May 22, 1956 C. SCHNEIDER 2,746,518

SPRING-TYPE ROCKING CHAIR

Filed Dec. 1, 1950

Fig. 1.

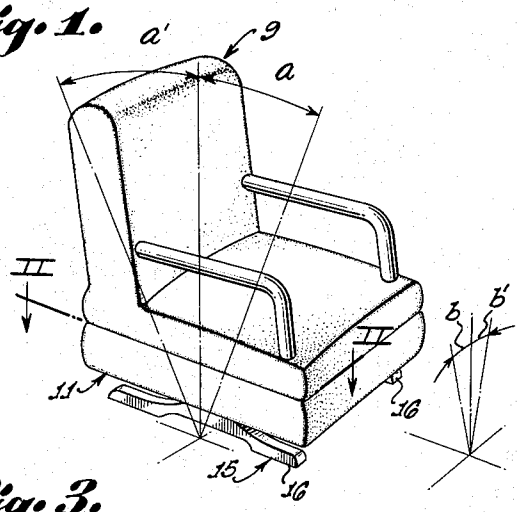


Fig. 2.

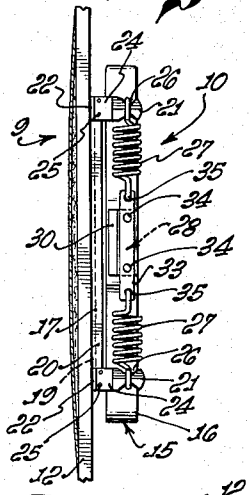


Fig. 3.

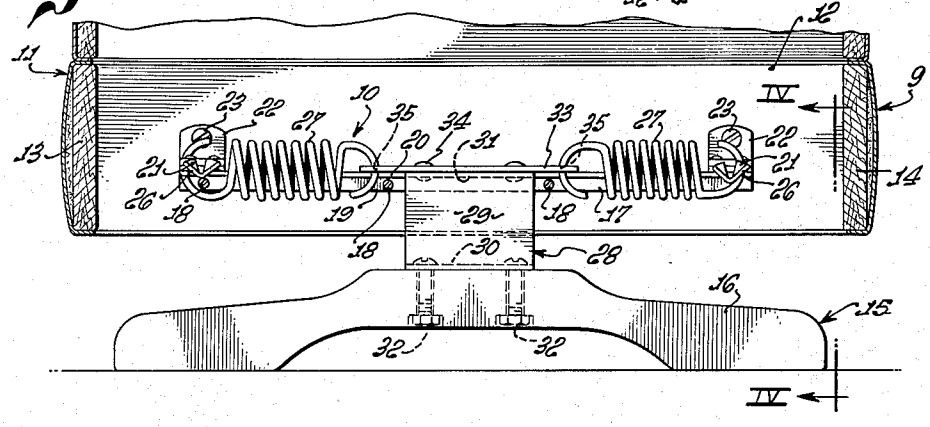


Fig. 4.

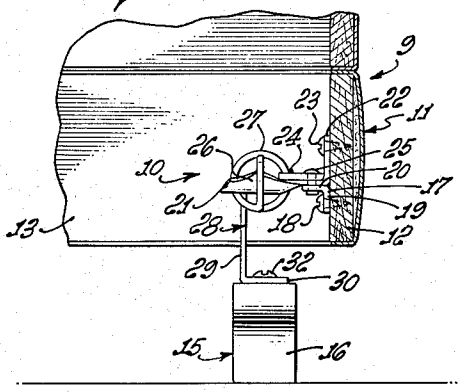
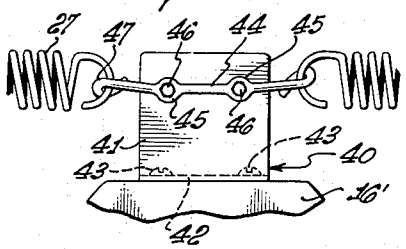


Fig. 5.



