Automation Middleware Solutions, Inc.
v.
Invensys Systems, Inc. et. al.
(Lead Case)

In the United States District Court for the Eastern District of Texas
Texarkana Division
Judge Robert W. Schroeder III
Hearing on Motion to Dismiss Under 35 U.S.C. 101 (*Alice*)
August 3, 2016

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Section 101 and Its Exceptions

Section 101 "defines the subject matter that may be patented under the Patent Act." . . . "Section 101 thus specifies four independent categories of inventions or discoveries that are eligible for patent protection: <u>processes</u>, <u>machines</u>, <u>manufactures</u>, and <u>compositions of matter</u>."

Bilski v. Kappos, 561 U.S. 593, 601 (2010).

Patent protection is not available for "... laws of nature, physical phenomena, and abstract ideas."

Diamond v. Chakrabarty, 447 U.S. 303, 09 (1980).

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The Scope of Section 101 Is Broad

The Supreme Court found that "[i]n choosing such expansive terms . . . Congress plainly contemplated that the patent laws would be given wide scope," . . .

Diamond v. Chakrabarty, 447 U.S. 303, 308 (1980).

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The Disqualifying Feature Must Be Manifest and Overriding

"… this disqualifying characteristic should exhibit itself *so manifestly as to override* the broad statutory categories of eligible subject matter and the statutory context that directs primary attention on the patentability criteria of the rest of the Patent Act."

Research Corp. Techs., Inc. v. Microsoft Corp., 627 F.3d 859, 868 (Fed. Cir. 2010)(emphasis added)

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The Two Step Test of *Alice*

1. "determine whether <u>the claims at issue *are directed to*</u> a patent-ineligible concept;"

2. If so "consider <u>the elements of each claim both individually</u> and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application."

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1334 (Fed. Cir. 2016) quoting, *Alice Corp. Pty Ltd. v. CLS Bank Int'l*, 134 S.Ct. 2347, 2355 (2014)(internal quotations omitted)(emphasis added)

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Emerson's Alleged Abstract Idea Is a Moving Target

Emerson alleges that the claims are directed to no less than six different abstract ideas and concepts:

1. "moving objects in desired ways by communicating and translating commands";

2. "implementing plant worker commands on a computer by translating them to a language understood by a device so it can move in a desired manner";

3. "using an intermediary (a software layer) to translate or correlate commands from an upper level application program (what the plant worker types/commands) to a lower level motion control device, so the device can understand the command and perform the desired movement";

4. "communicating commands to motion control devices in a way those devices can understand";

5. "a middle translating layer"; and

6. "moving an object in a desired manner by communicating commands."

Dkt. 50 at 1-2, 4, 13-14.

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Emerson's Alleged Abstract Idea Is a Moving Target

Because Emerson fails to articulate how, let alone prove that, each claim relates to the *same* abstract idea, its motion should be denied.

> *Cronos Techs., LLC v. Expedia, Inc.*, C.A. No. 13-1538, 2015 WL 5234040, at *3 (D. Del. Sept. 8, 2015) (concluding that defendants had failed to show that asserted dependent claims covered the same alleged abstract idea as an asserted independent claim, where defendants proposed "at least four different versions of the abstract idea").

Emerson's failure to pinpoint a precise abstract idea covered by the claims also shows that this case is *not* "straightforward" like *Alice* and other cases, where the claims plainly covered fundamental economic and business practices.

> *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014).

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Applying the Exceptions Too Broadly Would Eviscerate Patent Law

"The Court has recognized, however, that too broad an interpretation of this exclusionary principle could eviscerate patent law. For all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas."

Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S.Ct. 1289, 1293, (2012)(internal cites and quotations omitted).

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Applying the Exceptions Too Broadly Would Eviscerate Patent Law

"Thus, in *Diehr* the Court pointed out that a process is not unpatentable simply because it contains a law of nature or a mathematical algorithm. It added that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."

Mayo Collaborative Servs. v. Prometheus Labs., Inc., **132 S.Ct. 1289, 1293, (2012))(internal cites and quotations omitted).**

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"Abstract Idea" Is Not Subject to a Definitive Rule

"The Supreme Court has not established a definitive rule to determine what constitutes an "abstract idea" sufficient to satisfy the first step of the *Mayo/Alice* inquiry."

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1334 (Fed. Cir. 2016)

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Enfish Refutes Emerson's Arguments

Emerson's Argument	Federal Circuit Law - *Enfish*
"Because computer software comprises a set of instructions, the first step of *Alice* is, for the most part, a given; i.e., computer-implemented patents generally involve abstract ideas." Dkt. 50 at 13.	"We do not read *Alice* to broadly hold that all improvements in computer related technology are inherently abstract …. Nor do we think that claims directed to software, as opposed to hardware, are inherently abstract. Software can make non-abstract improvements to computer technology just as hardware improvements can …. We thus see no reason to conclude that all claims directed to improvements in computer-related technology, including those directed to software, are abstract …. Therefore, we find it relevant to ask **whether the claims are directed to an improvement to computer functionality** versus being directed to an abstract idea, even at the first step of the *Alice* analysis." • *Enfish*, 822 F.3d at 1335 (highlighting added).

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Enfish Refutes Emerson's Arguments

Emerson's Argument	Federal Circuit Law - *Enfish*
"Because computer software comprises a set of instructions, the first step of *Alice* is, for the most part, a given; i.e., computer-implemented patents generally involve abstract ideas." Dkt. 50 at 13.	"[*Alice's*] formulation plainly contemplates that the first step of the inquiry is a meaningful one, i.e., that a substantial class of claims are *not* directed to a patent-ineligible concept. The "directed to" inquiry, therefore, cannot simply ask whether the claims *involve* a patent-ineligible concept…. Rather, the "directed to" inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether "their character as a whole is directed to excluded subject matter." • *Enfish*, 822 F.3d at 1335 (highlighting added).

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Enfish Refutes Emerson's Arguments

Emerson's Argument	Federal Circuit Law - *Enfish*
"When trying to characterize the idea of a patent '[c]ourts should recite a claim's purpose at a reasonably high level of generality.' *Enfish, LLC v. Microsoft Corp.*, 56 F. Supp. 3d 1167, 1173 (C.D. Cal. 2014); *see also Open Text S.A. v. Box, Inc.*, 78 F. Supp. 3d 1043, 1046 (N.D. Cal. 2015) (at the first prong of the patent eligibility inquiry, a court 'distills the gist of the claim')." Dkt. 50 at 13-14. "[S]tripped of the technical jargon . . . and further shorn of the typically obtuse syntax of patents, the focus of the claims is simply commands to effectuate motion." Dkt. 50 at 14.	"The district court concluded that the claims were directed to the abstract idea of 'storing, organizing, and retrieving memory in a logic table' or, more simply, 'the concept of organizing information using tabular formats.' … However, describing the claims at such a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to § 101 swallow the rule." • *Enfish*, 822 F.3d at 1337 (highlighting added).

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Enfish Refutes Emerson's Arguments

Emerson's Argument	Federal Circuit Law - *Enfish*
"That *some* of the claims of *some* of the asserted patents, include hardware limitations does not alter this conclusion.… In any event at the first stage of the eligibility inquiry, 'the Court may ignore the physical components,' particularly when … the claimed hardware is part of the functional organization and configuration of the software system." Dkt. 50 at 18.	"Similarly, that the improvement is not defined by reference to 'physical' components does not doom the claims. To hold otherwise risks resurrecting a bright-line machine-or-transformation test, or creating a categorical ban on software patents. Much of the advancement made in computer technology consists of improvements to software that, by their very nature, may not be defined by particular physical features but rather by logical structures and processes." • *Enfish*, 822 F.3d at 1339 (highlighting added).

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Benefits Of The Claimed Invention Indicate Patent Eligible Subject Matter

"Moreover, our conclusion that the claims are directed to an improvement of an existing technology is bolstered by the specification's teachings that the claimed invention achieves other benefits over conventional databases, such as increased flexibility, faster search times, and smaller memory requirements."

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1337 (Fed. Cir. 2016)(citations omitted)

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Improvements To Computer Functions Indicates Patent Eligible Subject Matter

"Moreover, we are not persuaded that the invention's ability to run on a general-purpose computer dooms the claims. Unlike the claims at issue in *Alice* or, more recently in *Versata Development Group v. SAP America, Inc.*, 793 F.3d 1306 (Fed.Cir.2015), which Microsoft alleges to be especially similar to the present case, . . . , the claims here are directed to an improvement in the functioning of a computer."

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1338 (Fed. Cir. 2016)(citations omitted)

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Improvements To Computer Functionality Itself Are *Not* Abstract Ideas

"When 'the plain focus of the claims is on **an improvement to computer functionality itself**, not on economic or other tasks for which a computer is used in its ordinary capacity,' *the claims are not directed to an abstract idea.*"

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016)(citations omitted)(emphasis added)

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Specific Applications Or Improvements Indicate And Inventive Concept Under Alice

"[I]nventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language and framework of the Patent Act."

