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FOREIGN PATENTS
537,493 5/1955 Belgium
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[54] KNOCK-DOWN TYPE OF PORTABLE BENCH
7 Claims, 5 Drawing Figs.

[52] U.S. Cl. 108/156,
108/153, 108/115
[51] Int. Cl. B65d 19/12
[50] Field of Search 108/35,
115, 153, 156; 248/165, 439

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ABSTRACT: A bench top piece and three J-shaped legs releasably attached to the top piece, for supporting the top piece in the setup position, and for compact assembly with the top piece in the knock-down position. A brace swingably connects to the top piece and supports two of the legs by connecting thereto, and a handle swingably connects to the top piece and also connects to the third leg to support the leg. The upper ends of the legs, and the brace and handle, all serve to reinforce the strength of the top piece, by extending along and being connected to the top piece. Clamps are bolted to the top piece for securing the legs, brace, and handle to the top piece in both the setup and knock-down positions.

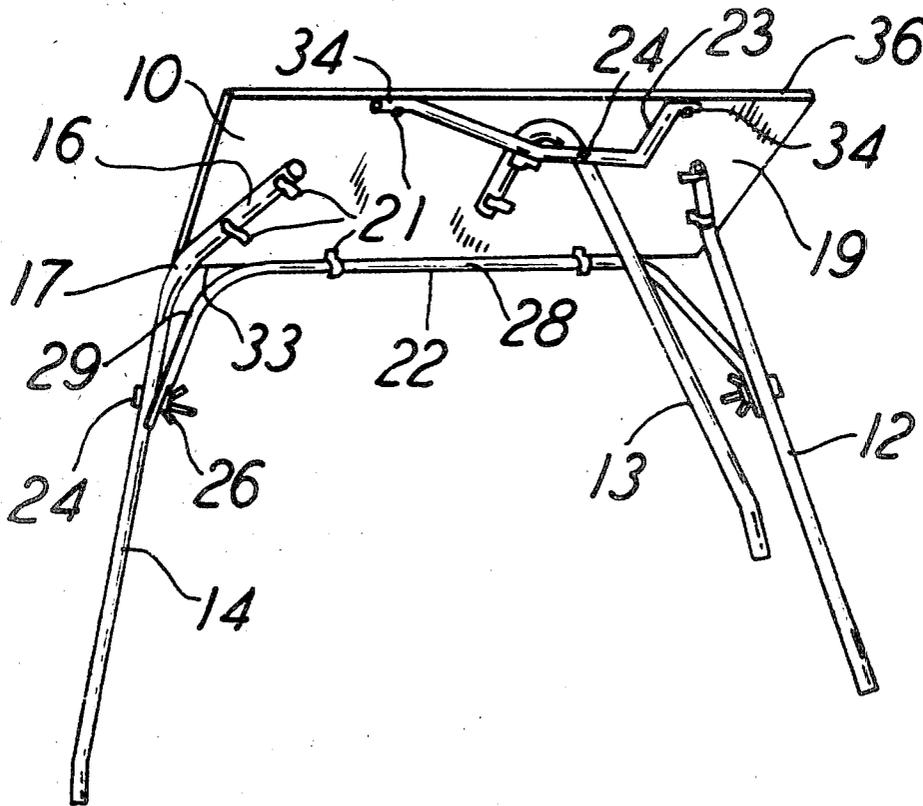


FIG. 1

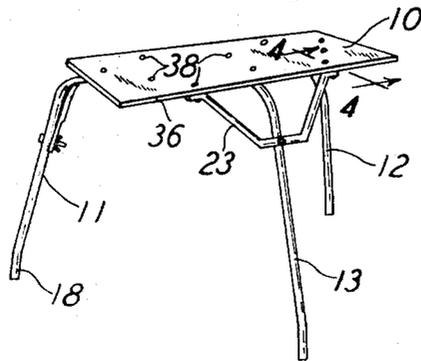


FIG. 2

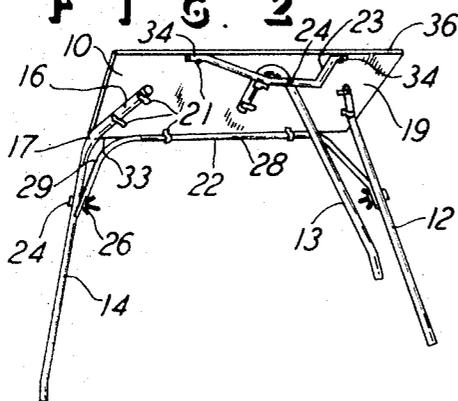


FIG. 4

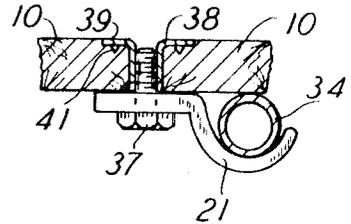


FIG. 3

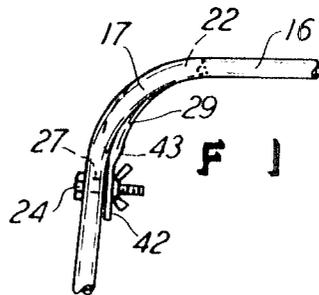
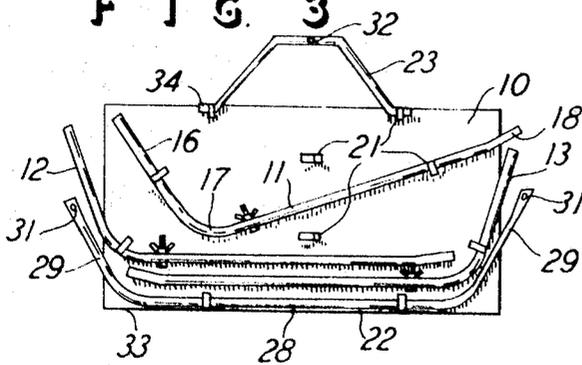


FIG. 3



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KNOCK-DOWN TYPE OF PORTABLE BENCH

This invention relates to a knock-down type of portable bench or table. More particularly, it relates to a bench or table which is readily and easily set up in the normal supporting position, and which is easily disassembled and placed into a compact portable position.

BACKGROUND OF THE INVENTION

Knock-down and portable type of benches or tables are already known and already exist in many different forms and structures. The prior art contains examples of knock-down and portable type tables or benches which include bench tops and supporting legs which can be swung or disassembled relative to the top and positioned in compact relationship with the top for portability of the assembly. Further, these prior art knock-down type of tables commonly utilize a carrying handle which further facilitates the versatility of the table in the ease of carrying the table.

However, the prior art tables are not of a sturdy construction, and they are commonly not easily set up or placed in the knocked down condition if and when they are made of a sturdy construction. Still further, the prior art tables are of a complex arrangement of pieces, both from a manufacturing standpoint and from a standpoint of setting up the table and also disassembling the table for the portable or knock-down position.

