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IBM CORPORATION - PATENTS+ TEAM 2800 37th Street NW Rochester, MN 55901			EXAMINER OBISESAN, AUGUSTINE KUNLE	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* REVITAL EREZ, MICHAEL FACTOR,  
MOSHIK HERSHCOVITCH, RONEN I. KAT, ELLIOT K. KOLODNER,  
and JOEL K. NIDER

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Appeal 2024-003977  
Application 16/153,891  
Technology Center 2100

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Before JENNIFER S. BISK, CHRISTA P. ZADO, and  
PHILLIP A. BENNETT, *Administrative Patent Judges*.

BISK, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>  
STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134, Appellant<sup>2</sup> appeals from the Examiner’s decision to reject all the claims remaining in the application—claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

CLAIMED SUBJECT MATTER

The claims are directed to restoring a database index following a failure. Spec. ¶ 1. Claim 1, reproduced below, illustrates the claimed subject matter:

1. A method for recovering a database and restoring an index following a failure of the database comprising:
  - receiving a change to a document in a database, the database having a plurality of documents;
  - storing the change to the document in the database in a persistent data store, the persistent data store divided into a plurality of segments;
  - updating a volatile index in volatile memory with a pointer to the document in the persistent data store;
  - generating a shadow index in the persistent data store, wherein the shadow index is a persistent copy of the volatile index, and is not updated at the same time as the volatile index; and

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<sup>1</sup> Throughout this Decision, we have considered the Specification filed October 8, 2018 (“Spec.”), the Final Office Action mailed November 8, 2023 (“Final Act.”), the Appeal Brief filed April 2, 2024 (“Appeal Br.”), and the Examiner’s Answer mailed July 10, 2024 (“Ans”).

<sup>2</sup> “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as International Business Machines Corporation. Appeal Br. 1.

executing a shadow thread on the plurality of documents wherein the shadow thread scans each record in the persistent storage device to populate and update the shadow index, wherein the shadow thread operates as a background operation on the persistent data store.

Appeal Br. 14 (Claims App.).

## REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Peltonen	US 5,685,003	Nov. 4, 1997
Baird	US 7,257,690 B1	Aug. 14, 2007
Pierce	US 10,402,385 B1	Sept. 3, 2019
Verma	US 2007/0233683 A1	Oct. 4, 2007
Pothoff	US 2019/0163579 A1	May 30, 2019

## REJECTIONS

The Examiner maintains the following rejections:

Claim(s) Rejected	35 U.S.C. §	Reference(s)/ Basis
1–5, 8, 9, 11–16, 18	103(a)	Pothoff, Peltonen, Pierce
6, 7, 17	103(a)	Pothoff, Peltonen, Baird
10, 19, 20	103(a)	Pothoff, Peltonen, Pierce, Verma

## OPINION

We are not persuaded the Examiner erred in rejecting claims 1–10 and 14–20 under 35 U.S.C. § 103. Upon consideration of Appellant’s arguments (Appeal Br. 6–37; Reply Br. 4–10), we agree with the Examiner’s findings and rationales (Final Act. 9–23; Ans. 4–36) as fully responsive to Appellant’s arguments. We adopt these findings as our own and highlight certain points below.

### *A. Claims 1–5, 8, 9, 11–16, and 18*

We select claim 1 as representative. Appellant does not separately argue claims 2–5, 8, 9, 11–16, and 18.

Appellant argues that the proposed combination of teachings of Pothoff, Peltonen, and Pierce do not result in the subject matter recited by claim 1. Appeal Br. 7–9. In particular, Appellant argues that Peltonen’s shadow thread indexes only those documents on a received list of identifiers and, therefore, does not “scan[] each record in the persistent storage” as recited. *Id.* According to Appellant, even though the Examiner relies on Pierce for teaching the portion of the limitation directed to operating on all of the documents in the shadow index, the rejection does not properly provide “reasoning that would involve changing the queue of Peltonen” and, therefore, the rejection “still maintains the concept of the queue that is in Peltonen.” *Id.* at 8.

We are not persuaded of error in the rejection by this argument. Although Appellant focuses on the fact that Peltonen executes the shadow thread using a list of document identifiers instead of indexing every document, the rejection also points to Pierce as teaching this limitation. *See Id.* at 8–9 (citing Pierce 7:31–32, 7:45–49). Pierce explicitly discloses a “reindex process **320** . . . iterating through all of the information in database **305**.” Pierce 7:45–46. Appellant appears to concede that this is a disclosure of “the concept of operating on all the documents by the shadow index,” but asserts that “[t]he combination asserted by the Office Action still maintains the concept of the queue that is in Peltonen.” Appeal Br. 8.

We disagree with this characterization of the rejection. The test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). We find that a person of ordinary skill in the art would have understood, based on the disclosure of Pierce, that the indexing system of

Peltonen could be modified such that every document is included in the queue. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”). Appellant states that “Peltonen clearly shows that not every document is in this queue” (Appeal Br. 8), but that does not mean that Peltonen teaches away from such a modification or that the modification would change the principle of operation of Peltonen. And Appellant does not point to any evidence supporting such a theory. Moreover, the record contains no evidence that combining Pothoff, Peltonen, and Pierce as proposed would have been uniquely challenging or otherwise beyond the level of ordinarily skilled artisans. *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

We, therefore, agree with the Examiner’s finding that the combined teachings of the three references would have suggested that a person of ordinary skill in the art “generate a complete index of modified content of a database in the system of Pothoff for providing updated information for searching and retrieving relevant information from the database, thereby providing up-to-date information for [the] requesting entity.” Final Act. 9.

Accordingly, we sustain the Examiner’s rejection of claims 1–5, 8, 9, 11–16, and 18.

*B. Claims 6, 7, and 17*

Appellant includes a separate section for claims 6, 7, and 17 in the Appeal Brief. Appeal Br. 9–10. However, this section relies on the arguments made for the rejections of claims 1 and 12. *Id.* at 10. For the

reasons discussed above, we sustain the Examiner's rejection of claims 6, 7, and 17.

*C. Claims 10, 19, and 20*

Appellant separately argues claims 10, 19, and 20. Appeal Br. 10–12. However, this section repeats the arguments made for claims 1–5, 8, 9, 11–16, and 18. *See* Appeal Br. 10–12.

Accordingly, we sustain the Examiner's rejection of claims 10, 19, and 20.

CONCLUSION

We affirm the Examiner's rejections.

DECISION SUMMARY

The following table summarizes our decision:

<b>Claim(s) Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/ Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–5, 8, 9, 11–16, 18	103(a)	Pothoff, Peltonen, Pierce	1–5, 8, 9, 11–16, 18	
6, 7, 17	103(a)	Pothoff, Peltonen, Baird	6, 7, 17	
10, 19, 20	103(a)	Pothoff, Peltonen, Pierce, Verma	10, 19, 20	
<b>Overall Outcome</b>			1–20	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED