

March 19, 1935.

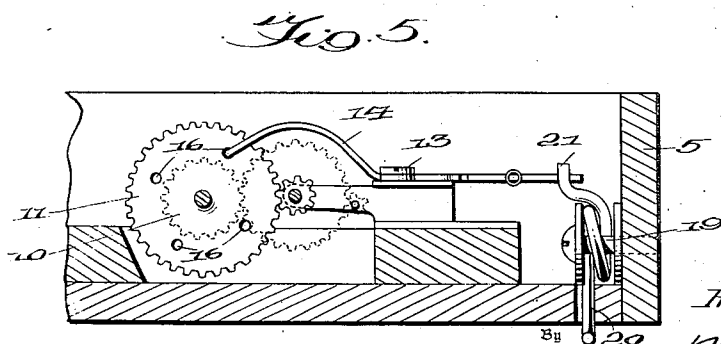
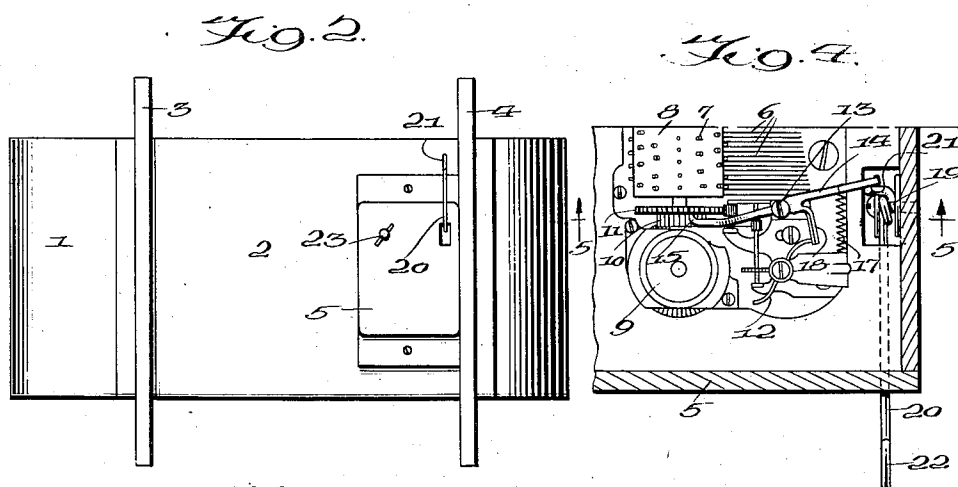
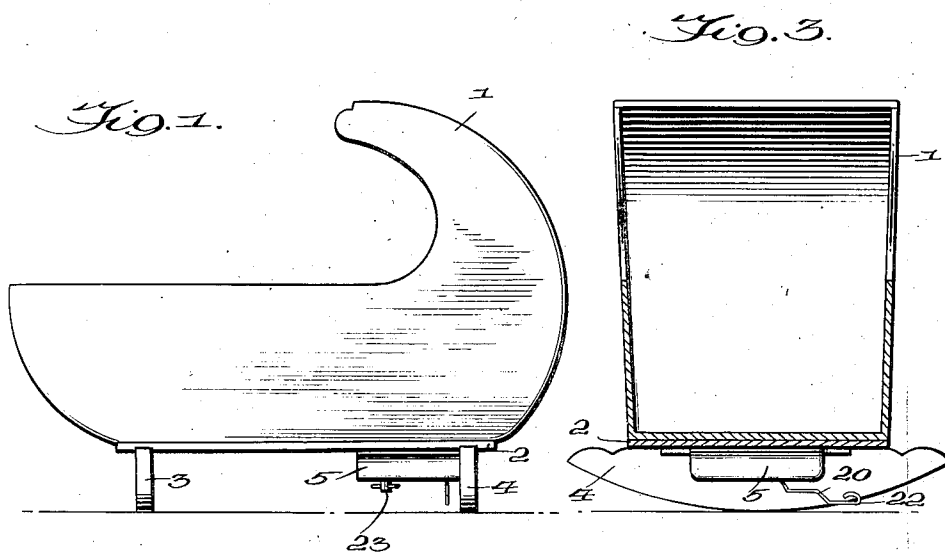
R. G. KRUEGER

