United States Patent [19]

Harper et al.

[11] **3,769,641**

[45] **Nov. 6, 1973**

[54] **AUTOMATICALLY ROCKING BABY CRADLE**

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[73] Assignee: **Harper-Blea Incorporated,** Santa Fe Springs, Calif.

[22] Filed: **May 30, 1972**

[21] Appl. No.: **257,571**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 213,286, Dec. 29, 1971, abandoned.

[52] **U.S. Cl.** **5/109,** 5/108

[51] **Int. Cl.** **A47d 9/02**

[58] **Field of Search** 5/101–109

[56] **References Cited**

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[57] **ABSTRACT**

A baby crib or cradle adapted to be rocked automatically by an oxcillatory, action motor having the same effect as would be achieved by a mother rocking a crib containing an infant, the crib being pivotally supported at each end thereof to a support rack and stand. The lower portion or bottom of the crib is adapted to be operably connected to the motor. The motor also includes a regulating, reciprocating means for imparting the actuating movement of the crib in a smooth-rocking motion.

3 Claims, 13 Drawing Figures

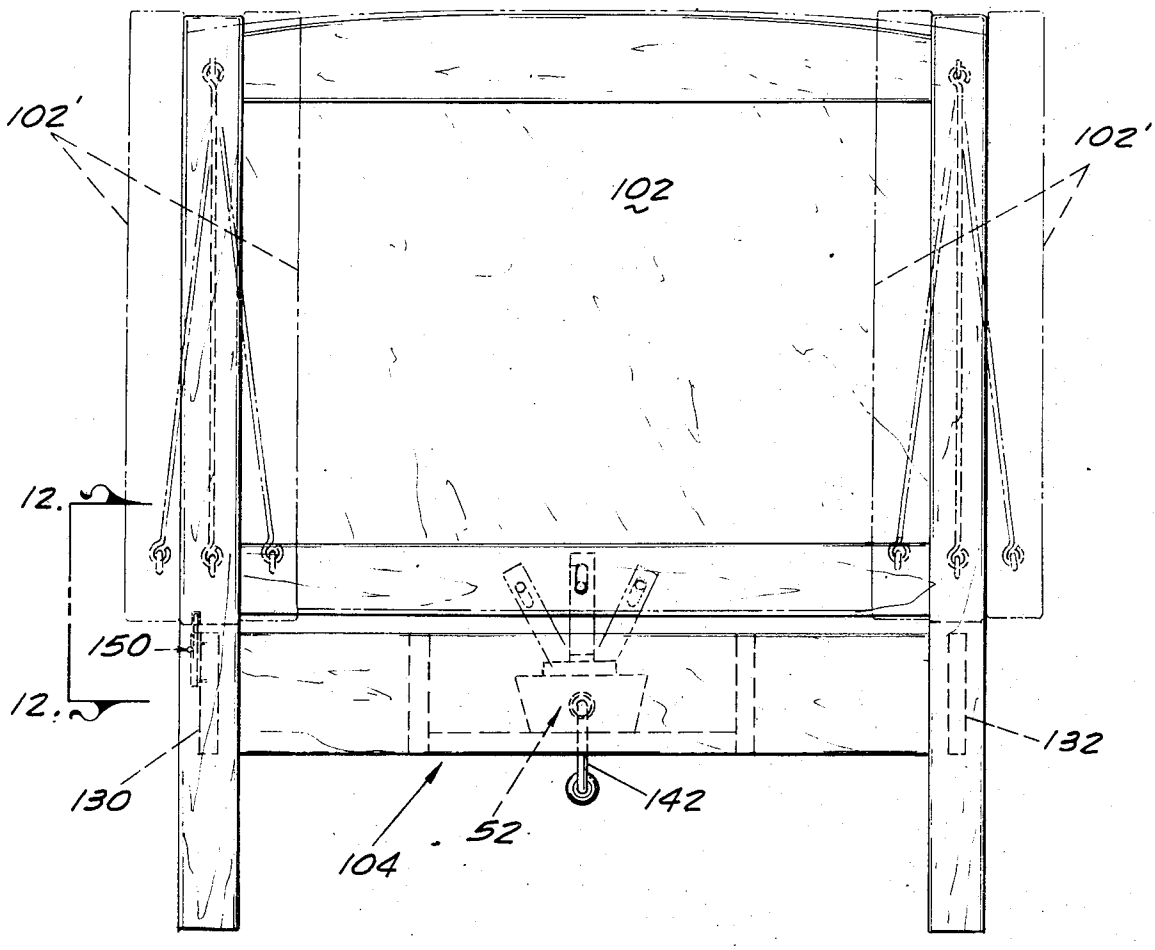


Fig. 1.

