July 31, 1945. C. W. ATTWOOD 2,380,379

TABLE

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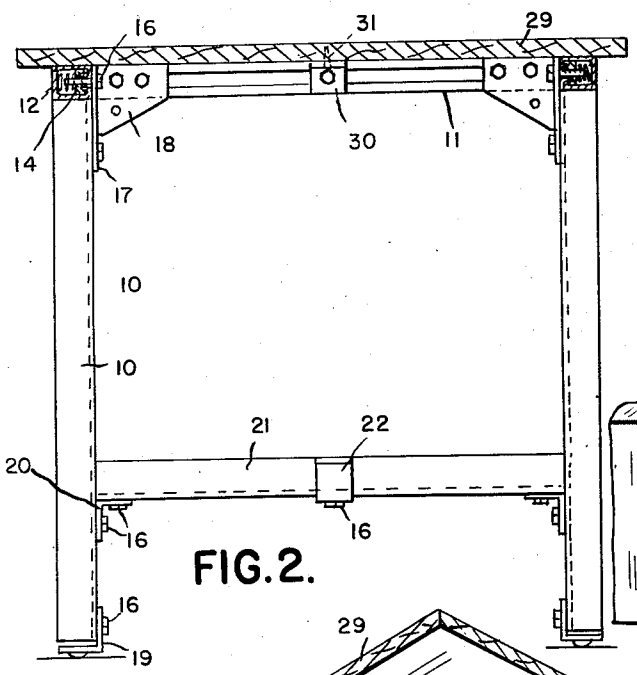


FIG.2.

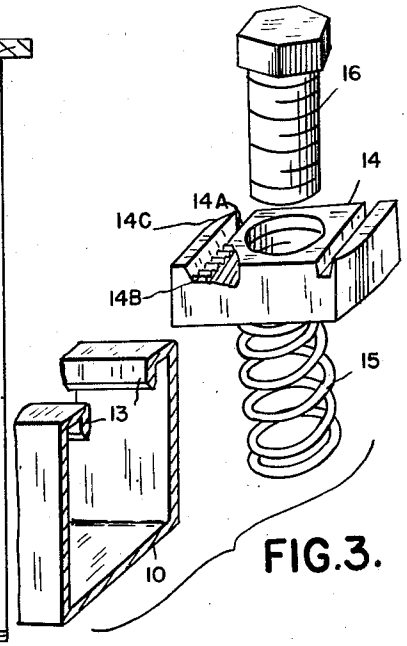


FIG.3.

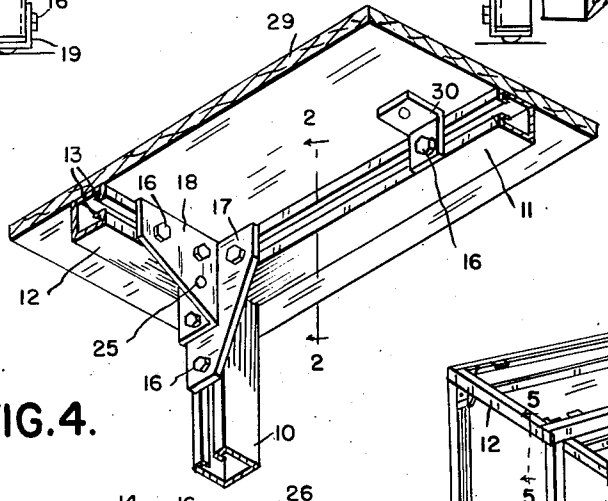


FIG.4.

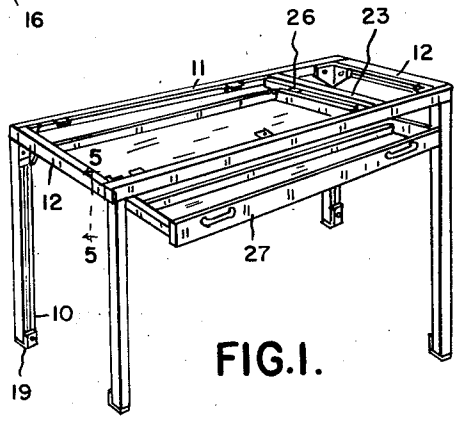


FIG.1.

