

Dec. 22, 1942.

J. G. HOLLAND

2,306,311

BRIDGE CONSTRUCTION

Filed April 12, 1941

2 Sheets-Sheet 1

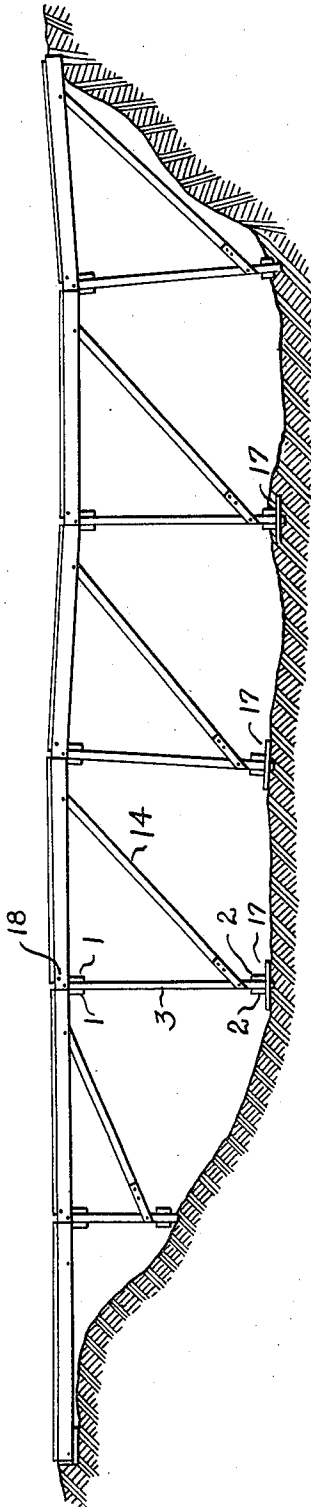


Fig. 2.

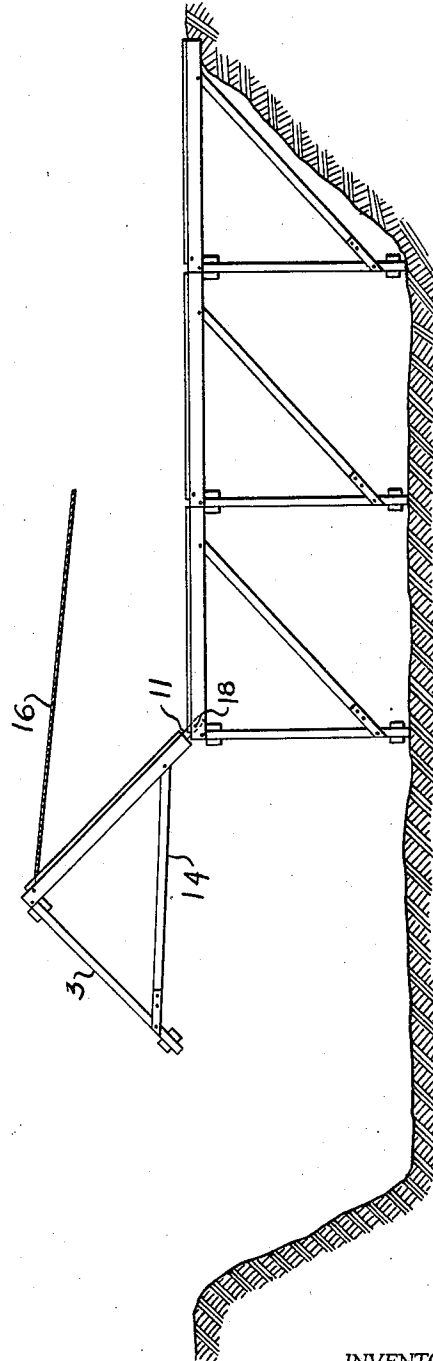


Fig. 1.

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2 Sheets-Sheet 2

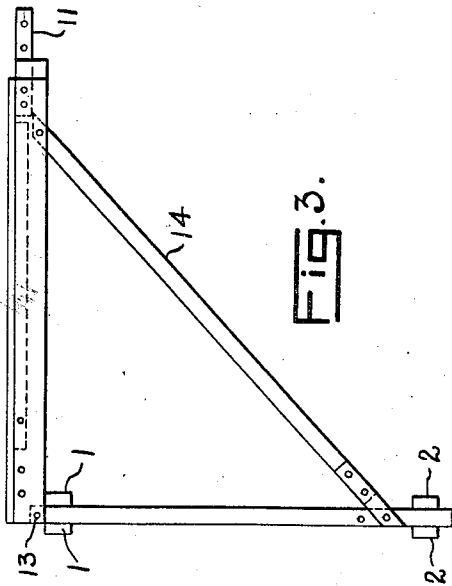


Fig. 3.

