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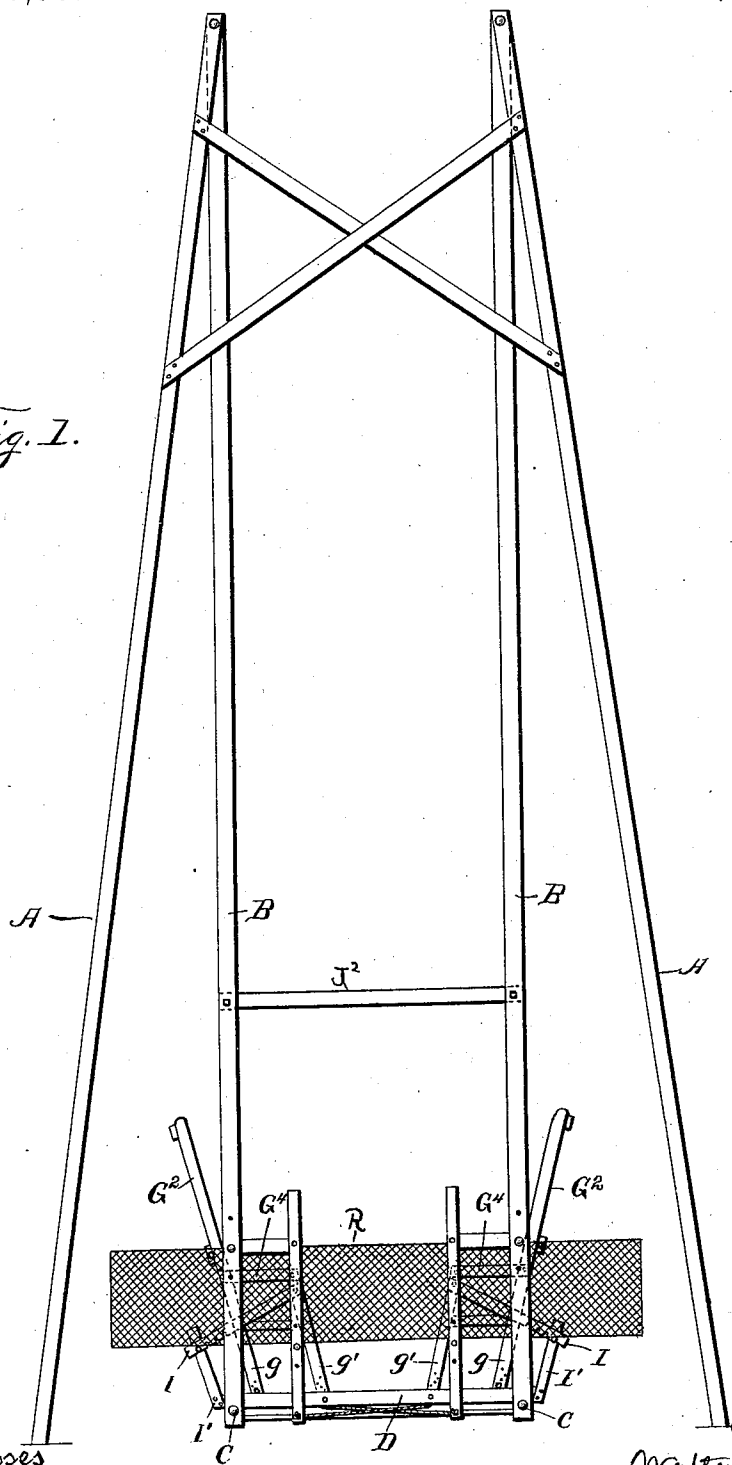
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W. HOWARD.
SWING.

No. 556,981.

Patented Mar. 24, 1896.

Fig. 1.



