

Keywords: Subject matter eligibility; 35 U.S.C. § 101; Technological improvement; computer memory system

General: Claims may be directed to a technological improvement over the prior art and deemed patent-eligible subject matter even if the claims do not recite complete technical details, so long as the technological improvement is sufficiently described within the written description.

Visual Memory LLC v. NVIDIA Corp.
U.S. Court of Appeals for the Federal Circuit
No. 2016-2254
Decided: August 15, 2017

I. Background

Visual Memory LLC (“Visual Memory”) was issued U.S. Patent No. 5,953,740 (“the ‘740 patent”) in 1991. The ‘740 patent teaches that typical computing systems use a three-tiered memory hierarchy including a low-speed bulk memory, a medium-speed main memory, and a high-speed processor cache memory, which, in combination, improve limitations imposed by the cache’s size. However, the traditional memory hierarchy is optimized based on a specific type of processor. To extend versatility of a memory hierarchy to other processors, the ‘740 patent teaches a memory system with “programmable operational characteristics” that can be modified for use with multiple different processors without an accompanying reduction in performance by adjusting the type of data to be stored within the cache based on the type of processor. In particular, claim 1 reads:

1. A computer memory system connectable to a processor and having one or more programmable operational characteristics, said characteristics being defined through configuration by said computer based on the type of said processor, wherein said system is connectable to said processor by a bus, said system comprising:

a main memory connected to said bus; and

a cache connected to said bus;

wherein a programmable operational characteristic of said system determines a type of data stored by said cache.

Visual Memory sued NVIDIA Corporation (“NVIDIA”) for infringement of the ‘740 patent. In response, NVIDIA filed a motion to dismiss for failure to state a claim under Rule 12(b)(6) of the Federal Rules of Civil Procedure. The district court granted NVIDIA’s motion. With respect to the first step of the *Alice* test of whether the claims at issue are directed to a patent-ineligible concept (e.g., an abstract idea), the district court concluded that the claims of the ‘740 patent were directed to the “abstract idea of categorical data storage.”

Additionally, with respect to the second step of the *Alice* test of whether there was an “inventive concept” in the claims of the ‘740 patent that would transform the abstract idea into a patent-eligible invention, the district court found no inventive concept in the claims. Instead, the district court stated that the claimed computer components were generic and conventional, and that the

programmable operational characteristics merely represent generic concepts that determine the type of data to be stored by the cache, while the '740 patent fails to explain the mechanism for accomplishing the result. Visual Memory appealed the district court's decision.

II. Issue

Did the district court err in dismissing Visual Memory's complaint for failure to state a claim on the basis of subject matter invalidity of the '740 patent?

III. Discussion

Yes. Citing *Electrical Power Group v. Alstom*, the Federal Circuit noted that the two steps in the *Alice* framework "involve overlapping scrutiny of the content of the claims," and that "the first-stage filter is a meaningful one, sometimes ending the § 101 inquiry." Thus, like *Enfish's* self-referential table and *Thale's* motion tracking system, the Federal Circuit found that the claims of the '740 patent are not directed to an abstract idea. Instead, the claims are directed to a technological improvement: an enhanced computer memory system.

The Federal Circuit looked to the specification to find particular technological improvements offered by the '740 patent. For example, the "specification explains that multiple benefits flow from the '740 patent's improved memory system," such as selective definitions for the functions of cache memory based on processor type that result in a memory system that can outperform a prior art memory system that is armed with "a cache many times larger than the cumulative size of the subject caches." As such, the Federal Circuit determined that the '740 patent is not directed to patent ineligible subject matter under § 101, and reversed the district court's dismissal of Visual Memory's complaint

IV. Conclusion

Considering improvements of a disclosed invention over prior art may be central in determining whether a claim is directed to a technological improvement instead of a patent-ineligible concept. Such considerations may be undertaken during the first step of the *Alice* test. Additionally, providing a robust written description, including specifics relating to how the invention improves upon problems faced in the prior art, may be instrumental in showing that claims are not directed to an abstract idea, even if the claims do not recite all of the technical details.

V. Dissent

In dissent, Judge Hughes points out that the claimed programmable operational characteristic is "nothing more than a black box for performing the abstract idea of storing data," with no further description provided in the patent. With respect to the second step of the *Alice* test, Judge Hughes stated that using routine components and functions to apply the abstract idea of categorical data storage in a computer environment does not "constitute an inventive concept and transform the idea into a patent-eligible invention."

Notably, the '740 patent includes a DESCRIPTION OF A PREFERRED EMBODIMENT section that is three columns long and a microfiche appendix having 263 frames of computer code, the latter of which the majority indicates may impart some understanding to one of ordinary skill in the art of how to configure a programmable operational characteristic of a cache memory based on a processor type.