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(54) **GET WELL TOY**

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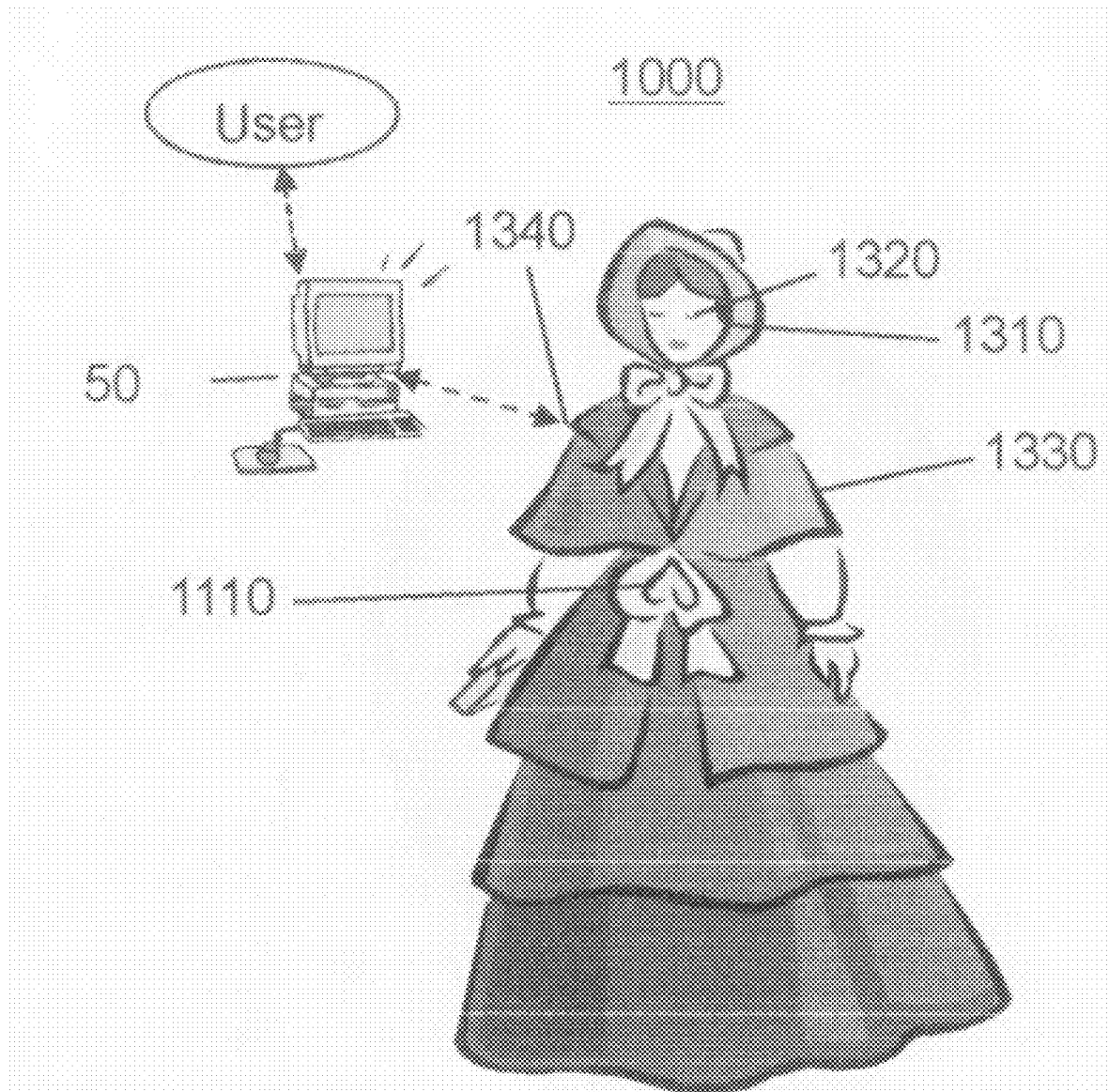
(57)   **ABSTRACT**

The present invention relates to a toy being a doll or stuffed
animal for aiding a child with a medical disorder. The toy has
internal circuitry allowing it to store and play back comments,
some of which are designed to remind the child of medical
treatments and familiarize the child with the nature of the
treatments. It is also programmed to play back comments
which put the child at ease. These comments may be sched-
uled at specific times, or output at random times. There may
also be sound, light and motion sensors in addition to an
internal clock which determine the current conditions. Cer-
tain comments are output on certain conditions as measured
by the sensors. In addition, the toy may monitor the child to
determine periods of crying and sleep cycles for later down-
load to a medical professional.

