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U.S. Patent 7,187,858

U.S. Patent 7,187,858 (“*Monument Peak*” or the “patent-at-issue”) was filed on November 9, 2004. According to the paragraph in the specification entitled “Cross-Reference to Related Applications”, the patent-at-issue is a continuation-in-part of commonly assigned, application Ser. No. 10/331,429 filed December 30, 2002, and now abandoned. Claim 1 of the patent-at-issue describes a camera with a power supply and a voltage detecting circuit. The voltage detecting circuit detects the amount of voltage at the power source and generates a level signal. A controller receives the signal and prevents the capturing system from taking an image when the voltage level signal shows an insufficient power available in the power supply to operate and capture images.

The primary reference, U.S. Patent 6,233,016 (“*Apple*”), was filed on June 9, 1999, and claims an earliest priority date on April 16, 1996. The patent is directed to a system and method of managing the utilization of power supply in a camera. The method includes monitoring the voltage camera and generating a signal if the amount of voltage is below a predetermined threshold. The power manager receives the signal and reduces the camera’s power consumption in response to the signal.

The secondary reference, JP2001327072 (“*Canon*”), was filed on May 11, 2000, and claims priority on the same date. The patent describes a battery for supplying power to the camera and an operation switch for turning the camera on/off. The system also includes a control circuit for controlling the operation of the camera and a power supply circuit capable of controlling and supplying power to the control circuit. The camera detects the voltage of the battery and generates a warning if the voltage is lower than the prescribed voltage. If determined to be lower, the power circuit is turned off, stopping the supply of power to the control circuit.

A sample claim chart comparing claim 1 of *Monument Peak* to *Apple* and *Canon* is provided below.

US7187858 (“ <i>Monument Peak</i> ”)	A. US6233016 (“<i>Apple</i>”) B. JP2001327072 (“<i>Canon</i>”)
<p>1.pre. A camera for use with a power supply, the camera comprising:</p>	<p>A. US6233016</p> <p>1. A system for managing utilization of a power source within a camera having a plurality of power states each consuming a certain amount of power, comprising: <i>Apple</i> at claim 1</p> <p>“The present invention is a system and method for managing the power demands placed upon a battery within a digital camera so as to avoid a condition where the battery is unable to provide a sufficient voltage for the camera's minimal operating needs while maximizing the battery's useful life.” <i>Apple</i> at col. 2:50-55</p> <p>B. JP2001327072</p> <p>1. A battery for supplying power to a camera, an operation switch for turning on / off the power of the camera, <i>Canon</i> at p. 1 of the translation document</p>
<p>1.a. voltage detecting circuit adapted to detect a voltage level at the power supply and to generate a voltage level signal;</p>	<p>A. US6233016</p> <p>1. A system for managing utilization of a power source within a camera having a plurality of power states each consuming a certain amount of power, comprising: a voltage sensor, responsive to at least one among a plurality of predetermined voltage levels of the power source, each of said levels corresponding to one of said power states, for generating an alert signal; and <i>Apple</i> at claim 1</p> <p>3. The system of claim 1 wherein the voltage sensor continuously monitors the power source. <i>Apple</i> at claim 3</p> <p>B. JP2001327072</p> <p>2. A battery voltage detecting means for detecting a voltage of the battery, and a warning means for issuing warning information to the outside when the voltage of the battery detected by the battery voltage detecting circuit is lower than a predetermined value, The power supply circuit is configured to be capable of supplying power to enable operation of the control circuit even when the voltage of the battery is equal to or less than the predetermined value, and</p>

