

March 27, 1928.

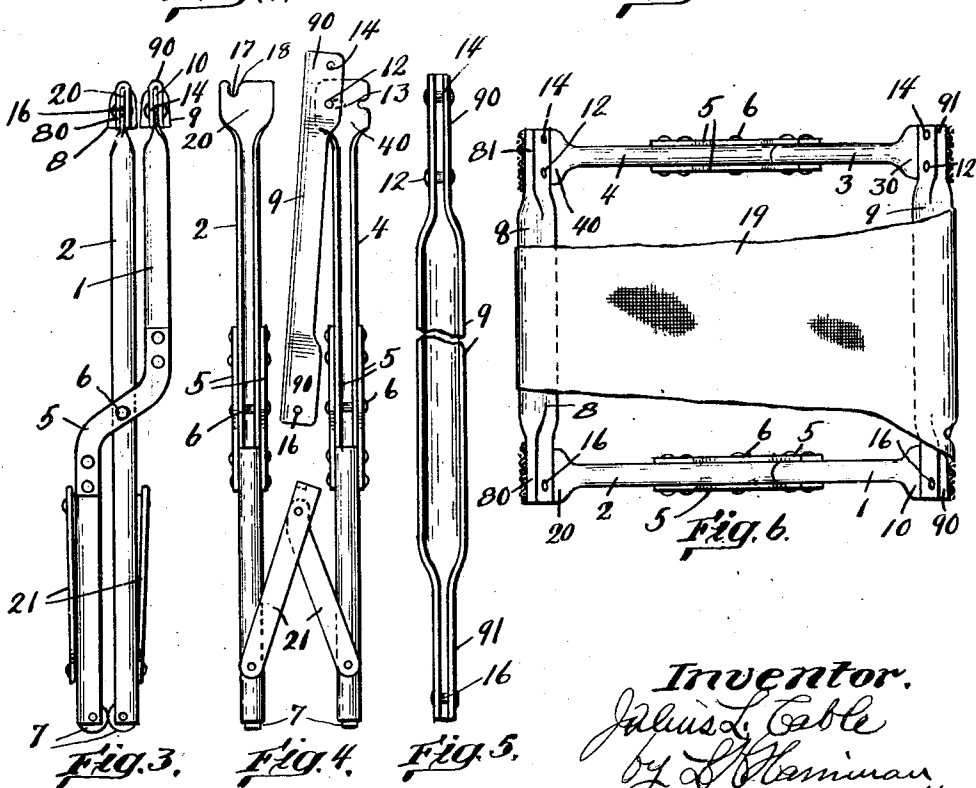
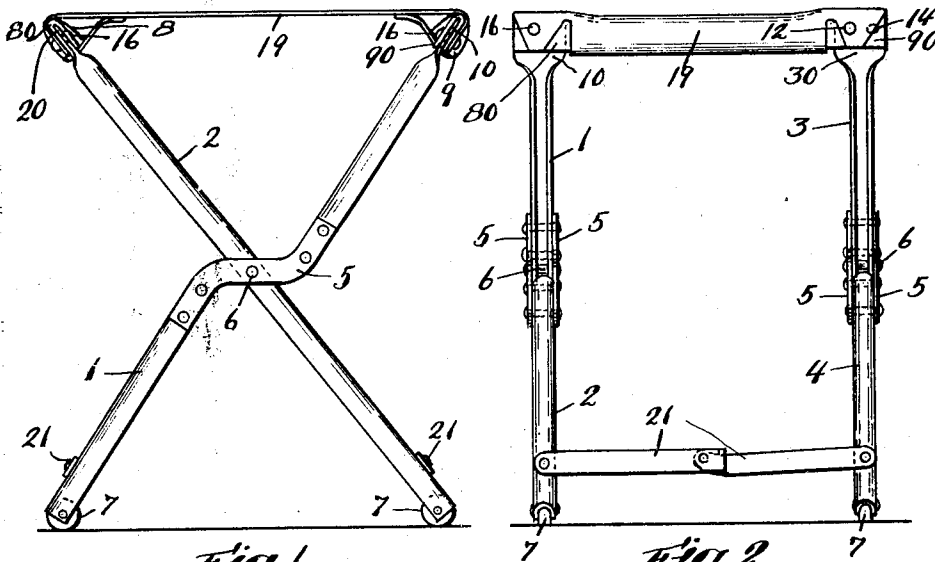
1,664,059

