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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARK W. PERLIN[1]

Appeal 2017-000982
Application 12/584,761
Technology Center 1600

Before RICHARD M. LEBOVITZ, ROBERT A. POLLOCK, and RICHARD J. SMITH, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method for analyzing a nucleic acid sample. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Claims on Appeal

Claims 2–6 and 27–31 are on appeal. (Claims Appendix, Br. 42–44.) Claims 30 and 2 are illustrative and read as follows:

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[1] According to Appellant, the real party in interest is Cybergenetic Holdings, Inc. (Br. 2.)

30. A method for analyzing a nucleic acid sample comprised of the steps:

(a) forming labeled DNA sample fragments from a nucleic acid sample;

(b) size separating said sample fragments with size standard fragments, and detecting the fragments to form a sample signal and a size standard signal;

(c) transforming the sample signal into size coordinates using the size standard signal;

(d) analyzing the nucleic acid sample in size coordinates to form data; and

(e) using a computer to apply at least ten different rules to check the data for possible artifacts, where the rules compare a numerical quality score with a predetermined threshold value to make a binary decision, and at least one of the rules compares observed measures of the data against expected data behavior.

(Appeal Br. 44.)

2. A method for analyzing a nucleic acid sample comprised of the steps:

(a) forming labeled DNA sample fragments from a nucleic acid sample;

(b) size separating and detecting said sample fragments to form a sample signal;

(c) forming labeled DNA ladder fragments corresponding to molecular lengths;

(d) size separating and detecting said ladder fragments to form a ladder signal;

(e) transforming the sample signal into an allelic ladder size coordinate system using the ladder signal, where the transformed lengths of the DNA sample fragments are expressed using integer values that accurately specify the base pair lengths of DNA sample fragment molecules; and

(f) analyzing the nucleic acid sample signal in length coordinates.

(*Id.* at 42.)

Examiner's Rejection

Claims 2–6 and 27–31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Butler,[2] Oldroyd,[3] Hiller,[4] Stoughton,[5] and Lazaruk.[6] (Final Act.[7] 3–9; Ans. 2–8.)

FINDINGS OF FACT

The following findings are provided for emphasis and reference purposes. Additional findings may be found in this Decision, the Final Action, the Advisory Action dated Sept. 28, 2015 ("Adv. Act."), and in the Examiner's Answer.

FF 1. Butler teaches the use of capillary electrophoresis (CE) and labeled internal standards for precise sizing of PCR products. (Butler Title, 974.) Butler teaches that PCR may be used in forensic identification. (Butler 974.)

FF 2. Butler teaches the generation of an allelic ladder, that data was captured using a computer, and that the method may be used to identify short tandem repeats (STR) alleles of humans. (Butler 975–76.)

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[2] J.M. Butler et al., *Application of dual internal standards for precise sizing of polymerase chain reaction products using capillary electrophoresis*, Electrophoresis 16, 974–80 (1995) ("Butler").
[3] N.J. Oldroyd, *A highly discriminating octoplex short tandem repeat polymerase chain reaction system suitable for human individual identification*, Electrophoresis 16, 334–37 (1995) ("Oldroyd").
[4] Hiller et al., US 6,274,317 B1, issued Aug. 14, 2001 ("Hiller").
[5] R. Stoughton et al., *Data-adaptive algorithms for calling alleles in repeat polymorphisms*, Electrophoresis 18, 1–5 (1997) ("Stoughton").
[6] K. Lazaruk, *Genotyping of forensic short tandem repeat (STR) systems based on sizing precision in a capillary electrophoresis instrument*, Electrophoresis 19, 86–93 (1998) ("Lazaruk").
[7] Final Office Action dated June 17, 2015 ("Final Act.").

FF 3. Oldroyd teaches that STR loci may exhibit a high degree of length polymorphism, and that STRs provide highly informative loci for use in human individual identification (e.g. DNA profiling based on STR analysis). (Oldroyd 334.)

FF 4. Oldroyd teaches the use of labeled amplified fragments and analysis of the sizes of PCR fragments by electrophoresis, wherein fragment sizes were determined automatically by use of a computer. (Oldroyd 335, Figure 1.)

