

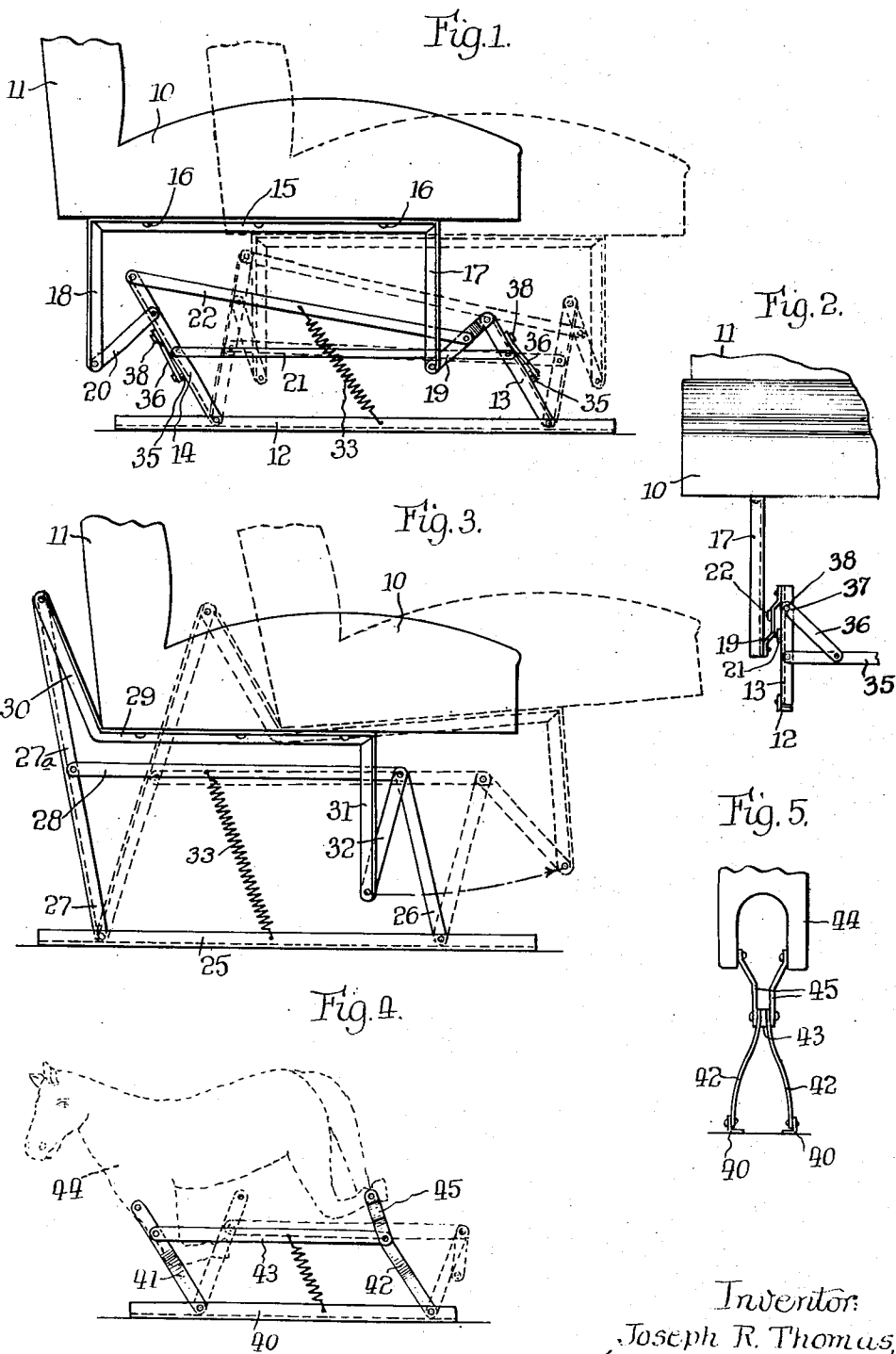
Sept. 14, 1937.

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2,092,787

SWINGING SEAT

Filed Nov. 22, 1933



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UNITED STATES PATENT OFFICE

2,092,787

SWINGING SEAT

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Application November 22, 1933, Serial No. 699,234

8 Claims. (Cl. 155—61)

This invention relates in general to the class of swinging seats in which the seat structure is supported from below and may embrace gliders, chairs, porch swings, and hobby horses.

Among the objects of the invention is to provide a swinging seat in which the supporting structure is located entirely below the seat on a floor or other support upon which the structure is placed, thereby eliminating any supporting members above the seat.

A further object of the invention is to provide a supporting structure below the seat by which the latter simulates a suspended swinging or gliding action; a still further object of the invention is to provide an improved supporting structure for a swinging seat in which the movement is controlled by a compound swinging structure.

A still further object of this invention is in the provision of a swinging seat structure which may be easily applied to seats of different sizes and character, and in which the supporting structure is easily folded or collapsed for storage or shipment.

Other objects of the invention will appear hereinafter, the accompanying drawing illustrating preferred embodiments of the invention.