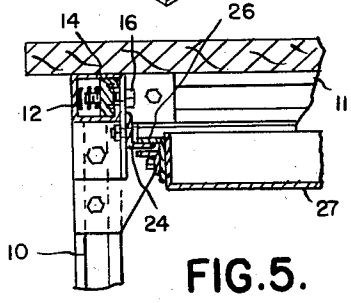


FIG.5.

INVENTOR.
CHARLES W. ATTWOOD
BY
Pierce Fyle and Hardesty
ATTORNEYS

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TABLE

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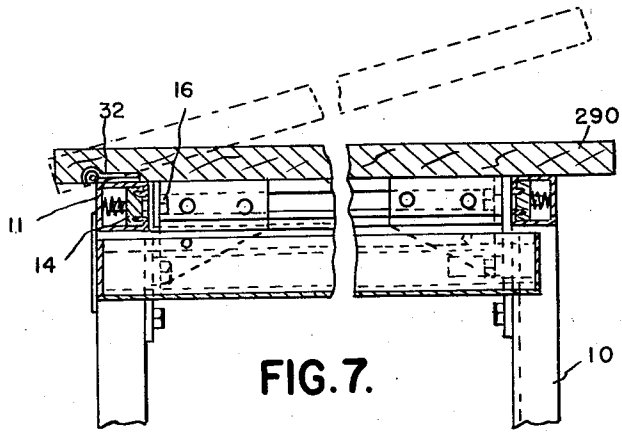


FIG.7.

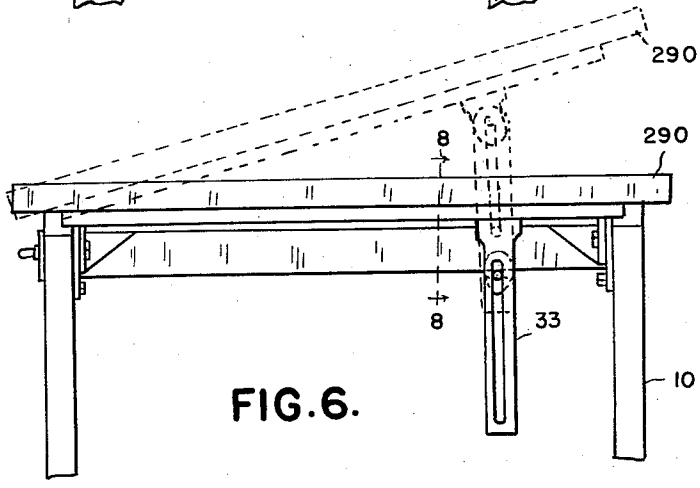


FIG.6.

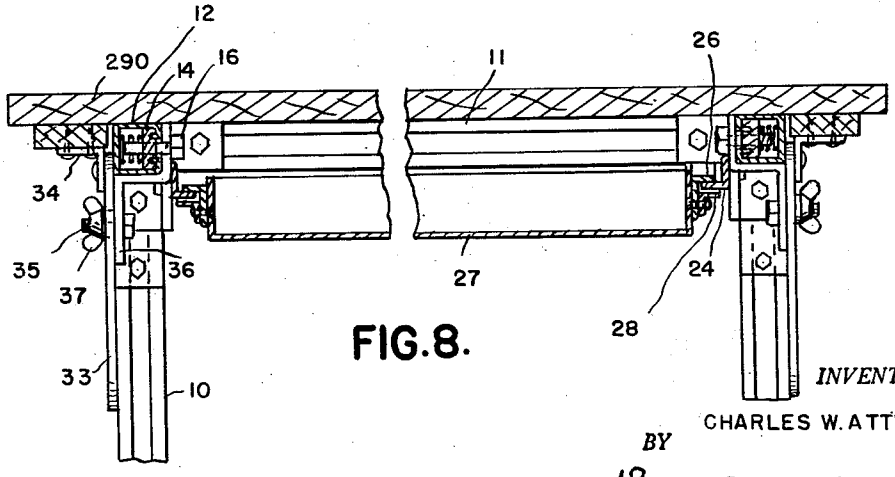


FIG.8.