FIG. 1

FIG. 2

FIG. 3

B

A

2210
Set random time
for comment

2230
read time

2250
time =
random time?

yes

2270
Select comment
Marked as random

no

2290
Time =
comment time?

2310
Play selected
comment

2330
get conditions
of comment

2350
Play comments
(which meet conditions)

2370
setup?

yes

no

2410
sleep?

no

2430
Sleep mode

yes
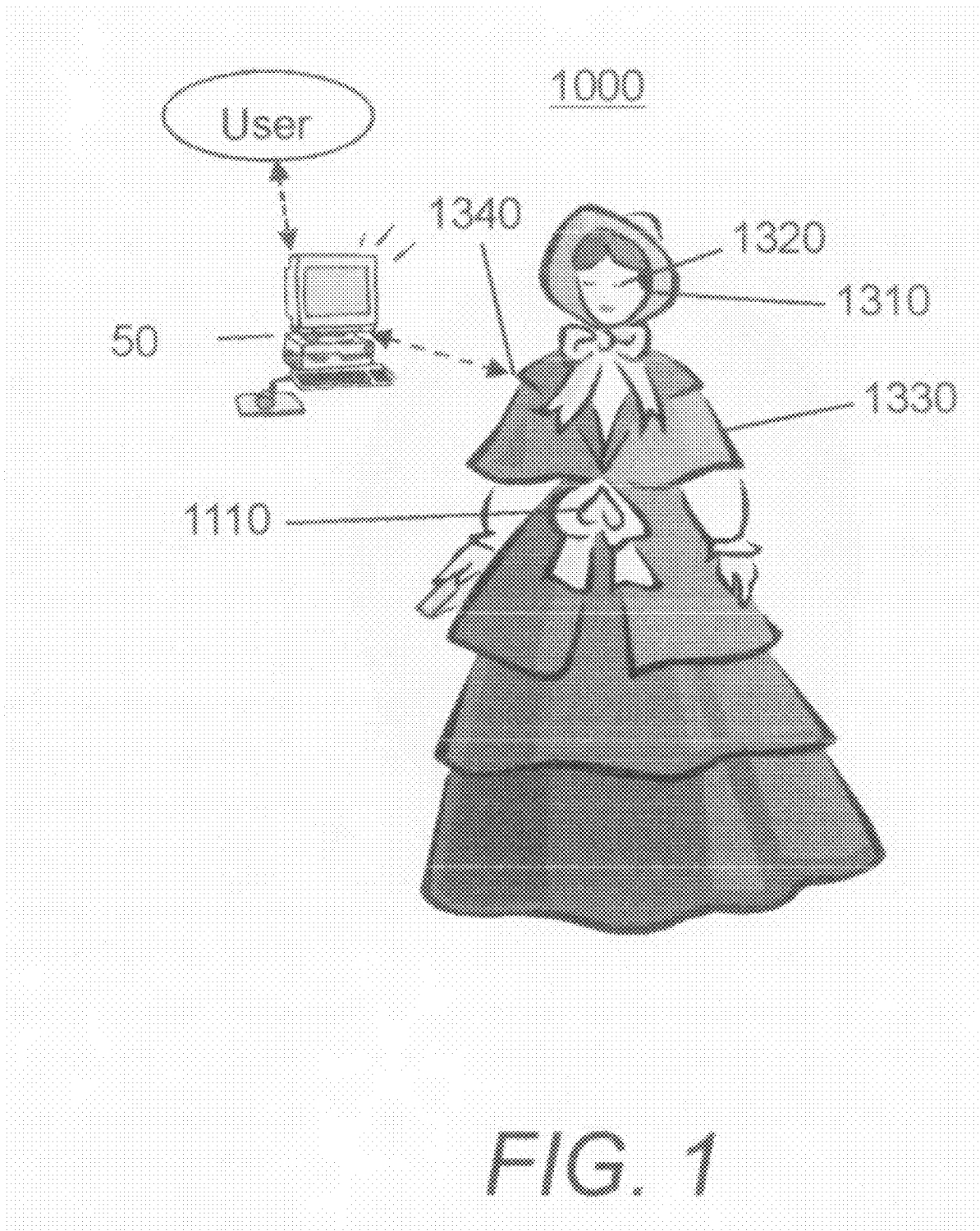
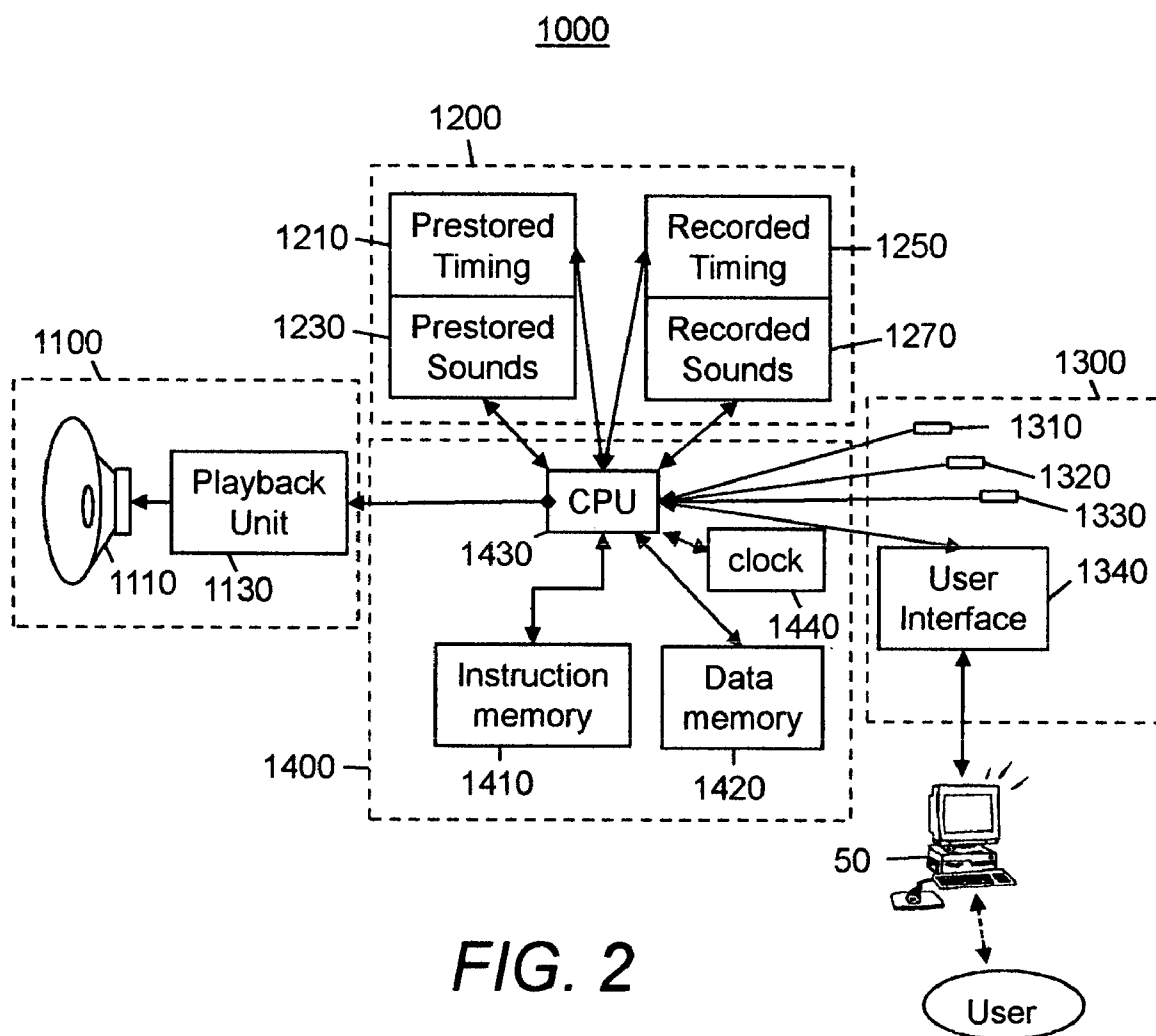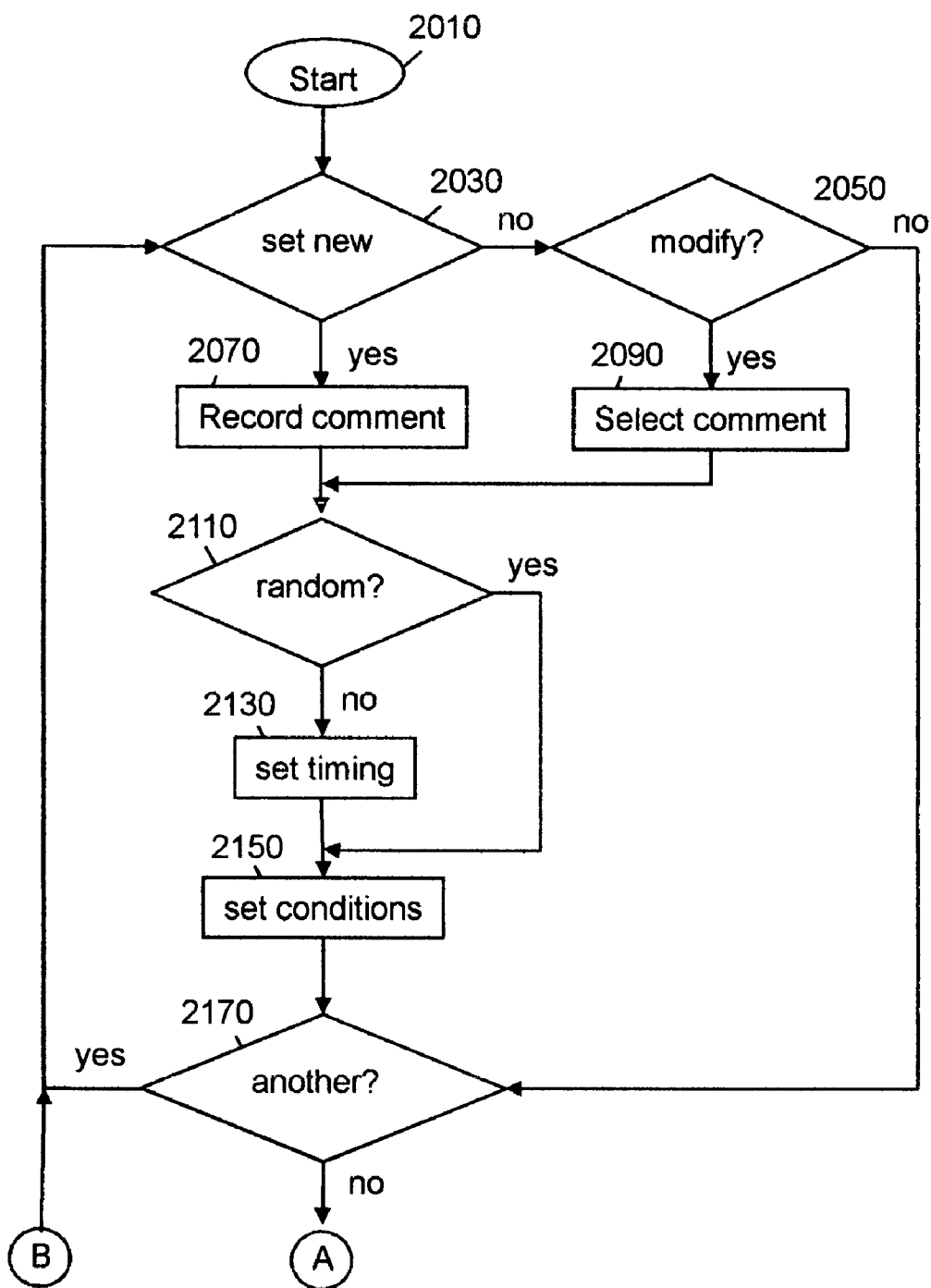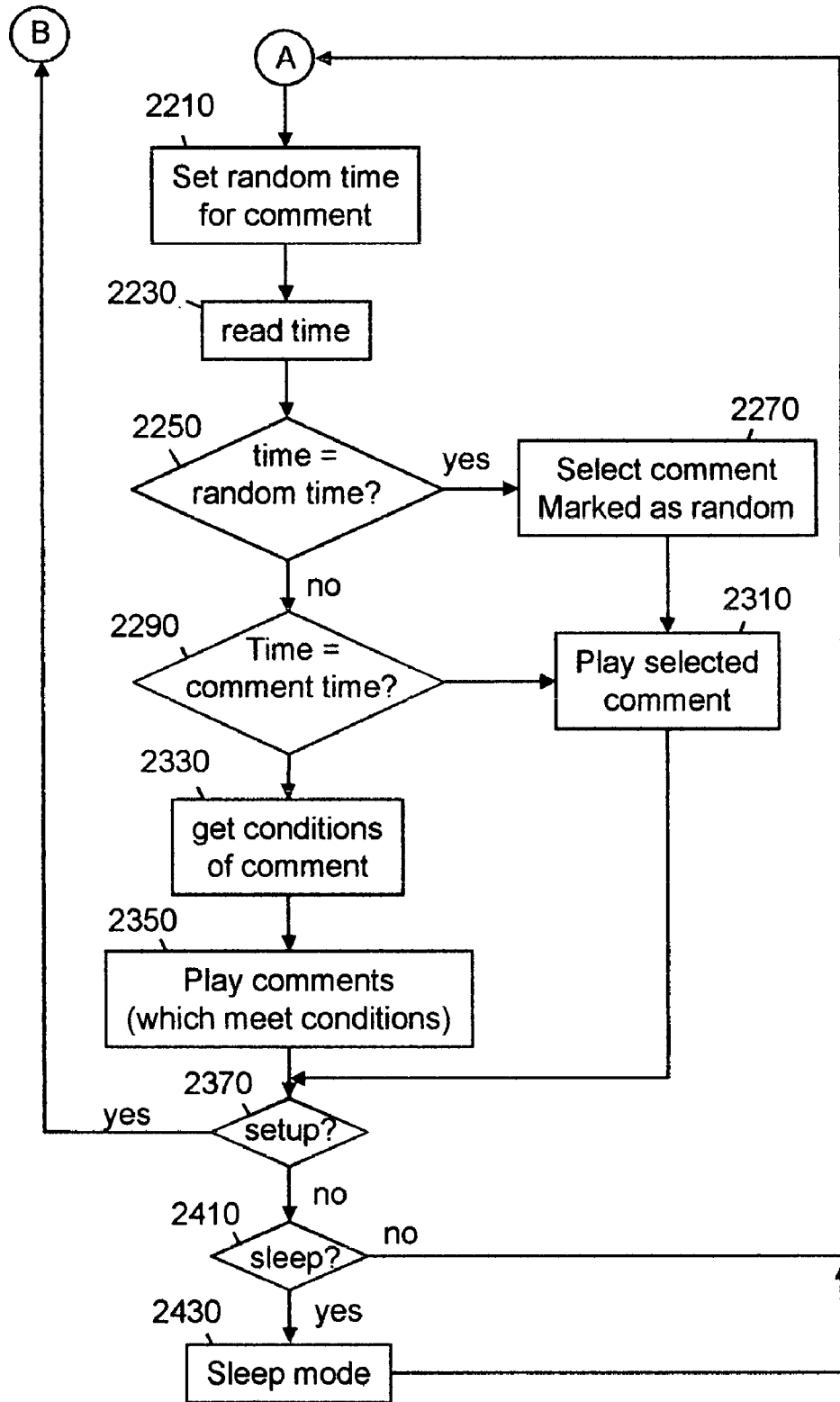*FIG. 4*

