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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ALEXANDER DAVID SCOTT ELLIN,
JAMES REYNOLDS HENSHAW, and
DAVID ROBERTS McMURTRY

Appeal 2019-004852¹
Application 12/659,404
Technology Center 3700

Before EDWARD A. BROWN, CHARLES N. GREENHUT, and
LEE L. STEPINA, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 1–9, 18, and 20–29, which constitute all the claims pending in this application.³ We have jurisdiction under 35 U.S.C. § 6(b). We REVERSE.

¹ Appellant presented oral arguments on August 18, 2020.

² We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Renishaw PLC as the real party in interest. Appeal Br. 1.

³ Claims 19 and 30 were cancelled by Appellant. *See* Appeal Br. (Claims App.). Claims 10–17 and 31 were cancelled by Examiner's Amendment. *See* Notice of Allowance dated February 14, 2018 at 2; Ans. 11–12.

CLAIMED SUBJECT MATTER

The claims are directed to producing encoder scales such as “rotary encoders for use in measurement devices which employ an encoder scale reader.” Spec. 1:14–16.

Independent claims 1 and 18, reproduced below with emphasis added, are illustrative of the claimed subject matter.

1. A method of forming an encoder scale for a measurement device, the method comprising the steps of:

(i) taking a laser;

(ii) taking a non-transparent substrate carrying *an etch-resistant film*; and

(iii) using the laser to remove parts of the etch-resistant film, thereby forming a pattern on the substrate that defines an encoder scale.

18. A method of forming an encoder scale for a measurement device, the method comprising the following steps in any suitable order:

providing a substrate;

providing a substrate treatment device;

providing a control system;

providing a displacement mechanism that provides a displacement signal indicative of displacement;

operating the displacement mechanism to cause continuous relative displacement between the substrate and the substrate treatment device; and

operating the control system to monitor the displacement signal and cause the substrate treatment device to treat the substrate at intervals so as to produce a pattern while the continuous displacement takes place, the control system being further operated to perform a timing comparison step to synchronize the displacement signal and the intervals,

wherein the substrate comprises a surface that has previously been darkened by treating the surface directly by at least one of etching and anodizing, and

wherein the substrate treatment device comprises a laser that marks bright lines directly onto the surface of the substrate.

Appeal Br. (Claims App. A-1, A-3).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Grobitz	US 3,573,007	Mar. 30, 1971
Fechter	US 3,747,117	July 30, 1973
Domkowski	US 4,652,528	Mar. 24, 1987
Veldkamp	US 4,846,522	July 11, 1989
Machida	US 4,883,710	Nov. 28, 1989
McElroy	US 5,053,618	Oct. 01, 1991
Williams	US 5,120,927	June 09, 1992
Barenboim	US 5,822,211	Oct. 13, 1998
Eisenhauer	US 6,501,068 B1	Dec. 31, 2002
Perry	US 6,621,040 B1	Sept. 16, 2003

REJECTIONS

I. Claims 1–4, 6–9, 20–23, and 25–28 are rejected under 35 U.S.C. § 103 as unpatentable over Williams, Grobitz, and Veldkamp. Non-Final Act. 2–5, 11–12.

II. Claim 5 is rejected under 35 U.S.C. § 103 as unpatentable over Williams, Grobitz, Veldkamp, and Barenboim. Non-Final Act. 5–6.

III. Claims 6, 7, and 29 are rejected under 35 U.S.C. § 103 as unpatentable over Williams, Grobitz, Veldkamp, and Eisenhauer. Non-Final Act. 6.

IV. Claim 24 is rejected under 35 U.S.C. § 103 as unpatentable over Williams, Grobitz, Veldkamp, and Machida or McElroy. Non-Final Act. 6–7.

V. Claims 25 and 26 are rejected under 35 U.S.C. § 103 as unpatentable over Williams, Grobitz, Veldkamp, and Perry. Non-Final Act. 7–8.

VI. Claim 18 is rejected under 35 U.S.C. § 103 as unpatentable over Williams and Domkowski or Fechter. Non-Final Act. 9–10.