INVENTOR.
CHARLES W. ATTWOOD
BY
Burau Fryer and Hardesty
ATTORNEYS

Patented July 31, 1945 2,380,379

UNITED STATES PATENT OFFICE

2,380,379

TABLE

Charles W. Attwood, Wayne, Mich.

Application November 4, 1942, Serial No. 464,498

3 Claims. (Cl. 311—110)

This invention relates to tables or the like, and has for its principal object the quick building of a table or similar article of furniture of light, strong, skeleton framework with ready fastening of the framing and supporting members in desired positions.

Another object of my invention is the formation of a table or the like with its legs and framing members substantially rectangular metal channel members having one side open to form a continuous slot, with means adjustably mounted in the slotted faces for securing the component members to each other, as well as for quickly positioning the table top, drawer slides, partitions, etc. in accurate alignment.

A further object of my invention is the provision of improved means whereby tables and like articles of furniture may be erected more quickly and easily than is now possible, with the expenditure of less effort and time in the field, and without the necessity of drilling or forming the component members. In fact the only tool necessary to be used, after the channel members have been cut to proper length in the shop, is a wrench, while a saw is also necessary if the channel members have to be cut in the field.

A further object of my invention is the provision of a novel channeled supporting member for tables and the like, preferably square-formed with rounded corners having one side open to form a continuous slot throughout its length, the side walls of the slot being formed of inturned flanges forming clamping ridges to provide grips for tying together and bridging the opposite sides of the slot by a grooved nut, thereby completing the hollow square at points where bolting is done and concentrated load is applied.

A further object of my invention is the arrangement of screw-threaded holding means for gripping the clamping ridges of such channel members at any point along their entire length, with provision for readily introducing such holding means into the interior of the channeled member through such slot, quickly adjusting the position of the holding members within the slots whenever desired, and maintenance of the holding members in selected positions as long as desired.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawings illustrating the preferred embodiments of the invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Figure 1 is a perspective view showing a table constructed in accordance with my invention, with the table top removed.

Figure 2 is a vertical sectional view taken substantially on the line 2—2 of Figure 4, and showing a table similar to that shown in Figure 1 prior to the mounting of drawer slide supports, and additionally showing the table top and bracing means connecting the lower portions of the table legs.

Figure 3 is a composite perspective view showing one of my improved screw threaded holding means with its parts separated and an enlarged section of the slotted channel supporting members with which the holding means cooperates.

Figure 4 is an enlarged detail perspective view of one corner of the table illustrated in Figure 2.

Figure 5 is a detail vertical sectional view taken substantially on the line 5—5 of Figure 1.

Figure 6 is an end elevation of a slightly modified table construction wherein the table top may be secured in various tilted positions.

Figure 7 is a vertical cross sectional view through the table shown in Figure 6.

Figure 8 is a vertical longitudinal section taken substantially on the line 8—8 of Figure 6.

Referring now to the drawings, numeral 10 designates the legs, 11 longitudinal front and rear frame members, and 12 the side frame members, of the supporting framework structure for my improved table or similar piece of furniture. These members 10, 11 and 12 are of identical hollow rectangular material, herein shown as square-formed with rounded corners and with one face thereof slotted throughout the entire length of the material. Such channel member is best shown in perspective in Figures 3 and 4.

The side walls of the slot are formed of inturned flanges 13, herein termed "clamping ridges," with their free edges beveled to impart a sharpened or pointed cross section to facilitate securance of clamping nuts 14 in various selected positions along the flanges 13. One of the clamping nuts 14 is shown in perspective, with parts broken away, in Figure 3, and such nut is narrower than the slot in the channeled members to permit ready insertion of the nut through the slot when properly turned. The length of the nut 14, however, is greater than the distance between the clamping ridges 13, so that after the nut is inserted in the channel, it can be maintained in position simply by turning the nut at right angles to the slot, so that its ends underhang and are retained by the flanges 13. The face of the nut

which engages the flanges 13 is provided with slots 14A adapted to receive the flanges 13 when the nut is tightened into place as shown in Figures 2 and 5, and when tightened in place, the flanges on opposite sides of the slot are rigidly tied together, and the channel member is thus reenforced at the point of load, completing the hollow square at the position of the nut.