Research Corp. Techs. v. Microsoft Corp., 627 F.3d 859, 869 (Fed. Cir. 2010)

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The Claims are Directed to Specific Improvements in the Computerized Control of Motion Control Systems Embodied in Hardware:

- Improvements in the Independent Control of Motion Control Devices
- Improved Functionality and Interoperability Across Devices

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The Claimed Inventions Are Directed To Motion Control Systems

(12) **United States Patent**
Brown et al.

(10) Patent No.:   **US 6,516,236 B1**
(45) Date of Patent: Feb. 4, 2003

(54) **MOTION CONTROL SYSTEMS**

(75) Inventors: **David W. Brown; Jay S. Clark**, both of Bingen, WA (US)

(73) Assignee: **Roy-G-Biv Corporation**, Bingen, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

FOREIGN PATENT DOCUMENTS

EP	0442676 A2	8/1991
EP	0 281 427 B1	8/1992
EP	0508912 A1	10/1992
EP	0 583 908 A2	2/1994
EP	0275826 A1	7/1998
GB	2 224 896 A	12/1991
JP	59 228473	6/1983
WO	WO 92/11731	7/1992
WO	WO 93/08654	4/1993
WO	WO 95/07504	3/1995

OTHER PUBLICATIONS

'236 Patent at p. 1.

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The Claimed Invention Is Directed To A Unique Class Not An Abstract Idea

(12) **United States Patent**
Brown et al.

(10) Patent No.: **US 6,516,236 B1**
(45) Date of Patent: **Feb. 4, 2003**

(54) **MOTION CONTROL SYSTEMS**

(75) Inventors: **David W. Brown; Jay S. Clark**, both of Bingen, WA (US)

(73) Assignee: **Roy-G-Biv Corporation**, Bingen, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/021,669**

(22) Filed: **Dec. 10, 2001**

Related U.S. Application Data

(63) Continuation of application No. 09/191,981, filed on Nov. 13, 1998, which is a continuation of application No. 08/656,421, filed on May 30, 1996, now Pat. No. 5,867,385, which is a continuation-in-part of application No. 08/454,736, filed on May 30, 1995, now Pat. No. 5,691,897.

(51) Int. Cl.^{7} **G05B 19/18**
(52) U.S. Cl. **700/56; 700/87**
(58) Field of Search 700/56, 1, 87, 700/67; 703/25

FOREIGN PATENT DOCUMENTS

EP	0442676 A2	8/1991
EP	0 281 427 B1	8/1992
EP	0508912 A1	10/1992
EP	0 583 908 A2	2/1994
EP	0275826 A1	7/1998
GB	2 224 896 A	12/1991
JP	59 228473	6/1983
WO	WO 92/11731	7/1992
WO	WO 93/08654	4/1993
WO	WO 95/07504	3/1995

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Wosa Backgrounder: Delivering Enterprise Services to the Windows–based Desktop, Jul. 1993, Microsoft Development Library; pp. 1–19.

(List continued on next page.)

Primary Examiner—Leo Picard
Assistant Examiner—Zoila Cabrera
(74) *Attorney, Agent, or Firm*—Michael R. Schacht

(57) **ABSTRACT**

A system for motion control in which an application is developed that is independent from the actual motion control hardware used to implement the system. The system comprises a software system that employs an application pro-

'236 Patent at p. 1.

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The Claimed Invention Is Directed To A Unique Class Not An Abstract Idea

"The USPC is a system for organizing all U.S. patent documents and many other technical documents into relatively small collections based on common subject matter. Each subject matter division in the USPC includes a major component called a class and a minor component called a subclass."

Overview of the U.S. Patent Classification System;
http://www.uspto.gov/sites/default/files/patents/resources/classification/overview.pdf

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The Claimed Invention Is Directed To A Unique Class Not An Abstract Idea

"A class generally delineates one technology from another. Subclasses delineate processes, structural features, and functional features of the subject matter encompassed within the scope of a class. Every class has a unique alphanumeric identifier, as do most subclasses."

Overview of the U.S. Patent Classification System; http://www.uspto.gov/sites/default/files/patents/resources/classification/overview.pdf

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The Claimed Invention Is Directed To A Unique Class Not An Abstract Idea

"For U.S. patent documents, the classification of 'invention information' is mandatory, . . . "Invention information" is the technical subject matter disclosed in a document that is new and non-obvious to one having ordinary skill in the technical field. . . <u>For U.S. patent documents, the invention information is almost always in the claims.</u>"

Overview of the U.S. Patent Classification System; http://www.uspto.gov/sites/default/files/patents/resources/classification/overview.pdf (emphasis added)

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The Claimed Invention Is Directed To A Unique Class Not An Abstract Idea

"Int'l Class G05B 19/18--Numerical control [NC], i.e. automatically operating machines, in particular machine tools, e.g. in a manufacturing environment, so as to execute positioning, movement or co-ordinated operations by means of programme data in numerical form (G05B 19/418 takes precedence)"
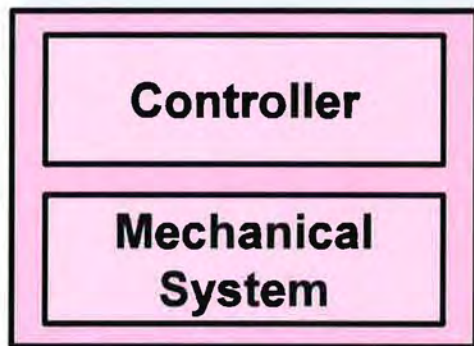
"Int'l Class G05B 19/418--Total factory control, i.e. centrally controlling a plurality of machines, e.g. direct or distributed numerical control [DNC], flexible manufacturing systems [FMS], integrated manufacturing systems [IMS], computer integrated manufacturing [CIM]"

http://www.uspto.gov/web/patents/classification/cpc/html/cpc-G05B.html

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The Claimed Inventions Are Directed To Motion Control Systems

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Example Motion Control Device

Controller

Mechanical System

Motion Control Device

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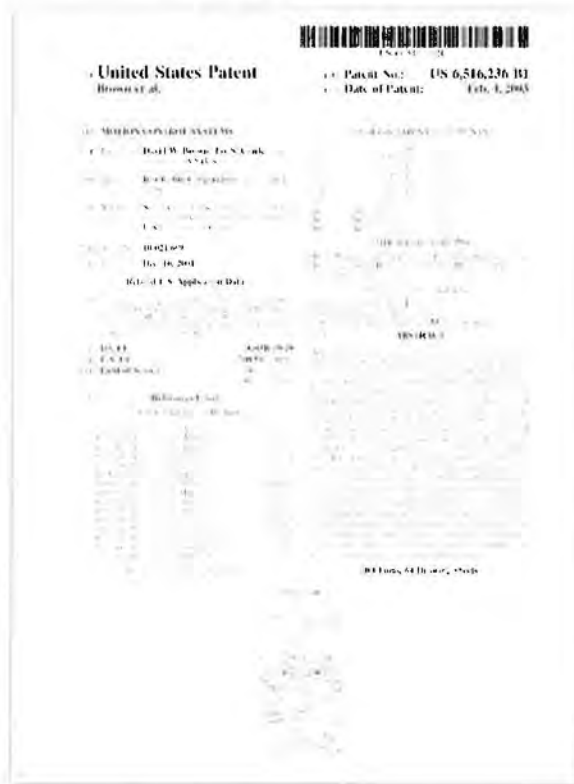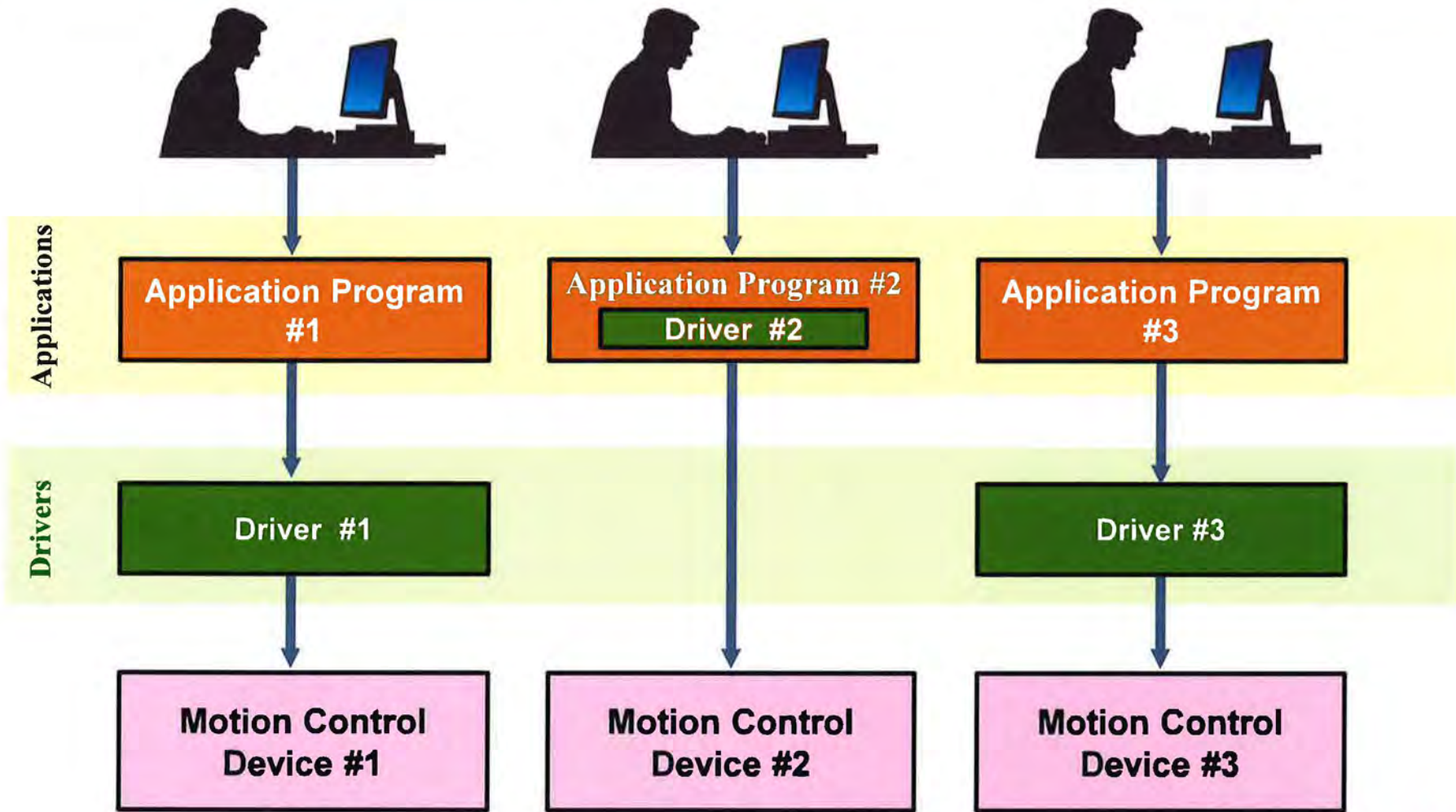
Prior Art Problem--Hardware Dependence