1,994,954

MUSICAL TOY

Filed Aug. 28, 1933

2 Sheets-Sheet 1



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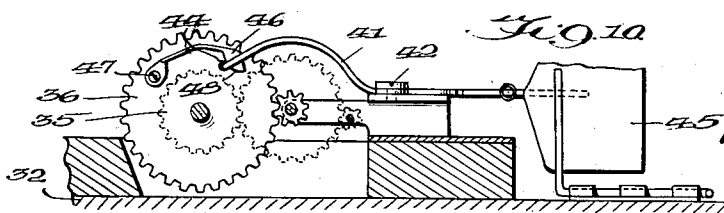
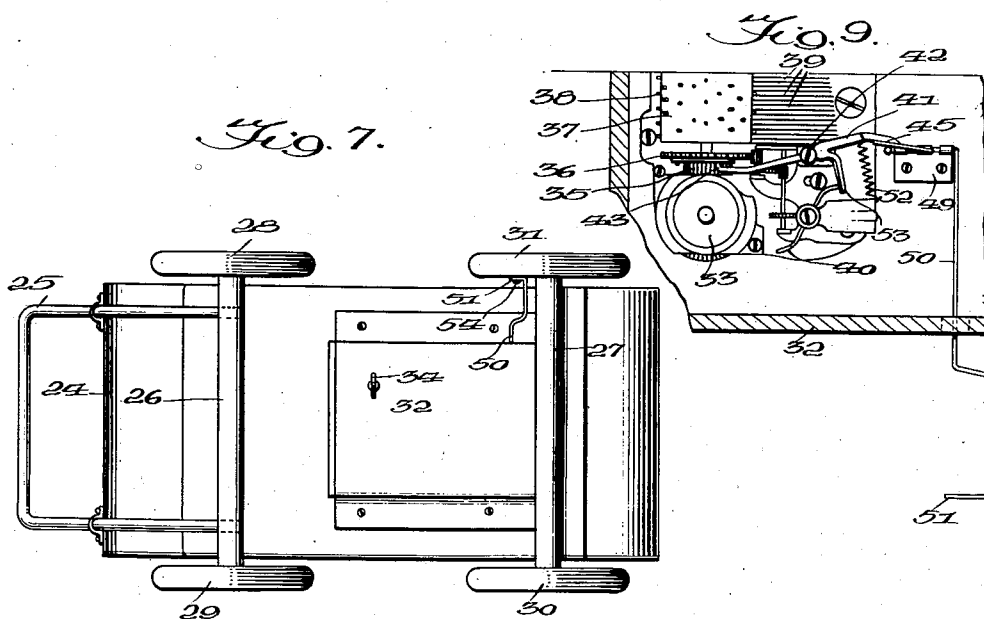
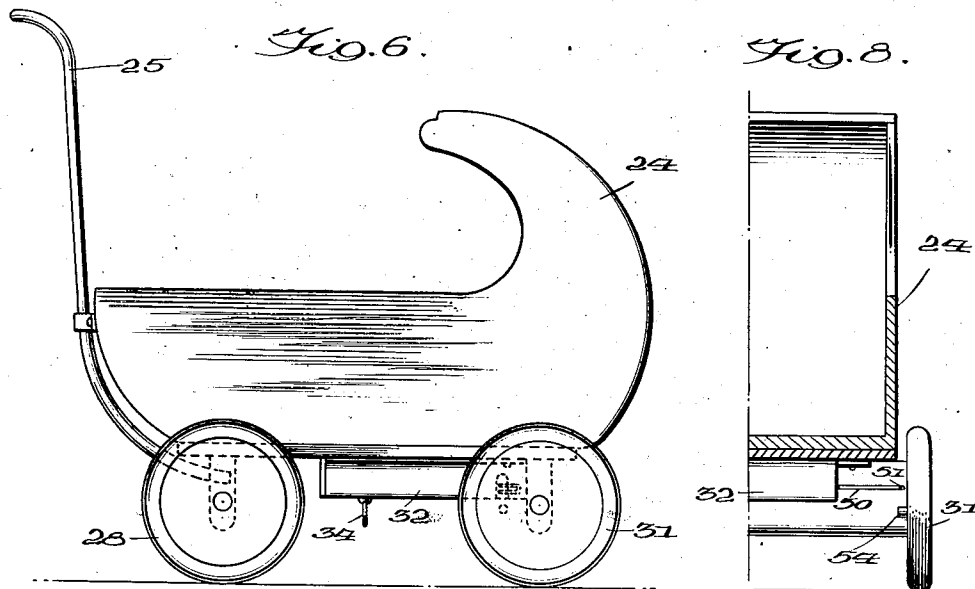
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,994,954

