

(No Model.)

2 Sheets—Sheet 1.

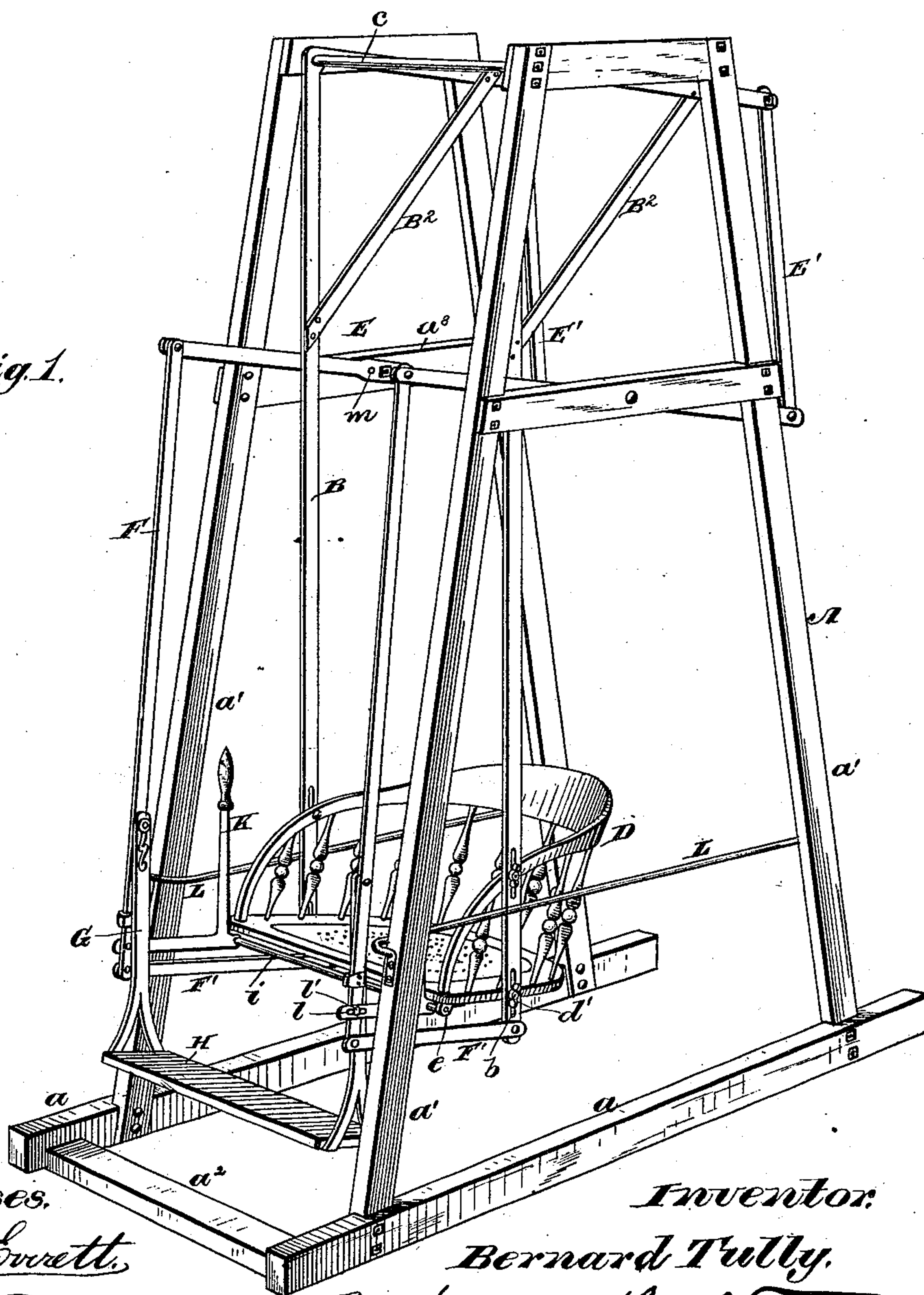
B. TULLY.

SWING.

No. 282,934.

Patented Aug. 7, 1883.

Fig. 1.



Witnesses,

Robert Everett.

J. A. Rutherford

Inventor,

Bernard Tully.

By James L. Norris.

Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

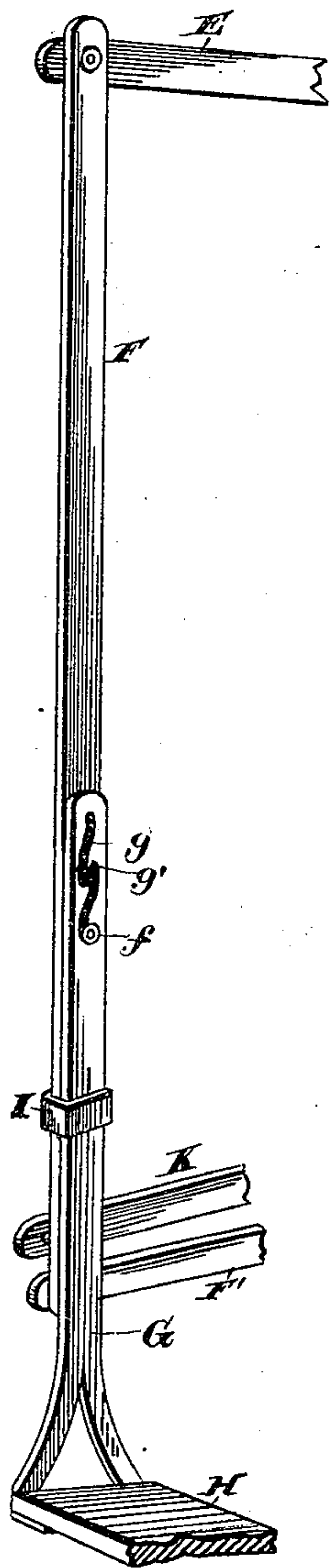
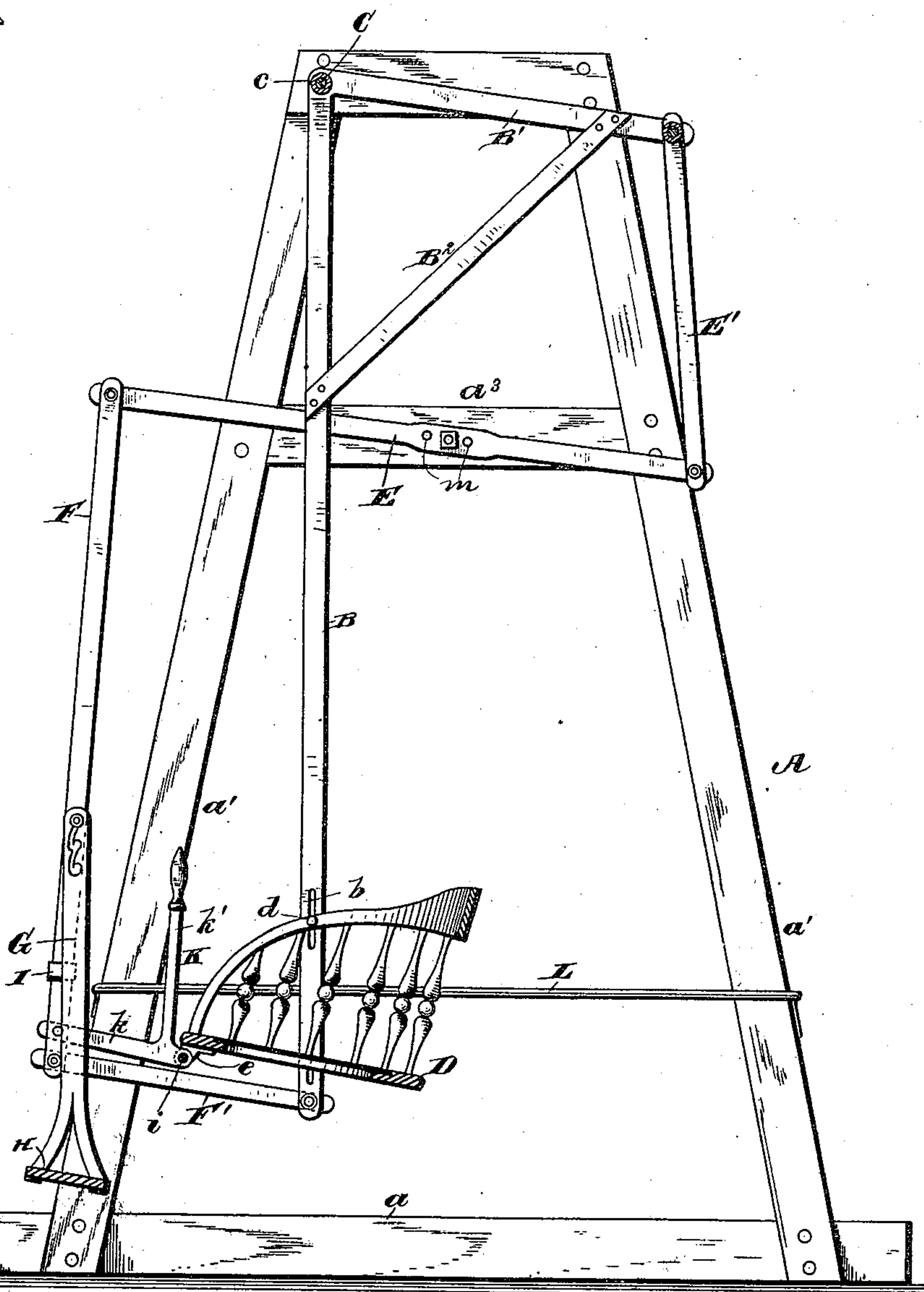


