Feb. 11, 1941. A. CLAUD-MANTLE 2,231,519

SAWHORSE STRUCTURE

Filed Jan. 18, 1940

Fig.1.

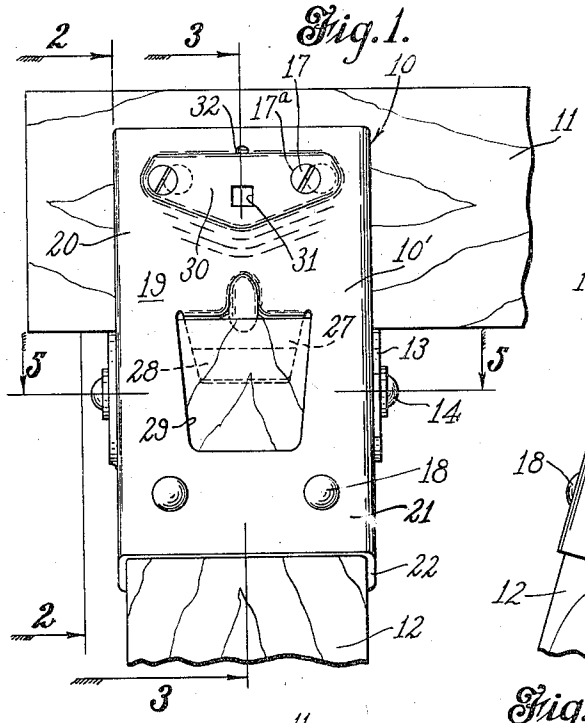


Fig.2.

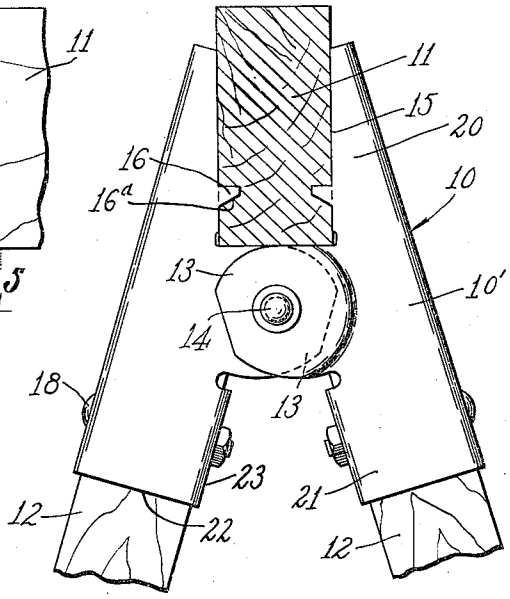


Fig.4.

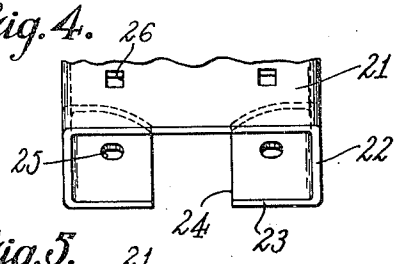


Fig.3.

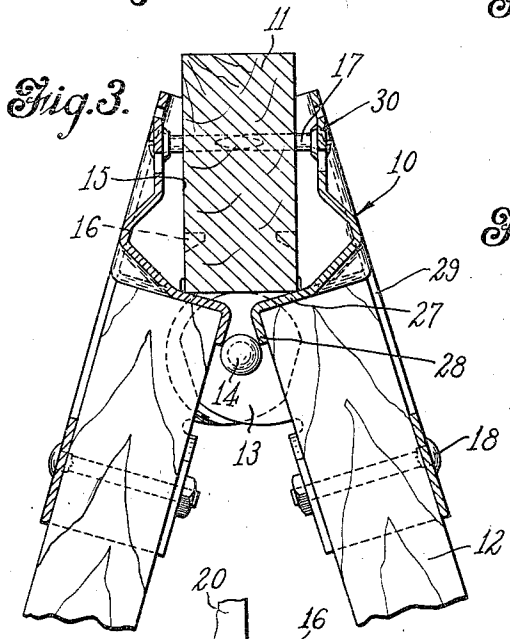


Fig.5.

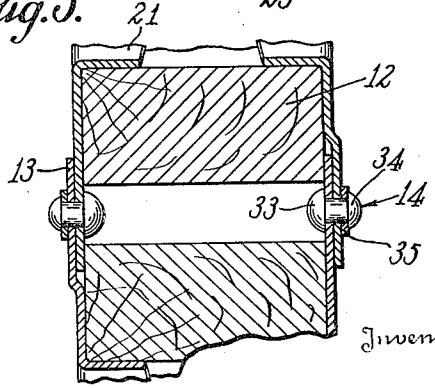
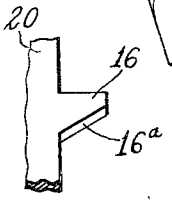


Fig.6.