A particular use of the table of the present invention is in hunting, and the table or bench of the present invention is therefore useful as a hunter's bench rest. With regard to the prior art in bench rests for hunting, it is well known that the bench must be of the utmost stability so that there will be complete stable support for the hunter's arms and elbows when in the gun or rifle shooting position resting upon the bench top. In rifle or shooting ranges, these benches are preferably made of blocks of concrete so that the required stability is provided. Of course the problem and impracticality of providing a concrete type of bench rest of a portable nature are obvious. Therefore, it is an object of this invention to provide a sturdy and yet simplified knock-down type of portable bench or table, and particularly one that can be used by a hunter.

A further object of this invention is to provide a knock-down type of portable bench or table which is lightweight, inexpensive to manufacture, can be readily and easily placed in both the setup and knock-down positions, and which provides a carrying handle. More specifically, with regard to the carrying handle, the table or bench of this invention is arranged so that the handle serves the dual purpose of being a structural support piece in the table setup position and the handle is also of a grip or carrying piece when the assembly is in the portable position.

Still further, it is an object of this invention to provide a knock-down type of portable table or bench wherein the supporting legs, brace, and handle, are all secured to each other and are also all secured to a table top in a manner wherein the pieces mentioned structurally reinforce the strength of the table top. In accomplishing this object, the table top can then be made of a lightweight and relatively thin material, and even wood material can be used for the top, while the top is of a stability and strength adequate for optimum steady support of the hunter's arms, or while the top is of sufficient strength and stability to support other objects and be used in other respects.

Still further, it is an object of this invention to provide a knock-down type of portable table or bench which utilizes only a minimum number of parts, and some of these parts are made of identical material, and the supporting legs are preferably all identical in construction, and the entire table or bench can be readily and easily repaired or have parts replaced, if such repair or replacement would ever become necessary.

Still further, an object of this invention is to provide a simplified and sturdy knock-down type of portable table or bench wherein the supporting legs are of identical construction and are arranged to reinforce the strength of the table top and are also arranged so that the legs are all interchangeable and are therefore capable of being positioned in any leg position in the assembly. In accomplishing this object, the manufacture of the assembly is simplified, and the setup of the table is also simplified since the user does not have to follow identification marks or location marks for placing a specific leg in a specific location with respect to the bench or table top.

Other objects and advantages will become apparent upon reading the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of a preferred embodiment of this invention.

FIG. 2 is a front perspective view of FIG. 1, but showing the table tipped to reveal the structure underneath the top piece.

FIG. 3 is a plan view of the assembly in the knock-down or portable condition.