MUSICAL TOY

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Application August 28, 1933, Serial No. 687,222

16 Claims. (Cl. 46—46)

My invention relates to a musical toy which is best exemplified as applied to a doll cradle or a toy doll carriage.

An object of the invention is to provide a musical toy which affords entertainment for a child and which may be manipulated by the child to cause a musical device to be operated.

Another object of the invention is to provide a child's doll carriage or doll cradle which accompanies by music the rocking of the cradle or the rolling of the doll carriage upon a surface.

A further object of the invention is to provide a device of this type which is constructed of a minimum number of parts and which is not liable to need frequent repairs.

Other objects of the invention will appear hereinafter throughout the specification.

In the drawings:—

Fig. 1 is a side elevation of a doll cradle of the rocking type with a musical appliance embodying my invention attached thereto, and forming part thereof;

Fig. 2 is a bottom plan view of the invention shown by Fig. 1;

Fig. 3 is a vertical sectional view of the invention disclosed in Fig. 1;

Fig. 4 is a view partly broken away, disclosing the music box and operating means therefor;

Fig. 5 is an enlarged vertical section of certain of the parts of the music box taken on the line 5—5 of Fig. 4;

Fig. 6 is a side elevation of another form of musical appliance embodying my invention, as applied to a child's doll carriage;

Fig. 7 is a bottom plan view of the invention shown by Fig. 6;

Fig. 8 is a partial vertical sectional view of the invention disclosed in Fig. 6;

Fig. 9 is a view partly broken away, disclosing the music box and operating means therefor, and

Fig. 10 is an enlarged vertical section of certain of the parts of the music box shown by Fig. 9.

Referring to Figures 1 to 5 of the drawings, 1 indicates a child's doll cradle having a base portion 2 to which are attached rockers 3 and 4. Fastened by screws or other suitable means not shown to the base 2, is a music box. This music box consists of a case or cabinet 5 contrived to produce melodies. Notes are produced by the vibrations of steel teeth 6 struck by minute pegs 7 projecting from the surface of the revolving cylinder 8. The box 5 is mounted adjacent either one of the rockers 3 or 4, being shown in the drawings as mounted adjacent to rocker 4. The music box includes a suitable spring

motor or other driving motor, indicated at 9, which drives, through suitable gearing 10, the cylinder 8. The motor also drives, through the gear 11 mounted rigid on the cylinder 8, escapement mechanism designated by the numeral 12. Pivotaly mounted upon the frame of the motor at 13 is an arm 14, which has a hooked end 15, said hooked end being adapted to engage in any one of a number of holes 16 which have been drilled into or through the gear 11.

During the playing of the music, said hooked end 15 will ride on the flat side surface of the gear 11 until one of the holes 16 comes opposite the hooked end 15. Due to the fact that the arm 14 is continuously urged in a clockwise direction by the action of spring 17, said hook will immediately become engaged in the hole 16 when it comes opposite the hooked end, and thus stop operation of the mechanism, unless the arm 14 is at this time moved in a counter-clockwise direction by the means hereinafter described. There is a brake arm 18 forming part of the arm 14 which is adapted to engage the rotating escapement mechanism 12 when the hooked end 15 engages in one of the holes 16. When the arm 14, therefore, rotates in a clockwise direction, the hooked end 15 engages in one of the holes 16 and simultaneously the arm 18 comes in contact with the escapement mechanism, thus forming a double stop device preventing further playing of the music.

Mounted upon the pivot 19 is an arm 20. Said arm 20 has an end 21 which is adapted to engage the right hand end of the arm 14 when actuated. The opposite end 22 of the arm 20 extends slightly below the curved portion of the rocker 4, and slightly to one side of the center thereof. The spring motor is adapted to be wound by a key 23.

The operation of the device is as follows:—

When the musical toy is in the position indicated in Fig. 3, the arm 20 is in its lowermost position, the end 22 projecting below the bottom portion of the rocker 4. In this stationary position the hooked end 15 of the arm 14 has engaged in one of the holes 16 and the brake 18 has engaged the escapement mechanism 12, thus preventing operation of the musical box while the cradle remains stationery. When the cradle is moved by a child and given a rocking motion, the end 22 of the lever 20 engages the surface of the floor or ground, the lever 20 being rotated in a counter-clockwise direction as viewed in Fig. 3. The opposite end 21 of the lever 20 engages the lever 14, and moves the same in a counter-clockwise direction for a distance suffi-

cient to disengage the nose or projection 15 from one of the holes 16, with which it has been in engagement, and to disengage the brake 18, from engagement with the escapement mechanism 12. The music now starts to play and will continue to play as long as the cradle is rocked.

During the playing of the music, the end 15 rides upon the side surface of the gear 11. However, unless the cradle is continuously rocked, after a short interval the end 15 will again engage in one of the holes 16 and the brake will be applied to the escapement mechanism, thus stopping the playing of the music box. It will be seen, therefore, that it requires the entire attention of the child to operate the cradle in order to keep the music continuously playing. The child soon learns that only when the cradle is continuously rocked will the music continue to play, for as soon as the cradle is no longer rocked, it will assume a position indicated in Fig. 3, in which the arm 20 reaches its ultimate position in a clockwise direction. This is for the reason that the arm 20 has its greater weight on that side of the pivot having the end 22, and because of the weight being on this side of the pivot, the arm tends to rotate in a clockwise direction, thus allowing the spring 17 to move the lever and its hooked end 15 in a clockwise direction so that said hooked end may engage one of the holes 16.

Due to the construction above described, the music will be started as soon as the cradle is started rocking, but the music will almost immediately stop unless the rocking of the cradle is continued.

Fig. 6 illustrates another form of my invention as applied to a doll carriage. In this construction, the numeral 24 indicates a doll carriage having a handle 25 for pushing the same. Mounted beneath the carriage upon suitable supports, are the axles 26 and 27, which support the wheels 28, 29, 30 and 31. Mounted adjacent one of the axles is the music box 32. The music box is provided with a spring or other motor 33. The spring motor may have a suitable winding key 34 which drives the gears 35 and 36, rigidly attached to the drum 37. The drum 37 is provided with pegs 38 which engage teeth 39, which produces a musical tune when the drum is rotated. The gear 36 drives suitable escapement mechanism designated by the numeral 40. There is an arm 41 pivoted at 42 and provided with a hook portion or nose 43, which is adapted to engage in a hole 44 which has been drilled in the side face of the gear 36. The opposite end of the arm 41 is provided with a free end 45. There is a pivoted cover member 46 which is pivotally attached at 47 to the gear 36. The end portion of the cover 46 covers the hole 44 when the hooked end 43 is not engaged with the hole 44. The cover 46 is provided with a cam portion 48.

