July 24, 1923. 1,462,552

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MACHINE FOR ASSEMBLING TRUSSES

Filed March 27, 1922 2 Sheets-Sheet 1

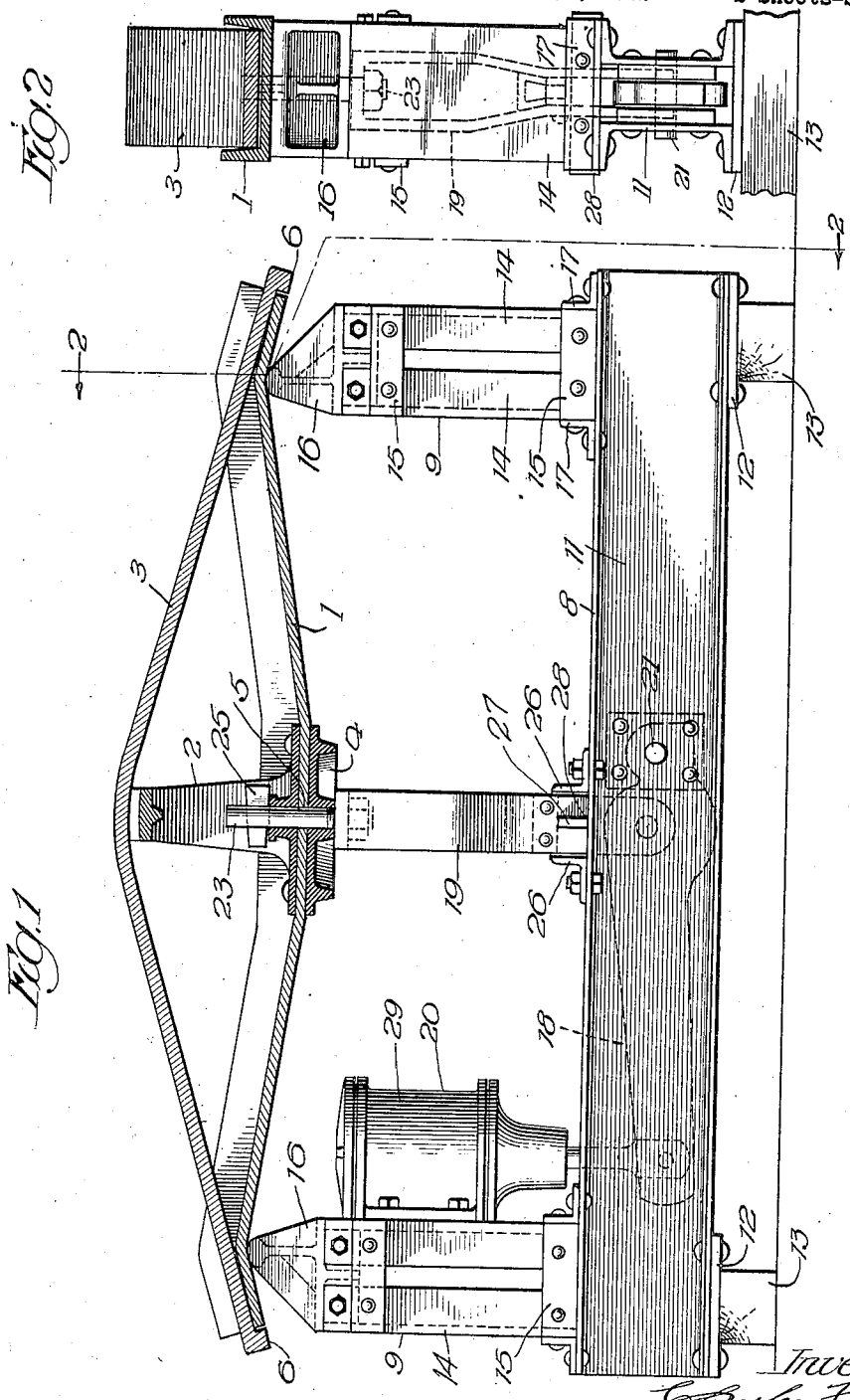

Fig. 2

Fig. 1

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Fig. 5

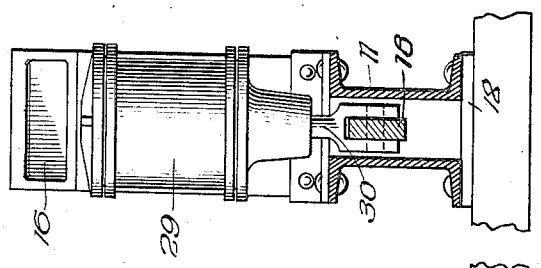


Fig. 4

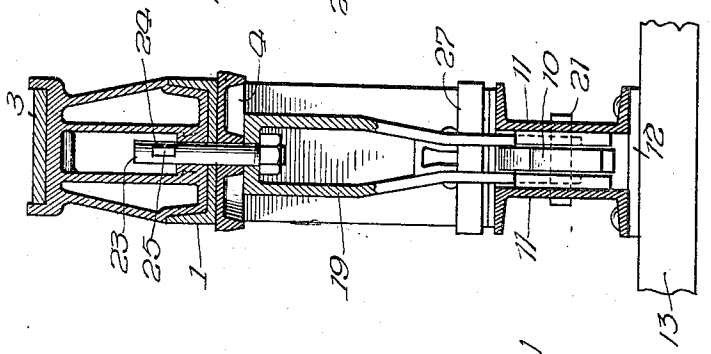
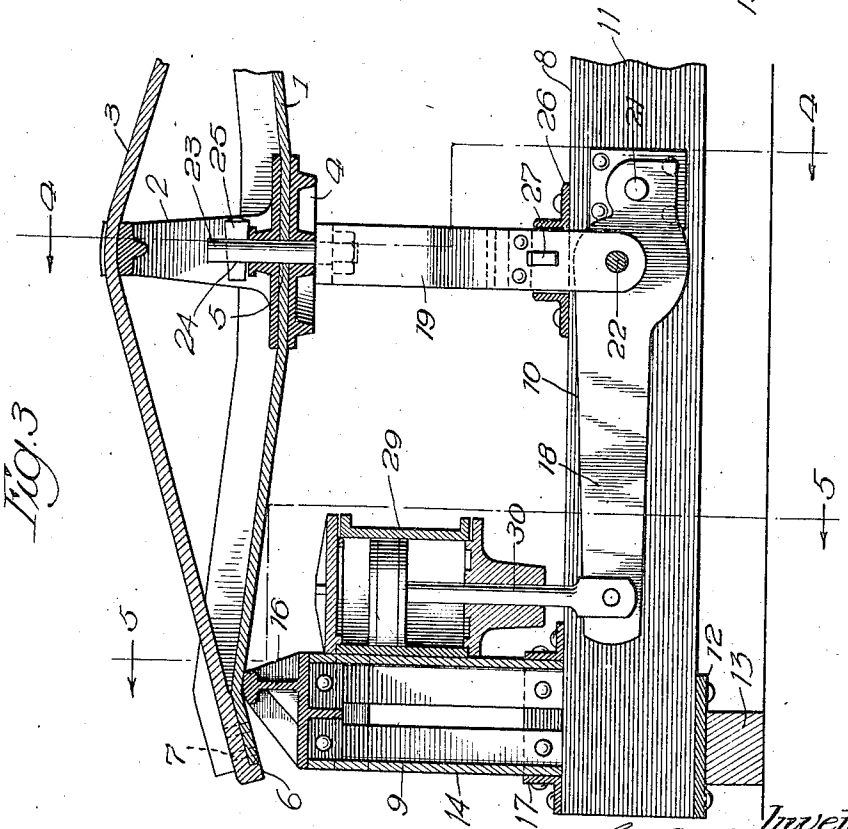


Fig. 3



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UNITED STATES PATENT OFFICE.

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MACHINE FOR ASSEMBLING TRUSSES.

Application filed March 27, 1922. Serial No. 547,162.

To all whom it may concern:

Be it known that I, CHARLES F. HUNTOON, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Machines for Assembling Trusses, of which the following is a specification.

This invention relates to a machine for assembling trusses, particularly steel structures, machine parts and frames, the elements of which are interlocked by the action of stresses produced therein during the assembling operation.

The objects of this invention are to provide an assembling machine of the above character which is especially adapted for flexing the compression member of a truss or frame such as a truck bolster to permit the assembly therewith of the tension member; to provide improved means for supporting the compression member during the flexing operation; to provide improved means for connecting the compression member to the flexing mechanism of the machine; and to provide an improved method of assembling a structure of the class mentioned whereby a completed article may be produced with or without extra fastening devices such as bolts or rivets.

An illustrative embodiment of this invention is shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of an assembling machine embodying this invention, showing a truck bolster in section as it appears after the flexing operation and before the flexing mechanism is released.

Fig. 2 is a vertical section taken on the line 2—2 of Figure 1.

Fig. 3 is a fragmentary longitudinal vertical section of the machine showing a bolster as it appears when assembled after the flexing operation.

Fig. 4 is a transverse vertical section taken on the line 4—4 of Fig. 3.

Fig. 5 is a transverse vertical section taken on the line 5—5 of Fig. 3.

The assembling machine for carrying out the present invention, as illustrated, includes means for supporting, for instance, the compression member of a truck bolster adjacent its ends, and flexing mechanism arranged to exert a transverse pull on the compression member intermediate its points of support, whereby it is flexed sufficiently to permit interlocking attachment therewith of the tension member. The device is adapted for use in the assembly of any truss structure similar to truck bolsters wherein the compression member is retained in a flexed position by means of a tension member.