In the drawing, Fig. 1 is an end elevation of a swinging seat or glider structure constructed in accordance with the invention;

Fig. 2 is a fragmentary front view of a seat as shown in Fig. 1;

Fig. 3 is an end elevation of a modification of the swinging seat or glider structure;

Fig. 4 is a side view of a structure as employed for hobby horses and the like; and

Fig. 5 is a section of the rear end of the supporting structure shown in Fig. 4.

In supporting a porch swing or glider it is customary to have either an end frame which extends above the seat at each end thereof and from which it is suspended by links or chains, or the seat suspended entirely by chains from the roof or ceiling of the porch to swing in accordance with such suspension. Both of these forms are objectionable in appearance and application, they are difficult to move or to change their location and the swinging movement is so uncontrolled that it is objectionable in any location where the space for movement may be limited by other articles of furniture, nearness to a wall, or other obstructions.

The present invention overcomes all of these objections in a swinging seat structure by providing a controlled compound mechanism for swinging movement which may be located entirely

below the seat and therefore largely concealed by a fringe or valance around the edge of the seat structure, avoiding objectionable arms or chains ordinarily used and which project upwardly at the ends of the seat or depend from the ceiling to uphold the seat; in this instance the supporting structure being entirely supported upon the floor so that it may be moved with the seat from one location to another just as any other article of furniture.

Referring now more particularly to the drawing, I employ a seat 10 of any desired or suitable character, in the form of a metal or wooden frame, plain or upholstered with cushions thereon, and it may have a coil spring bottom as a part thereof. It may be formed either with or without a back 11. If in the form of a chair or davenport it will ordinarily have arms or end pieces which are not shown in the drawing.

The supporting structure of my invention is duplicated at each end of the seat, as will be noted, and to cooperate therewith there is fastened to the underside of the seat, by screws 16 or other suitable fastening means, a frame 15 of angle iron presenting depending front and rear legs 17 and 18. Each supporting structure includes a floor plate or angle iron base 12 to which are pivoted front and rear upwardly extending links 13 and 14 connected to the lower ends of the legs by short suspension links 19 and 20 pivoted to the supporting links and legs respectively, the link 19 extending from the front leg 17 to the upper end of the supporting link 13, while the short link 20 extends from the rear leg 18 to a point below the upper end of the supporting link 14.

In order to co-ordinate the movements of the connected parts aforementioned, a link 21 is pivoted at its ends to the links 13 and 14, whereby they will move in unison about their pivotal connection with the floor member 12. In order to control and to give a differential movement to the links 19 and 20, a controlling link 22 is pivoted at its rear end to the upper end of the rear link 14, above the connection of short link 20, and at its forward end intermediate the ends of the link 19.

The resultant movement of this structure, illustrated in Fig. 1, will cause a smooth wide glide or swing of the seat in a forward and rear direction and instead of dropping or swinging downwardly at the limit of its movement in either direction the links 19 and 20 will cause an upward swing or movement of the seat at the forward and rear limit of the gliding movement, the controlling

link 22 thrusting the link 19 somewhat forward of the supporting link 13 to which it is connected so that in its forward movement the front of the seat has a tendency to tip or swing slightly upward at this part of its movement thereby more closely resembling that of a suspended seat.

In the modification shown in Fig. 3 a floor plate 25 has front and rear supporting links 26 and 27 pivotally mounted thereon and connected together by a link 28. The upper end of the rear link 27 extends considerably above the front link 26 and provides a member 27a preferably located behind the back 11 of the seat structure to which it is pivoted. A supporting frame 29, similar to the frame 15, is secured to the bottom of the seat, but in this instance the rear leg or supporting member 30 is extended upwardly for pivotal connection with the upper end or aforementioned member of the rear supporting link 27, the downwardly extending front leg 31 being pivotally connected to one end of a suspension link 32, while the other end of this link is pivoted to the upper end of the front supporting link 26. In this structure the upward swinging movement of the seat at the forward end of its travel is accentuated as shown in dotted lines, and the rearward swinging movement is limited by engagement of the back 11 with the rear link 27.

In either of these forms the movement may be limited in either direction by the provision of stops. As the seat rises at the front and rear of its arc of movement it tends normally to remain in or swing back to its central position. In order to cushion the movement in either direction and to assist in returning the supported structure to an approximately central position, a spring 33 is secured at one end to the floor plate 12 or 25 and at the other end to the connecting link 22 or 28.

In order to make the supporting structures at the ends of the seat readily collapsible for storage and shipment, they are connected together when assembled with the seat by one or more cross pieces 35 as shown in Fig. 2, pivoted to the links 13 and 14, said cross piece or brace having a pivoted locking link 36 near each end with a notch 37 for engaging a headed projection 38 on the companion lever to hold it in fixed relation to the corresponding lever at the other end of the seat. When these locking links 36 are disengaged from the projections the end mounting constructions, when detached from the under side of the seat, may be folded over the cross pieces 35.

