

The means-plus-function issue in *WSOU Investments LLC v. Google LLC*

Irene Lin

Presented on November 15, 2023



3-Prong analysis for identifying § 112(f) claim limitations

- (A) The claim limitation uses the term “means” or a term used as a substitute for “means” that is a generic placeholder for performing the claimed function.
- (B) The term “means” or the generic placeholder is modified by functional language, typically, but not always linked by the transition word “for” (e.g., “means for”) or another linking word or phrase, such as “configured to” or “so that.”
- (C) The term “means” or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Presumption of whether to invoke § 112(f)

- A claim limitation is presumed to invoke § 112(f) when it explicitly uses the term “means” and includes functional language.
 - The presumption that § 112(f) applies is overcome when the limitation further includes the structure necessary to perform the recited function.
- A claim limitation that does not use the term “means” will trigger the presumption that § 112(f) does not apply.
 - The presumption that § 112(f) does not apply is overcome when the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.

- **A means-plus-function claim construction analysis involves a two-step process:**
 - determine whether the disputed limitation is drafted in means-plus-function format, i.e., "whether [or not] it connotes sufficiently definite structure to a person of ordinary skill in the art."
 - If the claim limitation does connote sufficiently definite structure, it is not written in means-plus-function format and § 112(f) does not apply.
 - if the claim limitation is written in means-plus-function format, determine what structure disclosed in the specification corresponds to the claimed function.

Computer-implemented § 112(f) claim limitations under § 112(b)

- A computer-implemented § 112(f) claim limitation will be indefinite under § 112(b) when the specification fails to disclose an algorithm to perform the claimed function **or** when the specification discloses an algorithm but the algorithm is not sufficient to perform the entire claimed function or functions.
- The sufficiency of the algorithm is determined **in view of what one of ordinary skill in the art would understand as sufficient to define the structure and make the boundaries of the claim understandable**. The requirement for the disclosure of an algorithm cannot be avoided by arguing that one of ordinary skill in the art is capable of writing software to perform the claimed function.

Overview

- WSOU Investments LLC sued Google in June 2020 for allegedly infringing 15 of its patents, including US Patent Nos. 8,965,045, 9,334,825 and 8,751,585
- The District Court for the Western District of Texas, found claims from these patents invalid based on indefiniteness
- WSOU appealed to the Federal Circuit
- The Federal Circuit affirms the district court's decisions as to the '045 patent and '585 patent, and reverses the district court's decision as to the '825 patent.

WSOU Investments LLC v. Google LLC, Nos. 2022-1063, 2022-1065 (Fed. Cir. Oct. 19, 2023)

- Claim 1 of the '045 patent

1. An apparatus comprising:

- a viewfinder display configured to display a first and second picture,

- a processor configured to move automatically a sub-set of pixels defining a target captured image that corresponds to the first picture, within a larger set of available pixels in a direction of an edge of the target captured image when a defined area of interest within the target captured image approaches the edge of the target captured image,*

- said processor configured to provide a pre-emptive user output when the sub-set of pixels approaches an edge of the set of available pixels, and the second picture corresponds to the larger set of available pixels, wherein the viewfinder display is configured to display the first picture within the second picture.*

'045 patent

- The claim limitation at issue is presumed not to be in means-plus-function format.
- Google rebutted this presumption alleging that the '045 patent specification provides a vague understanding of what the structure of the claimed "processor" is, referring to hardware, software, or essentially anything else that could perform the claimed functions.
- The district court agreed and found that "the language of the patent leads to the conclusion that 'processors' is meant to generically be anything that manipulates data."
- The federal Circuit agreed that the term "processor" in the claims of the '045 patent does not recite sufficiently definite structure.

'045 patent

- There is no categorical rule regarding whether the term "processor" connotes sufficient structure to avoid interpretation in means-plus-function format.
- The applicability of § 112(f) depends on the specific context of the patent at issue.
- Each claim term must be construed on its own in light of the intrinsic and extrinsic evidence of record.

'045 patent

- Specification

- “FIG. 2 illustrates an apparatus 2 comprising a camera sensor 10 and a processor 4 as previously described. In this example, processor 4 is a local processor 22 that is housed in a hardware module 20 along with the camera sensor 10.”
- “Implementation of the processor 4 can be in hardware alone (a circuit, a microprocessor etc, have certain aspects in software including firmware alone or can be a combination of hardware and software (including firmware).”
- “The processor 4 may be implemented using instructions that enable hardware functionality, for example, by using executable computer program instructions in a general-purpose or special-purpose processing unit that may be stored on a computer readable storage medium (disk, memory etc) to be executed by such a processing unit.”