FIG. 4 is an enlarged sectional view taken on the line 4-4 of FIG. 1.

FIG. 5 is an enlarged side elevational view of a fragment of one of the rear legs and a fragment of the brace connected thereto.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A top piece 10 is shown to be of a planar and rectangular shape, and it may be made of a wood material, since the underneath, to be described later, is arranged with the top piece 10, to adequately strengthen and support the piece, as hereinafter described. The bench or table is shown to have two rear legs 11 and 12 and one front leg 13. All of the legs are J-shaped, and have the long portion or extent 14 and the short portion or extent 16, joined by an intermediately located curved or bent portion 17. Thus the legs form the letter J in the inverted position. Also, it will be noted that the leg lower ends 18 all have a vertical or upright portion for the purpose of extending perpendicular to the ground or floor on which the table is being supported. The portions 18 therefore prevent the legs 11, 12, and 13 from spreading outwardly under great weight on the table top 10. That is, it will be seen that the portions 14 of each of the legs 11, 12, and 13 extend outwardly from the top piece 10, but the leg end of portions 18 extend in the vertical orientation, for the purpose mentioned, and the arrangement gives the desired strength and stability to the entire assembly in the setup condition shown in FIGS. 1 and 2.

The underneath surface 19 of the top 10 is shown to have 10 clamps 21 secured thereto, and the clamps 21 function in pairs so that two clamps 21 secure each of the three legs, as shown in FIG. 2. FIG. 2 also shows that the assembly includes a U-shaped brace 22 and a U-shaped handle 23. Two of the clamps 21 secure the brace 22 to the top piece 10, and two of the clamps 21 secure the handle 23 to the top piece 10.

Bolts 24 extend through adequately provided holes in each of the legs 11, 12, and 13, and the bolts extend further through the respective brace 22 or handle 23, for the combining of the respective pieces, as shown in FIG. 2. Wing nuts 26 are on the bolts 24 for ready and easy tightening of the bolts 24 to the legs 11, 12, and 13, as shown.

At this time, it will then be seen and mentioned that each of the legs 11, 12, and 13 is provided with a hole 27 which receives the respective bolt 24, as identified in FIG. 5. Each of the three legs 11, 12, and 13 has its hole 27 in the identical orientation from leg to leg, so that each of the three legs 11, 12, and 13 is interchangeable with each of the other three legs 11, 12, and 13. That is, either one of the two back legs 11 and 12 could also be used as the front leg 13, and the bolting shown and described would be completely adequate for con-

nection of the legs with either the brace 22 of the handle 23. Of course the brace 22, being U-shaped, includes its intermediate portion 28 and its two legs or end portions 29. Also, the brace 22 has a bolt hole 31 on each end, and the handle 23 has a bolt hole 32. The bolt holes 31 and 32 receive the respective bolts 24, and the bolt holes 31 and 32 of course are oriented to align with the bolt holes 27 on the respective legs 11, 12, and 13.

Again observing FIG. 2, it will now be seen that the leg portions 16 extend in line contact or snug and extended contact with the under surface 19 of the top piece 10. This provides a structural reinforcement and support for the top 10, and the portions 16 extend in the optimum directions for complete support of the top 10, and for stability, and for complete reinforcement to the strength of the top 10. Thus the portion 16 of the back legs 11 and 12 extend angularly inwardly with respect to the top 10, and the portion 16 of the front leg 13 extends centrally to the rear of the top 10. Still further, FIG. 2 shows that the brace portion 28 extends along the rear edge 33 of the top 10, for support and reinforcement of the edge 33. Still further, the handle 23 has its end portions 34 spaced apart and in line contact and snug contact with the under surface 19 of the top 10. Further, the handle ends 34 are along the front edge 36 of the top 10. The handle ends 34 are thus spaced apart and provide optimum reinforcement for the stability and strength of the top 10.

FIG. 3 shows the assembly in the knocked down and portable position, and it will here be understood that the handle 23 has been swung to a position parallel to the top plane of the top piece 10. Also, it will be understood that the legs 11, 12, and 13, and the brace 22, are all positioned in extended contact with the bottom surface 19, also that the knocked down assembly is of a minimum thickness and all parts are disposed in the parallel position with respect to the plane of the top piece 10. Still further, the clamps 21 provide for the swingable connection of the handle 23 and of the brace 22 with respect to the top piece 10. This permits the handle 23 and brace 22 to be readily and easily swung between their setup and knock-down positions, as shown, and when the attaching clamps 21 are loosened to permit the swinging action mentioned.

The clamps 21 which secure the three legs to the top piece 10 can also be loosened to permit removal of the legs 11, 12, and 13 from the top piece 10, and the leg clamps 21 are then used to secure the legs in the knock-down position shown in FIG. 3. With this arrangement, virtually all of the parts are used in the setup and in the knock-down positions.