A supporting structure of this general character is also adapted for use in constructing a hobby horse, as shown in Figs. 4 and 5, in which supporting plates 40 are spaced apart and to each is pivoted front and rear supporting links 41, 41, and 42, 42, the upper ends of the links being bent inwardly toward each other, and connected near the top of the rear links and adjacent the top of the front links is an operating link 43. The upper ends of the front links are connected to the front end of a hobby horse 44, as shown, and the rear end of the hobby horse is connected by a pair of links 45 with the upper ends of the rear links 42 so that as the horse is rocked back and forth upon the forward and rear supporting links it may further swing from the short links 45 in such movement, thus imparting a considerable throw or additional movement to the seat or hobby horse due to the swinging action of said short links on the upper ends of the links 42.

In this swinging seat construction the desired swinging and gliding movement is imparted to

the seat because of the joint action of the upwardly extending swinging supporting links and the controlled or compounding movement imparted to the seat structure by the connecting or downwardly extending suspending links. In effect this reverses the swinging action which would be imparted by the upwardly extending links alone, it lengthens out the swinging movement of the seat, makes the swinging movement more continuous and of greater extent, and also reverses the ordinary action which the links alone would impart to the seat at the ends of the swinging movement. By controlling this swinging movement the extra throw can be made greater or less as desired, the structure of Fig. 3 illustrating that the upward throw can be increased considerably if desired.

It will also be apparent that the swinging seat mounting may be applied at the ends of the seat structure, or covered by the arm pieces, as in a chair or davenport. A low or deep seat construction might extend as far downwardly as the lower ends of the legs 17, and the links 19 and 20 may extend downwardly thereto from their respective links. In the form shown in Fig. 1, one of the supports, particularly the rear one, 14, may be fixed instead of pivoted, with a swinging connection from it to the seat support. Other changes may be made without departing from the spirit and scope of the invention.

I claim:

1. In a swinging or gliding seat or the like, laterally spaced supporting structures each comprising a base, supporting links pivoted at the front and at the rear ends of said base, respectively, and from which they project upwardly, a coordinating link interconnecting the supporting links for movement thereof in unison, the supporting link at the rear end of the base having an extension above its pivotal connection with the coordinating link, a suspension link pivoted to the upper end of the front supporting link and depending therefrom, a rigid element connected to the upper end of the extension of the rear supporting link and to the suspension link for limiting the forward and rearward movement of the seat, and a seat frame carried upon said extension and said suspension link.

2. In a swinging or gliding seat or the like, laterally spaced supporting structures each comprising a base, supporting links pivoted at the front and rear ends thereof respectively and from which they project upwardly, a coordinating link interconnecting the supporting links for movement thereof in unison, suspension elements carrying the seat and comprising a pair of suspension links one of which is pivoted to the seat and to the upper end of one of the supporting links from which it depends and the other pivoted to the seat and to the other supporting link from which it depends, and a stabilizing member or link pivotally connected to the suspension link at one end of the supporting structure and to the supporting link at the other end of said supporting structure.

3. Supporting structures for the ends of a swinging or gliding seat or the like as in claim 2, and including a spring connected to the base and to the stabilizing member or link for equalizing the movement of the seat.

4. Supporting structures for the ends of a swinging or gliding seat or the like as in claim 2, and including brace bars extending between and connected to the supporting links at the front and at the rear of the base respectively, and diagonal

locking links each pivoted to the crossbar and detachably connected to an adjacent supporting link for bracing the connection of said crossbar to the supporting links respectively.

5 5. Supporting structures for the ends of a swinging or gliding seat or the like as in claim 2, and including a spring connected to the base and to the stabilizing member or link for equalizing
10 the movement of the seat, and brace bars extending between and connected to the supporting links at the front of the supporting structure and at the rear thereof respectively.

15 6. Supporting structures for the ends of a swinging or gliding seat or the like as in claim 2, and including a spring connected to the base and to the stabilizing member or link for equalizing the movement of the seat, brace bars extending between and connected to the supporting links at the front of the supporting structure and at the
20 rear thereof respectively, and means for locking the crossbars to the supporting link comprising a link pivoted near each end of the crossbar and detachably connected to the adjacent supporting link.

25 7. In a swinging or gliding seat or the like, laterally spaced supporting structures each com-

prising a base, supporting links pivoted at the front and at the rear ends thereof respectively and from which they project upwardly, a coordinating link interconnecting the supporting links for movement thereof in unison, one of said supporting links being extended upwardly beyond the pivotal connection of the coordinating link therewith and the said extension being pivotally connected at its upper end to the seat structure, a suspension link pivoted to the upper end of the other supporting link from which it depends and is pivotally connected at its lower end to the seat structure, and a spring connected at one end to the base and at the other end to the coordinating link.

15 8. A swinging or gliding seat or the like, as in claim 7, and characterized by metal frames at the opposite ends of the seat, said frames each having a downwardly projecting member at the forward portion of the seat and an upwardly
20 projecting member at the back of the seat to provide the means for pivotally connecting the rear supporting link and the suspension link, respectively, to the seat structure.

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