No. 803,838. PATENTED NOV. 7, 1905.

G. E. MELLEN.

TOY SWING.

APPLICATION FILED JAN. 26, 1905.

Fig. 1.

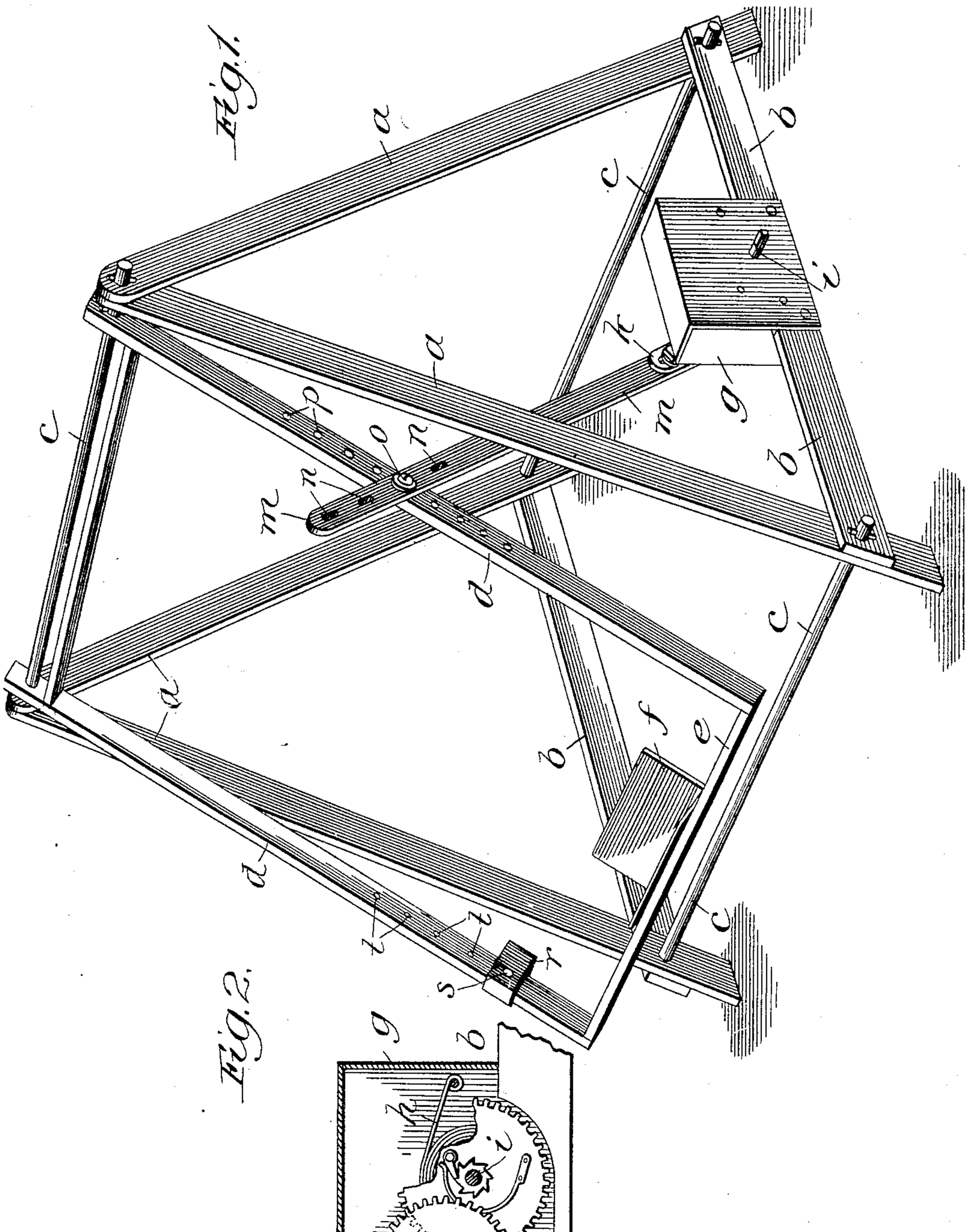
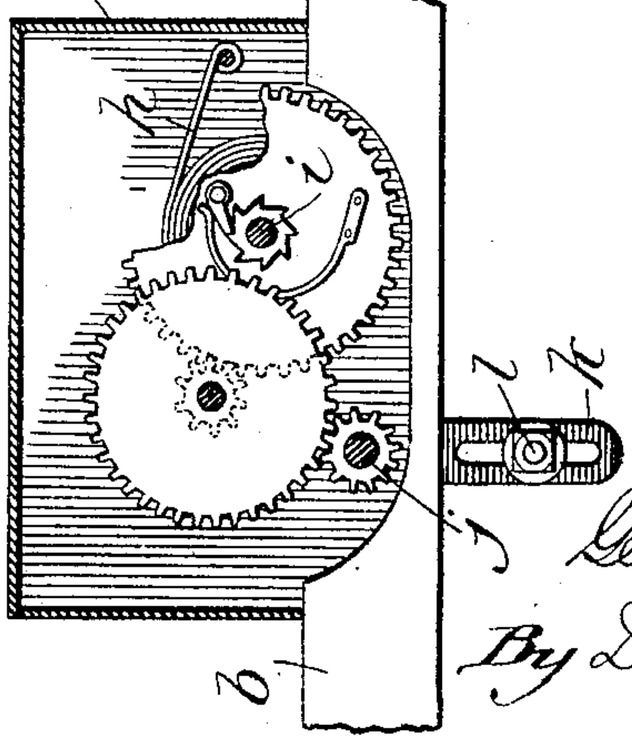