'236 Patent

"While such low level programs offer the programmer substantially complete control over the hardware, **these programs are highly hardware dependent.**"

'236 Patent, Col. 2, Ln. 1-4
(emphasis added)

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Prior Art Motion Control Systems Were Manufacturer Specific And Not Interoperable

Applications

- Application Program #1
- Application Program #2 — Driver #2
- Application Program #3

Drivers

- Driver #1
- Driver #3

- Motion Control Device #1
- Motion Control Device #2
- Motion Control Device #3

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Coordinating the Operation of Multiple Control Devices Was Complex and Inefficient
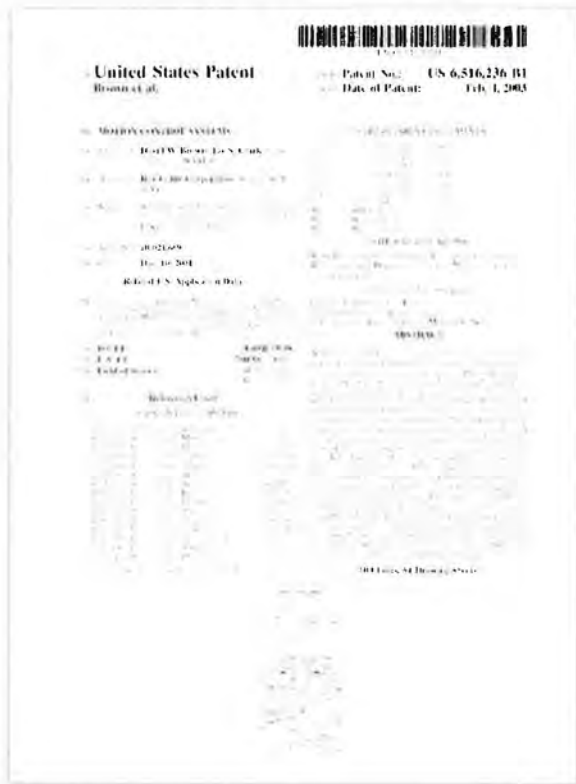

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The Inventions' Improvements to Computerized Motion Control Systems

Improvement to Computer Technology
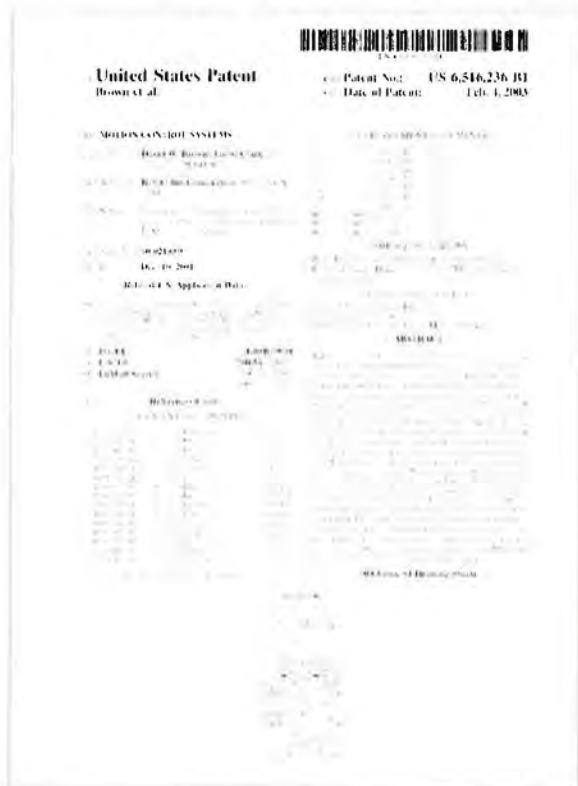# Hardware Independence

'236 Patent

"A system for motion control in which an application is developed that is **independent from the actual motion control hardware used to implement the system.**"

'236 Patent, Col. 4, Abstract

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Improvement to Computer Technology
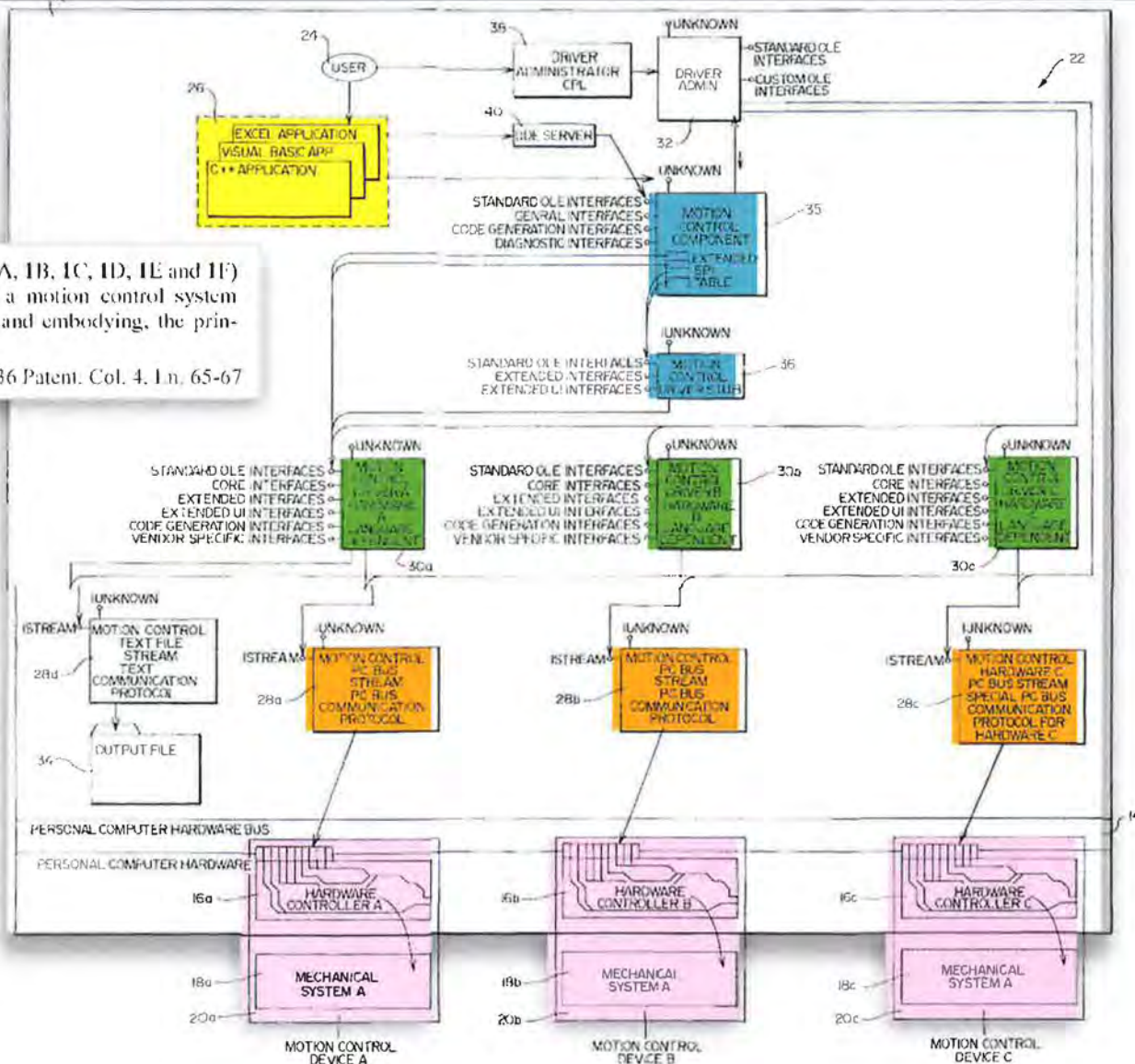## Hardware Independence

'236 Patent

"The use of component functions that are separate from driver functions isolates the programmer from the complexities of programming to a specific motion control device. This arrangement also allows a given application program to be used without modification for any motion control device having a software driver associated therewith."

