Paper No. 18

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte JAMES H. WILKINSON

_____

Appeal No. 1997-0896
Application 08/141,610

_____

ON BRIEF

_____

Before HAIRSTON, BARRETT and HECKER, ***Administrative Patent Judges***.

HECKER, ***Administrative Patent Judge.***

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 11, 13 through 27, 29 through 38, 40 through 46 and 48 through 52, all of the claims pending in the application.

The invention relates to a data compression and

decompression system using run length encoding. The encoder enables bit coding to be effected on a continuous string of bits scanned as per reading a text, that is from left to right, top to bottom. The string coding is performed by measuring the number of bits with a run of 0s followed by a 1 or a run of 1s followed by a 0. The length of each sequence is coded as the type (00..01 or 11..10) with a maximum length for each type being set (e.g. 256 for 00..01 and 32 for 11..10). The number of bits coded is the length of the group plus the number of bits included in a header code. Two further codes are added, one for a string of zeros at the maximum length and one for a string of ones at the maximum length. The addition of the two extra codes for continuous runs allow very long runs of either 1s or 0s to be coded efficiently. Each code length and type is given a Huffman commaless code and this code is transmitted or recorded in place of the run pattern. (Specification-page 22, lines 7-20.)

An additional feature for code efficiency can be shown by looking at Figure 12. Figure 12 illustrates the output of all the bits of the group of words. However, this is not always necessary. As a result of the precoding by the pre-coder 66,

the most frequently changing bits are located in the lower significant bit positions within the sample words. Accordingly, it can often happen that the most significant bit positions do not contain any active bits. The most significant active bit (MSAB) detector 68 identifies the MSAB within a group of sample words, and supplies the identity of the MSAB position to the address generator 72. Using this information, the address generator can cause the scanning of the bits of the group of words to start at the bit position in the group of words at which the MSAB is located, the need to scan all the bits thus being avoided. Thus, in Figure 12, for example, the scanning could have started at bit position 10 in word 0 rather than in bit position 11 in word 0.

(Specification-page 21, lines 21-35.)

Representative independent claim 1 is reproduced as follows:

1. A data compression system for compressing M-bit data words, where M is a plural positive integer, comprising:

group defining means for defining a group of N data words, where N is a plural positive integer;

sequencing means for outputting bits of said group of N data words as a set of bit streams, each bit stream corresponding to a bit position in said M-bit data word and

including a sequence of N data bits from the bit position of the respective N data words; and

run length encoding means connected to said sequencing means, comprising

string counter means for counting first strings of bits of a first value terminated by a bit of a second value, subject to a first maximum string length, and for counting second strings of the second value terminated by a bit of the first value, subject to a second maximum string length, in said bit stream, and string encoding means for encoding a bit string code for said first and second maximum string lengths and for each possible first string length and each possible second string length, whereby said run length encoding means outputs a series of bit string codes for the bit streams of the group of N data words.

The references relied on by the Examiner are as follows:

Aono et al. (Aono)	5,056,154	Oct. 8, 1991
Wilson	5,353,026 (filed Dec. 15, 1992)	Oct. 4, 1994

Appellant’s Admitted Prior Art (APA)

Claims 1 through 11, 13 through 27, 29 through 37 and 45 stand rejected under 35 U.S.C. § 112, second paragraph, as being incomplete.

Claims 1 through 11, 13 through 17, 19 through 27, 29 through 37 and 45 stand rejected under 35 U.S.C. § 103 as

being unpatentable over APA.

Claims 2, 18, 38, 40 through 44, 46 and 48 through 52 stand rejected under 35 U.S.C. § 103 as being unpatentable over APA and Wilson.[1]

Rather than repeat the arguments of Appellant or the Examiner, we make reference to the Brief and the Answer for the details thereof.

OPINION

After a careful review of the evidence before us, we agree with the Examiner that claims 33 through 36 are properly rejected under 35 U.S.C. § 103. Thus, we will sustain the rejection of these claims but we will reverse the rejection of the remaining claims on appeal for the reasons set forth ***infra***.

At the outset, we note that Appellant has indicated on page 6 of the brief the claims do not stand or fall together, but are grouped as claims 1, 3 through 11, 13 through 27, 29 through 32, 37 and 45 as group I, claims 2, 38, 40 through 44, 46 and 48 through 52 as group II, and claims 33 through 36 as

[1] The Examiner, in stating which claims stand rejected, frequently looses sight of the cancellation of claims 12, 28, 39 and 47.

group III.

In rejecting claims 1 through 11, 13 through 27, 29 through 37 and 45 under 35 U.S.C. § 112, second paragraph, the Examiner states that these claims are incomplete because claims 1 and 17 are missing the essential details about how the data words are arrayed with the least significant bits (LSBs) in the same bit position, which is essential to the operation of the claimed invention. (Answer-page 3.)