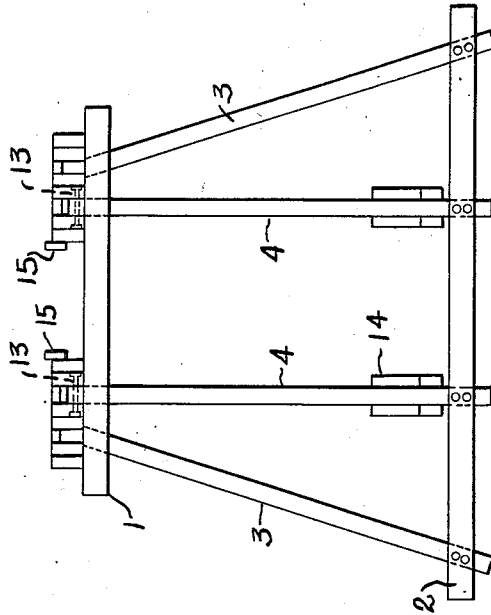


Fig. 5.

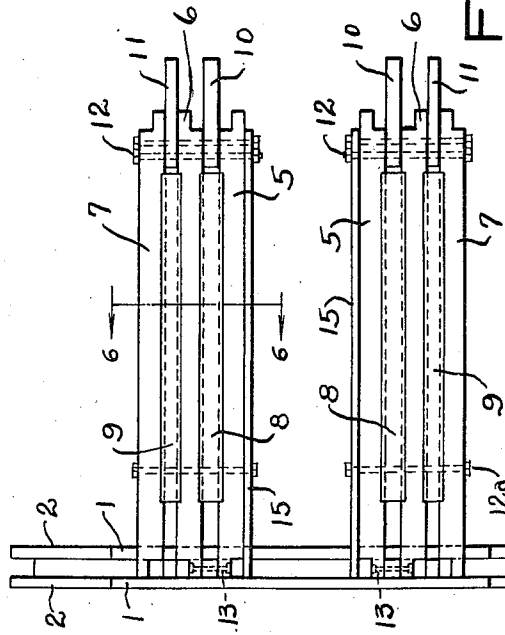


Fig. 4.

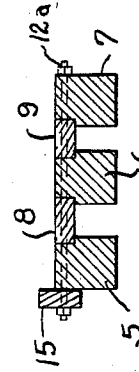


Fig. 6.

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2,306,311

BRIDGE CONSTRUCTION

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Application April 12, 1941, Serial No. 388,207

1 Claim. (Cl. 14—1)

This invention relates to a bridge construction.

An object of the invention is to provide a bridge of the character described which is formed of sections, each section forming a complete unit and embodying a supporting truss, the units being flexibly connected together and being capable of ready separation so that the bridge may be readily erected into place, a section at a time, and as readily dismantled for re-use. The bridge has been specifically designed for temporary use. It may be conveniently used for by-passing bridges, of permanent highways, that are in the process of construction or repair and when the permanent bridge is completed or repaired, the temporary bridge may then be readily removed for use at another place.

The construction herein described is also well adapted for use to cross soft or marshy land, streams of water, and the like for temporary use where it is not practical, or desirable to construct permanent roadways and permanent bridges.

It is another object of the invention to provide a bridge construction of the character described that is very flexible and will readily conform to the particular contour of the surface on which it is supported.

With the above and other objects in view the invention has particular relation to certain novel features of construction, arrangement of parts and use, an example of which is given in this specification and illustrated in the accompanying drawings, wherein—

Figure 1 shows an elevational view of a bridge in process of construction.

Figure 2 shows an elevation view of a completed bridge.

Figure 3 shows a side elevation of one of the bridge sections or units.

Figure 4 shows a plan view thereof.

Figure 5 shows an end elevation, and

Figure 6 shows a cross-sectional view taken on the line 6—6 of Figure 4.

