IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of: Lee Atkinson	Atty. Docket No.: 84501409
Serial No.: 15/111,536	Filing Date: July 14, 2016
Confirmation No.: 7039	Customer No.: 22879
Examiner: Courtney G. McDonnough	Group Art Unit: 2866

Title of Invention: CABLE ERROR SIGNAL

AMENDMENT UNDER 37 C.F.R. §1.116

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Honorable Commissioner:

This amendment is in response to the Office Action mailed March 14, 2019, setting a three-month statutory period for response. Therefore, this amendment is timely filed. The Applicant respectfully requests that the Examiner favorably consider the following remarks and amend the present application in the manner set forth in this amendment:

IN THE SPECIFICATION:

Please amend the specification as follows:

Page 6, paragraph [0018]:

[0018] The message may include ~~a comparison of~~ a system characteristic of the computing device based on the cable. For example, the computing device ~~system~~ may determine to use [[and]] an integrated graphics module that draws less power than a discrete graphics module if the cable can carry no more than 10 watts or a discrete graphics module if the cable can carry up to 60 watts or in another example the computing device ~~system~~ may not charge a battery on 10 watts but would charge the battery on 60 watts. The error signal may include information comparing the system operation of the computing device on 10 watts with the system operation of the computing device on 60 watts.

IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

1. (Currently Amended) A computing device comprising:

a data port to receive power;

a detector to identify a plug on an end of a cable when the cable is attached to the data port; and

a first controller to determine a type of the cable based on identification of the plug, wherein the first controller is to determine if a cable when attached to the data port is capable of providing power greater than a threshold level to the computing device based upon a combination of the type of the cable and negotiation by the first controller with a second controller to determine maximum power capable of being supplied over the cable, and

wherein the first controller is to generate an error signal to alert a user ~~that~~ when the cable does not provide rated power over the threshold level to the computing device.

2. (Currently Amended) The device of claim 1, wherein the first controller is to cause the computing device to draw power at or below the threshold level when the cable does not provide rated power over the threshold level.

3. (Original) The device of claim 1, wherein the error signal is at least one of a message on a display of the computing device and an LED adjacent the data port.

4. (Currently Amended) The device of claim 3, wherein the message further comprises a comparison of a system characteristic of the computing device on power drawn by ~~based on~~ the cable and the system characteristic of the computing device on the rated power over the threshold level.

5. (Currently Amended) The device of claim 3, wherein the first controller is to negotiate with [[a]] the second controller in [[a]] the power source over a voltage bus of the data port to determine if the rated power of the cable is over the threshold level.

6. (Original) The device of claim 1, wherein the threshold level is 5 volts or 1.5 amps.

7. (Original) The device of claim 1, further comprising a link in the error signal to purchase a cable to provide power above a threshold.

8. (Original) The device of claim 1, wherein the cable type is determined from an ID pin in a plug connected to the cable.

9. (Currently Amended) A method of providing power supply feedback comprising:

determining a type of cable connected to a serial data port of a computing device by a plug, wherein the computing device includes a first controller, and wherein the determining of the type of cable is carried out by the first controller determining the type

of cable from the plug;

the first controller determining if the type of cable connected is capable of supplying power above a threshold amount based on negotiation by the first controller with a second controller to determine maximum power capable of being supplied over the cable; and

the first controller generating an error indication if the cable does not supply power above the threshold amount.

10. (Original) The method of claim 9, wherein the serial data port is a universal serial bus power delivery port (USB-PD).

11. (Previously Presented) The method of claim 9, further comprising generating a comparison of the computing device performance when the cable is a USB-PD compliant cable with the computing device performance when the cable is a non-compliant cable.

12. (Original) The method of claim 11, further comprising including the comparison in the error indication.

13. (Original) The method of claim 9, wherein the threshold amount is 5 volts or 1.5 amps.

14. (Currently Amended) A non-transitory computer readable storage medium

comprising code executable by a first controller in a computing device having a serial data port with a cable connected to the serial data port by a plug, such that when the code is executed by the first controller in the computing device, the code causes the first controller to:

determine a type of the cable connected to the serial data port of the computing device;

determine if the type of cable connected is capable of supplying power above a threshold amount based on negotiation by the first controller with a second controller to determine maximum power capable of being supplied over the cable; and

generate an error indication if the cable does not supply power above a threshold amount.