Fig. 2.



Witnesses:
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By David A. Fletcher,
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UNITED STATES PATENT OFFICE.

GEORGE E. MELLEN, OF CHICAGO, ILLINOIS.

TOY SWING.

No. 803,838. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed January 26, 1905. Serial No. 242,748.

To all whom it may concern:

Be it known that I, GEORGE E. MELLEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Toy Swings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of my invention is to provide a toy swing which shall be so constructed and connected with a motor or source of power that it will remain normally at rest, but when arbitrarily moved to a predetermined abnormal position and then released will continue to swing automatically as long as the necessary power is supplied, but as soon as the power is reduced below certain limits, or if from any cause the arc of vibration is lessened, the swing will be brought to a standstill and remain at rest notwithstanding the fact that power may still be exerted upon the direct propelling element by the motor.

To these ends my invention consists in the combination of elements hereinafter more particularly described, and definitely pointed pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a swing embodying the features of my invention; and Fig. 2 is a side view of the motor, a portion of the casing being broken away to show the interior mechanism.

In the drawings I have represented a frame consisting of slanting or converging supports *a a* at each end, which are joined together at the bottom by means of a horizontal tie *b*. The frame elements at the ends are arranged parallel to each other and are connected by means of three horizontal cross-rods *c*, two at the bottom and one at the top. From the top member *c* is pivotally suspended a swing consisting of two parallel bars *d d* and a connecting cross-bar *e* at the bottom, which latter is provided with a seat *f*.

Upon one of the horizontal bars *b* is mounted a motor consisting of a closed case *g*, a coiled motor-spring *h*, one end of which is connected to the case and the other to a shaft *i*, which in turn is connected, by means of a train of gears, in any well-known way with a crank-shaft *j*, having a crank-arm *k*, connected, by means of a wrist-pin *l*, to one end of a pitman *m*. Said pitman is provided with one or more, but preferably a series of, elongated slots *n*, through which a wrist-pin *o* is loosely projected and secured in one of a corresponding number of holes *p* in the swing-bar *d*. The motor is so located upon the bar *b* as to cause the crank-shaft to lie in the plane of the swing when the latter is at rest in its normal vertical position, and the connection of the pitman with the bar *d* is made when the latter is in its normal position and the crank-arm is in its lowermost position, it being understood that the holes *p* and slots *n* are in substantial registration with each other when the parts are so placed. The object of having a number of holes is to vary the arc of the swing by shifting the wrist-pin *o*, while the slots provide for the requisite play between the connected parts.