Witnesses
John Enders Jr.
J. L. Ourand

Inventor
Walter Howard

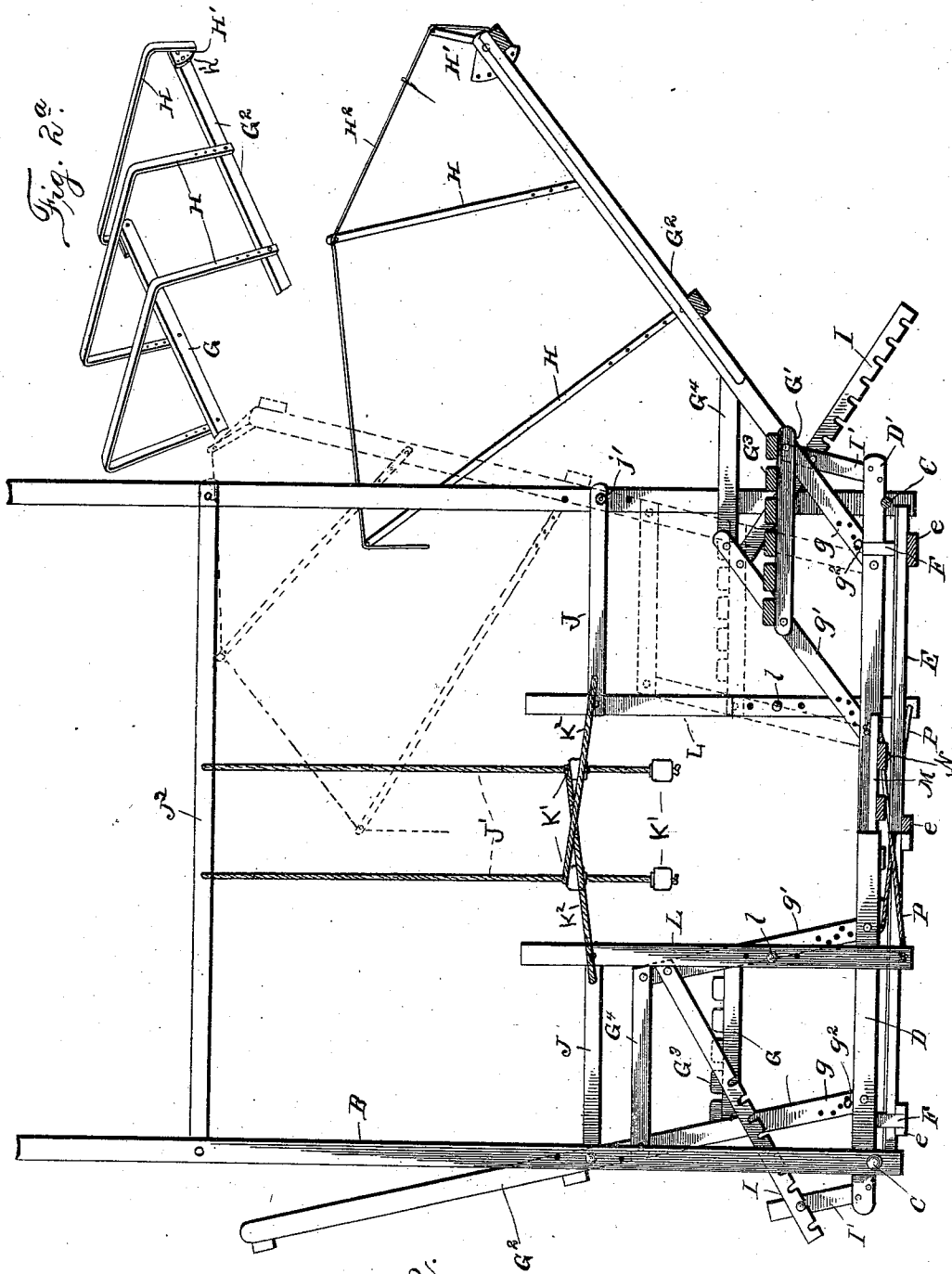
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Witnesses
John Enders, Jr.
J. L. Curran

Fig. 2.