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SPRING-TYPE ROCKING CHAIR

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Application December 1, 1950, Serial No. 198,592

1 Claim. (Cl. 155—54)

This invention relates to an improved construction for spring-type rocking chairs. In particular, the invention relates to an article of manufacture utilized for connecting a stationary base and a chair frame in freely yieldable forward and backward rocking motion and limited lateral motion.

Prior spring-type constructions for resiliently mounted rockable chair frames employed a stationary base and a chair frame mounted therefrom by various arrangements of suspension springs. Some prior spring-type rockers employed a spring arrangement which was complex and difficult to assemble. Such prior construction usually required that ends of the spring arrangement be attached to front, rear, and side rails of a chair frame. In addition, many of the prior spring-type rockers were provided with a seat having relatively great height above the floor because of space required for the spring-type construction used. In general, prior spring-type rockers provided a rocking motion which was relatively stiff and which was quite different from the motion provided by a curved rocking member contacting a floor surface.

The primary object of this invention is to design and provide an improved spring-type rocking chair having a soft, relatively free, yieldable rocking motion forwardly and backwardly and a limited lateral motion.

An object of this invention is to design and provide as an article of manufacture a spring-type unit or assembly which may be readily utilized for connecting a chair frame to a stationary base in rockable relation. The construction of the spring-type unit particularly facilitates installation and assembly of such a rocking chair.

Another object of this invention is to provide, as an article of manufacture, a spring-type unit for use in a rocking chair construction, wherein the unit is readily utilized on chairs of different width, depth and height.

A further object of this invention is to design and provide an improved spring-type rocking chair wherein a pair of identical spring-type units are provided for connecting a chair frame to a stationary base in such a manner that the chair when rocking is quiet and virtually noiseless and includes a construction which virtually eliminates hazards inherent in prior rocking chairs employing curved rocker elements while affording substantially the same rocking motion.

This invention contemplates a spring-type unit for rockably connecting a chair frame to a base wherein the unit is of symmetrical construction and so designed that an identical unit may be employed on either of two side rails of a chair frame, thus avoiding the necessity of manufacturing right and left hand assemblies or units.

Generally speaking, an article of manufacture embodying the improved novel spring-type connecting unit of this invention comprises an elongated forwardly and rearwardly extending rigid member adapted to be conveniently attached to a side rail of a chair frame intermediate the front and rear ends thereof and in spaced relation thereto. At each end the member is provided

with an inwardly extending stub arm. A rigid upstanding support member is disposed in virtually the same vertical plane as that of the end portions of the stub arms and is spaced inwardly from the elongated member. A connection is provided at each end of the rigid support member for spring means which are connected at their other end to the stub arms, said connections being in substantially the same horizontal plane as that determined by the elongated member. The rigid support member is adapted to be suitably attached to a base, the attachment to said base being centrally located with respect to the spaced apart springs.

Other objects and advantages of this invention will be readily apparent from the following description of the drawings.

In the drawings:

Fig. 1 is a perspective view of a chair embodying this invention illustrating in diagrammatic lines the rockable motion which the embodiment of the invention provides.

Fig. 2 is a fragmentary view, taken in a horizontal plane indicated by the line II—II of Fig. 1 showing a top view of a spring unit embodying this invention.

Fig. 3 is an enlarged fragmentary side view of the spring unit shown in Fig. 2, the view being taken outwardly from a vertical plane longitudinally bisecting the chair shown in Fig. 1.

Fig. 4 is an end view of the spring unit taken from a vertical plane indicated by line IV—IV of Fig. 3.

Fig. 5 is a fragmentary view of a modification of the spring unit shown in Fig. 2.

Referring particularly to Fig. 1, there is shown a partially upholstered stationary type rocking chair **9** in which rocking movement is afforded without travel of the chair with respect to the floor surface. The rocking movement afforded by the novel spring unit of this invention, generally indicated at **10**, Fig. 2, principally provides a forward and rearward rocking motion as indicated in Fig. 1 by *a* and *a'* respectively. The spring type unit embodied in this invention also affords a limited lateral rocking movement indicated by *b* and *b'*.

