March 10, 1959 N. MAYER 2,876,828

KNOCK DOWN CHAIR AND STOOL ASSEMBLIES

Filed March 9, 1955

2 Sheets-Sheet 1

FIG. 1.

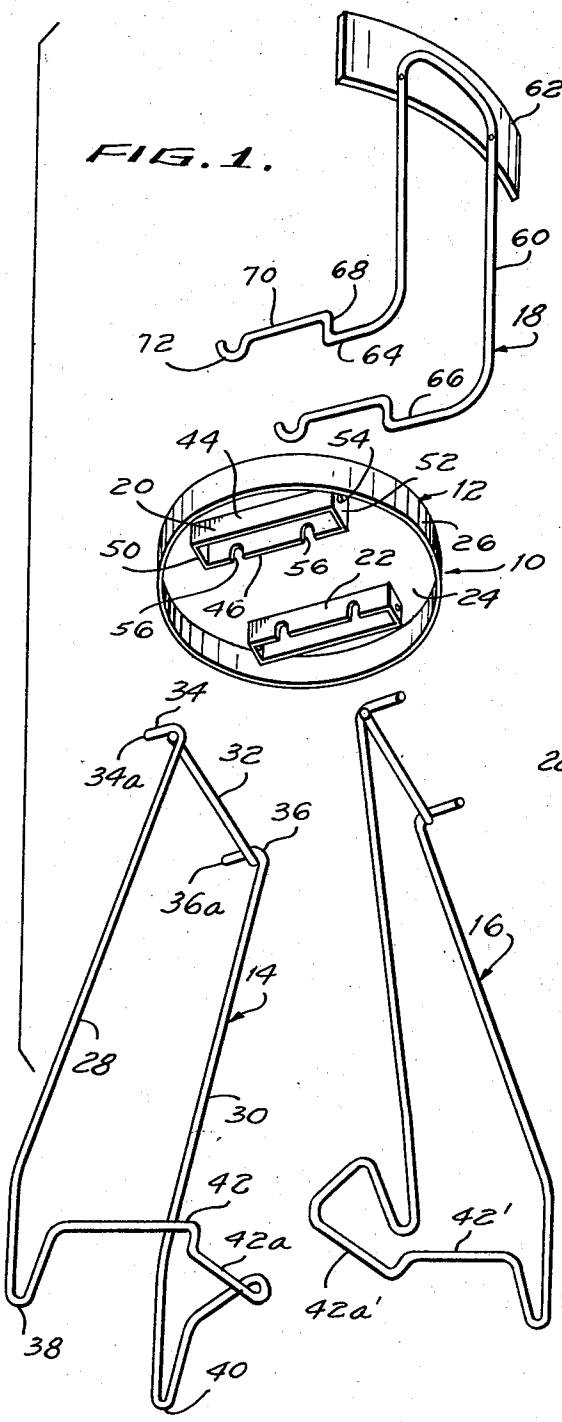
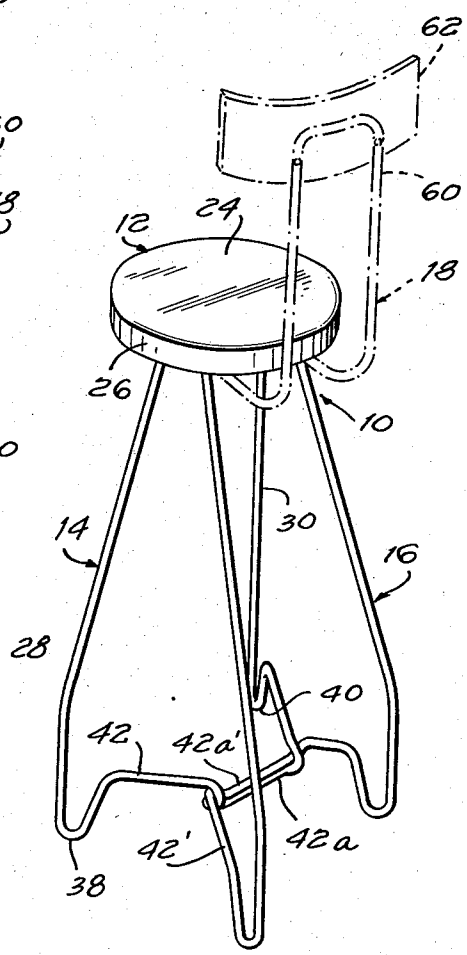


FIG. 2.



