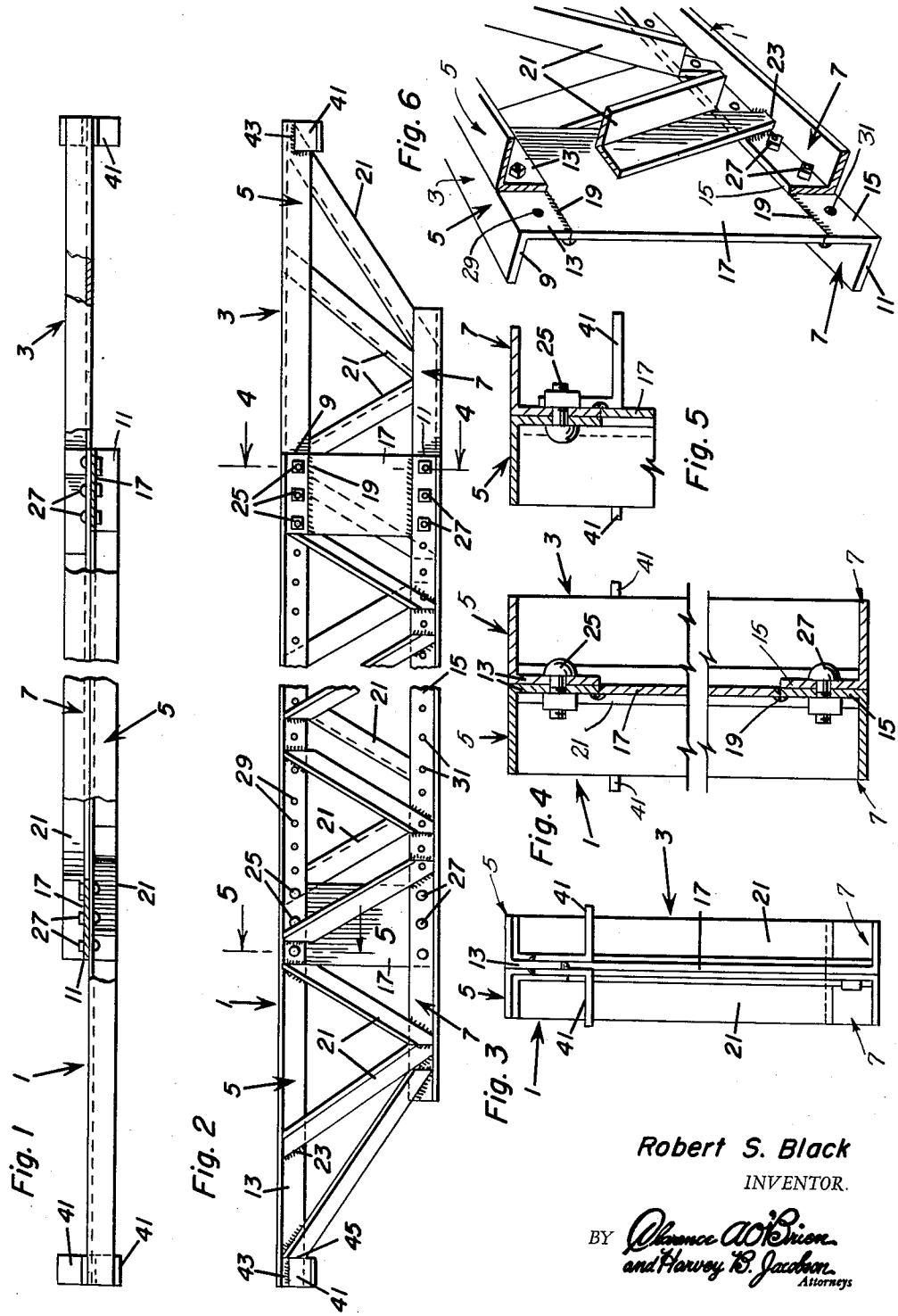
Feb. 26, 1963 R. S. BLACK 3,078,970

TRUSS-TYPE ADJUSTABLE JOIST

Filed Oct. 5, 1959



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United States Patent Office 3,078,970 Patented Feb. 26, 1963

3,078,970
TRUSS-TYPE ADJUSTABLE JOIST

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Filed Oct. 5, 1959, Ser. No. 844,495
4 Claims. (Cl. 189—37)

This invention relates to improvements in truss-type joists longitudinally adjustable to vary the length thereof according to the desired span and for supporting forms for concrete roofs, decks, roadways, and the like.

By way of premise, such joists, as commonly constructed, depend for longitudinal adjustment for varying the length thereof on insertions therein of sections, spacers, washers, eccentrics, spacer plates or the like, and in view of which they are complicated, too costly and require too much time and labor to adjust the length thereof.

Having the foregoing in mind, the principal object of this invention is to provide a truss-type joist of simple, practical construction longitudinally adjustable easily and quickly, and in small increments of adjustment and which may be manufactured at a low cost of stock material, all without sacrificing strength and safety in the joists.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a fragmentary view in plan of the improved joist in a preferred embodiment thereof, partly broken away;

FIGURE 2 is a view in side elevation of the same;

FIGURE 3 is an enlarged view in end elevation of the same;

FIGURE 4 is an enlarged view in vertical transverse section taken on the line 4—4 of FIGURE 2, and partly broken away;

FIGURE 5 is an enlarged fragmentary view in vertical transverse section taken on the line 5—5 of FIGURE 2; and

FIGURE 6 is an enlarged fragmentary view in perspective partly in section of the joist.