The bottoms of the slots 14A are provided with hardened teeth or serrations 14B which, when the nut is drawn up tight, bite into the beveled extremities of the flanges 13 to assist in retaining the nut in desired position by positively locking it against longitudinal sliding movement along the flanges.

A spring 15 is preferably secured to and projects from the opposite or bottom face of the nut 14, being large enough in diameter to allow the stem of the bolt 16 to pass freely therethrough, as shown in Figure 5. The spring is compressed against the wall of the channel member opposite the slotted wall thereof when the nut is in place, friction being thus imposed on the nut to temporarily hold it against sliding in the channel due to its own weight, or as the result of vibration prior to its securance by turning the bolt home. This will be seen to enable the placing of the nuts in advance, even in vertically arranged channel members, without danger of displacement, while the parts to be may be secured in place at any time simply by thrusting the complementary bolt positions 16 into the previously positioned nuts and tightening the same. The length of the nut is substantially equal to the distance between the side webs of the channel members.

Diagonally opposite corners of the nuts are rounded, substantially as shown at 14C, so that the nut may be readily turned from the initial position of insertion to its position of use, as by a quarter turn clockwise. At this point further rotation of the nut is prevented by the unreduced corners, which thus assist in holding the nut against turning as the bolt is being tightened, and also insure proper alignment of the slots 14A with the clamping ridges 13 during the initial positioning of the nuts. The bolts 16 may be of conventional or any desired type.

In assembling my improved table, the legs and framing member are cut to predetermined lengths, preferably in the factory, and the side members 12 are first secured to the opposite ends of the front and rear longitudinal members 11, forming the top rectangular table frame, to which the legs 10 are afterward assembled. As best shown in Figure 4, the bracket members 17 and 18 are first secured by two bolts 16 to the opposite ends of the front and rear longitudinal members, which extend the full length of the table framing to the edge of the bracket members and over the top end of the legs, one bolt 16 passing through aperture of bracket 17 and one bolt 16 passing through aligned apertures in brackets 17 and 18, after which the side members 12 are attached to bracket 18 by means of two bolts 16, thus forming a rectangular top frame of four structural members with the two bracket members 17 and 18 projecting downward at each corner having one hole in bracket 17 only and one hole formed by the aligned holes of 17 and 18 to which the legs can be attached at any time. This provides two bolts, for stiffness, in each of the three structural members meeting at the corner, and the legs 10 can be diamantled, when desired, for shipment, handling or storage, by removing two bolts in each leg, leaving the upper rectangular frame with its projecting leg attachment brackets 17 and 18, remaning attached to the table top.

As best shown on Figure 4, the brackets 18 are formed of metal with a portion bent at right angles to the remainder of the bracket, and apertured to permit passage of a plurality of bolts 16 through the bracket to thread into slotted nuts 14 positioned within the side members 12 and legs 10 respectively.

With each corner utilizing one bracket 17 and one bracket 18, substantially as shown in Figure 4, the supporting frame work for my improved table can be readily and rigidly assembled into substantially the shape shown in Figure 1. The adjustable feet 19 may be secured at the lower extremities of each leg 10, as best shown in Figure 2. Such feet may comprise right-angled brackets having the upstanding flange apertured to receive a bolt 16 and a horizontal flange apertured to receive a castor or formed with a rounded centrally depressed portion to facilitate easy sliding of the table along a floor. The bolts 16 thread into slotted nuts 14 positioned within the legs 10 adjacent their lower extremities. Similar right angled flanges 20 may be secured at any desired heights upon the legs 10 to support leg braces 21 formed of channeled material identical with that of the legs and framing members, substantially as shown in Figure 2.

Should it be desired to secure a shelf upon such braces 21, brackets 22 may be secured at any desired positions within the slotted face of the braces 21 with the upper flange of the brackets 22 bent parallel with the lower securing flange thereof, and apertured to permit the passage of a screw or bolt to fasten the shelf upon the braces 21.

