April 9, 1935. H. W. GOULD ET AL 1,996,761

SUPPORTING JOINT

Filed March 19, 1934

Fig. 1

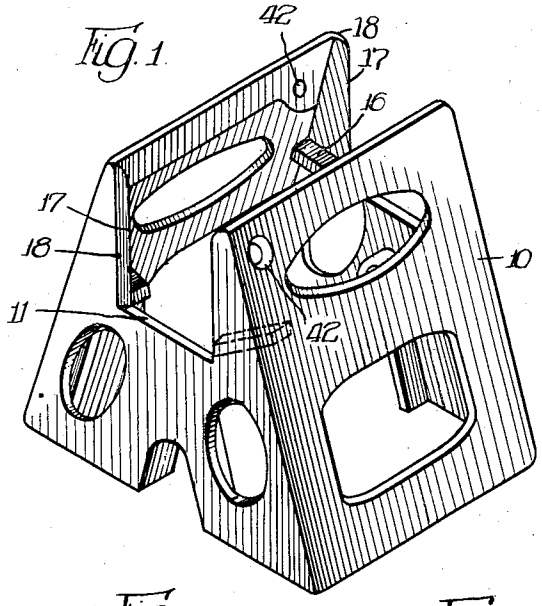


Fig. 2

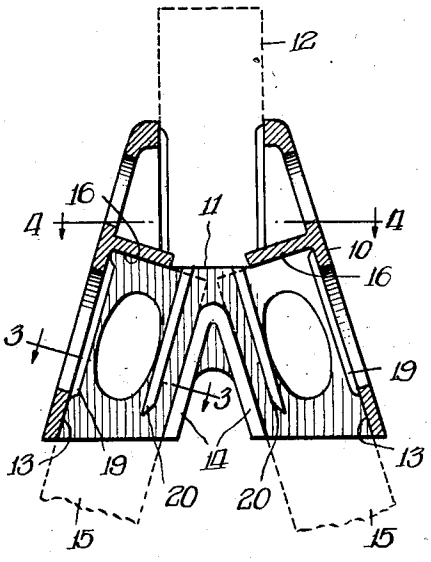


Fig. 3

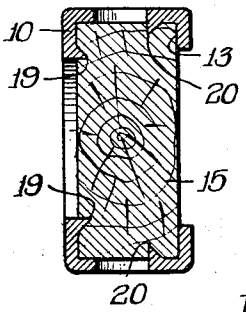


Fig. 4

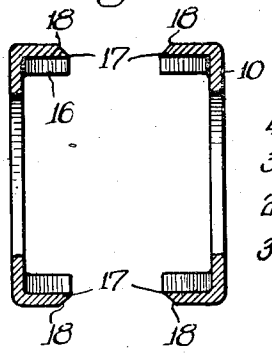


Fig. 7

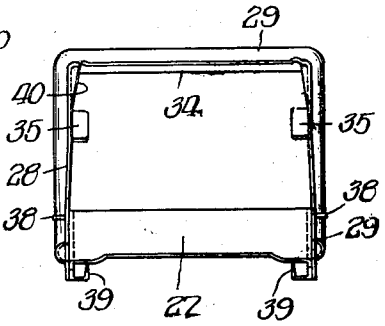


Fig. 5

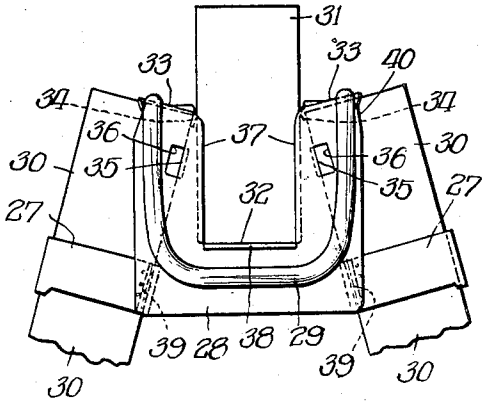
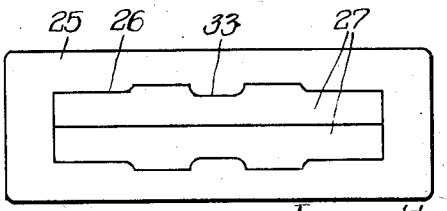


Fig. 6



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UNITED STATES PATENT OFFICE

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SUPPORTING JOINT

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Application March 19, 1934, Serial No. 716,242

9 Claims. (Cl. 304—5)

This invention relates in general to a supporting joint for scaffolds, carpenters' horses and the like and has more particular reference to a carpenters' horse type of structure.

An important object of the invention is in the provision of a metal joint for receiving standard sizes of lumber for making up a supporting jack or horse by simply inserting lumber of standard sizes in the sockets or openings thereof without requiring any special fitting of the lumber therein.

A further object of the invention is in the provision of a supporting joint in which means are provided for causing the lumber to fit tightly therein without looseness or play even though the lumber ordinarily fitting in the joint is slightly undersized or has dried or shrunk to a considerable extent.

A further object of the invention is in the provision of means for gripping the pieces of lumber inserted therein for holding them tightly and firmly in place.

A still further object of the invention is in the provision of a supporting joint which comprises a single unitary casting or a stamping made from a single piece of material.

Other objects of the invention will appear hereinafter, the accompanying drawing illustrating preferred embodiments thereof.

In the drawing:

Fig. 1 is a perspective of a supporting joint in accordance with this invention as made from a casting; Fig. 2 is a sectional view of the joint.

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Fig. 4 is a section taken on the line 4—4 of Fig. 2.

Fig. 5 illustrates a modification formed of sheet metal.

Fig. 6 is a plan view of a stamping from which the structure of Fig. 5 is formed, and Fig. 7 is a side elevation of a stamping as shown in Fig. 5.

A support in the form of a carpenter's horse may be used in a variety of ways for scaffolds, to support additional tables for occasional use as well as for the well known use by carpenters and other mechanics. One of the great objections to their use is that they occupy considerable space and do not fold or pack readily in a small space. The present invention overcomes these objections by providing a joint in which lumber of ordinary or stock sizes may be inserted as a cross piece or the legs of the horse without any forming or cutting and fitting of the legs and cross pieces except cutting to the proper length.

An objection to the use of such a structure even with ordinary lumber is that if the lumber is not of the proper size or if it has become dried or shrunk, the pieces will not fit the openings or sockets of the joint tightly and may, therefore, be loose or easily disconnected and may break or fall in actual use. The present invention, therefore, is directed particularly to the provision of a supporting joint in which gripping means is provided for engaging the pieces inserted in the joint and holding them tightly in place even though they are considerably smaller in size than the pieces for which the openings are intended.

Referring now more particularly to the drawing, a cast joint 10 is shown more clearly in Figs. 1 and 2 which is somewhat angular in cross section and has an opening 11 in the top for receiving a cross or connecting member 12 and has sockets 13 opening from the bottom at an angle to each other, the sockets being defined by the sides and ends of the casting and by an angular inner projecting rib 14 at each end on the inside of the casting. A leg 15 is inserted from the underside into each of the sockets 13 and at the top of the socket is a rib or projection 16 to prevent the leg from engaging with the underside of a cross piece 12 in the top opening of the casting.

In order to bind the cross piece 12 tightly in place the end opening 11 of the joint is made somewhat narrower than the size of the cross piece it is intended to receive and the side edges 17 of each of the end openings are pointed or sharpened either by casting them that way or by grinding the adjacent surface 18 until the edges 17 are sufficiently sharp to tightly engage a cross piece 12 inserted and pressed therein.

Likewise the inside of the socket 13 is formed with one or more ribs 19 and 20 extending lengthwise of the socket at the sides and ends thereof and having inclined or bevelled lower extremities and adapted to engage and cut into the sides of the leg 15 which may be inserted in the socket.

With this construction the legs and cross pieces will be held tightly in place by the joint even though the lumber used is scanty in size or has become so by drying or shrinking.

In reusing the same pieces they may be turned either end for end or reversed so that when reengaging the ribs will not cut into the lumber in the same locations.

A similar device may be made of a single piece of sheet metal as shown more clearly in Figs. 5,

6 and 7. A piece 25 of sheet metal is cut with an interior recess 26 and two similar pieces 27 of material are cut from the opening. The outer piece is formed as a yoke 28 with a strengthening rib 29 to fit over the tops of legs 30 and to receive a connecting cross piece 31 therebetween in the end openings 32 of the yoke member. Each piece 27 is connected to one side of the bottom of the yoke by spot welding to form a retaining strap to embrace the end of an inserted leg 30 and the intermediate portion of the yoke forms a stop 33 for engaging the end of a leg 30 which is further held in place and prevented from engaging with a cross piece 31 by a downwardly turned rib 34 at the inner side of the top of the yoke. Also at the ends of the yoke member ears or projections 35 are pressed inwardly from openings 32 to form a guide and seat for the adjacent portion of the inserted legs 30.

In order to hold the legs and cross pieces tightly in place in this joint, the side edges 37 of the openings 32 are sharpened or pointed to cut into and hold the cross piece 31 tightly in place and the bottom of the opening is turned outwardly to form a lip 38 which forms an additional supporting surface for the cross piece 31 which would ordinarily dig into the metal at these points unless additional contact surface is provided.

In order to engage the legs 30 and hold them tightly in place, the strips 27 which extend above the outer sides of the legs have inwardly turned edges 39 as shown more clearly in Fig. 7 adjacent their points of connection to the lower corners of the yoke member 28 which are preferably sharpened or pointed and extend parallel with the edges and sides of the legs inserted therein. The upper edge of each side of the yoke member is also turned inwardly at 40 and pointed or sharpened to engage the sides of an inserted leg adjacent the extremity thereof. With this construction the legs will be held tightly in the sockets formed by the strap 27 and the stop portions 33 at the top of the yoke member and will be engaged by the knife or sharp edges 39 and 40 at the sides of each leg at its upper extremity.

