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(54) **WEARABLE TOY AND METHOD**

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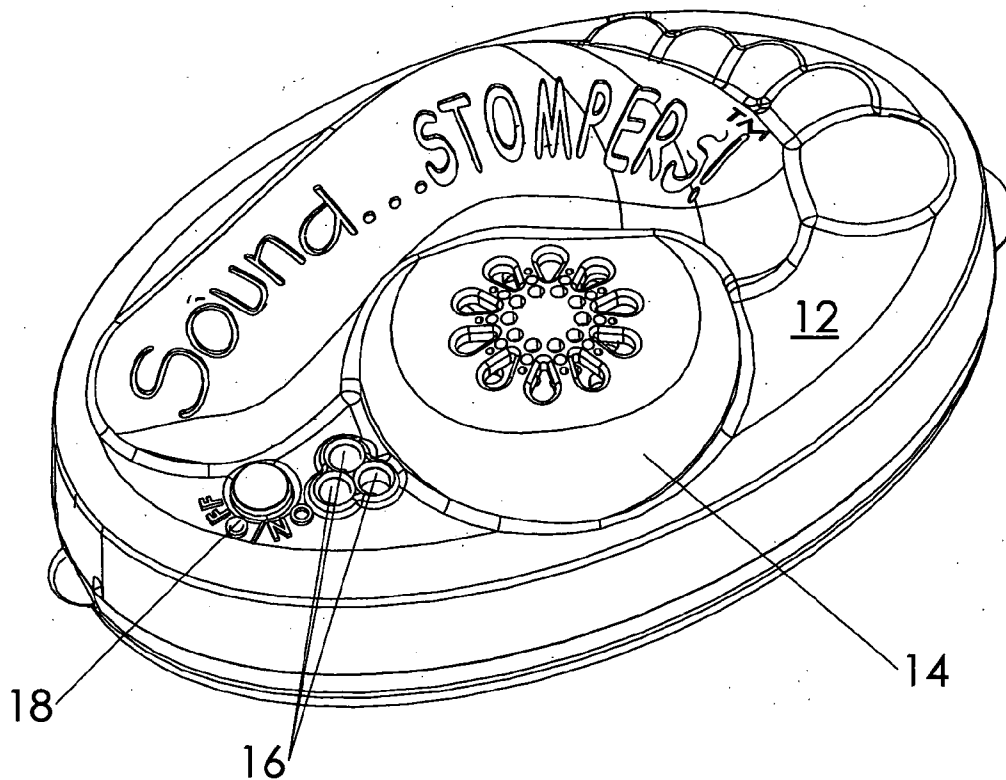
(57) **ABSTRACT**

(21) **Appl. No.: 10/993,953**

A wearable toy has a docking portion. A memory contains a digitized sound and is affixed to the docking portion. A host has an electrical interface capable of connecting a speaker system in the host to the memory.

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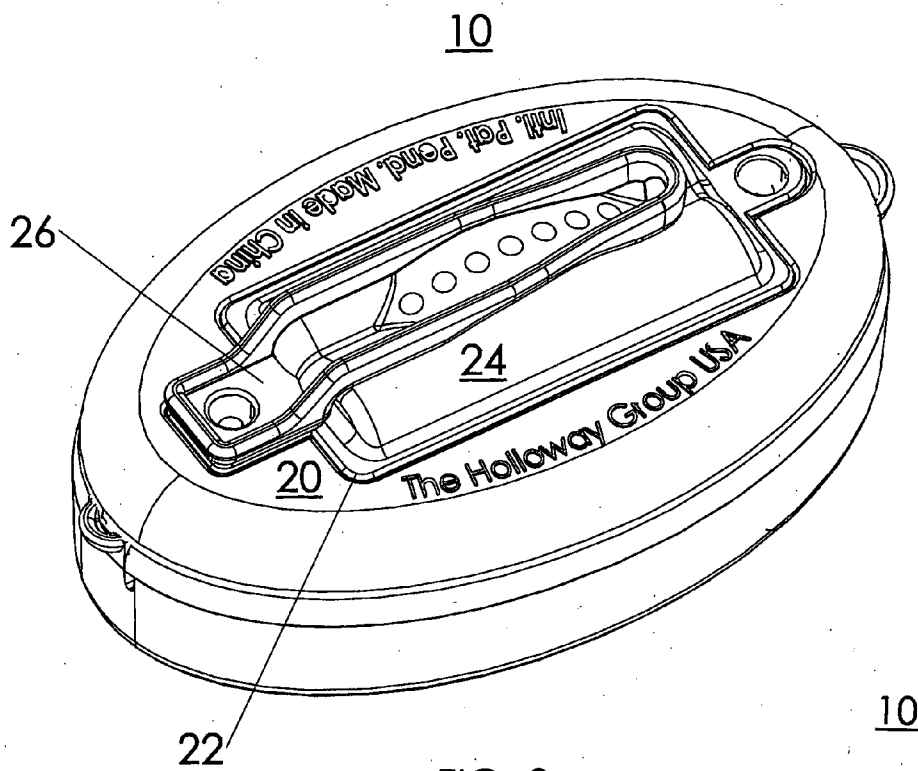


