United States Patent

Silverglate

[15] **3,638,248**

[45] **Feb. 1, 1972**

[54] APPARATUS FOR PRODUCING A ROCKING MOTION

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[22] Filed: **Jan. 14, 1971**

[21] Appl. No.: **106,418**

[52] **U.S. Cl.** **5/105**, 5/108, 272/56, 297/260

[51] **Int. Cl.** **A47d 9/02**, A47d 13/10, A47c 3/02

[58] **Field of Search**.....5/93, 101, 105, 108, 109; 272/53.1, 56.1; 297/259, 260

[56] **References Cited**

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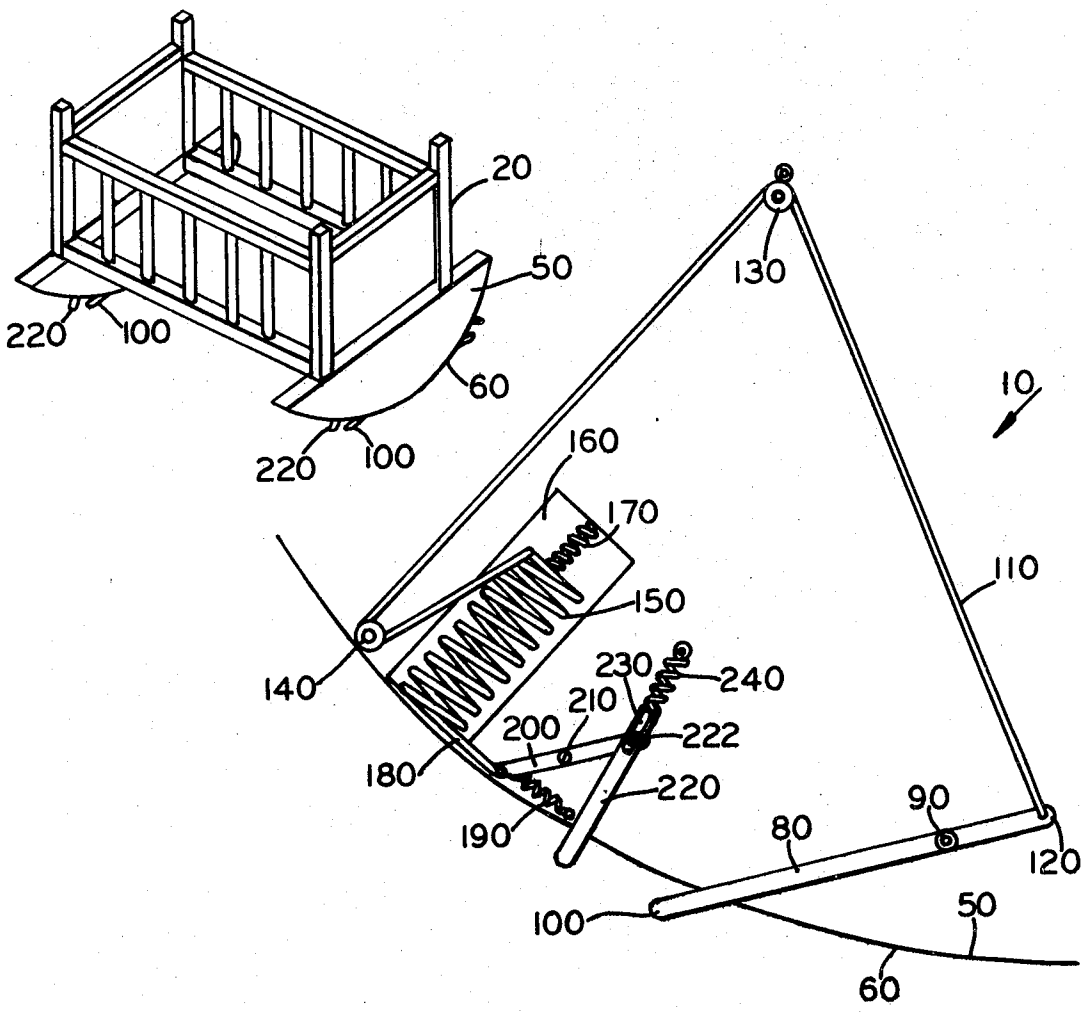
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Primary Examiner—Casmir A. Nunberg
Attorney—Robert A. Green

[57] **ABSTRACT**

The apparatus comprises a plurality of rods and levers and springs interconnected by a cable so that a crib or the like, moved by hand initially, causes the apparatus to apply a force to the surface on which the apparatus is mounted to cause the rocking motion to continue.