GET WELL TOY

BACKGROUND OF THE INVENTION

[0001]   1. Field of the Invention

[0002]   The present invention relates to a toy for a child with a medical condition and more specifically a doll or stuffed animal for a child with a medical condition that aids in the child's medical treatment.

[0003]   2. Discussion of Related Art

[0004]   Children with serious or chronic medical conditions are required to either cooperate in medical testing, or take some medication at periodic intervals. Even though parents and nurses aid in this function, there are times which the parent or nurse is not available.

[0005]   Children with these chronic or serious medical conditions are typically intimidated and scared of the medical staff, the environment and the medical equipment. This may cause them to be uncooperative and refuse to take the medicine or participate in the testing.

[0006]   It is difficult to force children to take their medications, and forcing them causes them to distrust the medical staff.

[0007]   If they do not take their medication or participate in testing at the proper times, their condition may deteriorate.

[0008]   It is desirable to provide a general comfort level to the sick children, since children which have a peaceful state of mind generally have a better prognosis than those without, with all other factors being equal.

[0009]   Currently there is a need for a method or device which puts sick children at ease and ensures that they take their proper medication.

SUMMARY OF THE INVENTION

[0010]   One embodiment of the present invention is a toy resembling a human or animal that aids in the treatment of a child with a medical condition comprising:

[0011]   a. A comment memory having a set of stored comments intended to remind said child of the proper actions to be taken regarding their medical condition,

[0012]   b. A timing memory stored with at least one scheduled time indicating when at least one comment is to be output,

[0013]   c. A timer for keeping an accurate track of current time,

[0014]   d. An output section for creating audible sounds when provided with a stored comment,

[0015]   e. A CPU coupled to the timer, the comment memory, and the timing memory for reading a current time from the clock, reading a scheduled time from the timing memory, determining when comments are to be output, and outputting the comment when the current time matches the scheduled time to the output section causing the comment to be played to said child.

OBJECTS OF THE INVENTION

[0016]   It is an object of the present invention to provide a toy which reminds a child of times to take medications.

[0017]   It is another object of the present invention to provide a toy which supplies correct instructions in a non-intimidating fashion to a child with a medical condition.

[0018]   It is another object of the present invention to provide a companion to comfort a sick child.

[0019]   It is another object of the present invention to provide a toy which tracks actions performed by a child with a medical condition.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]   The invention itself, both the organization and method of operation, together with the described objects and advantages, may best be understood by reference to the following description taken in conjunction with the accompanying drawings in which:

[0021]   FIG. 1 is a perspective view of one embodiment of a toy according to the present invention which is embodied as a talking doll.

[0022]   FIG. 2 is a schematic block diagram of the functional elements of the embodiment of the present invention shown in FIG. 1.

[0023]   FIG. 3 is a simplified flowchart indicating the initialization phase of the embodiment of the present invention of FIGS. 1 and 2.

[0024]   FIG. 4 is a simplified block diagram of the operation phase of the embodiment of the present invention of FIGS. 1 and 2.

DETAILED DESCRIPTION OF THE INVENTION

[0025]   Small children typically rely on their toys as safe and secure companions. They love and trust their toys, such as a doll or stuffed animal. Usually, these may be with the child most of the time, especially if the child is in an unfamiliar place such as a hospital. The toy typically calms them and makes them feel more secure.

[0026]   It is possible to use this trusted object to provide proper messages to a sick child. The messages may reinforce the benefits of cooperating with the medical staff in age-appropriate language.

[0027]   Since the toy is always with the child, it may easily act as a reminder. It can notify the child, nurse or parent of times to take medication, eat or perform a test.

[0028]   The toy may also act as a consoling device, providing friendly comments intended to console the child.

[0029]   Finally, it may act as an education device providing simplistic descriptions of procedures to be performed. An unknown procedure tends to scare a child more than the actual procedure.

[0030]   FIG. 1 is a perspective view of a toy according to one embodiment of the present invention. In this embodiment, it is a doll 1000. It is understood that this may be any number of other toys, such as stuffed animals which perform similar functions.

[0031]   Doll 1000 resembles any common talking doll, made of a plastic material with clothes. It may have a rear hatch (not shown) allowing one to change the batteries.

[0032]   It has an internal timer (not shown).

[0033]   Comments

[0034]   It also includes and stores speech, sounds, music or phrases, collectively referred to as "comments". The comments in general may be reminders, to remind the user that it is time to take a medication, perform a test or replace a dressing.

[0035]   Each doll may be specifically programmed for a given medical condition, such as diabetes, cancer or heart disease. For a diabetic child, doll 1000 will be programmed with reminders to eat every few hours to keep the blood sugar levels constant.

[0036] There will also be reminders for a urine sample or urine test using paper test strips.

[0037] The comments may be consoling in nature, including phrases designed to calm a child and put them at ease. These may also include singing, music or humming.

[0038] Other phrases randomly played should comfort the child in an effort to make them less anxious and more secure.

[0039] The comments may also be educational, informing the user of the reasons for taking medications, the basis for the disease, what treatments are involved and how they are done.

[0040] These may be specific comments regarding procedures involved with certain medical disorders. For example, there may be a description of a pin prick for checking blood sugar for a diabetic. There will be helpful suggestions to keep feet warm and that it is good to wear extra socks.

[0041] Education messages relating to diabetes may be output, indicating what symptoms to look for and what should be done for best results. For example, when one gets a dry mouth, maybe it is time to test the sugar level. Also, there should be an indication that 'special' children with the same disorder should get up and walk around every hour or so to keep the blood flowing in the extremities.

[0042] Timing

[0043] The doll 1000 employs a speaker 1110 which allows it to play back stored messages to the child. An internal central processing unit (CPU) (not shown) plays selected comments through the speaker.

[0044] These messages may be played at random times throughout the day.

[0045] Comments may also be scheduled at specific times to be played.

[0046] Modification

[0047] These comments may either be pre-stored from the factory, input by downloading to a computer 50, then plugging computer 50 into an interface 1340 on doll 1000. Parameters may be set by a user, such as the parent or healthcare professional.

[0048] The doll 1000 can be sold with a USB port as user interface 1340 to connect to computer 50 and allow download of messages and timing for playback.

[0049] A software program on the computer 50 not only allows one to set the times for phrases to play, but allows one to record their own voice and store them as comments. For example, a mother, or other person close to the child, could record the instructional or reminder phrases. The user may also input other sounds including music and songs.

[0050] Sensors

[0051] The doll may have sensors to monitor outside events. For example, it may have a light sensor which allows it to notice if it is light or dark in a room. Certain phrases could be encoded to be played in the dark as opposed to others.

[0052] There can also be a motion sensor which indicates if the doll has been moved.

[0053] A microphone also monitors voices and other sounds. It could be programmed to recognize the child crying. If it does, certain phrases are appropriate, while others will not be appropriate. It may then randomly select an appropriate phrase to console the child.

[0054] Conditions

[0055] Combining several of these conditions may define a given situation. For example, if it has been quiet for some time and it is dark, and there is no motion, one may assume that the child is sleeping. If so, the doll may put itself in a sleep mode until it receives some sensory input.

[0056] Doll 1000 can receive feedback from the child or other person taking care of the child. It could keep track of the actions taken; for example, if the child was instructed to squeeze a sensor in the hand of doll 1000 if a certain medication was taken. The doll can sense the squeeze within a time slot window, then store the information that the medication was taken at the current time.

[0057] Doll 1000 can also monitor when the child cries, when it stops crying, how long the child cries, and how intense the crying was. It can also keep track of the sleep cycles of the child.

[0058] At some later time, the information may be extracted from doll 1000 through user interface 1340. This information can be useful in treating the child.

[0059] FIG. 2 is a schematic block diagram of the functional elements of the embodiment of the present invention shown in FIG. 1.

[0060] If the doll 1000 is designed for a specific medical condition, such as diabetes, it may come with a few pre-stored comments to be performed randomly, or scheduled to be output at given times. The pre-stored comments are stored in the prestored sound memory 1230 of an output storage section 1200. If these comments are not intended to change, prestored sound memory 1230 may be a ROM memory.

