June 19, 1951 J. M. CRANFILL, JR., ET AL 2,557,907

NURSERY CRADLE

Filed March 21, 1949

FIG. 1

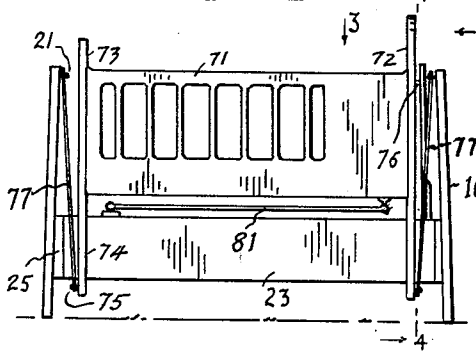


FIG. 2

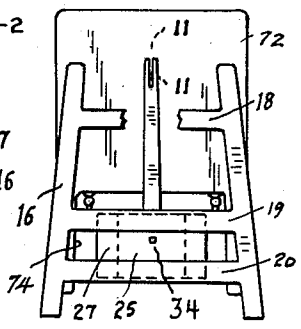


FIG. 4

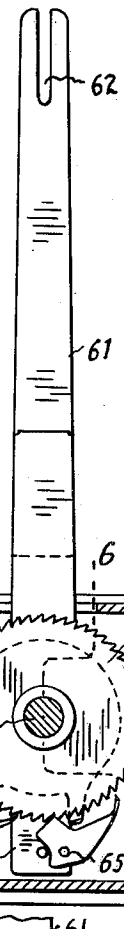


FIG. 3

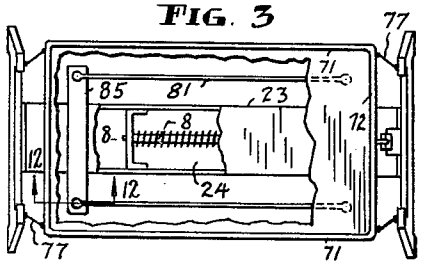


FIG. 11

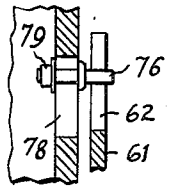


FIG. 8

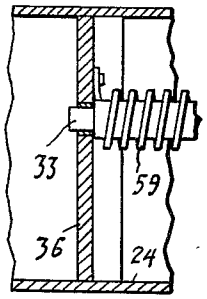


FIG. 6

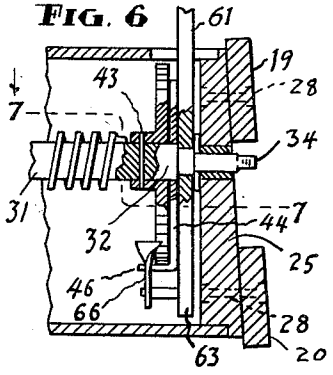


FIG. 10

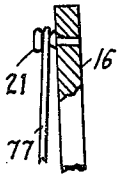


FIG. 9

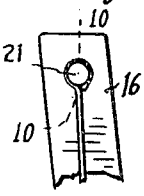


FIG. 7

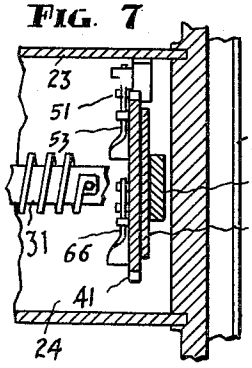


FIG. 5

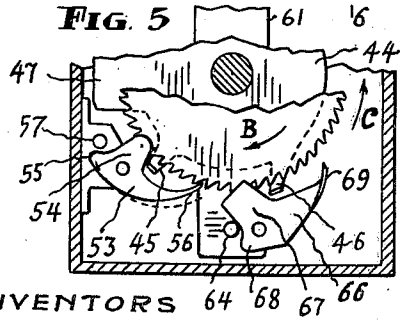
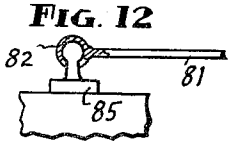


FIG. 12



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NURSERY CRADLE

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Application March 21, 1949, Serial No. 82,654

1 Claim. (Cl. 5—109)

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This invention relates to improvements in cradles. Our object, broadly stated, is to provide a cradle device especially intended for the nursery, a device to include a frame structure, a crib suspended thereby, and a power mechanism to sway said crib, the several parts of the device being so arranged and combined that at any time during the period of operation of the device, the swaying motion of the crib may, by the user, easily be interrupted, and after interruption, be as easily caused to resume.

The said general object, and also certain specific aims as will presently appear and which are devoted to structural features and improvements looking to economy of manufacture, facility in merchandising, and to convenience in the installing and use of the device, are accomplished by, and our invention is embodied in the new construction, combination and arrangement of parts illustrated in the accompanying drawings and described in the following specification.

The several parts of the invention as same appear in the different views in the drawings are identified by suitable characters of reference applied to them.

Figure 1 is a side view of our improved nursery cradle device.

Figure 2 is an end view in the direction of arrow 2 in Figure 1, a portion of the upper cross member of the frame being broken away.