15. (Currently Amended) The non-transitory computer readable storage medium of claim 14, further comprising code that if executed causes a computing device to:

generate the error indication if the cable does not supply power above a threshold amount of 5 volts or 1.5 amps.

16. (Original) The method of claim 9, wherein the cable type is determined from an ID pin in the plug connected to the cable.

17. (Original) The method of claim 9, wherein if the cable does not supply power above a threshold amount, power is still transferred to the computing device but at a level at or below the threshold amount.

18. (Currently Amended) The non-transitory computer readable storage medium of claim 14, wherein the cable type is determined from an ID pin in the plug connected to the cable.

19. (Currently Amended) The non-transitory computer readable storage medium of claim 14, wherein if the cable does not supply power above a threshold amount, power is still transferred to the computing device but at a level at or below the threshold amount.

REMARKS

I. Status of the Application

With this amendment, claims 1-19 are pending in the application. Paragraph [0018] of the specification and claims 1, 2, 4, 5, 9, 14, 15, 18, and 19 have been amended. No new matter is being added to the application, and entry of the amendment is respectfully solicited. Support for the amendments can be found in paragraphs [0010], [0011], [0015] and [0024] of the original application as filed. In view of the following discussion, the Examiner is respectfully requested to reconsider and withdraw the rejections.

II. Consideration under AFCP 2.0

The Applicant respectfully requests that this Amendment, including the amendment to claims 1, 2, 4, 5, 9, 14, 15, 18, and 19 be considered under the After Final Consideration Pilot Program 2.0. The Applicant is concurrently submitting form PTO/SB/434, and is willing and available to participate in any interview initiated by the Examiner concerning this Amendment. The Applicant contends that the amendments to the claims would not necessitate a significant burden for consideration by the Examiner or require extensive searching, and as such entry of this amendment is respectfully requested.

III. The 35 U.S.C. §112 Rejections

Claim 4 is rejected under 35 U.S.C. §112(b) as being indefinite because the subject-matter of claim 4 is unclear according to the Office Action. In response, the

Applicant has amended claim 4 and submits that the amended claim limitations do not invoke 35 U.S.C. §112(b). In particular, claim 4 and paragraph [0018] of the specification have been amended to provide clarity to the terms 'system characteristic' and 'comparison'. No new matter is being added to the application as the amended terminology is being presented to be consistent with the remainder of the application.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

IV. The 35 U.S.C. §101 Rejections

Claims 14-15 and 18-19 are rejected under 35 U.S.C. §101 based on patent ineligibility because the claims are directed to a "computer-readable medium", which does not fall within at least one of the four categories of patent eligible subject matter.

In response, the Applicant has amended claims 14-15 and 18-19 and submits that the amended claims are directed to a "non-transitory computer readable storage medium;" i.e., a device or an article of manufacture, which interacts with a computing device and is not merely information. Therefore, claims 14-15 and 18-19 are directed to patent eligible subject-matter.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

V. The 35 U.S.C. §103 Rejections

Claims 1-2, 6-9 and 13-19 have been rejected under 35 U.S.C. §103 as being unpatentable over Carlsen (US Patent Application 2012/0297207) in view of Dunstan et

al., hereinafter referred to as "Dunstan"). Claims 1-3 have been rejected under 35 U.S.C. §103 as being unpatentable over Carlsen in view of Dunstan and further in view of Ho et al. (US Patent Application 2012/0185616), hereinafter referred to as "Ho". Claim 7 has been rejected under 35 U.S.C. §103 as being unpatentable over Carlsen in view of Dunstan and further in view of Lehtiniemi et al. (US Patent Application 2013/0268414), hereinafter referred to as "Lehtiniemi". Claim 10 has been rejected under 35 U.S.C. §103 as being unpatentable over Carlsen in view of Dunstan and further in view of Waters (US Patent Application 2014/0173141). Claims 11-12 have been rejected under 35 U.S.C. §103 as being unpatentable over Carlsen in view of Dunstan and further in view of Blanc et al. (US Patent Application 2015/0142993).

The Applicant traverses the rejections based on the following discussion. Independent claims 1, 9, and 14 have been amended to explicitly set forth "*wherein the controller is to determine if a cable when attached to the data port is capable of providing power greater than a threshold level to the computing device based upon a combination of the type of the cable and negotiation by the controller with a second controller to determine maximum power capable of being supplied over the cable*".