FIG. 2

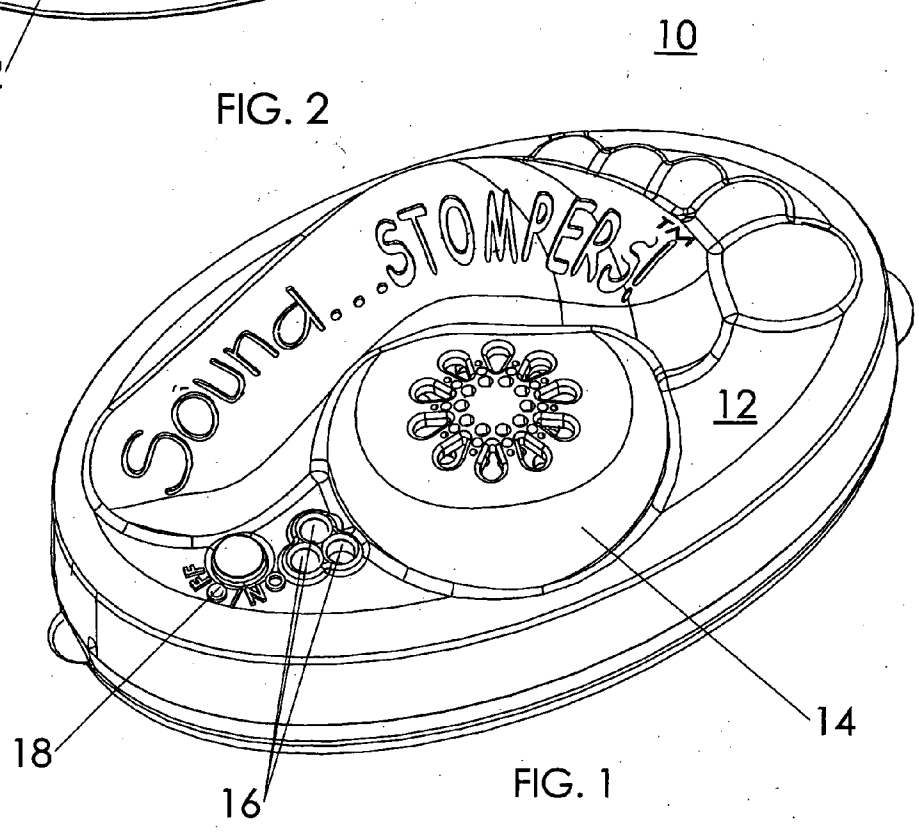


FIG. 1

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