

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

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TINKU ACHARYA, BHARGAB B. BHATTACHARYA,
PARTHA BHOWMICK, ARIJIT BISHNU, JAYANTA K. DEY,
MALAY K. KUNDU, and CHIVUKULA ANJANEYA MURTHY

Appeal 2007-0757
Application 09/952,249
Technology Center 2600

Decided: May 24, 2007

Before KENNETH W. HAIRSTON, JOSEPH F. RUGGIERO, and
JOSEPH L. DIXON, *Administrative Patent Judges*.
DIXON, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. §§ 6(b) and 134 from the Examiner's Final Rejection of claims 1-20.

We AFFIRM.

BACKGROUND

Appellants' invention relates to a method and apparatus to reduce false minutiae in a binary fingerprint image. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

1. A method of reducing false minutiae in a binary image comprising:
determining an estimate of the average inter-ridge line distance;

identifying and removing at least some isolated spurs and ridge-connected spurs based, at least in part, on the estimate of the average inter-ridge line distance.

PRIOR ART

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

BOLLE '963	US 6,005,963	Dec. 21, 1999
BOLLE '895	US 6,072,895	Jun. 6, 2000

REJECTIONS

Claims 1-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bolle '895 in view of Bolle '963.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the Appellants regarding the above-noted rejection, we make reference to the Examiner's Answer (mailed Jun. 5, 2006) for the reasoning in support of the rejections, and to Appellants' Brief (filed Sep. 21, 2005) and Reply Brief (filed Aug. 7, 2006) for the arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to Appellants' Specification and claims, to the applied prior art references, and to the respective positions articulated by Appellants and the Examiner. As a consequence of our review, we make the determinations that follow.

One of Appellants' primary contentions throughout the Brief is that the Examiner has supplemented the rejection by responding to the arguments in the responsive arguments section rather than modifying the text of the rejection. Therefore, Appellants request that the appeal be remanded to the Examiner and require the Examiner to properly articulate the rejections of record. We have no jurisdiction to force the Examiner to place the work product into Appellants' desired format. If Appellants desired such action, then Appellants should have petitioned to the Director. Rather than remand the appeal, we shall decide the case on the merits.

35 U.S.C. § 103

At the outset, we note that to reach a proper conclusion under § 103, the Examiner, as finder of fact, must step backward in time and into the mind of a person of ordinary skill in the art at a time when the invention was unknown, and just before it was made. In light of all the evidence, we review the specific factual determinations of the Examiner to ascertain whether the Examiner has convincingly established that the claimed invention as a whole would have been obvious at the time of the invention to a person of ordinary skill in the art. When claim elements are found in more than one prior art reference, the fact finder must determine "whether a person of ordinary skill in the art, possessed with the understandings and

knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1337 (Fed. Cir. 2006). With respect to the role of the Examiner as finder of fact, the Court of Appeals for the Federal Circuit has stated: “the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The Court of Appeals for the Federal Circuit has also noted: “[w]hat the prior art teaches, whether it teaches away from the claimed invention, and whether it motivates a combination of teachings from different references are questions of fact.” *In re Fulton*, 391 F.3d 1195, 1199-1200, 73 USPQ2d 1141, 1144 (Fed. Cir. 2004) (internal citations omitted). In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). Furthermore, “‘there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness’ [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l v. Co. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Further, as pointed out by our reviewing court, we must first determine the scope of the claim. “[T]he name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Therefore, we look to the limitations as recited and disputed in independent claim 1.

Appellants argue that neither of the cited references teaches the claimed “determining an estimate of the average inter-ridge line distance” (Br. 3). We disagree with Appellants, and find that Bolle ‘895 clearly discusses the use of the average inter-ridge distance at column 12. We find that to use the average inter-ridge distance, it must have been determined. Additionally, we find that retrieving the value from storage would also be a “determining.” We note that the language of independent claim 1 does not identify how the average inter-ridge distance is determined. The estimate may be calculated, or determined from a stored reference table or any known manner of determination. We find sufficient teaching and suggestion in Bolle ‘895 to meet the recited language of independent claim 1. Therefore, Appellants' argument is not persuasive.

Appellants contend that the teachings of Bolle ‘895 are not sufficient to teach or suggest determining an estimate of the average inter-ridge line distance (Br. 4 and Reply Br. 1-3). We disagree with Appellants. Appellants further contend that Bolle ‘895 must be an enabling reference and that Bolle ‘895 is not enabling. Appellants contend that the relied upon portions of Bolle ‘895 do not teach or suggest how to determine an estimate of the average inter-ridge line distance (Br. 4). We do not find that Bolle ‘895 is non-enabling since we find that the use of a standard/reference value would have been sufficient for the claimed invention. We find no express

or implied limitation that an estimate of the average inter-ridge line distance is calculated rather than looked-up nor do we find an express or implied limitation that the determination is dynamic or based upon the binary image which is being analyzed. Therefore, Appellants' argument is not persuasive.

Appellants contend that the Examiner's reliance upon the editing or pruning of Bolle '895 does not teach or fairly suggest the recited "identifying and removing at least some isolated spurs and ridge-connected spurs may be based, at least in part, on the estimate of the average inter-ridge line distance" (Br. 5). We disagree with Appellants and find that the use of the average inter-ridge line distance in the variance or other calculations would have been based, at least in part, on the estimate of the average inter-ridge line distance and used in the pruning process as recited in the language of independent claim 1. Therefore, we cannot agree with Appellants. We find that while Appellants may intend the claim limitations to be interpreted in a manner different from the manner the Examiner has interpreted the limitations, that does not make the Examiner's interpretation of the claim language or the prior art teachings erroneous.

