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**CRIB BOUNCER FOR TRANQUILIZING INFANTS**  
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6 Claims

### ABSTRACT OF THE DISCLOSURE

An attachment for a crib, comprising a housing that clamps onto the crib frame under the mattress-supporting springs. Inside the housing, an electric motor with speed-reduction gears turns a crank at about 60–80 r.p.m. A connecting rod connects the crank to a plate, which is inserted between the springs and mattress at the center of the crib. As the crank turns, the plate is moved up and down through a distance of about 1½ inches, pulling the spring and mattress downwardly at the center thereof and then allowing it to return by spring tension to its initial position to produce a gentle bouncing action.

### BACKGROUND OF THE INVENTION

This invention pertains to a device which can be mounted on any conventional infant crib having a mattress that is resiliently supported by springs, and which operates to bounce the infant gently and rhythmically in a manner closely simulating the way that a mother bounces a baby in her arms.

When an infant is laid down in its crib for a nap, the usual immediate reaction is for him to begin crying, and this may go on for long periods of time, until the infant either becomes tired and falls asleep, or until he is picked up again. Such crying can be nerve-racking and highly upsetting to adults, and particularly to inexperienced young couples who have just become parents for the first time. The usual result is that one or the other of the parents finally gives in and picks the infant up, thereby setting the precedent for many repeat performances of the same act in the future.

Apparently, such crying by the infant upon being laid down is partly due to the sudden cessation of all movement and sound, which causes him to realize that he has been suddenly abandoned by his mother. This seems to be confirmed by the widely observed fact that almost invariably, infants are quickly lulled to sleep by the gentle jostling and bouncing movement of an automobile in motion. Various attempts have been made in the past to produce a bouncing, or rocking, or side-to-side oscillation of the crib or cradle, in order to produce a movement simulating the movements that the baby associates with being held in his mother's arms.

Most of these prior attempts have been generally unsatisfactory, however, since rocking movements, or side-to-side swinging or swaying motions, cause the infant to roll slightly from one side to the other, which is disturbing and tends to prevent him from falling asleep. In other cases, the entire crib, or the entire mattress and spring has been bounced vertically, but this also is disturbing because the infant's head is bounced up and down through the same distance as the rest of his body. The most restful and soporific effect is obtained when the head is moved as little as possible, and most of the bouncing or rocking is confined to the lower part of his body. When an infant is bounced or rocked in his mother's arms, his head is pillowed against his mother's breast and remains relatively stationary, while the lower part of his body is cradled by her forearm and is bounced or rocked gently in a soothing manner.

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Ideally, the motion of the crib mattress and springs should closely simulate the type of movement the baby experiences in his mother's arms, but none of the prior art devices has come anywhere near approximating such motion. Another disadvantage of prior devices for rocking or bouncing a crib or cradle is that they have been complicated and expensive arrangements requiring specially-built cribs or cradles, and the cost of such devices puts them beyond the means of most young couples just starting their families. Moreover, many young couples acquire conventional cribs or cradles as gifts from families or friends, and it would be difficult in most cases to justify buying a second crib or cradle, merely because the second has a bouncing action, and the first does not.

As a consequence of all these factors, prior devices for rocking or bouncing cradles or cribs have never become popular, and are practically unknown on the market at this time.

### SUMMARY OF THE INVENTION

The primary object of this invention is to provide a simple, inexpensive attachment that can be quickly and easily mounted on any conventional crib or cradle, and that acts upon the center of the spring-supported wire network upon which the mattress rests, in such a way that an infant lying on the mattress is gently bounced up and down in a manner closely simulating the motion of his mother's arms.

Another important object of the invention is to provide a device of the character described which does not require a specially-built crib, nor does it require any modification of the conventional crib upon which it is used.

A further object of the invention is to provide an attachment for bouncing an infant in his crib, which is completely safe and free of any hazards; inexpensive to manufacture; simple and easy to install; and unobtrusive in appearance.

Still another object of the invention is to provide a device of the character described which can be adjusted to speed up or slow down the bouncing rate, and which can be set to turn off at any desired time.