5 Claims, 3 Drawing Figures



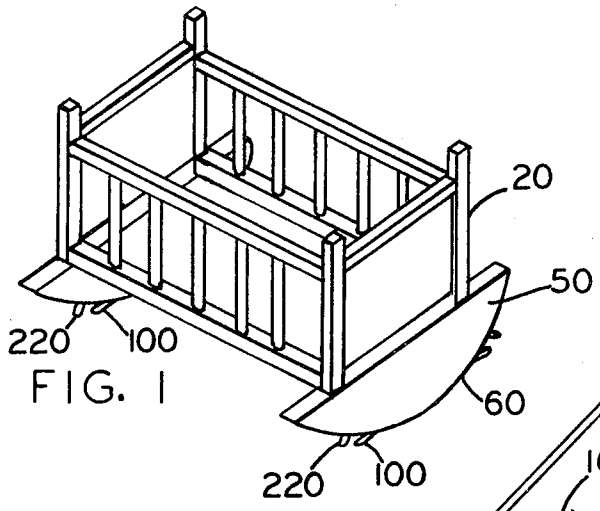


FIG. 1

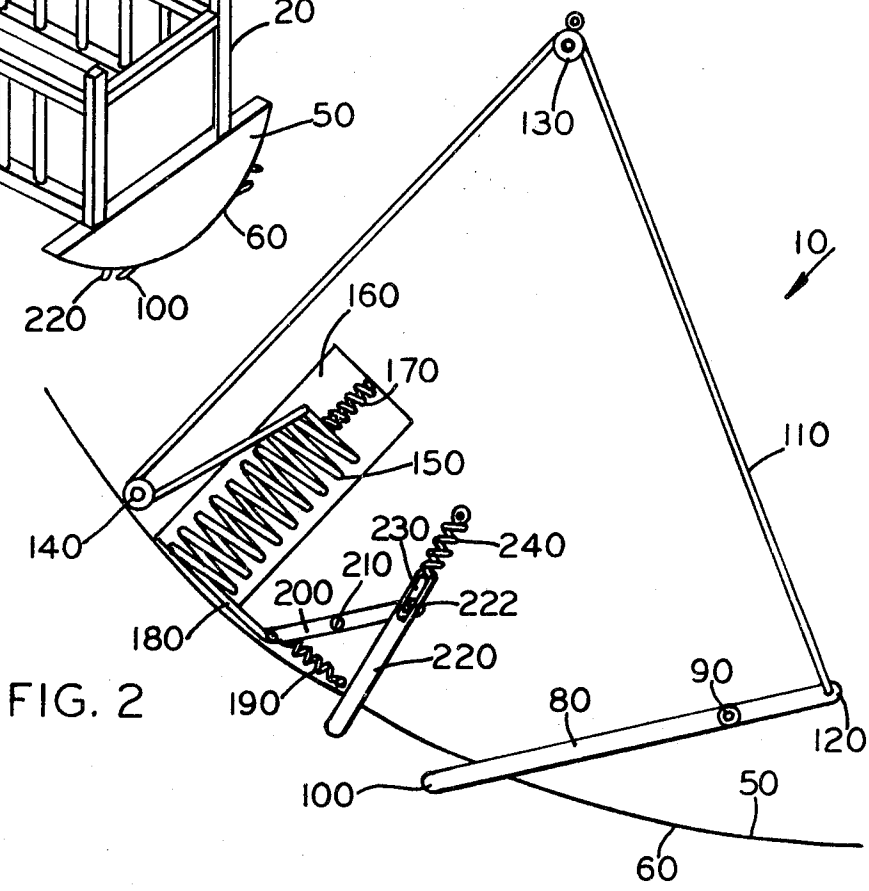


FIG. 2

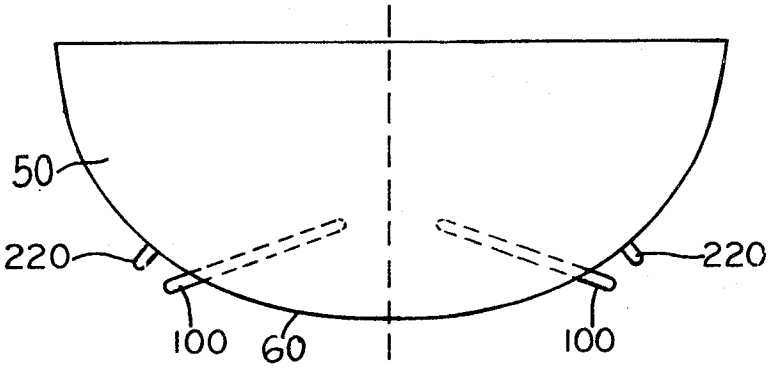


FIG. 3

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APPARATUS FOR PRODUCING A ROCKING MOTION

BACKGROUND OF THE INVENTION

The invention relates particularly to apparatus for rocking baby cribs or the like. Apparatus of this type is known in the art; however, all such known apparatus includes motors or hand-operated cranks, the former being relatively expensive, and the latter requiring constant manipulation by an operator. The present invention is simple, inexpensive, and in general does not require manipulation by an operator.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic representation of a crib embodying the invention;

FIG. 2 is a schematic representation of the apparatus of the invention as contained in the crib of FIG. 1; and

FIG. 3 is a front elevational view of a portion of the crib shown in FIG. 1 illustrating the double inclusion of the apparatus shown in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The apparatus of the invention **10** is useful for imparting motion and, particularly, for producing a rocking motion to apparatus such as baby cribs, doll cribs, or the like. Referring to FIG. 1 wherein a crib-rocking embodiment of the invention is shown, a typical crib **20** includes two pairs of legs **30** and **40**, each of which is secured to a plate **50** which has a curved lower surface **60** which rests on the floor **70** and which imparts the rocking motion of the crib. The apparatus of the invention **10** is mounted in suitable apertures in each of the plates.

The apparatus of the invention includes a first rod or arm **80** pivotally mounted near its inner end about a pivot pin **90**, and its leading end **100** projects a short distance beneath the curved surface of the plate so that it can contact the floor. A cord or cable **110** is secured to the inner end **120** of the rod **80**, and this cord extends to and over a pulley or wheel **130** inside the plate **50** and then to a second wheel **140** near the curved surface but spaced a distance from the rod **80**. A helical spring **150** is mounted within a recess **160** in the plate adjacent to the wheel **140**, and it is held within the recess by a suitable spring **170** suitably secured to the plate at the rear wall of the recess. The cord **110** is suitably connected to the upper inner end of the spring **150**.