FF 5. Oldroyd teaches that "[t]hrough the inclusion of an internal sizing standard with every sample, alleles differing in size by increments of 2 bp were accurately sized and computer-generated band sizes demonstrated to fall into discrete windows allowing unambiguous allele designation in most cases." (Oldroyd 336.) Oldroyd further teaches that automatic allele designation was done by a computer. (*Id.*)

FF 6. The Examiner finds that Oldroyd "consistently uses integer values of base pair sizes determined by the described procedure." (Ans. 4, citing Oldroyd Figures 1–3 and the discussion of determined sizes of fragments by increments of 2 bp at 336.)

FF 7. The Examiner finds that Hiller teaches "a process and apparatus comprising a programmed computer for assessing alleles from nucleic acids resolved by electrophoresis." (Ans. 5, citing Hiller cols. 3–4 and Figure 1.)

FF 8. Hiller teaches "[f]or each trace, a size standard is used to transform the time domain signal F(t) into a space domain signal f(s) where s is length expressed in base pairs." (Hiller col. 4, ll. 6–8.) Hiller further teaches that the "trace data are read by an auto allele calling system [] executing an auto allele caller process []. Called (i.e., identified) alleles that result from

execution of the auto allele caller process [] are stored in the database." (*Id.* at col. 4, ll. 8–12.) Hiller further teaches automated peak analysis (Figures 2, 3A, 3B, 4A, 4B, and 4C), including correction for split-peak errors, bleedthrough, and spillover. (*Id.* at col. 3, ll. 4–15.) Figure 9 of Hiller teaches genotype analysis.

FF 9. Hiller teaches the use of heuristic rules, including for quality assessment of the data, and for artifacts such as stutter peaks and bleedthrough. (Hiller cols. 9–10.) Hiller teaches that thresholds are used for the heuristic rules, such as (for example), to filter adjacent peaks and height difference filters. (*Id.*)

FF 10. Hiller teaches that:

> After all possible genotypes for the trace have been examined, a set of heuristic rules are applied to the set of calls to screen out obviously bad allele calls. The heuristic rules exclude bad calls or determine whether the trace should be labeled "uncallable" due to a high degree of uncertainty.
>
> According to the present invention, a method executed in a computer system for identifying alleles from a trace includes applying a typical shape of an allele for a marker to the trace to identify potential allele calls that match to the typical shape of the allele at the marker and assigning a quality factor to the allele calls.

(Hiller col. 2, ll. 19–30.)

FF 11. Stoughton teaches data-adaptive algorithms for separating overlapping signatures of heterozygotic allele pairs in electrophoresis data. (Stoughton Abstract.) Stoughton further teaches that the "algorithms allow overlapping alleles to be called correctly in almost every case where a trained observer could do so, and *provide a fast automated objective alternative to human reading of the gels*." (*Id.* (emphasis added).)

FF 12. Stoughton teaches "using the largest peaks in the actual data to define integer base-pair values." (Stoughton 2.) Stoughton teaches the use of algorithm rules to analyze data. (*Id.* at 3, Table 1.)

FF 13. Lazaruk teaches that automated fluorescence analysis of PCR-amplified short tandem repeat (STR) loci "is becoming an established tool both in forensic casework and in the implementation of both state and national convicted offender DNA databases." (Lazaruk Abstract.)

FF 14. Lazaruk teaches that electrophoresis data are "analyzed by software which automatically determines allele sizes based on a standard curve for the in-lane size standard," and further teaches the use of an allelic ladder to determine the sizes of the fragments in a sample. (Lazaruk 86–87.)

FF 15. Lazaruk teaches use of an integer nucleotide scale and measurement of peaks with software. (Lazaruk 90–92, Figures 2 and 3.) Lazaruk further teaches "comparing samples from different sources, for example evidence *vs*. reference samples, to determine whether the samples are consistent with having originated from the same source." (*Id.* at 92.)

DISCUSSION

We adopt the Examiner's findings, analysis, and conclusions, including with regard to the scope and content of, and motivation to combine, the prior art, as set forth in the Adv. Act. 2 and Answer (Ans. 2–12).[8] We discern no error in the rejection of the claims as obvious.

[8] The Examiner indicates in the Answer that the rejection was modified to point to locations in Butler, Oldroyd, Hiller, and Lazaruk "that show use of computers to analyze DNA fragment sizes and DNA alleles." (Ans. 9.) Appellant did not file a reply brief.

We limit our consideration to claims 30, 31, 2, 29, 5, and 4 because the remaining claims on appeal were not argued separately.