'236 Patent, Col. 4, Ln. 3-8

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The Solution: Hardware Independence
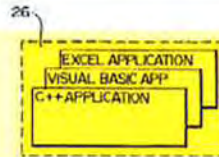# Middleware Facilitates Interoperability

FIG. 1 (comprising of FIGS. 1A, 1B, 1C, 1D, 1E and 1F) is a system interaction map of a motion control system constructed in accordance with, and embodying, the principles of the present invention;
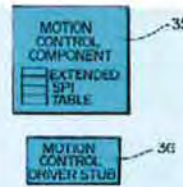
'236 Patent. Col. 4, Ln. 65-67

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The Solution: Hardware Independence Middleware Facilitates Interoperability

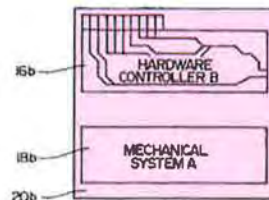**Applications**

Middleware
(Motion Control Component)

Drivers
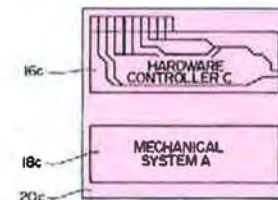
35

The Solution: Hardware Independence
Middleware Facilitates Interoperability

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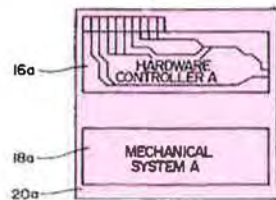# The Solution: Hardware Independence Middleware Facilitates Interoperability

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The Solution: Hardware Independence Middleware Facilitates Interoperability

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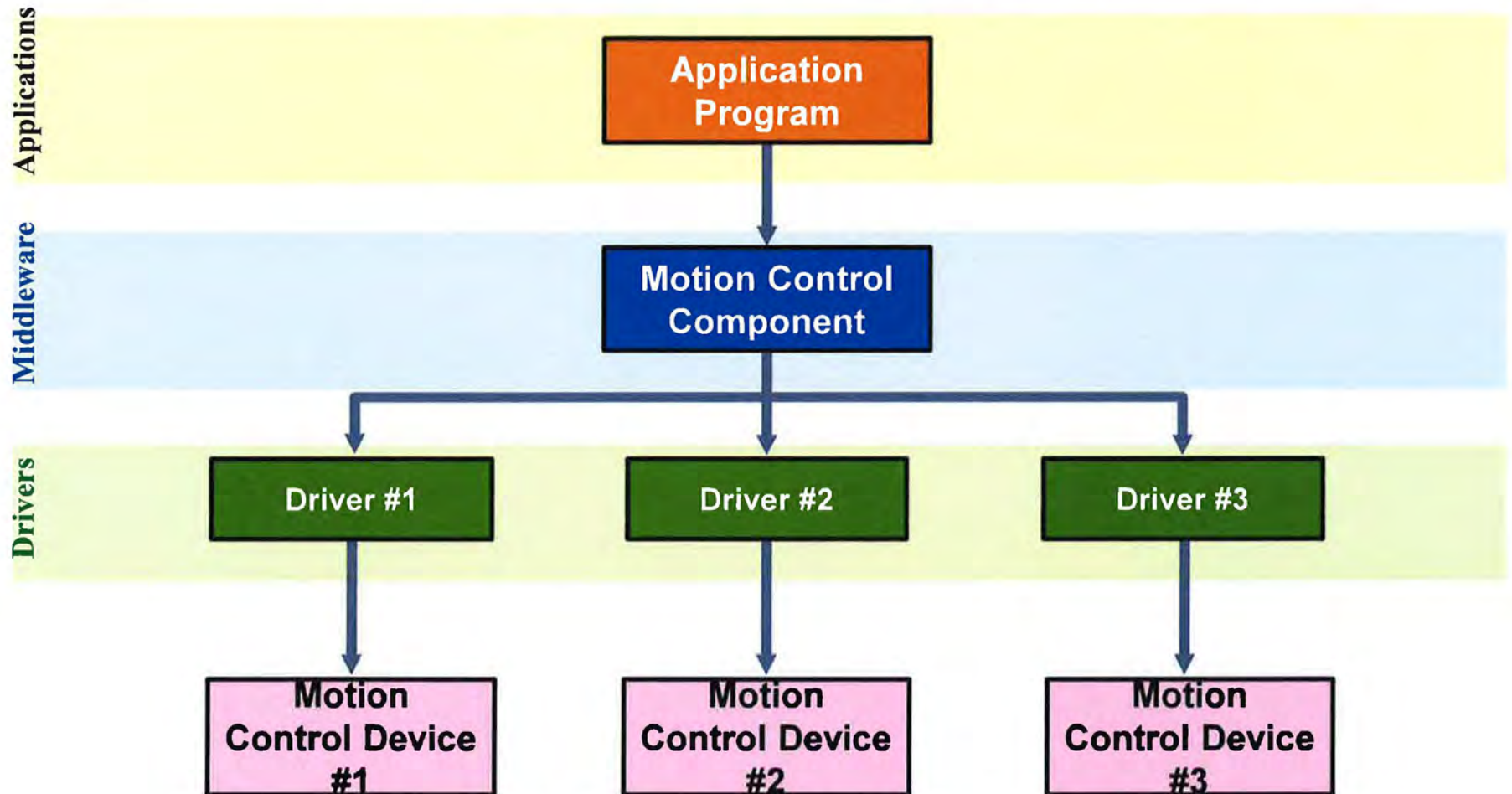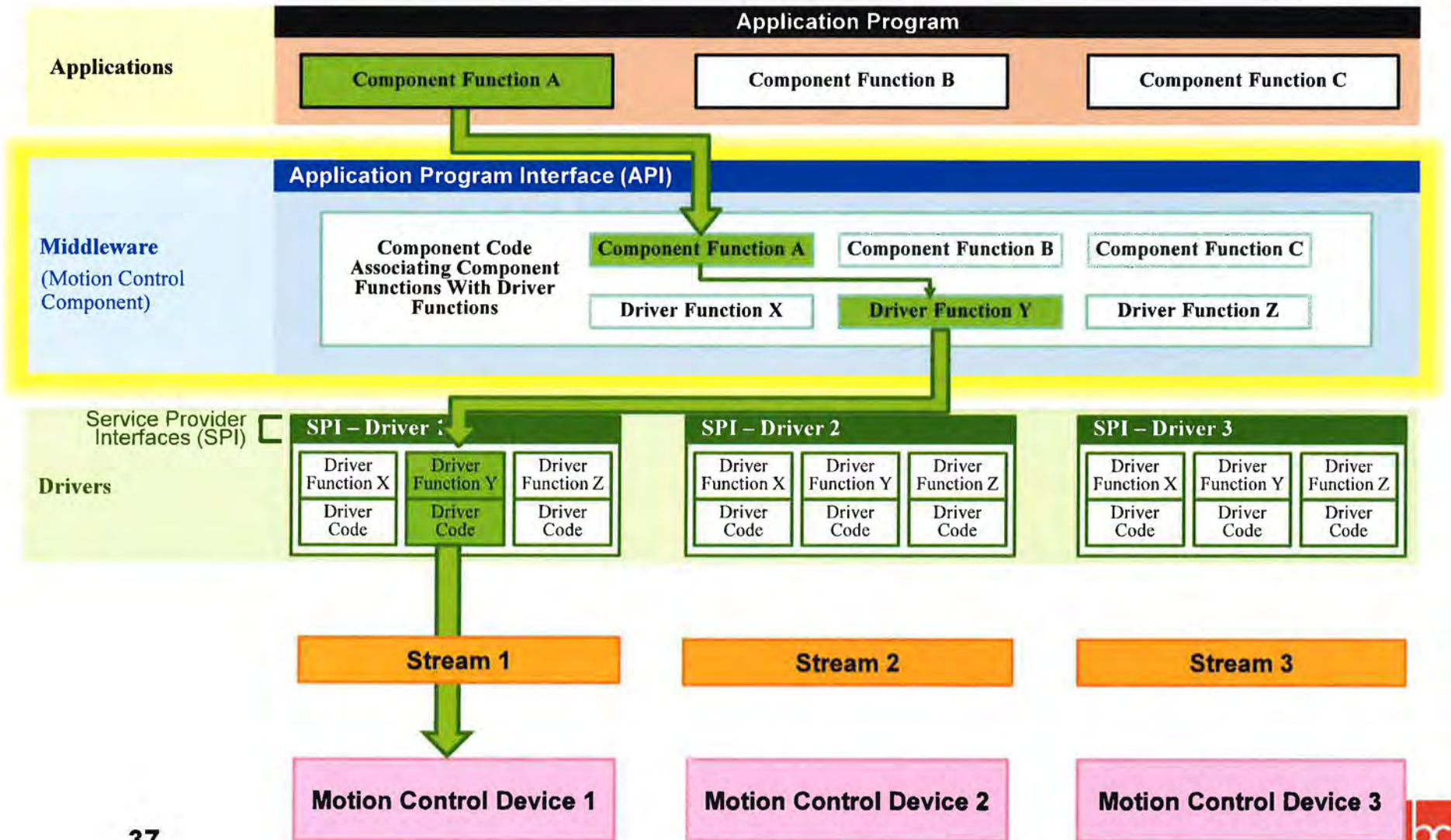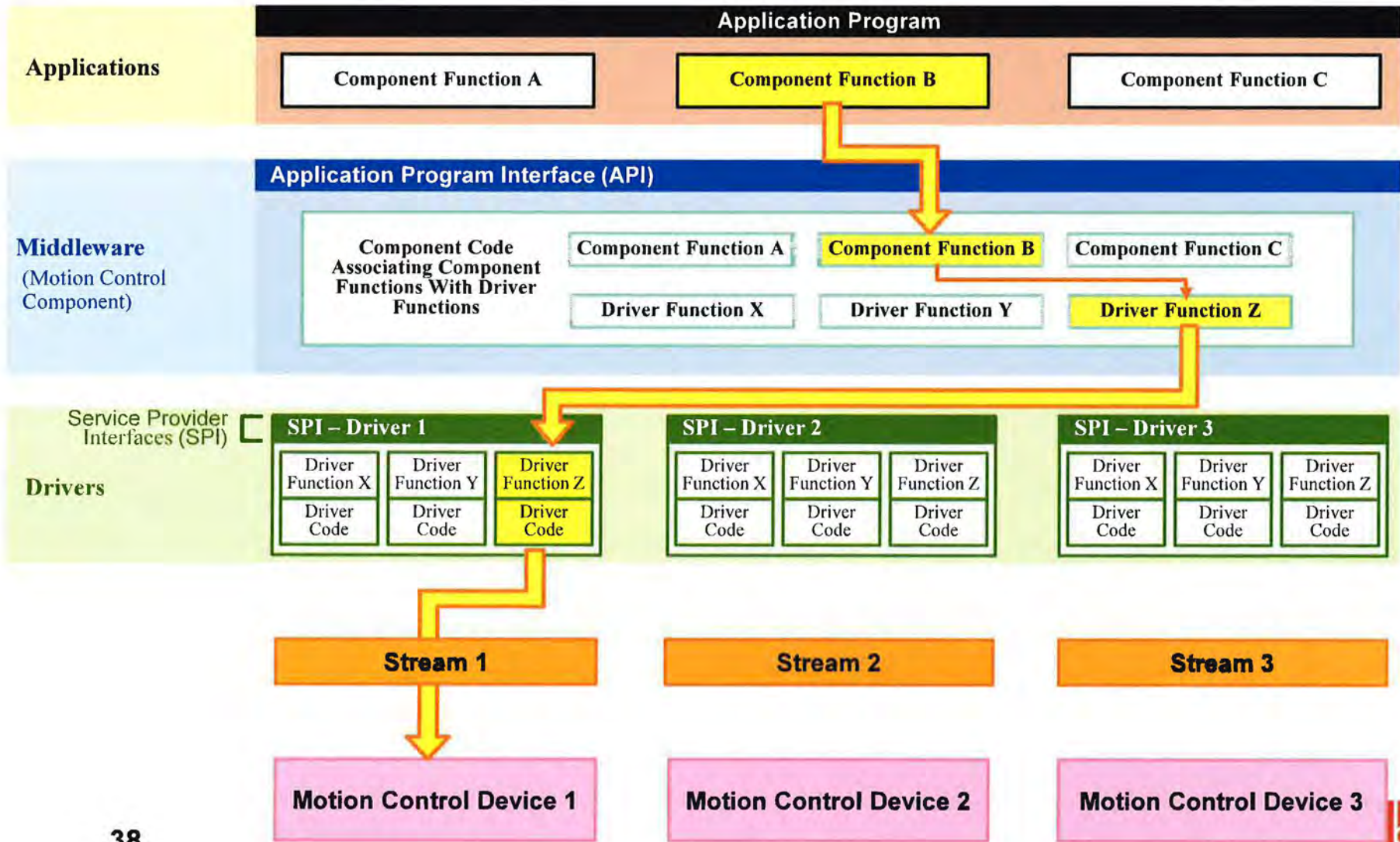
Improvements to Computer Technology
Hardware Independence