An arm or plate **180** is mounted so that it is slidable with respect to the open end of the chamber **160**, and it is spring-biased by a spring **190** in a direction so that it tends to block the open end of the chamber, and it holds the spring **150** within the chamber. The rear end of the plate **180** is pivotally secured to an arm or rod **200** which itself is pivoted near its midpoint about a pin **210** secured to the plate **50**. The connection of plate **180** to arm **200** is sufficiently loose to permit plate **180** to operate as required and as described below. The remote end of the arm **200** is coupled to a rod or arm **220**, and it carries a pin **222** which rides in a slot **230** in the rod **220**. The rod **220** is suitably mounted within the plate **50** so that it is oriented generally perpendicular to the curved surface of the plate, projecting slightly beyond this curved surface, and vertically slidable within the plate. This arm is also spring-biased by a spring **240** so that it tends to project from the plate toward the floor.

In operation of the invention, the operator initially pushes the crib so that the arm or rod **80** is brought into contact with the floor. The pressure thus exerted on the free end of the arm causes the arm to rotate clockwise around the pivot pin **90**, and this applies such force to the cord that the spring **150** is pulled downwardly and is thus compressed against the plate **180** which is in position, blocking the spring. As the crib continues to move due to the initially applied force, the arm **220** strikes the floor, and it is pushed inwardly, and this causes the rod **200** to rotate in a counterclockwise direction about the pivot pin **210**. This motion pulls the plate **180** away from the spring and permits the spring to eject and push against the floor and exert a force which causes the plate **50** and the crib

now to move in the opposite direction. At the same time, the spring **150** flies back into its recess, and the spring-biased plate **180** moves back in front of the spring to hold it in the recess. At the same time, the return movement of the spring returns the cable and rod **80** to its starting position.