Fig. 2.



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UNITED STATES PATENT OFFICE.

BERNARD TULLY, OF WASHINGTON, DISTRICT OF COLUMBIA.

SWING.

SPECIFICATION forming part of Letters Patent No. 282,934, dated August 7, 1883.

Application filed June 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, BERNARD TULLY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Swings, of which the following is a full, clear, and exact description.

The object of my invention is to provide a swing which may be oscillated by the pressure of the feet or by the hands of the person swinging, without changing or shifting the center of gravity, and with the expenditure of the least possible muscular power.

To this end my invention consists in a seat suspended from a fixed point of oscillation by means of rigid hangers, having rigid arms extending rearwardly from the point of support, and a compound lever pivoted to the supporting-frame and connected with the extremities of said arms, and means for actuating said lever upon each rearward oscillation, whereby an upward thrust is given to the rearwardly-extending arms and an impulse thereby imparted to the seat-hangers.

My invention also consists in means for actuating the compound lever by the hands, whereby an impulse is given to the hangers in both directions; also, in certain details of construction and combination of parts, all of which will be fully set forth hereinafter, and then pointed out in the claims.

Referring to the drawings forming part of this application, Figure 1 is a perspective view illustrating my invention. Fig. 2 is a central vertical section. Fig. 3 is a detail perspective illustrating a feature of construction.

A in said drawings indicates an upright frame composed of side sills, a , and standards a' a' , the latter being suitably braced to afford a rigid structure, and having a cross-beam, a^2 , which connects the forward ends of the sills a . To this frame, which may be made of any suitable height, the swing is suspended by rigid hangers BB, of wood or metal, supported by a transverse rod, C, passing through their upper extremities, a sleeve, c , being placed upon said rod, with its ends abutting against the inner faces of said hangers to keep them separated.

At the end of each hanger B is formed a rearwardly-extending arm, B' , rigid with the hanger, and forming an angle therewith of

somewhat less than ninety degrees. A brace, B^2 , riveted to the arm and the hanger serves to impart the necessary rigidity and strength.

D represents the swing-seat, which may be of any suitable construction, and which is attached to the hangers B by studs d d upon the seat and arm on each side, said studs extending outward and passing through slots b b in the hanger. These studs are threaded upon their outer ends to receive thumb-nuts d' , which may be turned up against the hangers, clamping them tightly between the nut and the seat, the latter being thus adjustable vertically to accommodate persons of different heights.

To a brace, a^3 , upon each standard, is pivoted a lever, E, of the first order, having its rearward end connected by a rod, E' , with the end of the arm B' . From the forward ends of said lever, which is fulcrumed not far from its center, drop connecting-bars F F, having their lower ends connected by bars F' F' with the lower extremities of the hangers B.

From the bars F F, at a point intermediate of their ends, is pivotally suspended a frame composed of the parallel vertical bars G G and the horizontal strip H, which connects their lower ends, said frame extending low enough to make the strip H a convenient support for the foot of the person occupying the seat. The frame G G H is adjustable vertically upon the bars F to suit persons of different heights, said adjustment being effected by slotting the ends of the vertical bars G, as shown at g , Fig. 2, side notches, g' , being formed in the slots, which may engage with the studs f , by which the frame is supported.

The operation of the parts thus far described is as follows: When seated in the swing, the feet are placed upon the foot-board H, and a slight oscillation being given, the feet are at each backward stroke pressed tightly upon the foot-board, thereby actuating the compound lever E E' and giving an upward thrust to the extremities of the arms B' . These arms being rigid with the hangers B, as already described, an impulse is given to the swing at each rearward oscillation, which is proportioned to the downward pressure upon the foot-board, a very slight exertion being sufficient to increase the movement until the swing reaches its highest point.

By the construction described the frame car-

rying the foot-board H is free to swing in either direction. For a person having sufficient length of limb this construction is all that is necessary; but for a child it may be desirable to limit the movement of the foot-board, lest it be pushed beyond the reach of the feet. For this purpose I attach to each of the bars F, below the point of suspension of the frame G H, a loop, I, having the end next the swing open, and with sufficient space between its inner arm to admit the bar G, which may be engaged therewith by swinging the foot-board toward the seat until the bar G can enter the open end of the loop. The frame is then swung back until the parts are in the position shown in Fig. 3, wherein the bars G will be substantially rigid with the connecting-bars F.

It is often desirable and sometimes necessary to provide means by which the swing may be actuated by the hands instead of by the feet. For this purpose a very simple modification is necessary. To the under surface of the seat D, near its forward edge, are secured lugs *e e*, which afford bearings for a transverse bar, *i*. Rigidly mounted upon said bar, near its ends, are elbow-levers K, having their horizontal arms *k* connected to the bars F, their vertical arms *k'* being provided with handles which are within convenient reach of the person occupying the swing. It will readily be seen that by these levers the compound lever E E' is not only actuated in the same way as by the foot-piece H, but that by their use an impulse may be given in both directions.

Guards L L may be attached to the standards A opposite the swing-seat D, to correct any tendency toward a lateral oscillation and prevent the seat striking the uprights.

The ends of the arms B', as well as of the levers E, may be connected by rods with a sleeve placed thereon to keep the ends separated.

Short slots *l* are formed in the ends of the lever-arms *k*, to permit some play upon the studs *l'*, by which they are fastened to the bars F'.

The entire structure shown in the drawings is bolted together in such a manner that it may be taken down, packed for transportation, and erected without difficulty and in a brief space of time.

It will be seen that instead of the connecting-bars F and the foot-board frame a cord may be attached to the ends of the levers E, tension thereon producing the same effect as that caused by the devices mentioned.

The lever E may have several apertures *m*, through which the attaching-bolt is passed, whereby the fulcrum-point may be shifted and the power of said lever increased or diminished.

Instead of suspending the swing from standards A, it may be hung from brackets on the ceiling or any similar depending support.

Having thus described my invention, what I claim is—

1. A swing suspended by rigid hangers having rigid arms arranged at an angle therewith, and a compound lever connected with said arms and actuated by the occupant of the swing, substantially as described.

2. The combination, with a swing suspended by rigid hangers having rigid arms projecting therefrom at the point of support, of a compound lever connected with the extremities of said arms and means for actuating said lever to impart an impulse to the swing, substantially as described.

3. The combination, with the swing suspended by rigid hangers having arms rigid therewith, of the compound lever connected with said arms, a lever or levers pivoted to the seat, and devices connecting said lever with the extremities of the compound lever, substantially as described.

4. A swing suspended by rigid hangers having arms rigid therewith, in combination with means for imparting an impulse to the extremities of said arms by the occupant of the swing, substantially as described.

5. The combination, with the bars F F', of the bars G G', rising from the foot-board and pivotally connected with the bars F F', whereby the parts may be adapted to persons of different heights, substantially as described.

6. The combination, with the swing-seat, of a lever or levers pivoted thereto, devices connecting said levers with a compound lever pivoted to the standards, and arms connected with the compound lever and with the hangers which carry the seat, substantially as described.

7. The combination, with the standards A, of the lateral guards L, for preventing side oscillations and collisions with the uprights, substantially as described.

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

BERNARD TULLY.

Witnesses:

H. A. HALL,
J. H. STEWARD.