Issue

Whether a preponderance of evidence of record supports the Examiner's rejection under 35 U.S.C. § 103(a).

Principles of Law

The test for obviousness is "what the combined teachings of the references would have suggested to those of ordinary skill in the art" and not "that the claimed invention must be expressly suggested in any one or all of the references." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (citing cases).

An obviousness 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 Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Analysis

We find that the Examiner has established a prima facie case of obviousness as to the claims on appeal (*see* Final Act. 3–9; Ans. 2–8), and that Appellant has not persuasively identified any error by the Examiner or otherwise persuasively rebutted the prima face case.

Appellant's Arguments

Appellant advance several arguments in response to the Examiner's rejection, and relies on three declarations of the named inventor, Mark W. Perlin.[9]

Secondary Considerations

Appellant advances arguments regarding alleged long-felt need, commercial success, and copying.

Long-felt need

Appellant refers to Perlin Declaration A to argue that the invention of claims 30 and 31 overcame the "older approach" that used "vast armies of crime lab technicians." (Br. 10.) Perlin Declaration A states that the TrueAllele® Databank addresses "a long-felt need for better production of DNA information from DNA data" and a "long-felt societal need." (Ex. A at 2–4.) However, "long-felt need is analyzed as of the date of an articulated identified problem and evidence of efforts to solve that problem." *Texas Instruments, Inc. v. Int'l Trade Comm.*, 988 F.2d 1165, 1178 (Fed. Cir. 1993). Here, Appellant has provided conclusory statements but has not pointed to evidence showing an articulated identified problem and efforts to solve it. Moreover, given the art cited by the Examiner, we are not persuaded that there existed a long-felt *but unmet or unsolved* need. *See ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1374–75 (Fed. Cir. 2018).

[9] Declaration under 37 C.F.R. § 1.132 dated July 27, 2014 ("Perlin Declaration A" or "Ex. A"), Declaration under 37 C.F.R. § 1.132 dated May 18, 2015 (re: claims 30 and 31) ("Perlin Declaration B" or "Ex. B"), and Declaration under 37 C.F.R. § 1.132 dated May 18, 2015 (re: claims 2 and 4) ("Perlin Declaration C" or "Ex. C").

Commercial Success

Appellant argues commercial success (claims 30 and 31) based on the Perlin Declaration B (Br. 13–15; 27–28) and Perlin Declaration C (claims 2 and 4, Br. 32–33.) Appellant also refers to Perlin Declaration A as indicating "significant sales." (Br. 13.)

Perlin Declaration B states that "[c]ustomers specifically have paid millions of dollars for the claimed steps of [(e)] of Claim 30 so, for instance, so that highly confident data are not reviewed by a human operator of claim 31." (Ex. B at 2.) Perlin Declaration C states that "[c]ustomers specifically have paid millions of dollars for the claimed steps of [(e) and (f)] of Claim 2 so they can then, for instance, identify an individual by DNA profiling of Claim 4." (Ex. C at 2.) Perlin Declaration A states that "[t]he claimed invention is packaged and marketed by Cybergenetics, Corp. [] as the TrueAllele® Databank system," and that "TrueAllele Databank has generated over four and a half million dollars to date in revenue for Cybergenetics through commercial products and services." (Ex. A at 2.)

In the *ex parte* process of patent examination, the USPTO "must rely upon the applicant to provide hard evidence of commercial success." *In re Huang*, 100 F.3d 135, 139–40 (Fed. Cir. 1996). (noting that the USPTO "lacks the means or resources to gather evidence which supports or refutes the applicant's assertion that the sales constitute commercial success"). Appellants state, for example, that customers have paid millions of dollars for certain claim steps, but "provide[d] no indication of whether this represents a substantial quantity in [the relevant] market." *Id.* at 140; *In re Applied Materials*, 692 F.3d 1289, 1300 (Fed. Cir. 2012). ("An important component of the commercial success inquiry . . . is determining whether

[Appellant] had a significant market share relative to *all* competing [products] based on the merits of the claimed invention.") In addition, Appellant's conclusory assertions regarding customer payment for specific claim steps does not establish the required nexus between the sales and claimed invention, such as might be achieved by "an affidavit from the purchaser explaining that the product was purchased due to the claimed features." *Huang*, 100 F.3d at 140.