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UNITED STATES PATENT OFFICE

2,231,519

SAWHORSE STRUCTURE

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Application January 18, 1940, Serial No. 314,441

8 Claims. (Cl. 304—5)

This invention relates to the structural features of sawhorses or trestles.

In order to eliminate the waste involved in having the carpenters construct a number of the usual sawhorses for the particular job, such as the erection of a building, which sawhorses will frequently be left behind as waste material after the job has been finished, it has been proposed to furnish sawhorses or trestles of the knock-down or collapsible type. These devices have usually involved the employment of a metal fixture which has been intended for the ready application to it of the leg members and the longitudinal member or stringpiece. Such devices have not been adequate, however, to the requirements of a device of this character. Among other objections was the necessity for quite accurate fitting of some of the wooden parts to the metal fixture, which prevented two by fours such as found in the local lumber market from being applied in their natural condition to the metal fixture. The metal fixtures were also unsatisfactory for other reasons.

One object of my invention is the provision of an improved sawhorse of the knock-down type.

Another object is to provide a metal fixture by means of which a sawhorse can be readily built up with ordinary two by fours acting as legs, and with an ordinary two by four or a piece or board of other dimensions acting as the backbone or stringpiece, all of the lumber being conveniently and easily applicable to the fixture.

Another purpose which I have in view is the provision of a structure which is very strong.

Another purpose is to furnish a fixture in the form of two sheet metal members hinged together, which fixture is simple and inexpensive.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is a fragmentary side elevation of one of the upper corners of a sawhorse embodying my improvements;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is a fragmentary perspective view of one of the leg sockets of the fixture or hinge;

Fig. 5 is a section on line 5—5 of Fig. 1; and

Fig. 6 is a fragmentary perspective view showing one of the teeth or fangs associated with the upper part of the fixture or hinge for biting into the stringpiece.

In a sawhorse such as contemplated by my invention, the legs are constituted by ordinary two by fours cut to length and having square ends; the stringpiece or horizontal member is constituted by an ordinary two by four, but may, if desired, be a piece or board of other dimensions; and at each end of the sawhorse a metal fixture is employed which is in the nature of a hinge having two leaves or members that preferably are interpivoted intermediate of their upper and lower ends. The lower parts of the hinge members are formed as sockets into which the upper ends of the wooden legs are thrust; and the upper end portions of the hinge members are scarfed or beveled at their inner portions so as to provide cheeks which will engage the sides of the wooden stringpiece. Preferably the cheek portions of the hinge structure are provided with teeth or fangs which bite into the sides of the wooden stringpiece as the hinge is moved on its pivot, and draw it down into a suitable seat. There are also provisions for fastening the stringpiece in place after assemblage, and there are provisions for fastening the upper ends of the legs in their sockets. The hinge structure is preferably made of sheet metal so as to reduce its cost, and preferably the pivotal connection between the hinge members is provided by forming on each of them integral end lugs adapted to be hinged or pivoted to corresponding lugs of the other member.

In the drawing the sheet metal hinge is shown at 10, the stringpiece at 11, the legs at 12, the pivot lugs on the respective hinge members at 13, and the hinging rivets at 14. The beveling or scarfing of the upper portions of the hinge to provide cheeks is shown at 15, and at 16 are shown the teeth or fangs associated with the cheeks for biting into the stringpiece and holding it in place. In the instance shown the stringpiece is fastened in place in the hinge structure by wood screws 17 passing through the upper parts of the hinge members, and the legs 12 are held in place by carriage bolts 18 passing through the walls of the sockets in which the legs are received.

The hinge 10 comprises two hinged members 10' which are identical. Each such member comprises a body portion having a plate-like outer wall 19 and inturned side flanges 20 formed integral therewith. These side flanges are cut away at the upper part of the structure to provide the beveled portions 15 which receive the stringpiece, these beveled portions being at the inner edges of the flanges. The teeth 16 are made integral with these side flanges intermediate of the upper and lower ends of the beveled portions 15.

The hinge member, being of substantially U-shaped cross-section at the upper part, has side

edge portions that are adapted to engage against the side surfaces of the stringpiece.

At the lower portion of each hinge member, that is, the portion below the pivot, the same is provided with a suitable socket 21 to receive the upper end portion of the wooden leg member. The socket portion 21 is formed integrally with the hinge member, which in this location has side walls 22. Extending inwardly from these side walls 22 are flanges 23 the free inner edges of which, 24, are spaced apart so as to leave an open space, as shown in Fig. 4. Thus the socket for the leg is made of substantially rectangular shape, with an opening or gap in the middle of the inner side. The bolts 18, previously mentioned, pass through openings 25 in the flanges 23, these being elongated openings, and the bolts pass through openings 26 in the outer face or body of the hinge member. The openings 26 are preferably made square so that carriage bolts may be employed for fastening the leg in place.