To establish a prima facie case of obviousness, the Examiner must, among other things, determine the scope and content of the prior art and ascertain the differences between the claimed invention and the prior art. *See* MPEP 5 2144.08(11)(A), 8th Ed., Rev. 6 (September 2007). Furthermore, the Examiner must make findings with respect to all of the claim limitations and must make "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *See* MPEP §§ 2143.03 and 2141(111).

The Applicant respectfully submits that it is well-established law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the Examiner must provide a reasoned explanation as to why one of ordinary skill in the art would be motivated to combine the teachings of the prior art as proposed by the Office Action.

The Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007), explained that, "because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known," "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." Id. at 418-19, 127 S.Ct. 1727. (*Personal Web Technologies, LLC v. Apple, Inc., 848 F.3d 987 at 991-992(Fed. Cir. 2017)*).

In *Personal Web v. Apple*, the Board was found to have failed to adequately explain and support the conclusions that the combination of prior art disclosed all the elements recited in the claims at issue and that a relevant skilled artisan would have been motivated to combine the prior art teachings in the same way as the claims and reasonably expected success. *Id. at 993*.

For at least the reasons set forth below, Carlsen in combination with Dunstan does not disclose or suggest implicitly or explicitly all of the features of amended independent claim 1.

First, the Applicant clarifies that subject matter of amended independent claim 1 is directed to a computing device comprising a data port that receives power through a

cable and a detector that identifies a plug on an end of the cable when the cable is attached to the data port. Further, the computing device comprises a first controller that determines a type of the cable based on identification of the plug. The first controller then determines if the cable when attached to the data port is capable of providing power greater than a threshold level to the computing device based upon a combination of the type of the cable and negotiation by the first controller with a second controller to determine maximum power capable of being supplied over the cable. Furthermore, based upon the determination, the first controller generates an error signal to alert a user when the cable does not provide rated power over the threshold level to the computing device.

Referring to paragraphs [0010] and [0011] of the specification, the data port includes a detector such as a plug identification device detecting a signal from a plug at the end of a USB cable, which determines if a cable attached to the data port is capable of providing power greater than a threshold level to the computing device. The plug may include information about the maximum power associated with the cable or overloading the rating on the cable and the first controller may negotiate with a second controller of a power source to determine the maximum power that can be supplied over the cable. For example, the plug may identify the cable as a 60 watt cable and the first controller can negotiate with the second controller on the power source to provide no more than 60 watts on the cable. Additionally, the maximum power may be determined by detecting the state of a pin in the plug. For example, in a plug that is not capable of over 10 watts the identification pin (ID pin) may be grounded. In another example a low power cable may have an ID pin connected to ground through a resistor and to a VBUS

through a capacitor.

On the contrary, the cited reference Carlsen discloses a connector that includes a cable indicator mark indicating the cable is capable of conducting an elevated power level above the level of a legacy cable. Further, a host device of Carlsen has a receptacle including a mark detector that detects the presence or absence of the cable indicator mark when the connector is plugged onto the receptacle. Additionally, cable detection logic connected to the mark detector determines whether the mark is present and provides that indication to a source protocol. If the mark indicates that the cable is capable of conducting an elevated power level above the level of a legacy cable, then the source protocol offers to a connected device, supported power capabilities such as high voltage capability, high current capability, extra high current capability, etc. Alternately, if the mark indicates that the cable is not capable of conducting an elevated power level above the level of a legacy cable, then the source protocol limits to only the level of a legacy cable (see paragraphs [0129] of Carlsen).

To provide clarity, the technique as disclosed in Carlsen is based on the determination whether the connector includes the indicator mark indicating that the cable is capable of conducting an elevated power level above a level of a legacy cable. For example, the mark may be a small square-cut hole in the metal ground shield of a normal connector with plastic filler molded into that hole and the mark detector can be a spring contact mounted in the receptacle. The mark detector can sense the connector to be the normal connector when there would be metal in the location of the hole connected to ground potential or, alternately, not a normal connector when there is no connection to ground potential in the special cable; i.e., because the plastic filler in the

hole insulates the spring contact from ground potential (see paragraphs [0134] and [0137] of Carlsen).