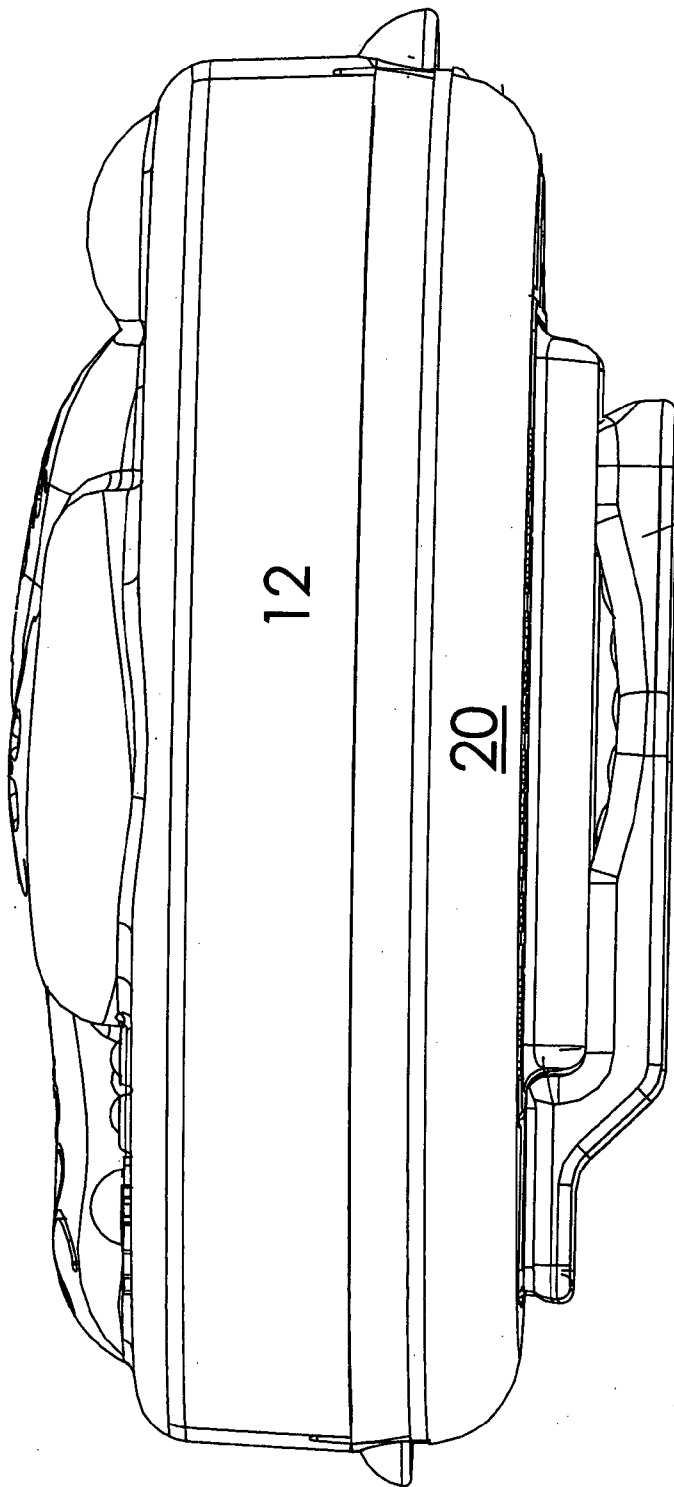


FIG. 3

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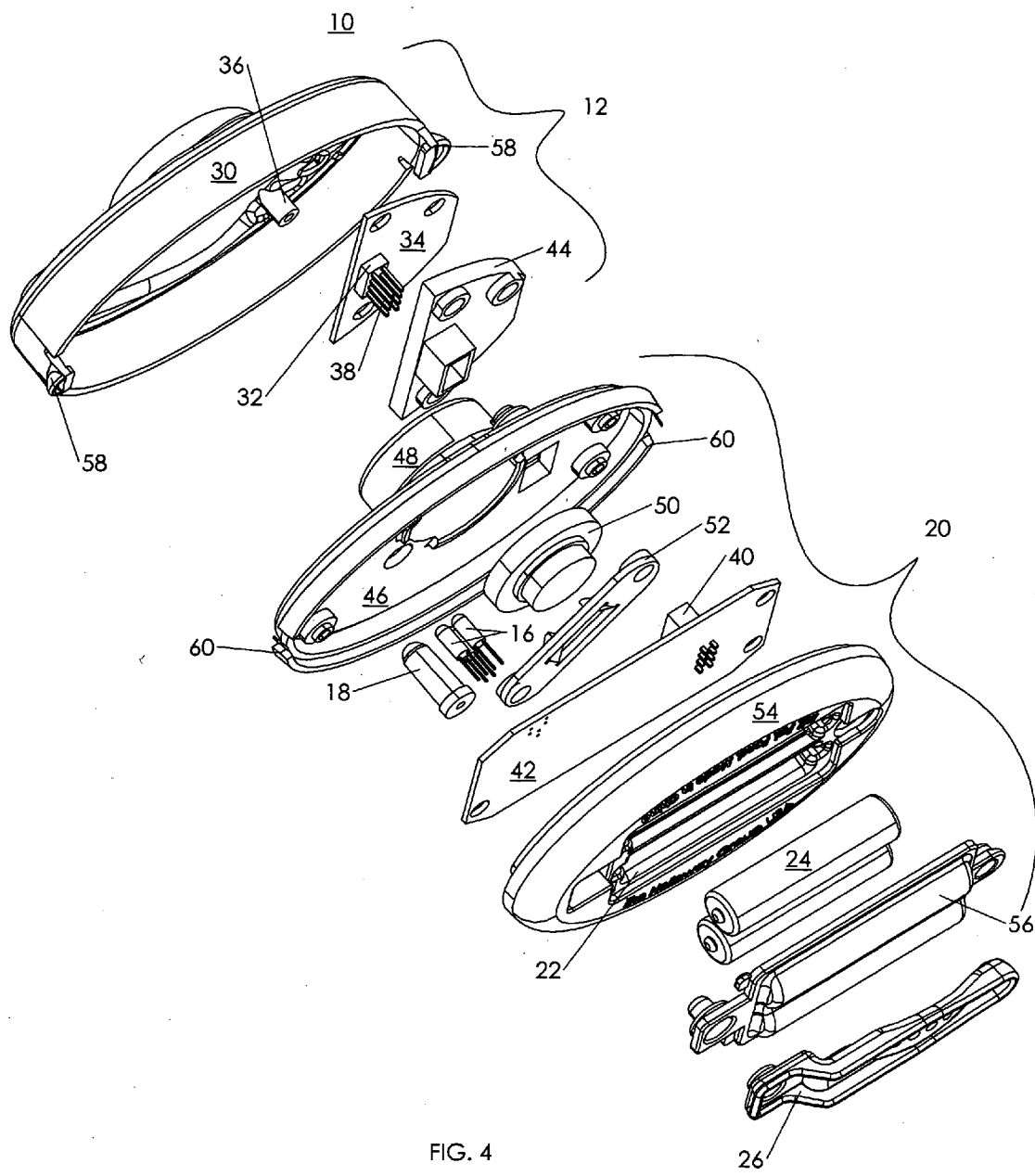