The chair **9** illustrated in Fig. 1 includes a lower box shaped chair frame, generally indicated at **11**, having a pair of parallel laterally spaced side rails **12** and connecting front and rear rails **13** and **14** respectively. The outer surface of said rails may be suitably upholstered. The rails provide a hollow frame which is normally positioned above and in partially enclosing relation to a base, generally indicated at **15**. The base **15** may comprise forwardly and rearwardly extending base elements **16** each disposed adjacent and inwardly of one side of the chair. The elements **16** may or may not be interconnected by a transverse member (not shown).

The spring unit **10** comprises a forwardly and rearwardly extending rigid elongated angle section member **17**. The member **17** is adapted to be attached to a side rail **12** by suitable securing means such as wood screws **18** spaced along the length of member **17**. The angle section member **17** is disposed with a flange portion **19** depending downwardly and a flange portion **20** extending inwardly and disposed in a substantially horizontal plane. The depending portion **19** provides a relatively large outer surface area for seating contact against the inner surface of side rail **12**.

Member **17** may normally be positioned for securement to the side rail **12** with its center corresponding with the longitudinal center of side rail **12**. It is understood that the member **17** may be positioned off center either forwardly or rearwardly as desired in order to obtain a particular desired rocking motion, or member **17** may be disposed if desired in a plane at a slight angle to the horizontal. It should be noted that the ends of member **17** are spaced a considerable distance from the

front and rear rails 13 and 14 respectively of the chair frame.

An inwardly projecting stub or cantilever arm 21 is secured to horizontal portion 20 at each end of member 17. The arm 21 may be integrally formed with an upstanding lug or ear 22 adapted to seat against the inner surface of side rail 12, said ear being secured to said rail by wood screws 23. The arm 21 may be reinforced against bending by a generally rectangular plate 24 overlying that portion of arm 21 which is above the horizontal portion 20 of member 17. The reinforcing plate 24, arm 21, and horizontal portion 20 may be secured together by suitable means such as spaced rivets 25 or bolt and nut assemblies.

The inner end of each cantilever arm 21 is provided with an upwardly directed V-shaped crimped portion 26 adapted to provide a connection for one end of a coil spring 27. The crimped portions 26 of arms 21 are aligned and lie in virtually the same plane as the horizontal portion 20 of member 17. Obviously other means may be employed to connect an end of the spring to the arm; as, for example, an aperture, slot, or hook.

Between the spaced arms 21 may be provided a rigid upstanding channel-like member 28, said member 28 comprising a vertically disposed center web 29, a bottom horizontally and outwardly directed flange 30, and an upper horizontal and outwardly directed flange 31. The bottom flange 30 is adapted to be secured as by spaced nut and bolt assemblies 32 to a base element 16. The upper flange 31 presents a top flat surface lying substantially in the plane of the horizontal portion 20 of member 17 for affording a rigid flat seat for a flat elongated rigid strap 33 extending parallel to member 17 and secured to flange 31 as by rivets 34.

Strap 33 is aligned with the crimped portions 26 and projects beyond web 29 in spaced relation to portions 26. Each end of strap 33 is provided with an aperture 35 for receiving one end of an adjacent coil spring 27 for connection thereto.

The coil springs 27 extend between and connect the rigid member 28 with the elongated member 17. The springs 27 are held by their connection to crimped portions 26 and strap 33 in axial alignment with their axes lying in virtually the same horizontal plane as member 17. The spacing of the connections of the inner ends of springs 27 to strap 33 and the spacing between the inner and outer ends of each spring 27 are symmetrically arranged so that the spring unit 10 may be employed on either the left or right side rail 12.

The assembly of a base and chair frame embodying a spring unit 10 is simple and facilitated by the handling of the assembly 10 as a unit. A spring unit 10 may be first secured to a side rail 12 by attaching thereto member 17 including ears 22 by wood screws. The rigid upstanding member 28 may then be conveniently bolted to a base element 16. Since the spring unit 10 is handled as a complete unitary assembly, it will be readily apparent that the assembly of chairs employing this unit is very efficient, economical, and substantially reduces assembly time.

