

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte PAUL G. GREENSTEIN ET AL.

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Appeal No. 1997-4116  
Application No. 08/589,826<sup>1</sup>

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ON BRIEF

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Before JERRY SMITH, BARRETT, and BARRY, Administrative Patent Judges.

BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the final rejection of claims 1-3 and 5-14. We reverse.

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<sup>1</sup> The application was filed on January 22, 1996. It is a continuation of Application Serial No. 08/029,641, which was filed on March 11, 1993, and is now abandoned.

Appeal No. 1997-4116  
Application No. 08/589,826

BACKGROUND

The real storage of many computers can be reconfigured. Specifically, parts of the real storage can be taken off-line or brought on-line during operation.

The real storage of an IBM S/390 computer is divided into storage elements, which are further divided into storage subincrements (SIs). Each SI, in turn, is divided into page frames. All SIs have the same number of page frames; each page frame in one of the SIs has a corresponding page frame in each of the other SIs.

Each page frame can hold a page of data. A fixed page may not be paged out to external storage (and replaced with another page) during operation of the computer; moreover, a preferred page frame is a page frame that may hold a fixed page. Conversely, a non-preferred page frame is one that may contain only a page that may be paged out. Furthermore, a preferred SI is an SI that includes at least one preferred page frame. A non-preferred SI is one that cannot contain any preferred page frames.

If a preferred SI is to be taken off-line, data in the preferred SI must first be copied to a non-preferred SI that will remain on-line. Accordingly, there must exist a non-preferred SI to which the data in the preferred SI to be taken off-line can be copied.

The invention increases the likelihood of finding a target SI to use in copying pages from a preferred SI when the latter is being taken off-line. Specifically, the invention employs an indicator to mark a page frame as permanently non-preferred (PNP). A bad page frame is a page frame that contains an uncorrectable storage error. Upon identification of a bad page frame in one of the SIs, the corresponding page frames in the other SIs are marked as PNP so that the latter cannot hold fixed data.

Claim 12, which is representative for our purposes, follows:

12. A method for enhancing the likelihood of successful off-line reconfiguration of one of two or more reconfigurable storage entities in a system comprising one or more central processing units, real storage linked to said one or more central

processing units, said real storage comprising said two or more reconfigurable storage entities, each of said two or more reconfigurable storage entities comprising one or more addressable entities, each of said one or more addressable entities having at least two status states, a first state and a second state, said first state being "non-preferred", designating that an associated addressable entity should not contain fixed data, and said second state being "preferred", designating that the associated addressable entity may contain fixed data, and each of said two or-more reconfigurable storage entities having at least two status states, a first status state being "non-preferred", designating that an associated reconfigurable storage entity should not contain fixed data, and a second status state being "preferred", designating that the associated reconfigurable storage entity may contain fixed data, said method comprising the steps of:

- a. detecting an uncorrectable storage error in a damaged one of said one or more addressable entities in a first of said two or more reconfigurable storage entities;
- b. locating a second of said two or more reconfigurable storage entities, said second of said two or more reconfigurable storage entities being a potential source entity for a storage reassign function between said second and said first of said two or more reconfigurable storage entities;
- c. locating a same relative addressable entity in said second of said two or more reconfigurable storage entities, said same relative addressable entity having a same relative position within said second of said two or more reconfigurable storage entities as has said damaged one of said

one or more addressable entities within  
said first of said two or more  
reconfigurable storage entities, and

- d. turning on an indicator associated with  
said same relative addressable entity if  
said same relative addressable entity does  
not contain "fixed" data, said indicator  
indicating that said same relative  
addressable entity should not be used to  
contain fixed data.

Besides the appellants' admitted prior art (AAPA), the  
reference relied on in rejecting the claims follows:

Moore et al. (Moore)	4,430,727	Feb. 7,
1984		

Claims 1-3 and 5-14 stand rejected under 35 U.S.C. § 103  
as obvious over AAPA in view of Moore. Rather than repeat the  
arguments of the appellants or examiner in toto, we refer the  
reader to the brief<sup>2</sup> and answer for the respective details  
thereof.

#### OPINION

In reaching our decision in this appeal, we considered  
the subject matter on appeal and the rejection advanced by

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<sup>2</sup>The reply brief filed on June 10, 1997 was denied entry.  
(Paper No. 28 at 2.)

the examiner. Furthermore, we duly considered the arguments and evidence of the appellants and examiner. After considering the totality of the record, we are persuaded that the examiner erred in rejecting claims 1-3 and 5-14. Accordingly, we reverse.

We begin by noting the following principles from In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993).

In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. Id. "A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)). If the examiner fails to establish a prima facie case, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

With these in mind, we analyze the appellants' argument.

The appellants make the following argument.

[T]he applied combination fails to suggest that an indicator is set in a selected addressable entity based on its relation to a damaged addressable entity and in response to identifying of the damaged addressable entity, nor is there any suggestion that such an indicator should be provided as direction that the selected addressable entity is to be in a "non-preferred" state so that fixed data is not to be stored therein. (Appeal Br. at 18.)