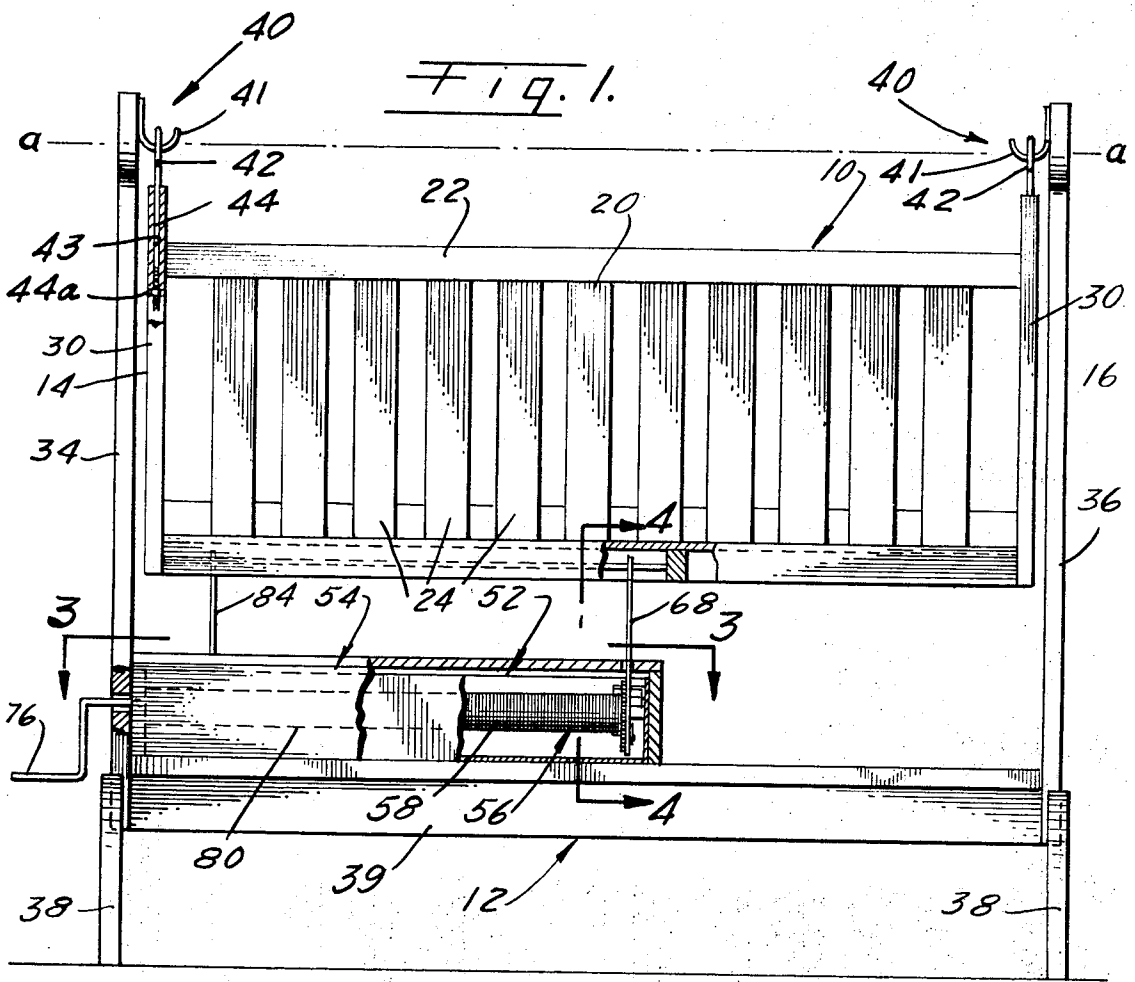
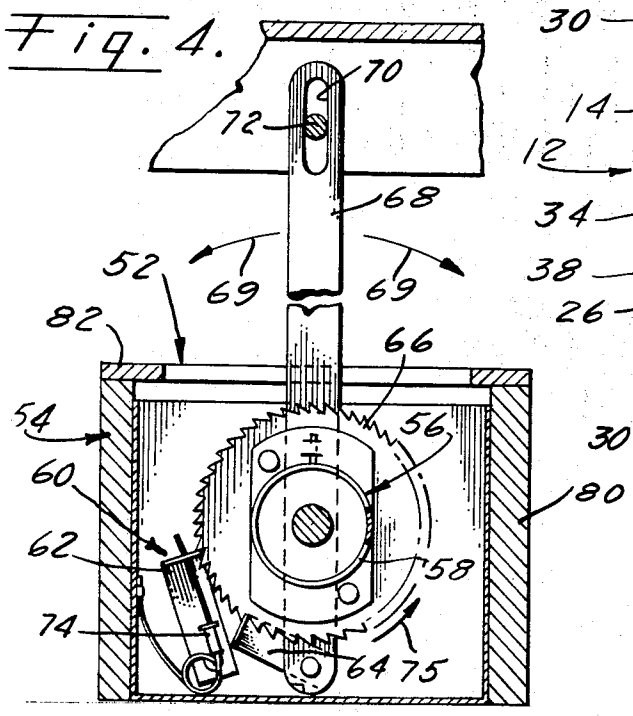


Fig. 4.