J. L. CABLE

FOLDING CAMP CHAIR

Original Filed Sept. 25, 1924

2 Sheets-Sheet 1



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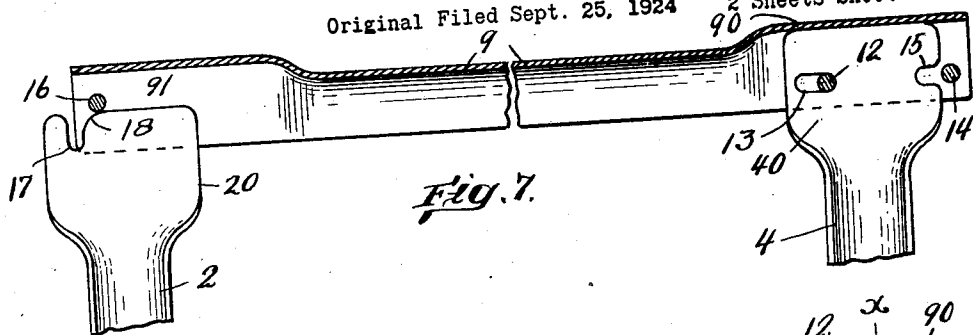


Fig. 7.

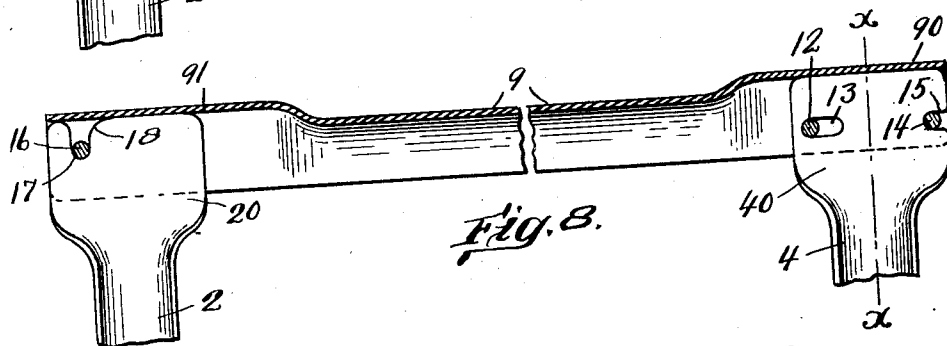


Fig. 8.

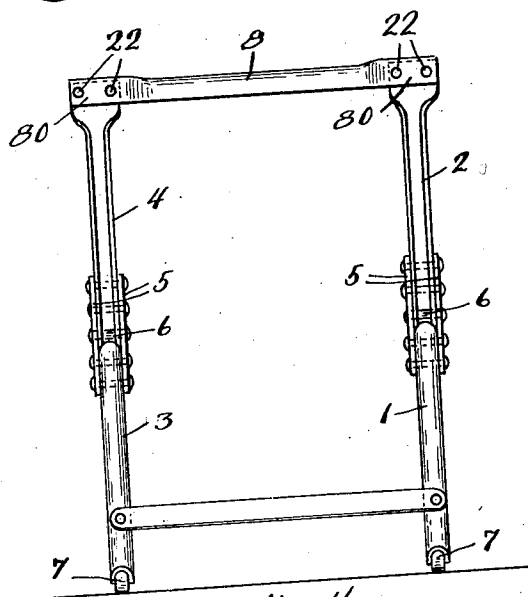


Fig. 9.



Fig. 10.

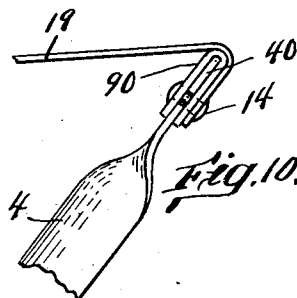


Fig. 11.

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UNITED STATES PATENT OFFICE.

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FOLDING CAMP CHAIR.

Application filed September 25, 1924, Serial No. 739,777. Renewed June 7, 1927.

This invention primarily relates to that class of folding chairs, known as camp chairs, or stools, which comprise two pairs of pivotally connected, crossed legs, the legs of each pair of which are connected by a cross bar between which a canvas seat is stretched.

Prior to my invention, chairs of this character have usually been made from wood, and, for this reason, lack strength and durability, and the primary object of my invention is to provide a practicable manner of constructing such a chair of semi-tubular metal, so that it will be much more durable than those which are constructed of wood and may be manufactured at no substantial increase in expense, as compared with those having a wooden frame. Also to provide a device of this character which will have sufficiently rigid joints between the legs and the cross bars which support the canvas, to withstand any lateral strain in the direction of the cross bars to which they are likely to be subjected, so that, under all ordinary conditions of use, the legs and cross bars will be held at right angles to each other. Other objects of my invention are to provide a form of camp chair which is provided with a form of joint between the cross bars and legs which permits ready disconnection at one end of the bars, to permit folding of the bars and legs in compact form, and which is adapted for ready reconnection, and, when reconnected, will provide a sufficiently rigid joint to fulfill the requirements above indicated.