OPINION

Rejection I: Williams, Grobitz, and Veldkamp

Claims 1–4, 6–9, 20–23, and 25–28

The Examiner finds that Williams, in Figure 4 and the associated disclosure in column 3, lines 29–31 and column 6, lines 55–68, teaches a method of forming an encoder scale for a measurement device comprising (i) taking a laser; (ii) taking a non-transparent substrate carrying a magnetic film or coating; and (iii) using the laser to remove parts of the film, thereby forming a pattern on the substrate that defines an encoder scale. Non-Final Act. 2–3, 11. According to the Examiner, “Williams does not explicitly call for the magnetic film [to be] an etch[]-resistant film [as required in claims 1 and 28] or an etch resist [as required in claim 27].” *Id.* at 3, 11.

To address this deficiency, the Examiner finds Figures 4 and 5 of Grobitz teach “it is known to provide an etch-resistant film (13) forming a pattern on a metal substrate (10).” *Id.* at 3, 12. The Examiner further finds Veldkamp’s Figure 5 teaches

it is known to provide a substrate made of a material including metal wherein the substrate is known to be provided with an etch-resistant film (522) such as a photo resist film provided with a metal layer (523), that is partially removed by laser to form a pattern thereto, and [Veldkamp] further shows etching the

substrate through the film that has been removed by the laser.

Id.

The Examiner reasons that, in view of the above teachings in Grobitz and Veldkamp,

it would have been obvious to one of ordinary skill in the art to adapt Williams with the non-transparent substrate, which can be made of metal, with an etch-resistant film formed thereon wherein the pattern is shaped and formed by laser or pulsed laser that removes the etch-resistant film so that the pattern is formed directly onto the substrate as the laser removes the film and exposing the substrate.

Id.

Appellant argues, *inter alia*, that the Examiner's findings regarding the combination of Williams, Grobitz, and Veldkamp are merely conclusory and "simply consist of describing the supposed result of its proposed combination." Appeal Br. 10–11. Appellant contends the Examiner fails to provide articulated reasoning for the conclusion of obviousness, as required by *KSR*. *Id.* (citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). Further, Appellant argues the Examiner has not explained how the teachings of Grobitz and Veldkamp would be employed in the method of Williams, which "already teaches a very specific and apparently effective method of using a laser 14 to inscribe grooves 130 into a magnetic layer 139 sitting on a substrate 129." *Id.* at 11.

In response, the Examiner appears to present an inherency position regarding the etch-resistant properties of Williams' magnetic film:

Grobitz and [Veldkamp] are applied to show that a metallic layer is known to be an etch-resistant film, wherein *the magnetic film of Williams which is also made of metallic film would [] also be deemed an etch-resistant film* where a pattern or groove would be formed by laser or pulsed laser that removes the etch-resistant

film as stated in the ground of rejection.

Ans. 12–13 (emphasis added).

In reply, Appellant contends the Examiner’s comparison of the metal layers in Grobitz and Veldkamp to the magnetic layer in Williams is improper. Reply Br. 3. First, Appellant argues that not all metal layers are etch-resistant, as both Grobitz (Fig. 5, layer 10) and Veldkamp (Fig. 5, layer 523) teach etching a metal layer. *Id.* at 3–4. Second, Appellant contends the magnetic layer of Williams is chosen for its magnetic properties, not for its etch-resistant properties. *Id.* at 4. The types of metals chosen in Grobitz, according to Appellant, are not magnetic and, thus, are not suitable to use as the magnetic layer of Williams. *Id.*

We agree with Appellant that the Examiner’s proffered motivation to combine the references is merely a restatement of requirements of the claims without sufficient additional explanation. Thus, the Examiner fails to provide “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 417–18. Further, the rejection lacks a clear “explanation as to how or why the references would be combined to produce the claimed invention.” *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016); *see also Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017) (holding obviousness determination improper where the record lacked a “clear, evidence supported account of “how the combination” would work). The Examiner provides no evidence or explanation of how one of ordinary skill in the art would “adapt” Williams to use one of the alleged “etch-resistant films” taught by Grobitz or Veldkamp.