Appellant also identifies twelve customers and states that customers "benefited from using the claimed invention by realizing increased accuracy and efficiency." (*See* Br. 13–14, quoting Ex. B at 2.) But Appellant fails to provide proof that sales to these customers "were a direct result of the unique characteristics of the claimed invention—as opposed to other economic and commercial factors unrelated to the quality of the patented subject matter." *Huang*, 100 F.3d at 140.

Copying

Appellant argues that competing software systems copy the claimed invention. (Spec. 13, 15, and 33; Ex. A at 4–5.) Appellant contends, for example, that "[c]ompeting DNA reference sample analysis software copies the invention by using [length coordinates of claims 2 and 5, step (f)] in this way, implying all the preceding claim steps. The 'OSIRIS' software system copies claim[s] 2 and 5 of the TrueAllele Databank invention." (Br. 33.) Perlin Declaration A identifies three companies that allegedly copy claim 30 (previously claim 1) and one program of the NIH (OSIRIS) that allegedly copies claims 30, 2, and 5. (Ex. A Appendix.)

"[C]opying requires evidence of efforts to replicate a specific product, which may be demonstrated through internal company documents, direct

evidence [such as using the TrueAllele product to create a replica], or access to [the TrueAllele product] combined with substantial similarity to [the TrueAllele product]." *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010). Appellant's conclusory allegations are insufficient "evidence of efforts [of third parties] to replicate" the TrueAllele product.

Claims 30, 31, 2, 29, 5, and 4

Before discussing arguments specific to these individual claims, we address several points that appear throughout the Brief. First, Appellant generally argues the cited references separately. (*See, e.g.*, Br. 16–24.) However, one cannot show nonobviousness by attacking references individually where the Examiner bases the rejection on a combination of references. *See Keller*, 642 F.2d at 426. Second, Appellant argues that Butler, Oldroyd, and Lazaruk fail to recognize the problem solved by Appellant's claimed invention. (Br. 18, 19, 23, and 28.) However, "[i]n determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls," *KSR,* 550 U.S. at 419, and "[o]ne of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings" *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.* 424 F.3d 1293, 1323 (Fed. Cir. 2005). Third, Appellant alleges Examiner "hindsight" at several places in its Brief. (*See* Br. 15, 18, 20, 25, 34, 36, and 38.) Those arguments are unpersuasive because Appellant points to no evidence that any of the Examiner's findings were beyond the level of ordinary skill at the time of the invention or could have been taken only from Appellant's Specification. *See In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971). Fourth, Appellant refers to the lack of "enablement" in

connection with individual references or combinations thereof. (*See* Br. 17, 22, 24, and 34.) Even if a specific reference is nonenabled for a certain embodiment, a reference may still qualify as prior art for the purpose of determining obviousness. *See Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991).

Claim 30

Appellant advances the argument (or a variation thereof), in connection with its separate argument of the references as applied to claim 30, that neither of the individual references "teach or suggest the transforming step or the analyzing step to form the data, where the data is not any data whatsoever but very specific data arising from the transforming step and the analyzing step." (Br. 17, 20, 21, 22, and 23.) However, in making that conclusory statement, Appellant does not point to any error by the Examiner. The Examiner's Answer points out that Butler, Oldroyd, Hiller, and Lazaruk "show steps of analysis of DNA fragments that include the claimed transforming and analyzing steps of claim 30, as noted in the rejection." (Ans. 10; *see also* Final Act. 4–9.) Moreover, the repeated argument that the claimed computer is used on "specific" data (*see, e.g.*, Br. 14, 15, 20, 21, 25, and 26) is not persuasive given the Examiner's finding that Butler, Oldroyd, Hiller, and Lazaruk show use of computers to analyze DNA fragment sizes and DNA alleles. (Ans. 9.)

Butler

Appellant argues that Butler does not use a computer, and teaches away from using a computer, and is thus non-analogous art. (Br. 14–18 and 24–25.) The Examiner responds that "[t]he rejection has been modified to point to locations in Butler . . . that show use of computers to analyze DNA

fragment sizes and DNA alleles," and that Butler "used automated reading of capillary gel electrophoresis." (Ans. 9; Butler 976, Figure 1; FF 1 and 2.) Butler thus does not teach away because it does not "criticize, discredit, or otherwise discourage" the use of a computer. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Butler is also analogous art, at least because it "is from the same field of endeavor, regardless of the problem addressed." *In re Bigio,* 381 F.3d 1320, 1325 (Fed. Cir. 2004).

