Jan. 19, 1965 J. DI PASQUA 3,166,287

TORSION BAR ASSEMBLY FOR MECHANICAL SWING

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Fig. 1

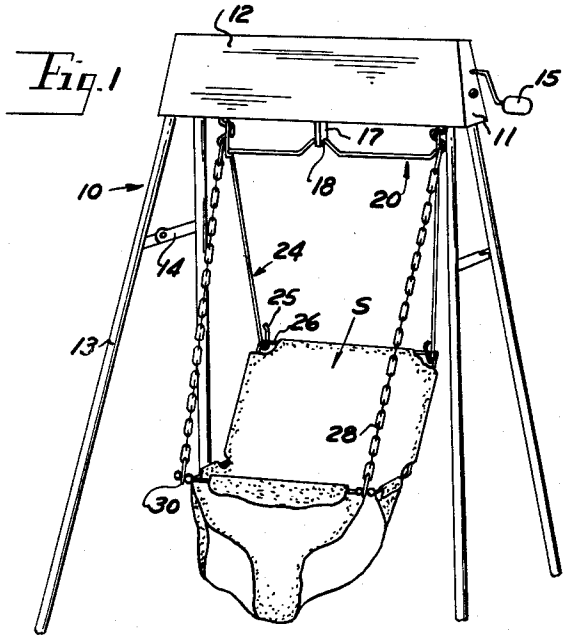
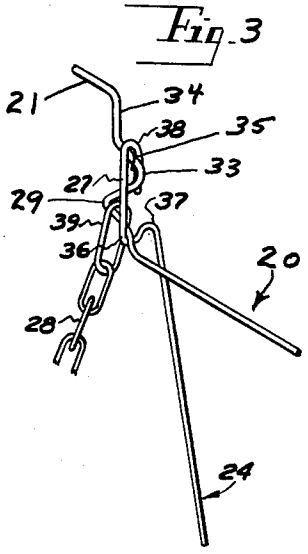


Fig. 3



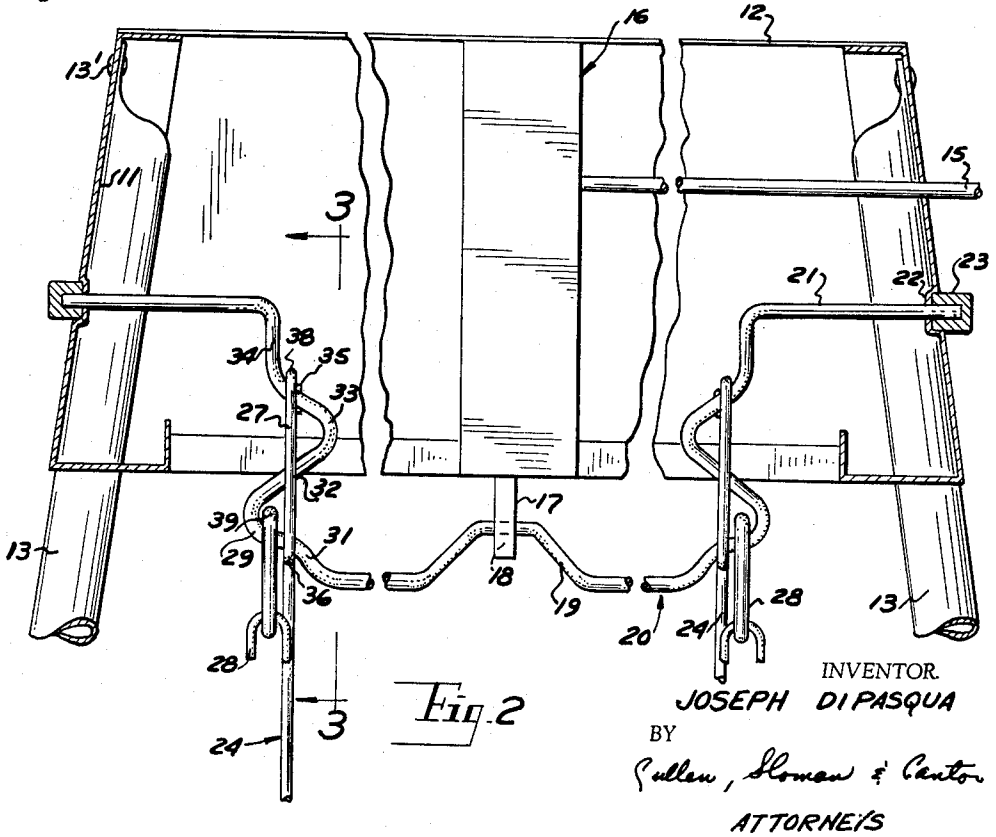


Fig. 2

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TORSION BAR ASSEMBLY FOR MECHANICAL SWING

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This invention relates to a torsion bar assembly for mechanical swings, and more particularly to a swing suspension for mechanical swings of the type powered by spring motors such as are disclosed in my prior United States Patent 2,860,727 issued November 18, 1958, United States Patent 3,073,416 dated January 15, 1963, and in application Serial No. 180,070, filed March 12, 1962, now Patent No. 3,112,814.

This invention is concerned with providing a novel form of swing suspension which supports a swing seat, and transmits the reciprocal motion of the drive motor to said seat for moving it forwardly and rearwardly and at the same time restricting sidewise movements of the seat stabilizing the same.

It is another object of the present invention to provide a torsion bar for a swing operated by a spring motor or the like for reciprocal rotary movements in association with the novel form of support rod assembly for suspending and movably mounting a swing with respect to said torsion bar.

These and other objects will be seen from the following specification and claims in conjunction with the appended drawing in which:

FIG. 1 is a front perspective view of the complete swing assembly, but with the legs fragmentarily shown.

FIG. 2 is an enlarged view, partially sectioned, of the upper end of the swing and swing suspension.

FIG. 3 is a fragmentary perspective view taken in the direction of the arrows 3—3 of FIG. 2.

It will be understood that the above drawing illustrates merely a preferred embodiment of the invention, and that other embodiments are contemplated within the scope of the claims hereafter set forth.

Referring to the drawing, the swing **10** includes a seat S which may be formed in a chair-like configuration having a wire frame **26** and a cloth seat body. It is suspended from and swings beneath the housing **12** having end support walls **11** whose lower edges are bent inwardly and horizontally to form horizontal flanges with elongated slots through which upper end portions of tubular legs **13** are projected. The upper ends of said legs are flattened and are pivotally secured by suitable fasteners **13'** to end support walls **11**, said legs being in contact with walls **11**, FIG. 2.

Each pair of legs is interconnected by the foldable brace **14** so that the legs may be folded towards each other when the swing is to be stored.

Mounted and secured within housing **12** is a spring motor generally indicated at **16** of the type disclosed in the above-mentioned prior patents and patent application. This motor has a downwardly depending lever **17** which is operated by the motor for reciprocal forward and rearward movements. Said lever includes upright slot **18** adapted to cooperatively receive the central upwardly extending inverted U-shape portion **19** which forms a part of the base of horizontal torsion bar **20** fragmentarily shown in FIG. 2 in its assembled relation with said housing.

The rotatable crank **15** is journaled through and extends from housing **12** and is suitably connected to the spring motor **16**, FIG. 2, for winding the spring power mechanism therein, all as disclosed in the prior above set forth patents and patent application.

The present horizontally disposed torsion bar **20** is

made of a stiff rod-like material with its opposite horizontally disposed free ends **21** journaled and projected through bosses **22** in end walls **11** and retained by cleats or fasteners **23**.

The central portion of the torsion bar is bent into an upwardly opening deep U-shape whose legs are generally vertically arranged and whose base is horizontally arranged.

The generally upright legs of torsion bar **20** are irregularly formed to define a pair of continuous opposite extending reverse curved loops **29** and **33**. Each as said loops defines with said legs a pair of abutments **31** and **34** adapted for cooperative registry with upright support rods **24**. The chains **28** suspend and movably mount the seat between the pairs of legs **13**.

A pair of elgonated substantially upright support rods **24** are each arranged adjacent one of the said legs as best shown in FIGS. 2 and 3. Interlocking securing means are employed between the upper end of the respective support rod and the torsion bar at spaced points located on the respective legs for establishing an assembled relationship.

Each of the torsion bar legs includes the upwardly inclined abutment **31** terminating in loop **29** which merges as at **32** with the reversed curved oppositely extending loop **33** which terminates in abutment **34**. Abutment **34** terminates in the horizontal support portions **21** of said torsion bar.

