IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT NO.: 4,698,672

ISSUED: October 6, 1987

FOR: CODING SYSTEM FOR REDUCING REDUNDANCY

ATTACHMENT TO FORM PTO-1465,
REQUEST FOR *EX PARTE* REEXAMINATION

SIR:

The Public Patent Foundation ("PUBPAT"), a not-for-profit public service organization that works to protect the public from the harms caused by wrongly issued patents and unsound patent policy, respectfully requests ex parte reexamination under 35 U.S.C. §§ 302 – 307 and 37 C.F.R. § 1.510 of every claim of United States Patent No. 4,698,672 issued October 6, 1987 to Chen et al. ("'672 patent") and assigned to Compression Labs, Inc. ("CLI") because they are all invalid under 35 U.S.C. §§ 102 and 103 and their existence is causing significant public harm.[1]

THE '672 PATENT IS CAUSING SIGNIFICANT PUBLIC HARM

The '672 patent claims methods and apparatus for processing digital signals to remove redundant information. More specifically, the '672 patent claims relate to compression of digital images. Despite not making any product or service itself, CLI is using the '672 patent

[1] Appendix A contains a copy of the '672 patent.

to harass anyone that implements the Joint Photographic Experts Group ("JPEG") format, an international standard for the sharing of photo-quality images electronically. This campaign of harassment includes the filing of infringement lawsuits against dozens of companies that offer the public products or services relating to electronic image creation or distribution.[2] CLI's aggressive assertion of the '672 patent is causing substantial public harm by threatening the JPEG standard on which the public relies. Although this issue is not grounds to grant this request for reexamination, PUBPAT respectfully requests that it be considered when determining whether the validity of the '672 patent merits review by your office.

THE SUBSTANTIAL NEW QUESTION OF PATENTABILITY

The substantial new question of patentability raised by this request is whether claims 1 through 46 of the '672 patent were anticipated or rendered obvious by U.S. Patent No. 4,541,012 to Tescher et al ("Tescher et al").[3] This is a new question of patentability because Tescher et al was not of record during prosecution of the '672 patent. A detailed explanation of the pertinency and manner of applying Tescher et al to each of claims 1 through 46 of the '672 patent is set forth below.

Note that Tescher et al was owned by CLI during prosecution of the '672 patent, meaning that CLI must have been aware of its existence at the time. However, despite this and despite CLI's Rule 56 obligation, CLI never disclosed it to the PTO. Further, there were five other prior art patents related to signal compression owned by CLI at the time of prosecution of the '672 patent (U.S. Patent Nos. 4,410,916, 4,394,774, 4,385,363, 4,288,782, and 4,091,424) that were also not disclosed to the Examiner. Three of those patents even had a common

[2] Appendix C contains a list of all copending Litigation.
[3] Appendix B contains a copy of Tescher at al.

inventor with the '672 patent, Mr. Wen-hsiung Chen, but neither he nor anyone else involved with the prosecution of the '672 patent ever identified them to your office.

Further still, CLI had two other patent applications (ultimately issued as U.S. Patent Nos. 4,704,628 and 4,710,813) related to signal compression pending at the same time as the application that issued into the '672 patent, but did not disclose them to the Examiner either. Although CLI's apparent failure to comply with its Rule 56 obligation is not grounds to grant this request for reexamination, PUBPAT respectfully requests that it be considered when determining whether the validity of the '672 patent merits review by your office.

TESCHER ET AL ANTICIPATES OR RENDERS OBVIOUS THE '672 PATENT

The '672 patent's application date is October 27, 1986. Since Tescher et al's issue date is September 10, 1985, more than a year before the '672 patent's application date, Tescher et al is prior art to the '672 patent under 35 U.S.C. § 102(b). The chart below sets forth an element-by-element comparison of claims 1 - 11 of the '672 patent to Tescher et al. Specific discussion of claims 12 – 46 of the '672 is avoided for the sake of efficiency because they are each either virtually identical to claims 1-11 or merely obvious implementations thereof. In essence, every element of each claim of the '672 patent was expressly taught by or obvious in light of Tescher et al. As such, each claim of the '672 patent is invalid and should be canceled.

'672 PATENT	**TESCHER ET AL**
1. A method for processing digital signals,	Tescher et al was directed to the processing of digital signals. Abstract; Description of the Preferred Embodiments, 5:27 – 8:57.

