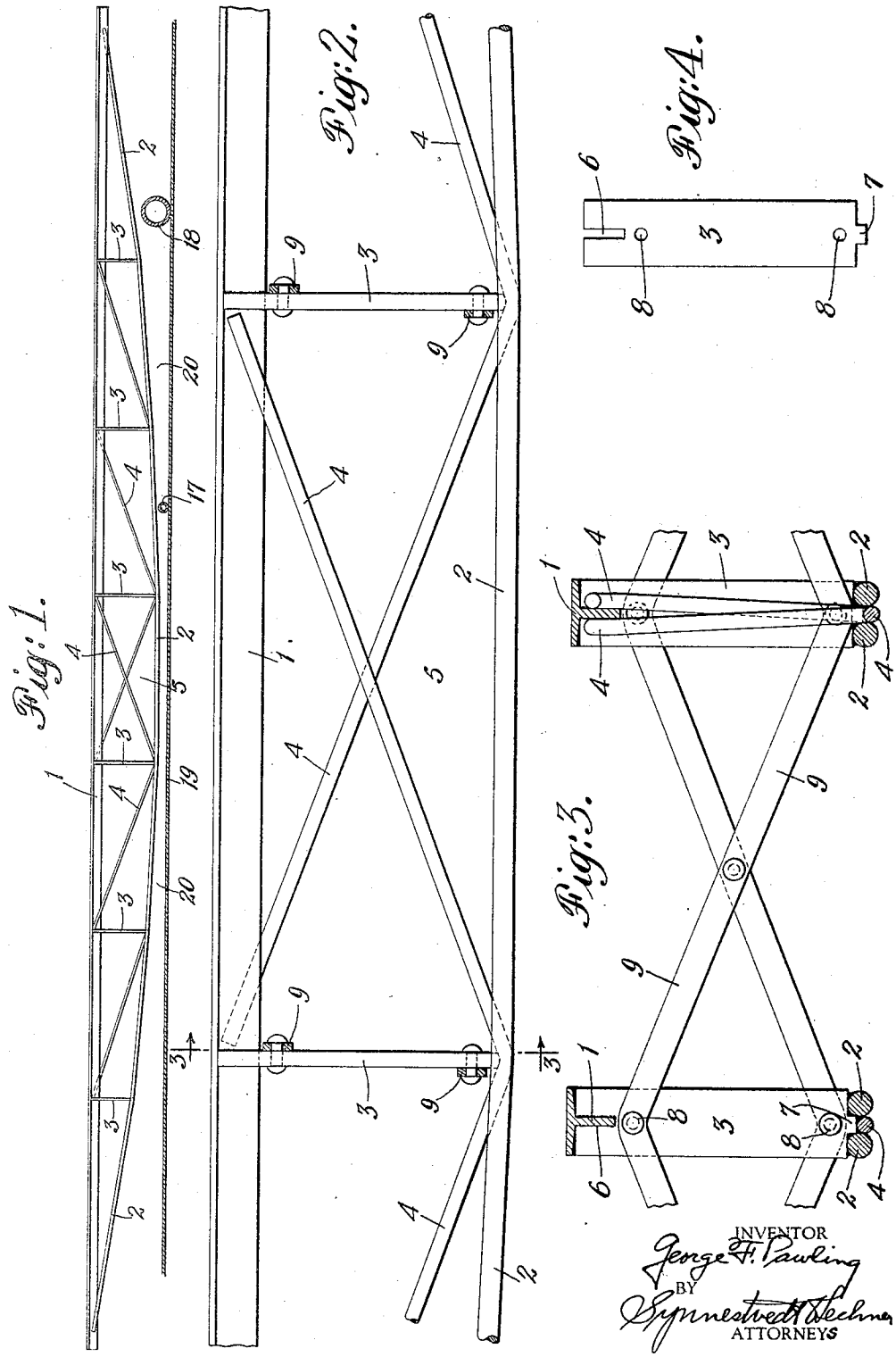
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METHOD OF FABRICATING TRUSS TYPE JOISTS

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INVENTOR
George F. Pawling
BY
Symmestvedt & Lechner
ATTORNEYS

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GEORGE F. PAWLING, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO PAWLING SYSTEM, INC., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE

METHOD OF FABRICATING TRUSS-TYPE JOISTS

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This invention relates to joist construction of the truss type as distinguished from a joist with a solid web.

It has for its principal objects the provision of a construction of the character described which is more readily and cheaply assembled or fabricated than has heretofore been possible. It also involves the provision of a construction in which the weight of metal used in the vertical members is reduced to a minimum. Another object is to provide a truss type joist which can be bridged effectively. A further object is the provision of a construction which can be fabricated with great rapidity so as to reduce not only the cost, but also the time involved in supplying joist for a given contract.

A still further object of the invention is to provide a joist construction which will lend itself with great adaptability to the running of pipes, conduits or other mechanical equipment.

