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(54) **ELECTRONIC REMOTE CONTROL MUSIC MOBILE WITH BUILT-IN MP3 PLAYER, TIMER, COLORFUL LIGHTS, REMOTE BABY MONITOR, AND ADJUSTABLE SUPPORT ARM**

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(57) **ABSTRACT**

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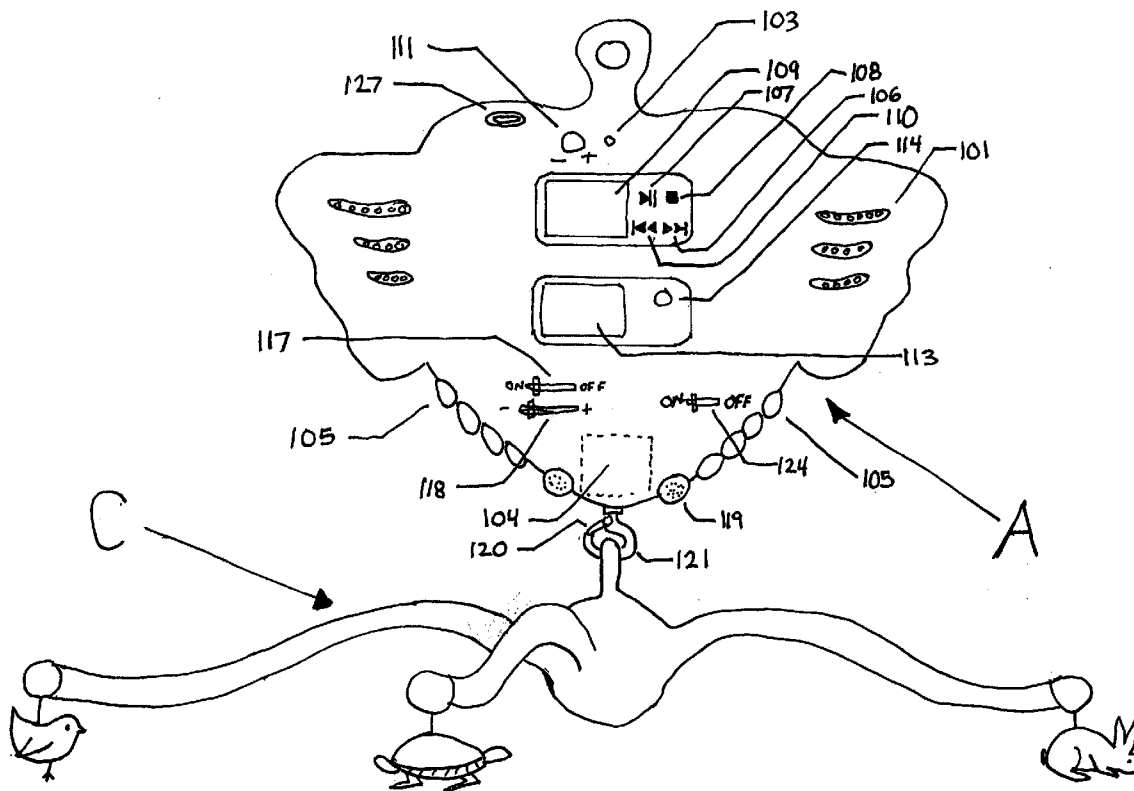
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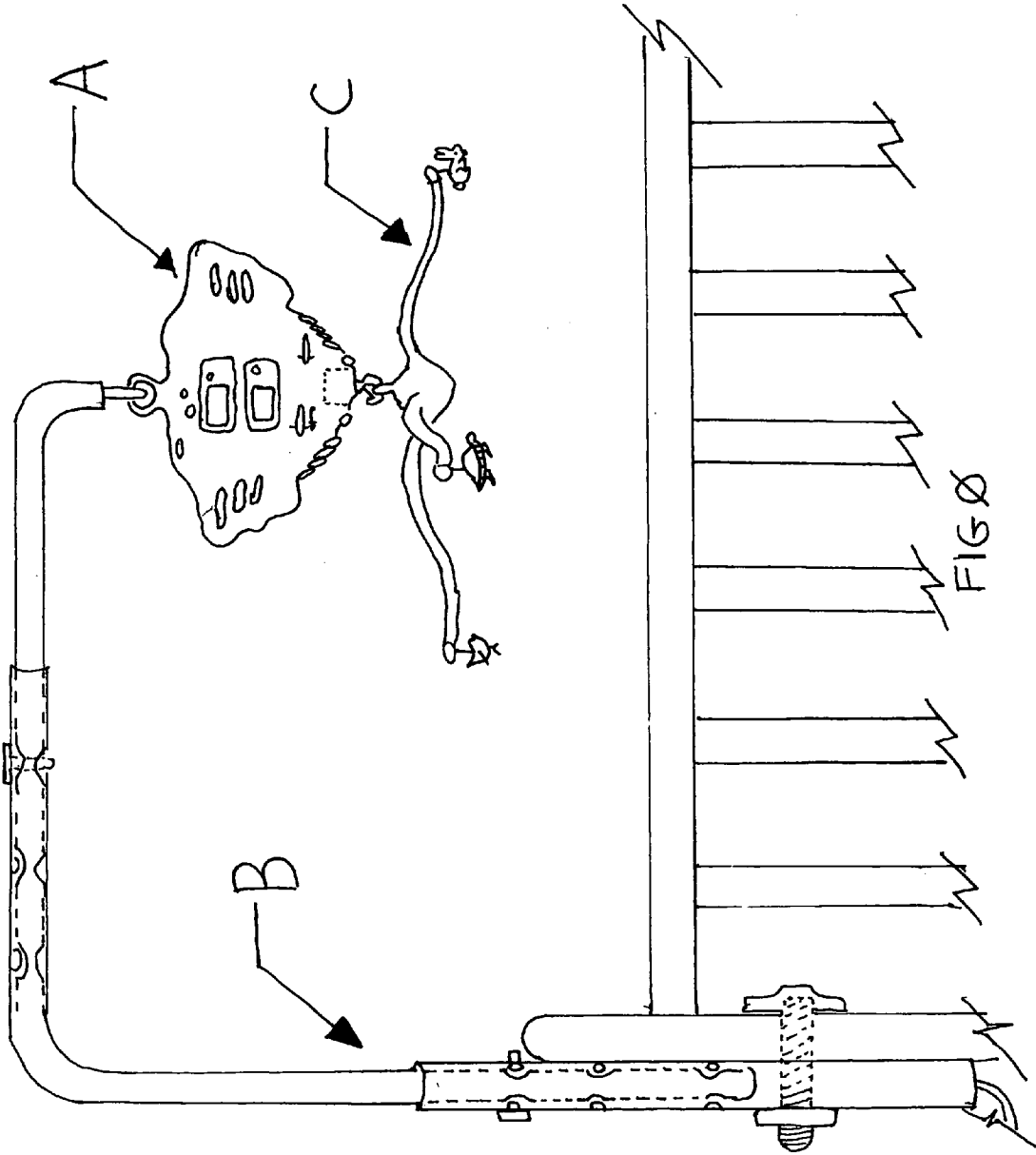
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The electronic mobile is mountable to a crib through an adjustable arm where the height and length can be adjusted. The device includes a central operating unit with built in MP3 player with USB port, timer, colorful lights, baby monitor baby unit, electric motor as well as baby monitor remote unit, and two speakers. The MP3 player, timer, colorful lights and electric motor can be operated either manually or through remote control. The built in baby monitor baby unit links to the baby monitor remote unit, allowing two ways communications. At the base of the mobile there are several animal figures attached using a hook and safety latch. The central operating unit is detachable from the adjustable arm and mobile, and the unit can be powered by battery or the AC/DC adaptor with cord that runs inside the adjustable arms.