(a) [the claimed inventions] allow the creation of high-level motion control programs that are hardware independent, but offer programmability of base motion operations;

(b) allow motion control drivers to communicate with hardware in a hardware independent manner; and

(c) allow motion control streams, used by motion control drivers, to communicate with hardware in a hardware independent manner.

See e.g. '236 patent, 3:27–42; '897 patent, 3:20–34; '058 patent, 3:52–62.

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Improvement to Computer Technology
Simulation Of Driver Functions

'236 Patent

"Where the software drivers do not support the extended driver functions, **the functionality associated with the extended driver functions can normally be simulated using some combination of core driver functions.**"

Summary of the Invention; '236 Patent, Col. 4, Ln. 14-17

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Core Driver Functions—Primitive Operations
Extended Driver Functions—Non-Primitive Operations

'236 Patent

"Driver functions may be either core driver functions or extended driver functions. Core driver functions are associated with primitive operations, while extended driver functions are associated with non-primitive operations."

'236 Patent, Col. 7, Ln. 43-46

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Motion Control Operations
Primitive v. Non-Primitive

'236 Patent
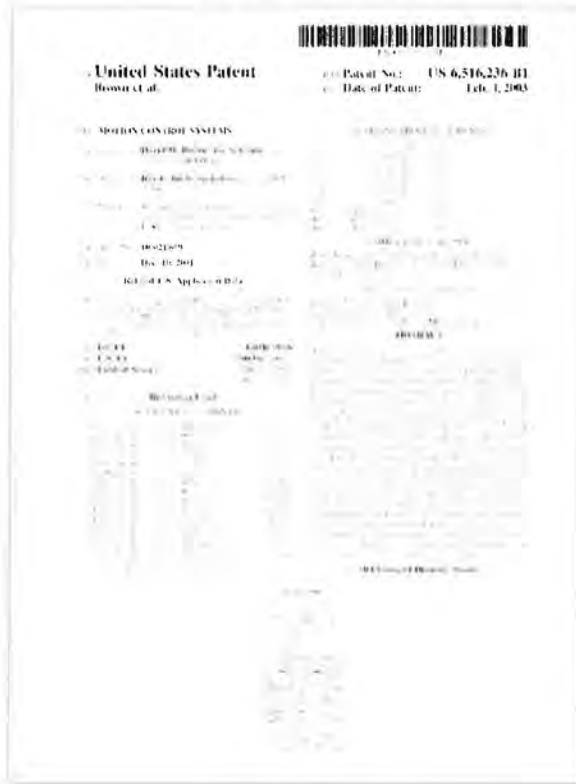
"Examples of **primitive operations** include . . .MOVE RELATIVE, . . and cannot be emulated using other motion control operations."

"Non-primitive operations are motion control operations that do not meet the definition of a primitive operations. Examples of **non-primitive operations** include **CONTOUR MOVE**, which may be emulated using a combination of primitive motion control operations."

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'236 Patent, Col. 7, Ln. 27-38

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Example Core Driver Functions:
MOVE RELATIVE and GET POSITION

'236 Patent

Motion control operations may either be primitive operations or non-primitive operations. Primitive operations are operations that are necessary for motion control and cannot be simulated using a combination of other motion control operations. Examples of primitive operations include GET POSITION and MOVE RELATIVE, which are necessary for motion control and cannot be emulated using other motion control operations. Non-primitive operations are motion control operations that do not meet the definition of a primitive operations. Examples of non-primitive operations include CONTOUR MOVE, which may be emulated using a combination of primitive motion control operations.

Given the set of motion control operations as defined above, the software system designer next defines a service provider interface (SPI) comprising a number of driver functions. Driver functions may be either core driver functions or extended driver functions. Core driver functions are associated with primitive operations, while extended driver functions are associated with non-primitive operations.