FIG. 4 shows an enlarged view of the clamp 21 which is shown to be holding the handle end 34. A bolt 37 extends through the clamp 21 and into a T-nut 38 which is imbedded in the top piece 10. The T-nut 38 has a flange 39 with prongs 41 which are imbedded in the top piece 10 so that the T-nut 38 is secured to the piece 10. However, the T-nut 38 can be easily removed from the top 10 by simply prying or tapping it upwardly as seen in FIG. 4 and out of the top 10, if replacement of the T-nut 38 were ever necessary. Of course loosening the bolt 37 will permit the assembly, swinging, or other attachment of the various pieces to the top 10.

FIG. 5 shows the side elevational view of the bend portion 17 of the rear leg 11, and it also shows the relationship of the brace end 29. It will thus be seen and understood that the three legs can have the identical structure and the identical orientation of the holes 27, and any one leg will have its hole 27 align with the respective bolt hole on the brace 22 and on the handle 23, for the leg interchangeability mentioned. Further, the brace 22 has its very end 42 flattened so that the brace end 42 extends along the surface of the leg 11 or 12, and the brace 22 also has its transition portion 43 in snug abutment with the legs 11 and 12, for further structural support of the legs 11 and 12 and through the brace 22.

It will therefore be understood that there is provided a knock-down type of portable bench which has releasable attachment means 21 connecting the legs and the handle and

the brace to the top piece 10. Further, the releasable attachment means in the form of the clamps 21 have the release and resecurable means in the form of the bolt 37 and nut 38, which latter said means provide for the transition and connection of the respective pieces in the setup and in the knock-down positions. It will be further mentioned that in changing the pieces from the setup condition to the knock-down condition, the clamps 21 need not be fully removed from the top 10, and they need only be loosened through the loosening of the bolt 37, and the legs 11, 12, and 13 can then be slipped out of the clamps 21 which hold the legs in the setup condition, and the legs 11, 12, and 13 can then also be slipped into the clamps 21 when the three legs are in the knocked down condition shown in FIG. 3. This is all possible and easily accomplished when the legs 11, 12, and 13 are made of a tubing material and are bent on a forming die which permits the bending of the legs without upsetting the circular cross section of the legs through the bend 17. It will further be understood that all of the supporting pieces under the top 10 can be made of the same tubing material, and they can all be bent into the shapes shown, so that there is uniformity in material and ease of manufacture and ease of handling the various parts in changing from the setup and knock-down positions.

What I claim is:

1. A knock-down type of portable bench, comprising a bench top piece, a plurality of legs having connection holes therein, a U-shaped handle, a brace, releasable attachment means connecting said legs and said handle and said brace to said bench top piece in a supporting position, said brace extending into contact with two of said legs, said handle extending into contact with at least one of said legs other than said two legs and at a point spaced from said bench top piece, said handle having legs extending from said contact point and to spaced-apart locations of abutment with said bench top piece and being releasably secured to said bench top piece by said releasable attachment means for reinforcing the strength of said bench top piece, bolt means extending through all said leg connection holes and being releasably connected to said brace and said handle, and said releasable attachment means having release and resecurable means for releasing said legs and said handle and said brace from said supporting position with said bench top piece and for resecurable said legs and said handle and said brace in a knocked-down portable position with said bench top piece.
2. The portable bench as claimed in claim 1, wherein said handle is swingably attached to said bench top piece for swinging on said attachment means and between said supporting position of connection with said one leg and said knocked-down portable position.
3. The portable bench as claimed in claim 1, wherein said legs are identical in structure and said connection holes are identically oriented among said legs.
4. The portable bench as claimed in claim 1, wherein said brace is U-shaped and has two legs for the contact with said legs of said bench, and with said brace having an intermediate straight length extending in line contact with said bench top piece to be in reinforcing support with said bench top piece.
5. The portable bench as claimed in claim 4, wherein said brace is swingably attached to said bench top piece at said intermediate straight strength of said brace for swinging said brace on said attachment means and between said supporting position of connection with said two legs and said knocked-down portable position.
6. The portable bench as claimed in claim 1, wherein said legs are J-shaped to each have one end extend in line contact with said bench top piece and to each have the other end extend away from said bench top piece, for respective reinforcing and elevational support of said bench top piece.
7. The portable bench as claimed in claim 1, wherein said release and said resecurable means consist of T-nuts and bolts, and with said T-nuts being imbedded in said bench top piece.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,589,311 Dated June 29, 1971

Inventor(✓) Richard T. Medlen

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 1, line 2, correct "toppiece" to -- top piece--;
" 5, " 3, change "strength" to --length--.

Signed and sealed this 21st day of December 1971.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Patents