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FIG. 3.

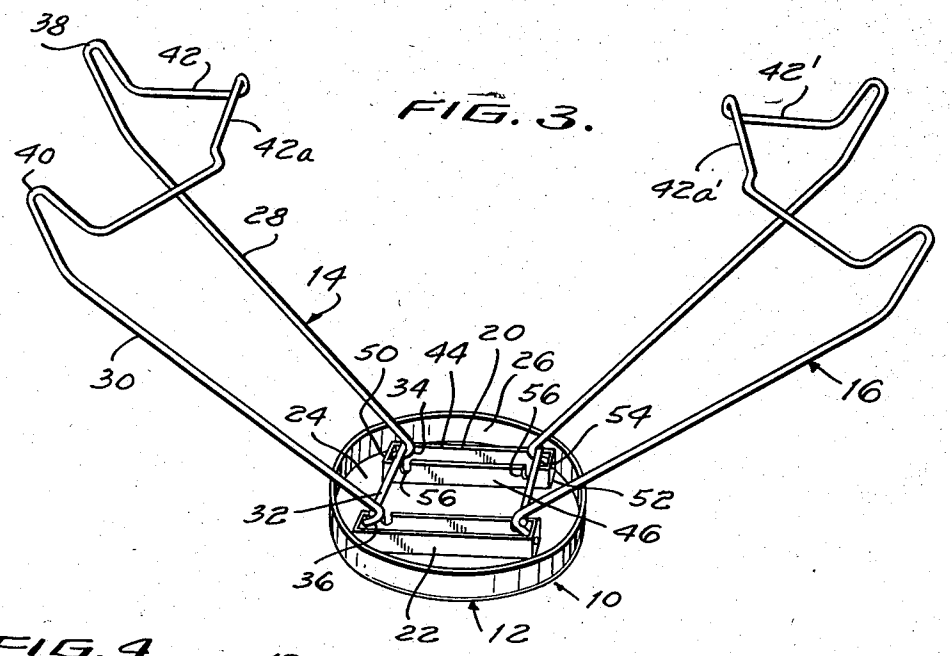


FIG. 4.

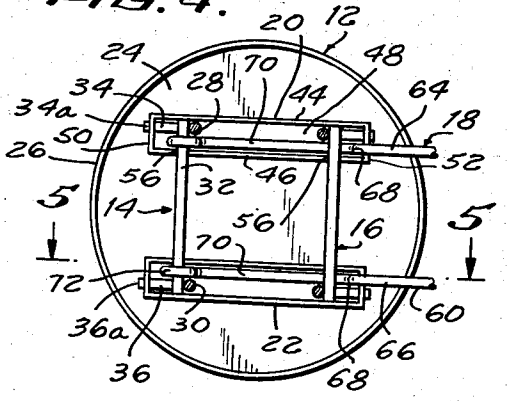


FIG. 6.

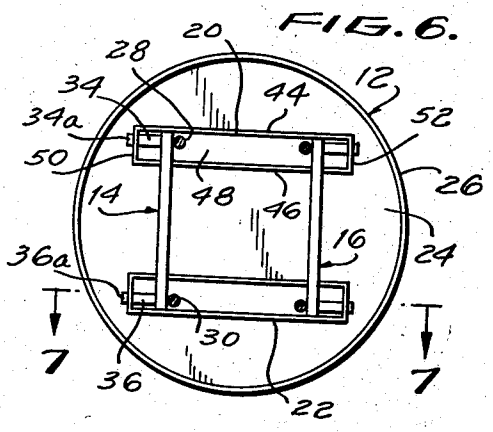


FIG. 5.

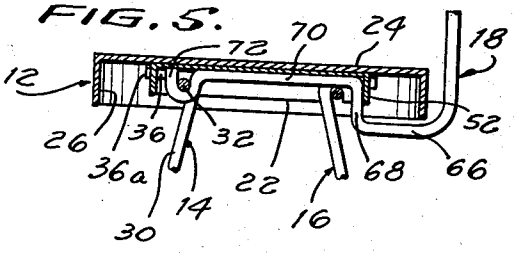
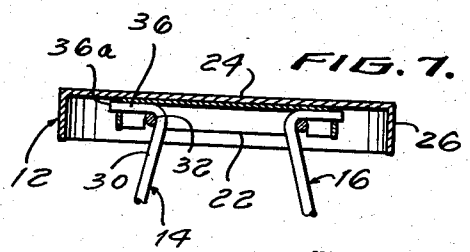


FIG. 7.