The legs 12 are extended up into the sockets until the upper ends of the legs come against abutment members 27, which are integral parts of the hinge members. These abutments are formed by inwardly and laterally extended walls supported from the bodies of the hinge members, and at their inner portions these abutments 27 are provided with downwardly turned lips 28 providing angles into which the upper extremities of the legs extend, with the lips 28 lying against the inner faces of the wooden pieces.

The abutments 27 not only act to position the legs 12, but also are adapted to position the stringpiece 11, inasmuch as these abutments are adapted to form a seat against which the lower part of the stringpiece is positioned, as shown in Fig. 3. Preferably each abutment 27 is formed by striking out of a portion 29 of the hinge member body an integral tongue, which is displaced inwardly and upwardly with respect to the body, as shown in Fig. 3, and has its inner end bent downwardly to form the lip 28, previously mentioned.

Preferably the screws 17, previously mentioned, pass through a flattened portion 30 on the hinge member body, which flattened portion is at a slight angle to the body, so that when the sawhorse is built, portion 30 will be substantially parallel to the opposing face of the stringpiece. The flattened portion 30 is also provided with a central square hole 31 which would permit the use of a carriage bolt in place of the screws 17. Also it will be noted that it is preferred to provide the body of the hinge member along the upper margin of the flattened portion 30 with a hole 32 through which a nail can be passed for connecting the stringpiece temporarily with the hinge member.

It will be observed that the holes 17a through which the screws 17 pass are so arranged that a screw passing through one of the holes will not meet a screw coming from the other side of the stringpiece. Each hole is laterally offset from the corresponding hole on the other side of the device. This is accomplished by having one hole 17a of a hinge member at a greater distance from the longitudinal median line of the hinge member than the other hole. Therefore, the two hinge members being identical, it will be seen that where in Fig. 1 the screw holes toward the observer are located in the manner shown (with the one at the left farther from the longitudinal center line), the holes in the identical member on the far side of the stringpiece will have the locations shown by the dotted lines in Fig. 1.

The rivets 14, by means of which the co-acting ears 13 of the respective hinge members are interpivoted, may be of the form shown in Fig. 5, the rivet having a large rounded head 33 at the inner end of its shank, and a small rounded head 34 at the outer end, the head 34 being riveted against a small washer 35. The shanks of the rivets are of such length as to permit the hinge members to swing relatively to each other with sufficient but not too much facility.

In the operation of erecting the sawhorse it will be understood that the legs 12 can be created by cutting off two by fours to a suitable length. The upper ends of these two by fours are shoved into the sockets, previously referred to, and fastened there in any suitable manner, as by means such as the carriage bolts 18. An end of the stringpiece can then be introduced between the cheeks or jaws at the upper portion of the hinge, and the hinge closed on the stringpiece. In this operation the teeth or fangs 16 enter the wood of the stringpiece, and as these teeth or fangs have inclined lower edges (shown at 16a in Fig. 6) the effect of closing the cheeks or jaws on the stringpiece is to draw the latter in a downward direction. This causes it to be very firmly seated against the abutment formed by the inturned tongue members, previously described. Thereafter the stringpiece can be fastened in position between the cheeks, either by means such as the wood screws, or by a carriage bolt or otherwise.

One of the advantages of my device is that the width and also the depth, as well as the length of the longitudinal member or stringpiece, can be varied. Where a very long trestle is to be provided, supporting considerable weight, it may be desired to insert between the cheeks of the hinge a board which is comparatively wide and has the same or less thickness than the member 11, shown in the drawing. On this board the teeth 16 will act in the manner previously described for biting into the wood and holding it in place. In some cases it is unnecessary to use fasteners passing through the bodies of the hinge members into the wood.

It will be seen that by my invention a knockdown structure is provided in which the parts can be readily and quickly assembled, and which provides a very strong sawhorse structure, having greater strength than an ordinary sawhorse in which the legs are nailed on to the stringpiece. By observing Fig. 3 it will be evident that in my device the weight of the stringpiece and its load is imparted very directly to the legs of the horse in an endwise direction. The weight is carried very directly by the legs, which are at slight angles to the vertical. The lower face of the stringpiece is practically against the upper ends of the legs, only the abutment members 27 being interposed. There are practically no shearing strains on the bolts or other fasteners, and separation of the legs is resisted by the compressive action of the cheeks on the stringpiece.