To the extent the Examiner’s finding that “a metallic layer [of Grobitz

or Veldkamp] is known to be an etch-resistant film wherein the magnetic film of Williams which is also made of metallic film would [] also be deemed an etch-resistant film” is an assertion that William’s magnetic layer is inherently an “etch-resistant” layer (*see* Ans. 12–13), we agree with Appellant that the Examiner has failed to provide sufficient evidence of inherency. Our reviewing Court states, “our early precedent, and that of our predecessor court, established that the concept of inherency must be limited when applied to obviousness, and is present only when the limitation at issue is the ‘natural result’ of the combination of prior art elements.” *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014). “The keystone of the inherency doctrine is inevitability. . . . Absent inevitability, inherency does not follow even from a very high likelihood that a prior art method will result in the claimed invention.” *In re Montgomery*, 677 F.3d 1375, 1384 (Fed. Cir. 2012). The Examiner has not provided any evidence that the metal materials used in Grobitz or Veldkamp could be the same materials that comprise the magnetic layer of Williams. Further, as Appellant persuasively argues (*see* Reply Br. 3–4), the Examiner’s suggestion that a person of ordinary skill in the art would find all metals to be etch resistant is unsupported by the record. Thus, the Examiner has not shown that the magnetic layer of Williams, in view of metal materials used in Grobitz or Veldkamp, would have the natural result of being “deemed” an etch resistant layer.

Accordingly, we do not sustain the rejection of independent claims 1, 27 or 28, or claims 2–4, 6–9, 20–23, 25 or 26 depending from claim 1, as unpatentable over Williams, Grobitz, and Veldkamp.

Rejections II–V

Rejections II, III, IV, and V are based on the combination of Williams, Grobitz, and Veldkamp, and the Examiner does not rely on the teachings of the additional references in any manner that would remedy the deficiencies discussed above regarding Rejection I. *See* Non-Final Act. 5–8.

Accordingly, we do not sustain the rejections of: claim 5 as unpatentable over Williams, Grobitz, Veldkamp, and Barenboim (Rejection II); claims 6, 7, and 29 as unpatentable over Williams, Grobitz, Veldkamp, and Eisenhauer (Rejection III); claim 24 as unpatentable over Williams, Grobitz, Veldkamp, and Machida or McElroy (Rejection IV); or claims 25 and 26 as unpatentable over Williams, Grobitz, Veldkamp, and Perry (Rejection V).

Rejection VI: Williams and Domkowski or Fechter

Claim 18

The Examiner finds Williams teaches all of the limitations of independent claim 18, except “the substrate comprises a surface that has previously been darkened by treating the surface directly by at least one of etching and anodizing.” Non-Final Act. 9–10. To address this deficiency regarding darkening the surface of the substrate, the Examiner finds Domkowski teaches “it is known to etch a substrate to provide a darkened surface wherein laser is applied to remove the etched surface.” *Id.* at 10 (citing Domkowski 4:11–26). The Examiner also finds “Fechter shows a recording medium that is formed by anodizing on a substrate which would have been darkened by the anodization, wherein the substrate is further laser processed to create a pattern.” *Id.* (no citation to Fechter provided).

The Examiner reasons that, in view of the above teachings in Domkowski or Fechter,

it would have been obvious to one of ordinary skill in the art to adapt Williams with the surface of the substrate that is directly treated via etching or anodizing to create a darkened surface that would produce a recording medium for encoding purposes wherein such film is laser treated to predictably yield a desired code or pattern formed thereon.

Id.

Appellant argues “there is no ‘articulated reasoning’ to support the Office’s position; the Office again simply describes the supposed result of its combination.” Appeal Br. 14; *see also* Reply Br. 5. Regarding Domkowski, Appellant contends the Examiner fails to provide an explanation of “how the method of Domkowski would be applied in the context of the method taught in Williams,” and that a skilled artisan would not have darkened the magnetic data layer of Williams by etching because it stores valuable user data. *Id.*

Regarding Fechter, Appellant first contends that the Board previously held in this patent application that “applying a coating is not the same as treating a surface directly.” *Id.* Appellant then argues that Fechter is incompatible with Williams because the oxidation temperatures used in Fechter would destroy the floppy disc and magnetic layer of Williams. *Id.* at 14–15.

In response, the Examiner finds

[a]s Domkowski or Fechter shows a substrate that is known to carry information, Domkowski or Fechter is deemed to be in the same field of endeavor with that of Williams that also includes a substrate that carries an encoded information on the substrate, and the combination Williams with Domkowski or Fechter would have predictably yielded the claimed invention that

includes forming an encoded scale by the pattern formed on the substrate.

Ans. 13.

Appellant’s arguments apprise us of Examiner error with respect to both Domkowski and Fechter. For each combination, Williams and Domkowski and Williams and Fechter, we agree that the Examiner fails to provide the required “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 417–18. Each rejection lacks a clear “explanation as to how or why the references would be combined to produce the claimed invention.” *TriVascular, Inc.*, 812 F.3d 1066 (Fed. Cir. 2016).