The motion thus imparted may be sufficient to cause the crib to oscillate in the opposite direction and then to return to cause the apparatus of the invention to operate again. If desired, however, the above-described apparatus may also be provided in the plate suitably positioned to operate when the crib oscillates to the right, as represented in FIG. 3. Only portions of arms **100** and **220** are shown in FIG. 3. Thus, a driving force can be applied as the crib rocks first in one direction and then in the other. It is expected that the crib will continue to oscillate by itself for some time, after which it would be manually started again. In addition, the driving apparatus may be included in both plates **50** as illustrated in FIG. 1.

The principles of the invention have been described in general terms, and it will be understood that those skilled in the art will be able to readily adjust the various rods, arms, slots, pivot points, and supports for all parts to achieve the desired and described mode of operation.

What is claimed is:

1. Apparatus for imparting a rocking motion comprising

a support member adapted to be placed on a floor and having a curved surface which produces a rocking motion as it moves back and forth on the floor,

a first arm pivotally secured to said support member about a pivot point and having one end extending beyond said curved surface of said support member so that it can contact said floor when an initial rocking motion is imparted to said support member,

a spring secured to said support member and adapted to move in and out of said support member and having a free end which can contact said floor as the spring moves out of said support member,

a cable secured to an inner portion of said first arm and extending over a plurality of pulley wheels to the inner end of said spring,

rotation of said first arm applying a force to said cable in a first direction tending to pull said spring out of said support member,

a slidable plate engaging said free end of said spring and spring-biased in a direction to block said spring and to retain it inside said support member, said plate being connected at one end to a second arm which is pivotally secured to said support member, the other end of said second arm slidably engaging a third arm mounted within said support member and having a free end positioned to contact the floor, contacting of said third arm with said floor causing rotation of said third arm and said second arm and sliding of said plate out of contact with said spring whereby said spring can be ejected from said support member and can contact said floor and thereby impart a force to said support member which tends to rock it in a direction opposite to said initial rocking motion,

whereby said spring moves back into said support member and said spring-biased slidable plate returns to hold said spring within said support member, the return of said spring moving said cable in a direction opposite to said first direction whereby said first arm is returned to its starting position.

2. The apparatus defined in claim 1 wherein said third arm is positioned between said first arm and said spring.

3. The apparatus defined in claim 1 wherein said support member has a vertical axis, and said first arm, said spring, said cable, said slidable plate, said second arm, and said third arm are disposed on one side of said vertical axis.

4. The apparatus defined in claim 3 and having a duplicate of the parts of said apparatus including said first arm, said spring, said cable, and said second and third arms disposed on the other side of said vertical axis whereby a force can be applied to said support member when said support member rocks in two directions.

5. A crib device including

a portion for supporting a body,

front and rear support members each having a curved surface for supporting the crib on a floor and for imparting a rocking motion thereto, and

mechanical means disposed within at least one support member for imparting a rocking motion thereto,

said mechanical means including

a first arm pivotally secured to said one support member about a pivot point and having one end extending beyond said curved surface of said support member so that it can contact said floor when an initial rocking motion is imparted to said one support member,

a spring secured to said one support member and adapted to move in and out of said one support member and having a free end which can contact said floor as the spring moves out of said one support member,

a cable secured to an inner portion of said first arm and extending over a plurality of pulley wheels to the inner end of said spring,

rotation of said first arm applying a force to said cable in a first direction tending to pull said spring out of said one support member,

a slidable plate engaging said free end of said spring and spring-biased in a direction to block said spring and to retain it inside said one support member, said plate being connected at one end to a second arm which is pivotally secured to said one support member, the other end of said second arm slidably engaging a third arm mounted within said one support member and having a free end positioned to contact the floor, contacting of said third arm with said floor causing rotation of said third arm and said second arm and sliding of said plate out of contact with said spring whereby said spring can be ejected from said one support member and can contact said floor and thereby impart a force to said one support member which tends to rock it in a direction opposite to said initial rocking motion,

whereby said spring moves back into said one support member and said spring-biased slidable plate returns to hold said spring within said one support member, the return of said spring moving said cable in a direction opposite to said first direction whereby said first arm is returned to its starting position.

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