

Witnesses:
M. A. TRANSUE,
D. L. MCCARTHY.