'672 PATENT	**TESCHER ET AL**
where the digital signals have first values, second values and other values,	Tescher et al's "first values" were zero. 8:25. Tescher et al's "second values" were predictive mean values that were greater than or equal to a run length threshold. 7:43-56 ("the predictive mean value"). Tescher et al's "other values" included a block address of a next block to be updated and a frame sync code. Fig. 8; 8:26-28 ("If the zero run extends to the end of the block, a special end of block code is generated").
to reduce the amount of data utilized to represent the digital signals and to form statistically coded signals such that the more frequently occurring values of digital signals are represented by shorter code lengths and the less frequently occurring values of digital signals are represented by longer code lengths, comprising,	Tescher et al taught a compression of data that includes Huffman coding technique, "in which the number of bits per specific character depends upon the probability of occurrence of that character." 7:4-6. 1:62-65. Inherent in Huffman coding was the characteristic that fewer bits are used to encode more frequently occurring values.
forming first runlength code values representing the number of consecutive first values of said digital signals followed by said second value,	Tescher et al taught forming a runlegth code value whenever there are consecutive zeros ("first values") followed by a predictive mean value greater than or equal to a run length threshold ("second value"). Fig. 7 & Fig. 8; 8:23-25 ("a run length code corresponding to the number of successive quantized coefficients having value zero is generated").
forming second runlength code values representing the number of consecutive first values of said digital signals followed by one of said other values.	Tescher et al taught forming a different runlegth code value whenever there are consecutive zeros ("first values") followed by a block address of a next block to be updated or a frame sync code ("other values"). Fig. 8; 8:26-28 ("If the zero run extends to the end of the block, a special end of block code is generated").

'672 PATENT	**TESCHER ET AL**
2. The method of claim 1 further including the step of amplitude encoding said other values.	At the time the application that eventually issued into the '672 patent was filed, amplitude encoding was well known in the art. '672 patent, 1:62-65. One of ordinary skill in the art would have been motivated to apply knowledge of amplitude encoding to the teaching of Tescher et al because they were both related to the art of compressing data. Further, the '672 patent defines "amplitude encoding" to include representing the actual amplitude of a value. 5:42-45 ("the runlength code is typically followed by an amplitude code which explicitly encodes the actual amplitude of the other value.") Tescher et al's values were encoded as their actual amplitude value. Thus, under the definition given "amplitude encoding" by the '672 patent itself, Tescher et al taught "amplitude encoding said other values."
3. The method of claim 1 further including the step of encoding said first and second runlength code values with a sign value.	Tescher et al taught encoding values with a sign value. 7:45-48 ("In the preferred embodiment, each quantized cosine coefficient comprises a 12 bit digital character having 1 sign bit and 11 bits of magnitude").
4. The method of claim 1 wherein said first values have amplitude zero,	Tescher et al's "first values" were zero. 8:25.
said second values have absolute amplitude one,	Tescher et al's "second values" included predictive mean values equal to a run length threshold of one. 8:35-36 ("In the preferred embodiment, the numerical value of the run length threshold is one").
and said other values have absolute amplitudes greater than one	Tescher et al's "other values" included a block address of a next block to be updated or a frame sync code, nether of which were limited to being less than or equal to one. Fig. 8; 8:26-28 ("If the zero run extends to the end of the block, a special end of block code is generated").
whereby said first and second runlength codes values are formed representing the number of consecutive zeros.	At the time the application that eventually issued into the '672 patent was filed, it was inherent in runlength coding that runlength code values represent the number of consecutive zeros.

'672 PATENT	**TESCHER ET AL**
5. The method of claim 1 wherein said first values have the highest frequency of occurrence in said digital signals, wherein said second values have the next highest frequency of occurrence in said digital signals, and wherein said other values have the lowest frequency of occurrence in said digital signals.	Tescher et al's method was applicable to digital signals wherein zeros ("first values") had the highest frequency of occurrence, predictive mean values greater than or equal to a run length threshold ("second values") had the next highest frequency of occurrence, and a block address of a next block to be updated or a frame sync code ("other values") had the lowest frequency of occurrence. Further, Tescher et al taught the general concept of Huffman coding that those values with the highest frequency of occurrence are represented with shorter lengths than those values with lower frequency of occurrence. Appendix A. Thus, it would have been obvious to one of ordinary skill in the art to implement Tescher et al's compression technique such that those values with the highest frequency of occurrence are represented with shorter lengths than those values with lower frequency of occurrence. The express teaching of Huffman coding by Tescher et al provided the necessary motivation to do so.
6. A method for processing input signals to reduce the amount of data utilized to represent the input signals, the steps comprising,	Tescher et al was directed to the compression of digital signals. Abstract; Description of the Preferred Embodiments, 5:27 – 8:57.
processing the input signals to form processed signals where the processed signals are digital numbers having first values, second values, and other values,	Tescher et al's "first values" were zero. 8:25. Tescher et al's "second values" were predictive mean values that were greater than or equal to a run length threshold. 7:43-56 ("the predictive mean value"). Tescher et al's "other values" included a block address of a next block to be updated and a frame sync code. Fig. 8; 8:26-28 ("If the zero run extends to the end of the block, a special end of block code is generated").