These and other objects and advantages of the invention will become apparent to those skilled in the art from the following detailed description of the preferred embodiment thereof, which is illustrated in the drawings.

### DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation of a crib having the attachment of the present invention mounted thereon;

FIG. 2 is an enlarged sectional view taken at 2—2 in FIG. 1; and

FIG. 3 is a further-enlarged sectional view, taken at 3—3 in FIG. 2.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the drawings, the reference numeral 10 designates a conventional crib, having four legs 12, barred sides 14, and a horizontal mattress-support 16, upon which the mattress 18 rests. The support 16 is formed by a rectangular frame of angle irons 20 having inwardly projecting horizontal top flanges 21, which are apertured at intervals along their lengths to receive the ends of coil springs 22. The other ends of the springs 22 are hooked over the edges of a wire link network 24, and the latter is stretched taut across the rectangular space between the angle irons.

The device of my invention is designated in its entirety by the reference numeral 26, and comprises an elongated housing 28, which is clamped transversely to the underside of the crib 10, as shown in FIGS. 1 and 2. The housing 28 is preferably made of molded plastic in the configuration shown in the drawings, although it may take

other forms, as well. The housing 28 is open at the top, and this opening is closed by a removable cover plate 30, having downwardly turned flanges along both sides thereof, which extend down over the sides 32 of the housing. At opposite ends of the housing 28 are vertical end plates 34 which extend up against the inside faces of vertical flanges 36 of angle irons 20, and abut against the underside of horizontal flange 21. Clamped flat against the outer face of the vertical flange 36 is an inverted, L-shaped bracket 38 having an inwardly bent horizontal flange 40 at the top edge thereof which overlies the top surface of flange 21. Bracket 38 is clamped to the end plate 34 by screws 42 and nuts 44, with a spacer washer 46 between them, said washer being of the same thickness as flange 36.

Mounted within the housing 28 on an angle bracket 48 is a variable speed electric motor 50 having an integral gear box 52 containing speed-reduction gears (not shown) which drive a horizontally projecting output shaft 54 at a top speed of about 100-120 r.p.m. Fixed to the outer end of drive shaft 54 is a crank arm 56 having a crank pin 58. One end of a connecting rod 60 is journaled on the crank pin 58, with its other end projecting upwardly through an opening 61 in cover plate 30 and journaled on a similar pin 62 projecting laterally from an angle bracket 64. Bracket 64 is mounted on the underside of a plate 66.

Plate 66 is a part of an assembly 68 that is attached to, or supported on, the wire link network 24 at approximately the center thereof. Assembly 68 includes an upper flat plate 70, that rests on top of the network 24, and projecting downwardly from the underside of plate 70 is a cylindrical boss 72 having a tapped hole in the center thereof. A threaded stud 74 projects upwardly from the top surface of plate 66, and this is screwed into the tapped hole to join plate 66 to upper plate 70 and boss 72. An accordion-pleated rubber boot 76 surrounds the top end of the connecting rod 60 and bracket 64, and the upper end of the boot is cemented at 78 to the underside of plate 66, while the lower end is cemented at 80 to the top side of cover plate 30.

Electricity to drive the motor 50 is transmitted to the motor through a wire 82, which passes through a rubber grommet 84 in the bottom of housing 28. Wire 82 is connected to a control box 84 having two control knobs 86 and 88. Knob 86 is connected to a clockwork timing mechanism (not shown) contained within the box 84, which shuts off the motor 50 at any desired time. Knob 88 is connected to a motor speed control device (not shown) within the box, which regulates the speed of motor 50. The said speed control device may be a voltage and/or current regulator, such as a variable potentiometer, variable AC transformer, or rheostat. Control box 84 is connected by an extension wire 90 to any suitable outlet.

The installation and operation of my invention is as follows: Housing 28 is mounted on the underside of crib 10 by loosening screws 42 so that end plates 34 can be inserted against the inside face of vertical flanges 36 of the angle irons 20, which the bracket 38 overlies the outside face of flange 36, as shown in FIG. 2. The screws 42 are then tightened, thereby clamping the housing to the angle irons. Upper plate 70 is unscrewed from the stud 74, and is placed on top of the wire link network 24 approximately at the center thereof and directly over the lower plate 66, with boss 72 projecting downwardly through the space between wire links. Plate 70 is then turned down onto the stud 74, and the unit is ready for operation. The mattress 18 is then placed on the wire network 24, and the bedding is replaced on the mattress.