Related U.S. Application Data

(60) Provisional application No. 61/316,126, filed on Mar. 22, 2010.





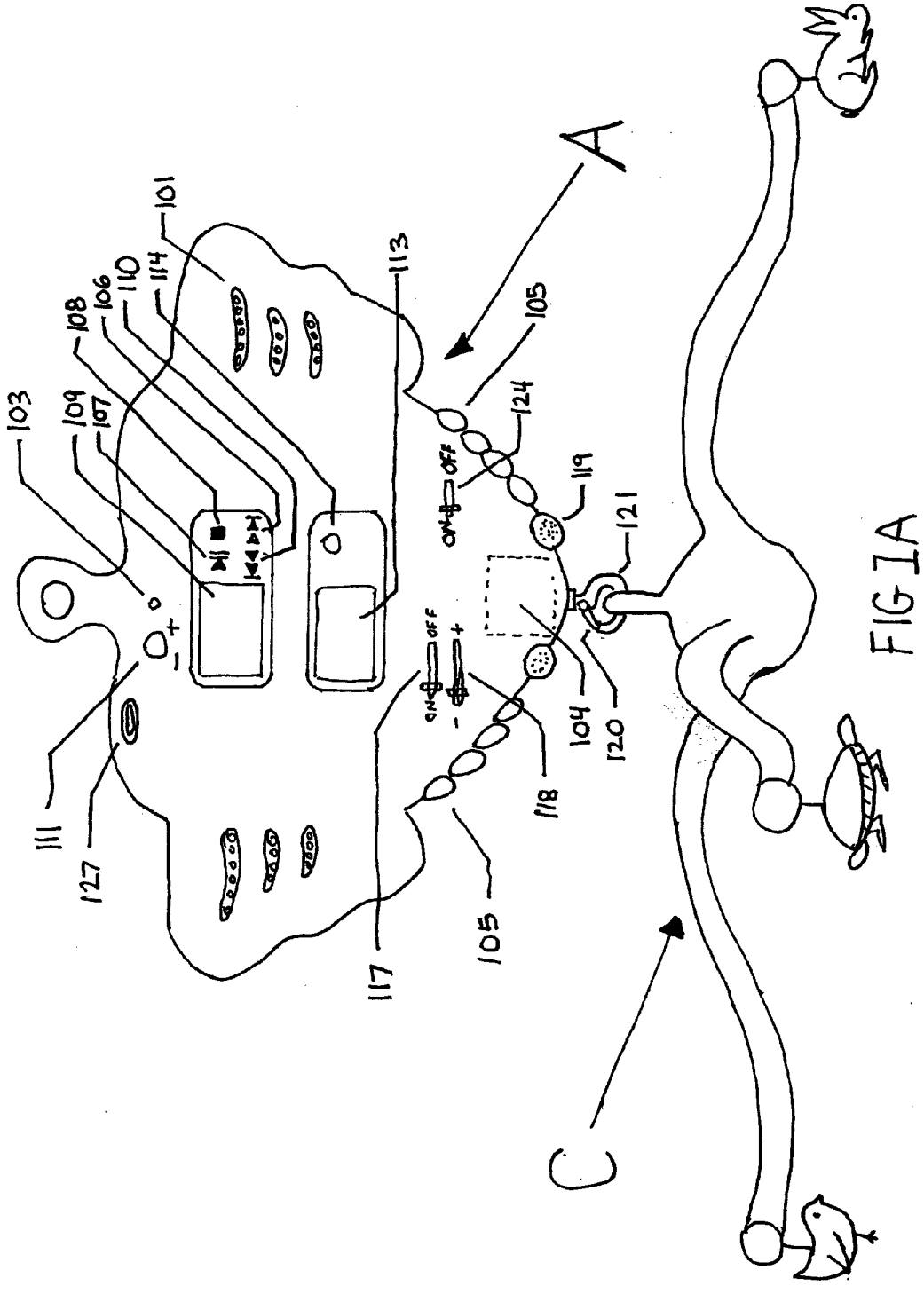


FIG 1A

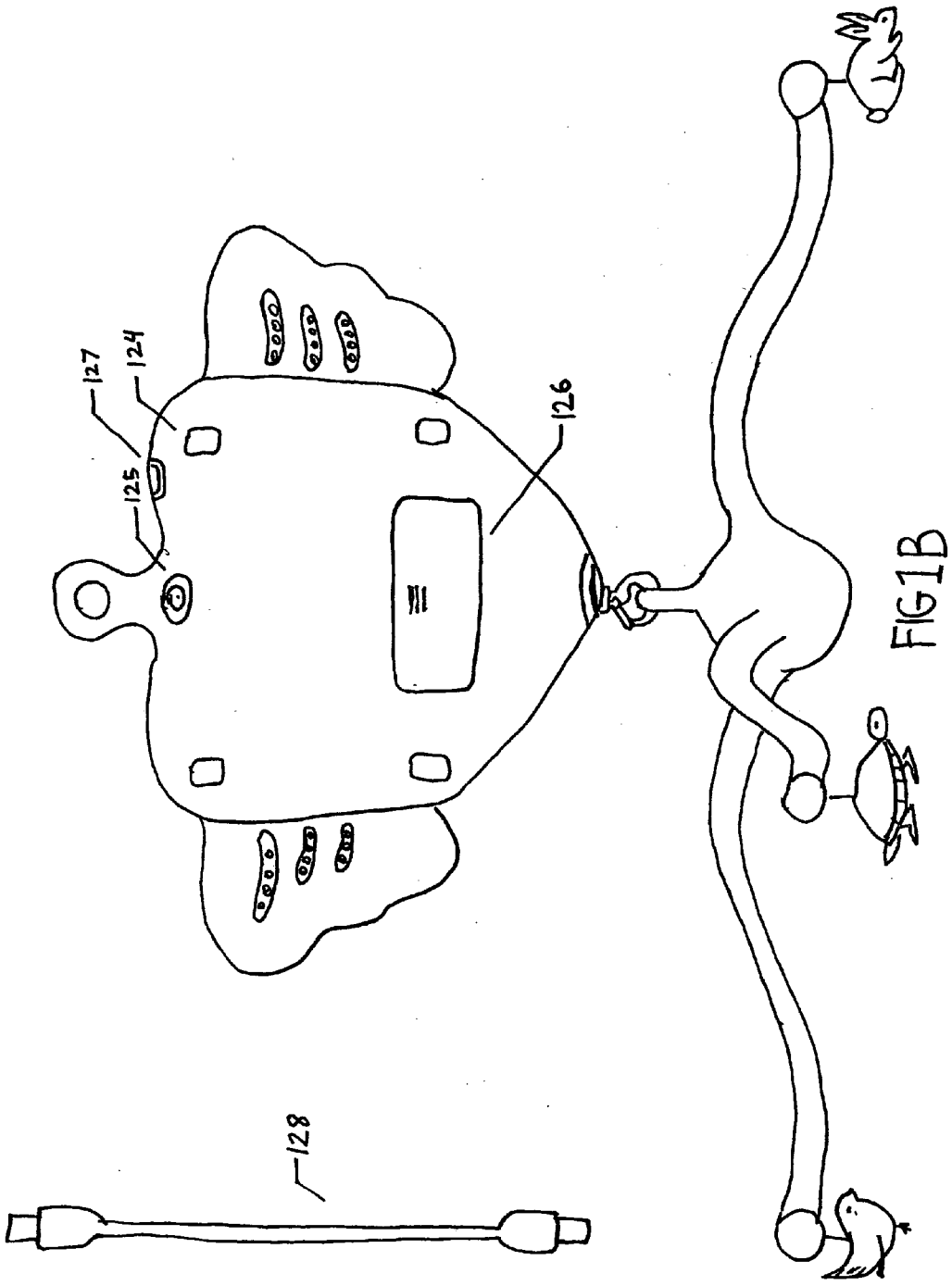


FIG 1B

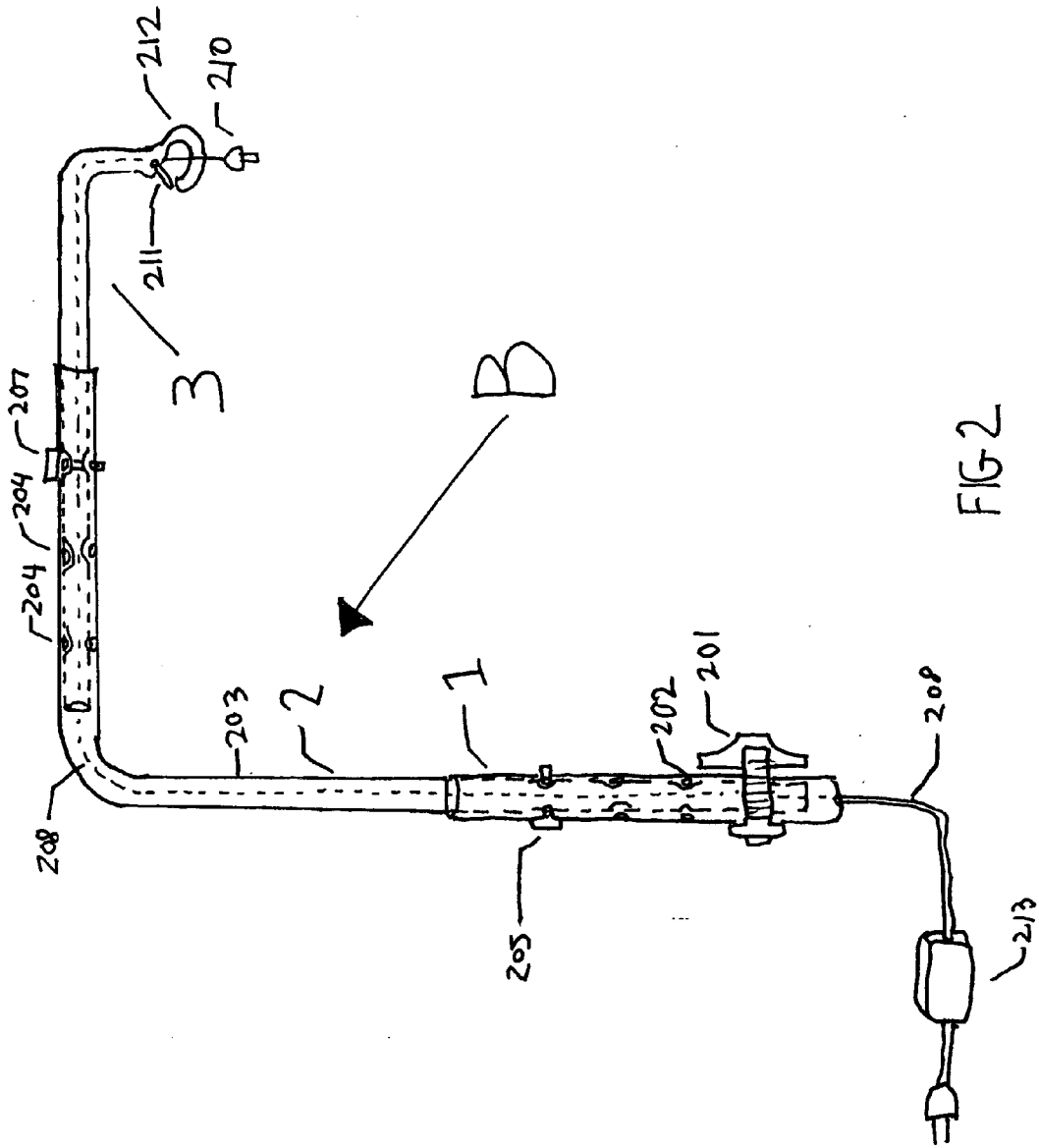


FIG 2

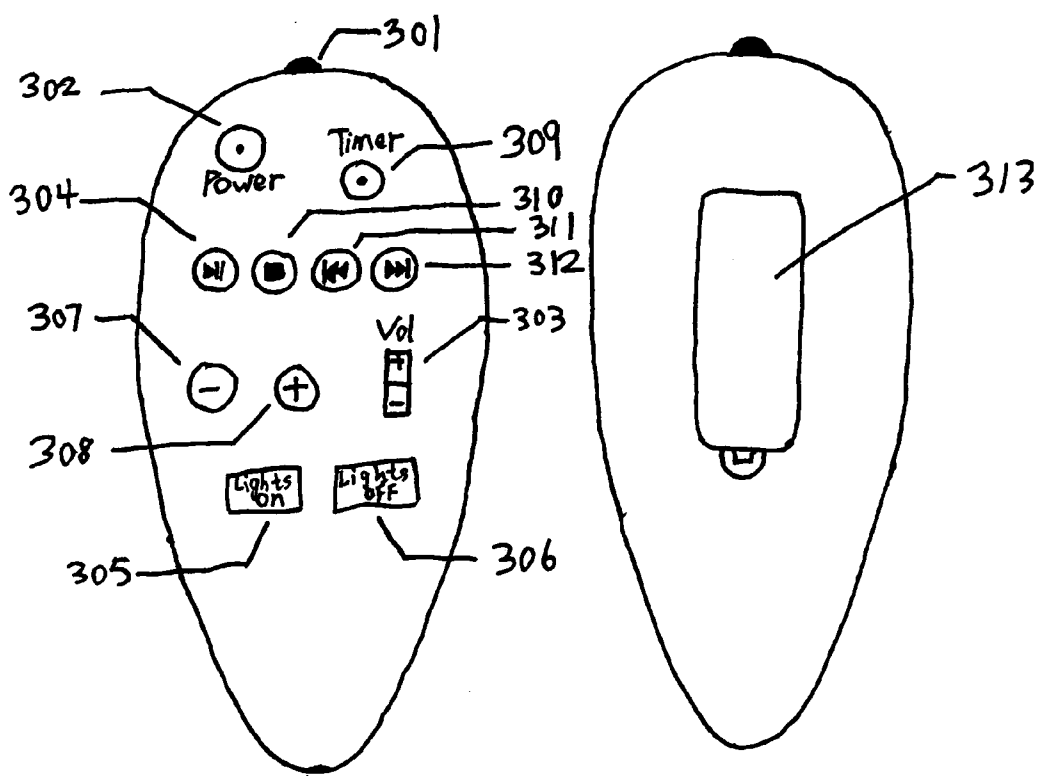


FIG 3A

FIG 3B

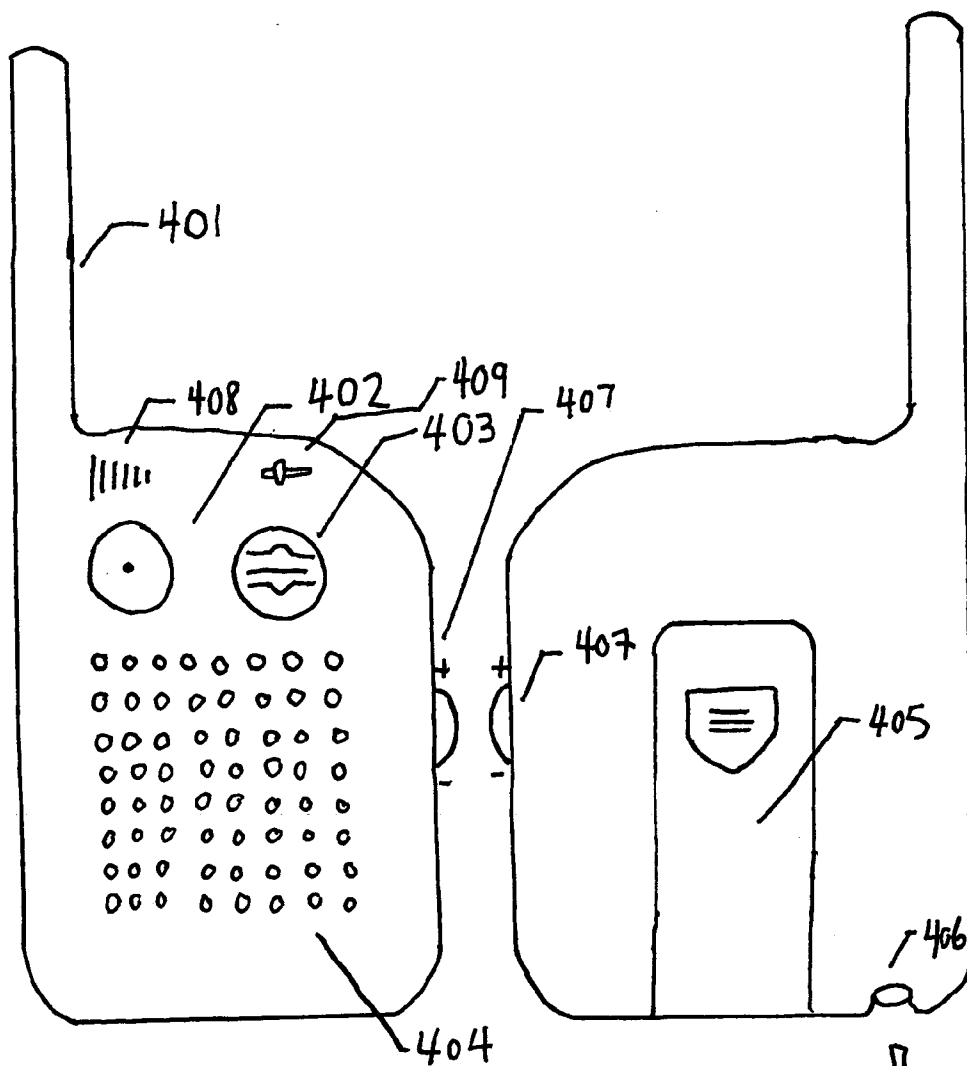


FIG 4A

FIG 4B

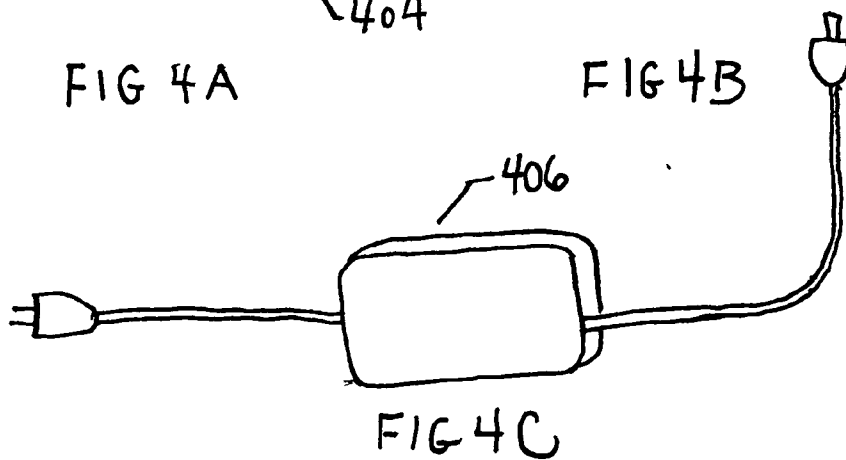


FIG 4C

ELECTRONIC REMOTE CONTROLLED MUSIC MOBILE BLOCK DIAGRAM

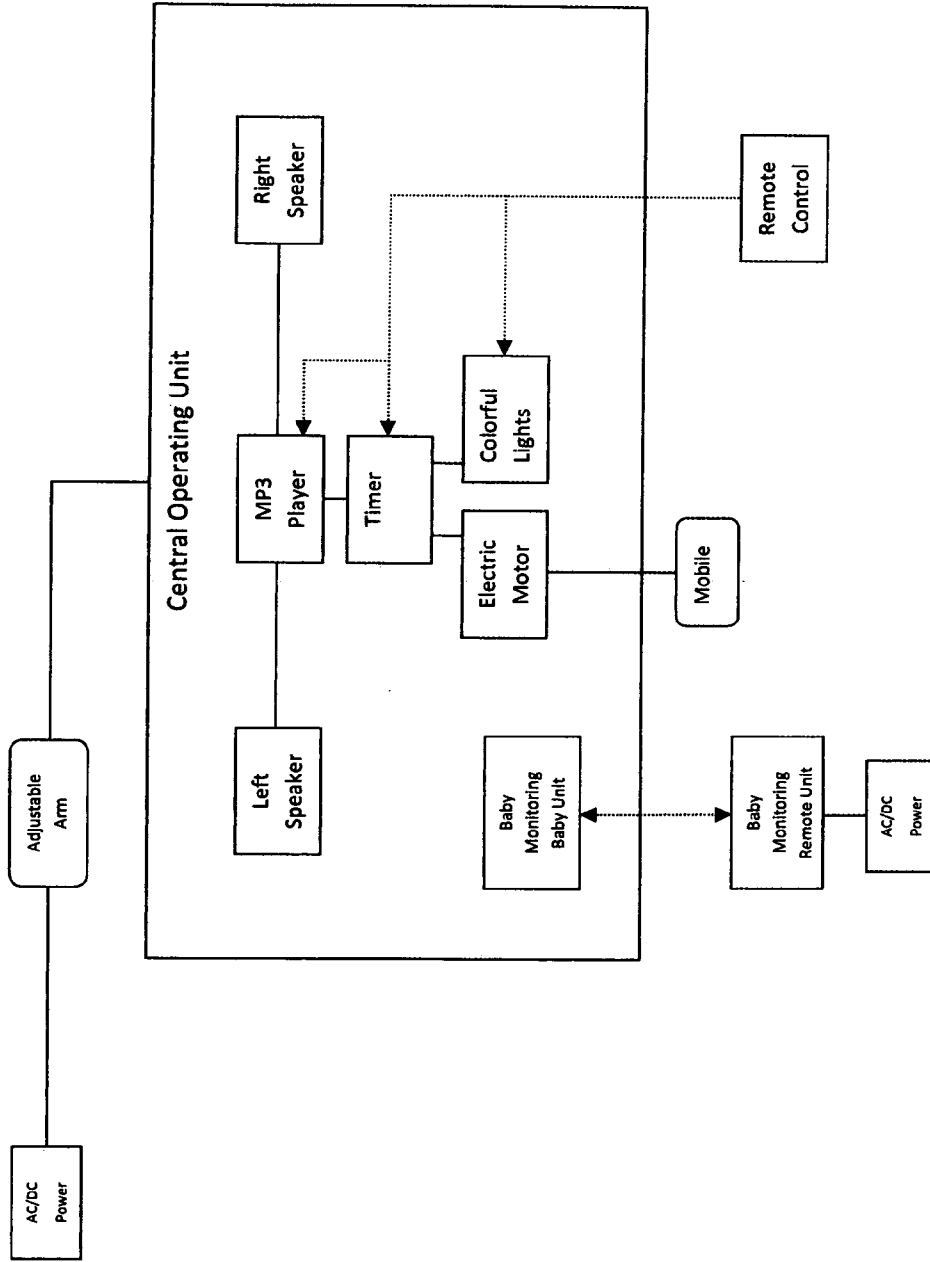


FIG 5

ELECTRONIC REMOTE CONTROL MUSIC MOBILE WITH BUILT-IN MP3 PLAYER, TIMER, COLORFUL LIGHTS, REMOTE BABY MONITOR, AND ADJUSTABLE SUPPORT ARM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 61/316,126, filed on Mar. 22, 2010.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to an improved remote control musical mobile integrated with a MP3 player with USB port, timer, baby monitor, motorized mobile, colorful lights and adjustable arm.

[0004] 2. Description of Related Art

[0005] Toy mobiles entertain the baby and even promote development of the baby's mind. Studies show that colorful shapes enhance color differentiation and stimulate visual recognition and development. Music mobiles produce different sounds to develop the baby's hearing capacity and ability to differentiate sounds. The invention combines music, color and baby monitoring together to present a new generation of baby music mobiles.