When a chair embodying the spring unit 10 described above is rocked, the chair frame is rockably movable by its suspension from springs 27. The connections between the springs and the centrally disposed rigid member 17 and member 28 permit relative angular movement between members 17 and 28. The rocking motion afforded is substantially similar to the rocking motion afforded by rocking chair employing curved rocking elements. This motion is provided by the specific relation of the spacing between the inner ends of the springs and by the spacing of the connections of the inner and outer ends of each of the springs, the distance between the opposed inner ends of the springs being slightly greater than the length of each spring 27. Such relationship affords a soft, yieldable, freely floating, rocking motion.

It should be particularly noted that the provision of a unitary assembly as embodied in spring unit 10 is readily adapted to a chair frame of any size, width or depth.

The cantilever arms 21 and the provision of upstanding lugs or ears 22 provide a simple and effective manner of connecting the chair frame as to a base element to afford a limited lateral rocking motion. The disposition of forces acting on the spring unit 10, when rocking, requires that arms 21 act in the manner of cantilever beams. The reinforcing plate 24, disposed on top of each arm 21, serves to reinforce the arm against such cantilever action and also strengthens the connection of the arm to the horizontal portion 20 by reducing shear forces imposed upon the rivets 25.

In Fig. 5 a modification is shown of the connection of the inner ends of springs 27 to a rigid upstanding member 40. The upstanding rigid member 40 may comprise an angle bracket having an upstanding rectangular shaped web 41 and a horizontally extending flange 42 adapted to be secured by spaced nut and bolt assemblies 43 to a base element 16'.

The upper portion of web 41 carries a substantially rigid wire member 44 of heavy metal section having spaced intermediate flattened portions 45. Each portion 45 is perforated for reception of a rivet 46 which extends through web 41 for rigidly securing wire member 44 to the web 41. Each end of wire member 44 may be provided with a suitable eye 47 affording a connection to the inner end of a spring 27. The axis of the springs 27 and the wire member 44 lie in substantially the same horizontal plane as that of the horizontal portion 20 of the member 17. The spacing between the eyes 47 of wire member 44 may be substantially the same as the spacing between the apertures 35 provided between opposite ends of strap 33. The operation of a unit embodying the modification shown in Fig. 5 is substantially the same as that described with respect to Fig. 1.

It will be understood that in some chair constructions it may be desirable to place the base elements 16 outwardly of the chair frame. The spring unit 10 is readily adapted to such change in construction by reversing the unit from the position shown by turning about a vertical axis so that the member 17 may be secured to the frame on an outer surface thereof and the rigid member 28 may be secured to the base element. The symmetrical arrangement of the unit 10 greatly facilitates making of this change without affecting the rocking action of the chair.

In another instance, it may be desirable to install unit 10 in an upside position, or in a position attained by turning the unit through 180° about a horizontal axis. In this case the rigid member 28 would be connected to a chair frame and the member 17 to a base element.

It will be understood that various modifications and changes may be made in the arrangement of the rigid members of the spring unit or assembly and all such modifications coming within the scope of the appended claim are embraced thereby.

I claim:

An article of manufacture for a spring-type rocking chair having a chair frame with opposed side rails and a base for interconnecting one side rail to the base, comprising: a pair of elongated rigid members in closely adjacent parallel relation and in substantially the same plane, one of said members being longer that the other; a laterally extending stub arm carried by each end of the longer member, said shorter member lying between said stub arms; a pair of springs with their axes in alignment with the axis of the shorter member, each spring connecting one end of said shorter member with an adjacent stub arm; means carried by the longer member for connecting the same to one side rail intermediate the ends of the side rail; and means carried by said shorter member for connecting said shorter member to the base at a central

portion thereof, each of said stub arms comprising a flat strap having a V-shaped crimped portion to form a recess to receive and hold an end of one of said springs.

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