In this latter form the extremities of the legs are also located at the sides of the cross member instead of below it as in the form shown by Fig. 1 but in neither case do the legs engage the cross member or assist in binding it in place.

In both of these forms stock sizes of lumber are intended to be used and it is unnecessary to cut them to any particular shape except to the length desired even though the lumber does not fit the opening it may be pressed into position by engagement with the knife edges which hold the pieces tightly in place.

If desired additional openings may be provided such, for example, as the screw openings 42 as shown in Fig. 1 for inserting a screw through the wall of the joint member into engagement with the cross or leg members.

To take apart the connected members for storage or shipment they are simply pulled out of the sockets or openings and if they should stick by reason of the knife edge engagement the ends of the legs are easily accessible when the cross piece is removed for pounding the legs loose from their sockets. The legs and cross pieces may be assembled in compact relation and the joints ready for reuse with the same or different pieces by simply inserting them. No skill or tools are necessary in assembling the structures or taking them apart and when once set up the structures are strong and rigid; they are not likely to become loose in any ordinary usage.

We claim:

1. A metal supporting joint having parts forming an open slot in the top and ends to receive a connecting member and connected means forming sockets at the bottom inclined to each other with a stop at the top of the socket to prevent an inserted leg from projecting into the open slot at the top and with sharpened ribs extending lengthwise in the sockets positioned for engaging the legs inserted therein.

2. A metal supporting fitting having an open slot at the top and angular sockets extending therein at the bottom, means forming stop members at the upper ends of the sockets to prevent a leg from projecting into the top slot, and the sides of the top slot having knife edges to engage and grip the sides of a connecting strip inserted from the top of the slot therein.

3. A metal supporting coupling having an open slot in the top extending downwardly in the ends and with the sides of the ends sharpened to engage the edges of a member inserted therein, and having sockets opening in the bottom of the coupling and at an angle to each other and to the top slot and with inwardly and longitudinally extending sharp ribs within the sockets in position to grip legs inserted therein.

4. In a metal supporting joint a top slot and bottom sockets therein at an angle to the slot, the sockets having inwardly extending sharp ribs extending longitudinally of the sockets and tapered at the lower ends and positioned to engage the sides of a leg inserted in the socket.

5. A supporting joint for a rectangular cross beam and supporting legs, the joint being a metal shell having spaced ends with a slot extending downwardly from the top and the sides of the ends having sharp blades adapted to engage and transversely grip a cross beam inserted therein, lateral extending means between the ends forming sockets for receiving supporting legs, and means within the joint and between the ends for engaging the upper ends of legs inserted in the sockets for limiting their upward movement and preventing the legs from engaging a cross piece inserted in the top slot.

6. A supporting joint comprising a cross beam and supporting legs, a metal joint therefor comprising sheet metal having straps cut from the central portion thereof, the outer piece of sheet metal being bent to extend over the tops of the legs and the cut out recess forming an open top slot for receiving a cross beam and the edges of the slot having sharp blades for engaging and gripping a cross beam transversely therein, and the straps being rigidly attached to the lower edges of the outer member to form a retaining socket into which the legs are inserted against the upper sides of the yoke member.

7. A supporting joint for a rectangular cross beam and supporting legs, the joint comprising a piece of sheet metal having straps cut from the central portion thereof, the outer member being bent to form a yoke extending over the top of the legs and within an opening therein forming an open slot for the cross beam, the straps being attached to the lower, outer edges of the yoke to form a retaining socket into which the legs are inserted, and sharp ribs turned inwardly from the straps and the yoke and extending longitudinally in the sockets in position to engage the sides of the leg ends inserted in the socket.

8. A supporting fitting for a cross beam and supporting legs, the fitting comprising a yoke member to extend over the top of opposite legs and with a slot extending downwardly from the top to receive a cross beam, the edges of the slot being sharpened to transversely engage a cross beam therein, straps secured to the lower ends of the yoke member and projections extending inwardly from the ends of the yoke member together forming a socket for receiving supporting legs and for preventing the legs from engaging a cross beam inserted in the slots at the top thereof, and the socket forming straps having sharpened ribs extending lengthwise therein to longitudinally engage a leg inserted in the sockets.

9. In a sheet metal supporting joint, an apertured yoke member to extend from the sides over the tops of opposite supporting legs and with the opening therein forming a top slot for receiving a cross beam, the edges of the slots being sharp to engage and transversely cut into a cross beam inserted therein and having an abutment portion at the lower side of the slot to support a cross beam inserted therein, and means in connection with the yoke forming an open socket for receiving the upper ends of the supporting legs inserted therein.

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