[0006] The related art describes a number of devices that can be used to stimulate an infant or newborn's brain activity and visual activity and a number of devices that can be used to monitor the baby while the parents are not in the same room as the baby.

[0007] U.S. Pat. No. 5,029,047 issued to Kachel outlines the use of lighted fiber optic mobile. The crib mobile wherein the objects or characters attached to its appendages, or any point on the appendages, can emit active twinkling or sequencing colorful light. It uses optic fibers to transmit light form a light source in the mobile's central housing to the objects or characters, or a given location on the appendages. The light is made active and colorful at the output end of the optic fibers by placing a light influencing slide between the light source and the input end of the revolving optic fibers that are routed from the appendages and are grouped together in front of the light source.

[0008] U.S. Pat. No. 5,803,786 issued to McCormick outlines the use of continuous play musical mobile. The mobile, which is operated by a motor, is mounted to the crib or playpen by means of a resilient shaft that will move under the influence of vibrations from the motor, thereby imparting another type of motion to the mobile. In addition a tape recorder or sound chip is incorporated into the device so parents can play soothing music to the infant. The recorder or sound chip is voice activated and has a mode switch which allows a parent to operate the mobile upon hearing noise, to turn the mobile manually, or to turn the mobile off.

[0009] U.S. Pat. No. 5,951,360 issued to Fearon et al. outlines the use of infant musical mobile that utilizes a compact disc and cassette player. The mobile is also mounted on the side of the infant's crib or playpen and has a variety of ornaments that hang over the infant. The mobile can be used to play continuously or can self-actuate in response to the infant's sounds or movements. There is also an infrared remote control used with device as well.

[0010] U.S. Pat. No. 7,049,968 issued to Fitzgerald et al. outlines a baby monitor system with a remote monitoring unit communicable with a baby unit a soothing unit is provided. The baby unit is responsive to receiving a signal representative of an audible sound transmitted from the remote monitoring unit and the remote monitoring unit is responsive to receiving a signal representative of an audible sound transmitted from the baby unit.

[0011] The devices described in the Khamphilavong et al., the Kachel patent, the McCormick patent, the Fearon et al. patent, and the Fitzgerald et al. patent utilize various features regarding the movement of the music mobile, the remote control of the music mobile, and monitoring of the baby while parents or caregivers are not in the same room as the baby. The devices described in these patents are very useful and can be improved in so many ways that are really needed per today's technology. It