'236 Patent, Col. 7, Ln. 27-41

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Example Extended Core Driver Functions:
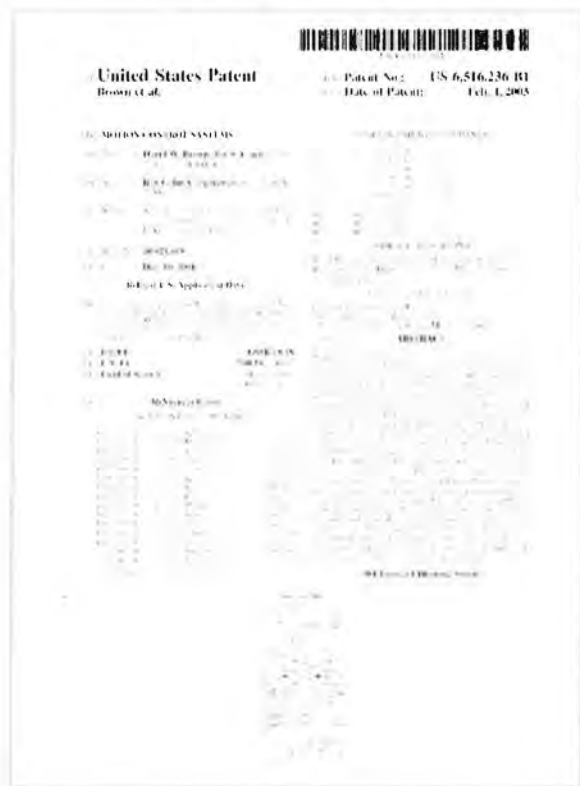## CONTOUR MOVE

'236 Patent

Motion control operations may either be primitive operations or non-primitive operations. Primitive operations are operations that are necessary for motion control and cannot be simulated using a combination of other motion control operations. Examples of primitive operations include GET POSITION and MOVE RELATIVE, which are necessary for motion control and cannot be emulated using other motion control operations. Non-primitive operations are motion control operations that do not meet the definition of a primitive operations. Examples of non-primitive operations include CONTOUR MOVE, which may be emulated using a combination of primitive motion control operations.

Given the set of motion control operations as defined above, the software system designer next defines a service provider interface (SPI) comprising a number of driver functions. Driver functions may be either core driver functions or extended driver functions. Core driver functions are associated with primitive operations, while extended driver functions are associated with non-primitive operations.

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'236 Patent, Col. 7, Ln. 54-65

MOVE RELATIVE VS. CONTOUR MOVE

Move Relative

Movement relative to a current position which may be in a single dimension

Contour Move

Coordinated movement in two dimensions

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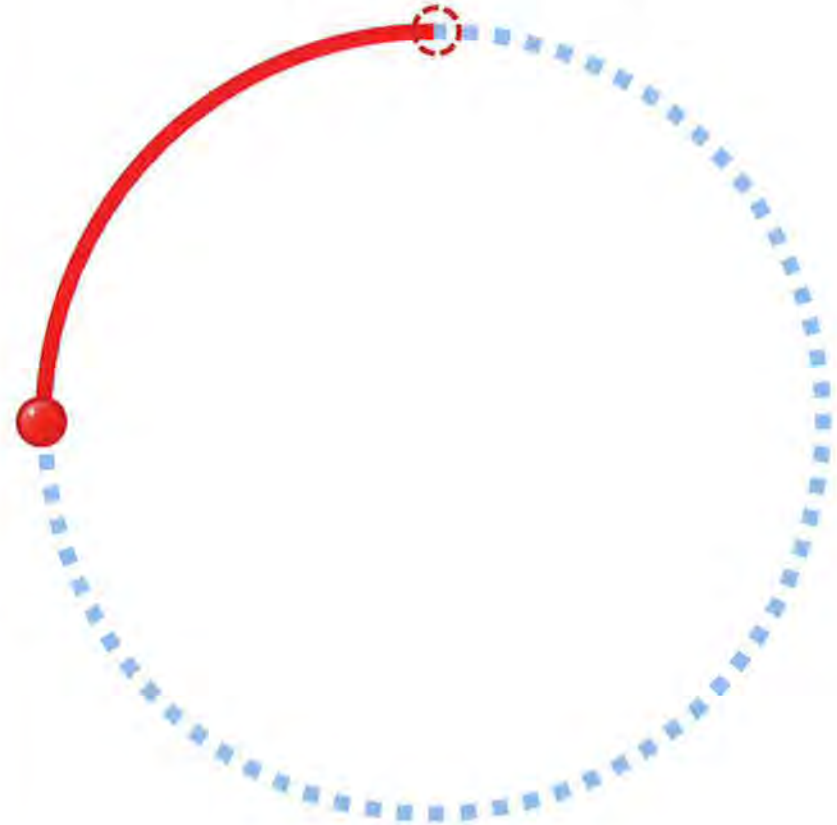
Improvement to Computer Technology Simulation Of Driver Functions

'236 Patent
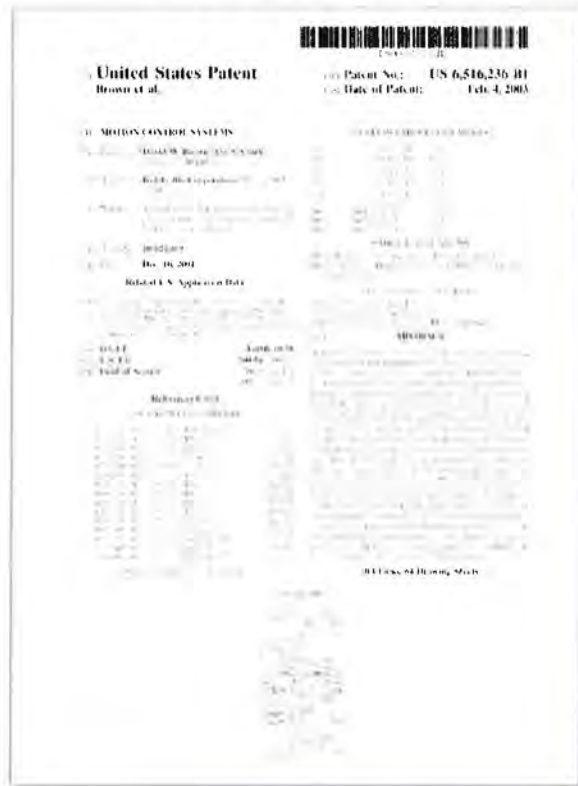
"In this case, the method of the present invention comprises the steps of determining which of the extended driver functions are not supported by the software driver and, where possible, substituting a combination of core driver functions."

Summary of the Invention; '236 Patent, Col. 4, Ln. 17-20

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Improvement to Computer Technology
Simulation Of Driver Functions
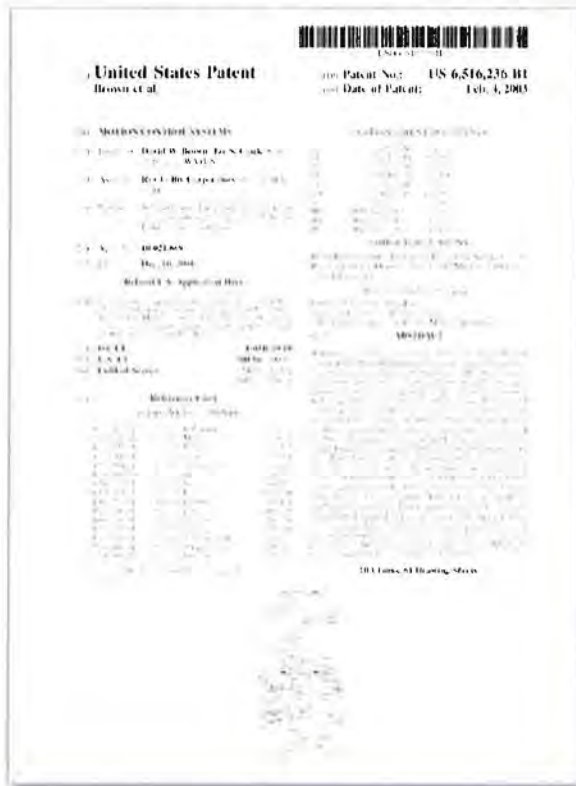
'236 Patent

"The use of core driver functions to emulate extended driver functions provides functionality where none would otherwise exist, . . ."

