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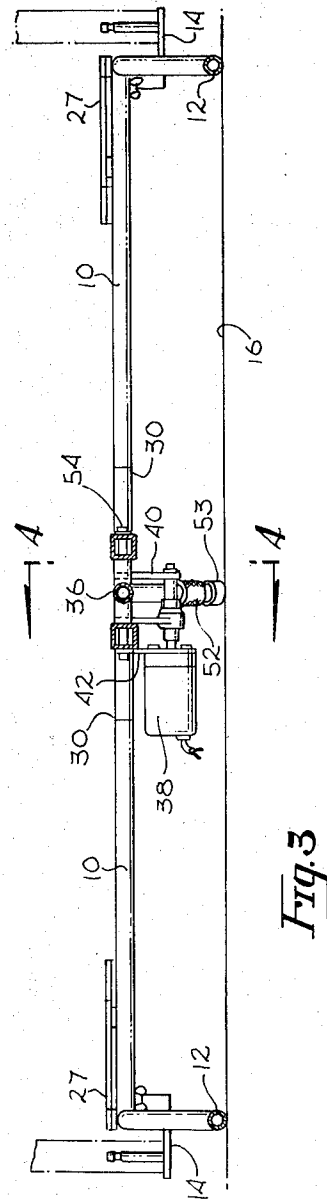
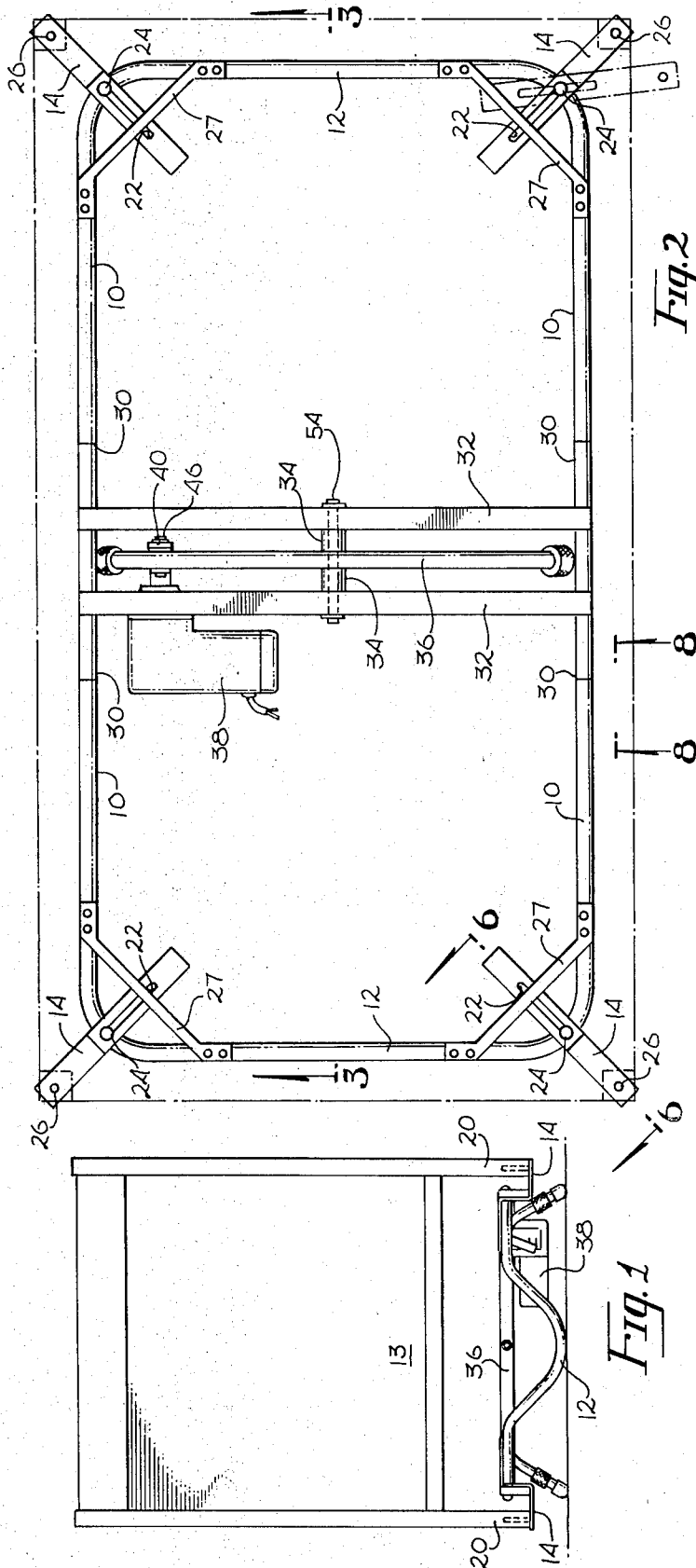
S. J. JOHNSON ET AL