When the infant is placed in the crib, his head is at one end thereof, and only the lower part of his body is in the center of the crib, directly over the assembly 68. As the motor 50 turns the shaft 54, crank 56 and connecting rod 60 pull assembly 68 downwardly, depressing the center of the wire link network 24 and stretching the

springs 22. Upward movement of the connecting rod 60 allows the wire network 24 to return to its original flat condition under the pull of springs 22. The center-to-center distance of crank pin 50 from drive shaft 54 is preferably about  $\frac{3}{4}$  inch, so that the total vertical travel of the assembly is about  $1\frac{1}{2}$  inches. Normally, the speed of motor 50 would be adjusted to drive the crank at about 100 r.p.m. using the speed control knob 88 desired, the motor can be speeded up or slowed down to produce the optimum bounce frequency. Timer knob 86 can be set to shut off the motor at any desired time after sufficient time has elapsed for the infant to go to sleep.

As the infant's head is at or near one end of the crib, it rests on a relatively stationary part of the mattress, and therefore is least disturbed by the bouncing motion. Only the lower part of his body is directly over the assembly 68, where the vertical bounce is most pronounced. In addition to rhythmically bouncing the infant, the unit gives off a muted rhythmic whirring sound from the gear-box 52, which also has a soporific effect.

While I have shown and described in considerable detail what I believe to be the preferred embodiment of my invention, it will be understood by those skilled in the art that the invention could take various other forms. The term "mattress support spring" as used in the claims refers to the wire link network 24 and its springs 22, which cooperate to provide spring support for the mattress.

I claim:

1. A crib bouncer attachment for use with a conventional crib having a frame, a mattress-support spring mounted on said frame, and a mattress resting on said spring, said attachment comprising:

a housing disposed beneath said mattress-support spring; a motor mounted within said housing; a member connected to said spring near the center thereof; and

means connected to said member and driven by said motor for periodically moving said member up and down, thereby bouncing the center of said spring and mattress at a rate corresponding approximately to the rate at which an infant is normally bounced in the arms of an adult, the ends of said mattress and spring being bounced at a relatively lesser amplitude than the center portion thereof, whereby the infant's head is bounced less than the lower part of his body.

2. A crib bouncer attachment as in claim 1, wherein said means comprises a crank arm connected to the output shaft of said motor, and a connecting rod connecting the outer end of said crank arm to said member.

3. A crib bouncer attachment as in claim 2 wherein said member comprises a flat plate disposed between said mattress and said spring, and the upper end of said connecting rod is connected to a pin on the underside of said plate.

4. A crib bouncer attachment for use with a conventional crib having a frame, a mattress-support spring mounted on said frame, and a mattress resting on said spring, said attachment comprising:

a housing disposed beneath said mattress-support spring;

a motor mounted within said housing;

a member comprising an upper plate and a lower plate; said upper plate being disposed between said mattress and said spring near the center thereof; and

said upper plate being detachably connected to said lower plate through said mattress-support spring;

a crank arm connected to the output shaft of said motor; and a connecting rod connecting the outer end of said

crank arm to said member, said connecting rod being connected to a pin on the underside of said lower plate, whereby the center of said spring and mattress is bounced up and down at a rate corresponding approximately to the rate at which an infant is normally bounced in the arms of an adult, the ends of said mattress and spring being bounced at a relatively

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lesser amplitude than the center portion thereof, so that the infant's head is bounced less than the lower part of his body.

5. A crib bouncer attachment as in claim 1, wherein said housing is detachably clamped to the underside of said frame and extends transversely across the width of said crib beneath said mattress-support spring. 5

6. A crib bouncer attachment as in claim 1, wherein said motor is an electric motor; and an interval timer connected to said motor and operable to turn the motor off after a predetermined interval of time. 10

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