[0233] **FIG. 18B** is a perspective view of the diced battery cell and LED after it has been formed into a lighting device in which the sheet **1600** in which the battery is deposited becomes an outer case. The LED can be activated by enabling the switch **1604**. By enabling the switch **1604**, the LED can be turned on. The sheet **1600** acts as an outer case of the lighting device formed **1620**.

[0234] **FIGS. 18C and 18D** show another embodiment of the invention for a lighting device. In this particular embodiment, again a strip **1600** is provided with a switch **1602** and an LED **1604**. In this particular embodiment, the LED is positioned so that it extends beyond the length of the sheet **1600**. In this particular embodiment, the sheet **1600** is rolled along its longer dimension around the LED **1604** to form an elongated case having the LED **1604** at one end of the case and a switch **1602** at the other end of the case. This forms a light emitting diode light **1630** in which the dice sheet **1600** is part of the case.

[0235] **FIGS. 19A, 19B** and 19C, in some instances, is necessary to keep the battery portions **1110** and **1110'** of a power source or energy source flat and not curved when it is formed.

[0236] **FIG. 19A** shows a sheet **1300** which includes a plurality of individual cells such as **1110** and **1110'** which are an elongated strips and include fold lines, such as **1710**. **FIG. 19B** is a plan view of a diced strip **1700** including a plurality of battery cells **1110**, **1110'** and **1110"**. It should be noted that the battery cells **1110"**, which are located near one end of the strip **1700**, are smaller than the battery cells formed at the other end of the strip **1700**. For example, battery cell **1110"** has a very thin width while the battery cell **1110** is roughly more rectangularly shaped. The strip **1700** is folded successively along fold lines **1710** to form a box of cells, as shown in **FIG. 19C**. The smaller cells **1110"** are in the inside or inner core of the box while the larger cells **1110** form the outer sides of the box. Each of the cells **1110**, **1110'** and **1110"** and the cells in between those particular cells are placed in series with one another. The end result is a cubically formed battery cell **1720**, as shown in **FIG. 19C**.

[0237] **FIG. 20** is a cutaway side view of an enclosure portion that includes a sheet having a plurality of battery cells. It should be noted that we have discussed thus far that a sheet of battery cells, such as the one shown in **FIG. 15**H, can either be placed on the outside surface of an enclosure or on the inside surface of an enclosure or it can be formed or deposited upon an inside or outside surface of the enclosure. **FIG. 20** shows that an enclosure portion **1800** having an interior surface **1801** and an exterior surface **1802** can be injection molded around a battery formed on a sheet. The battery could be a single battery, as is shown in **FIG. 15**B, or it could be a multi-celled battery, as shown in **FIG. 15H**. In other words, a sheet **1820** including one or more, or at least one battery cell **1110** formed by the above methods, could be held within a mold and a suitable plastic could be injection molded about or around the battery cell **1820**. The mold could also include pins that electrically connect the battery **1820** to the interior surface **1801** of the enclosure portion **1800**. The pins are shown by reference numerals **1821** and **1822**.

[0238] **FIG. 21A** is a flow chart that depicts a process for recycling device enclosure portions or for recycling batteries **1110** or battery cells **1110**. Because the battery cell **1110** and batteries made from a number of these battery cells **1110** can be recharged many, many times, it is contemplated that any electronics associated with this circuit may become obsolete over time and, therefore, a method of recycling the batteries is also part of this invention.

[0239] The first step, depicted by reference numeral **1900**, is to determine if the electronics within a circuit are obsolete. Electronics are typically obsolete due to technology advances in the electronics, which may occur over a number of years. If the electronics are obsolete, then the battery **1110** or series of cells **1110** may be removed from a device cover or enclosure portion, as depicted by reference numeral **1910**. The next step is to replace the old electrical components with new electrical components, as depicted by reference numeral **1920**. This first process is useful for enclosure portions where the battery or number of cells **1110** cannot be easily removed from the enclosure portion.

[0240] A second process is shown in **FIG. 21B**. The second process shown in **FIG. 19B** is useful for devices in which the battery **1110** may be removed easily from the enclosure portion. As before, the first step, depicted by reference numeral **1930**, is to determine if the electronics are obsolete. If they are, the battery **1110** is merely removed from the case for the enclosure portion and recycled for use in another enclosure portion having a similar contour, as depicted by reference numeral **1950**.

[0241] In some embodiments, multiple cells are stacked in the original device, the manufacture method would include connection tabs that are coupled together to form the appropriate cell capacity and voltage for some particular electronic device. Upon reaching the end of the device's life, such battery stacks could have the tabs clipped or otherwise disconnected from each other so that the battery stack could be disassembled and re-assembled in a different capacity/voltage configuration.

Design and Fabrication of Solid-State Power Sources Cofabricated with Solid-State Integrated Circuitry

[0242] **FIG. 22A** shows a schematic circuit of an embodiment of a device **2200** having an integrated battery **2320** and circuit **2330** sharing a common terminal **2318**. In other embodiments, more than one terminal is common between battery **2320** and circuit **2330**, for example, when battery **2320** includes a stack having plurality of series-connected cells, and circuit **2330** connects to two or more different taps in the cell stack (e.g., if each cell of a two-cell stack provided an open-circuit potential of 3.6 volts, circuit **2330** could connect to the top of the cell stack for a portion of its circuitry needing 7.2 volts, and also to a center tap of the cell stack for a portion of its circuitry needing 3.6 volts, or a split voltage battery supply could be wired to provide a ground connection at the center tap and plus and minus 3.6 volts at the top and bottom of the stack). Common terminal **2318** connects battery **2320** to circuit **2330**, and optionally can be brought out as a connection to other components. In some embodiments, common terminal connects the cathode of battery **2320** to circuit **2330**; in other embodiments, terminal **2318** connects the anode of battery **2320** to circuit **2320** as shown in **FIG. 22A**. In some embodiments, circuit **2330** includes one or more conductors **2317** that are used to connect to other components and/or to the other connections