Figure 3 is a top plan view in the direction of arrow 3 in Figure 1, a portion of the floor of the crib, and a portion of the top of the frame strut being broken away.

Figure 4 is an enlarged cross section view taken on the broken line 4—4 in the direction of arrow 4 in Figure 1.

Figure 5 is an enlarged view of the lower portion of Figure 4.

Figure 6 is a vertical longitudinal sectional view taken on broken line 6—6 in the direction of arrow 6 in Figure 4.

Figure 7 is a sectional top plan view taken on broken line 7—7, in the direction of arrow 7 in Figure 6.

Figure 8 is an enlarged longitudinal sectional view taken on broken line 8—8 in Figure 3.

Figure 9 is a detail view of upper portion of inner face of frame member.

Figure 10 is a cross section view on line 10—10 in Figure 9.

Figure 11 is an enlarged vertical sectional view taken on broken line 11—11 in Figure 2.

Figure 12 is an enlarged longitudinal sectional view taken on broken line 12—12 in Figure 3.

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The several parts of the frame structure, and of the crib structure, may be made of suitably selected strong light material, as of hard wood. Each of two similar upright frame-like structures and which we designate as standards, consists of upright side members 16, an upper cross member 18, and lower cross members 19 and 20. At the inner face of the upper portion each, of said side members, is a groove headed wrist pin or screw 21, as indicated in detail at Figure 10.

A longitudinal strut frame which is of box like formation consists of sides 23 and bottom 24, their ends secured to the marginal edges of rectangular end plates 25 which have lateral extensions 27. The outer faces of said end plates are of beveled formation so that when they are secured to the lower members 19 and 20, as by bolts 28, the said standards are securely braced in the suitably spaced relation and inclined slightly toward each other as shown in Figure 1.

A power mechanism consists of a shaft 31 which embodies at its head end a spindle 32, and at its tail end a spindle 33, said spindles being pournaled in bearings therefor in the end plate 25 and in the tail plate 36. The end portion 34 of spindle 32 is angular in cross section for accommodation of an implement as a winding key (not shown).

A ratchet wheel 41 has its hub secured to the head end of said shaft 31, as by a cross pin 43. Journaled on the spindle 32 and immediately adjacent to said ratchet wheel is a disk like shift plate 44 which embodies a protruded release lug 45 and, spaced therefrom, a protruded click lug 46, the end portion of each of said lugs being directed at an oblique angle to the vertical plane of said plate. Spaced from said lug 45 is an ear 47. A coil spring 48, its one end secured to said ear and its other end secured to a bracket 49 that is integral with the side plate 23 of the strut frame, urges the shifter plate in the direction of arrow A (see Figure 4).

Pivotally mounted on a pin 51 which projects from a bracket 52 that is secured to the frame plate 23 is a pawl 53 which has leg 54, heel 55 and nose 56. The said leg is in the path of lug 45 and said pawl is of structure that it drops by gravity to broken line position, its downward movement being limited by stop 57 that projects from said bracket 52 and which is engaged by the heel 55 of said pawl. By the pull of spring 48, and by the impingement of lug 45 against the leg 54 of said pawl, the nose 56 of said pawl is held engaged with a tooth of the ratchet wheel, and whereby said ratchet wheel is held against

the urge of helical drive spring 59 which has its one end connected to the shaft 31 at its head end, and its other and connected to the tail plate 36.

A lever which is pivotally fulcrumed on said spindle 32 and is directed upwardly and in immediate adjacency to the said shifter plate, has its upper arm provided with a central longitudinal slot 62. The lower arm 63 of said lever is provided with a stud 64. Pivoted on a pin 65 which is spaced from said stud, is a dog 66 with leg 67, heel 68, and nose 69 as shown in Figures 4 and 5. The leg 67 of said dog is in the path of the click lug 46, and its heel 68 is engageable by the stud 64. The said dog, by gravity, is in position with its nose disengaged while the lever is in the neutral or median position, as indicated in Figure 4.

A crib, rectangular in plan formation, and with sides 71, head 72, and foot 73, embodies at each corner thereof a downwardly leg 74. Each of said legs is provided at its bottom with a wrist pin 75, similar in form to the wrist pin shown at Figure 10.

At the head 72 of said crib, at suitable height thereon, and near the horizontal plane of the wrist pins 21, is a pintle 76 which is received in the slot 62 of the upper arm 61 of the aforesaid lever, as indicated in Figure 11. Said pintle is capable of being adjusted to and secured at desired height in the slot 78 in the head of the crib, as by set nut 79.

Suspender members, each consisting of a wire 77 embodying an eye at each end, have their said eyes engaged loosely with the wrist pins 21 of the standards, and with the wrist pins 75 of the legs of the crib. The crib thus in suspension is in true, balanced, horizontal position as indicated in Figure 1 and it is capable of being swayed floatingly from side to side in substantially a horizontal plane.