As such, Carlsen merely relates to the detecting capability of a cable of conducting an elevated power level above a level of a legacy cable based on physical characteristics, specifically, location of an indication mark. Carlsen nowhere mentions a technique where such capability is determined based on a combination of the type of cable identified through the plug and negotiation between controllers of two devices; i.e., computing device and a power source device to determine the maximum power capable of being supplied over the cable, as disclosed in the present application. Therefore, Carlsen fails to disclose "*wherein the first controller is to determine if a cable when attached to the data port is capable of providing power greater than a threshold level to the computing device based upon a combination of the type of the cable and negotiation by the first controller with a second controller to determine maximum power capable of being supplied over the cable*".

Furthermore, it is also acknowledged on page 6 of the Office Action that Carlsen does not teach generating an error indication. Therefore, Carlsen also fails to disclose "*wherein the first controller is to generate an error signal to alert a user when the cable does not provide rated power over the threshold level to the computing device.*"

With reference to Dunstan, the Applicant submits that Dunstan discloses that during power delivery connection; i.e., normal power delivery operation, the sink port processes and responds to all received messages and the sink port sends appropriate messages according to the requirement of local policy. Additionally, when there is a change in power need of the sink, the sink indicates the change to the source through a

new request message. The sink port may also request one of the capabilities previously offered by the source to enable future power negotiation. In a first scenario, a sink not requesting any capability when the present negotiated power level is valid, results in retention of the present negotiated power level. In a second scenario, a sink not requesting any capability if the presently negotiated power level is no longer valid, results in an error. In a third scenario, a sink unable to fully operate at the offered capabilities, requests the default capability but indicates that it would prefer another power level and provide a physical indication of the failure to the end user (see Dunstan "During PD Connection (normal PD operation), page 24).

It should be appreciated that, according to Dunstan, the operation requesting capabilities and generating error is based on a change in the power need of the sink, and the error is not generated anywhere when the cable does not provide a rated power over the threshold level to the sink. Moreover, the sink does not determine any trait of about the cable; i.e., if the cable is capable of providing power greater than a threshold level to the computing device that may be determined based upon combination of the type of the cable and negotiation by the first controller with a second controller in a power source. Hence, Dunstan also fails to disclose integration of physical characteristics of the cable and negotiation by the computing device to determine the capability of the cable power being greater than a threshold level to the computing device. Therefore, Dunstan neither discloses "*wherein the first controller is to determine if a cable when attached to the data port is capable of providing power greater than a threshold level to the computing device based upon a combination of the type of the cable and negotiation by the first controller with a second controller to determine*

maximum power capable of being supplied over the cable", nor discloses "*wherein the first controller is to generate an error signal to alert a user when the cable does not provide rated power over the threshold level to the computing device,*" as recited in amended independent claim 1. In light of the above, the Applicant respectfully submits that the deficiencies of Carlsen are not cured by Dunstan.

The Applicant respectfully submits that independent claims 9 and 14 include features similar to amended independent claim 1. Accordingly, the aforementioned arguments advanced for amended independent claim 1 applies for independent claims 9 and 14 as well and the same is not being repeated in entirety for the sake of brevity. Therefore, in view of the above, the Applicant respectfully submits that amended independent claims 1, 9, and 14 are patentable at least because Carlsen in view of Dunstan either individually or with reasonable combination do not disclose features of amended independent claims 1, 9 and 14. In view of the foregoing, the Applicant respectfully submits that claims 1, 9, and 14 are patentable over the cited references.

Claims 1, 9, and 14 are the only independent claims and the arguments presented above apply to all three claims. Accordingly, the Applicant respectfully requests that the Examiner consider the arguments presented above and withdraw the present rejection of claims 1, 9, and 14.

In view of the foregoing, the Applicant respectfully submits that claims 1, 9, and 14 are patentable over the cited references. Further, since the additional cited references; namely, Ho, Lehtiniemi, Waters, and Blanc do not overcome the deficiencies of Carlsen in view of Dunstan, claims 2-8, 10-13, and 15-19, which depend on independent claims 1, 9, and 14, respectively, and accordingly include all the

limitations of independent claims 1, 9, and 14. Therefore, it is respectfully submitted that claims 2-8, 10-13, and 15-19 are unobvious and allowable based on the above arguments. Therefore, dependent claims 2-8, 10-13, and 15-19 are similarly patentable over the cited references not only by virtue of their dependency from patentable independent claims, respectively, but also by virtue of the additional features they define. Moreover, the Applicant notes that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added to the application.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

VI. Formal Matters and Conclusion

In view of the foregoing, the Applicant submits that claims 1-19, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 08-2025.

Respectfully submitted,

Dated: May 28, 2019 /MohammadSRahman#43029/

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