Referring to the drawing by numerals, according to this invention, a truss-type joist is provided comprising a pair of like, side-by-side, overlapping, longitudinal sections 1, 3 respectively, each forming one-half of the joist.

The sections 1, 3 being alike a description of one will suffice for both.

Each section 1, 3 comprises upper and lower relatively long 5 and short 7 angle irons or chord members having vertically aligned inner ends, as at 9, 11 and vertical side flanges 13, 15 (FIG. 6). The inner ends 9, 11 of the upper and lower chord members 5 and 7 of each section 1, 3 are connected together by a rectangular steel plate 17 interposed between and butt welded, as at 19, to the edges of the vertical side flanges 13, 15 coplanar with said flanges.

Transverse, angle truss bars 21 cross-connect the upper and lower angle bar chord members 5, 7 in parallel relation and are spaced apart along said chord members and terminally welded, as at 23, to the vertical flanges 13, 15 to extend diagonally of said chord members 5, 7.

The overlapping portions of sections 1, 3 are bolted together with the vertical flanges 13 engaging flatly and the vertical flanges 15 similarly engaging and by the following means. Upper and lower series of bolts 25, 27 are provided for selective extension through longitudinally spaced bolt holes 29, 31 in the vertical flanges 13, 15

of the chord members 5, 7 respectively. The bolt holes 29, 31 are spaced in the series 3 inches apart in each flange 13, 15 so that the sections 1, 3 are adjustable longitudinally relatively in increments of 3 inches for fine adjustment to elongate or contract the joist according to the span required.

Preferably, there are three bolts, only, 25, 27 in each series and the same are used at the plates 17, which is to say at the inner ends 9, 11 of the chord members 5, 7 and said bolts are preferably three-quarter inch machine bolts.

A bearing seat is provided at the outer end of each section 1, 3 comprising a pair of short angle plate members or cleats 41, welded as at 43, to the vertical flanges 13 of the upper chord member 5 respectively, with each plate 41 welded, as at 45, to the outermost one of the truss bars 21 which extends substantially to the outer end of the upper chord member 5.

As will now be seen, the described joist can be readily adjusted to the desired length by two men and in adjusted position is well adapted to withstand stresses and strains. Furthermore, the joist can be manufactured of standard stock parts of steel angle bars and stock sizes of flat steel plates, also stock bolts, all of which greatly reduce the cost of manufacture of the joist.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact constructure and operation shown and described, and accordingly, all suitable modificatons and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. For use as a section of a sectional adjustable truss-type bridge joist, a prefabricated section comprising, in combination, a linearly straight upper angle iron, a complemental linearly straight lower angle iron parallel to and spaced below the upper angle iron, said angle irons being of duplicate cross-section and each including a vertical flange and a horizontal flange, the vertical flanges being in a common plane, the corresponding inner ends of the upper and lower angle irons terminating together, a flat-faced plate of a cross-sectional thickness corresponding to the thickness of the vertical flanges of the angle irons and interposed between and welded to the cooperating lengthwise edges of said flanges, and a vertical longitudinal edge of said plate being flush with the cooperating terminal ends of the vertical flanges, said vertical flanges having several bolt holes cooperating with the transverse end portions of said plate, the end of the upper angle iron opposite to the locale of said plate extending beyond the corresponding end of the lower angle iron and being provided with L-shaped fixedly attached cleats, said cleats providing bearing seats, and diagonal braces connecting said upper and lower angle irons together.

2. The structure defined in claim 1 and wherein said braces are diagonal truss bars of angular cross-section having end portions of flanges thereof overlapping surfaces of the vertical flanges of the upper and lower angle irons and being welded thereto and being spaced and distributively arranged and interrelated to equalize stresses and strains capable of coping with compression and tension requirements.

3. A longitudinally adjustable heavy duty truss-type highway bridge joist comprising a pair of identical interchangeable side-by-side sections each section including duplicate upper and lower angle bar chord members having vertical flanges, respectively, the vertical flanges of the chord members of said sections being engaged

flatly and parallel, the chord members of each section having vertically aligned inner ends, a vertical plate interposed between and connecting the inner lengthwise edges of the vertical flanges of said upper and lower chord members, diagonal angle bars welded to and positively connecting the upper and lower chord members of each section, and rigid means securing the flatwise flatly contacting vertical flanges together for longitudinal adjustment of said chord members relative to each other and to enable one to adjust the sections for lengthening and shorting the complete joist at will, said means comprising an upper series of closely associated and allied bolts extending through the inner ends of the engaged flanges of the upper chord members, and a corresponding lower series of closely allied bolts extending through the inner ends of the engaged flanges of the lower chord members, said flanges having close-together longitudinally spaced bolt holes therein for ready insertion and removal of the bolts.

4. The adjustable joist construction according to claim 3 and wherein the upper chord members only have outer projecting ends provided with an angle plate welded to the coacting vertical flange of the chord member and related in size to the cross-section of the vertical flange to cooperate therewith and to provide a bearing seat, and said diagonal angle bars being spaced along each section and cross-connecting the upper and lower chord members together.

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