Summary of the Invention, '236 Patent, Col. 4, Ln. 25-29

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Motion Control Operations-Drivers Supported
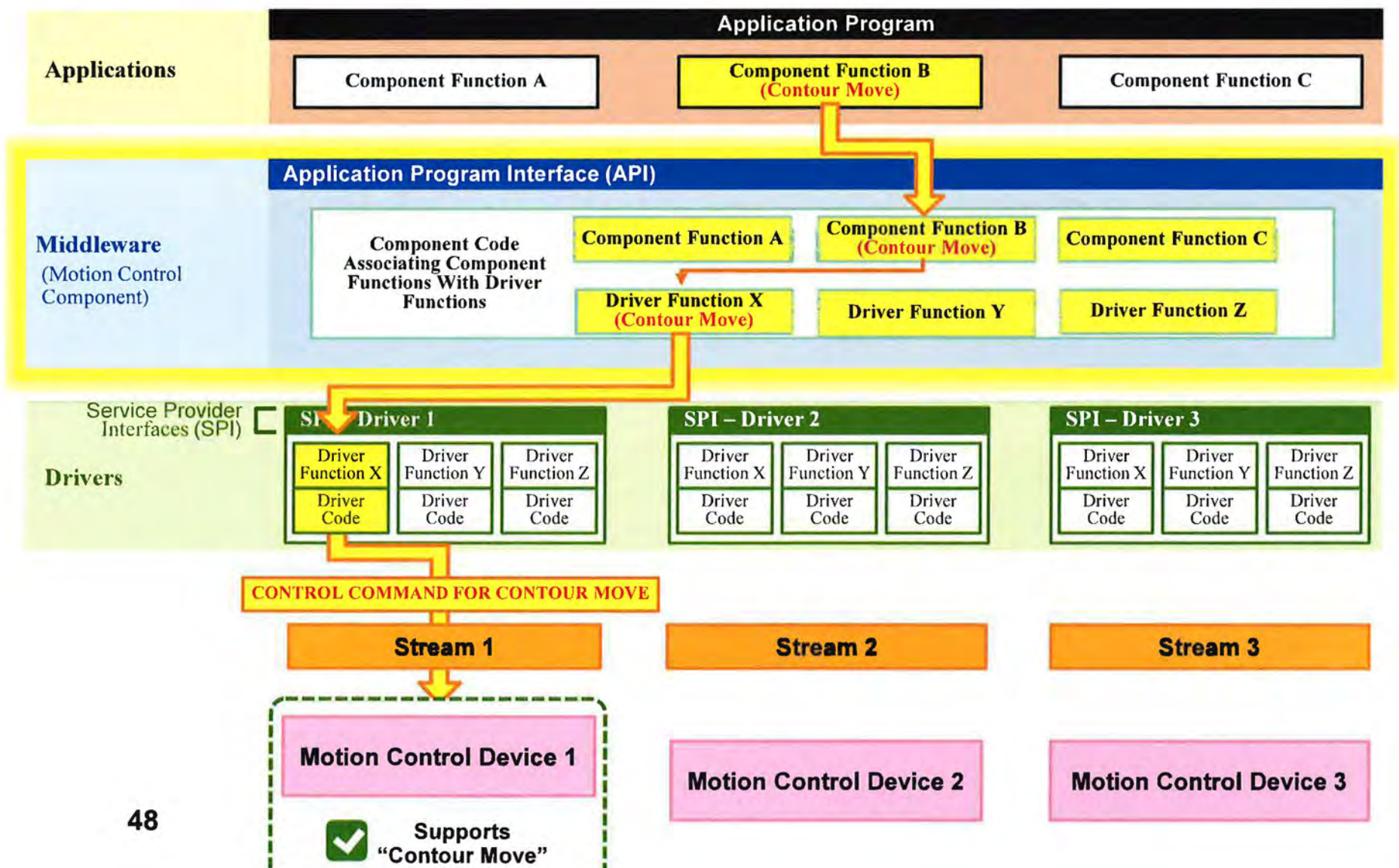
Motion Control Operations—Drivers Not Supported (Emulation Of Extended Driver)

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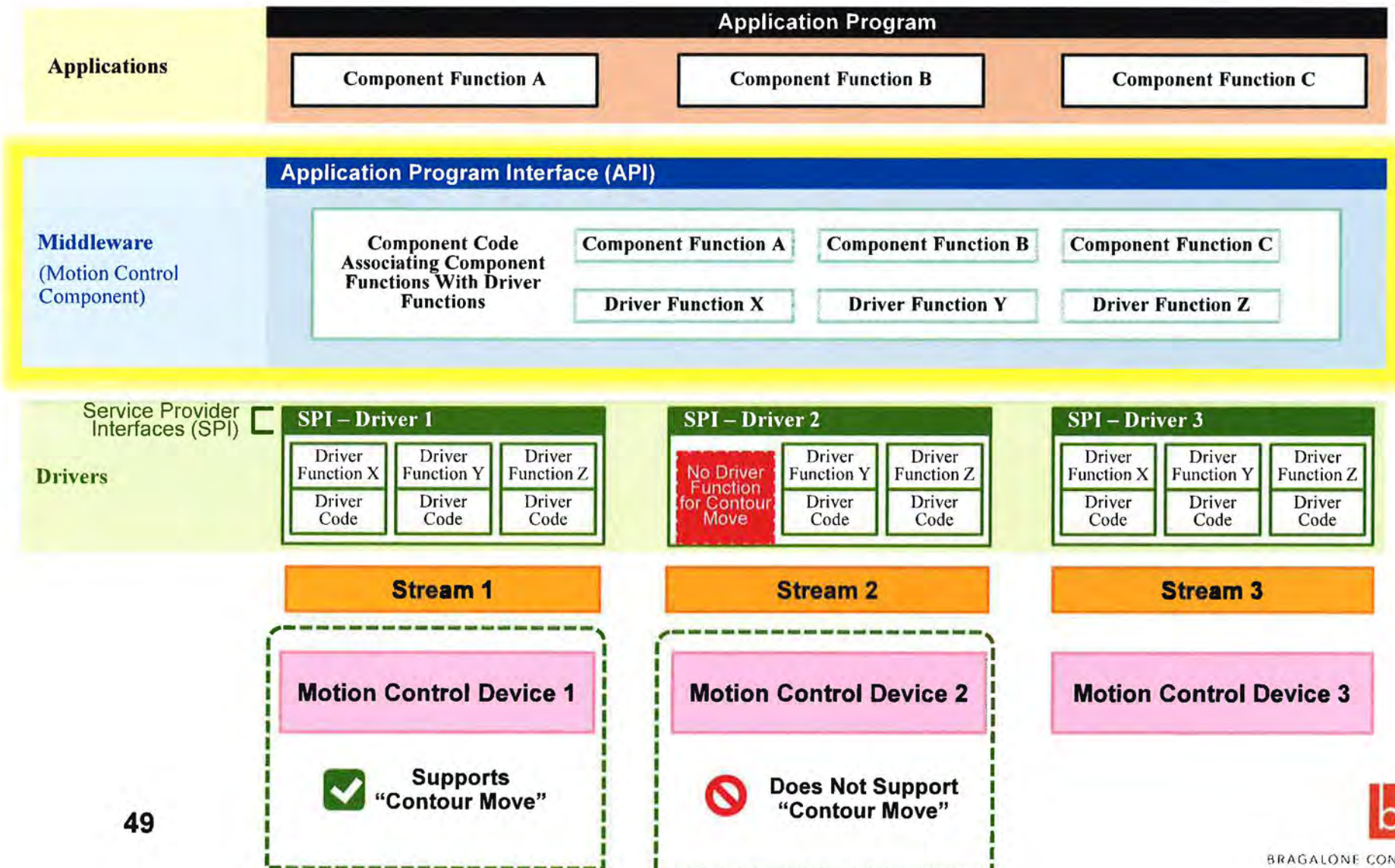
Use Primitive Operations To Emulate Contour Move

Applications

Application Program

| Component Function A | Component Function B (Contour Move) | Component Function C |

Middleware (Motion Control Component)

Application Program Interface (API)

Component Code Associating Component Functions With Driver Functions

| Component Function A | Component Function B (Contour Move) | Component Function C |
| Driver Function X (Contour Move) | Driver Function Y | Driver Function Z (Move Relative) |

Service Provider Interfaces (SPI)

Drivers

SPI – Driver 1

| Driver Function X | Driver Function Y | Driver Function Z |
| Driver Code | Driver Code | Driver Code |

SPI – Driver 2

| No Driver Function for Contour Move | Driver Function Y | Driver Function Z |
| | Driver Code | Driver Code |

SPI – Driver 3

| Driver Function X | Driver Function Y | Driver Function Z |
| Driver Code | Driver Code | Driver Code |

CONTROL COMMAND FOR MOVE RELATIVE

| Stream 1 | Stream 2 | Stream 3 |

| Motion Control Device 1 | Motion Control Device 2 | Motion Control Device 3 |

✔ Emulates "Contour Move"