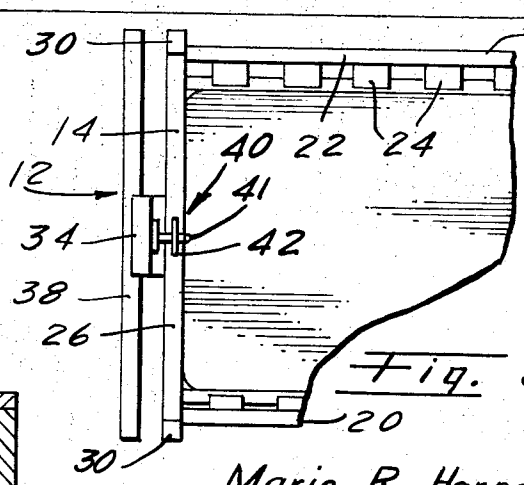


Fig. 5.

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Fig. 2.

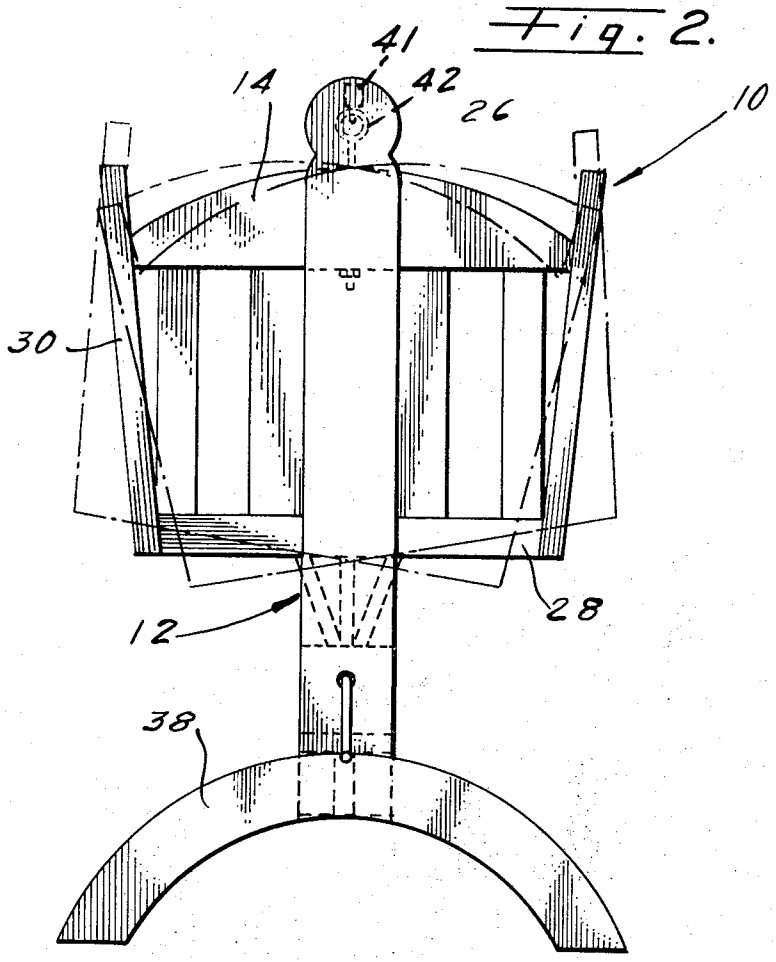


Fig. 3.

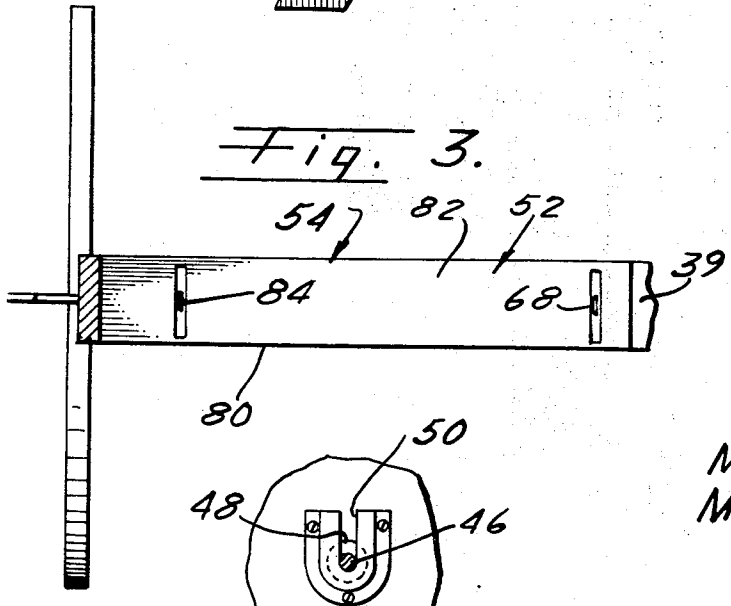


Fig. 6.