The respective support rods **24** are mounted and retained at their upper ends with respect to the leg portions of torsion rod **20**, and extend below the horizontal base portion of said torsion rod. The lower ends of rods **24** are located a considerable distance beneath said torsion bar, and are formed with hooks **25** engaging the wire frame **26** of the canvas or other flexible cloth seat S adjacent its opposite sides.

The seat is further stabilized and supported by the pair of downwardly and forwardly inclined flexible chains **28** whose upper ends are connected as at **39** between the loop **29** and adjacent support rod **24**. The lower end of each chain is connected at **30** to forward arm rest portions of the wire frame which forms a part of the seat.

As shown in FIG. 2, additional stop means or projections **35** are formed upon upper portions of leg loops **33** normally spaced from abutment **34**. The upper reversed curved portion **38** of loop **27** is interposed (and retained) between abutment **34** and stop **35**.

The upper end of support rod **24**, FIG. 3, terminates in the curved portion **37** which includes the upwardly extending reverse looped portion **36** which merges with loop **27**. This loop **27** is arranged in a plane substantially transverse to a plane passing through looped portions **29** and **33** of the legs which form a part of torsion rod **20**.

Thus, the interlocking means between rods **24** and torsion bar **20** include the projection of loop **27** so as to receive the respective reversed curve loops **29** and **33**, which loops respectively engage the abutments **31** and **34**. The upper portion **38** of loop **27** is retained between abutment **34** and the stop **35**. The lower looped portion **36** bears against abutment **31** and is retained in this position by the upper link of the chain as at **39** which is interposed between loop **27** and leg loop **29**.

This interlocking means thus provides an assembly by which rods **24** are maintained in a substantially upright position relative to torsion rod **20** and wherein an efficient interlock is provided between upper portions of the support rods and the leg portions **29–33** of torsion bar **20**.

In the operation of the present swing the motor element **17** causes a rotary swinging movement of torsion bar **20** journaled at **22**, which movements are transmitted by the support rods **24** and chains **28** to the seat S suspended

therefrom. The interlock between the upper ends of rods 24 and the leg portions of the torsion bar prevent side sway of the swing between the pairs of foldable legs 13, FIG. 1.

Having described my invention reference should now be had to the following claims.

I claim:

1. In a swing suspension, a horizontally arranged support housing having a pair of spaced apart end wall supports;

a horizontally arranged torsion bar made of stiff, rod-like material and having its opposite ends each rotatably connected to one of said end wall supports, the central portion of said torsion bar being bent into an upwardly opening, deep U-shape whose legs are substantially vertically arranged and whose base is horizontally arranged; a motor supported in said housing; the motor having a driven reciprocating lever extending downwardly therefrom and being connected to the center of said base for reciprocating said torsion bar about its rotatably connected ends;

a pair of elongated, upright swing support rods, each arranged adjacent one of said legs;

interlocking means between the upper end of a support rod and the torsion bar at spaced points located on the respective leg, said support rods each extending downwardly below said base and having its lower end located at a considerable distance beneath the torsion bar with the lower end being formed with means for connection to a swing.

2. In the swing suspension of claim 1, said interlocking means including a pair of reverse curved loops in each leg defining with said leg a pair of abutments, and a looped portion on the upper end of each support rod transverse to and cooperatively receiving said leg loops, bearing against said leg abutments and retained there-against.

3. In the swing suspension of claim 1, said interlocking means including a pair of reverse curved loops in each leg defining with said leg a pair of abutments, a looped portion at the upper end of each support rod transverse to and cooperatively receiving said leg loops and bearing against said leg abutments, and means for retaining said looped portion against one of said abutments.

4. In the swing suspension of claim 1, said interlocking means including a pair of reverse curved loops in each leg defining with said leg a pair of abutments, a looped portion at the upper end of each support rod transverse to and cooperatively receiving said leg loops and bearing against said leg abutments, and means for retaining said looped portion against one of said abutments, said latter means comprising a pair of chains each having its upper end connected to one of said leg loops and each having its lower end extending downwardly and arranged for connection to said swing.

5. In the swing suspension of claim 1, said interlocking means including a pair of reverse curved loops in each leg defining with said leg a pair of abutments, a looped portion at the upper end of each support rod transverse to and cooperatively receiving said leg loops and bearing against said leg abutments, means for retaining said looped portion against one of said abutments, and stop means spaced from the other of said abutments retainingly engaging the looped portion of said support rod.

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