Pivotally mounted at 49 is a lever 50 having a hooked end 51. As shown in Figs. 6 to 10 of the drawings, the lever 41 is normally urged in a clockwise direction by the spring 52, so that as soon as the hole comes opposite the hooked end 43, said end will engage in the hole in the gear 36 and stop movement of the gear. At the same time, the brake 53 engages the escapement mechanism 40, thus stopping movement of this mechanism. Due to the fact that the heaviest part of the arm 50 is on the opposite side of the pivot from that which is adapted to engage the arm 44, said arm will by gravity assume a position which will allow the arm 44 to be moved to its ultimate position in a clockwise direction by the

spring 52. Thus, unless the arm 50 is raised, the arm 44 will not be moved in a counter-clockwise direction to allow the escapement mechanism to operate and the drum 37 to rotate.

Mounted on one of the wheels, as wheel 31, is a stud 54. When the wheel 31 is rotated the stud 54 engages the hooked end 51 of the arm 50, thus raising said arm against the action of gravity and rotating the arm 42 is a counter-clockwise direction against the tension of spring 52, withdrawing the nose from the gear 36 and allowing the playing of the music. As soon as the nose 43 is withdrawn from the hole 44, said nose continues to ride upon the side surface of the gear 36, and one or more tunes or pieces are played, during the complete rotation of the drum. As the nose continues to ride on the gear 44, it will engage the cam surface 48 of the cover 46, and lift said cover at the end of the complete rotation of the drum 37, provided the lever 50 has not been again rocked by engagement of the stud 54 with the end 51 of said lever. If the lever has been again rocked, the nose 44 is pulled away from the side face of the gear because of the rotation of the lever 41 in a counter-clockwise direction. This occurs, however, for a short time only, and the lever is again released, this time the nose coming in contact with the face of the cover 46. It is thus prevented from entering the hole 44 because this hole is now covered by the cover 46. It has been found in practice that if the doll carriage is continuously rolled, the nose 43 will not enter the hole 44 as it will be prevented from engaging the cam 48, it being lifted before it can engage the cam, and released to contact the face of the cover 46, which at that time is covering the hole 44. The music box operates, therefore, provided the carriage is continuously rotated, as long as the spring motor rotates the gears 35, 36 and drum 37. This is due to the fact that the wheel 31 is ordinarily moved a good deal faster than the gear 36. As the nose 43 approaches the hole 41, the nose is lifted away from the hole because the wheel 31 will ordinarily make several revolutions as the nose approaches the hole 44 and said nose will be lifted away from the cam face 48 and returned to the side face 46, if the wheel 31 is rotated as the nose 43 approaches the hole 44.

In both exemplifications of my invention illustrated in the drawings, the base of the cradle and the doll carriage forms a sounding board which greatly enhances the musical qualities of the music box.

I have illustrated two embodiments of my invention, it being understood that my invention is capable of application to various rocking, rolling, or other movable toys, and that the invention is not to be limited to the embodiments shown, but only as defined in the following claims.

I claim:—

1. A musical toy having, in combination, a receptacle for a figure toy, a music box attached thereto and normally held against operation, and releasing means actuated by movement of said receptacle to initiate the playing of said music box, ground engaging means adapted to be actuated upon manual movement of said receptacle, said last named means operating said releasing means.

2. A device of the class described having in combination, a receptacle, a music box attached thereto, detent mechanism for preventing the operating movement of said music box, and means engaging the ground operated by manual

movement of said receptacle to release said detent mechanism and permit the music box to operate.

3. A musical toy having, in combination, a receptacle for a figure toy, a music box attached thereto, said music box including a rotary gear, an escapement mechanism, and means engaging the ground actuated by movement of said receptacle for releasing said gear and said escapement mechanism to initiate the playing of said music box.

4. A musical toy having, in combination, a doll cradle, rockers mounted on said cradle, a music box attached thereto and releasing means actuated by movement of said cradle to initiate the playing of said music box, and a ground engaging means for actuating said releasing means.

5. A musical toy having, in combination, a doll carriage, a music box attached thereto, wheels attached to said doll carriage, and releasing means actuated by one of said wheels to initiate the playing of said music box, and a ground engaging means for actuating said releasing means.

