

H. A. MYERS.

SWING.

APPLICATION FILED OCT. 20, 1906.

946,558.

Patented Jan. 18, 1910.

3 SHEETS—SHEET 1.

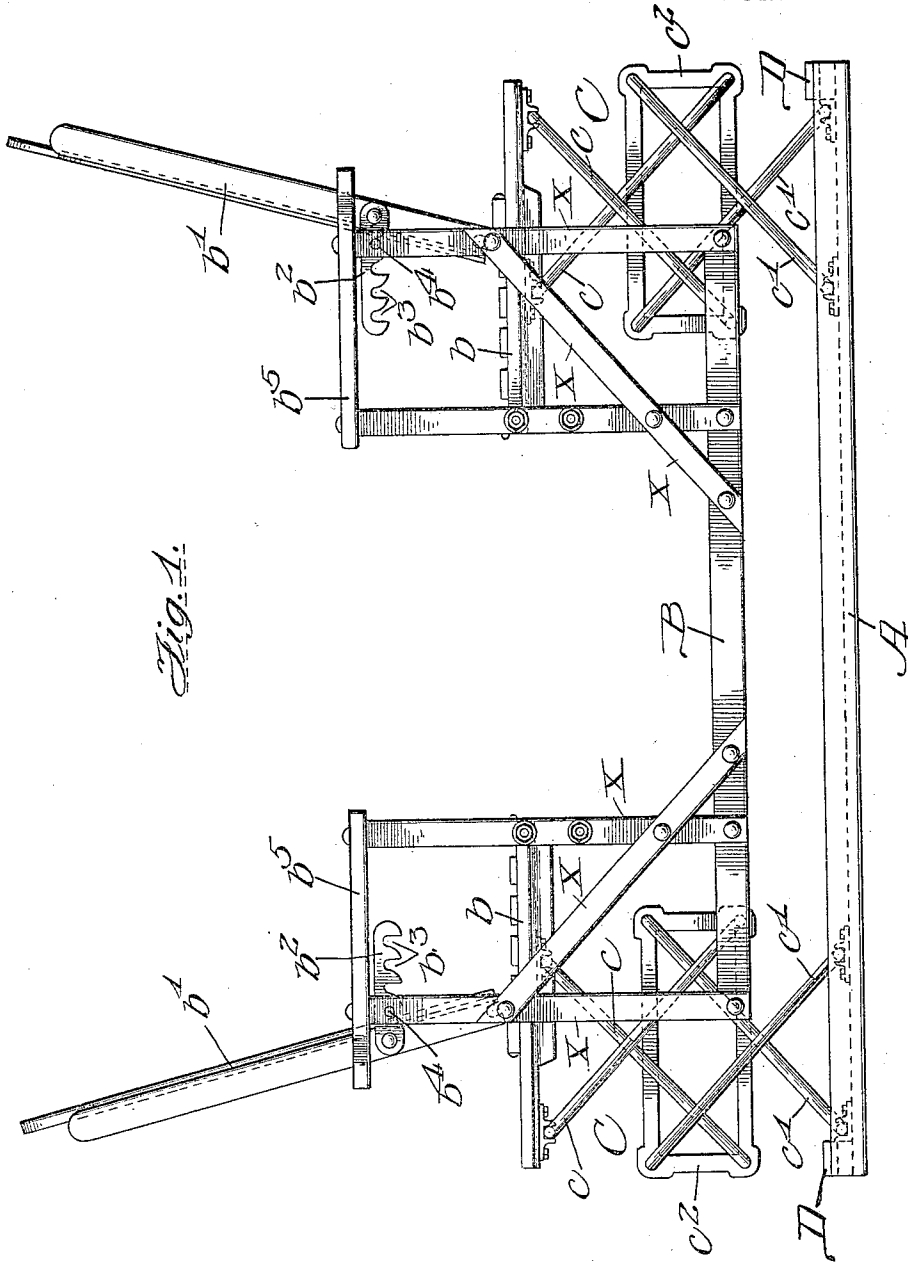


Fig. 1.