The truck bolster shown in the drawings is of the usual form comprising a compression member 1, strut 2, and tension member 3. The compression member 1 is in the form of a channel bar having the usual centrally located bearing member 4. The strut 2 is rigidly secured to the compression member opposite the bearing 4 and is formed at its outer end for engagement with the tension member for holding the compression and tension members in spaced relation at their medial parts. Extending through the center of the compression member and the base of the strut 2, is an aperture 5 for receiving the usual king bolt, not shown. The tension member 3 is in the form of a flat strip of metal having shoulders 6 formed at its ends to coact with the ends of the compression member for holding the parts in interfitting relation. Extending through the tension and compression members adjacent each end, are the usual rivet holes 7.

In the form shown, the assembling machine comprises a base 8, having supports 9 arranged for supporting the compression member adjacent its ends, and flexing mechanism 10 adapted to apply a transverse pull on the compression member intermediate its points of support.

Referring to the drawings, the base 8 comprises a pair of channel bars 11 arranged in spaced relation and connected by bottom end plates 12 resting upon cross beams 13.

The supports 9 are mounted at opposite ends of the base and are each in the form of a column comprising a pair of channel bars 14 connected by tie plates 15, and capped with a head 16. Secured to the columns 9 at their lower ends, are angle bars 17 for fastening the columns to the base 8. The heads 16 are arranged to support the compression member 1, while permitting it to slide inwardly at its ends relative to the supports during the flexing operation.

The flexing mechanism includes a lever 18 having a link 19 for connection with the compression member at its central part and arranged to be operated by a fluid motor 20 for flexing the compression member toward the base 8.

The lever 18 is arranged between the channel bars 11 and is pivotally connected at one end to the channel bars 11 by a pivot 21. The link 19 is of an inverted U-shape and is pivotally connected to the lever 18, adjacent the pivot 21, by a pin 22. Extending through the upper end of the link 19, is a pin 23 arranged for engagement with the king bolt hole 5 of the compression member. Extending through the pin 23, adjacent its upper end, is a slot 24 for receiving a wedge block 25, which coacts with the base of the strut 2 for detachably connecting the compression member to the link 19. Secured to the base 8, on opposite sides of the link 19, is a pair of angle bars 26 for guiding the link in its vertical movement. Extending transversely through the link 19, adjacent its lower end, is a bar 27 forming shoulders 28, which coact with the channel bars 11 for limiting the inward movement of the link 19 under the action of the fluid motor.

In the form shown, the fluid motor comprises a cylinder 29 rigidly secured to one of the supporting columns 9, and having a piston 30, which extends between the channel bars 11, and is pivotally connected to the outer end of the lever 18. The motor 20 may be operated by either compressed air or liquid under pressure directed into the cylinder 29 above the piston 30 and controlled by suitable valves, not shown.

In the operation of assembling a truck bolster, the strut 2 is first secured to the compression member 1 by rivets or other suitable fastening means and the compression member is then placed on the supports 9 in an inverted position, as shown in Figure 1. The pin 23 of the link 19 is then inserted through the king bolt hole 5 and is secured to the compression member by the wedge 25. Fluid under pressure is then admitted to the motor 20, which forces the lever 18 downwardly so as to draw the link 19 to the limit of its movement, as determined by the shoulders 28. The inward movement of the link 19, under the action of the lever 18, flexes the compression member toward the base 8, which causes the ends thereof to move inwardly relative to the supports 9. While the compression member is retained in its flexed position the tension member 3 is placed over the strut 2, as shown in Figure 1, and the ends thereof are brought into engagement with the ends of the compression member. The flexing mechanism is then released sufficiently to permit the ends of the compression member to move outwardly into interlocking engagement with the shoulders 6 of the compression member. The tension and compression members may then be riveted together at their ends.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A device of the class described comprising a base, a pair of supports on said base for supporting a compression member adjacent its ends, a lever pivotally mounted on said base, a link pivotally connected to said lever and arranged for attachment to the compression member intermediate its points of support, and mechanism arranged to shift said lever so as to draw said link for flexing the compression member, said link and base having coacting shoulders for limiting the movement of said link under the action of said mechanism.

2. A device of the class described comprising a base, a pair of supports on said base for supporting a compression member adjacent its ends, a lever pivotally mounted on said base, a link pivotally connected at one end to said lever, a pin mounted at the other end of said link for insertion through an aperture in the compression member, said pin having a slot formed therein, a block coacting with said slot for detachably securing said link to the compression member, and mechanism arranged to shift said lever for drawing said link so as to flex the compression member.

3. A device of the class described comprising a base, a pair of supports on said base for supporting a compression member adjacent its ends, a lever located between said supports and pivotally connected at one end to said base, a link pivotally connected to said lever adjacent said one end, said link having means for attachment to the compression member intermediate its ends, a fluid motor including a cylinder mounted on said base, a piston movable in said cylinder and connected to the other end of said lever, said piston being operable for drawing said link so as to flex the compression member toward said base, and a shoulder formed on said link and arranged to coact with said base for limiting the movement of said link under the action of said fluid motor.

Signed at Chicago this 22nd day of March 1922.

CHARLES FRANCIS HUNTOON.