The examiner's reply follows.

[A]pplicant has cited on page 8, page 4, lines 11-17 of his specification: "mechanisms ... require the non-preferred sub-increments to have good page frames in corresponding positions to the page frames containing fixed data in the preferred subincrements to be copied"; this phrase indicates that an addressable entity will be placed into a non-preferred state because of its relationship with a damaged entity. ... [T]his is required of the prior art system or else reconfiguration can not [sic] occur." (Examiner's Answer at 7.)

We agree with the appellants.

"Claims are not interpreted in a vacuum, but are part of and are read in light of the specification." Slimfold Mfg. Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116, 1 USPQ2d 1563, 1566 (Fed. Cir. 1987) (citing Hybritech Inc. v. Monoclonal Anti-bodies, Inc., 802 F.2d 1367, 1385, 231 USPQ 81, 94-95 (Fed. Cir. 1986); In re Mattison, 509 F.2d 563, 565, 184 USPQ 484, 486 (CCPA 1975)). Here, claims 1-3 and 5-11 each specifies in pertinent part the following limitations:

identification means for identifying a damaged one of said addressable entities and a selected one of said addressable entities having a relation to said damaged one of said addressable entities, said damaged one and said selected one of said addressable entities residing in different reconfigurable storage entities; indicator means for

indicating when "on" that said selected one of said one or more addressable entities be in said first, "non preferred" state; and indicator adjustment means for turning "on" said indicator means in response to said identifying of said damaged one of said addressable entities by said identification means because of said relation between said damaged one of said addressable entities and said selected one of said addressable entities ....

Similarly, claims 12-14 each specifies in pertinent part the following limitations:

- a. detecting an uncorrectable storage error in a damaged one of said one or more addressable entities in a first of said two or more reconfigurable storage entities;
- b. locating a second of said two or more reconfigurable storage entities,...
- c. locating a same relative addressable entity in said second of said two or more reconfigurable storage entities, said same relative addressable entity having a same relative position within said second of said two or more reconfigurable storage entities as has said damaged one of said one or more addressable entities within said first of said two or more reconfigurable storage entities, and
- d. turning on an indicator associated with said same relative addressable entity if said same relative addressable entity does not contain "fixed" data, said indicator indicating that said same relative addressable entity should not be used to contain fixed data.

Reading claims 1-3 and 5-14 in light of the specification, the claimed limitations recite, upon identifying a damaged page frame, placing a corresponding page frame in another storage element into a non-preferred state so that it cannot hold fixed data.

The examiner fails to show a teaching or suggestion of these limitations in the prior art. The passage of the appellants' specification on which the examiner relies merely describes a need that existed in the prior art (viz., that "non-preferred sub-increments ... have good page frames in corresponding positions to the page frames containing fixed data in the preferred subincrements to be copied. Otherwise the reconfiguration ... cannot proceed.") (Spec. at 4.) The passage does not teach any solution to the need, let alone the appellants' solution.

Another portion of the specification teaches that the MVS/ESA operating system "provides the capability ... to specify a ratio of preferred to non-preferred storage to be maintained." (Id.) Although this portion teaches a solution

to the need, it mentions neither identifying a damaged page frame nor placing a corresponding page frame in another storage element into a non-preferred state so that it cannot hold fixed data. In addition, an aside of the specification teaches that "some operating systems ... provide the capability to dynamically change storage from non-preferred to preferred ...." (Id.) The aside does not teach that the dynamic capability solves the need; moreover, it mentions neither identifying a damaged page frame nor placing a corresponding page frame in another storage element into a non-preferred state so that it cannot hold fixed data.

Moore does not cure this deficiency. The examiner admits that the reference omits a "teaching of changing a state of an entity based upon its relationship to another entity."

(Examiner's Answer at 8.)

For the foregoing reasons, we are not persuaded that the prior art would have suggested identifying a damaged page frame and placing a corresponding page frame in another storage element into a non-preferred state so that it cannot

hold fixed data as claimed. The examiner has not established a prima facie case of obviousness. Therefore, we reverse the rejection of claims 1-3 and 5-14 under 35 U.S.C. § 103.

CONCLUSION

To summarize, the examiner's rejection of claims 1-3 and 5-14 under 35 U.S.C. § 103 is reversed.

REVERSED

JERRY SMITH	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
LEE E. BARRETT	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
	)	
LANCE LEONARD BARRY	)	
Administrative Patent Judge	)	

LLB/sld

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BARRY

APPEAL NO. 1997-4116 - JUDGE

APPLICATION NO. 08/589,826

APJ BARRY

APJ JERRY SMITH

APJ BARRETT

DECISION: **REVERSED**

Prepared by:

**DRAFT TYPED:** 20 Apr 01

**FINAL TYPED:**

Team 3, please note the following instructions:

Do NOT change style of citations.

Do insert full names of all inventors

Do insert reference(s).

Do add a mailing address

Do check quotations and citations.

Do proofread.

Thank you.