Jan. 13, 1953 F. T. HOLMES 2,625,205

SPRING OSCILLATING CHAIR

Filed March 24, 1947 2 SHEETS—SHEET 1

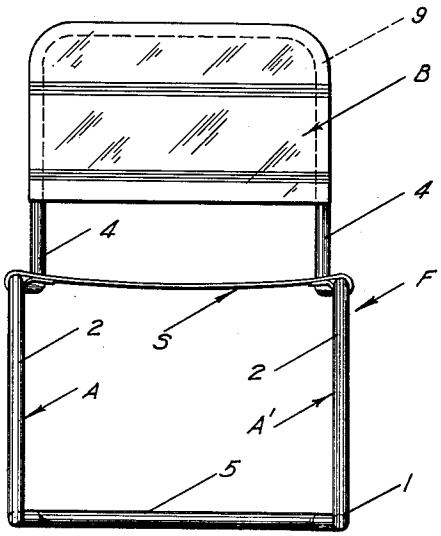


FIG. 1

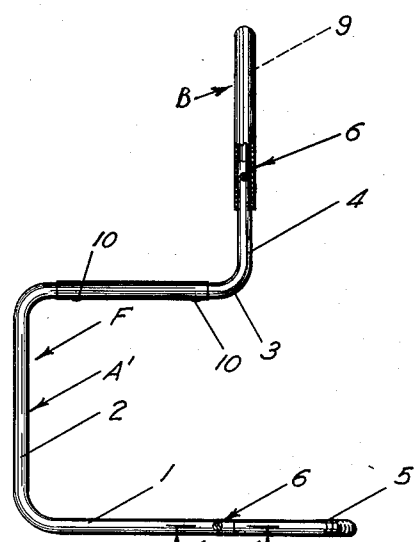


FIG. 2

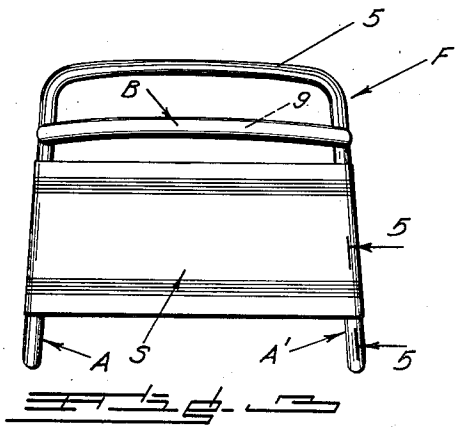


FIG. 3

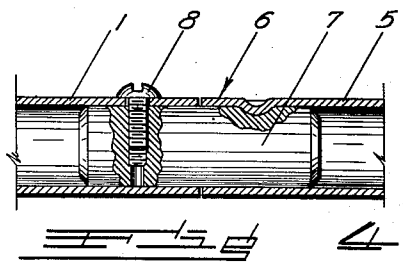


FIG. 4

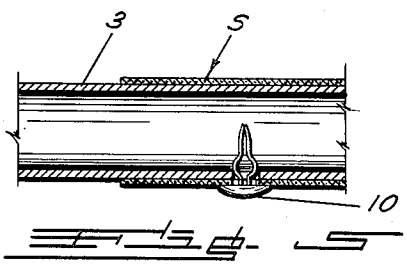


FIG. 5

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SPRING OSCILLATING CHAIR

Filed March 24, 1947 2 SHEETS—SHEET 2

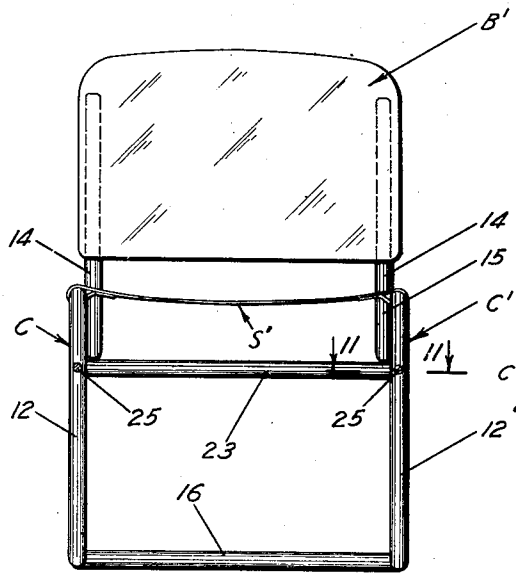


FIG. 6

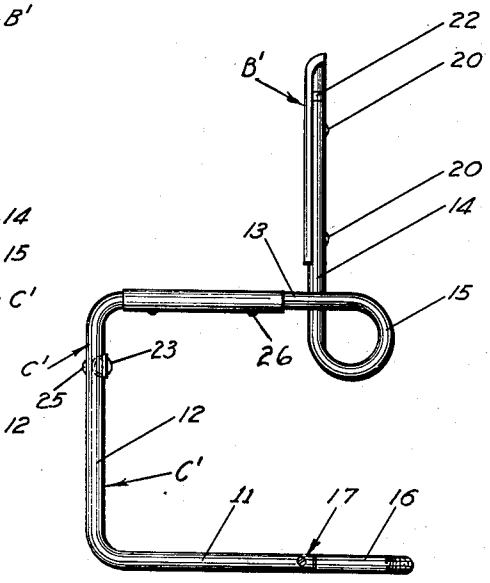


FIG. 7

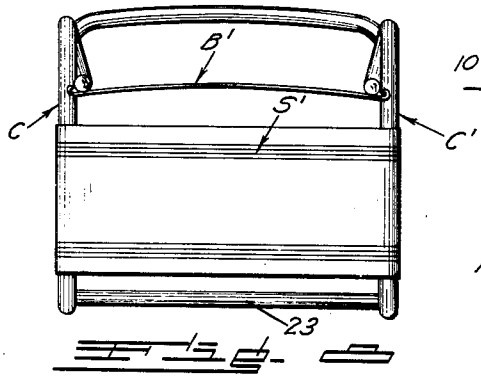


FIG. 8

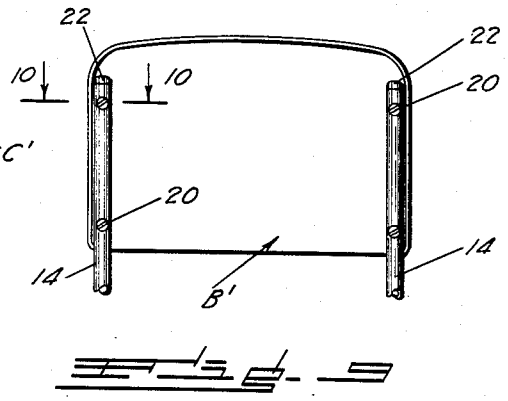


FIG. 9

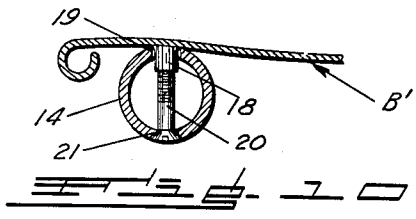


FIG. 10

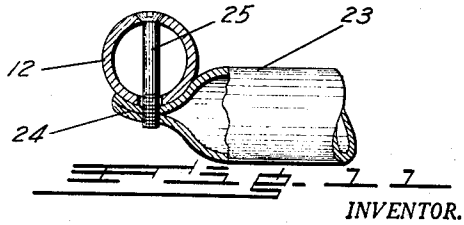


FIG. 11

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SPRING OSCILLATING CHAIR

Fred T. Holmes, Denver, Colo.

Application March 24, 1947, Serial No. 736,639

3 Claims. (Cl. 155—54)

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This invention relates to chairs and more particularly to chairs which are made from lengths of deformable material.

One of the objects of the invention is to produce a chair from several pieces or lengths of deformable material, such as tubular material, which are so formed and related as to permit the chair to be shipped from the factory in a convenient and relatively small package and then readily assembled at its destination, or by an ultimate purchaser.

Another object is to so produce a chair from several pieces of suitable material that the chair can be readily "knocked down" for storage in a small space or for transfer from place to place in large numbers with a minimum of occupied space, as may be desirable in a chair rental business.

A further and more specific object is to produce a "knock down" chair frame from four pieces of tubular material which will permit the chair to be placed in a package having a depth approximating twice the diameter of the tubular material.

Yet another object is to produce a sturdy and serviceable "knock down" chair frame from a minimum of pieces of material.

Still another object is to produce a chair in which the back and seat panels are made from a flexible material and so associated with frame of the chair as to be easily replaceable.

A still further object is to produce a chair from tubular material which is so formed as to produce a yieldable and comfortable back section.

A further object is to produce an attractive and comfortable tubular framed chair which can be manufactured at a low cost.

Other objects of the invention will become apparent from the following description taken in connection with the accompanying drawings in which:

Figure 1 is a front view of a tubular frame chair embodying the invention;

Figure 2 is a side view of the chair with a portion of the back panel broken away;

Figure 3 is a top view of the chair;

Figure 4 is a sectional view taken on the line 4—4 of Figure 2 and showing details of the joint employed to detachably connect the several tubular pieces together;

Figure 5 is a sectional view taken on the line 5—5 of Figure 3 showing the means for holding the seat panel in position;

Figure 6 is a front view of another tubular frame chair embodying the invention;

Figure 7 is a side view of the chair of Figure 6;

Figure 8 is a top view of the chair of Figure 6;

Figure 9 is a view showing a manner of mounting the back section of the chair to the upright sections of the tubular frame;

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Figure 10 is a sectional view taken on the line 10—10 of Figure 9; and

Figure 11 is a sectional view taken on the line 11—11 of Figure 6 showing the connection of the brace.

Referring to the drawings in detail and first to Figures 1 to 5, inclusive, my improved chair in its assembled condition is shown in Figure 1 wherein the frame structure is disclosed as being made from tubular material, although it may be made from any other suitable material such as, for example, flat spring type metal, solid rodding or even suitable plastic material. The chair comprises, essentially, three parts which are the frame structure F, the seat panel S and the back panel B. The frame structure F has two side frame members A and A', each being of the same form and constructed of a single piece of material. Each side frame member is shaped to provide a horizontal floor-engaging section 1, a front upwardly extending leg section 2, a substantially horizontal rearwardly extending seat-supporting section 3 and a rear upwardly extending back-supporting section 4.

The rear ends of the horizontal floor-engaging sections of the side frame members are connected together by a U-shaped member 5. The connections between these ends of the floor-engaging sections and the ends of the member 5 can be made by any suitable readily detachable joint structure, generally indicated by the numeral 6, and thereby permitting the U-shaped connecting member 5 to be connected to and disconnected from the side frame members whenever desired. One joint which is suitable for making the connection is shown in the sectional view of Figure 4. This joint comprises a short, solid, round rod 7 having an outer diameter to snugly fit into the tubular material. One end of this rod 7 may be permanently fastened, as shown, into the end of the U-shaped connecting member 5 and the other end telescoped into the end of the section 1. In order to prevent separation of the rod from the end of the section 1 there can be provided a screw 8 which extends through an opening in the section 1 and is screwed into a threaded hole in the rod 7. Thus when it is desired to disconnect the joint, all that needs to be done is remove the screw 8 and then slip the rod 7 out of the section 1. It is obvious that in the place of the screw 8 any other readily detachable holding element could be used such as a spring biased latch. If material other than tubular material is employed, any suitable joint can replace the one shown.

Another separately formed U-shaped tubular member 9 is employed to connect the upper ends of the back supporting sections 4 of the two frame members and to thereby hold them in spaced relation and to further provide a suitable back

frame for the chair. The U-shaped member 9 has its ends detachably connected to the ends of the sections 4 by joints which may be the same as or similar to the previously described joint 6. The numeral 6 is employed to also indicate such joints.

With the frame structure of the chair constructed in the manner described, it is readily seen that with the two side frame members and the two separate U-shaped connecting members 5 and 9 a rigid frame structure will be obtained. The connecting members 5 and 9 will prevent the two side frame members A and A' from having any appreciable movement towards each other. The frame structure will be sturdy enough to efficiently support the body of an individual in sitting position.

The seat S for the chair is made from any suitable flexible material such as fabric, leather or synthetic material. A single panel of the seat material is employed and the side marginal portions thereof are arranged to be wrapped around the rearwardly extending seat sections 3 of the two side frame members A and A' and the extreme marginal edge is then sewed to the main portion of the panel to provide a tunnel. In order that the seat panel may be prevented from sliding on the tubular seat supporting sections 3, the material can be attached to such sections as, for example, by suitable upholstery clips 10 which pass through the material and into openings in the tubular sections 3 as shown in Figure 5.