‘672 PATENT	**TESCHER ET AL**
coding each digital number to form statistically coded signals such that the more frequently occurring values in the digital numbers are represented by shorter code lengths and the less frequently occurring values of coded signals are represented by longer code lengths, said coding including,	Tescher et al taught a compression of data that included Huffman coding technique, “in which the number of bits per specific character depends upon the probability of occurrence of that character.” 7:4-6. 1:62-65. Inherent in Huffman coding was the characteristic that fewer bits are used to encode more frequently occurring values.
forming first runlength code values representing the number of consecutive first values followed by said second value in a digital number,	Tescher et al taught forming a runlegth code value whenever there were consecutive zeros (“first values”) followed by a predictive mean value greater than or equal to a run length threshold (“second value”). Fig. 7 & Fig. 8; 8:23-25 (“a run length code corresponding to the number of successive quantized coefficients having value zero is generated”).
forming second runlength code values representing the number of consecutive first values followed by one of said other values in the digital number.	Tescher et al taught forming a different runlegth code value whenever there were consecutive zeros (“first values”) followed by a block address of a next block to be updated or a frame sync code (“other values”). Fig. 8; 8:26-28 (“If the zero run extends to the end of the block, a special end of block code is generated”).
7. The method of claim 6 wherein said coding step includes the step of amplitude encoding said other values.	At the time the application that eventually issued into the '672 patent was filed, amplitude encoding was well known in the art. '672 patent, 1:62-65. One of ordinary skill in the art would have been motivated to apply knowledge of amplitude encoding to the teaching of Tescher et al because they were both related to the art of compressing data. Further, the '672 patent defines “amplitude encoding” to include representing the actual amplitude of a value. 5:42-45 (“the runlength code is typically followed by an amplitude code which explicitly encodes the actual amplitude of the other value.”) Tescher et al's values were encoded as their actual amplitude value. Thus, under the definition given “amplitude encoding” by the '672 patent itself, Tescher et al taught “amplitude encoding said other values.”

'672 PATENT	**TESCHER ET AL**
8. The method of claim 6 wherein said coding step includes the step of encoding said first and second runlength code values with a sign value.	Tescher et al taught encoding values with a sign value. 7:45-48 ("In the preferred embodiment, each quantized cosine coefficient comprises a 12 bit digital character having 1 sign bit and 11 bits of magnitude").
9. The method of claim 6 wherein said processing step forms said first values with amplitude zero,	Tescher et al's "first values" were zero. 8:25.
forms said second values with absolute amplitude one, and forms said other values with absolute amplitudes greater than one.	Tescher et al's "second values" included predictive mean values equal to a run length threshold of one. 8:35-36 ("In the preferred embodiment, the numerical value of the run length threshold is one").
and forms said other values with absolute amplitudes greater than one.	Tescher et al's "other values" included a block address of a next block to be updated or a frame sync code, nether of which were limited to being less than or equal to one. Fig. 8; 8:26-28 ("If the zero run extends to the end of the block, a special end of block code is generated").
10. The method of claim 6 wherein a table is provided storing a plurality of runlength code values representing a plurality of different numbers of consecutive first values followed by said second value, and storing a plurality of second runlength code values representing a plurality of different numbers of consecutive first values followed by one of said other values, said first runlength code values and said second runlength code values statistically organized in said table such that the statistically more frequently occurring runlength code values are represented by shorter code lengths and the less frequently occurring values are represented by longer code lengths, and wherein said step of forming first runlength code values is performed by table lookup from said table, said step of forming second runlength code values is performed by table lookup from said table.	Tescher et al taught the use of a table to store Huffman Code values representing different values (called "Entries") that were organized such that the more frequently occurring values were represented by shorter code lengths. Appendix A. Tescher et al also taught forming code values by looking up code values from the table. 7:35-37 ("encoded using dedicated Huffman code table number 7 shown in appendix A"). It would have been obvious to one of ordinary skill in the art to use a similar compression code table for the runlength values taught by Tescher. One of ordinary skill in the art would have been motivated to use such a table for runlength coding for the same reasons that Tescher et al used tables for Huffman coding.

‘672 PATENT	**TESCHER ET AL**
11. The method of claim 6 wherein said coding step further includes the step of providing an end code to designate the end of a digital number.	Tescher et al taught the use of an end code. 8:26-28 (“If the zero run extends to the end of the block, a special end of block code is generated”).

CONCLUSION

For the reasons set forth above, each claim of the ‘672 patent is invalid in light of Tescher et al. PUBPAT respectfully requests that they be reexamined ex parte and ultimately canceled in their entirety.

November 16, 2005
Date

/s/
Daniel B. Ravicher, Esq.
U.S.P.T.O. Reg. No. 47,015
PUBLIC PATENT FOUNDATION, INC.
1375 Broadway, Suite 600
New York, NY 10018
Tel: (212) 796-0570
Fax: (212) 591-6038
www.pubpat.org