All data is arrayed is some fashion, otherwise it would be unintelligible. Although Appellant has presented his invention and recited prior art that arrays LSBs in the same bit position, we do not believe that all data compression/decompression systems must be configured in this manner. Run length encoding concepts are well known in the art, as repeatedly noted by the Examiner, and are transparent to any bit position alignment. Such encoding counts consecutive 0s or 1s independent of bit alignment. Thus, we do not find claims 1 and 17 to be incomplete as indicated by the Examiner, and we will not sustain the 35 U.S.C. § 112, second paragraph, rejection of these claims. For the same reason, we do not find claims 2 through 11, 13 through 16, 18

through 27, 29 through 32, 37 and 45, dependent from claims 1 and 17, incomplete and will not sustain the 35 U.S.C. § 112, second paragraph, rejection of these claims. Furthermore, since no reasons were proffered by the Examiner for the incompleteness of independent claims 33 and 35 (and likewise their respective dependent claims 34 and 36), we will not sustain the 35 U.S.C.
§ 112, second paragraph, rejection of these claims.

With respect to the 35 U.S.C. § 103 rejection of claims 1,
3 through 11, 13 through 17, 19 through 27, 29 through 37 and 45 as being unpatentable over APA, the Examiner insists that nothing more than run length encoding is claimed. Run length encoding, the Examiner contends, is “extremely well known in the art”, and Official Notice is taken of this (Answer-page 6).

Appellant challenges the Examiner's Official Notice and complains that the Examiner has not come forward with evidence of such. We find no further evidence required. Run length encoding is admitted by Appellant (APA) to be well known, as exemplified by Aono.

Appellant argues that his run length encoding "outputs a terminated run length by using the bit of the second value in the bits to be run length encoded to terminate the string of bits of the first value and likewise by using the bit of the first value in the bits to be run length encoded, to terminate the string of bits of the second value." which is not shown by the prior art. Also, "Both of the encoding techniques disclosed in Aono code strings of bits of one value only." (Brief-pages 10 and 11.)

We agree with the Examiner, the recited distinctions are not distinctions, and are found in the well known run length encoding shown in Aono. The Examiner points to column 1, lines 54-62, where run length encoding is used for 1s or 0s, 1s representing white, and 0's representing black. Here, we read "or" as "and", meaning that both white and black are run length encoded.

Appellant's variation on run length encoding is brought out at page 22, lines 11-21 of the specification. Here, Appellant

discloses adding two further codes to indicate a ***maximum string length*** of 0's or 1's. These codes are represented by “M0" or “M1" (note the Specification at page 18, lines 25-34). Although Appellant has not argued this aspect of the invention, it is recited in independent claims 1, 17, 38 and 46. Noting claim 1 for example, this run length encoding variation is recited as:

> and string encoding means for encoding a bit string code for said first and second ***maximum string lengths***....(emphasis added)

We have reviewed APA (including Delongne and Aono) and Wilson, and found no teaching or suggestion of providing a separate code to indicate a maximum string length. Although Appellant has insisted that his run length encoding is different,

> Clearly, the prior art includes many different encoding techniques. But, the disclosure of one technique, such as in Aono or in Delongne, does not render the completely different encoding technique of the instant invention obvious. (Brief-page 11.)

We have had to discover the difference ourselves. Since Appellant has claimed an invention which is not taught or

suggested by the applied references, we will not sustain the 35 U.S.C. § 103 rejections against independent claims 1, 17, 38 and 46. Likewise, we will not sustain the 35 U.S.C. § 103 rejections against dependent claims 2 through 11, 13 through 16, 18 through 27, 29 through 32, 37, 40 through 45 and 48 through 52, since they contain the same unmet limitation.

As to the remaining claims, 33 through 36, we agree with the Examiner. As stated in the Answer at page 8,

> The rejection is based on the position that it would have been obvious to one of ordinary skill in the art that "decompression" is the necessary and proper complement to "compression," ....

Appellant argues that "these decompression claims are not simply reverse compression claims." (Brief-page 15.) However, Appellant's Specification describes decompression as the "converse" of compression. Note page 9, lines 5-8 and page 23, lines 1-13. We see no distinction between the compression claims and decompression being the reverse thereof. This, when considered with the fact that these decompression claims do not recite Appellant's variation on run length encoding (i.e., further codes to represent a maximum length string), leads us to find that these claims recite nothing more than

decompression of standard run length encoding. Thus, we will sustain the
35 U.S.C. § 103 rejection of claims 33 through 36.

In view of the foregoing, the decision of the Examiner rejecting claims 1 through 11, 13 through 27, 29 through 37 and 45 under 35 U.S.C. § 112, second paragraph, is reversed, and the decision of the Examiner rejecting claims 1 through 11, 13 through 27, 29 through 32, 37, 38, 40 through 46 and 48 through 52 under 35 U.S.C. § 103 is reversed; however, the decision of the Examiner rejecting claims 33 through 36 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

Kenneth W. Hairston Administrative Patent Judge	)
Lee E. Barrett	) BOARD OF PATENT

Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
		)
Stuart N. Hecker	)	
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Application 08/141,610

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