Domkowski teaches “the sides of a length of white TEFLON are subjected to a chemical etchant resulting in the darkening of [the] sides.” Domkowski 3:42–44. The Examiner provides no evidence or explanation of how applying a chemical process intended for TEFLON is applicable to darkening the substrate of Williams, which the Examiner asserts is metal (Non-Final Act. 2–3 (“substrate (129), which is made of a non-transparent material including metal”)).

Regarding Fechter, we agree with Appellant that the Board previously held the claimed “treating the surface directly to darken the surface” requires the surface of the *substrate itself* to be treated and darkened, not the surface of a layer on top of the substrate. Decision at 7. Fechter teaches forming an oxide layer on top of a substrate “by first applying the unoxidized metal or metallic alloy on [the] surface” of the substrate, and then anodically oxidizing the metal layer. Fechter 3:3–5, 28–30. As Fechter treats a layer on top of the substrate rather than treating the substrate itself, we agree with

Appellant that Fechter does not teach “treating the surface directly” to darken the substrate surface.

Accordingly, we do not sustain the rejection of independent claim 18 as unpatentable over Williams and Domkowski or Fechter.

Status of Claims 10–17 and 31

In a previous decision, the Board sustained a rejection of claims 10–17 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. *Ex Parte Ellin*, Appeal No. 2016-001028 (hereinafter, “Decision”) at 3–6 (PTAB Dec. 1, 2017); Non-Final Action mailed Sept. 25, 2014 at 3–4. That Decision reversed the rejections of claims 1–9, 18, and 20–29. Decision 6–10.

After the Decision, the Examiner issued a Notice of Allowance stating that claims 10–17 and 31 were *cancelled* via an Examiner’s amendment due to the Board’s affirmance of the § 112 rejection thereof. Notice of Allowance mailed Feb. 14, 2018 at 2; *see also* MPEP § 1302.04 (“Examiner’s Amendments and Changes”).⁴ Subsequently, on June 4, 2018, Appellant filed a Petition to Withdraw the Application from Issue, which was granted, and also filed a Request for Continued Examination (“RCE”) including an Information Disclosure Statement (“IDS”) that cited new prior

⁴ MPEP § 1302.04 states “With the exception of the following no corrections or interlineations may be made by the examiner in the body of written portions of the specification or any other paper filed in the application for patent, except by examiner’s amendment approved by applicant and as described hereinafter. (See 37 CFR 1.121.): . . . (E) Amendment and/or cancellation of claims following a decision by the Patent Trial and Appeal Board as described in MPEP §§ 1214, 1214.05, and 1214.06.

art references.⁵ The Examiner then issued the Non-Final Office Action (August 14, 2018) from which the present Appeal is taken, including a rejection of claims 10–17 and 31 under 35 U.S.C. § 103.

MPEP § 1308(III) states “[w]hen an application is withdrawn from issue, either at the initiative of the applicant or by the Office, and the application contains an examiner’s amendment, *the claims as amended by the examiner’s amendment are the claims subject to further examination.*” (Emphasis added). Thus, notwithstanding Appellant’s filing of the above-noted RCE and the Examiner’s subsequent rejection of claims 10–17 and 31, apparently failing to immediately recognize they had previously been cancelled by the Examiner, the status of claims 10–17 and 31 after the application was withdrawn from issue was “cancelled.” The Examiner apparently recognized the inconsistency of the rejection of claims 10–17 and 31 with the previous cancellation of these claims, and the Examiner reiterated in the Answer that claims 10–17 and 31 have been cancelled. *See* Ans. 11–12; Oral Hearing Transcript 18–19. Accordingly, as claims 10–17 and 31 have been cancelled, no rejection of these claims is before us.

CONCLUSION

The examiner’s rejections are REVERSED.

⁵ Appellant did not address the rejection sustained in the previous appeal

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	References/Basis	Affirmed	Reversed
1-4, 6-9, 20-23, 25-28	103	Williams, Grobitz, Veldkamp		1-4, 6-9, 20-23, 25-28
5	103	Williams, Grobitz, Veldkamp, Barenboim		5
6, 7, 29	103	Williams, Grobitz, Veldkamp, Eisenhower		6, 7, 29
24	103	Grobitz, Veldkamp, Machida, McElroy		24
25, 26	103	Williams, Grobitz, Veldkamp, and Perry		25, 26
18	103	Williams, Domkowski, Fechter		18
Overall Outcome				1-9, 18, 20-29

REVERSED