3,541,618

AUTOMATIC CRIB ROCKER

Filed July 24, 1968

2 Sheets-Sheet 1



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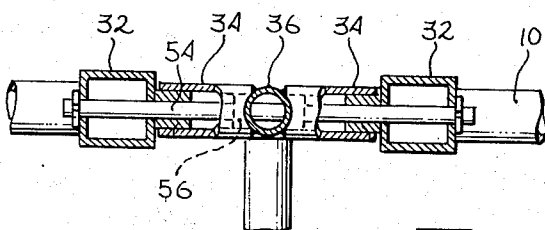
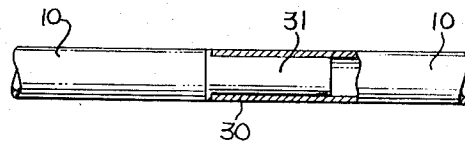
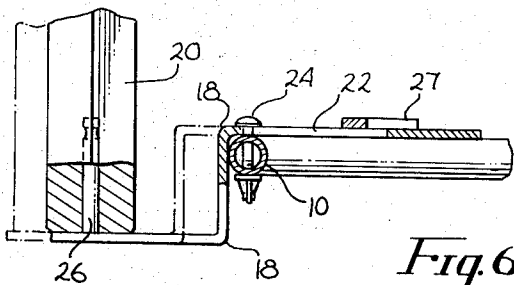
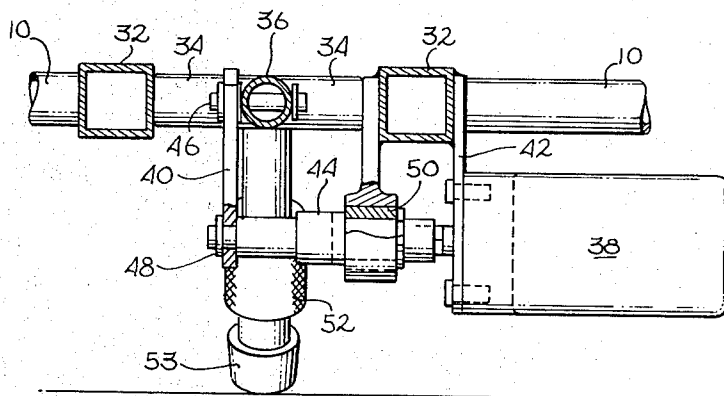
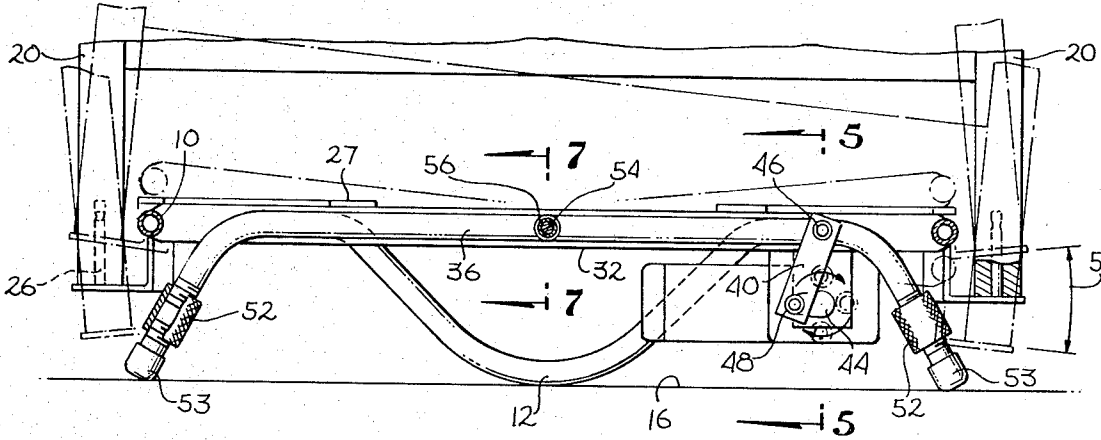
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AUTOMATIC CRIB ROCKER