Inventor
Walter Howard

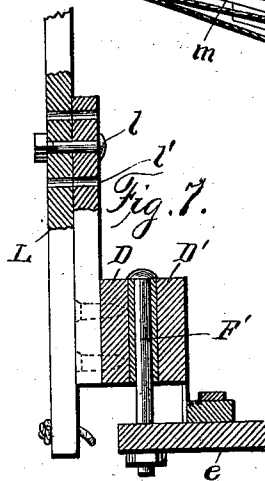
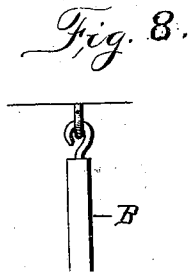
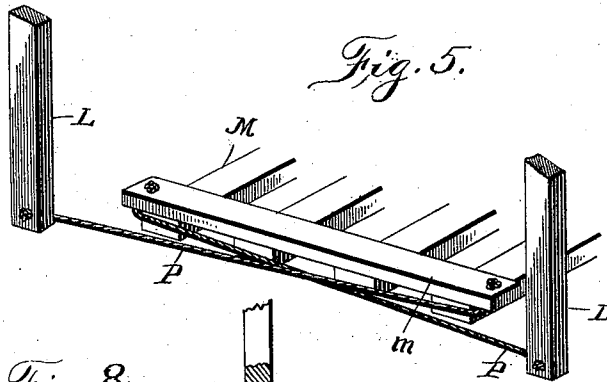
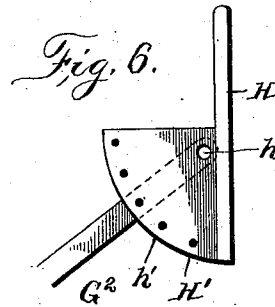
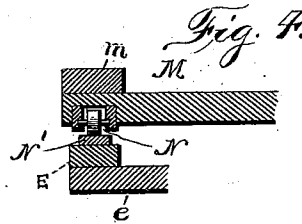
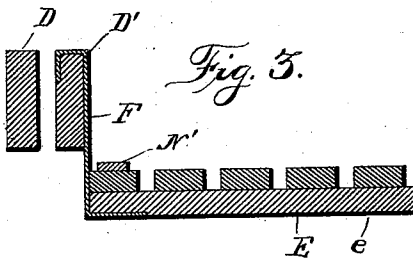
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Witnesses
John Eriders Jr.
H. L. Oursand

Inventor
Walter Howard

UNITED STATES PATENT OFFICE.

WALTER HOWARD, OF WASHINGTON, DISTRICT OF COLUMBIA.

SWING.

SPECIFICATION forming part of Letters Patent No. 556,981, dated March 24, 1896.

Application filed August 10, 1895. Serial No. 558,805. (No model.)

To all whom it may concern:

Be it known that I, WALTER HOWARD, a citizen of the United States, and a resident of Washington, in the District of Columbia, have
5 invented certain new and useful Improvements in Swings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In the drawings, Figure 1 is a side elevation of the swing and of a supporting-frame therefor. Fig. 2 is a side elevation of the swing partially in section, with the suspension-bars broken off, a canopy being shown, while the guards are removed. Fig. 2^a is a
20 detail perspective view of a canopy-frame for the seat. Fig. 3 is a detail sectional view showing the manner in which the end portions of the swing-bottom are supported. Fig. 4 is a detail sectional view showing one of the
25 bearings for the foot-power slide. Fig. 5 is a perspective view showing a portion of the foot-power slide and its connections with the power-levers. Fig. 6 is a detail view of means for adjusting the canopy-frame. Fig. 7 is a
30 detail view, partially in section, showing the fulcrum for one of the power-levers and its connection with the swing-frame. Fig. 8 is a detail view showing how the swing may be suspended from the ceiling or other overhead
35 support.

The object of this invention is mainly to provide a swing capable of being easily and conveniently propelled by the riders by either
40 hand or foot power, or by a combination of both; also, to provide an improved construction and arrangement of the seats with means whereby they may be adjusted both angularly or vertically. Other minor objects will hereinafter appear.

