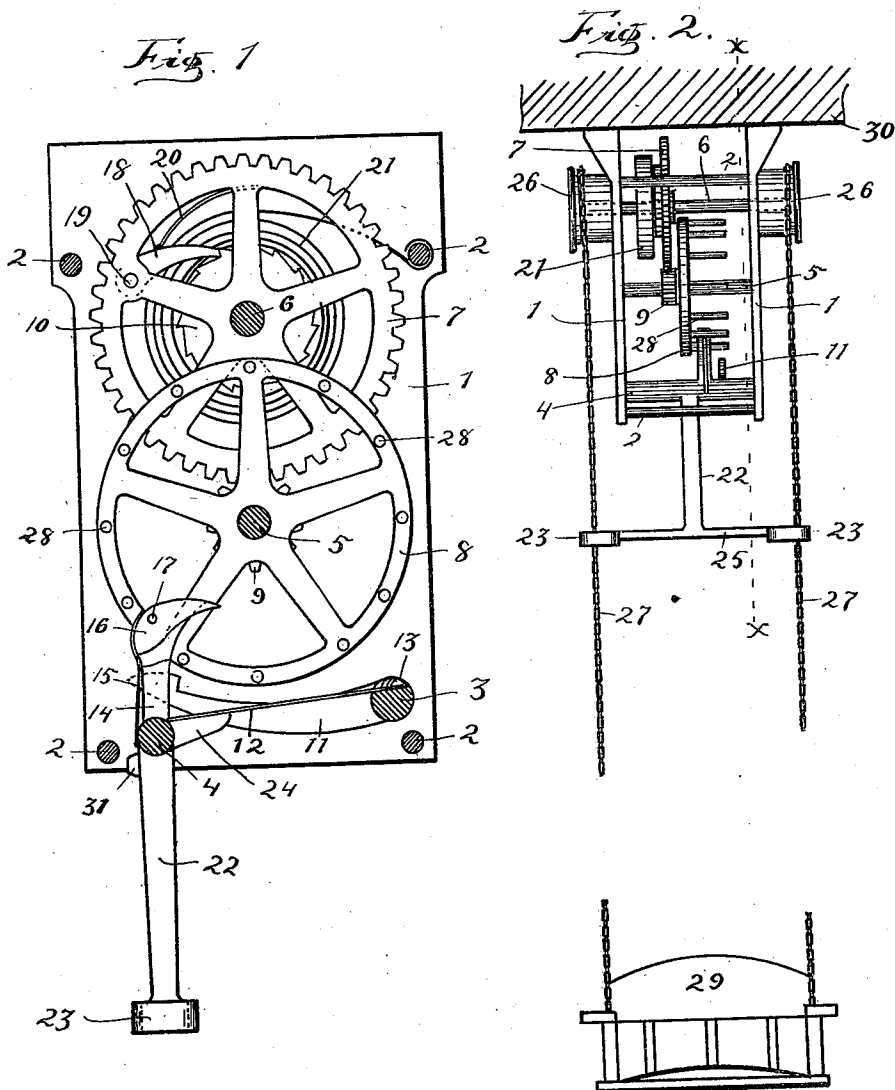


(No Model.)

J. A. BRUNNER.
SWING ACTUATING MECHANISM.

No. 545,451.

Patented Sept. 3, 1895.



WITNESSES:

Walter G. Burns
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UNITED STATES PATENT OFFICE.

JOSEPH A. BRUNNER, OF FORT WAYNE, INDIANA.

SWING-ACTUATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 545,451, dated September 3, 1895.

Application filed January 23, 1895. Serial No. 535,882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. BRUNNER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Swing-Actuating Mechanism; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in swing-actuating mechanism especially designed and adapted for use in connection with a child's swing.

The object of my invention is to provide an improved means for automatically actuating a child's swing by the mere weight of the child or other occupant and which when run down can be rewound for use by simply relieving the actuating mechanism from the weight of the occupant.

Another object of my invention is to provide a cheap, substantial, safe, and reliable swing-actuating mechanism which may not only be of great service and convenience in the nursery and kindergarten apartments, but which can also be used with equal facility and convenience for adults in public parks or private grounds.

My invention comprises a clock-train properly mounted in an open frame formed by a pair of brackets adapted to be suspended from the ceiling or other overhead support, having a pair of winding-drums for the swing-seat suspending chains or cables, which are wound thereon under the tension of a coiled spring on the driving-wheel shaft, and which are unwound therefrom at each oscillation of the said swing under the influence of the weight of the occupant thereof.

Referring now to the drawings, in which similar numerals of reference indicate corresponding parts throughout, Figure 1 is a vertical section of my improvement on the line X X of Fig. 2, showing the general arrangement of the actuating clock-train and the oscillating-pendulum arbor with the escapement-pawls. Fig. 2 is a front view of my improvement in position upon the ceiling or

other overhead support and connected to a proper swing-seat by the suspension chains or cables.

All parts of my invention are made of suitable metal and of any proper size, strength, and proportions.

The containing-frame consists of a pair of metallic brackets 1, having at their upper ends vertically-perforated ears for proper holding-screws or bolts, and which are rigidly united by the connecting-rods 2, preferably four in number, Fig. 1. In the upper part of the said brackets 1 is rotatably mounted the horizontal transverse shaft 3, having rigidly mounted upon its extended ends the winding-drums 26, both of which are outside of the said frame, as seen in Fig. 2.

At a proper point on the shaft 6 is rigidly fixed a ratchet-wheel 10, adapted for engagement with a holding-pawl 18, pivotally mounted on the drive-wheel 7, as seen in Fig. 1. Upon that side of the said ratchet-wheel nearest the bracket 1 is properly mounted the coil-spring 21, having its inner end rigidly secured to the adjacent side of the said ratchet-wheel, while its outer end is secured to one of the connecting-rods 2 or in any other proper manner, Fig. 1. On the opposite side of the said ratchet-wheel and adjacent thereto is loosely mounted the cogged drive-wheel 7, provided with the pivotally-mounted holding-pawl 18, before described. At a proper distance below the said shaft 6 is loosely mounted in suitable perforations in the said brackets the transverse shaft 5, having at or near the center of its length a rigid escape-wheel 8, and immediately adjacent thereto on the shaft 5 is arranged a rigid pinion 9, adapted for engagement with the said drive-wheel 7. The said escape-wheel 8 is provided with a series of spaced horizontal pins 28, at or near the perimeter thereof, of any suitable number and which are adapted for engagement with the holding and escapement pawls hereinafter described. The said pins 28 are rounded particularly upon that portion of their surface engaged by the said pawls, to facilitate the ease and regularity of the escapement. In the lower end of the said frame or brackets and at the rear side thereof is loosely mounted the transverse rock-shaft 3, provided at one end with a holding-pawl 11

for the escape-wheel 8 and at or near the other end with a proper spring 12 parallel with the said pawl, the said spring being secured at one end to the shaft 3 by the set-screw 13 and having its free end resting normally upon the rock-shaft 4, thereby limiting the oscillations of the said shaft 3. The said rock-shaft 4 is loosely mounted in the said brackets 1 at their lower end and near the front side thereof, as seen in Fig. 1, having at or near the center of its length an integral depending arm 22, provided at its lower end with an integral cross-bar parallel with the said shaft 4, and having the slotted ends 23 adapted to receive and guide the swing-suspending chains 27, as seen in Fig. 2, the said shaft-depending arm and cross-bar constituting a sort of pendulum-arbor. The said shaft 4 is provided with the integral inwardly-projecting oblique lug 24, adapted for engagement with the said spring 12 to alternately bring the said pawl into a holding engagement with the said escape-wheel, and is also provided with a rearwardly-projecting lug 31, Fig. 1, adapted to limit the oscillations of the said arbor by alternately engaging the adjacent transverse rod 2. The said shaft 4 is also provided with an integral upright arm or pawl 14, having pivotally mounted upon its free end a spring-pressed inwardly-projecting detent 16, loosely mounted on the pivot 17 and provided with a retracting-spring 15, having its upper end secured to the outer face of said detent and having its free end bearing against the shaft 4, as seen in Fig. 1. The said pawl 14 is adapted to normally engage in turn the pins 28, the function of the said detent 16 being to assist in the gradual and noiseless releasing of the said pins 28 when in operation. The containing-frame, comprising the said brackets 1, is rigidly secured to the ceiling 30, or other proper overhead support, by suitable bolts or holding-screws or other proper means.

The upper end of the suspending-chains 27, of any proper length, are secured to their respective winding-drums 26 and passed through the slotted ends 23 of the bar 25, and have their lower ends properly secured to any suitable swing-seat 29, Fig. 2, which may be single or double and of any desired size. Instead of the said chains 27, any suitable cord, rope, or cable may be used, though I prefer the use of chains, as they wind more freely and readily upon the said drums.

The operation of my swing-actuating mechanism thus described will readily be understood and, briefly stated, is as follows: When the swing mechanism is in its normal condition, the chains are properly wound upon the said drums and the spring 21 is practically relieved of all tension. When the child or other occupant is seated in the swing-seat 29, his weight will constantly and uniformly tend to unwind the said suspending-chains against the tension of the said coil-spring 21, and the engagement of the detent 18 with the ratchet-

wheel 10 prevents the recoil of the drive-wheel 7. The unwinding of the said chains by rotating the shaft 6 actuates the entire clock-train by means of the drive-wheel 7, which engages the pinion 9, thereby actuating the escape wheel 8. As the said pawl 14 stands normally in position for engagement with the escape-wheel and the holding-pawl 11 is normally out of engagement therewith at each forward oscillation of the said arm 22 the pawl 14 will positively engage the escape-wheel, and at each rearward oscillation it will gradually release its engagement therewith, and the holding-pawl 11 will in turn form a positive engagement therewith, being alternately elevated by the engagement of the lug 24 with the said spring 12, which thereby oscillates the said shaft 3, on which the pawl 11 is rigidly fixed or integral therewith. It will be seen that the said spring-pressed pawl 16 will facilitate the escapement by making it more gradual and more nearly noiseless. It is obvious, therefore, that under the weight of the occupant my swing mechanism will be automatic in its operation until the said chains have been entirely unwound, which, in actual practice, may be regulated at about fifteen or twenty minutes. When the swing mechanism has run down or when the said chains are unwound, it can again be readily set for operation by simply relieving the said chains of the weight of the occupant, when the said drums under the tension of the coil-spring 21 will automatically rewind the said chains thereon.

It is apparent that my invention can be equally adapted for infants, children, or adults, and can be employed with equal facility in the nursery, in public parks, or in private grounds or yards by providing a proper support therefor.

Having thus described my invention and the manner of employing the same, what I desire to secure by Letters Patent is—

1. A swing actuating mechanism, consisting of a clock train, mounted as shown in supporting brackets, an escape wheel having a series of peripheral pins in lieu of teeth, a pendulum arbor having an engaging pawl for the escape wheel and an actuating lug for the holding pawl, a holding pawl 11 fixed on the rock shaft 3 and adapted for an alternate engagement with the said escape-wheel, a rock-shaft 3 having an actuating spring 12 for the purpose specified, a pair of winding drums rigidly mounted upon the extended ends of the driving-wheel shaft and provided with suspending chains or cables mounted in the slotted ends of the oscillating arbor-bar, all substantially as described.

2. In a swing actuating mechanism, the combination of the supporting brackets 1 united by the rods 2, a clock train having an escape-wheel with a series of parallel peripheral pins for the purpose specified, a pendulum arbor comprising a rock-shaft having a central depending arm provided with a slotted guide-

bar for the seat supporting chains an oblique
lug to actuate the holding pawl, and a pawl to
engage the escape-wheel and provided with a
spring pressed detent, as described, a rock-
5 shaft 3 provided with a rigid holding pawl 11
for the escape wheel and an actuating spring
12 adapted to engage the lug 24 on the rock
shaft 4, and a pair of winding drums rigidly
fixed on the ends of the shaft 6 and provided
10 with the chains or cables 27 mounted as shown
and carrying at their lower ends a swing-seat

29, and the seat-supporting chains arranged
as shown, all substantially as and for the pur-
pose described.

Signed by me, at Fort Wayne, Allen county, 15
State of Indiana, this 17th day of January,
A. D. 1895.

JOSEPH A. BRUNNER.

Witnesses:

WALTER G. BURNS,
LOUIS H. GOCKE.