When the job of building or the like has been completed, the sawhorse can be knocked down more or less to facilitate transportation. The stringpiece can be removed, and the end members of the structure can then have their legs folded together so that they can be packed in a small space. The legs can also be taken out of the hinge, and put to other uses if desired.

It is, of course, an advantage that only straight

cuts of lumber are required for building the horse or trestle.

The improved hinge structure to which the wooden members are connected is of very simple form, requiring only a minimum amount of sheet steel or like metal. By using rivets for pivoting one member to the other the expense is lowered.

By having the sockets for the legs left open at one side they more readily receive and conform to the legs. By having the bolt holes in the sockets elongated in a lateral direction the socket can be adapted to the varying dimensions of the leg.

While I have shown herein only one form which my invention may assume in practice, it is to be understood that it is capable of many different embodiments, and that various modifications and detail changes may be made without departing from the principles of the invention or the scope of the claims.

What I claim is:

1. In a sawhorse structure, upwardly and inwardly inclined leg members having squared-off upper ends, a stringpiece supported at its lower part on said ends, and a metal fixture by means of which the legs and the stringpiece are interconnected comprising hinge members having laterally directed abutments each interposed between and engaging a lower corner of the stringpiece and an upper face of a leg end, said hinge members being formed of sheet metal, and said abutments being constituted by integral inwardly extending tongues on the hinge members.

2. A sawhorse or trestle fixture, comprising swinging members pivoted together between their ends, the portions of the members on one side of the pivot being constructed to grip a stringpiece, and the portions at the opposite side of the pivot being formed to provide substantially rectangular sockets for inclined supporting legs, said members being formed of sheet metal, the aforesaid gripping part of the structure being of U-shaped cross-section, and said members having integral inwardly extending tongues struck out of the outer lateral walls thereof providing abutments for the lower part of the stringpiece, said abutments positioning the upper extremities of upwardly and inwardly inclined legs fastened in said sockets.

3. A sawhorse fixture comprising sheet metal members pivoted together between their ends and having portions at one side of the pivot constructed to grip a stringpiece and portions at the opposite side of the pivot formed as substantially rectangular inclined-leg-receiving sockets, said members having integral inwardly extending tongues struck out of the outer walls thereof providing abutments for the lower part of the stringpiece and for the upper extremities of the legs.

4. A sawhorse fixture comprising sheet metal members pivoted together between their ends and having portions at one side of the pivot constructed to grip a stringpiece and portions at the opposite side of the pivot formed as substantially rectangular inclined-leg-receiving sockets, said members having integral inwardly extending tongues struck out of the outer walls thereof providing abutments for the lower part of the stringpiece and for the upper extremities of the legs, said tongues having at their inner ends downturned lips adapted to engage the inner surfaces of the legs.

5. A sawhorse fixture comprising sheet metal members pivoted together between their ends and having portions at one side of the pivot constructed to grip a stringpiece and portions at the opposite side of the pivot formed as substantially rectangular inclined-leg-receiving sockets, said members having integral inwardly extending tongues struck out of the outer walls thereof providing abutments for the lower part of the stringpiece and for the upper extremities of the legs, said leg-receiving sockets being closed at their outer sides but open at the intermediate parts of their inner sides whereby they may be more readily conformed to the legs.

6. A sawhorse fixture comprising swinging sheet metal members each having intermediate of its ends and at each side a lateral pivoting ear, rivets at the respective sides passing through the ears and pivoting the members together, the portion of each member above the pivot being constructed to grip a stringpiece and a portion below the pivot being formed as a substantially rectangular socket for an inclined wooden supporting leg, said members having integral inwardly extending abutment means on their outer walls providing abutments for the lower part of the stringpiece and for the upper parts of the legs, said members being of identical form.

7. A sawhorse fixture comprising swinging sheet metal members pivoted together between their ends, the portions of the members above the pivot being constructed to grip a stringpiece and the portions below the pivot being formed as substantially rectangular sockets adapted to receive inclined wooden supporting legs, said members having inwardly extending tongues of less width than the members bent up from the outer walls of the rectangular sockets and adapted to space the upper ends of the legs from the lower corners of the stringpiece cross section, the inner ends of the tongues being at approximately the same level as the pivotal connection between the members.

8. A sawhorse fixture comprising a hinge having sheet metal members, each of said members having a beveled off upper portion presenting a stringpiece-receiving socket and having a lower leg-receiving socket, each of said members having about midway between the upper and lower extremities thereof and at each end an ear extending inwardly beyond the corresponding leg-receiving socket in a position where said ear will lie below but close to the lower surface of the stringpiece, means engaging said ears for pivoting the hinge members together, and integral means associated with the outer walls of the hinge members extending inwardly somewhat above the pivot means and providing abutments for the lower part of the stringpiece and for the upper parts of the legs.

ARTHUR CLAUD-MANTLE.