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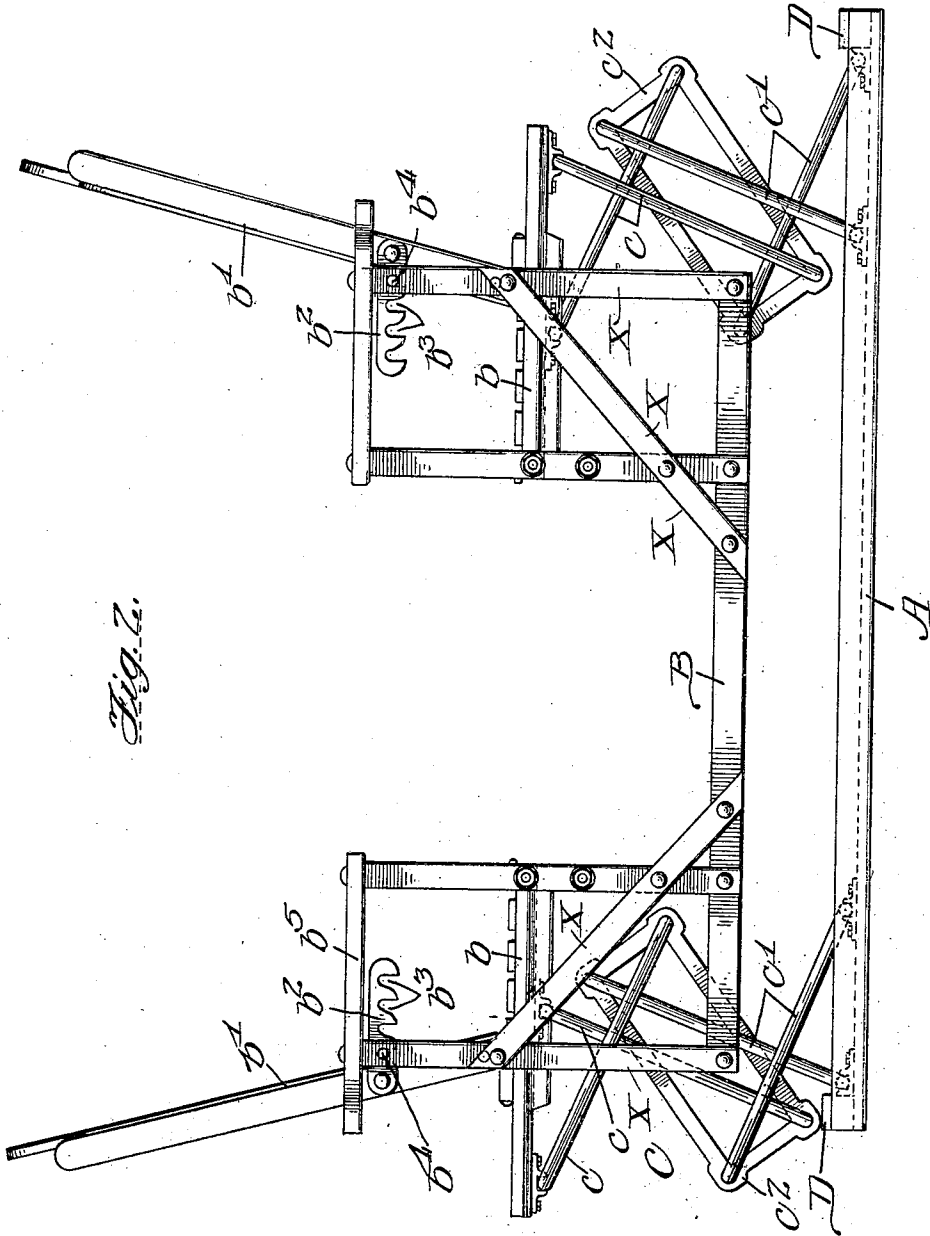


Fig. 2.