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AUTOMATIC CRIB ROCKER

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Filed July 24, 1968, Ser. No. 747,344
Int. Cl. A47d 9/02

U.S. Cl. 5-109

9 Claims

ABSTRACT OF THE DISCLOSURE

An automatic crib rocker suitable for attachment to different size cribs. The sockets of the crib, which are otherwise used to support the crib's casters, are coupled to the rocker. An electric motor rocks the crib at a constant rate; no manual force is required to initiate the rocking.

BACKGROUND OF THE INVENTION

Field of the invention

The invention relates to the field of crib rockers.

Prior art

While numerous crib rockers are known in the prior art, there are disadvantages to each of them. Many of the prior art crib rockers are an integral part of the crib and are therefore not useable on standard cribs, without modification of the crib. Others, while attachable to standard cribs, do not have the flexibility of being attached to different size cribs.

Prior art automatic crib rockers also have some shortcomings. Some utilize small electric motors. These motors have the capacity to rock the crib, but do not have sufficient power to overcome the inertia of the crib and initiate the rocking. Therefore, a manual push is required to start the rocking. Other rockers have overcome this problem by using large electric motors or other mechanisms as aids in overcoming this inertia of the crib.

BRIEF SUMMARY OF THE INVENTION

An automatic crib rocker comprising a frame and a rocking mechanism. The frame is rectangular with curved ends suitable for rocking. Adjustable support arms are provided on the frame suitable for attaching the frame to different size cribs. The rocker mechanism is coupled to the frame and provides the rocking force for the rocker. The rocking force is developed by a lever arm, which is driven by an electric motor, acting against a rocker support. The rocker support is pivotably coupled to the frame and transmits the rocking force to the floor.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an end view of the crib rocker coupled to a crib.

FIG. 2 is a top view of the crib rocker.

FIG. 3 is a view of the crib rocker taken along section 3-3 of FIG. 2.

FIG. 4 is a view of the crib rocker taken along section 4-4 of FIG. 3.

FIG. 5 is a view of the rocker mechanism taken along section 5-5 of FIG. 4.

FIG. 6 is a view of the support arm taken along section 6-6 of FIG. 2.

FIG. 7 is a view of a portion of the rocker mechanism taken along section 7-7 of FIG. 4.

FIG. 8 is a view of a portion of the rocker frame taken along section 8-8 of FIG. 2.

DETAILED DESCRIPTION OF THE INVENTION

The automatic crib rocker is comprised of two major components, a frame 10 shown in FIG. 2 and the rocker mechanism shown coupled to frame 10 in FIG. 5.

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Referring to FIG. 2, frame 10 can be seen to be a generally rectangular frame preferably made from tubular metal. The narrow sides of the frame contain curved members 12. These curved members as seen in FIG. 1 are suitable for engaging the floor and rocking thereon. In FIG. 3 the curved members 12 can be seen engaging floor 16 and supporting frame 10 above floor 16.