<p>(cont.) 1.a. voltage detecting circuit adapted to detect a voltage level at the power supply and to generate a voltage level signal;</p>	<p>power is supplied to the control circuit by operating the operation switch. When supplied, when the battery voltage detection circuit detects that the battery voltage is lower than a predetermined value, the control circuit outputs warning information by the warning unit without operating the camera. The digital camera according to claim 1, wherein the power supply circuit is turned off after the power is emitted. <i>Canon</i> at p. 1 of the translation document</p>
<p>1.b. an image capture system for performing a set of power-consuming image capture operations; and</p>	<p>A. US6233016 “The camera 10 is used to capture an image of an object 12, and preferably comprises an image capture unit 14 and a signal processing unit 16 coupled by an electronic interface 22, a computer 20 coupled to the signal processing unit 16 by a computer bus 64, and a power supply unit 17 providing power over a power bus 68 to the image capture unit 14, the signal processing unit 16 and the computer 20. The power supply unit 17 is also coupled via the computer bus 64 to the computer 20, as is discussed with reference to FIG. 3. An image is captured by the image capture unit 14 in response to a set of control signals passed on from the computer 20 by the signal processing unit 16.” <i>Apple</i> at col. 3:56-67</p> <p>1. A system for managing utilization of a power source within a camera having a plurality of power states each consuming a certain amount of power, comprising: <i>Apple</i> at claim 1</p> <p>2. The system of claim 1 wherein: a first one of said power states configures the camera for full power operation; and a second one of said power states configures the camera for reduced power operation. <i>Apple</i> at claim 2</p> <p>7. A method for managing utilization of a power source within a camera having a plurality of power consumption states corresponding to a plurality of voltage levels of the power source, comprising the steps of: allowing the camera to operate in a power consumption state corresponding to the detected voltage level. <i>Apple</i> at claim 7</p>

<p>(cont.) 1.b. an image capture system for performing a set of power-consuming image capture operations; and</p>	<p>B. JP2001327072 “According to a second aspect of the present invention, in the digital camera according to the first aspect, a battery voltage detecting means for detecting a voltage of the battery, and a battery voltage detected by the battery voltage detecting circuit is a predetermined voltage. Warning means for issuing warning information to the outside when the voltage is lower than the predetermined value, wherein the power supply circuit includes a power supply that enables the control circuit to operate even when the voltage of the battery is equal to or less than the predetermined value.” <i>Canon</i> at p. 2 of the translation document</p>
<p>1.c. a controller that prevents the image capture system from performing the set of image capture operations when the voltage level signal indicates there is power available in the power supply which is less than sufficient to perform all of the operations in the set of image capture operations, whereby the camera is rendered inactive before the power supply has practically run out of power.</p>	<p>A. US6233016 1. A system for managing utilization of a power source within a camera having a plurality of power states each consuming a certain amount of power, comprising: . . . a power manager coupled to the voltage sensor, responsive to said alert signal, for placing the camera into one of said power states. <i>Apple</i> at claim 1 “The method of the present invention preferably comprises the steps of monitoring the power source's voltage, generating a signal if that voltage falls below a pre-determined threshold, and reducing the camera's power consumption in response to the signal.” <i>Apple</i> at col. 3:1-5 12. The method of claim 11 further comprising the step of initializing the camera into a high-level power state; wherein the step of allowing includes the steps of: configuring the camera into a mid-level power state if the voltage level of the power source falls below the threshold voltage level; and configuring the camera into a low-level power state if the voltage level of the power source falls below the threshold voltage level while the camera is in the mid-level power state. <i>Apple</i> at claim 12 17. An apparatus for managing utilization of a power source within a camera having a plurality of power consumption states corresponding to a plurality of voltage levels of the power source, comprising: . . .</p>

(cont.)

1.c. a **controller** that prevents the image capture system from performing the set of image capture operations when the voltage level signal indicates there is power available in the power supply which is less than sufficient to perform all of the operations in the set of image capture operations, whereby **the camera is rendered inactive before the power supply has practically run out of power.**

means for **executing a power failure shut-down sequence, if the voltage level of the power source has not risen above the threshold voltage level.** *Apple* at claim 17

B. JP2001327072

1. A battery for supplying power to a camera, **an operation switch for turning on / off the power of the camera, a control circuit for controlling the operation of the camera, and a control circuit configured to enable on / off control.** *Canon* at p. 1 of the translation document

“According to a fifth aspect of the present invention, in the power supply control method for a digital camera according to the fourth aspect of the present invention, **the power supply circuit may be adapted to operate when the voltage of the battery is lower than a predetermined value.** Also, the power supply for **enabling the operation of the control circuit is configured to be performed, and when power is supplied to the control circuit by operating the operation switch, if the voltage of the battery is lower than a predetermined value,** ,

The method is characterized in that **the power supply circuit is turned off after issuing warning information to the outside by a warning means without operating the camera using the control circuit.**” *Canon* at p. 3 of the translation document