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KNOCK DOWN CHAIR AND STOOL ASSEMBLIES

Nathan Mayer, New York, N. Y.

Application March 9, 1955, Serial No. 493,277

5 Claims. (Cl. 155—196)

The present invention relates to the manufacture of prefabricated furniture, and in particular to knock down or collapsible units which may be assembled into chairs, benches, stools and similar articles of furniture. This is a continuation-in-part of my earlier filed application Serial No. 464,749, filed October 26, 1954.

Many advantages may be attributed to the use of prefabricating techniques in the manufacture of various articles of furniture. For example, in the construction of a stool, it is known to assemble a stool or body with legs and a back by the use of nuts and bolts, and similar attachment fixtures. To facilitate such assembly, manufacturers frequently package appropriate tools with the prefabricated parts, which tools are employed in making the required mechanical connections. Whether supplied by the manufacturer or not, the need for such tools, and/or the need for separate fixtures in achieving assembly, generally detracts from saleability. It is not infrequent that the assembly fixtures and parts get lost or the consumer experiences difficulty in effecting even the most simple mechanical assembly operation. Thus, as a practical matter, the use of separate fixtures or tools detracts from saleability, and utter simplicity must be the keynote for widespread consumer acceptance.

It is broadly an object of the present invention to provide a prefabricated furniture assembly technique particularly suitable for the assembly of stools, chairs and the like. Specifically, it is within the contemplation of the present invention to provide a knockdown stool assembly which is integrally constructed and arranged such that assembly is achieved simply, with ordinary skill, and without the need for separate attachment fixtures and assembly tools.

It is a still further object of the present invention to provide a knockdown stool construction which, when assembled, exhibits mechanical strength and rigidity and is compatible with ornamental and aesthetic requirements.

It is a still further object of the present invention to provide assembly techniques suitable for the prefabrication of stools with or without a back rest. To advantage, a back rest may be provided with the prefabricated unit, and as desired by the consumer, either assembled to provide a stool with a back, or left out of the assembly to provide a backless stool.

In accordance with an illustrative embodiment demonstrating features of the present invention as applied to the manufacture of a prefabricated stool, there is provided a stool top, a pair of attachment brackets secured to or integral with the undersurface of the stool top, a back section including arms received within respective channels of the attachment brackets, a pair of leg sections, and cooperating means on the attachment bracket and on each of the leg sections for releasably securing the leg sections to the stool in an assembled position. The leg sections in the assembled position are arranged to confine the supporting arms of the back section in the channels such that the back section is fixed in relation

to the stool top. The leg sections are provided with means which are operative to lock the cooperating means against release and to secure the leg sections in the desired assembled position.

To advantage, the stool top and the leg sections, with or without the back section, may be packaged as a unit for shipment in knockdown condition. The unit may then be assembled by the consumer by comparatively simple manual manipulation, not involving the use of separate fixtures or tools.

The above brief description, as well as further objects, features and advantages of the present invention will be best appreciated by reference to the following detailed description of a presently preferred, but nonetheless illustrative form of the invention, when taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is an exploded perspective view of a knock down stool assembly demonstrating features of the present invention;

Fig. 2 is a perspective view of the stool top and leg sections of Fig. 1, when assembled, the optional back rest being shown by dot-dash lines;

Fig. 3 is an inverted perspective view showing the leg sections partially assembled with the stool top;

Fig. 4 is a bottom plan view of the stool, with parts broken away and sectioned, showing the cooperation between the attachment brackets or channels on the undersurface of the stool top, the leg sections, and the supporting arms of the back section;

Fig. 5 is a sectional view taken substantially along the line 5—5 of Fig. 4 and looking in the direction of the arrows;

Fig. 6 is a bottom plan view with parts broken away and sectioned, showing the cooperation between the brackets or channels on the undersurface of the stool with the respective leg sections when the back section is removed; and,

Fig. 7 is a sectional view, taken substantially along the line 7—7 of Fig. 6 and looking in the direction of the arrows.

Referring now specifically to Fig. 1, there is shown in exploded perspective view, a multiple-part stool assembly **10** which includes a top or seat section **12**, leg sections **14**, **16**, a back section **18**, and attachment brackets or channel members **20**, **22**. The individual components of the stool assembly may be fabricated of any appropriate materials. For example, the stool seat or top **12** may be made of wood or metal, with or without a padded cover; the leg and back sections **14**, **16**, **18** may be made of wrought iron with appropriate welds; and the channel members may be made of bent sheet metal.