With respect to Appellants' contention regarding implication or inherency (Br. 6), we find that the Examiner has set forth the teachings of the prior art references and the application thereof to the language of the claims. Here, while not as specific as Appellants may desire the Examiner's discussion in the rejection or the discussion of the express teachings of the reference, we find that "the estimate of the average inter-ridge line distance" is determined and used in the reduction of spurs or the pruning process of Bolle '895.

Additionally, we find that Bolle '895 teaches the use of well-known Euclidean geometry to determine distances between minutiae and that Bolle '895 teaches that this is done using numbers of pixels. (Bolle '895 col. 6, ll. 64-67).

Appellants argue that the Examiner's assertion of "implication or inherency" is incorrect (Br. 5-6). We disagree with Appellants' arguments that the Examiner is relying upon implication and inherency. We find that the Examiner is merely relying upon the premise that for a value to be used in a computation or determination, the value must be determined for it to be used. The value may not necessarily be calculated dynamically, as discussed above. Therefore, Appellants' argument is not persuasive.

Appellants argue that the portions of Bolle '895 cited by the Examiner with respect to manual pruning are based upon visual inspection and not based upon the average inter-ridge distance. We disagree with Appellants and find that Bolle '895 does use the average inter-ridge distance. We further find that the average would have been used by the operator or dynamically/adaptively as discussed in column 14 of Bolle '895. We find that it would have been obvious to one skilled in the art at the time of the invention to have used the estimate of the average inter-ridge distance in pruning the spurs.

Appellants argue that the automatic pruning feature of Bolle '895 is based upon pre-determined distances and none of these distances correspond to the average inter-ridge distance. As discussed above, we do find that there is a determination in a pre-determined value, as discussed above in the claim interpretation. Here, we find that pre-determined values would meet the step of "determining" as recited in independent claim 1. Additionally,

Bolle '895 states that the predetermined values are of the same magnitude as the average inter-ridge line distance. (Column 12, lines 34-35.)

Since Appellants have not shown a deficiency in the Examiner's initial showing, we will sustain the rejection of independent claim 1 and independent claims 8 and 14 which have not been separately argued.

With respect to dependent claim 2, Appellant argues that the generic description at column 2 of Bolle '895, relied upon by the Examiner, fails to teach all of the claimed limitations (Reply Br. 3 and Br. 8). We agree that the cited text is not as specific as desirable, but we find that column 1 discloses fingerprint analysis and bifurcation minutiae of a bifurcated ridge. We find that addressing and using bifurcation minutiae in the analysis of fingerprint images would have taught or fairly suggested rectifying at least some of the bifurcation minutiae. Therefore, Appellants' argument is not persuasive, and we will sustain the rejection of dependent claim 2 and dependent claims 9 and 15 grouped therewith by Appellants.

With respect to dependent claim 3, Bolle '895 teaches the use of pixels in the analysis as discussed above with respect to independent claim 1. Therefore, we find that the rectifying would be on a pixel-by-pixel basis. While Appellants identify that the processing is not described. Appellants have not identified how the use of pixels in the processing as discussed by Bolle '895 would not have been pixel-by-pixel basis nor have Appellants identified any specific definition in the art or in the instant Specification. Finding only unsupported allegation, we cannot agree with Appellants that it would not have been obvious to one skilled in the art at the time of the invention that Bolle '895 does not teach or fairly suggest pixel-by-pixel analysis. Therefore, Appellants' argument is not persuasive, and we will

sustain the rejection of dependent claim 3 and dependent claims 5, 6, 10, 12, 13, 16, 18, and 19 grouped therewith by Appellants.

With respect to dependent claim 4, Appellants argue that the Examiner has not addressed all of the limitations with respect to independent claim 1 (Br. 9). Since we found that the Examiner had made a sufficient showing with respect to independent claim 1, we do not find this argument persuasive with respect to claim 4. Appellants argue that a “bridge as recited in claim 4 *may* be different from an isolated spur and a ridge connected spur as recited in claim 1” (Br. 10). [Emphasis added.] Here, we note that Appellants argue that the bridge “*may*” be different and not that it is different. Impliedly, it may be the same which does not show error in the Examiner’s showing. Therefore, we find no harm in the fact that Bolle ‘895 does not mention the word bridge as Appellants argue. Therefore, Appellants’ argument is not persuasive, and we will sustain the rejection of dependent claim 4 and claims 11 and 17 grouped therewith by Appellants (and claim 5 which depends therefrom).

With respect to dependent claim 7, Appellants argue that the Examiner has not addressed all of the limitations with respect to independent claim 1 (Br. 10). Since we found that the Examiner had made a sufficient showing with respect to independent claim 1, we do not find this argument persuasive with respect to claim 7. Appellants argue that the cited portion of Bolle ‘895 does not describe converting the fingerprint image into a binary image or that the binary image was obtained before any processing of the image, as advanced by the Examiner (Br. 11-12). We find that Bolle ‘895 discloses processing the pixels at columns 5-6. We find that it would have been obvious to one skilled in the art at the time of the invention to have

Appeal 2007-0757
Application 09/952,249

transformed the image into a binary image and then use the estimate of the inter-ridge line distance. As discussed above, the determination is not specific as to how it is performed. Therefore, we do not find that the rejection is in error. Therefore, Appellants' argument is not persuasive, and we will sustain the rejection of dependent claim 7 and dependent claim 20 grouped therewith by Appellants.

CONCLUSION

To summarize, we have sustained the rejection of claims 1-20 under 35 U.S.C. § 103(a).

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

AFFIRMED

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