FIG. 4

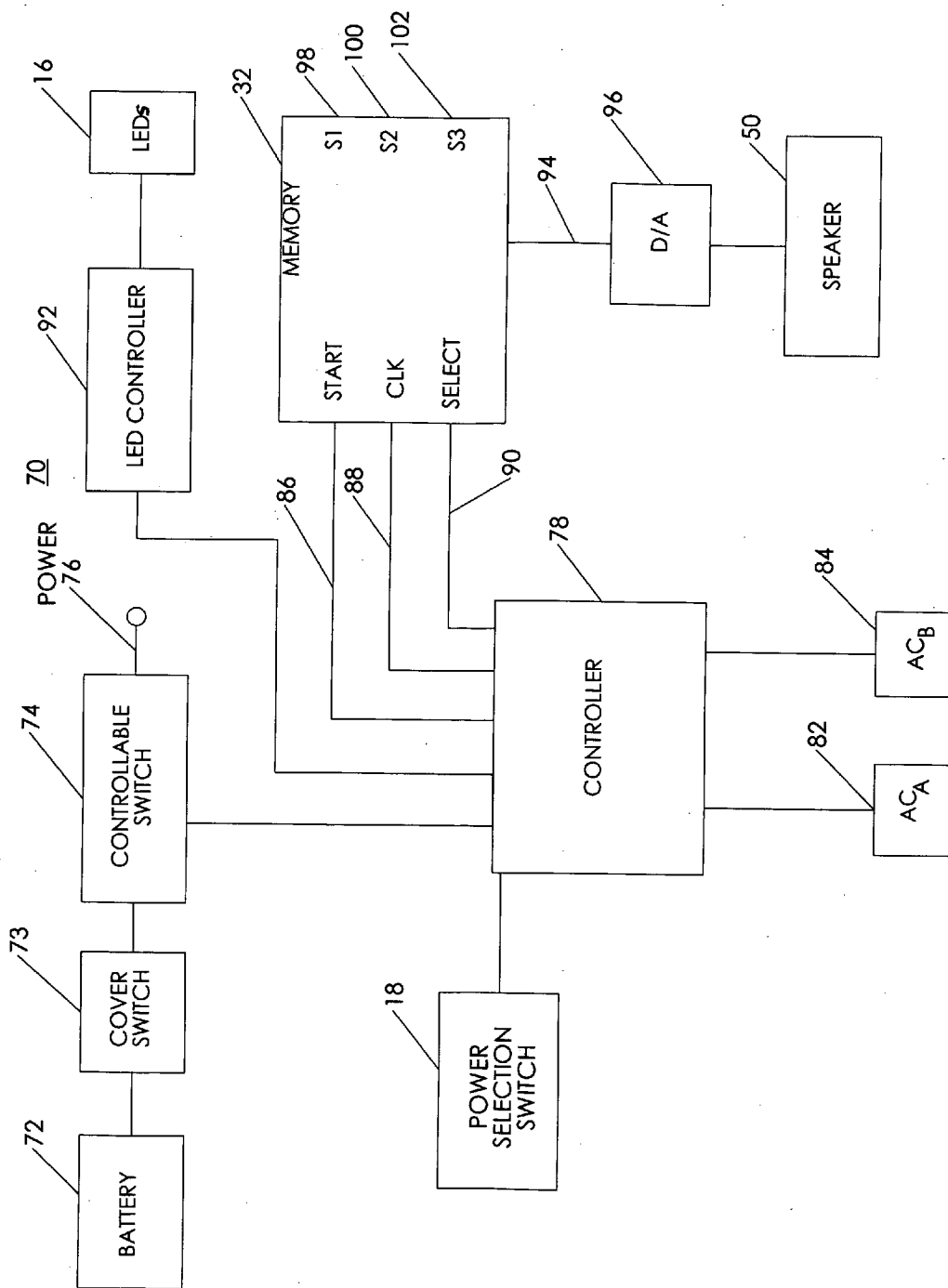


FIG 5

## WEARABLE TOY AND METHOD

### RELATED APPLICATIONS

[0001] The present invention claims priority on provisional patent application, Ser. No. 60/612590, filed on Sep. 9, 2004, entitled "Sound Stomper".

### FIELD OF THE INVENTION

[0002] The present invention relates generally to the field of toys and more particularly to a wearable toy and method.

### BACKGROUND OF THE INVENTION

[0003] People are constantly looking for new toys to entertain and amuse themselves. There have been a number of toys that make sounds, but they generally have been limited in the number of different sounds that they can produce. Thus there exists a need for a toy that can make a variety of different sounds.

### SUMMARY OF INVENTION

[0004] A wearable toy that overcomes these and other problems has a docking portion. A memory contains a digitized sound and is affixed to the docking portion. A host has an electrical interface capable of connecting a speaker system in the host to the memory. The host may have an accelerometer electrically coupled to the memory. The memory may have a number of digitized sounds. The host may have a switch that selects one of the sounds. The same switch turns the power off. The host may have a first accelerometer and a second accelerometer. The first accelerometer is coupled to a clock of the memory and a second accelerometer is coupled to a trigger of the memory. A controller may be coupled to the memory. A controllable switch may be coupled to the controller. An LED may be in the host. The host may have a clip for attaching the toy to users clothing or shoes.

[0005] In one embodiment, a method of operating a wearable toy includes the steps of determining if a docking portion is attached to a host portion. When the docking portion is attached to the host portion, a controllable power switch is turned on. If a certain acceleration is measured by the wearable toy, a sound is played. If