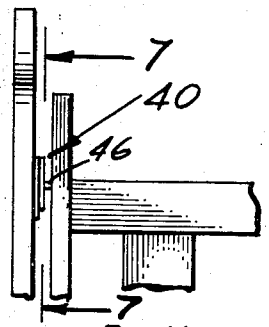
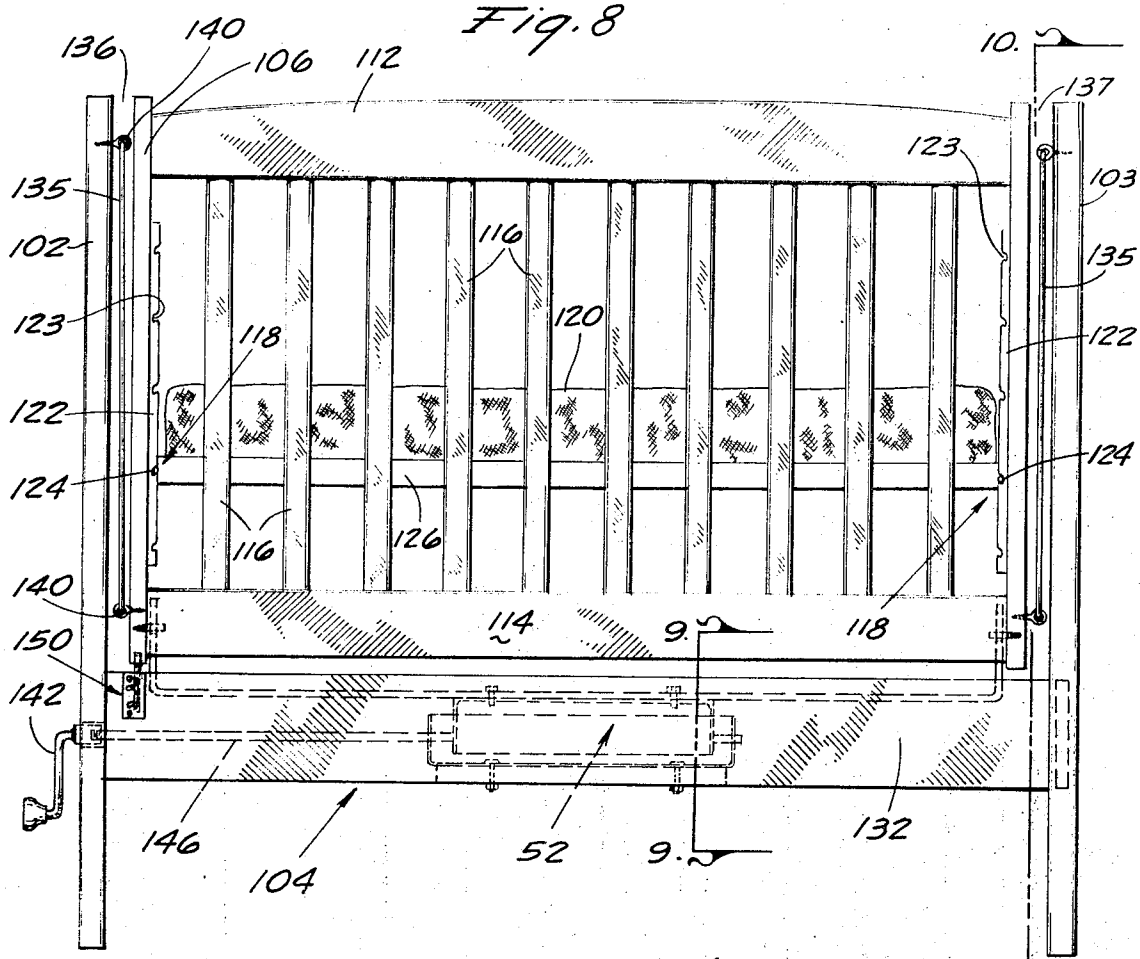


Fig. 7.