Parallel bars 81 with their ends pivotally connected as by ball and socket bearings 82 to the edge portions of the underside of the head end of the crib, and to the ends of a cross bar 85 that is secured to the strut frame (see Figure 3) serve to prevent any tendency of the crib to swerve from its true longitudinal alignment.

Torque of the ratchet wheel is in the direction of arrow B (see Figures 4 and 5). Said wheel is held against movement in the direction of said arrow B by the pawl 53. By applying a key to the spindle head 34 of shaft 31 and turning in the direction of arrow C, the shifter plate and its lug 45 yielding and permitting the pawl to lower slightly, the spring 59 is wound.

So long as the lever is in the substantially vertical position, as indicated at Figure 4, the pawl 53 is engaged with the ratchet wheel. At the same time, the dog 66 by gravity is in the low position, its leg 67 being engaged by the click lug 46 of the shifter plate and the other edge of said leg is in engagement with the stud 64 of the lower arm 63 of said lever and the nose 69 is free.

A push manually against the crib or against the arm 61, thereby the said arm being moved from the neutral position, stud 64 of the arm 63 therefore impinging against heel 68 of dog 66, and the leg 67 of said dog therefore becoming impinged against the click lug 46 of the shifter plate, the said dog is swung upwardly, its nose 69 coming into engagement with a tooth of the ratchet wheel. Concurrently the shifter plate will have been urged in the direction of arrow C, the lug 45 of said plate becoming disengaged

from the leg 54 of the pawl 53 thereby permitting the pawl 53 to drop, its nose thereby becoming disengaged from the ratchet wheel. The ratchet wheel thus being freed, it then, by the energy imparted by the drive spring 59, moves in the direction of arrow B and impels the lever arm 63 to the left and which carries the upper arm 61 to the right.

In this action the ratchet wheel will have moved the distance of one tooth. At the same time the spring 48 will have caused the shifter plate to move in the direction of arrow A, thus the lug 45 being moved into impingement with leg 54 of pawl 53 and returning its nose to engagement with and holding the ratchet wheel against the urge of said drive spring 59.

During these occurrences the crib will have floatingly swayed from neutral position to end of left stroke, thence from left to the end of right stroke. In the sway of the crib to the left the lever is moved by the energy imposed against it by the moving crib. In the sway of the crib to the right the said lever is moved by the energy imparted to arm 63 thereof by the spring driven ratchet wheel acting through the dog 66.

The sway of the crib is floatingly from side to side and it will continue during the energy period of the drive spring.

The action of the lever and therefore of the crib may be arrested simply by the user stopping the lever or the crib when the lever is at median position.

The crib and the several parts of the mechanism then remain static. In this interval the device lends itself to the convenience of the user in properly caring for the infant. Resumption of the swaying of the crib is had by simply imparting an impulse to the crib or to the lever whence the lever leaves the neutral position, the several parts of the driving mechanism then again function, and the crib is floatingly swayed in the manner above described. The device is strong and durable and not liable to get out of order or repair. It operates quietly and dependably, and in the size as depicted in the drawings wherein the crib is about eighteen inches in width and thirty four inches in length, will carry a load of thirty to forty pounds, and with one winding of the spring will function over a period of around two hours.

It will be understood that the embodiment of our invention as herein described and as illustrated in the drawings, is typical, and that minor modifications in features of construction and detail may be made without departing from the spirit or principle of our invention or sacrificing any of its advantages.

What we claim as our invention is:

A cradle device of the kind described comprising spaced confronting standards, a strut frame interjoining said standards at their lower portions to secure them in their positions, a longitudinal shaft journaled in said strut frame, a ratchet wheel secured to said shaft, means to urge said ratchet wheel rotatively in one direction, a lever fulcrummed on said shaft in immediate adjacency to said ratchet wheel and directed upwardly its upper arm being elongated, a dog pivoted on a side of the lower arm of said lever and having a leg and heel, a stud on said lower arm and which is engaged by the heel of said dog, a pawl pivoted on said strut frame and in position adjacent to said ratchet wheel and having a leg and heel, a stop in fixed position on said strut frame and in the path of the heel

of said pawl, a shifter plate journaled on said shaft and positioned between the ratchet wheel and said lever, said shifter plate having a click lug adjacent to the leg of said dog, and a release lug adjacent to the leg of said pawl, means to urge the shifter plate in direction same as of the ratchet wheel thereby to hold the pawl engaged with the ratchet wheel and resist said urger means and hold said ratchet wheel against movement, a crib, suspensory means to suspend it at a plane above the strut frame for swaying, elongated parallel members each pivotally connected at an end thereof to an edge portion of the underside of the crib and at the other end thereof pivotally connected to the strut frame, and a pivotal device slidingly interconnecting the head end of the crib with the free end of said lever, whereby when impulse is imparted to the crib the dog is caused to move to engagement with the ratchet wheel and the pawl to

disengagement from the ratchet wheel, said ratchet wheel thereby being permitted to move, the pawl then being returned to turned position engaged with the ratchet wheel and the dog dropped to position disengaged from the ratchet wheel, the crib having moved toward one end of sway, thence toward other end of sway.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Country	Date
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