Each of the corners of frame 10 contain a support arm 14 as shown in FIGS. 2, 4 and 6. Support arm 14 is a metal strip containing two right angles 18 as shown in FIG. 6. Support arm 14 is preferably made of steel in order to provide sufficient structure integrity to support crib leg 20. Support arm 14 contains an elongated cut 22 shown in FIG. 2. This cut engages bolt 24. Support arm 14 also engages brace 27. Brace 27 is a metal brace, rigidly coupled across the corners of frame 10, for providing support for support arm 14. Brace 27 may be made of metal and may be riveted, bolted or welded to frame 10. Pins 26 are rigidly coupled to support arm 14, and are suitable steel pins for engaging a standard caster socket. Pins 26 may be rigidly affixed to support arm 14 by any commonly known means such as welding or threading pins 26 to engage mating threads in support arm 14.

Frame 10 contains four coupling sleeves 30 shown in FIG. 2 allowing the frame to be severed. In FIG. 8, one of the sleeves 30 is shown in an enlarged view. One portion of frame 10 has been swaged or crimped as shown by swage 31 and made to fit within the sleeve 30 of frame 10. Swage 31 may be accomplished by commonly known metal working techniques. Swage 31 extends in sleeve 30 of frame 10 for distance long enough to provide structural strength to the parts of frame 10.

Referring to FIGS. 3, 4 and 5, the rocker mechanism for the crib is comprised of support members 32, bearing member 56, rocker mount 36, electric motor and gear train 38, lever arm 40, shaft 44, support 50 and bracket 42.

Support members 32 is composed of two tubular lengths of metal rigidly coupled across the sides of frame 10, parallel to the curved members of frame 10. Support members 32 may be bolted or welded to frame 10. Motor and gear train 38 is rigidly affixed to members 32 by bracket 42 as shown in FIG. 5. Bracket 42 may be made of metal or other suitable material and is rigidly affixed to support members 32 and motor and gear train 38 by welding, bolting or other suitable fastening means. Motor and gear train 38 is any one of numerous commercially available electric motors with attached gear trains.

Motor and gear train 38 is coupled to lever arm 40 by shaft 44. Shaft 44 is a steel shaft containing an offset for driving lever arm 40. As is shown in FIG. 4, lever arm 40 is movably mounted to rocker mount 36 and shaft 44 by bearings 46 and 48, respectively. The offset in shaft 44, which is used to drive lever arm 40, is illustrated in FIG. 4. The offset consists of the distance between the center of shaft 44 and the center of bearing 48. In FIG. 5, shaft 44 is shown supported by support 50. Support 50 is a metal support rigidly affixed to support members 32 and contains a bearing to allow shaft 44 to move freely within support 50.

Rocker mount 36, as shown in FIG. 4, is a tubular U-shaped metal mount suitable for engaging floor 16. Rocker mount 36 is preferably constructed of tubular steel. Mount 36 engages bearing 56 thereby allowing movement between rocker mount 36 and support members 32. The ends of mount 36 contain adjustable legs 53. These legs are fitted to mount 36 by unions 52, both mount 36, union 52 and legs 53 are threaded to allow movement of legs 53 within union 52.

In FIG. 7, the intercoupling between rocker mount 36 and the support members 32 can be clearly seen. Bar 54 is disposed between support members 32 and is preferably

made of steel to provide sufficient structural integrity. Bar 54 is disposed through bearing 56 and rocker mount 36. Bearing 56 may be any one of commonly utilized bearings such as a nylon bearing. Sleeves 34 which fit over bar 54 act as spacers to keep rocker mount 36 positioned approximately midway between support members 32. Thus, rocker mount 36 is able to move freely relative to support members 32 on bearing 56.