The operation of said device is as follows: Upon winding the motor-spring by means of a key applied to the shaft in the usual way a pushing or upward force is exerted upon the pitman; but by reason of the latter being upon a dead-center or in substantial alinement with the bar *d* no movement is produced. When, however, the swing is moved to its full abnormal position in either direction, the crank causes it to continue its oscillation until the motor ceases to act. Upon the upward turn of the crank a pushing movement is exerted upon the swing up to the full limit of its forward movement, when, the crank having passed its dead-center, a pulling action is exerted to carry the swing back. When the swing is in a vertical position in its backward movement, the crank is in the act of passing the dead-center in its downward swing, whereupon the pitman immediately exerts a pushing action to move the swing upwardly in its backward stroke, upon reaching the limit of which the action of the pitman is instantly shifted to pull it back. It will thus be seen that by reason of the relative positioning of the crank, the pitman, and swing a pushing and pulling action is exerted upon the swing upon each side of its normal position, or, in other words, one revolution of the crank serves to impart a pushing and pulling action upon the swing upon one side of the plane of its normal position and the next upon the other, and so on alternately.

I am aware that it is old and common to impart oscillatory motion to an object by means of a crank and pitman, and I do not wish to be understood as claiming any such general and common device. I am not aware, however, that a swing has ever been operated by

means of a pitman connected with a source of power and arranged to impart a pushing and pulling action first upon one side and then upon the other of the normal resting-plane of the swing. This arrangement of elements produces a new and useful result in which the momentum of the swing itself constitutes an essential factor. It is important in the construction described in that the swing will always remain at rest in its normal position, notwithstanding the power of the motor exerted upon the pitman, until the swing is arbitrarily moved to its full limit.

I do not wish to be confined to any specific form of motor, as it is obvious that anything which will reciprocate the lower end of the pitman while positioned as described will accomplish the same result.

In order to vary the speed of the swing, I provide an adjustable weight *r*, which is slidably connected with one of the bars *d* and adjustably secured thereto by means of a pin *s*, adapted to project into the holes *t*.

Having thus described my invention, I claim—

1. The combination with a swing having suspension-bars, of a pitman jointedly connected with one of said bars, said pitman being in a substantially vertical position when the swing is at rest, and a motor having a crank connected with the lower end of the said pitman, said crank being adjusted to extend downwardly in alinement with said pitman when the latter is in a common plane with said suspension-bars, whereby said crank may serve to reciprocate said pitman in opposite directions, first upon one and then upon the opposite side of the normal plane of rest of the swing.

2. The combination of a swing having suspension-bars, of a pitman jointedly connected to one of said bars near the upper end of the latter and extending downwardly, said swing being in the plane of said bars when the latter are at rest, a crank connected with the lower end of said pitman, the axis of said crank being in alinement with the vertical plane of the swing when the latter is at rest, while the crank-arm is in its lowermost position, and means for actuating said crank whereby a complete revolution of the crank may occur upon each side of the vertical plane of the swing.

3. The combination with a swing of a vertically-disposed pitman having its upper end jointedly connected with one of the bars of the swing below the upper end of the latter, means for reciprocating said pitman from its lower end, and an adjustable weight upon one of the bars of said swing for varying the speed of its oscillations.

4. The combination with a swing having the usual suspension-bars of a pitman arranged to stand normally in a substantially upright position when the swing is at rest, a wrist-pin for connecting said pitman to one of said suspension-bars below the point of suspension of the latter, means for varying the relative position of said wrist-pin, and means connected with the lower end of said pitman for reciprocating the same.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 24th day of January, 1905.

GEORGE E. MELLEN.

Witnesses:

D. H. FLETCHER,

CARRIE E. JORDAN.