Oldroyd

Although acknowledging that Oldroyd uses a computer, Appellant contends that "discerning the data" in Oldroyd does not involve a computer or computer program. (Br. 19.) The Examiner responds by pointing out that Hiller and Stoughton "show procedures for determining the quality of DNA fragment data." (Ans. 9; FF 8, 11, and 12.) *See Keller*, 642 F.2d at 425.

Hiller

Appellant argues that Hiller teaches an automated allele caller and the use of 8 rules, not 10. (Br. 20.) Appellant also argues that "[t]here is no reason to add any further rules to the teachings of Hiller because Hiller does not need further rules to perform its intended purpose." (*Id.*) Appellant also contests the Examiner's statement that:

> It would be further obvious to use at least 8 of the rules to analyze data for artifacts shown in Hiller et al. because Hiller et al. show 8 rules for detection of artifacts in data that are useful for excluding inaccurate data. It would be further obvious to use the at least 4 rules of Stoughton et al. in addition because Stoughton et al. shows that the rules allow for determination of artifacts of noise or poor choice of template.

(Br. 26, referring to Final Act. 8.)

Appellant argues that "the data the rules are being applied to is not any data, but very specific data," and that "this collection of rules from different references that the Examiner is devising, fails to achieve the necessary result of an operable and unique system that has received great success in the marketplace." (Br. 26–27.)

We note that claim 30 does not specify the "at least ten different rules to check the data for possible artifacts," other than that "the rules compare a numerical quality score with a predetermined threshold value to make a binary decision," and "at least one of the rules compares observed measures of the data against expected data behavior." (Br. 44.) The binary decision limitation is taught by Butler (*see* Ans. 4: "compar[ing] a numerical quality score with a predetermined threshold value") and Hiller (*see* Ans. 7–8: "use of thresholds in combination with rules to decide if data is good or artifactual.") The comparison of observed measures of data versus expected data behavior is taught at least by Hiller. (FF 10.) The commercial success argument is addressed above.

We are persuaded by the Examiner's rational for combining the rules of Hiller with those of Stoughton. (Final Act. 8; Ans. 9–10.) The test for obviousness does not require that additional rules be added to Hiller, but what the combined teachings of Hiller and Stoughton would have suggested to a person of ordinary skill in the art. *See Keller*, 642 F.2d at 425.

Stoughton and Lazaruk

Appellant separately argues that "there is no teaching or suggestion why anyone skilled in the art would use the algorithm taught by [Stoughton or Lazaruk] with any of the references cited by the Examiner in regard to the applied art of record." (Br. 22 and 24.) We are not persuaded by this

argument because, although claim 30 recites five process steps, it is not limited to a particular algorithm.

Claim 31

Claim 31 depends from claim 30 and recites "wherein the rules are used to focus data review so that highly confident data are not reviewed by a human operator." (Br. 44.) Appellant separately argues that none of Butler, Oldroyd, Hiller, Stoughton, or Lazaruk teach the limitation of claim 31, particularly that "data are not reviewed by a human operator." (Br. 28–29.) We are not persuaded, at least because Stoughton teaches an "alternative to human reading of the gels." (FF 11.)

Appellant also contests the Examiner's combination of Hiller, Butler, and Oldroyd (Final Act. 8) because Butler and Oldroyd identify peaks (not a trace) and are not limited to alleles of the same marker, which is different from the approach by Hiller which uses a trace and is only applicable to alleles of the same marker. (Br. 29–30.) We are not persuaded because the claimed subject matter is not limited to analyzing peaks or a trace, and those references all relate to calling alleles. (*See* Ans. 11.)

Appellant also contests the Examiner's reliance on Hiller as teaching or suggesting to obviate human review. (Br. 30–32.) However, we find no error in the Examiner's finding that "the program of Hiller [] is designed to inform the user when errors in the data are detected." (Final Act. 8; *see also* Hiller Title: "Automated Allele Caller.") Thus, a person of skill in the art would have understood Hiller as teaching "rules [] used to focus data review so that highly confident data are not reviewed by a human operator." *See KSR,* 550 U.S. at 421 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton.").