6. In a device of the class described, in combination, a doll cradle, rockers mounted on said cradle, a music box attached to said cradle, detent mechanism for preventing the operating movement of said music box, and ground engaging means mounted adjacent one of said rockers to release said detent mechanism and permit said music box to operate.

7. In a device of the class described, in combination, a receptacle for a figure toy, a music box attached thereto, said music box having a rotary drum, a gear rigidly attached thereto, a plurality of apertures in said gear, a detent having an end portion adapted to engage in one of said apertures, and means engaging the ground operated by manual movement of said receptacle to release said detent mechanism from one of said apertures and permit the music box to operate.

8. In a device of the class described, in combination, a doll carriage, a music box attached thereto, said music box having a rotary drum and a gear rigidly attached to the same, said gear having an aperture therein, detent mechanism having means engaging said aperture for preventing the operating movement of said music box, and ground engaging means operated upon movement of said doll carriage to release said detent mechanism and permit the music box to operate.

9. A device of the class described, having in combination, a doll carriage, a music box attached thereto, said music box including a motor, a rotary member attached to said motor, detent mechanism adapted to engage said rotary member for preventing the operating movement of said music box, and ground engaging means operated upon movement of said doll carriage to release said detent mechanism and permit the music box to operate.

10. A device of the class described having, in combination, a doll carriage, a music box attached thereto, said music box including a rotary member, said rotary member having an aperture therein, a cover member for said aperture, detent mechanism adapted to move said cover mechanism and to enter said aperture for preventing the operating movement of said music box, and ground engaging means operated upon

movement of said doll carriage to release said detent mechanism from said aperture and permit the music box to operate.

11. A device of the class described having, in combination, a doll carriage, a music box attached thereto, said music box including a motor, a rotary member attached to and driven by said motor, said rotary member having an aperture, a cover for said aperture, said cover having a cam surface, detent mechanism adapted to actuate said cam mechanism to move said cover and to enter said aperture, and ground engaging means operated upon movement of said doll carriage for preventing actuation of said cam mechanism and allowing said detent mechanism to bear against said cover and permit the music box to continue to operate.

12. A device of the class described having, in combination, a doll cradle, a plurality of rockers mounted on said doll cradle, a music box attached thereto, detent mechanism for preventing the operating movement of said music box, and an arm operated by gravity in a direction preventing movement of said detent by said arm and ground operated means for moving said arm in the opposite direction upon movement of said cradle to release said detent mechanism and permit the music box to operate.

13. A device of the class described having, in combination, a doll cradle, rockers attached thereto, a music box attached to said doll cradle, detent mechanism for preventing the operating movement of said music box, and means consisting of a pivoted lever having one of its ends normally projecting below said rockers, said pivoted lever being adapted to engage the surface upon which the cradle is mounted, whereby upon actuation of said cradle said lever is operated by said surface to release said detent mechanism and permit the music box to operate.

14. A device of the class described having, in combination, a receptacle, a music box attached thereto, detent mechanism for preventing operating of said music box, and lever means engageable with the surface upon which said receptacle is mounted and operated upon movement of said receptacle to release said detent mechanism and permit the music box to operate.

15. A device of the class described having, in combination, a doll cradle, a music box attached thereto, detent mechanism for preventing operating movement of said music box, and ground operated lever means operated upon movement of said receptacle to release said detent mechanism and permit the music box to operate.

16. A device of the class described having, in combination, a doll cradle, rockers mounted on said cradle, a music box attached thereto, said music box having a motor, a rotary drum driven by said motor, a gear rigidly attached and rotated with said drum, a plurality of apertures in said gear, an escapement mechanism driven by said gear, detent mechanism including a nose engageable in one of said apertures and having a brake for engaging said escapement mechanism, and ground operated means operated upon movement of said doll cradle to release said nose from one of said apertures, and said brake from said escapement mechanism to permit the music box to operate.

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