would be beneficial to provide baby music mobile equipped with MP3 and other functions so that parents can program and play variety of songs and music for any desired duration, in the same time parents can monitor the baby while they are not in the same room with the baby. It would be of further benefit to enhance baby color differentiation and visual ability while enjoying the soothing music.

SUMMARY OF THE INVENTION

[0012] The present invention relates to an improved remote control musical mobile integrated with a MP3 player with USB port, timer, baby monitor, motorized mobile and colorful lights and adjustable arm.

[0013] The first object of the invention is to incorporate a built in MP3 player into the central operating unit. The MP3 player will come preloaded with popular baby songs. The unit will also have the capability to connect to a PC via USB port and upload music. The MP3 player will have a button interface and have the ability to be remotely controlled via the remote control, both allowing volume and song selection. The central operating unit is detachable so as to make it easy to upload music. The central operating unit can be made of various shapes with different colors to further attract baby's attention. Being detachable, the central operating unit can be used as a music player as the baby grows older.

[0014] The second object of the invention is to make the mobile arm adjustable. With infants growing, their seeing distance is changing, and infants intend to grab the toys, thus there becomes a need to adjust the arm's height, encouraging infants to reach out and further developing motor skills.

[0015] The third object of the invention is to integrate a microphone, a small transmitter and receiver into the central operating unit. There is also a remote monitoring unit which remotely monitors the baby. When the baby makes a noise or cries, the signal will go to microphone and be transmitted to the remote monitoring unit so parents or caregivers can be notified. The remote monitoring unit will allow the parent or caregiver to talk to the baby, comforting the baby as if the parent or caregiver were with him/her. A mute switch on the remote monitoring unit, allows the parent or caregiver to turn off the signal going to the baby monitoring unit, so that way unwanted background noise can be muted during times of a noisy background, such as a TV, kitchen appliances, washing machines, etc.

[0016] The fourth object of the invention is to provide a remote control for the central operating unit, allowing the unit to be turned on or off, shuffle music, change volume, change light intensity, and/or set the timer.

[0017] The fifth object of the invention is to put a built in timer on the central operating unit. The timer will control the MP3 player, the motorized mobile rotation, and the colorful lights. The baby monitor can only be turned on or off by manual selection, versus using remote control.

[0018] The sixth object of the invention is to incorporate a motorized mobile to rotate the mobile. Being motorized, parents won't have to worry about winding the mobile, thereby providing parents the ability to control the mobile operation at designated time period set forth in the timer. The mobile's motor is controlled by the timer either remotely or by manually setting the timer using front panel controls.

[0019] The seventh object of the invention is to integrate colorful lights on the bottom of the central operating unit with the ability to shut off manually or while in the on position turn off by the timer. The lights will be dimly lit with the capability to slightly change the intensity as well as with the ability to turn off completely. The light will pass through the moving parts of the mobile creating a shadowing effect. The lights will help pacify the baby while they listen to music and watch the moving parts under the central operating unit.

[0020] The eighth objective is the use of DC to power the musical mobile. The musical mobile arm is comprised of plastic conduits and the DC cord passes up through plastic conduits to connect and supply power to the central operating unit. The conduit not only provides extra protection against electrical hazards, but also prevents strangulation hazards.

BRIEF DESCRIPTION OF THE DRAWING

[0021] FIG. 0 is an environmental, perspective view of a electronic remote control musical mobile integrated with a MP3 player with USB port, timer, baby monitor, motorized mobile, colorful lights and adjustable arm according to the present invention.

[0022] FIGS. 1A and 1B are perspective views of the front and back of central operating unit according to the present invention.

[0023] FIG. 2 is a perspective view of the adjustable support arm according to the present invention.

[0024] FIGS. 3A and 3B are perspective views of the remote control.

[0025] FIGS. 4A, 4B and 4C are perspective views of the remote monitoring unit of baby monitor

[0026] FIG. 5 is a simplified block diagram of the musical mobile according to the present invention.

[0027] Corresponding reference characters indicate corresponding parts throughout several views. Although the drawings represent embodiments of the present invention, the drawings are not necessarily to scale and certain features may be exaggerated in order to better illustrate and explain the present invention. Although the exemplification set out herein illustrates embodiments of the invention, in several forms, the embodiments disclosed below are not intended to be exhaustive or to be construed as limiting the scope of the invention to the precise forms disclosed.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0028] The embodiments hereinafter disclosed are not intended to be exhaustive or limit the invention to the precise forms disclosed in the following description. Rather the embodiments are chosen and described so that others skilled in the art may utilize its teachings.

[0029] The present invention is a remote control musical mobile integrated with a MP3 player and USB port, timer, adjustable arm, baby monitor, motorized mobile and colorful lights with main embodiments central operating unit A depicted in FIG. 1A and FIG. 1B, and adjustable arm B depicted in FIG. 2.

[0030] Referring to FIG. 1A, it is a perspective view of the remote control music mobile central operating unit A according to the present invention. The central operating unit A of the remote control musical mobile is comprised of a MP3 player, USB port, timer, baby monitor, motorized mobile and colorful lights. Item 109 is the MP3 player screen, 107 is the start or pause button, 106 is next button, 110 is previous button, and 108 is the stop button. Above item 109 is the MP3 volume adjuster 111. Volume adjuster 111 also serves as the MP3 manual on/off push button. The MP3's volume and song selection can also be controlled by remote control (details about the remote control will be discussed in FIGS. 3A and 3B). The MP3 on/off function can also be controlled manually or by the timer. Item 113 is the timer screen and 114 is the start button for the timer. When button 114 is pressed, a maximum of 120 minutes will be present on screen 113; when button 114 is pressed again, the minutes will be reduced by 10 minutes; and so on until reduced to zero minutes. The timer function 114 can also be set by remote control (details about the remote control will be discussed in FIGS. 3A and 3B). The MP3 player comes with a standard USB cable 128 shown in FIG. 1B, where it connects to USB port 127. USB port 127 allows the parents or caregivers to upload music of their choice. The musical song selection and volume can be selected manually or through the remote control (shown in FIGS. 3A and 3B). The MP3 sound exits through speakers 101 on left and right sides of the central operating unit A.

[0031] As shown in FIG. 1A, 103 is an infrared receiver which receives signals from the remote control infrared signaling device 301, shown in FIGS. 3A and 3B which directly controls the timer 114, MP3 player volume 111, colorful lights 105, and indirectly controls the motorized mobile 104 through the timer 114.

[0032] As shown in FIG. 1A, the built in colorful lights 105 can be manually shut off by using on/off switch 117. Power to the colorful lights can also be controlled by the timer 114 or the remote control (shown in FIGS. 3A and 3B). The colorful lights 105 are LEDs with multi colored plastic lenses. The colorful lights 105 intensity can be manually adjusted by using light intensity adjuster 118 or by remote control (shown in FIGS. 3A and 3B). The 118 adjuster also allows the lights to be turned off altogether, if desired. The colorful lights on/off function 117 can also be controlled by remote control (shown in FIGS. 3A and 3B).

[0033] As shown in FIG. 1A, the built in baby monitor baby unit microphone 119, and remote monitoring unit (shown in FIGS. 4A and 4B) which can be turned on/off by baby monitor switch 124. The microphones 119, will pick up noises from the baby and a built in transmitter will transmit the signal to the receiver known as the remote monitoring unit (shown in FIGS. 4A and 4B). The baby monitor is the only function that cannot be operated via the timer or remote control. Only on/off switch 124 can operate the baby monitor on/off function. The remote monitoring unit (shown in FIGS. 4A and 4B) volume can be controlled by a volume wheel 407 (shown in FIGS. 4A and 4B). Remote monitoring unit has an AC/DC adaptor shown in FIG. 4B and FIG. 4C and a battery compartment as an option to allow the parent greater range of

movement. The remote monitor's signal strength is indicated by a green or yellow light 408. A parent or caregiver can talk to the baby using the remote monitoring unit through microphone 403, and speaker 404 which allows baby sounds to be received from the baby monitoring unit FIG. 1A. The remote monitoring unit depicted in FIGS. 4A and 4B transmits the signal to the baby unit's receiver built in the central operating unit A, allowing a method of two communication between parent or caregiver and the baby. There is also a mute switch 409, allowing the parent or caregiver to mute any sounds from the parent or caregiver's end and thereby avoiding disturbing the baby.