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Fig. 8



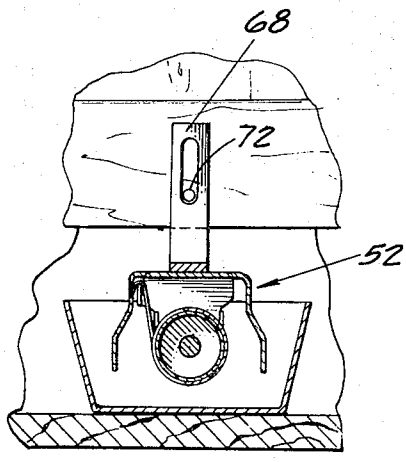


Fig. 9

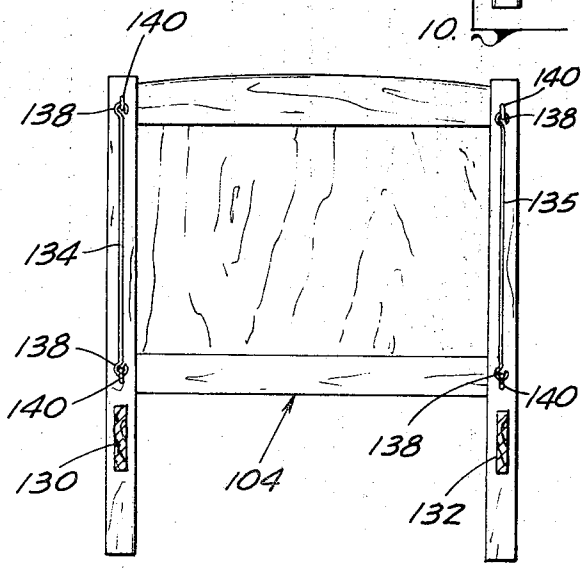
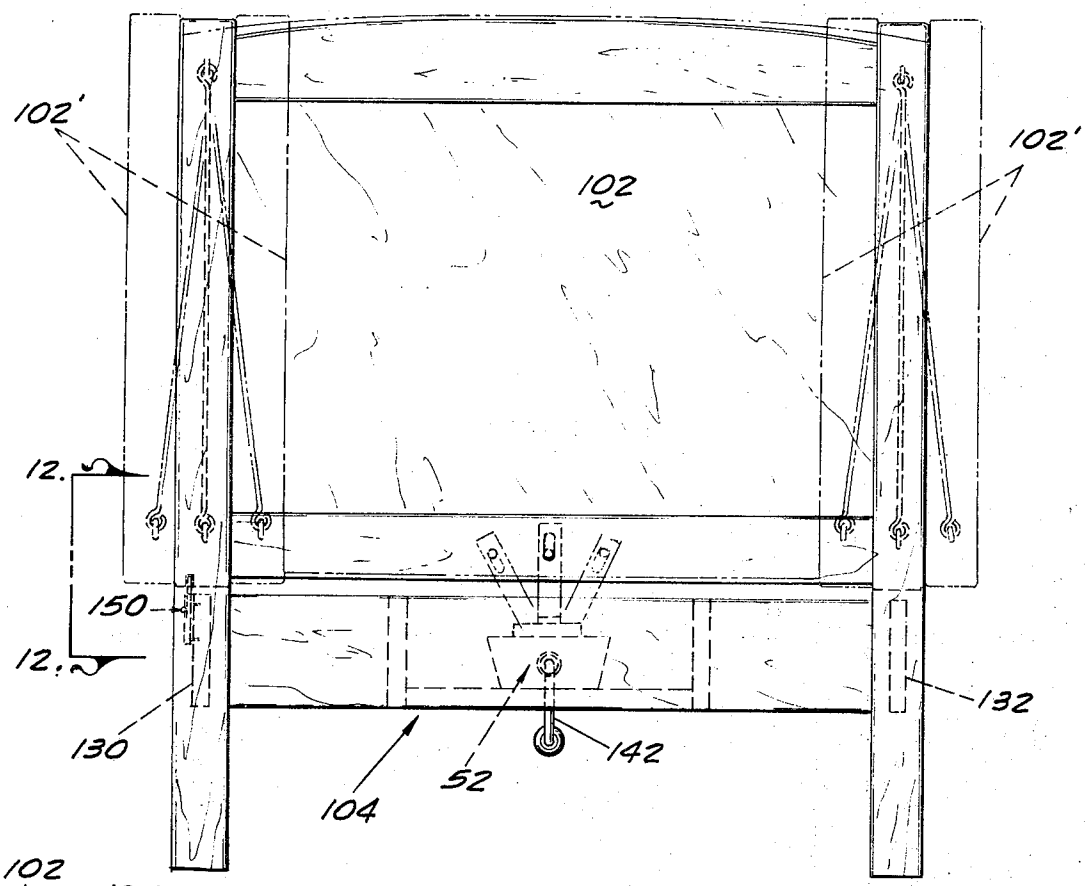


Fig. 10

Fig. 11



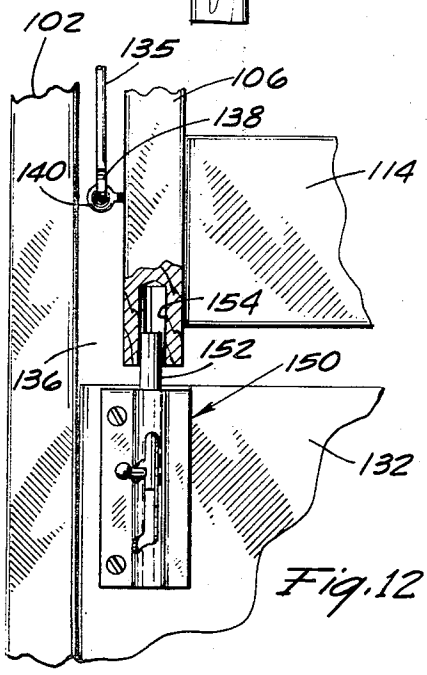


Fig. 12

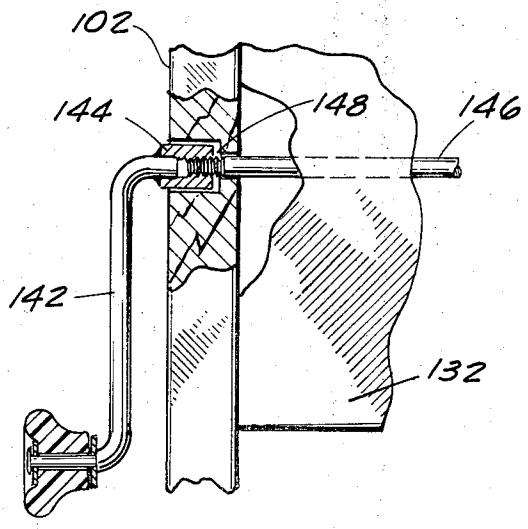


Fig. 13

AUTOMATICALLY ROCKING BABY CRADLE

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of the following:

Inventors: MARIE R. HARPER and MAXINE R. BLEA

Title: AUTOMATICALLY ROCKING BABY CRADLE

Ser. No.: 213,286

Filed: Dec. 29, 1971 now abandoned

BACKGROUND OF THE INVENTION

1. Field of the Invention. This invention relates to a baby crib, and more particularly to a baby crib which is automatically actuated in a side-to-side, oxcillatory, rocking motion by a motor.

2. Description of the Prior Art. As is well known in the art, various problems and difficulties have been encountered in providing a baby crib apparatus having suitable means to accommodate a proper rocking action to the crib having a baby supported therein. Generally, the rocking action is provided manually by a mother until the baby is fast asleep. This, however, prevents the mother from carrying out other necessary household duties while the baby is being put to sleep, and for some babies this takes quite some time and patience.

However, there have been many attempts to provide a safe and efficient automatic rocking crib, but those known to the applicants have been unsafe for the baby, complicated to operate, as well as too expensive for the average family. The most important aspect of an automatic rocking baby crib is a reliable safety factor. It is the applicants' feeling that the herein disclosed apparatus includes the all-important criterion of safety.

SUMMARY OF THE INVENTION

The present invention discloses an apparatus for automatically rocking a baby to sleep in a safe manner. The apparatus comprises a support bracket having oppositely disposed, vertical support arms interconnected at their lower ends by a brace member and provided at their upper free ends with a pivot means to which a crib or cradle is removably attached and swingable thereon in a side-to-side motion.

Positioned below the crib and secured to the brace member at one side thereof, there is a power-operating means that comprises a spring-loaded mechanical motor operably attached to the crib to provide a side-to-side oscillation of the crib. The spring-loaded motor is of any known type in which the gear-operating means is easily stopped when the slightest resistance or opposition to its movement is encountered, thereby providing an extremely safe device for use with small children or babies.

There is also provided an extended handle to which the motor is operably connected and wherein ease of winding is accomplished.

A second embodiment is also included within this disclosure wherein the pivotal means operably connecting the cradle portion of the crib to the support stand is arranged in such a manner as to provide horizontal, reciprocating action when in an operating mode. The pivotal means in this embodiment comprises a pair of oppositely-disposed, vertical arms adapted with eye hooks at each end thereof. Corresponding pairs of eye hooks are mounted in such a fashion that the upper pair of hooks are secured to the support stand and a second pair of eye hooks are secured to the lower portion of the cradle. Each arm is connected so as to be pivotally attached at each end to related, fixed eye hooks. This arrangement, in conjunction with the motor, provides a horizontal, side-to-side motion for the cradle.

OBJECTS AND ADVANTAGES OF THE INVENTION

The present invention has for an important object a provision whereby the oscillation of the crib or cradle is stopped when the slightest resistance is incurred.

It is another object of the present invention to provide an automatic rocking crib apparatus that employs a spring-loaded mechanical motor for safe operation thereof.

It is still another object of the invention to provide an automatic rocking crib which is easy to operate, service and maintain.

It is a further object of the invention to provide an apparatus of this character that is relatively inexpensive to manufacture.

It is still a further object of the invention to provide an apparatus of this character that is simple and rugged in construction.

Other characteristics, advantages and objects of this invention can be more readily appreciated from the following description and appended claims. When taken in conjunction with the accompanying drawings, this description forms a part of the specification wherein like references and characters designate corresponding parts in several views.

DESCRIPTION OF THE DRAWINGS

Referring more particularly to the accompanying drawings, which are for illustrative purposes only:

FIG. 1 is a side-elevational view of the present invention with portions thereof broken away;

FIG. 2 is an end-elevational view having dotted lines to show the different rocking positions;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1, illustrating the motor enclosure;

FIG. 4 is an enlarged sectional view taken along line 4—4 of FIG. 1;

FIG. 5 is a partial top-plan view of one of the pivotal means;

FIG. 6 is a partial side view of an alternative pivotal means;

FIG. 7 is an enlarged cross-sectional view taken on line 7—7 of FIG. 6 thereof;

FIG. 8 is a side-elevational view of an alternative arrangement;

FIG. 9 is an enlarged sectional view taken along line 9—9 of FIG. 8;

FIG. 10 is a sectional view taken along line 10—10 of FIG. 3, showing the alternative arrangement of the pivotal means;

FIG. 11 is an end-elevational view having dotted lines to show the different horizontal rocking positions;

FIG. 12 is an enlarged view of the cradle-locking means as seen at arrows 12—12 of FIG. 11; and

FIG. 13 is an enlarged view of the detachable handle with a portion of the view broken away.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to the drawings, there is shown a suspended, operable cradle or crib, indicated generally at **10**, being pivotally supported by a support stand, generally indicated at **12**.

