

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte EDWARD SEAN HOSKINS
and
FRANCIS T. SEUBERLING

Appeal No. 2004-0292
Application 09/726,369

ON BRIEF

Before THOMAS, BARRETT, and RUGGIERO, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final rejection of claims 1, 2, 4 and 16, the examiner having indicated the allowability of claims 8 through 15 and an objection to claims 3 and 5 through 7.

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Representative claim 1 is reproduced below:

1. A method for optimizing access operations to and from a data storage disc comprising steps of:

(a) calculating which data sectors to be accessed are on a given track;

(b) constructing a skip mask according to the sectors to be accessed on the track;

(c) pointing to a first skip mask bit in the skip mask with a skip mask pointer;

(d) interpreting a current bit pointed to in the skip mask;

(e) transferring data in the data sector if the current bit is one; and

(f) incrementing the skip mask pointer to a next mask bit.

The following references have been relied on by the examiner in the final rejection:

"Automated Hardware Processing of Direct Access Storage Device Skip Masks" (AHP), 39 IBM Technical Disclosure Bulletin, no. 5, May 1996, pp. 121-22

"Skip Mask Operation in a No-ID Disk Drive" (SMO), 39 IBM Technical Disclosure Bulletin, no. 6, June 1996, pp. 47-50

Claims 1, 2 and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by AHP. As clarified by the examiner in the

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Answer, claim 16 stands rejected under 35 U.S.C. § 103 as being obvious over AHP alone.¹

Rather than repeat the positions of the appellants and the examiner, reference is made to the Brief and Reply Brief for appellants' positions, and to the Answer for the examiner's positions.

OPINION

For the reasons expressed by the examiner in the Answer as amplified here, we sustain the rejection of claims 1, 2 and 4 under 35 U.S.C. § 102 and the separately stated rejection of claim 16 under 35 U.S.C. § 103.

The nature of the positions taken by appellants and the examiner appears to have changed or shifted somewhat between the final rejection and the answer and between the Brief and Reply Brief. Appellants' initial position in the Brief that AHP does not teach the claimed "constructing a skip mask according to the sectors to be accessed on the track" feature of method

¹ The examiner's remarks at pages 5 and 6 of the Answer indicate that the examiner is no longer relying upon the SMO reference as a basis to reject claim 16 on appeal.

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independent claim 1's clause (b) has been amplified in the Reply Brief to include the initial step in clause (a) of "calculating which data sectors to be accessed are on a given track."

Procedurally, the examiner has not had an opportunity to address the argument as to this calculation feature because the examiner is prohibited from doing so under the Rules of Practice in place at the time the Answer was mailed. Appellants essentially argue these same two features for independent claims 1 and 16 on appeal in the Reply Brief. We are unpersuaded by these arguments.

At the outset, we note that appellants recognize at page 1 of the specification in discussing the Background of the Invention that in the prior art each surface of a disk is divided into several thousand tracks where each track is further broken down into sectors. At page 3 of the Specification, appellants recognize that defective sectors were mapped to a good sector in another part of the same data storage area and that spare sectors were reserved in disk drives as substitutes for these defective sectors. Typically, it has been recognized that each track has been allocated one spare sector at the end of the track. Furthermore, it was recognized that a disk drive controller

kept track of all these defective sectors and automatically substituted each of the defective sectors with a spare or good sector. Lastly, it was also recognized at the bottom of page 4 of the Specification that in the prior art "the firmware can simply calculate based on the pointer locations and amount of data transferred, what to reset the pointers to, to repeat a transfer." This teaching recognizes that the prior art already used firmware to control calculation aspects and the pointer locations were known to exist in the prior art with respect to disk sectoring and track accessing approaches.

With this in mind, the first paragraph of AHP at page 121 indicates that entire skip masks are stored in random access memory (RAM) "registers" which are in turn accessible to the sector generation hardware shown in figure 1. This is all stated to be controlled by firmware. In the second paragraph, it is indicated that these "RAM-based tables which store defect data for the disk pack" exist. Thus, the skip mask pattern discussed in the first paragraph at page 121 of AHP storing skip masks in the tables is done for the entire disk pack, which implicitly requires that it be done for each of the tracks and each of the sectors for each track.

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Since it is already recognized in the Specification as a part of the prior art and separately taught implicitly within the firmware control of the microprocessor which, in the second paragraph at page 121 of AHP, controls the actual sector generation hardware, it appears to us to be clear that the calculation aspect of disputed clause (a) of representative claim 1 on appeal and the constructing clause that succeeds it form an entire skip mask to the extent necessary for a given track since it does so for the entire disk pack itself. The use of skip mask bit pointers and the implied skip mask pointer register to the extent recited in independent claim 16 on appeal is clearly indicated and noted by the examiner in the Answer in Figure 2 of AHP at the top of page 122. The microprocessor is again stated in the first paragraph at page 122 to control the initialization and the actual data transfer operations.

To the extent appellants argue that there are no tracks per se recited or noted in AHP, we recognize this from our study of it. On the other hand, at this point the rule that anticipation requires that every element of a claim appears in a single reference accommodates situations where the common knowledge of

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"technologists" is not recorded in a reference, i.e., where technical facts are known to those in the field of the invention. Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1269, 20 USPQ2d 1746, 1749-50 (Fed. Cir. 1991). Similarly, In re Graves, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995), confirms the longstanding interpretation that the teachings of a reference may be taken in combination with knowledge of the skilled artisan to put the artisan in possession of the claimed invention within 35 U.S.C. § 102 even though the patent does not specifically disclose certain features. Appellants state in their assessment of prior art disks that they are divided into tracks and each track is divided into sectors.

Appellants' focus upon the use of the word "operation" in the first paragraph at the top of page 122 of AHP is misplaced. It appears to us that the microprocessor performs the noted operation which may in turn be the simple initialization taught in the initial part of the sentence or the actual completed transfer operations that are stated to occur in the next succeeding sentences. To the extent broadly recited in the constructing clause of the two independent claims on appeal,

to the extent a skip mask is constructed according to any "operation," it is done for a track even if it is done for only a portion of a track and not the whole track as seemingly argued. It is not positively recited in these claims on appeal that the calculation and constructing operations must be done for an entire track at one time. Furthermore, the calculation feature is not recited to be done on the fly, if that is what is meant in independent claims 1 and 16 on appeal. Predetermined or precalculated values for skip mask register "tables" in RAM of AHP and their actual construction naturally proceeds for each track and for each sector respectively of each track to be accessed. The same feature as in independent claim 1 on appeal is recited in the "wherein" clause of independent claim 16 on appeal. Appellants' remarks at the bottom of page 2 of the Reply Brief recognizes that "AHP makes calculations based on the operation."

The rejection of dependent claims 2 and 4 on appeal is also sustained since appellants have presented no arguments in the Brief and Reply Brief as to these claims.

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In closing, we have affirmed the rejection of claims 1, 2 and 4 under 35 U.S.C. § 102 and the additional rejection of claim 16 under 35 U.S.C. § 103. Therefore, the decision of the examiner is affirmed.

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

AFFIRMED

JAMES D. THOMAS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
)	
LEE E. BARRETT)	APPEALS AND
Administrative Patent Judge)	
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JDT:psb

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