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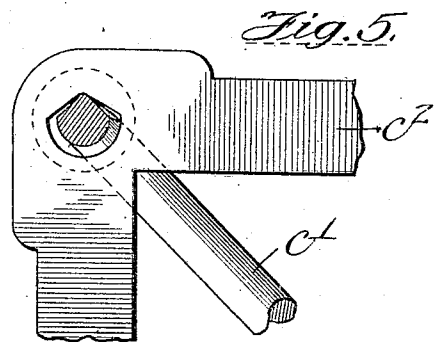
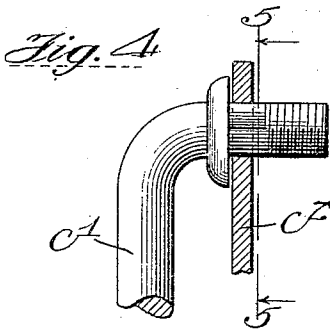
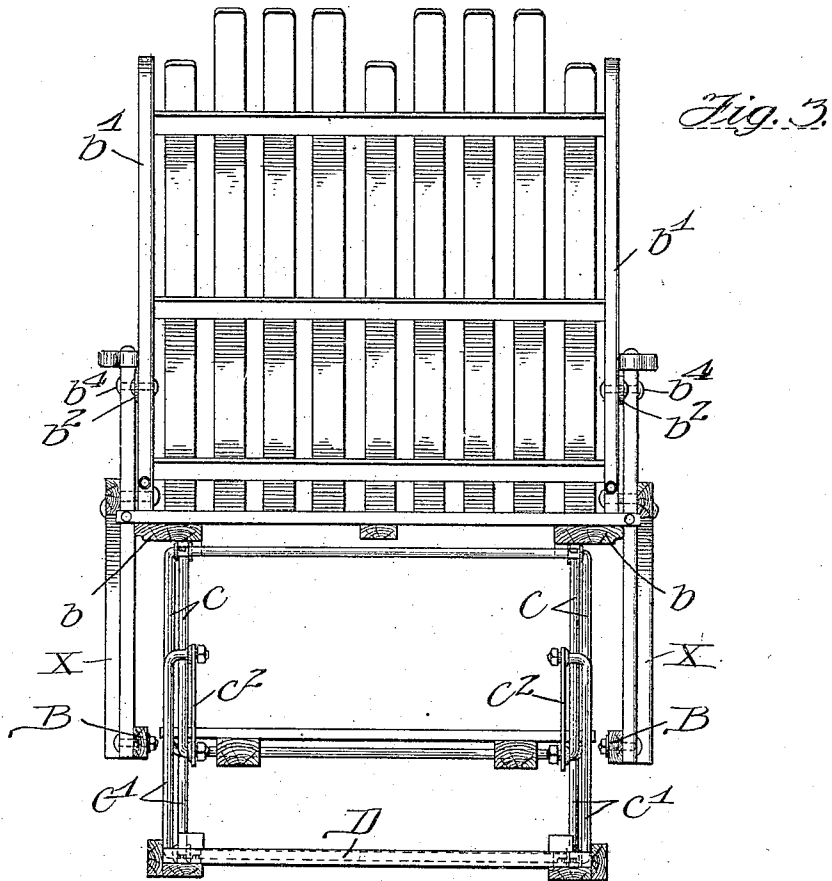
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# UNITED STATES PATENT OFFICE.

HUBERT A. MYERS, OF GOSHEN, INDIANA.

## SWING.

946,558.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed October 20, 1906. Serial No. 339,767.

*To all whom it may concern:*

Be it known that I, HUBERT A. MYERS, a citizen of the United States of America, and resident of Goshen, Indiana, have invented a certain new and useful Improvement in Swings, of which the following is a specification.

My invention relates to mechanical or gliding swings.

Generally stated, the object of my invention is to provide an improved and highly efficient swing of the above general character.

Special objects of my invention are to provide improved means for dispensing with rollers, tracks or ways, and all similar devices; to provide swinging rods or other equivalent devices below the seats of the swing, for supporting the same on the stationary base; and to provide certain details and features of improvement and combinations tending to increase the general efficiency of a swing of this particular character.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a swing embodying the principles of my invention. Fig. 2 is a similar view, showing the swing moved to the limit of its swing in one direction. Fig. 3 is an end elevation of the swing shown in Fig. 1. Figs. 4 and 5 are detail views of one of the knife-edge bearings.

As thus illustrated, my improved swing comprises a base A, a swinging body B, and four swing-movements C. The body B has the two seats  $b$  which face each other. Between the seats the body B serves as a foot rest. Each seat has a swinging back  $b^1$  provided with a swinging brace  $b^2$  having a row of notches  $b^3$  adapted to engage the pin  $b^4$  on the side  $b^5$  of the seat. With this arrangement, the seats can be adjusted to different angles of inclination. Each swing-movement comprises a couple of crossed upper rods  $c-c$  and a couple of crossed lower rods  $c^1-c^1$ ,—the upper rods also crossing the lower rods, as shown,—together with a rectangular link  $c^2$ . These rods or links  $c$  and  $c^1$  are, of course, all subject only to endwise compressive strain, as they are not hanger rods. The links or rocking members  $c^2$  are, however, subject only to tensile strain, as they serve as hangers. The upper rods  $c-c$  have knife-edge bearings on the body B, and