The crib or cradle **10** comprises oppositely disposed end walls **14** and **16**, respectively, said end walls being interconnected by side walls **18** and **20**, respectively. These walls can be of any suitable design that is practical for safely enclosing a small baby therein. However, as illustrated in FIGS. **1** and **2**, the side walls are provided with a frame comprised of elongated members **22** having slats **24** evenly spaced and disposed therebetween.

Said end walls include an enlarged upper frame member **26** and a lower elongated frame member **28** which are tied together by inclined vertical bars **30** and vertical slats **32**. Each end wall is pivotally connected to the support stand which includes a support rack comprised of oppositely disposed, vertical arm members **34** and **36**, respectively. The lower ends of the arms are fixedly attached to arcuate legs **38**, said oppositely disposed legs and arms being integral parts of support stand **12** by means of an elongated, horizontal brace **39** positioned intermediate each vertical arm **34** and **36**, and secured thereto in a rigid manner, which would be generally provided by the combination of screws and glue. However, the members of the complete apparatus may be assembled with various attaching means suitable in providing a rugged, sturdy structure capable of carrying weights greater than the average weight of a small baby.

Between the cradle **10** and support stand **12**, there is provided a hinge or pivotal means, generally indicated at **40**. Said means **40**, as shown in FIGS. **1**, **2** and **5**, comprises an arcuate, hooked finger **41** attached to the upper, free ends of each corresponding vertical arm **34** and **36**. These fingers are axially aligned with each other, as shown at a-a of FIG. **1**, whereby eye hooks **42** can be operably hooked thereon, in order for said cradle to oscillate in a back-and-forth movement. Said eye hook includes a depending, threaded arm **44** which is adjustably received in bore **43** of each end frame member **26**. The eye hooks are adjustable by means of nut **44***a*, whereby said cradle can be leveled in a horizontal plane within the opened area between the arms of the support stand.

It should be noted, however, that the hinging of the cradle and stand for pivotal movement thereof is not necessarily restricted to the mode as described and other means can be used. As an example, another hinging means is shown in FIGS. **6** and **7**, wherein a pin **46** is secured to the end wall having a circular head **48** which is operably received within a slotted pocket-support member **50** oppositely attached to the vertical arms.

To impart an oscillating, side-to-side, rocking movement to the cradle there is provided a power-operating means, indicated generally at **52**, which is supported on said longitudinal brace **39** and enclosed within housing **54**. The power-operating means comprises a mechanical, spring-loaded motor **56** capable of imparting an oscillatory motion to the cradle when the spring **58** is wound to a loaded-tension force. This force is held in a non-operating condition by a gear-operating means, indicated at **60**. When movement of the crib is required, said crib is manually tilted in one direction and released, permitting the inertia thereof to actuate the locking and actuating arms **62** and **64**, respectively, to operate under the biasing force of spring **58** in conjunction with the ratchet gear **66** (see FIG. **4**). Thus, as the spring-loaded motor begins to operate, the lever arm **68** is oscillated in a back-and-forth movement, as indicated by arrows **69** in FIG. **4**. Said lever arm **68** is adapted at its upper, free end with a slotted opening **70** through which an elongated stationary bar **72** is passed. This bar is mounted to the under carriage of the crib, as seen in both FIGS. **1** and **4**. As the lever arm **68** is permitted to oscillate, the crib is, in turn, gently rocked in a corresponding oscillation about the axis *a—a* of pivotal means **40**. Hence, as the back-and-forth motion of the lever arm drives the crib, the lower end of said arm, through pivotally connected, actuating lever **64**, forces the spring-biased locking arm **62** out of engagement with the teeth of gear **66** by striking collar **74**, allowing gear **66** to rotate in the direction of arrow **75**.

The motor can be positioned along any portion of the brace **39**. However, for ease of operation and winding of said motor, it is located at one end of the support stand whereby the crank handle **76** of the motor is extended through the adjacent vertical support arm, and the motor is disposed within protective housing **80** which is adapted with a removable cover **82** having slots therein whereby levers **68** and **84** can pass therethrough.

ALTERNATIVE EMBODIMENT

Referring now to the second embodiment, which is illustrated in FIGS. **8** through **13**, there is shown a crib or cradle, generally indicated at **100**, being swingably mounted between end headboards **102** and **103**, respectively. These headboards define part of the support stand, indicated generally at **104**.

The cradle **100** comprises oppositely disposed end walls **106** and **108**, said walls being interconnected by a pair of side walls **110**, said walls being defined by an upper, horizontal rail **112** and a lower rail **114** having a plurality of vertical ribs **116**. It should be noted, however, that any convenient side members can be used to provide the necessary enclosure to insure safety for the baby which is to be placed therein. This crib or cradle **100** is typical in that it includes a means **118** for adjusting the mattress **120** in various horizontal heights within the crib itself. The adjusting means includes brackets **122** fixed to all four corners of the crib **100**, although only two corners are shown in FIG. **8**. These brackets are adapted with a plurality of notches **123** for receiving pins **124** which are part of the mattress support member **126**. Therefore, it can be seen that crib or cradle **100** freely floats between the headboards **102** and **103**. A more detailed description of the floating arrangement will hereinafter be described.