'045 patent

- The district court thus concluded that the specification teaches that the processor could be software, hardware, or a combination of the two.
- The Federal Circuit agreed with the district court's determination that this claim limitation is written in means-plus-function format and is thus subject to the requirements of § 112(f).

'045 patent

- Determine whether the specification adequately discloses an algorithm for performing the claimed function.
 - WSOU did not dispute Google's argument that, if the claim was written in means-plus-function format, the specification does not disclose corresponding structure and thus the claims are indefinite.
 - WSOU argues for the first time on appeal that the specification discloses corresponding structure.
 - The Federal Circuit did not consider WSOU's argument presented for the first time on appeal.
 - The Federal Circuit affirmed the district court's decision.

'825 patent

- Claim 9 of the '825 patent

1. An apparatus comprising:

at least one processor; and

at least one memory including computer program code, where the at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus to at least:

detect that an application is being started on the apparatus;

in response to the application being started on the apparatus, turn on a continuous wave doppler radar at the apparatus and transmit radio signals that comprise the continuous wave doppler radar, wherein the radio signals are at least partially reflected by a human body of a user of the apparatus;

receive the transmitted radio signals after having been at least partially reflected by a gesture by the human body of the user;

detect in the received radio signals a predetermined time-varying modulation caused by the gesture by the human body of the user and that is present in a modulation of the received radio signals as compared to a modulation of the transmitted radio signals,

wherein

'825 patent

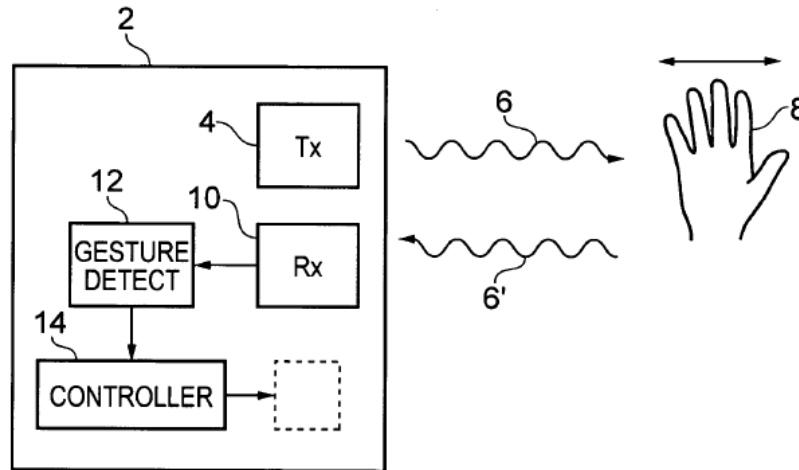


FIG. 1

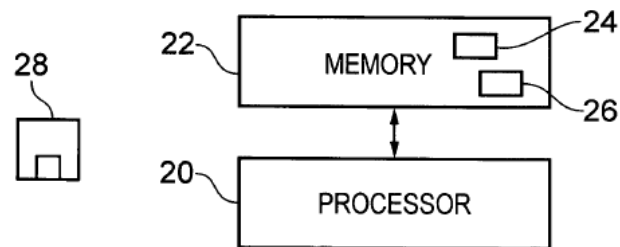


FIG. 2

'825 patent

- The claim limitation at issue is presumed not to be in means-plus-function format.
- Google rebutted this presumption alleging that the collective "memory," "computer program code," and "processor" terms convey no "structural character" to a person of ordinary skill in the art and that they are understood "solely by the different functions they are assigned to perform."
- The federal Circuit disagreed.

'825 patent

- The federal Circuit concluded that a person of ordinary skill in the art would understand the structure of the claimed "computer program code," "memory," and "processor."
 - The claim language itself provides structural guidance.
 - The disputed claim limitation recites multiple elements and their connections to one another.
 - Claim limitations like the recited "computer program code," when combined with a description of what the code is intended to accomplish, convey definite structure to the ordinarily skilled artisan.
 - There is no cases holding that the term "memory" is a nonce term or devoid of sufficient structure so as to invoke § 112(f).