the lower rods  $c^1-c^1$  have knife-edge bearings on the base A. Said upper rods have knife-edge bearings in the lower corners of said link  $c^2$ , and the lower rods have knife-edge bearings in the upper corners of the link. (See Figs. 3 and 4. For convenience of illustration, however, the various knife-edge bearings are not indicated in Figs. 1, 2 and 3.) In order to lighten the structure, these four links  $c^2$  are each preferably in the form of a rectangular frame. Bumpers or rubber stops D are provided on the base A and disposed in position to be engaged by the outer lower corners of the said links, to limit the oscillation of the latter, as shown in Fig. 2. With this arrangement, the body B has a gliding or back-and-forth swinging movement, the swing-movements C, after the swing is once started, serving to keep up the motion for a surprisingly long time. It will be seen that the swing movements are all low, and down under the seats of the swing.

Any expedient can be employed for operating the swing. It can be started by a person standing on the ground, or by giving it a push; or it can be kept in motion by those in the swing, or by swaying movement of the occupants. This, however, will not need further explanation. It will be seen that the swing movements or supports are disposed between the sides X of the movable body, and, consequently between the sides of the seats, as well as below the seats. Furthermore, it will be seen that the swing movements C keep the body B level, and that the base A supports the said swing movements to hold the said body substantially against up and down movement, whereby the body B is retained in a level condition and prevented from having any material up and down movement—that is to say, its up and down movement is practically not appreciable.

It will be seen, of course, that the links  $c^2$  are intermediate the base A and the lower ends of the links or rods  $c$ . These oscillating members  $c^2$  are also intermediate the movable body and the upper ends of the rods or links  $c^1$ . The construction, of course, is such that the momentum of the body is overcome and the motion reversed by gravity.

It will be seen that the rods which support the movable body are arranged in pairs, with the members of each pair at an angle to each other. Furthermore, means

are provided for limiting the movement of the body to prevent each and every rod from swinging beyond the vertical. In other words, each rod has a certain angle, and while it is swung to a more vertical position, still it is never swung completely over and beyond a vertical position. In this way the angularity of the rods is always sufficient to reverse the movement of the body by mere gravity alone. The rods *c* and *c'* are all compression rods, as they receive the weight of the body B as a compressive strain, and is, therefore, a compressive rod.

The links or rocking members *c*<sup>2</sup> constitute means combined with the rods or connections for keeping the body level while moving back and forth. Thus the lower rods may be said to be combined with means intermediate their upper ends and the body to keep the latter level. Or the upper rods may be said to be combined with means intermediate their lower ends and the body to keep the latter level. It is also an important consideration that each rod receives the weight of the body as an endwise compressive strain thereon. And, preferably the pair of rods are arranged one in advance of the other in the direction of their swing or movement.

It will be seen that my invention involves one pair of crossed rods disposed in advance of another pair, in the direction of their movement. In other words, the rods all swing back and forth in the same direction and in vertical planes. Either the upper or the lower pair of rods at the left in Fig. 1 may be said to be disposed in advance of either the upper or lower pair of rods at the right of said figure. In order to obtain the desired motion, it is not necessary that one pair of rods be arranged in line with the other pair—that is to say, the rods at one side of the swing and at one end thereof are in advance of the rods at the other side of the other end of the swing, although they are not in line. Furthermore, it will be seen that all of the rods are movably supported by the base, and that the movable body is carried by and imposes an endwise compressive strain on all of the rods.

What I claim as my invention is:

1. In a swing, a swing-movement or support comprising a four-cornered link, upper crossed rods supported in bearings on the lower corners of the link, lower crossed rods supporting the link and engaged in bearings on the upper corners thereof, movable means engaging the upper ends of the upper rods, and stationary means engaging the lower ends of the lower rods.

2. In a swing, a movable body having seats, said body supported for a gliding or horizontal bodily movement, a stationary

base, and swing-movements or supports disposed entirely under the seats in position to hold the body parallel with the base, said supports having their upper ends pivoted on the movable body and their lower ends pivoted on the base, said swing-movements or supports being jointed or articulated intermediate their upper and lower ends.

3. In a swing, the combination of a movable body provided with seats, oscillating members disposed below the plane of the seats, crossed rods pivoted at their upper ends on said body and at their lower ends on the bottom portion of said members, and crossed rods having their upper ends pivoted on the tops of said members and their lower ends on the said base.

4. In a swing, the combination of a movable body supported for back and forth movement in a level condition, a stationary base, and two sets of supporting rods for each end of said movable body, some of said rods having their upper ends pivotally connected with the movable body, and some of said rods having their lower ends pivotally connected with said base, connections intermediate the rods which are pivoted on the base and the rods which are pivoted on the movable body and all of said rods being movable in planes parallel with the horizontal endwise movements of said body.

5. In a swing, a movable body, a base, upper and lower crossed rods supporting the body on the base, and means for connecting the upper crossed rods with the lower crossed rods.

6. In a swing, a movable body, a base, four sets of crossed supporting members, one set for each corner of said body, means for mounting the lower ends of said members on said base, and suitable supporting means intermediate the upper ends of said members and the said body.

7. A gliding swing comprising a base, an endwise movable body provided with seats, supporting links carried on the base and disposed under the seats to support the body, and pivot bearings for the upper and lower ends of each link, said links disposed in pairs with the members of each pair at an angle to each other, and means for limiting the movement of said body to prevent each link from swinging past the vertical, one end of each pair of rods being provided with a rocking member, as set forth.

8. In a swing, a movable body, a base, crossed links having their upper ends pivoted on the body, and rocking or oscillating members for connecting the lower ends of said links with the base, the said links pivoted on said members.

9. In a swing, a movable body, a base, crossed links having their lower ends pivoted on the base, and rocking or oscillating

members for connecting the upper ends of said links with said body, the said links pivoted on said members.

10. In a swing, the combination of a horizontal base, a movable body of suitable seating capacity, supported to remain parallel with the base while moving back and forth, and means for holding the body level, comprising swing-movements or supports having their lower ends pivoted on the base and their upper ends pivotally connected with the body, each movement comprising a pair of rods disposed at an angle to each other, a rocking member for one end of each pair of rods, and means for limiting the movement of said body to prevent each member from swinging past the vertical, said movable body provided with side portions inclosing said supports, as set forth.

11. In a swing, the combination of a base, a horizontally movable body of suitable seating capacity, supported to remain parallel with the base while moving back and forth, and means for holding the body level, comprising four swing-movements or supports each having two upper ends pivoted on the body and two lower ends pivoted on the base, a rocking member intermediate the upper and lower end of each movement or support, said supports disposed between the sides of the movable body and each comprising members disposed at an angle to each other, and means serving to prevent the body from traveling beyond the limits of self-reversal or return movement by gravity, all of said pivoted ends being under the seats.

12. In a swing, the combination of a base, a movable body of suitable seating capacity, and means for holding the body level, comprising four swing-movements or supports disposed in position to constitute a parallel movement connection between the base and body, each swing-movement or support comprising a plurality of crossed rods, the lower ends of some of which rods are pivoted or mounted on the base, and the upper ends of others of which rods are pivoted on the body, said rods all disposed between the sides of the movable body, suitable means for connecting the rods on the base with the rods on the body, and means serving to prevent each rod from swinging past the vertical, as set forth.

13. In a swing, the combination of a base, a movable body of suitable seating capacity, and swing-movements or supports each comprising upper crossed rods, lower crossed rods, and a link, the upper rods having their upper and lower ends connected respectively on the body and the lower portion of the link, and the lower rods having their upper and lower ends connected re-

spectively on the upper portion of the link and the base.

14. In a swing, a base and a movable body, a plurality of swing-movements or supports each provided with an oscillating and bodily movable link, bumpers or stops adapted to be engaged by the corners of said links to limit the oscillation thereof, and crossed rods for connecting said links intermediate said base and body.

15. In a swing, an endwise movable body having seats, a base, pivoted connections for supporting the body, said connections interposed between the body and base and disposed below the seats and between the sides of the body and at an angle to each other to overcome the momentum of the body and reverse the motion by gravity, each of said connections being subject to endwise compressive strain, means combined with said connections for keeping the body level while moving back and forth, and means serving to prevent each connection from swinging past the vertical, as set forth.

16. In a swing, a movable body supported for back and forth movement in a level condition, seats on said body, a stationary base, swinging connections disposed entirely beneath the seats, in position to hold the body parallel with the base, and constituting the sole means for supporting said body on said base, said connections comprising rods and having joints intermediate their upper and lower ends, and movable members each connecting two rods at one end thereof.

