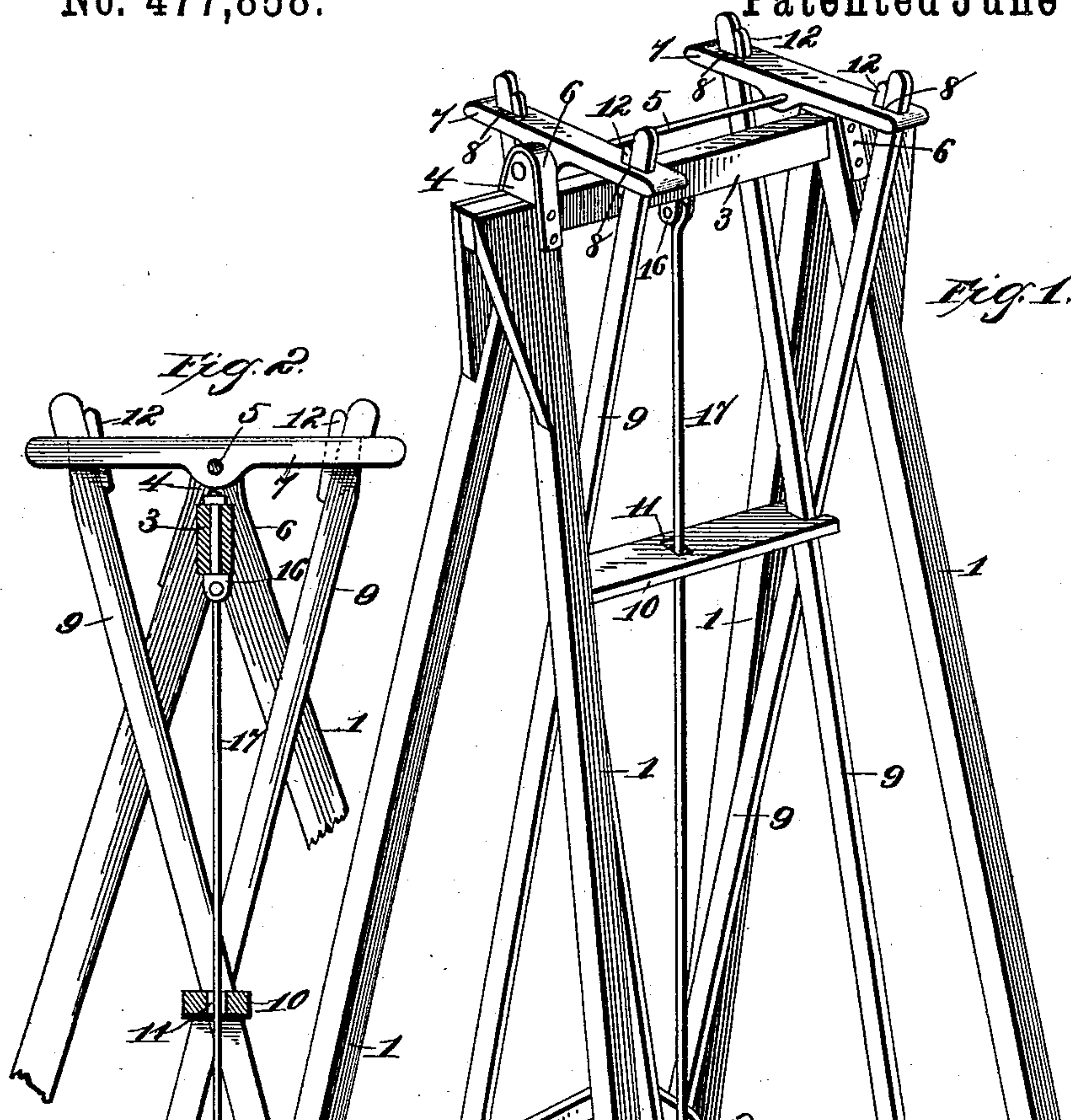


(No Model.)

N. B. GREGORY.  
SWING.

No. 477,858.

Patented June 28, 1892.



# UNITED STATES PATENT OFFICE.

NATHAN B. GREGORY, OF JOPLIN, MISSOURI.

## SWING.

SPECIFICATION forming part of Letters Patent No. 477,858, dated June 28, 1892.

Application filed November 24, 1891. Serial No. 412,907. (No model.)

*To all whom it may concern:*

Be it known that I, NATHAN B. GREGORY, a citizen of the United States, residing at Joplin, in the county of Jasper and State of Missouri, have invented a new and useful Swing, of which the following is a specification.

This invention relates to improvements in swings of that class adapted to be operated from the car by the occupant; and the objects in view are to provide a swing of great simplicity, strength, and durability which may be conveniently operated by hand by either one or two operators and occupants of the car, and which is capable of such operation with very slight exertion upon the part of the operators.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a swing constructed in accordance with my invention. Fig. 2 is a vertical section of the upper portion of the same, the section extending to a point slightly below the fulcrum of the operating-lever.

Like numerals of reference indicate like parts in all the figures of the drawings.

The frame-work of the machine for the support of the same consists of opposite inverted-V-shaped standards, each comprising a pair of inclined posts 1, which posts are mounted upon and connected by suitable cross-sills 2, to which the ends of the posts are bolted, and which cross-sills may be anchored in any stable manner to the ground or floor. The upper ends of the posts embrace and are bolted to a cross-beam 3, which connects the two standards and has rising from its upper edge near its ends short bearing-studs 4, in which is journaled a bearing-rod 5. These bearing-studs are secured in position by metal binding-straps 6, which embrace the studs and are securely bolted, as shown, to the outer faces of the posts 1.

7 designates a pair of rocking heads or arms, which are secured to the rock-shaft 5 and are provided near their ends or at each side of the shaft with inclined mortises 8. The mortises 8, as stated, are inclined, or, in other words, each pair in each rocking head con-

verge toward their lower ends, and consequently the hanging rods 9, the upper ends of which are notched, pass through these mortises, cross a short distance below the cross bar or beam 3. At their points of crossing the pairs of hanging rods are securely bolted together and to a transverse fulcrum-bar 10, having a central opening 11. The hanging bars or rods may be rigidly bolted to the rocking heads, or, as herein shown, may be secured in position by wedge-shaped keys 12, driven between the ends of the mortises and the edges of the bars or rods.

To the lower ends of the hanging bars or rods are bolted the opposite side sills 13 of the car, and the same are connected by a floor or platform 14, and provided at opposite ends with seats 15, though but one seat need be employed, if desired, and other constructions of car may be substituted; or, in fact, a hammock, crib, or other suitable body.

In bearings 16, secured to the center and under side of the cross-beam 3, a lever 17 is loosely pivoted, depends through the central opening 11 in the fulcrum-bar 10, and terminates within easy grasp of either of the occupants of the seats of the car, or may terminate in a cross-handle, shown by dotted lines, whereby both occupants may grasp the same. This lever may be rigid or resilient, as herein shown—that is, adapted to yield slightly to the applied force.

The operation and the principle upon which the swing operates will be readily obvious from the foregoing description, but may be briefly stated as follows: The occupant or occupants grasp the operating-lever 17 and vibrate the same, applying force in the direction of movement of the car, and the fulcrum-bar, acting as such, serves to push the car in that direction. As the car reaches the end of its movement in one direction the force upon the lever is reversed, and the swing is thus moved in the opposite direction by gravity and the lever and carried beyond the point of gravity by its momentum, aided by the lever. It will thus be seen that I have provided a very simple, strong, efficient, enjoyable, and easily-operated swing, one in which the movements may be regulated at will by the operator therein, and whose movements may be



readily arrested by said operator. If the operating-lever be resilient, the movements are not so jerky or suddenly arrested at the end of the path of the swing when the force or  
5 power is reversed, and hence I prefer to use such resilient lever, though of course do not limit my invention to such use.

Having described my invention, what I claim is—

10 1. In a swing, the combination, with the cross-beam and supports for the same and the bearings thereon, of the rock-shaft journaled in the bearings, the rocking heads mounted on the shaft, the hanging bars depending from  
15 the ends of the heads, the fulcrum-bar connecting the hanging bars, the car supported by the hanging bars, and the pivoted operating-lever passed through the fulcrum-bar and loosely connected to the cross-beam, substan-  
20 tially as specified.

2. The combination, with the oppositestand-  
ards, the cross-beam and bearings mounted thereon, of the rock-shaft journaled in the  
25 bearings, the cross-heads mounted on the shaft and provided with mortises at their ends, the hanging bars let into the mortises and crossing each other below the beam, the wedge-shaped keys driven into the mortises to secure the bars, the fulcrum-bar bolted to the hang-

ing-bars at their points of intersection and 30 provided with an opening, a car supported by the hanging bars, and a lever pivoted to the cross-beam depending through an opening formed in the fulcrum-bar and terminating above the carriage, substantially as specified. 35

3. The combination, with the oppositestand-  
ards, the cross-beam and bearings mounted thereon, of the rock-shaft journaled in the  
bearings, the cross-heads mounted on the shaft and provided with mortises at their ends, the  
40 hanging bars let into the mortises and crossing each other below the beam, the wedge-shaped keys driven into the mortises to secure the bars, the fulcrum-bar bolted to the hang-  
45 ing bars at their points of intersection and provided with an opening, a car supported by the hanging bars, and a resilient lever pivoted to the cross-beam depending through an opening formed in the fulcrum-bar and terminating above the carriage, substantially as speci- 50 fied.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

NATHAN B. GREGORY.

Witnesses:

MASON AGGUS,  
BEN S. STROTHER.