

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL S. MILILLO and CHRISTOPHER WEST

Appeal No. 2002-2191
Application No. 09/354,482

ON BRIEF

Before HAIRSTON, KRASS, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-16, which are all the claims in the application.

We reverse.

BACKGROUND

The invention relates to a disk caching system within a mass data storage system. The cache control processor receives a cache bitmap from the host computer to specify the data blocks from the mass storage device to be pre-staged into the cache memory. Representative claim 1 is reproduced below.

1. A method for providing a client-directed pre-stage operation of a cache memory used to access data blocks from a mass data storage device attached to a host computer through a channel control processor, the method comprising:

transmitting a bitmap from the host computer to the channel control processor, the bitmap comprises a plurality of bits;

causing the channel control processor to pre-stage into the cache memory data blocks from the mass data storage device corresponding to enabled bits in the bitmap; and

retrieving one or more bytes of data from the data blocks pre-staged into the cache memory.

The examiner relies on the following reference:

Drewry et al. (Drewry)	5,925,100	Jul. 20, 1999 (filed Mar. 21, 1996)
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Claims 1-16 stand rejected under 35 U.S.C. § 102 as being anticipated by Drewry.

We refer to the Final Rejection (Paper No. 6) and the Examiner's Answer (Paper No. 11) for a statement of the examiner's position and to the Brief (Paper No. 10) for appellants' position with respect to the claims which stand rejected.

OPINION

“Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention.” RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984).

In response to the section 102 rejection over Drewry, appellants submit that the reference fails to teach the claimed steps of transmitting a bitmap from the host computer to the channel control processor, the bitmap comprising a plurality of bits, and causing the channel control processor to pre-stage into the cache memory data blocks from the mass data storage device corresponding to enabled bits of the bitmap. According to appellants, the bitmap described by Drewry refers to an actual data object being requested by the client for display. The bitmap is thus not used to indicate data to be pre-staged. (Brief at 4.)

According to the rejection, Drewry refers to a “bitmap” in column 7. However, the claimed bitmap to be transmitted is deemed to correspond to a “storable,” described in column 4 of the reference. Bitmaps are defined as data structures used to describe data bits which are stored in memory, which is exactly what Drewry’s “storable” does, according to the examiner. (Answer at 4.)

Drewry is directed to a client/server system suited for an interactive television environment. The “clients” may comprise set top boxes that have relatively small amounts of local memory. Col. 1, l. 1 - col. 2, l. 2. Drewry teaches methods which allow

a developer to focus on semantic “objects,” which are the items of interest to the client. Each object is packaged in a “storable,” which incorporates dependency lists indicating the context in which the object is to be used (i.e., with which dependent objects). Using the list of dependencies, a server component can prepare to send, or actually send, additional objects to a client when servicing a request for a particular object. Each storable comprises an object, or set of objects, stored together with dependency information (i.e., information indicating which particular objects are also required for use of the main object). The method includes prefetching of semantic objects. For example, a client may request the server to launch an application object. The application object arrives at the client, initially bringing up the first page or scene of the application. As the first page or scene is displayed, the prefetch objects for the first page can be retrieved. The pre-fetching can be based on system defaults, or in response to user behavior at runtime. Col. 4, l. 11 - col. 5, l. 11.

An exemplary storage layout is shown in Figure 5 of Drewry. Appended to the beginning of object 501 is a “required” dependency list 510, which specifies those objects required in order to use object 501. Appended to the other end of object 501 is a prefetch dependency list 520, specifying objects that “might” be required. Col. 11, ll. 34-63.

Upon careful consideration of the entirety of the Drewry reference, we agree with appellants that the rejection fails to show transmitting a bitmap which causes a processor to pre-stage, into cache memory, data blocks corresponding to enabled bits

in the bitmap, as required by instant independent claims 1, 7, and 8. As noted by appellants and the examiner, Drewry mentions (col. 7, ll. 12-14) that a client may request particular program content, such as a bitmap image. The “storables” taught by Drewry, upon which the rejection relies, in no sense specify particular memory data blocks from a mass data storage device to be pre-staged into cache memory. Drewry’s teachings relate to “semantic,” as opposed to “physical,” objects. The logical, rather than the physical, arrangement of data to be retrieved is of interest in the Drewry system. See, e.g., col. 9, ll. 18-21 and 46-51; col. 14, ll. 5-9.

The rejection also appears to equate the “load sets” noted in the Abstract of Drewry with the data blocks of instant independent claim 13. (Answer at 7.) However, the semantic object “load sets” described by Drewry (e.g., Fig. 5) are not based on physical memory considerations, but on logical arrangement. See, e.g., col. 9, ll. 8-27. We cannot agree that the semantic object load sets of Drewry are, in any sense, data blocks which are specified by a cache bitmap from the host computer, as required by claim 13.

Because we agree with appellants that the requirements of at least the respective independent claims are not met by Drewry, we cannot sustain the rejection of claims 1-16.

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CONCLUSION

The rejection of claims 1-16 under 35 U.S.C. § 102 is reversed.

REVERSED

KENNETH W. HAIRSTON
Administrative Patent Judge

ERROL A. KRASS
Administrative Patent Judge

HOWARD B. BLANKENSHIP
Administrative Patent Judge

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