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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
15/251,943 08/30/2016 Michael Tsirkin 50833.75T1 (20161074US) 6569

110773 7590 11/21/2018
Haynes and Boone, LLP (50833)
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EXAMINER

RUSSELL, ANDREW D

ART UNIT PAPER NUMBER

2136

NOTIFICATION DATE DELIVERY MODE

11/21/2018

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL TSIRKIN and URI LUBLIN

Appeal 2018-005550
Application 15/251,943¹
Technology Center 2100

Before JOSEPH L. DIXON, ERIC S. FRAHM, and JASON M. REPKO,
Administrative Patent Judges.

FRAHM, *Administrative Patent Judge.*

DECISION ON APPEAL

¹ According to Appellants, Red Hat Israel, Ltd. is the real party in interest (App. Br. 3).

INTRODUCTION

This is a decision on appeal under 35 U.S.C. § 134(a) of the Examiner’s Final Rejection of claims 1–4, 6, 8–12, 14, 15, and 19–26.² Claims 5, 7, 13, and 16–18 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

Illustrative Claim

1. A method of de-duplicating one or more memory pages, comprising:

receiving, by a hypervisor, a list of read-only memory page hints from a guest running on a virtual machine, the list of read-only memory page hints specifying a first memory page that the guest will not modify for a time period and that is marked as writeable;

during a first comparison phase:

determining, by the hypervisor, whether a data structure stores a duplicate of the first memory page; and

in response to a determination that a second memory page stored in the data structure is a duplicate of the first memory page:

write protecting the first memory page; and

write protecting the second memory page if the second memory page is not write protected; and

[A] during a second comparison phase;

determining whether the first memory page matches the second memory page;

in response to a determination that the first memory page does not match the second memory page, *reversing*,

² Although the Final Rejection mistakenly left out claims 23–26 in the rejection, these claims were addressed on the merits in the Advisory Action, mailed August 9, 2017, and Appellants now recognize these claims as being rejected (*see* Reply Br. 3 (“[c]laims 1–4, 6, 8–12, 14, 15, and 19–26 are pending, stand finally rejected, and are on appeal”). As such, we consider this to be harmless error, and we have jurisdiction over the rejection of claims 1–4, 6, 8–12, 14, 15, and 19–26.

by the hypervisor, *the one or more write protections applied during the first comparison phase*; and
in response to a determination that the first memory page matches the second memory page, deduplicating, by the hypervisor, the first and second memory pages.

Claim 1 (emphasis added). Remaining independent claims 11 and 20 recite commensurate limitations pertaining to the second comparison phase, namely the reversal of write protections applied during the first comparison phase.

ANALYSIS

We have reviewed the Examiner's rejection (Final Act. 5–10) in light of Appellants' arguments (App. Br. 8–14; Reply Br. 3–6) that the Examiner has erred, as well as the Examiner's response to Appellants' arguments in the Briefs (Ans. 3–7). We concur with Appellants' contentions (App. Br. 11–13; Reply Br. 3–4) that the Examiner erred in finding claims 1–4, 6, 8–12, 14, 15, and 19–26 anticipated by Waldspurger (US 6,789,156 B1; issued Sept. 7, 2004) because Waldspurger fails to disclose the second comparison phase, and specifically limitation [A], including reversing write protections, as recited in independent method claim 1, and as commensurately recited in remaining independent claims 11 and 20.

The Examiner is required to provide Appellants reasonable notice as to the basis of a rejection. The notice requirement is set forth by 35 U.S.C. § 132:

[T]he PTO carries its procedural burden of establishing a prima facie case when its rejection satisfies 35 U.S.C. § 132, in “notify[ing] the applicant ... [by] stating the reasons for [its] rejection, or objection or requirement, together with such information and references as may be useful in judging of the

propriety of continuing the prosecution of [the] application.” 35 U.S.C. § 132. That section “is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection.” *Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990).

See In re Jung, 637 F.3d 1356, 1362 (Fed. Cir. 2011).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). To establish anticipation, every element and limitation of the claimed invention must be found in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). “[A]bsence from the reference of any claimed element negates anticipation.” *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1571 (Fed. Cir. 1986).

The Examiner has the initial burden to set forth the basis for any rejection so as to put the patent applicant on notice of the reasons why the applicant is not entitled to a patent on the claim scope that he seeks – the so-called “*prima facie* case.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984) (the initial burden of proof is on the USPTO “to produce the factual basis for its rejection of an application under sections 102 and 103”) (quoting *In re Warner*, 379 F.2d 1011, 1016 (CCPA 1967)).

In the instant case, the Examiner’s notification to Appellants of the determination of the anticipation of independent claims 1, 11, and 20 is found at pages 5 through 6 of the Final Rejection. Notably, claims 1 and 20

are method claims, and contain different recitations, different scope, and a different format, from system claim 11.

The Examiner appears to map the limitations of claim 11 to Waldspurger in making the rejection (*see* Final Act. 5–6 (discussing the deduplication module, but notably, not the marking module), and not the limitations of claims 1 and 20. And, the Examiner’s rejection (*see* Final Act. 6) does not clearly address the first and second comparison phases. Most importantly, the Examiner’s rejection (*see* Final Act. 5–6) fails to directly address the limitation of reversing the write protections applied during the first comparison phase, during a second comparison phase, as recited in each of claims 1, 11, and 20. The Examiner’s attempt to clarify or correct this error in the Answer (*see* Ans. 6–7) also falls short.

The Examiner’s reasoning, that “in the second comparison phase, when the pages have been determined not to match, the purpose of the purpose of marking the pages as read-only is obviated, and the write protections are reversed” (Ans. 6–7) is speculative and unsupported by evidence in the record. Waldspurger is silent as to, and the Examiner has not adequately shown Waldspurger discloses (implicitly or explicitly), reversing the write protections applied during the first comparison phase, during a second comparison phase, as recited in each of claims 1, 11, and 20.

Furthermore, we find no such disclosure in Waldspurger to support the Examiner’s position that the subject matter (e.g., limitation [A] recited in claim 1 *supra*, and the commensurate recitations in claims 11 and 20), is anticipated by Waldspurger. We will not resort to speculation or assumptions to cure the deficiencies in the Examiner’s fact finding. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). As such, we find that the

Examiner improperly relies upon Waldspurger to disclose and anticipate the disputed claim limitations. *See Warner* at 1017.

We agree with Appellants (App. Br. 11–13; Reply Br. 3–4) that the Examiner has not shown Waldspurger anticipates at least limitation [A], the reversing step, of the second comparison phase recited in claims 1, 11, and 20. As a result, the Examiner has not (i) made a prima facie case for the anticipation of claims 1, 11, and 20, and ultimately, (ii) shown all of the claim limitations of claims 1, 11, and 20 are disclosed by Waldspurger, and (iii) made a proper showing of anticipation for claims 1, 11, and 20 (*see* Final Act. 5–6; Ans. 3–7). Similarly, the Examiner has not set forth a proper showing of anticipation with respect to dependent claims 2–4, 6, 8–10, 12, 14, 15, 19, and 21–26 depending respectively therefrom. In view of the foregoing, we do not sustain the Examiner’s rejection of independent claims 1, 11, and 20, as well as claims 2–4, 6, 8–10, 12, 14, 15, 19, and 21–26, which depend respectively therefrom, as being anticipated by Waldspurger.

DECISION

The Examiner’s rejection of claims 1–4, 6, 8–12, 14, 15, and 19–26 is reversed.

REVERSED