[0061] The times when each timed comment is to be output are stored in a prestored timing memory 1210. Again, if these are not intended to be changed it may be a ROM memory.

[0062] CPU 1430 of a logic section 1400 runs a set of instructions stored in instruction memory 1410. Again, if these instructions are not intended to change, this can be a ROM memory.

[0063] Any data which CPU 1430 requires to perform its instructions are stored in data memory 1420.

[0064] CPU 1430 is coupled to a clock 1440 to determine the time of day and times between measured intervals. The current time or elapsed time may be compared to the timing stored in the prestored timing 1210 to determine if any actions are required.

[0065] CPU 1430 outputs its sounds to an output section 1100. In this embodiment, output section 1100 has a playback unit 1130 coupled to the CPU which receives sounds to be output at the proper time, synthesizes the proper sound, amplifies the sounds and then drives a speaker 1110 to create the audible sound.

[0066] In an alternative embodiment, a user is allowed to modify the functioning of the doll 1000. The comments may be modified or added, the actual voice of the user may be used and the comments may be indicated as scheduled or randomly timed events.

[0067] The doll 1000 will have some type of user interface 1340 which is coupled to the CPU 1430. A user may interact with doll 1000 through some type of user interface 1340 to adjust the parameter under which doll 1000 is operating. These may be buttons or other interface devices.

[0068] As shown in FIG. 1, user interface 1340 may be designed to connect to a personal computer 50. User interface may be as simple as a USB connection with driver hardware and software.

[0069] A program may be run on a personal computer 50 which allows it to interact with doll 1000 when attached at user interface 1340.

[0070] The user, working through personal computer 50 loads a program from a CD supplied with doll 1000 that allows the user to select the comments to be used or record

new ones through a microphone input device **1310**. These new comments are then stored by CPU **1430** in a recorded sound memory **1270** for later use.

[0071] The user may indicate if they are scheduled or random. The times for scheduled comments may also be set and stored in a recorded timing memory **1250**.

[0072] In another embodiment of the present invention, other input sensors are used such as a light sensor **1320** so that the doll can tell if it is light or dark.

[0073] Also, a motion sensor **1330** may be employed to sense when the doll is moving or has been picked up.

[0074] In these alternative embodiments, the doll **1000** can perform multi-parameter decisions. For example, if light sensor **1320** detects that it is dark, and motion sensor **1330** detects that the doll has not moved and CPU **1430** working with clock **1440** determine that it has been dark, and doll **1000** has not moved for quite a while, doll **1000** can drop into a low power mode similar to sleep. Once it senses activity with any of its sensors, it 'wakes up' and begin to perform its tasks.

[0075] Also, in an alternative embodiment, certain comments may be considered appropriate based upon sensed conditions. For instance, the comment "What a beautiful day", or "Good Morning" are not appropriate when it is dark or if the clock **1440** indicates that it is the middle of the night. A more appropriate comment may be "Are you having a hard time falling asleep?"

[0076] Therefore, each comment may be stored with certain constraints, or indications of appropriate conditions for each comment to be output.

[0077] FIG. **3** is a simplified flowchart indicating the initialization phase of the embodiment of the present invention of FIGS. **1** and **2**.

[0078] The user interface **1340** of FIG. **2** may operate to interact with the user directly, or through a connected personal computer **50**.

[0079] After starting up, it is determined if the user interface is active. If it is not, "no", then processing skips the initialization procedure and continues processing at **2210** of FIG. **4**.

[0080] If the user interface is determined to be active in step **2010** "yes", then processing continues at step **2030**.

[0081] The user is asked if they would like to set up new comments to be spoken by doll **1000**. If the user responds "no", then processing continues at step **2050**.

[0082] If the answer in step **2030** is "yes", then the system prompts the user to speak into a microphone and records the comment in step **2070**.

[0083] In step **2050**, the user is asked if they would like to modify existing comments. If the answer is "no" then processing continues at step **2170**.

[0084] In step **2050**, if the user's answer is "yes", then a comment to modify is selected in step **2090**.

[0085] Processing continues after steps **2070** and **2090** at step **2110**. In step **2110**, the user is asked if the comment is to be output at random times. If so "yes", then in step **2120** the comment is marked as random and stored as such in memory.

[0086] If the answer in step **2110** is "no", then the user is prompted to set the times when the comment is to be output in step **2130**. These times will be stored in memory.

[0087] In step **2150**, conditions may be set for outputting this comment. For example, one may state that this comment is never output when it is dark. One may also set comments to be output when it is both light and the doll has been tossed around (indicated by the motion sensor).

[0088] In step **2170** the user is asked if (s)he would like to add or modify other comments.

[0089] If the answer is "yes", then steps **2030** through **2170** are repeated.