With reference to FIG. 1, the installation of the crib on the crib rocker can be readily understood. Crib 13 is shown resting on support arms 14. The support arms are adjusted by sliding the support arms along bolt 24 (FIG. 2) until the support arms have the same dimensions as the bottom of the crib. Pins 26 are placed into the sockets on the bottom of the cribs, the sockets being normally used for supporting rollers or casters.

With reference to FIG. 4, the motion of the crib and frame relative to the rocker mount can be readily visualized. As motor and gear train 38 turns, shaft 44 moves in the direction indicated by arrow 43. Bearing 48, which is located on the offset of shaft 44, forces lever arm 40 to move, thereby applying a force on bearing 46. Bearing 46 is rigidly mounted to rocker arm 36. The force applied against rocker arm 36 causes the support members 32 to move while the rocker mount remains firm against the floor. This occurs since a considerable portion of the weight of the crib is transmitted to mount 36 via bearing 56. The force required to move mount 36 from the floor is greater than the force required to rock the crib on curve members 12. Therefore, as motor and gear train 38 turns, the crib rocks on curve member 12 while rocker mount 36 remains securely against floor 16.

In FIG. 4, the total movement of the frame is shown by dimension 51. For the embodiment of the crib rocker herein disclosed, dimension 51 is approximately 2 1/4 inches.

It has been found by experimentation that shaft 44 (FIG. 4) turning at approximately 4.7 r.p.m. yields the most effective results on a child. Therefore, the motor and gear train 38 are geared to provide a rocking rate of approximately 4.7 r.p.m. translating to approximately 9 to 10 rocking motions per minute.

Thus, an automatic crib rocker has been disclosed which is suitable for rocking a variety of cribs without modification to the cribs and for providing a continuous and safe rocking rate for a child.

Although this invention has been disclosed and illustrated with reference to particular applications, the principles involved are susceptible of numerous other applications which will be apparent to persons skilled in the art. The invention is, therefore, to be limited only as indicated by the scope of the appended claims.

We claim:

1. An automatic crib rocker comprising:
 - a frame having a rectangular shape with curved members at opposite sides of said rectangle, said curved members being suitable for rocking and adjustable

support arms, adaptable for engaging the lower corners of different sized cribs;

a rocker mechanism for rocking said frame coupled to said frame;

whereby a crib coupled to said frame will be automatically rocked by said rocker mechanism.

2. The crib rocker defined in claim 1 wherein said support arms contain pins, coupled to said support member, suitable for engaging caster sockets on said crib.

3. The crib rocker defined in claim 2 wherein said rocker mechanism contains an electric motor for driving said rocker mechanism.

4. An automatic crib rocker comprising:

a frame having a rectangular shape with curved members at opposite sides of said rectangle, said curved members suitable for engaging a floor and rocking thereon;

a rocker mechanism for rocking said frame coupled to said frame comprising a support member coupled to said frame, an electric motor coupled to said support member, a rocker mount pivotably coupled to said support member and suitable for engaging a floor and for providing support between said floor and said rocker mechanism, and a drive train for driving said frame relative to said rocker mount, coupled to said rocker mount and said electric motor; whereby a crib coupled to said frame will be automatically rocked by said rocker mechanism.

5. The crib rocker defined in claim 4 wherein said frame is suitable for engaging the lower corners of a crib.

6. The crib rocker defined in claim 5 wherein the corners of said frame contain adjustable support arms coupled to said frame and suitable for engaging the lower corners of different size cribs.

7. The crib rocker defined in claim 6 wherein said support arms contain pins coupled to said arms suitable for engaging caster sockets.

8. The crib rocker defined in claim 7 wherein said frame is manually severable into a plurality of parts.

9. An automatic crib rocker comprising:

an adjustable frame adaptable for engaging the lower corners of different sized cribs, said frame having curved members on opposite sides of said frame, said curved members being suitable for rocking;

a rocker mechanism for rocking said frame coupled to said frame;

whereby a crib coupled to said frame will be automatically rocked by said rocker mechanism.

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U.S. Cl. X.R.

297-259