I accomplish these objects in the manner hereinafter described, and as illustrated in the accompanying drawing in which:

Figs. 1 and 2 are end and side elevations respectively of a folding chair illustrating a preferred embodiment of my invention.

Figs. 3 and 4 are similar elevations thereof in folded positions.

Fig. 5 is a detail view of one of the side bars.

Fig. 6 is a plan view of the chair in position of use.

Figs. 7 and 8 are longitudinal sectional views of a cross bar, on an enlarged scale, illustrating the manner of connection with the legs.

Fig. 9 is a sectional view at line $x-x$ of Fig. 8.

Fig. 10 is a detail end view of one of the joints.

Fig. 11 is a side view of a modification of the invention.

In accordance with my invention, the legs and cross bars of the chair are formed of metal bars in semi-tubular form, flat metal strips being bent to provide a semi-cylindrical middle portion and parallel side portions, so that greatly increased rigidity is secured.

In the construction of the chair two pairs of legs 1, 2, 3, and 4 are provided, the legs 1 and 3 of each pair being formed in two sections which are connected by off-set metal straps 5, which are riveted to opposite sides thereof, the other legs 2 and 4 of each pair being of continuous strips of metal which are extended between said straps 5 and are connected thereto by pivots 6 which extend through each pair of straps 5 and through the sides of the legs 2 and 4, this arrangement permitting each pair of legs to be folded side by side. Cylindrical rubber cushions 7 are preferably mounted between the sides of the legs at their lower ends.

Said legs are each provided at its upper end with a flat end portion, or tongue 10, 20, 30 and 40 respectively, each of which is disposed in a plane approximately midway between the edges of the sides and the middle of the semi-cylindrical portion, said tongues being preferably provided in the operation of bending a flat strip into semi-tubular form by leaving an unbent end portion sufficient to form the same. The end edges of said tongues are cut off square so that they are perpendicular to the side edges thereof. The cross bars 8 and 9 are bent in semitubular form throughout their intermediate portions, and each bar has both of its end portions flattened, or bent sharply along its middle line, to form sockets 80, 81 and 90, 91, the sides of which are flat and parallel and separated by a distance but slightly greater than the thickness of the metal, to permit the tongues on the upper ends of the legs to be fitted closely therein, with their end edges, throughout the length thereof, engaged with the bottom of said sockets, so as to provide a firm bearing, as shown in Figs. 1, and 7 to 10. In assembling the parts, the tongues 10 and 20 of the legs 3 and 4 are inserted in the sockets 81 and 91 respectively at one end of each

cross bar 8 and 9, so that the end edge of each tongue engages the bottom of the corresponding socket, and a pivot bolt 12 is fixed in the sides of each of said sockets, and is passed through a transversely elongated aperture 13 formed in each tongue 30 and 40, pivot bolts being arranged adjacent the inner edges, or the side edges of said tongues which are nearest the other pair of legs, and in position to permit the side bars to be swung down against the inner sides of said legs, the transverse elongation of the apertures 13 permitting limited longitudinal sliding movement of the cross bars on the ends of the legs to which they are connected, for the purposes to be explained. A locking pin 14 is also fixed in the sides of each of said sockets 81 and 91, adjacent the ends thereof and a notch 15 is formed in the outer edge portion of each tongue 30 and 40 in position to receive each pin 14, respectively, when the bar is in a position at right angles to the leg. A locking pin 16 is fixed in the sides of the opposite sockets 80, 90, adjacent the end edges and the bottoms thereof and correspondingly disposed notches 17 are formed in tongues 10 and 20 of the legs 1 and 2, which extend from the end edges thereof at right angles thereto. The outer portions of the notches 15 and 17 are both somewhat enlarged to permit ready entrance of the pins 14 and 16 therein, the inner edge of each of the notches 17, or its edges next the opposite legs being beveled to a somewhat greater extent than the other edges of the notches to form cam faces 18. A canvas 19 is attached to the cross-bars 8 and 9 to form the seat, and may be held in position thereon by the pins 14 and 16, which are preferably riveted against it. A pair of jointed braces 21 of common form connect the opposite legs adjacent their lower ends.