Referring back to the support stand, said stand comprises the aforementioned headboards which are interconnected and supported in a vertical, parallel relationship to each other by side frame members **130** and **132**, respectively, as best seen in FIGS. **10** and **11**.

In order to furnish a floating, pivotal arrangement as disclosed in the second embodiment, there is provided a pair of vertical, parallel arms **134** and **135** disposed within the spaces **136** and **137**, respectively, said spaces being defined by headboards **102** and **103**, and end

walls **106** and **108**, respectively (See FIGS. **8** and **12**). Each end of each arm is formed with an eye **138**, as can be seen in FIG. **10**. Said eye **138** is received within corresponding eye hooks **140**. However, to provide the horizontal, back-and-forth swinging motion that is required in this embodiment, a pair of eye hooks **140** is secured to the upper portion of each headboard, while a second pair of eye hooks is secured to the lower portion of each end wall **106** and **108** of the cradle.

Therefore, it can be seen, as illustrated in FIG. **11**, that any movement imparted to the cradle **100** will actuate it in a horizontal plane, as indicated in phantom lines **102'**.

A motor means similar to that shown and described in the first embodiment can also be employed to impart the necessary energy to cause a gentle, reciprocating action, this action being very conducive in causing a baby lying therein to fall asleep without the aid of an individual. Therefore, the same reference characters are used as in FIGS. **1** through **7**. In addition, however, there is shown in FIG. **13** a handle **142** having a threadable sleeve **144** which is removably received on the motor-winding shaft **146**. Shaft **146** terminates at its free end within a recess **148** provided in one of the headboards, thereby eliminating a hazard to anyone passing thereby. However, it should be understood that other types of operating motors can be incorporated to replace the spring-loaded motor as shown. That is, a controlled electric motor can be easily installed to provide the needed operating power.

When the cradle is not to be used as a rocking unit, it can be locked by locking means installed thereon, whereby the cradle or crib **100** is prevented from any movement whatsoever in relationship to the support stand **102**. The locking means is generally indicated by reference character **150**, as seen in FIGS. **8**, **11** and **12**. FIG. **12** is an enlarged view, illustrating a slide bolt **152** being received within a recess **154** that is disposed in the bottom of the headboard **106**. This locking device is well known and a detailed description of the same is not needed. As can be understood, various other off-the-shelf locking devices would be suitable to achieve the same end result.

Thus, to operate the cradle said motor **52** is energized, establishing an oscillating movement to lever arm **68**, causing bar **72** to be forced into a back-and-forth or side-to-side movement, thereby allowing the cradle to rock in a horizontal plane through the pivot means. The speed of the reciprocal action of the cradle can be controlled, not only by the motor means, but by the adjusting of the matress height through adjusting means **118**. The higher the mattress, the faster the action; conversely, the lower the mattress is positioned in the crib, the slower the rocking action becomes.

The invention and its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction and arrangement of parts of the invention without departing from the spirit and scope thereof or sacrificing its material advantages, the arrangement hereinbefore described being merely by way of example, and we do not wish to be restricted to the specific forms shown or uses mentioned, except as defined in the accompanying claims.

We claim:

1. A motor-operated baby crib provided with a side-to-side, oscillating movement, the combination comprising:

a swingable cradle;

a support stand whereby said cradle is operably supported therefrom;

pivotal means operably connecting said cradle to said support stand, said pivotal means comprises:

a pair of parallel arms having eye members formed on each end thereof,

a first set of eye hooks secured to the upper portion of said support stand and oppositely disposed to each other for reception of said eye members of said arms,

a second set of eye hooks secured to the lower portion of said cradle and oppositely disposed to each other for reception of corresponding lower eye members of said arms;

a motor operably attached between said cradle and said support stand; and

gear-operating means for controlling the oscillating, side-to-side movement of said cradle, said means being operably connected to said motor interconnected to said cradle, and

wherein said gear-operating means includes:

a ratchet gear having evenly spaced teeth disposed on the annular edge thereof;

a spring-biased locking arm for releasable locking engagement with said gear;

an actuating arm for disengaging said locking arm from said gear to permit rotation of said gear in a continuously passive manner; and

a lever arm pivotally connected to said actuating arm, said upper, free end of said lever being operably attached to said cradle for imparting an oscillating, side-to-side motion thereto.

2. A motor-operated baby crib as recited in claim **1**, including:

a mattress-supporting member movably mounted in said crib;

adjusting means for adjusting said mattress-supporting member within the swingable cradle, whereby the speed of the reciprocating action imparted by said motor and said pivotal means can be controlled.

3. A motor-operated baby crib as recited in claim **2**, wherein said motor comprises:

a coil-spring actuated motor; and

a removable handle for imparting a tension force therein.

* * * * *