In attaining the foregoing objects I prefer to construct my joist with a T-shaped top chord and to use, for the bottom chord, any sort of a member which can be readily bent into position. In fabricating my improved joist I use a plain rolled bar of T-shaped cross section and stock sizes of vertical web members and diagonal web members and a straight bar of cross section which is easily bent for the bottom chord.

How the foregoing, together with such other objects as are incident to my invention, or may appear hereinafter are obtained, is illustrated in preferred form in the accompanying drawings, wherein—

Figure 1 is a side elevation of my improved joist illustrating it in relation to the ceiling.

Figure 2 is a side elevation of the central portion of my improved joist on a greatly enlarged scale.

Figure 3 is a section of two adjacent joists showing the ease with which they can be bridged, taken as indicated by the line 3—3 of Figure 2.

Figure 4 is a detail of the vertical web member.

Referring to the drawings, and particularly to Figures 1 to 4, inclusive, it will be seen that the top chord consists of a rolled bar 1 of T-shaped cross section, and that the bottom chord comprises a pair of round rods 2 between which are located the vertical web members 3 and the diagonal web members 4.

From the central panel 5 toward each end of my improved joist I gradually diminish the length of the vertical members 4 because the shape of the section of the vertical web member which is used is rectangular in cross section, and the governing condition of design is its thickness in all cases, rather than the area of the cross section, the thickness being determined by the length of the vertical web member. By reducing the length of the vertical web members, the thickness can be correspondingly reduced which, of course, decreases the area and also the amount of metal required. In other words, the closer the vertical web member to the end of the joist, the less will be its cross sectional area because of the fact that it is shorter.

In fabricating the joists for a given specification the top chord is cut to the desired length, and the proper number and sizes of vertical web members are arranged in their proper spaced relation. The bottom chord is cut to its proper length and placed parallel to the top chord and then bent into position in contact with the bottom of the vertical web members, the ends being brought adjacent the top chord as shown, and all of the connections are then made preferably by electrically welding the adjacent members to each other. By utilizing bottom chord members which are easily bent, the foregoing simple procedure is made possible, and large numbers of my improved joists can be fabricated in a minimum of time and with the least possible cost. The reason for this lies in the fact that with the vertical web members gradually decreasing in length from the center outwardly the degree of bending which is necessary at any one point is sufficiently slight to be accomplished by a workman at the time of fabrication. No machine prebending of the bottom chord is required.

It will be seen that my improved joist

makes available a large area or space 20 between the bottom chord 2 and the ceiling 19 in which pipes, conduits or other mechanical equipment can be easily and quickly run without the necessity of threading the parts through the structural work of the joists. In fact, for example, a conduit 17 or a pipe 18 can be assembled on the floor below in long sections as required and simply raised and fastened in position in any desired manner. The ceiling 19 is suspended preferably from the top chord of the joist also in any desired manner.

By referring to Figure 4 it will be seen that the vertical web members 3 are provided at their tops with slotted openings 6 which are adapted to embrace the stem of the T-shaped top chord. At the bottom the upright members 3 are centrally provided with a downwardly projecting portion 7 adapted to fit between the two bars 2 of the bottom chord. Of course, I wish it to be understood that it is not essential to the invention to use the round bars illustrated for the bottom chord, as any other shape might be utilized which could be readily bent, in which event the bottom or lower end of the vertical members could be shaped to correspond.

I also wish to point out that although I prefer to use and have illustrated round sections for the diagonal web members, this, also, is not essential to the invention, and, in fabrication, I prefer to position the diagonal members prior to the bending of the bottom chord or coincidentally therewith.

It will also be noted that my improved joist construction lends itself very readily to bridging which has not heretofore been possible. It will be seen that vertical web members are provided near the top and bottom with apertures 8 which extend longitudinally of the joist, by means of which it is readily possible to attach the bridging 9 with bolts or rivets. Heretofore, in joist construction, it has not been possible to provide definite structural bridging as I have done. The only type of bridging which has been used is a light gauge, twisted wire bridging which merely serves the purpose of keeping the joists in vertical position, and which does not have real structural value in transmitting loads imposed on one joist to the adjacent joist.

I claim:—

1. The method of fabricating a truss type joist having top and bottom chords and vertical web members diminishing in length from the center outwardly, which consists in assembling the top chord with the vertical web members in proper position, in placing the bottom chord in position beneath said vertical web members and parallel to the top chord, in bending the bottom chord from the center outwardly to force it into contact with the lower ends of said vertical web members, in bringing the ends of the bottom chord adjacent the top chord, and in securing the members to each other at the points of contact.

2. The method of fabricating a truss type joist having top and bottom chords, diagonal web members and vertical web members diminishing in length from the center outwardly, which consists in assembling the top chord with the vertical web members in proper position, in placing the bottom chord in position beneath said vertical web members and parallel to the top chord, in positioning the diagonal web members, in bending the bottom chord from the center outwardly to force it into contact with the lower ends of said vertical web members, in bringing the ends of the bottom chord adjacent the top chord, and in securing the members to each other at the points of contact.

In testimony whereof I have hereunto signed my name.

GEORGE F. PAWLING.