The back panel B of the chair of Figure 1 is also preferably made of suitable flexible material. The material is sewed up in somewhat the same manner as a sack and of a shape to be snugly slipped down over the U-shaped member 9 and the sections 4. If desired, the front portion of the back panel can be padded or have a pad associated therewith to thereby give greater comfort.

With a chair constructed in the described manner, it will be apparent that it may be easily shipped from the factory in a "knocked down" condition and thereby save considerable space. The whole chair can be placed in a cardboard box, the depth of which need to be only about twice the diameter of the tubular material, the length of which need only be the vertical distance from the section 1 of the side frame members to the top of the back-supporting section 4, and the width of which need only be substantially the horizontal distance between the leg section 2 and the back-supporting section 4. The U-shaped connecting members 5 and 9 can be suitably associated with the side frame members when packaged so as to keep overall dimensions or volume of the package to a minimum. The lengths of the legs of the U-shaped section 9 and the section 4 should be so chosen that when packaged the overall length of the package will be kept to a minimum. The lengths of the legs of the U-shaped section 5 and the sections 1 should be such that the ends of sections 1 do not extend outwardly of the sections 4. When a chair is constructed as described, so as to be packed in a small package, it can be very readily assembled by the retailer or ultimate user as all that is required is to attach the connecting members 5 and 9 and then slip the back panel B over the back frame portion of the chair. The seat S may, if desired, be assembled on the side frame members at the factory since it is made of flexible material and will not interfere with the positioning of the two side members in juxtaposition for packing. It is also to be noted that both the seat and back panels can always be readily removed for cleaning or replacement when worn.

Due to the fact that the material from which the frame structure of the chair is made may have a tendency to slightly yield or "give," it is possible that after the chair is assembled and notwithstanding tightness of the joints 6, the upper parts of the two leg sections may be pulled inwardly towards each other when an extremely heavy person sits in the chair. Such inward movement, if occurring, might tend to cause some discomfort to the person sitting in the chair. This, however, can be substantially eliminated by so forming each seat supporting section 3 in relation to the other sections of a frame member that the sections 3 will have a forwardly diverging relationship when the chair is assembled. This diverging relationship is illustrated in the front and top views of the chair. The floor engaging sections 1 may also have a forwardly diverging relation, as shown, if such is desired.

In Figures 6 to 11, inclusive, there is shown a slightly modified chair structure wherein a rigid back is provided and also the frame structure so formed as to permit the back to be somewhat more yieldable with respect to the frame structure as a whole. The frame structure for this chair also comprises two side frame members C and C', each of which has a floor engaging section 11, a front upwardly extending leg section 12, a substantially horizontal rearwardly extending seat supporting section 13 and a rear upwardly extending back portion 14. The frame material between the seat supporting section and the back supporting section is so formed as to provide a loop 15, as shown, which acts as a spring means to produce a greater yielding of the back supporting section with respect to the seat supporting section than where the back supporting section is merely bent upwardly with respect to the seat supporting section as shown in the chair in Figure 1. The two floor engaging sections 11 are connected together by a U-shaped member 16, the connection being made by detachable joints 17 which may take the same form as the joint 6 shown in Figure 4 and employed in the chair of Figure 1. The seat S' for the chair of Figure 6 is made of a flexible material such as fabric, leather or synthetic material and is connected to the seat supporting section 13 of the two side members by sewed tunnels in the same manner as the seat S of the chair in Figure 1. The back panel B' for the chair of Figure 6 is constructed of a rigid material such as sheet metal, wood or any other suitable material. This back panel B' is arranged to be detachably connected to the upwardly extending back supporting sections 14 of the two side members and functions to take the place of the detachable U-shaped connecting member 9 of the chair of Figure 1, together with the flexible back panel B of said chair. It is thus obvious that this back panel B' could be embodied in the chair of Figure 1 if desired. Any suitable detachable connections can be employed to mount the back panel B' to the upwardly extending sections 14. A suitable connection is shown in Figures 9 and 10 wherein the back panel B', if made of metal, can have welded thereto bosses 18, each of which is to be received in a hole 19 in the section 14. A screw 20 will be employed to extend through an opening 21 diametrically opposite the opening 19 and then be

threaded into the boss 18, thereby clamping the back panel B' to the section 14. If the frame members C and C' are made from tubular material, suitable plugs 22 can be provided for the top open ends of the sections 14, thus forming a pleasing appearance at the back of the chair and also to keep out water and other foreign material.