a selection switch has been activated by a user, a second sound is selected to be played. If the selection switch is activated for less than a predetermined period of time, the second sound may be selected to be played. When the selection switch was not activated for less than the predetermined period of time, the controllable power switch may be turned off. An LED may be lighted when the certain acceleration is measured. A frequency of an acceleration may adjust a play speed of the sound based on the frequency. The docking portion may be replaced with a second docking portion. If a certain acceleration is measured by the wearable toy, a second sound stored in the second docking portion is played.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a top left perspective view of a top of a wearable toy in accordance with one embodiment of the invention;

[0007] FIG. 2 is a top left perspective view of an underside of a wearable toy in accordance with one embodiment of the invention;

[0008] FIG. 3 is a side view of a wearable toy in accordance with one embodiment of the invention;

[0009] FIG. 4 is an exploded bottom left perspective view of a wearable toy in accordance with one embodiment of the invention; and

[0010] FIG. 5 is a block diagram of the electronics of a wearable toy in accordance with one embodiment of the invention.

### DETAILED DESCRIPTION OF THE DRAWINGS

[0011] The present invention describes a wearable toy that has a number of different sounds. The available sounds can be changed by changing a cover or docking portion of the wearable toy. This allows users to trade and collect different sounds for the toy. The sounds are activated by an acceleration of the wearable toy. The toy may be clipped to a user's clothing or shoes. As the user walks the bounce or acceleration of the user's feet will result in a sound clip being played. In addition, the toy has a number lights that blink when the acceleration is sensed by the toy.

[0012] FIG. 1 is a top left perspective view of a top of a wearable toy 10 in accordance with one embodiment of the invention. The toy 10 has a top cover or docking portion 12 with a speaker outlet 14. A number of LEDs 16 also extend through the top cover 12. An on-off and selection switch 18 is found on the top cover 12. FIG. 2 is a top left perspective view of an underside of a wearable toy 10 in accordance with one embodiment of the invention. The underside or host 20 has a slot 22 for receiving batteries 24. The batteries may be held in place by a cover not shown. The clip 26 extends over the battery cover and is used for attaching the toy 10 to a user's clothing or shoes. FIG. 3 is a side view of a wearable toy 10 in accordance with one embodiment of the invention. This figure illustrates the clip 26 more clearly.

[0013] FIG. 4 is an exploded bottom left perspective view of a wearable toy 10 in accordance with one embodiment of the invention. Starting at the top of the toy 10 is a cover housing 30. The cover housing 30 holds a sound memory chip 32 and associated platform 34. The platform 34 may snap fit or be glued to or screwed to posts 36 in the cover housing 30. The sound memory chip 32 has electrical interface leads 38 that mate with the electrical interface 40 on an electronics motherboard 42 in the host 20. The platform 34 mates with the host electronics interface platform 44. A speaker housing 46 has a speaker shroud 48 and mates with the host electronics interface platform 44. A speaker 50 is seated in the speaker shroud 48. A plurality of LEDs 16 extend through the speaker housing 46 and the cover housing 30 through holes that are not visible in this view. An on-off and selection switch 18 also extends through the speaker housing 46 and the cover housing 30 through holes that are not visible in this view. A speaker holder 52 mates with the bottom of the speaker 50 and holds the speaker 50 in place. The electronic motherboard 42 has electrical connections to the speaker 50, LEDs 16, switch 18 and the memory chip 32. The electronics motherboard 42 mates to a bottom cover housing 54. The cover 54 has a slot 22 for receiving batteries. A battery cover 56 attaches to the cover 54. The clip 26 attaches to the battery cover 56. All the parts 30, 34, 44 of the docking portion 12 are designed to be permanently connected together and the parts 46, 52, 42, 54 of the host 20 are designed to be permanently attached. The

battery housing 56 and clip 26 are designed to be removable and may be connected together with a screw or snap fit. The docking portion 12 has clips 58 on the side of the cover housing 30 that mate with slots 60 in the speaker housing 46 to snap fit the docking portion 12 to the host 12. This also results in the electrical pins 38 electrically mating with the electrical interface 40. This allows a user to snap off a docking portion 12 and replace it with another docking portion that has a different group of sounds. This increases the play value of the toy and allows users to trade docking portions or collect them. Note that while a specific embodiment of the mechanical layout of the invention has been described, a number of variations will be apparent to those skilled in the art and all such variations are encompassed by the invention.

[0014] FIG. 5 is a block diagram of the electronics 70 of a wearable toy in accordance with one embodiment of the invention. The electronics 70 include a battery 72 coupled to a controllable switch 74 by a cover switch 73. The cover switch 73 is activated by attaching the docking portion 12 to the host 20. The output 76 of the controllable switch 74 provides power for all the electronics. Note that the power connections are not shown. The controllable switch 74 is controlled by a controller 78. The controller may be a microcontroller, microprocessor or discrete logic and electronic elements. The controller 78 is coupled to the power/selection switch 18. A pair of accelerometers 82, 84 is also coupled to the controller 78. The controller 78 has a start signal 86, a clock signal 88 and a sound bite select signal 90 coupled to the memory 32. The controller 78 is coupled to an LED (Light Emitting Diode) controller 92. The LED controller 92 is coupled to the LEDs 16. The output 94 of the memory 32 is coupled to a Digital to Analog (D/A) circuit 96. The D/A circuit 96 is coupled to the speaker 50.