'825 patent

- Specification

- “A processor 20 is configured to read from and write to the memory 22. The processor 20 may also comprise an output interface via which data and/or commands are output by the processor 20 and an input interface via which data and/or commands are input to the processor 20.”
- “The memory 22 stores a computer program 24 comprising computer program instructions that control the operation of the gesture detector 12 and possibly the apparatus 2 when loaded into the processor 20 and/or stores a computer program 26 comprising computer program instructions that control the operation of the controller 14 and possibly the apparatus 2 when loaded into the processor 20.”
- The computer program instructions provide the logic and routines that enables the apparatus to perform the methods illustrated in FIG. 6. The processor 20 by reading the memory 22 is able to load and execute the computer program 24, 26.
- “References to ‘computer-readable storage medium’, ‘computer program product’, ‘tangibly embodied computer program’ etc. or a ‘controller’, ‘computer’, ‘processor’ etc. should be understood to encompass not only computers having different architectures such as single/multi-processor architectures and sequential (Von Neumann)/parallel architectures but also specialized circuits such as field-programmable gate arrays (FPGA), application specific circuits (ASIC), signal processing devices and other devices. References to computer program, instructions, code etc. should be understood to encompass software for a programmable processor or firmware such as, for example, the programmable content of a hardware device whether instructions for a processor, or configuration settings for a fixed-function device, gate array or programmable logic device etc..”

'852 patent

- **In contrast to the '045 patent**, the specification here describes the "processor" as hardware that runs the computer program code.
- The specification also discloses that the memory stores a computer program comprising computer program instructions.
- The claimed "computer program" can be found, the specification explains, in commercially-available and well-known formats.
- The Federal Circuit reversed the district court's determination regarding this claim limitation and remand for further proceedings.

'045 patent

- Specification

- “Referring to FIG. 15A, the processor 4 may comprise processing circuitry 80 that is configured to read from and write to a memory 82. The processing circuitry 80 may also comprise an output interface via which data and/or commands are output by the processor 4 and an input interface via which data and/or commands are input to the processor 4.”
- “The memory 82 may store a computer program 84 comprising computer program instructions that control the operation of the processor 4 when loaded into the processing circuitry 80. The computer program instructions provide the logic and routines that enables the processor 4 to perform the methods illustrated in FIG. 4A-4D, 5A-5D, 6A-6D, 7A-7D, 8A-8C, 9A-9C, 10A-10C, 11A-11B, 12A-12C, 13 and 14. The processing circuitry 80 by reading the memory 82 is able to load and execute the computer program 84.”
- “References to ‘computer-readable storage medium’, ‘computer program product’, ‘tangibly embodied computer program’ etc. or a ‘controller’, ‘computer’, ‘processor’ etc. should be understood to encompass not only computers having different architectures such as single/multi-processor architectures and sequential (Von Neumann)/parallel architectures but also specialized circuits such as field-programmable gate arrays (FPGA), application specific circuits (ASIC), signal processing devices and other processing circuitry. References to computer program, instructions, code etc. should be understood to encompass software for a programmable processor or firmware such as, for example, the programmable content of a hardware device whether instructions for a processor, or configuration settings for a fixed-function device, gate array or programmable logic device etc.”