Claim 2

Appellant argues that an allelic ladder size coordinate system is not taught or suggested in the cited art, and particularly not by Lazaruk. (Br. 33–36.) However, the Examiner persuasively explains that the terms "allelic ladder" and "allelic ladder size coordinate system" have no limiting definitions in the Specification, and that Butler makes allelic ladders and Lazaruk provides explicit guidance to use allelic ladders. (Ans. 12.) The Examiner also points out that the references "show use of allelic size standards which shows the limitation of an allelic ladder size coordinate system." (*Id.*; FF 14.)

Appellant contests the Examiner's statement that it would have been "obvious to determine integer base pair values of fragments because Oldroyd [], Hiller [], and Stoughton [] use integer values of fragment lengths determined by their analyses." (Br. 36, referring to Final Act. 7–8.) In particular, Appellant argues that "[t]here is no basis for this conclusion of obviousness to go from generally using integer values to the specific limitation and requirement of using integer base pair values of claim [2]." (Br. 36.)[10] We are not persuaded, at least because Oldroyd teaches the use of integer values of base pair sizes. (FF 6.)

Claim 29

Claim 29 depends from claim 27, which depends from claim 3.[11] (Br. 42–44.) Claim 29 recites that "after the inferring step there is the additional

[10] Appellant advances this argument in connection with both claim 30 and claim 2 but, as the Examiner points out, claim 30 does not recite the use of integer values. (Ans. 11.)

[11] Claim 3 depends from claim 2 and recites that after the analyzing step (f) "there is the additional step of determining a length or amount of a fragment

step of comparing the individual's genotype with a genotype of another individual." (*Id.* at 44.) Appellant argues that this limitation of comparing individuals is "completely unsupported" by the cited art, and particularly by Lazaruk. (*Id.* at 36–39.)

We are not persuaded. As set forth by the Examiner, Oldroyd shows a comparison of genotypes of individual in Table 2, and Lazaruk teaches human databases. (Ans. 12; FF 13; *see also* FF 1 and 2 regarding teachings of Butler.)

Claim 5

Claim 5 is an independent system claim that Appellant characterizes as "essentially [having] the limitations of claim 2, but also utilizes and includes the limitation of a computer of claim 30 because claim 5 has means plus function language." (Br. 39.) Appellant also argues that the "transforming means" of claim 5 includes the use of a computer and the "analyzing means" of claim 5 refers to computer software. (*Id.*) Appellant further argues that the cited prior art does not teach or suggest any of the specific preferred embodiments where all the limitations from the Specification regarding the "analyzing means" are included in the analyzing step of claim 5. (*Id.* at 39–40.)

We are not persuaded. The mere addition of a computer or computer software does not render the claims patentable, particularly in light of the

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in the nucleic acid sample." (Br. 42.) Claim 27 recites that after the determining step "there is the additional step of inferring a genotype of an individual using the length or amount of a fragment in the nucleic acid sample to call alleles." (Br. 43.)

cited art that specifically uses a computer and computer software. (*See, e.g.*, FF 5, 7, 11, and 14.)

Claim 4

Claim 4 depends on claim 3 and recites "wherein after the determining step there is the additional step of identifying an individual by DNA profiling." (Br. 42.) According to Appellant, "[t]he Examiner does not mention specifically 'DNA profiling' at all, let alone identifying an individual using DNA profiling." (Br. 41.)

We are not persuaded. As noted by the Examiner, the Specification does not define "DNA profiling," and the claim limitation is shown by the guidance in Butler, Oldroyd, and Lazaruk. (Ans. 12; *see* FF 3 and Oldroyd's specific reference to "DNA profiling.")

Summary

Appellant's arguments do not persuade us of any error in the Examiner's prima facie case, and Appellant's evidence is insufficient to rebut that prima facie case. Accordingly, we find that Appellant's evidence and arguments of long-felt need, commercial success, and copying do not outweigh the Examiner's findings and conclusion of obviousness of claims 30, 31, 2, 29, 5, and 4.

Accordingly, for the reasons of record and as set forth above, we affirm the rejections of claims 30, 31, 2, 29, 5, and 4. Claims 3, 6, and 27–29 were not argued separately and fall with claim 2.

Conclusions of Law

A preponderance of evidence of record supports the Examiner's rejection of claims 2–6 and 27–31 under 35 U.S.C. § 103(a).

SUMMARY

We affirm the rejection of all claims on appeal.

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).

AFFIRMED