[0015] In operation the docking portion 12 is attached to the host 20. This activates the cover switch 73. Since the controllable switch 74 is normally closed, power 76 is now provided to the electronic circuits 70. The controller 78 on power up activates the LED controller 92 to cause the LEDs to blink periodically while the power is on and no other activity is occurring. If the power switch 18 is depressed for less than two seconds, in one embodiment, the controller 78 sends a select signal 90 to the memory 32. The memory 32 has a number of digital sound clips (S1, S2, S3) 98, 100, 102 and the memory selects the next sound clip 100 to play. If the power switch 18 is depressed quickly again, then the next sound clip 102 is selected. When a threshold acceleration is detected by a first accelerometer 82, the controller 78 sends a start signal 86 to the memory 32. The memory 32 starts to play or output 94 the selected sound clip 98, 100, 102. The digitized sound clip is converted by the D/A circuit 96 into an analog signal that is converted into sound by the speaker 50. In one embodiment, a second accelerometer 84, which may have a lower acceleration threshold, determines a clock speed 88 of the memory 32. In one embodiment, the frequency that the second accelerometer measures the second threshold acceleration determines the clock speed 88. As a result, when the person is moving about energetically the sound plays faster and when they are moving about more slowly the sound is played more slowly. Note that when the memory 32 is activated, the LED controller 92 is also activated and the LEDs 16 are lighted in a random or other pattern. When the power switch 18 is depressed for longer than two seconds in one embodiment, the controller

78 turns off the controllable switch 74. This shuts off the power 76. The electronics 70 described herein are one way of accomplishing the tasks of the toy 10. Other embodiments will be apparent to those skilled in the art and are encompassed by the invention.

[0016] Thus there has been described a toy that has sounds that can be changed by changing a cover or docking portion of the wearable toy. This allows users to trade and collect different sounds for the toy. The sounds are activated by an acceleration of the wearable toy. The toy may be clipped to a user's clothing or shoes. As the user walks the bounce or acceleration of the user's feet will result in a sound clip being played. In addition, the toy has a number of lights that blink when the acceleration is sensed by the toy.

[0017] The methods relating to how the sounds are selected, lights are controlled, and power is turned off for the wearable toy described herein can be implemented as computer-readable instructions stored on a computer-readable storage medium that when executed by a computer will perform the methods described herein.

[0018] While the invention has been described in conjunction with specific embodiments thereof, it is evident that many alterations, modifications, and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alterations, modifications, and variations in the appended claims.

What is claimed is:

1. A wearable toy, comprising:

a docking portion;

a memory containing a digitized sound affixed to the docking portion; and

a host having an electrical interface capable of connecting a speaker system in the host to the memory.

2. The toy of claim 1, wherein the host has an accelerometer electrically coupled to the memory.

3. The toy of claim 1, wherein the memory has a plurality of digitized sounds.

4. The toy of claim 3, wherein the host has a switch that selects one of the plurality of sounds.

5. The toy of claim 4, wherein the switch turns a power off.

6. The toy of claim 1, wherein the host has a first accelerometer and a second accelerometer, the first accelerometer coupled to a clock of the memory and a second accelerometer coupled to a trigger of the memory.

7. The toy of claim 1, further including a controller coupled to the memory.

8. The toy of claim 7, further including a controllable switch coupled to the controller.

9. The toy of claim 1, further including an LED in the host.

10. The toy of claim 1, wherein the host has a clip.

11. A method of operating a wearable toy, comprising:

a) determining if a docking portion is attached to a host portion;

b) when the docking portion is attached to the host portion, turning on a controllable power switch;

- c) determining if a certain acceleration is measured by the wearable toy; and
- d) when the certain acceleration is measured by the wearable toy, playing a sound.
- 12.** The method of claim 11, further including the steps of:
  - e) determining if a selection switch has been activated by a user;
  - f) when the selection switch has been activated by a user, selecting a second sound to be played.
- 13.** The method of claim 12, wherein step (f) further includes the steps of:
  - f1) determining if the selection switch was activated for less than a predetermined period of time;
  - f2) when the selection switch was activated for less than the predetermined period of time, selecting the second sound to be played.
- 14.** The method of claim 13, further including the step of:
  - f3) when the selection switch was not activated for less than the predetermined period of time, turning off the controllable power switch.

- 15.** The method of claim 11, wherein step (c) further includes step of:
  - c1) lighting an LED when the certain acceleration is measured.
- 16.** The method of claim, 11, wherein step (c) further includes the step of:
  - c1) determining a frequency a predetermined acceleration occurs and adjusting a play speed of the sound based on the frequency.
- 17.** The method of claim 11, further including the steps of:
  - e) replacing the docking portion with a second docking portion;
  - f) determining if the certain acceleration is measured by the wearable toy; and
  - g) when the certain acceleration is measured by the wearable toy, playing a second sound stored in the second docking portion.

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