45 With these objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, 50 the letter A indicates suitable framework within which the swing is shown as being suspended.

B B designate the suspension-bars, there being four, two upon each side. These bars are pivoted to the frame A at their upper
55 ends, and their lower end portions are pivoted upon the end portions of transverse rods C of the swing-frame. These rods extend entirely across the swing, one near each end thereof.

60 D D' (see Fig. 3) are the longitudinal lower side bars of the swing, there being two of these bars upon each side, separated from each other by a short interval, and parallel.

E is the bottom of the swing, which is suspended from the bars D D' by the clips F at
65 each end portion (see Fig. 3) and by the bolts F' (see Fig. 7) at the central portion.

Other suitable means may be employed for securing the bottom portion in place, but they
70 should preferably be of such character that said bottom portion can readily be detached. Said portion preferably consists of a series of parallel longitudinal slats which are secured to transverse cleats or bars e.

75 G G' designate the two seats, which extend across the swing, one at the front and one at the back, and facing each other. Said seats consist each of the two rear legs, *g*, which are extended up to form the side rails for the
80 backs G², the forward legs, *g'*, the seat portions G³, and the arms G⁴. The forward legs, *g'*, of each seat are pivoted between the rails D D', and the rear legs, *g*, enter between said rails and are provided with studs or bolts *g*²,
85 which slide upon the upper edges of said rails as the seats are adjusted. The connection of these legs with the side rails is made adjustable, as illustrated, by the series of holes, in order to adapt the seats to children and to
90 grown persons of different height. The seat and arm portions are pivotally connected to the legs to permit a parallel movement of the parts in adjusting.

In the drawings, Fig. 2, I have shown the
95 seat G' in reclining position and have also shown it as being provided with a shade or canopy. This shade or canopy consists of a frame, such as shown in detail in Fig. 2^a, having a number of bail-shaped pieces H, the end
100 portions of whose vertical lateral arms are adjustably and pivotally connected to the side rails of the back portion of the seat. Over this frame is stretched a suitable covering H².

In order to facilitate the adjustment of the canopy as the seat is given different adjustments, the rear piece H is provided at each end with a sector-plate H', which is pivoted to the back at h and is provided along its curved edge with a series of apertures h', any one of which is designed to be engaged by a pin which also engages an aperture in the side rail of the back. By means of this device and the adjustable connections of the other pieces H the canopy can be adjusted forward and back independently of the adjustment of the seats. Both seats may be provided with a like canopy, if desired, or it may be omitted entirely, as when the swing is indoors or under cover. To secure the seats in their desired adjustments, each is provided with a notch-bar I, the notches of which are designed to engage a stud on an arm I' of the frame.

J designates side bars, there being two of these bars upon each side.

K' designates transverse hand-bars, two for each seat, which are suspended across the swing by means of ropes J' K², the former of which connect to an upper bar J² and the latter to the respective bars J.

L designates vertical power-levers, two of which are provided upon each side of the swing. Each of these levers is fulcrumed intermediately of its ends at l to an arm l', which is secured to the side bars D. (See Fig. 7.)

M designates the foot-power slide (see Fig. 5) which extends transversely across the central portion of the swing upon the bottom thereof. This frame preferably consists of a series of slats, which afford purchase for the feet, and which are secured to end cleats m. Said slide is mounted upon antifriction-rollers N, (see Fig. 4,) which run back and forth under pressure of the feet on tracks N' secured to the upper faces of the lateral slats of the bottom E.

P are ropes or the like, one end of each of which is connected to one corner portion of the slide-frame, and the other end of the lower arm of that lever upon the same side of the swing which is most distant. (See Fig. 5.)

The upper arm of each lever L is fast to one of the bars J.

It will be observed from the manner in which the swing is suspended by the bars C that it will oscillate in a horizontal plane with a rising and falling or parallel movement, as distinguished from a movement in the arc of the circle described by the suspension-bars, and that any leverage obtained on the said bars will cause the swing to oscillate. This leverage is obtained by hand-power through the bars K' and J, and by foot-power through the slide-frame M, the connections P, the power-levers L, and the bars J. The best results are obtained by using both hand and foot power in combination, but either may be used alone.