Referring now more particularly to the drawings wherein like numerals of reference designate the same parts in each of the figures, the numerals 1, 1 and 2, 2 designate the upper and lower cross timbers of the supporting truss for a bridge unit. These timbers are secured to opposite sides of the upper and lower ends of the outer and inner legs 3, 3 and 4, 4 of said truss. The outer legs 3, 3 preferably diverge downwardly as shown more clearly in Figure 5 and the inner legs 4, 4 are preferably vertical.

Each section or unit of the bridge embodies two tread portions which are of similar construction

and one of which is shown in the enlarged cross-section of Figure 6. Each tread portion embodies a plurality, preferably three, of heavy timbers 5, 6, 7 of suitable dimensions for supporting the load to which the bridge will be subjected. As is clearly shown in Figure 6, these timbers are spaced apart. Between the timbers 5, 6 and also between the timbers 6, 7 and countersunk into them are the relatively heavy strong tread boards 8, 9 whose upper surfaces are flush with the upper surfaces of the timbers 5, 6 and 7.

As is clearly shown in Figure 4, these tread boards 8 and 9 fall short, at each end, of the corresponding ends of the treads of which they form a part. At one end of each tread there are the connecting links 10, 11 which are fitted between the timbers 5, 6, 7 and secured therein by bolts as 12. The other ends of the treads are supported on the upper end of the corresponding truss and are secured thereto by means of the bolts 13, 13 which pass through the upper ends of the legs 4, 4 and through the ends of the timbers 5, 6 on opposite sides of said legs as more clearly shown in Figures 4 and 5. The unit, or section, is reinforced and strengthened by diagonal braces as 14 which are suitably bolted, at their lower ends, to the lower ends of the legs and at their upper ends to the corresponding treads. It is apparent that the truss supporting the treads of any particular section may be arranged at any desired angle to the corresponding treads as may be required by the contour of the supporting surface upon which the bridge is located.

The inner margins of the respective tread portions have guide boards 15, 15 secured thereto which are of approximately the same length as the corresponding tread portions and which are properly bound to the inner sides of tread timbers 5, 5 by the bolts 12 and also bolts 12a. These guide boards extend above the level of the upper surface of the tread portions and form deflectors for the wheels of the vehicles passing over the bridge. It is to be understood that the tread timbers, tread boards and the guide board are firmly secured together by such additional securing means as may be required.

The units or sections of the bridge may be of any selected length and, of course, the supporting trusses of the required height. These units may be manufactured at the factory in quantities so that the bridge may be quickly built.

In erection a sufficient number of the units to complete the bridge may be transported to

the site of the work. They may then be erected into place as indicated in Figure 1. The first unit may be placed in position with one end of its tread portions resting on the bank of the stream or depression and its other end supported by the truss forming a part of said unit. The next succeeding unit may then be moved on a carriage designed for the purpose along the tread of the unit so erected in place and the links of said unit may be inserted into the spaces between the timbers 5, 6, 7 as is indicated in Figure 1 and a pin bolt 18 inserted into place. Said section being so erected is thus hingedly connected to the section already in place and may be lowered by means of a cable as 16 which may be secured thereto and operated from a winch on the truck used to transport the section until the truss of the unit being erected into place lands on bottom. If a more flexible joint is desired one of the bolts 12 may be removed.

The above operation may be repeated until the bridge has been erected. The last unit to be erected will not necessarily have a supporting truss since it will be supported on the other bank of the stream as shown in Figure 2.

In some cases where the supporting earth is exceedingly soft to a considerable depth, the

lower end of the truss may be supported on transverse mats as 17 shown in Figure 2 which are wide transverse boards secured to the lower ends of the legs 3, 4.

5 The drawings and description are illustrative merely while the broad principle of the invention will be defined by the appended claim.

What I claim is:

10 In bridge construction a section forming an independent unit of the bridge, said section having wheel tread portions spaced apart, a truss for supporting one end only of said section, each wheel tread portion comprising a plurality of heavy timbers spaced apart, tread boards between the timbers and countersunk into them 15 with the upper surfaces of the tread boards substantially flush with the upper surfaces of said timbers, the tread boards falling short, at each end of the corresponding ends of the treads to provide link spaces between the timbers and 20 links having one end fitted into the spaces at one end of the section and having their other ends projecting out beyond the corresponding tread to fit into similar spaces of an adjacent 25 section of the bridge.

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