[0090] If the answer is "no", then processing continues at step **2210** of FIG. **4**.

[0091] FIG. **4** is a simplified block diagram of the operation of one embodiment of the present invention.

[0092] In step **2210**, a time is set in the future to output one or more of the comments identified as random comments.

[0093] In step **2230**, the current time is read from the clock.

[0094] In step **2250** it is determined if a random comment should be output. If so, "yes", then in step **2270** one or more comments is (are) selected from those identified as random comments. These comments may sequentially or randomly select.

[0095] In step **2280**, another time to output random comments is set. Processing then continues at step **2330**.

[0096] If the answer is "no" in step **2250** indicating that it is not time to output a random comment, then it is determined in step **2290** if it is time to output any scheduled comments.

[0097] If so, "yes", then the scheduled comments are selected in step **2310** and processing continues at step **2330**.

[0098] If the answer in step **2290** is "no", then processing also continues at step **2330**.

[0099] In step **2330**, the conditions (if any) that must be fulfilled before the comment is output are acquired.

[0100] In step **2350**, comments which have their current conditions fulfilled will be output.

[0101] In step **2370**, it is determined if the system should enter the setup phase. If so "yes", processing continues at step **2030** of FIG. **3**. If "no" then it is determined in step **2410** if the system should enter the sleep mode. This occurs in any number of defined, or predefined conditions. One may be strictly by time, in which it sleeps from 10 pm until 7 am.

[0102] Another may be programmed to sleep when there has been no sensor input for a specified period of time.

[0103] These may be pre-programmed when it is created, or initialized by the user in the setup phase.

[0104] The sleep mode is a low-power mode in which it periodically tests either its clock to see if it is at or after a wake-up time.

[0105] In another embodiment, the system is designed to wake up when it receives input from its sensors above a threshold level.

[0106] Although preferred embodiments have been described, other embodiments and modifications of the invention may become apparent to the reader. Such embodiments and modifications of the preferred and exemplary embodiments are intended to be within the scope of the present application as set forth in the appended claims.

What is claimed is:

1. A toy resembling a human or animal that aids in the treatment of a child with a medical condition comprising:

    a. a comment memory having a set of stored comments intended to remind said child of the proper actions to be taken regarding their medical condition,

    b. a timing memory stored with at least one scheduled time indicating when at least one comment is to be output,

    c. a timer for keeping an accurate track of current time,

    d. an output section for creating audible sounds when provided with a stored comment,

    e. a CPU coupled to the timer, the comment memory, and the timing memory for reading a current time from the

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clock, reading a scheduled time from the timing memory, determining when comments are to be output, and outputting the comment when the current time matches the scheduled time to the output section causing the comment to be played to said child.

2. The toy of claim **1** further comprising light sensor for indicating a condition of the doll being in the light.

3. The toy of claim **1** further comprising a sound sensor for indicating the condition of audible sounds being near the doll.

4. The toy of claim **1** further comprising a motion sensor for indicating the condition that the doll has been moved.

5. The toy of claim **1** wherein the CPU is further adapted to interact with the user to define conditions in which a specific comment will be output.

6. The toy of claim **1** wherein the CPU is further adapted to read the conditions from the sensors and compare the conditions of the sensors to the defined conditions of a specific comment to determine if that comment should be output.

7. The toy of claim **1** further comprising:

a. a microphone for recording a user's voice,

b. and the CPU is further adapted to store the recorded voice and provide the recorded voice to the output section to cause the user's voice to be output to said child.

8. A method of aiding a child having a medical condition comprising the steps of:

a. providing a toy to said child which resembles human or animal having internal circuitry,

b. initializing a toy's internal circuitry to store therapeutic instructions specifically directed to the medical condition that the child has contracted,

c. initializing the internal circuitry to play the stored therapeutic instructions at specified times to insure that the child is made aware of the proper actions to be taken at the proper times.

9. The method of claim **8** further comprising the step of:

initializing the internal circuitry with consoling comments to be played back to said child to console said child.

10. The method of claim **8** further comprising the step of:

initializing the internal circuitry with music to be played back to said child to console said child.

11. The method of claim **8** further comprising the step of:

initializing the internal circuitry with songs recorded from the mother to be played back to said child to console said child.

12. The method of claim **8** further comprising the step of:

initializing the internal circuitry with education comments directed to the specific medical disorder that said child has to explain procedures to said child.

13. The method of claim **8** further comprising the step of:

adding the condition that the comments are played only during certain time periods.

14. The method of claim **8** wherein the comments are played only when specified conditions are met.

15. The method of claim **14** wherein a specific condition is that the toy senses that it is light with its sensor.

16. The method of claim **14** wherein a specific condition is that the toy senses that it has been moved recently.

17. The method of claim **14** wherein a specific condition is that the toy senses sounds above a specified level.

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