[0034] As shown in the FIG. 1A, inside the central operating unit A there is a built in motor 104, which is used to rotate the animals hanging through the hook under the central operating unit A. Compared with traditional mobiles, parents won't have to worry about winding the mobile, thereby providing endless mobile operation set forth in the timer 114. The motor 104, is controlled by setting the timer via remote control timer button 309 on the remote control shown in FIG. 3A, or by manually setting the timer by using front panel button 114.

[0035] As shown in FIG. 1A, under the central operating unit A there is a base where microphone 119 is built in. The base houses the bottom hook 121. The hook, 121, has a safety latch, 120, to prevent the mobile piece C from inadvertently unhooking and falling onto the baby.

[0036] As shown in FIG. 1B, the back of the central operating unit A has rubber foot pads 124, for placement on the unit's back while detached and uploading MP3's. There is also a DC inlet 125 on the back of the central operating unit A and a battery compartment 126, allowing remote use. USB port connection 127 is shown on top of the unit.

[0037] As shown in FIG. 2, the musical mobile is attached to the crib by the fastener, 201, which fastens arm B to the baby crib or a piece of furniture. The arm B is comprised of three plastic conduits as shown in the FIG. 2. Plastic conduit items 1 and 2, work together to adjust the height of the arm. There are three openings, 202, in each of the plastic conduits 2 and 3 to allow for adjustment. Plastic conduit 2's diameter is smaller than plastic conduit 1, so plastic conduit 2 is put inside of the plastic conduit 1. Likewise, conduit 3's diameter is smaller than conduit 2. Pins 205 and 207 are spring loaded which allow retraction and insertion, while ensuring a safe locking position, and also prevents the bolt from getting lost. The other side of the plastic conduit 3 is a hook, 212, connecting the adjustable arm to central operating unit A. There is a safety latch, 211, on the hook 212, which prevents inadvertent falling of the central operating unit A. The three plastic conduits 1, 2 and 3 allow the DC power cable, 208, provided from AC/DC power adaptor 213, to safely pass up through to the DC inlet 125 on the back of the central operating unit A shown in FIG. 1B.

[0038] As shown in FIG. 3A, 302, is the button to turn on or off the central operating unit A. Item 301 is the infrared signaling device to send signal to central operating unit A. Timer button, 309 is used to control timer 114, FIG. 1A. Item 303 is for adjusting MP3 volume, 304 is for play/pause of MP3, 310 for stopping playing MP3, 311 for previous music, and 312 for next music. 305 for turning on colorful lights, 306 for turning off colorful lights, 307 for reducing lights intensity and 308 for increasing colorful light's intensity.

[0039] FIG. 3B shows the back of the remote control, 313 is battery compartment.

[0040] FIG. 4A shows baby monitor's remote monitoring unit, 401 is the antenna which sends and receives signals to and from the baby monitoring unit within central operating unit A. Item 402 is the power button for turning on/off the remote monitor unit. Item 403 is a microphone which inputs voice for transmission to the baby monitoring unit in central operating unit A. Item 404 is the speaker which allows parent or caregiver to hear baby's noise or cries. Item 407 is a volume adjuster and item 408 shows signal strength coming from the baby monitor unit within central operating unit A. Item 409 is a mute switch allowing muting of any sounds from remote end.

[0041] FIG. 4B shows the back of baby monitor remote monitoring unit. Item 405 is the battery compartment and item 406 is the DC inlet where the AC/DC adaptor connects as shown in FIG. 4C.

[0042] FIG. 5 is a simplified block diagram of the present invention of electronic remote control music mobile.

[0043] It should be understood that although the MP3 player is used as one of illustrated embodiment of central operating unit A, other means may be employed, for instance, through USB connector, the central operating unit A can be connected to a home computer or blue tooth-technology. Furthermore, as the central operating unit A can be detachable, the central operating unit can be made of various forms and can be used as a decoration item, such as to sit on a dresser or table in the room or hang on to the wall.

[0044] While this invention has been described as having an exemplary design, the present invention may be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains.

We claim:

1. The electronic remote control baby music mobile, comprising of an adjustable arm as a means to fasten the electronic mobile to the crib.

2. The electronic remote control baby music mobile of claim 1 wherein said adjustable support arms include adjusting length (horizontal) or height (vertical) of arms.

3. The electronic remote control baby music mobile of claim 1 wherein said adjustable support arms has safety latch to secure central operating unit.

4. The electronic remote control baby music mobile, comprising:

- a. Central operating unit includes built in MP3, timer, baby monitor baby unit, colorful lights, speakers and electric motor
- b. A remote control
- c. Baby monitor remote monitoring unit
- d. Rotating mobile

5. The electronic remote control baby music mobile of claim 4 wherein said central operating unit includes built in music player.

6. The electronic remote control baby music mobile of claim 4 wherein said central operating unit includes USB port for uploading music or connecting to a computer or other sources.

7. The electronic remote control baby music mobile of claim 4 wherein said central operating unit includes a timer for timing music player, rotating mobile, colorful lights.

8. The electronic remote control baby music mobile of claim 4 wherein said central operating unit includes colorful lights, intensity of lights are adjustable.

9. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has a built in baby monitor baby unit, transmitting baby's noise to baby monitor remote monitoring unit, the said baby monitor remote monitoring unit allows parent talk to the baby.

10. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has amplifier/speakers for the MP3 player and/or sound from baby monitor remote monitoring unit.

11. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has a remote controller and wherein said operating unit has a remote sensor, said remote controller will operate music player, timer, colorful lights, and motor.

12. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has power source, said power source includes battery.

13. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has a port for an electrical cord adapted to couple with an AC/DC adaptor, the said electric cord is housed within the adjustable arms within claim 1 of the electronic remote control baby music mobile.

14. The electronic remote control baby music mobile of claim 4 wherein said central operating unit is detachable from adjustable arms and rotating mobile.

15. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has safety latch to secure rotating mobile.

16. The electronic remote control baby music mobile of claim 4 wherein said central operating unit has a built in electric motor which is controlled by timer within claim 7.

17. The electronic remote control baby music mobile of claim 4 wherein said central operating unit can be made into various forms, such as animal shapes or popular cartoon characters with various colors.

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