17. In a swing, the combination of a movable body, a base, upper and lower rods for supporting the body on the base, adapted to keep the body horizontal, and means above the base for connecting the lower ends of the upper rods with the upper ends of the lower rods, said rods subject to endwise compressive strain, and said means subject to tensile strain.

18. In a swing, a movable body, crossed rods for supporting the body, said rods disposed in position to prevent tilting of the body, a base having means for supporting the lower ends of the rods in position to hold the body substantially against up and down movement, and a plurality of oscillating or rocking members intermediate the body and base, said members and rods cooperating to support the body for back and forth gliding motion.

19. In a swing, a movable body, movable rods for holding the body level, a base for supporting the said rods in position to hold the body substantially against up and down movement, said rods pivoted on the base, means including a plurality of oscillating or rocking members providing pivotal connections at the upper ends of said rods for con-

necting the same with the body, said members and rods cooperating to support the body for back and forth gliding motion.

20. In a swing, a movable body having 5 seats at each end thereof, rods disposed under the seats to support and keep the body level, means including a plurality of oscillating or rocking members providing pivotal connections for the upper ends of 10 said rods for connecting the same with the body; said members and rods cooperating to support the body for back and forth gliding motion, and means serving to prevent each rod from swinging past the vertical, as set 15 forth.

21. In a swing, a movable body, a base, oppositely facing seats on said body, crossed supporting rods intermediate the body and base and disposed beneath said seats, said 20 rods arranged in sets, two sets for each end of the swing, and disposed in position to prevent the body from tilting, and suitable movable elements for connecting the members of each set at one end thereof.

22. In a swing, a movable body, a base, a suitably mounted foot rest, seats on said body, and angularly disposed supporting members intermediate the body and base, there being at least four rods for each end 30 of the swing, extending above the said foot rest, said members being suitably mounted on said base and crossed to give the body a horizontal forward and back gliding motion.

23. In a swing, a movable body, a base, 35 seats on said body, supporting members intermediate said body and base, said members being crossed to keep the body level, a suitably mounted foot board, and suitable movable supporting means forming medium of 40 connection between the base and the lower ends of said members, the said members having their upper ends pivoted on the under sides of said seats.

24. A low-down or gliding swing comprising a base, a movable body supported for horizontal endwise or gliding motion, crossed supporting rods for the ends of said body, means for connecting the lower ends of said rods with the base, and means for 50 connecting the upper ends of said rods with the body, said rods disposed in sets, two sets for each end of the swing, to prevent the body from tilting.

25. The combination of a seat-carrying

frame; rocker members arranged in pairs 55 below said frame; and supporting links for said seat-carrying frame, pivotally connected thereto and to said rocker members, said links being arranged in crossed pairs.

26. In a swing, a base, a plurality of pairs 60 of crossed rods movably supported by the base, a movable body carried by and imposing an endwise compressive strain on each rod, the said body being suitably connected with the upper ends of the rods, and the 65 connections thus provided between the base and body including means at one end of each pair of rods for keeping the body level while moving back and forth.

27. In a swing, a base, a plurality of pairs 70 of crossed rods movably supported by the base, a movable body carried by and imposing an endwise compressive strain on each rod, the said body being suitably connected with the upper ends of the rods, and the 75 connections thus provided between the base and body including means at the upper end of each pair of rods for keeping the body level while moving back and forth.

28. In a swing, a base, a plurality of pairs 80 of crossed rods movably supported by the base, a movable body carried by and imposing an endwise compressive strain on each rod, the said body being suitably connected with the upper ends of the rods, and the 85 connections thus provided between the base and body including means at the lower end of each pair of rods for keeping the body level while moving back and forth.

29. In a swing, a base, a plurality of pairs 90 of crossed supporting rods movably carried on said base, one pair disposed in advance of the other in the direction of their movement, a movable body, and suitable connection between the body and the upper ends of said 95 rods, whereby the weight of the body is sustained and received by each rod as an endwise compressive strain thereon, said connection comprising a pivot for the upper end of each rod, whereby each rod swings 100 relatively to the body.

Signed by me at Chicago, Ill., this 3rd day of Oct., 1906.

HUBERT A. MYERS.

Witnesses:

ALBERT JOHN SAUSER,  
SARAH LEWIS.