For indoor use the frame A may be dispensed with and the swing be suspended from

the ceiling or other overhead support, as indicated in Fig. 8.

R, Fig. 1, are lateral wire guards, which may be buttoned or otherwise detachably secured upon each side of the swing.

It will be observed that the swing can be readily taken to pieces and the parts be assembled in compact form for shipment or storage.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a swing, the combination of the pivoted suspension-bars, the swing-frame pivoted to the lower end portions of the said bars, the upper side bars connected to the suspension-bars and to the swing-frame and the suspended hand-bars connected to the said side bars transversely across the swing in front of the seats, substantially as specified.

2. In a swing the combination of the oscillatory suspension-bars, the swing-frame pivotally supported between the lower end portions of the said bars, the upper side bars connected to the suspension-bars and to the frame upon each side, the hand-bars connected to the said side bars, the foot slide-frame adapted to travel back and forth on the bottom of the swing, the vertical power-levers fulcrumed intermediately to arms of the swing-frame, and connections between the lower arms of the said levers and the said slide-frame and between their upper arms and the said side bars, substantially as specified.

3. In a swing the combination of the oscillatory suspension-bars, the swing-frame pivotally supported between the lower end portions of the said bars, the upper side bars connected to the suspension-bars and to the frame upon each side, the foot slide-frame adapted to travel back and forth on the bottom of the swing, the vertical power-levers fulcrumed intermediately to arms of the swing-frame, and connections between the lower arms of the said levers and the said slide-frame, and between their upper arms and the said side bars, substantially as specified.

4. In a swing, the combination of the suspension-bars pivoted at their upper ends, the swing-frame having the transverse rods upon which the lower end portions of the said bars pivot, the side bars, the bottom portion having tracks, the foot slide-frame mounted on the said tracks, and connections between the said slide-frame and the suspension-bars, whereby the movement of said frame causes the swing to oscillate, substantially as specified.

5. In a swing, the combination of the suspension-bars pivoted at their upper ends, the swing-frame having the transverse rods upon which the lower end portions of the said bars pivot, the bottom portion having tracks, the slide-frame mounted to reciprocate on the said tracks, the upper side bars connected to said suspension-bars, the power-levers connected to said side bars, the connections be-

tween the slide-frame and arms of the said levers, and hand-power devices also connected to the said side bars, substantially as specified.

5 6. In a swing, the combination of the suspension-bars A, the pivoted swing-frame having the detachable bottom portion, the tracks thereon, the slide-frame mounted to run on said tracks, the power-levers L pivoted intermediately to vertical arms of the said
10 frame, the ropes P which connect the said frame with the lower arms of the said levers, and the upper side bars, which connect said suspension-bars and the upper arms of the said levers, substantially as specified.

15 7. In a swing, the combination with the swing-frame having two parallel bars at each side, of the seats consisting each of the forward leg portions *g'* whose lower end portions are adjustably pivoted between the respective pairs of said bars, rear legs which are parallel with the forward legs and whose lower
20 ends enter between the said bars and carry vertically-adjustable bolts arranged to slide

upon the said bars, said rear legs being extended to form supports for the seat-backs, 25 and the parallel arm and seat portions which connect the forward and rear legs and are pivoted thereto, together with a locking device for securing the seat in the desired adjustment. 30

8. In a swing, the combination with a seat having an extended back, of the canopy, consisting of the frame having a series of bail-shaped pieces whose vertical arms are pivotally and adjustably secured to the side rails 35 of the back, the rearmost of said pieces having sector-plates which are pivoted to the back and have a series of holes adapted to receive a locking-pin, and a suitable covering for the said frame, substantially as specified. 40

In testimony whereof I affix my signature in presence of two witnesses.

WALTER HOWARD.

Witnesses:

GEO. H. PARMELEE,
Z. E. HOGARTY.