The forward parts of the seat supporting sections 13 of the frame structure of the chair in Figure 6 may have a tendency to yield inwardly towards each other when a person of considerable weight is sitting in the chair. It is possible to prevent this by providing a brace 23 between the two leg sections of the side frame members. This brace should be readily detachable so as to permit assembly and disassembly of the chair and in Figure 11 there is shown a suitable manner of making the detachable connection. The ends of the brace 23 are provided with flattened portions 24 and a screw 25 arranged to extend through the tubular material of the leg section 12 and be screwed into a threaded opening in the flattened end of the brace. The flattened end is preferably placed at the rear side of the leg section.

It is believed to be readily apparent that the chair if Figure 6 can be packaged in a "knocked down" condition and assembled by the retailer or the ultimate purchaser in the same manner as the chair of Figure 1. The package will have minimum dimensions. The connecting member 16, when the chair is packaged, will be in detached condition, as will be the back panel B' and also the brace 23 if employed. The flexible seat S' can, if desired, be placed upon the frame members at the factory. When the chair is received in its "knocked down" condition the U-shaped connecting member 16 can be quickly attached to the ends of the floor engaging sections 11 of the two side frame members, the back panel B' attached to the upwardly extending back sections 14 and the brace 23 attached in the manner shown. The chair is then ready for use. Upholstery clips 26 can be employed to prevent slipping of the seat S' on the seat supporting sections 13. The seat panel can be removed at any time for cleaning or replacement.

The two chairs shown in Figures 1 and 6 will have the advantage that they can be shipped from the factory in "knocked down" condition and then readily assembled at their destination upon reaching the ultimate purchaser. The chair can also be taken apart at any time for storage in a small space. Also, a considerably greater number of chairs will be permitted to be stored in a given space than would be possible with chairs which could not be "knocked down." This would be of considerable advantage to any user of a large number of chairs who desired to store them during certain seasons. It would also be very desirable to anyone in the chair rental business since the chairs could be "knocked down" to permit a saving in space during transportation and also for storage.

Being aware of the possibilities of modifications in the particular chairs disclosed by way of example, without departing from the fundamental principles of the invention, I do not intend that the scope of the invention be limited in any manner except in accordance with the appended claims.

What is claimed is:

1. A chair comprising two separate tubular side frame members for spaced positioning and each so formed as to provide a horizontal floor engaging section, a front upwardly extending leg section, a substantially horizontal rearwardly extending seat supporting section and a rear upwardly extending back supporting section with a looped portion between it and the seat supporting section to thereby permit yieldable relative movement between the sections, a separately formed tubular member detachably connected at its end to the rear ends of the floor engaging sections, and detachable means associated with the upwardly extending back supporting sections for rigidly maintaining said sections in spaced relation and for providing a back for the chair, and a seat of readily flexible material extending between and attached to the seat supporting sections.

2. A chair comprising two separate tubular side frame members for spaced positioning and each so formed as to provide a horizontal floor engaging section, a front upwardly extending leg section, a substantially horizontal rearwardly extending seat supporting section and a rear upwardly extending back supporting section with a looped portion between it and the seat supporting section, a separately formed tubular member detachably connected at its ends to the rear ends of the floor engaging sections, a rigid back member detachably connected to the upwardly extending back supporting sections, and a seat of readily flexible material extending between and having its marginal side portions attached to the seat supporting sections.

3. A chair comprising two tubular side frame members for spaced positioning and each so formed as to provide a horizontal floor engaging section, a front upwardly extending leg section, a substantially horizontal rearwardly extending seat supporting section and a rear upwardly extending back supporting section with an integral looped portion between it and the seat supporting section to thereby permit independent yieldability of the back part of the chair relative to the seat part, a tubular member connecting the rear ends of the floor engaging sections, a rigid back member connecting the upwardly extending back supporting sections together, and a seat extending between and having its marginal side portions attached to the seat supporting sections, said seat being separate from the back part of the chair.

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