As shown in Fig. 4, the cross-bars are adapted to be folded down against the sides of the legs 1 and 2, and when the braces 21 are broken, the legs may be pushed into close proximity and the whole chair folded into a compact bundle. In setting up the chair the legs will be opened and held apart in position by the braces 21 and then the cross bars will be raised and the tongues 10 and 20, on the opposite legs from those to which the cross bars are permanently connected, will be pressed into the sockets 80 and 90. To do this the cross bars will be swung upward and be pushed lengthwise to permit the pins 14 to clear the outer side edges of the tongues 30, 40, and the tongues 10, 20 are pushed into the sockets 80, 90 until the edges thereof engage the pins 16, sufficient looseness of the pivot 12 in its aperture 13 being permitted to permit the opposite ends of the bars to be raised slightly above the right angular position. In this

position the pins 14 will be opposite the notches 15, the pivot 12 will be at the ends of the aperture 13 next said notches 15, and the pins 16 will be engaged with the inclined edges 18 of notches 17, as shown in Fig. 7. The free ends of the cross bars will then be pressed down until the pins 16 engage the bottoms of notches 17. By this movement the inclined edges 18 of said notches 17 will have a cam action on the pins 16 and draw the cross bars longitudinally, so that the pins 14 will be drawn into the notches 15. By the time the pins 16 are engaged with the bottoms of the notches 17, the pins 14 will be engaged with the inner ends of the notches 15 and the bottoms of all the sockets will be firmly engaged with the top edges of all the tongues throughout the entire lengths thereof, as shown in Fig. 8. In this position the pins 16 will be engaged with portions of the edges of the notches 17 which are at right angles to the top edges of the tongues, the pins 14 will be engaged with the sides of the notches 15 which are parallel to said top edges and the pivot bolts 12 will be engaged with the opposite ends of the apertures 13, from the notches 15.

While, with the above described construction, absolute rigidity is not secured, or considered essential, yet the parts are effectively braced against appreciable racking, or canting of the legs out of perpendicular relation to the cross bars, this being prevented by the engagement of the locking pins with the legs, and of the top edges of the legs or tongues with the bars in the manner above indicated.

If it is not desired to provide a construction in which all the parts may be folded together in a roll, so that they lie side by side, but merely to have the legs fold, and to provide a rigid and permanent connection between each end of the side bars and the legs, then the tongues on the legs will be inserted in position in the sockets and several rivets 22 will be passed through the sides of the sockets and intervening tongues, so that, when the riveting operation has been performed, all these parts will be firmly clamped together as shown in Fig. 11. The advantages due to the engagement of the ends of the legs throughout the entire length, in bracing these joints against distortion from the right angular position is important, in this connection, as it greatly increases the rigidity of the joints and reduces the strain on the connecting rivets.

While the supporting frame, above described, has been shown and described as employed in connection with a folding camp chair, it will be understood that the same form of frame may be employed in connection with a folding table without substantial variation thereof, as a table top may obviously be substituted for the canvas on the cross bars, but I consider the construction

described as particularly advantageous when used for a folding chair.

I claim—

1. A folding supporting frame having two pairs of pivotally connected crossed-legs each leg comprising a sheet metal strip bent to provide a semitubular main portion and a continuously extending flattened tongue portion at its upper end, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and socket portions at each end having parallel sides, said tongues being fitted between the sides of the corresponding sockets and having their end edges engaged with the bottoms of said sockets throughout approximately the length thereof and means engaging said sides and tongues to hold said bars and legs in perpendicular relation.

2. A folding supporting frame having two pairs of pivotally connected crossed legs each comprising a sheet metal strip bent to provide a semitubular main portion and a continuously extending flat tongue at its upper end having its upper edge disposed at right angles to the sides of said main portion, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and relatively flattened socket portions at each end, each having parallel sides engaged with the sides of said tongues and an intermediate bottom engaged with the end edges of said tongues throughout approximately the length thereof and means engaging said tongues and the sides of said sockets to hold the same in said position.

3. A folding supporting frame having two pairs of pivotally connected crossed legs each comprising a sheet metal strip bent to provide a semitubular main portion and a continuously extended flat tongue having a straight upper edge disposed at right angles to said main portion, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and socket portions at each end, each having parallel sides between which said tongues are adapted to be closely fitted and a bottom at the middle longitudinal line of the bar with which the end edge of the corresponding tongue is engaged throughout its length, and pins extending through the sides of each socket and the intervening tongue to lock said tongues in their sockets.