In the illustrative embodiment, the top or seat section **12**, is illustrated as a circular metal plate **24** having an integral depending annular skirt **26**. The channel members or attachment brackets **20**, **22** are secured to the undersurface of the plate in spaced parallel relation by rivets, screws or welds.

The leg sections **14**, **16** are substantially similar in construction and are interchangeable in the assembly. Specifically, the leg section **14** includes legs **28**, **30**, joined together adjacent to the upper ends by a transverse cross bar **32**. The legs **28**, **30** are formed with offset securement parts **34**, **36**, each of which terminates in a hooked end *34a*, *36a*. The lower end of the legs **28**, **30** are formed with reverse bends providing feet **38**, **40**, the feet **38**, **40** being joined together by an integral locking member **42** including a hook-shape catch member *42a*. The leg section **16** is similar to the leg section **14**, except that its locking member **42'** is provided with a keeper bar *42a'*. In the assembled position, the catch member *42a* of the leg section **14** is engaged over and about the keeper bar

42a' of the locking member 42', as seen in Fig. 2. The cooperating lock members 42, 42' may serve as a foot rest when joined together and provide integral bracing portions for the leg sections.

The channel members or securement brackets 20, 22 are preferably fabricated of bent sheet metal and are completely similar in construction, and thus interchangeable. Accordingly, it is necessary to describe only one of the attachment brackets in detail. Specifically, the attachment bracket or channel member 20 includes opposed and parallel side walls 44, 46 joined together by a connecting bottom wall or base 48 and formed with end walls 50, 52. The opposite end walls 50, 52 each have a circular opening 54 serving as bearings for the hooked ends of the securement parts 34a, 36a of the leg sections 14, 16. The side wall 46 is cut away adjacent each of the end walls 50, 52, as indicated by the numeral 56 to provide a seating cutout which receives end adjacent portions of the cross bars 32, when the leg sections 14, 16 are assembled, as illustrated in Figs. 5 and 7.

The back section 18 includes a supporting frame 60 of generally L-shaped configuration which carries a back rest 62. The supporting frame includes supporting arms 64, 66 which are adapted to extend horizontally and beneath the stool body as seen in Fig. 5. The supporting arms 64, 66, each include a shoulder 68 and an abutment part 70, terminating in an upwardly opening hooked end 72. As seen best in Fig. 5, the supporting arms 64, 66 are proportioned in relation to the channel members 20, 22 such that the abutment parts 70 lie within the channel member against the base 48 thereof and beneath the cross bars of the right hand leg section 12 with the hooked terminal ends extending about the cross bar of the left hand leg section 14. Thus, the supporting arms 64, 66 are confined within the channels by the cross bar 32 of the leg section 16.

A typical assembly for joining together the stool top 12 and the leg sections 14, 16 without the back section 18 will be described in conjunction with Figs. 2, 3, 6 and 7 in order to facilitate a more thorough understanding of the present invention:

With the stool inverted, the hooked offset terminal portions 34a, 36a of the respective leg sections 14, 16 are engaged in the openings 54 in the end walls 52 of the brackets 20, 22, as illustrated in Fig. 3, and the leg sections swung toward each other until the cross bars 32 seat within the respective notches 56 formed on the inner walls 46 of the channel members 20, 22. As the assembled position of Fig. 2 is approached, the hooked catch 42a of the lock member 42 is engaged about the keeper member 42a' of the lock member 42'. It has been found as a practical matter that sufficient rigidity and stability is imparted to the assembly by merely engaging the hooked catch 42a over the keeper 42a' due to the elasticity of the metal employed in fabricating the respective leg sections. However, in the event that such gripping and locking of the catch and keeper is deemed insufficient, perhaps from the standpoint of safety, it is possible to employ auxiliary locking means of a more permanent nature, for example a screw threaded through aligned holes formed in the cooperating keeper and catch.

The dismantling operation is equally simple and merely requires the urging of the respective leg sections toward each other such that the releasable locking parts 42, 42' may be disengaged, followed by the removal of the offset securement parts from the respective bearing openings 54.