Drawer slides may be positioned at any desired points along the longitudinal frame members 11, and as best shown in Figure 1, one side of the channel member 12 can be utilized for positioning one drawer slide, while a cross member, as 23, secured intermediate the ends of the longitudinal frame members 11. The cross member 23 is formed of channel material identical with that of the legs and framing members, and has its slotted face arranged toward the side member 12 carrying the other drawer slide. As best shown in Figures 5 and 8, the drawer slides may comprise right angled brackets 24, with one flange thereof secured through apertures 25. The lower flanges of the opposite drawer slides extend toward each other and their upper surfaces are engaged by the upper flanges of the short right-angled members 26 secured adjacent the rear corners of the sides of the drawer 27.

To restrain tilting of the drawer during sliding movement, a small right angled bracket 28 is preferably secured to the upstanding flange of the members 26 with its upper face clearing but in close proximity to the lower face of the drawer slide 24.

The table top 29 may be firmly secured to the side and longitudinal framing members, if desired, and as best shown in Figures 2 and 4, right-angled brackets 30 are arranged in the slotted faces of the framing members wherever desired. The brackets 30 are apertured to permit the passage of bolts 16 through the upstanding flanges of the brackets to thread into suitably positioned slotted nuts 14 within the framing members, while the horizontal flange of each bracket 30 is apertured to receive a securing implement, such

as wood screw 31 turned into the lower face of the table top.

In Figures 6 to 8, another method of fastening the table top to the framing members is shown so as to permit tilting of the table top to various adjusted positions.

As best shown in Figure 7, the table top 290 is secured to the forward longitudinal framing member 11 by hinges 32, whereby the rear extremity of the table top may be tilted substantially as shown in dotted lines in Figures 6 and 7. A pair of slotted guides 33 are preferably secured to the under side of the table top 290, as by having their upper extremities pivoted upon brackets 34 secured to the table tops while bolts 35 extend through the slots in the guides 33. The bolts 35 are carried by brackets 36 secured in desired positions by bolts 16 passing through the apertured upper flange of each bracket 36 and threading into slotted nuts 14 positioned within the side framing members. Wing nuts 37 or the like are preferably threaded upon the bolts 35 to clamp the slotted guides 33 in various positions to hold the table top 290 at desired angles of tilt.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

What I claim is:

1. A table comprising leg and frame members of identical material, said material consisting of substantially square-formed channel members having slots in one face extending from end to end of the material, means for securing said leg and frame members to each other without deformation of either, comprising apertured brackets engaging the slotted faces of a plurality of said members, said brackets being arranged in pairs, the members of each pair having registering openings and one member of each pair having a right angle bend and having one of its angularly disposed portions arranged at right angles to the other bracket of said pair and apertured, bolts extending through said apertures and said slots, and nuts arranged within said channel members and threading with said bolts said pairs of brackets being located at the junction of a leg and said frame members and being fixed to and thereby fixing together the said leg and the frame members.

2. A table comprising leg and frame members of identical material, said material consisting of substantially square-formed channel members having slots in one face extending from end to end of the material, inturned flanges forming side walls for said slots, means for securing said leg and frame members to each other without deformation of either, comprising apertured brackets engaging the slotted faces of a plurality of said members, said brackets being arranged in pairs, the members of each pair having registering openings and one member of each pair having a right angle bend and having one of its angularly disposed portions arranged at right angles to the other bracket of said pair and apertured, bolts extending through said apertures and said slots, and nuts having slots on their front faces spaced to fit over said inturned flanges said nuts being threaded over said bolts said pairs of brackets being located at the junction of a leg and said frame members and being fixed to and thereby fixing together the said leg and the frame members.

3. A table comprising leg and frame members of identical material, said material consisting of substantially square-formed channel members having slots in one face extending from end to end of the material, smooth inturned flanges on opposite sides of said slots bevelled at their free edges, means for securing said leg and frame members to each other without deformation of either, comprising apertured brackets engaging the slotted faces of a plurality of said members, bolts extending through said apertures and said slots, and nuts within the channel members having slots on their front faces spaced to fit over said inturned flanges and initially slidable freely over smooth surfaces of the inturned flanges and formed with hardened teeth to bite into the bevelled edges of said flanges when said bolts are tightened to secure the nuts in tight fixed engagement with said flanges, whereby movement of the nuts in any direction is prevented.

CHARLES W. ATTWOOD.