4. A folding supporting frame having two pairs of pivotally connected crossed legs each comprising a sheet metal strip bent to provide a semitubular main portion and a continuously extended flat tongue having a straight upper edge disposed at right angles to said main portion, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and socket portions at end, each having parallel sides between which said tongues

are adapted to be closely fitted and having an intermediate bottom with which the end edge of the corresponding tongue is engaged when the bars are in position of use thereon, a pivot pin extending through the sides of the sockets at one end of each bar and through the corresponding tongue and arranged to permit said bars to swing thereon between said position of use and a folded position at the side of the legs to which they are pivoted, and locking means carried by the sockets at the opposite ends of said bars arranged to engage the corresponding tongues to lock the bars thereto when in said position of use.

5. A folding supporting frame having two pairs of pivotally connected crossed-legs each leg comprising a sheet metal strip bent to provide a semitubular main portion and a continuously extending tongue portion at the upper end thereof, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and socket portions at each end having parallel sides between which said tongues are fitted and intermediate bottoms engaged by the end edges of said tongues when said bars and legs are in perpendicular relation, a pivotal connection between the sides of the sockets at one end of the bars and the corresponding tongues arranged adjacent the inner edges of the tongues, to permit said bars to be swung from said perpendicular position to a folded position at the inner side of the legs to which they are pivotally connected, and constructed to permit limited longitudinal movement of the bars transversely of the legs, and means on the sides of the sockets at the opposite ends of the bars arranged to be engaged with the corresponding tongues on longitudinal movement of said bars to lock the same in said perpendicular relation.

6. A folding supporting frame having two pairs of pivotally connected crossed-legs each leg comprising a sheet metal strip bent to provide a semitubular main portion and a continuously extending tongue portion at the upper end thereof, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and socket portions at each end having parallel sides, between which said tongues are fitted, and intermediate bottoms engaged by the end edges of said tongues when said bars and legs are in perpendicular relation, a pivotal connection between the sides of the sockets at one end of the bars and the corresponding tongues arranged adjacent the inner edges of the tongues, to permit said bars to be swung from said perpendicular position to a folded position at the inner side of the legs to which they are pivotally connected, and constructed to permit limited longitudinal movement of the bars transversely of the legs, said tongues to which said bars are pivotally connected

each having a transversely extending recess opening to the opposite edge thereof from said pivotal connection and the sides of each of the corresponding sockets of said bars 5 having a locking pin arranged to be carried into said recesses when said bars are moved longitudinally, the tongues of the opposite legs each having a longitudinally extending recess opening to the upper edges thereof and 10 the sides of the corresponding sockets each having a locking pin arranged to enter said recesses when the bars are swung downwardly into perpendicular relation on said tongues and the opposite locking pins are in 15 position in their corresponding recesses.

7. A folding supporting frame having two pairs of pivotally connected crossed-legs each leg comprising a sheet metal strip bent to provide a semitubular main portion and a 20 continuously extending tongue portion at the upper end thereof, a pair of cross bars each consisting of a sheet metal strip bent to form a semitubular intermediate portion and socket portions at each end having parallel 25 sides, between which said tongues are fitted, and intermediate bottoms engaged by the end edges of said tongues when said bars and legs are in perpendicular relation, a pivotal connection between the sides of the sockets at 30 one end of the bars and the corresponding tongues arranged adjacent the inner edges of the tongues, to permit said bars to be swung from said perpendicular position to a folded position at the inner side of the legs to which 35 they are pivotally connected, and constructed to permit limited longitudinal movement of

the bars transversely of the legs, said tongues to which said bars are pivotally connected each having a transversely extending recess opening to the opposite edge thereof from 40 said pivotal connection and the sides of each of the corresponding sockets of said bars having a locking pin arranged to be carried into said recesses when said bars are moved longitudinally, the tongues of the opposite 45 legs each having a longitudinally extending recess opening to the upper edges thereof, and having the edges thereof next the opposite legs extending obliquely inward from said top edge, and then perpendicularly to 50 said top edge, and locking pins in the sides of the corresponding sockets and arranged to be engaged with said oblique edges to draw said bars longitudinally into locked position.

8. A folding supporting frame comprising 55 a pair of semi-tubular metal side bars, two pairs of semi-tubular metal, pivotally connected crossed legs having their upper end portions flattened to form tongues, the end edges of which are disposed at right angles 60 to the sides of the legs, said tongues being closely fitted between the sides of said bars at the end portions thereof respectively with their top edges longitudinally engaged with the middle of said bars throughout the length 65 of said edges, and a pivotal connection between one end portion of each bar and the corresponding tongues of said legs to permit the bars to be folded against said legs.

In testimony whereof, I have signed my 70 name to this specification.

JULIUS L. CABLE.