By reference to Figs. 4 and 5, a typical assembly operation in which the back section 18 is joined to the body and leg sections of the stool will be described:

After engagement of the offset securement parts of one of the leg sections in the adjacent bearing openings of the brackets 20, 22, for example the left hand section 14 of Fig. 3, the leg section is swung into the final assembled position. Thereupon, the supporting arms 64, 66 of the back rest frame 60, are disposed within their respective

brackets with the hooked ends 72 engaged over the cross bar 32 of the assembled leg section 14. Thereupon, the offset securement parts of the other leg section 16 are inserted within the opposite end openings into the brackets 20, 22, and the leg section 16 is swung to the assembled position. As seen in Figs. 4 and 5, the cross bar or brace of the leg section 16 bears against the abutment parts 70 of the supporting arms 64, 66, thus confining the abutment parts within the respective channels with the shoulders 68 bearing against the end walls 52. Upon engaging the hooked catch 42a over the cooperating keeper bar 42a', the assembly is completed with the supporting arms 64, 66 of the back section confined within the channel members 20, 22.

By a consideration of the illustrative embodiment of the invention, it will be appreciated that there has been provided a knockdown stool assembly, with or without back, which may be assembled or dismantled with equal simplicity. Both the assembly and dismantling operations do not require the use of tools. When once assembled, the several component parts of the stool provide a rattle-proof unit, which for all intents and purposes may be considered unitary.

Numerous modifications are intended within the spirit and scope of the instant disclosure. Accordingly the appended claims should be interpreted in a manner consistent with the disclosures herein, and in certain instances certain features of the invention will be used without a corresponding use of other features.

What I claim is:

1. A knockdown stool assembly including a stool top and leg sections, said leg sections each including offset securement parts extending in opposite directions and being dependingly supported from said stool top in an assembled position, channel members carried on the undersurface of said stool top, said channel members having end walls formed with openings receiving said securement parts and mounting said leg sections for pivotal movement into said assembled position, said channel members having side walls formed with seating notches engaging portions of said leg sections in said assembled position, the side walls of said channel members being arranged to confine said leg sections against lateral displacement when in said assembled position, and means on said leg sections and engageable in said assembled position for locking said leg sections against movement.

2. A knockdown furniture assembly including a main body, a back section, and leg sections, said leg sections each including offset securement parts extending in opposite directions and being dependingly supported from said main body section in an assembled position, channel members carried on the undersurface of said main body section, said channel members having end walls formed with bearing means receiving said securement parts and mounting said leg sections for pivotal movement into said assembled position, said channel members being further formed with seating means engaging portions of said leg sections in said assembled positions, said channel members being arranged to confine said leg sections against lateral displacement when in said assembled position, said back section including supporting arms extending beneath said main body and received in said channel members, and means on said leg sections and engageable in said assembled position for locking said leg sections against movement, and means on said leg sections operative in response to the locking of said leg sections against movement and serving to confine said supporting arms of said back section within said channel members.

3. A knockdown stool assembly including a stool top, a pair of channel brackets secured to the undersurface of said stool top, a back section including arms received within said channel brackets, a pair of leg sections, cooperating means on said channel brackets and on each

of said leg sections for releasably securing said leg sections to said stool top in an assembled position, one of said cooperating means on one of said leg sections in said assembled position confining said supporting arms within said channels, and means on said leg sections operative to lock said cooperating means against release and to secure said leg sections in said assembled position.

4. A knockdown stool assembly including a stool top and leg sections each including offset securement parts, and a cross bar extending between said securement parts, said leg sections being dependingly supported from said stool top in an assembled position, channel members carried on the undersurface of said stool top, said channel members being formed with openings receiving said securement parts and mounting said leg sections for pivotal movement into said assembled position, said channel members having side walls formed with seating notches engaging said cross bars of said leg sections in said assembled position, the side walls of said channel members being arranged to confine said leg sections against lateral displacement when in said assembled position, and means on said leg sections and engageable with each other in said assembled position for locking said leg sections against movement.

5. A knockdown furniture assembly including a main body, a back section, and leg sections, said leg sections each including offset securement parts extending in opposite directions and being dependingly supported from

said main body section in an assembled position, channel members carried on the under-surface of said main body section, said channel members being formed with bearing means receiving said securement parts and mounting said leg sections for pivotal movement into said assembled position, said channel members being arranged to confine said leg sections against lateral displacement when in said assembled position, said back section including supporting arms extending beneath said main body and received in said channel members, and means on said leg sections and engageable in said assembled position for locking said leg sections against movement, and means on said leg sections operative in response to the locking of said leg sections against movement and serving to confine said supporting arms of said back section within said channel members.

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