'045 patent

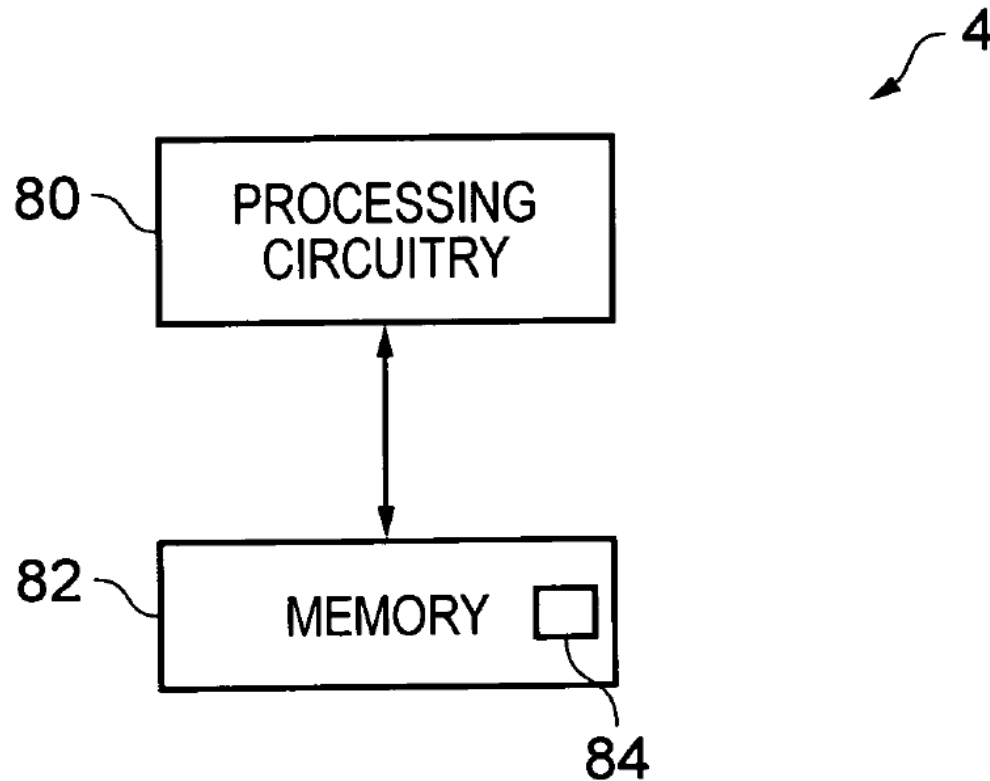


FIG. 15A



WSOU Investments LLC v. Google LLC, No. 2022-1064 (Fed. Cir. Oct. 6, 2023)

- Claim 9 of the '585 patent

1. Communication system, comprising

an electronic message client configured ...

the communication system further comprising:

a detection processor configured to detect the action defined in the archiving rule assigned to the selected electronic message was carried out,

an event management processor configured to generate an archiving command to move the selected electronic message from the inbox to the archive location after detection of the action defined in the archiving rule; and

a collaborative application management processor configured to manage collaborative applications; wherein the list of actions includes at least one of the following actions:

update to a page associated with a collaborative application by the user or another user associated with the communication system in which the collaborative application is hosted by the communication system; and

update to a page associated with a collaborative application in which the collaborative application is hosted outside the communication system.

'585 patent

- The claim limitation at issue is presumed not to be in means-plus-function format.
- Google rebutted this presumption alleging that (1) "processor" here is used as a generic equivalent to "means", (2) neither "configured to manage collaborative applications" nor the adjectival description "collaborative application management processor" provide structure because they simply refer to the overarching functions of the "processor," and (3) the specification of the '585 patent does not describe any "processor," much less a "collaborative application management processor configured to manage collaborative applications" that can inform the structural meaning of the claim term.
- The federal Circuit agreed that the term "processor" in the claims of the '585 patent does not recite sufficiently definite structure and thus invokes § 112(f).

'585 patent

- Specification
- “The communication system 1 may also comprise collaborative application management means such as, in particular:
 - databases* 107, 108, 109 enabling recording of data related to Wiki pages, collaborative FAQs, or blogs, whether or not hosted by the communication system 1;
 - a *database* 110, enabling storing of data related to RSS flows emitted by collaborative applications, whether or not hosted by the communication system 1;
 - databases* 111, 112 enabling, among other things, storage of task information or planning information shared by different users 3, 31.”

'585 patent

- Determine whether the specification adequately discloses an algorithm for performing the claimed function.
 - Google argues that there is no corresponding structure because the specification does not disclose an algorithm.
 - The specification nowhere actually discusses a "collaborative application management processor."
 - The specification does not indicate how the databases "manage" collaborative applications. The databases do not constitute an "algorithm" for the execution of the function.
 - The Federal Circuit affirmed the district court's decision.

Useful caselaw

- ***Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003 (Fed. Cir. 2018)**
 - “a person of ordinary skill in the art could reasonably discern from the claim language that the words "program," as used in claims 2 and 52 of the '691 patent, and "user interface code," as used in claim 19 of the '443 patent, are used not as generic terms or black box recitations of structure or abstractions, but rather as specific references to conventional graphical user interface programs or code, existing in prior art at the time of the inventions.”

Useful caselaw

- ***Dyfan v. Target Corp.*, 28 F.4th 1360 (Fed. Cir. 2022)**
 - “Unlike in the mechanical arts, the specific structure of software code and applications is partly defined by its function.”
 - For software-related claim limitations, like "code," "we can look beyond the initial 'code' . . . term to the functional language to see if a person of ordinary skill would have understood the claim limitation as a whole to connote sufficiently definite structure.”
 - The district court erred by ignoring key evidence—unrebutted deposition testimony from Target's own expert, Dr. Goldberg—regarding how a person of ordinary skill would have understood the "code"/"application" limitations.
 - “Dr. Goldberg's unrebutted testimony demonstrates that the "code"/"application" limitations here connote a class of structures to a person of ordinary skill.”

Takeaways

- 1. If the claim is to recite a processor, the claim of the '825 patent is a good example, where the claim recites the processor, the memory, the computer program code, as well as connection among them. It should be avoided that the claim is written in a manner such that the “processor” is simply a generic equivalent to “means.”
- 2. Consider reciting circuit or circuitry instead.
- 3. The Specification should clearly describe the hardware used to achieve the claimed function (e.g., by defining processor, circuitry, etc.), and the software by illustrating an algorithm.

Any questions?





Birch
Stewart
Kolasch
Birch LLP

THANK YOU

