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A New Alice Plot Twist – Can a Composition of Matter Be an Abstract Idea?

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Federal Circuit Holds that "Polycrystalline Diamond Compact" Claims Are Not Directed to an Abstract Idea

The patent world tends to think that the Supreme Court's framework in *Alice*[1] is a template for determining the eligibility of software and business method inventions[2]. Under 35 U.S.C. § 101, *abstract ideas* are not eligible for patent protection.[3] Ineligible abstract ideas have included claims directed to mathematical equations, certain business methods, and mental processes.[4] Interestingly, the Federal Circuit recently evaluated claims directed to a diamond compact and determined that they were not directed to an ineligible abstract idea under § 101. While *these* composition of matter claims survived, we see implications for patent practitioners in the chemical and materials arts.

On February 13, 2025, the Federal Circuit reversed a ruling from the ITC holding claims directed to a polycrystalline diamond compact (PDC) from U.S. Patent No. 10,508,502 invalid as directed to an abstract idea.[5] The PDC claims comprise "a polycrystalline diamond table . . . including: a plurality of diamond grains . . . and a catalyst including cobalt;" and "a substrate bonded to the polycrystalline table." The claims also recite certain magnetic property ranges. The specification of the patent explains that these magnetic properties correlate to low levels of cobalt in the PDC, and low levels of cobalt are associated with stronger PDCs.[6]

At the ITC, the presiding ALJ applied the two-step framework of *Alice*[7] to the claims at issue. The ALJ found that the claims recited some structural features (grain size and a catalyst), and the magnetic properties were "side effects." The ALJ further reasoned that "[t]here may be some causal connection" between the recited magnetic properties and structures, but it "is so loose and generalized" that the "claimed limitations appear to be little more than side effects."[8] The ITC largely agreed and determined that the magnetic properties were merely the "the result of sintering conditions and input materials that went into manufacturing the PDC."[9]

The Federal Circuit held that the "claims are directed to a specific, non-abstract composition of matter—a PDC—that is defined by its constituent elements . . ., particular dimensional information . . ., and quantified material properties . . . ." [10] The court disagreed with the ITC's reliance on the patent specification's use of "may" to support its position that the correlation between the magnetic properties and structural features is "too weak and equivocal." Rather, the paragraphs employing "may" also have sentences that unequivocally use "indicates" to establish the correlation.[11] Further, the patent includes several working PDC table examples illustrating that the claimed magnetic properties are indicative of low levels of cobalt in comparison to prior art PDC tables.[12] Ultimately, "no perfect proxy" is required to tie the recited properties to the recited structure.[13]

US Synthetic offers takeaways for patent practitioners who draft composition of matter claims. There is at least some risk that a recited property in a composition of matter claim could be held an ineligible abstract idea under § 101. One can substantially reduce this risk by working with inventors to draft patent applications that: (a) identify actual examples and comparative examples that illustrate a relationship between the recited properties and structure; (b) include specification passages that discuss proven or believed relationships between each of the claimed properties and structure; (c) avoid the use of the term "may" in the patent specification when correlating properties to structure; and (d) avoid equivocation when supporting claimed elements in the specification. At the same time, patent drafters should avoid couching these property/structure connections as *the* invention or as being *critical* to the invention because these constructions might be construed by a court as limitations in claims that do not expressly recite these properties and/or

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structures.

If you have any questions about the impact of *US Synthetic* or patent issues more generally, please contact your Miller Canfield attorney or the authors of this alert.

Footnotes

[1] *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208 (2014).

[2] *See generally* U.S.P.T.O. Manual of Patent Examining Procedure (MPEP) § 2106.04(a).

[3] *E.g.*, *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

[4] *See* MPEP § 2106.04(a).

[5] *US Synthetic Corp. v. Int'l Trade Comm'n*, __ 4th__, 2025 WL 478762, No. 2023-1217 (Fed. Cir. Feb. 13, 2025).

[6] *Id.* at *1-4.

[7] In the first step, the court must assess the claims in their entirety to determine "whether their character as a whole is directed to excluded subject matter." *Alice*, 573 U.S. at 218. If the claims are directed to an abstract idea, step two requires the court to assess "the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application." *Id.* at 217.

[8] *US Synthetic*, 2025 WL 478762, at *4.

[9] *Id.* at *5.

[10] *Id.* at *6.

[11] *Id.* at *7.

[12] *Id.* at *8.

[13] *Id.* at *7.