50

Emulated Contour Move

**A timed series of Move Relative operations
in unison in two different dimensions**

Emulated
Contour Move

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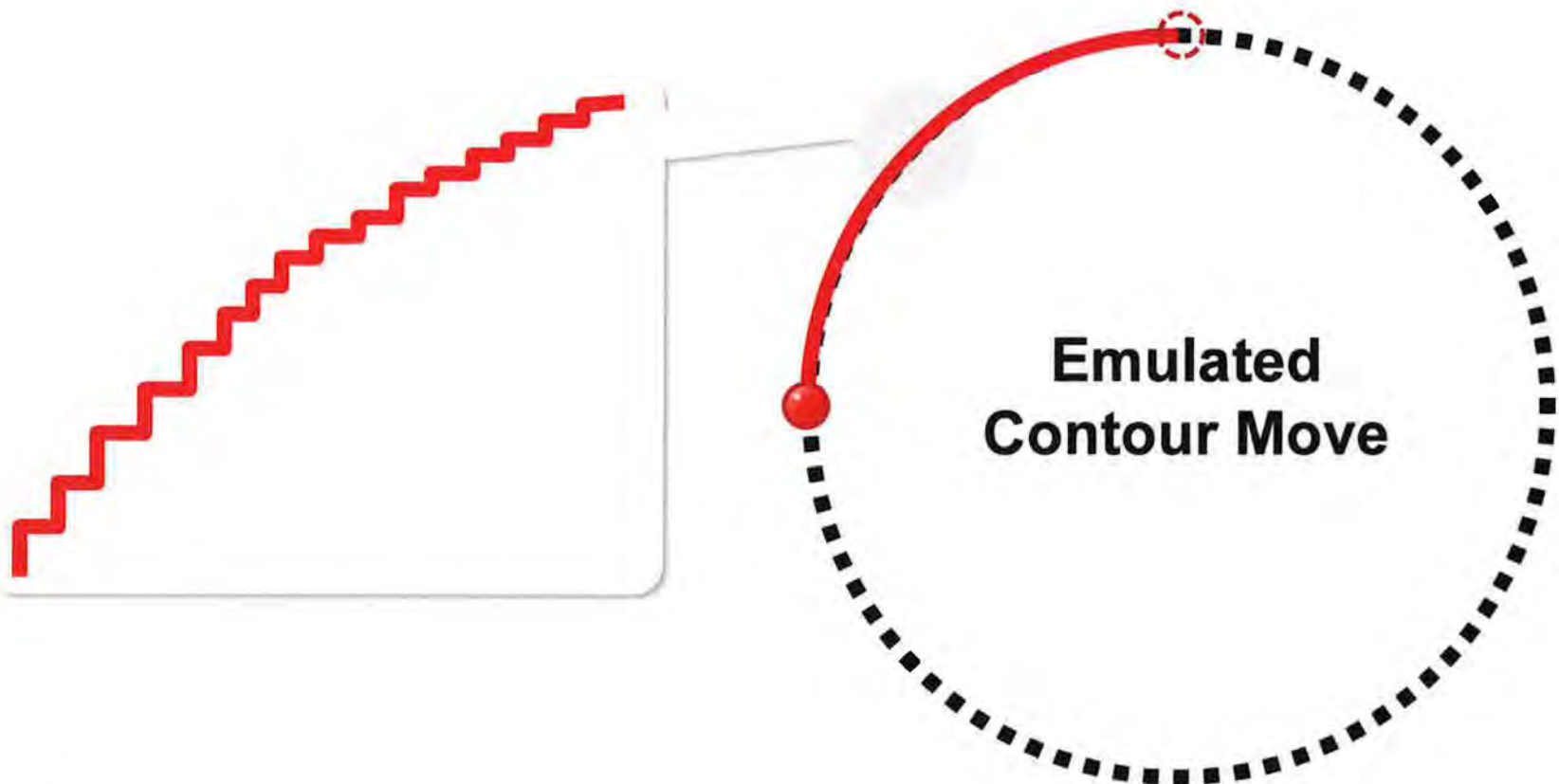
The Claims Are Directed To Improvements In Computer Technology

Enfish	Prior Art Problems
Therefore, we find it relevant to ask **whether the claims are directed to an improvement to computer functionality** versus being directed to an abstract idea, even at the first step of the *Alice* analysis. *Enfish*, 822 F.3d at 1335	• Hardware dependence unique to computer controlled motion control systems where, *inter alia*, application and controller programs for controlling motion control devices are manufacturer specific; • Lack of interoperability unique to computer controlled motion control systems comprised of motion control devices from different manufacturers or having different functional capabilities

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The Claims Are Directed To Improvements In Computer Technology

Enfish	Claimed Solutions
Therefore, we find it relevant to ask **whether the claims are directed to an improvement to computer functionality** versus being directed to an abstract idea, even at the first step of the *Alice* analysis. *Enfish*, 822 F.3d at 1335	• Hardware Independence--a system for motion control independent from the actual control hardware used to implement the system; • Independence is achieved through a unique arrangement of a single application program allowing the control of motion control devices from different manufacturers through "middleware" capable of generating "control commands" based on "component functions" called by the application program • Emulation of motion control operations— extended driver functions emulated by a combination of core driver functions identified in response to "component functions" called by the application program

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The Claims Are Directed To Improvements In Computer Technology

Enfish	Benefits Over Conventional Motion Control Systems
Moreover, our conclusion that the claims are directed to an improvement of an existing technology is bolstered by the specification's teachings that the claimed invention achieves other benefits over conventional databases, such as increased flexibility, faster search times, and smaller memory requirements. *Enfish*, 822 F.3d at 1337 (emphasis added)	(a) hardware independent motion control programs; (b) remove complexities of programming for multiple hardware configurations; (c) easily extended to support additional hardware configurations; ([d]) transparently support standard high-level programming environments[;] ([e]) allow hardware independent communication between drivers and hardware; and ([f]) allow hardware independent communication between motion control streams and hardware *See e.g.* '236 patent ((a)-(d)), 3:27–42; '897 patent, 3:20–34 (same); '058 patent, 3:52–62 ((e)-(f)).

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Improvements to Aspects of Computer Functionality Are *Not* Abstract Ideas

Enfish	Improvements to *Computer* Technology
"When 'the plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity,' the claims are not directed to an abstract idea." *Enfish*, 822 F.3d at 1335	"The improvements of the asserted claims are more technically specific than simply commanding persons to play music, move troops… [or] 'pick up your toys,' or **commanding your dog to go 'fetch**.'" Dkt. 50 at 1–2, 14–15 (emphasis added). Indeed, *any* software claim could be overgeneralized and compared to simple commands, but that does not mean it is **directed to** an abstract idea. *Enfish*, 2016 WL 2756255, at *6–7. The improvements of the asserted claims also go well beyond the conventional movement of objects in an industrial setting, including through human command and control, electrical control, and computer control. Dkt. 118 at p. 20

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Improvements to Aspects of Computer Functionality Are *Not* Abstract Ideas

Enfish	Improvements to *Computer* Technology
"[W]e are not persuaded that the invention's ability to run on a general-purpose computer dooms the claims…. Similarly, that the improvement is not defined by reference to 'physical' components does not doom the claims... Much of the advancement made in computer technology consists of improvements to software that, by their very nature, . . .defined by . . . logical structures and processes." *Enfish*, 822 F.3d at 1339	"As detailed in the specifications, conventional methods for electrical and computerized control of motion control devices were hamstrung by hardware **dependence** and lack of functionality. … There is no evidence that such problems were ever encountered by "workers on the factory floor in the 1950s," much less evidence that such workers implemented a type of "middleware" solution equivalent to the asserted claims in order to overcome these problems." "[T]he claims do not cover systems and methods for translating commands that could be performed without a computer." Dkt. 50 at 16; Dkt. 118 at p. 20, 21

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Improvements to Aspects of Computer Functionality Are *Not* Abstract Ideas

Other courts, including courts in this District, have found claims patentable under *Alice's* step one because they involved technical improvements over the prior art.

- *Chrimar Sys., Inc. v. Alcatel-Lucent USA, Inc.*, No. 6:15-CV-163-JDL (E.D. Tex. July 29, 2014), involved claims that were not abstract because they were directed to resolving a computer network specific problem.

- *Polaris Innovations Ltd. v. Kingston Tech. Co., Inc.*, No. 8:16-CV-300 (C.D. Cal. July 21, 2016), involved claims that were directed to an abstract idea because they enabled a memory card to maintain the same functionality in a smaller space and enabled more components to fit in the same space.

- *JDS Techs., Inc. v. Exacq Techs.*, No. 15-10387, 2016 WL 3165724, at *7-8 (E.D. Mich. June 7, 2016), involved claims that were not abstract because they were tied to computer technology.

- *SimpleAir, Inc. v. Google Inc.*, No. 2:14-CV-00011-JRG, 2015 WL 5675281, at *4 (E.D. Tex. Sept. 25, 2015), involved claims that were not directed to an abstract idea because they improved network computing.

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Enfish Refutes Emerson's Arguments

Emerson's Argument	Federal Circuit Law - *Enfish*
"The idea of a middleman to serve as a communication bridge is a well-known and basic concept. While in the non-computer realm this often takes the form of a human translator, human kind has also used look-up tables and conversion tables, including computers...." Dkt. 50 at 18.	"In finding that the claims were directed simply to 'the concept of organizing information using tabular formats, the district court oversimplified the self-referential component of the claims and downplayed the invention's benefits. The court determined that the patents' self-referential concept could be satisfied by creating a table with a simple header row. But that is simply not the case…. It is beyond debate that this is more than simply a header row." • *Enfish*, 822 F.3d at 1338 (highlighting added).

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Emerson's Cases Are Distinguishable

Unlike the claims at issue, none of the cases cited by Emerson involved claims that solved problems particularly arising from computer technology with a computer-centric solution. For example:

- *Loyalty Conversion Sys. Corp. v. Am. Airlines, Inc.*, 66 F. Supp. 3d 829, 845 (E.D. Tex. 2014), "[n]othing in the claims purports to improve the functioning of the computer itself, and the computer components of the claims add nothing that is not already present in the steps of the claimed methods, other than the speed and convenience of basic computer functions, such as calculation, communication, and the display of information."

- *Telinit Techs., LLC v. Alteva, Inc.*, No. 2:14-CV-369, 2015 WL 5578604, at *16-17 (E.D. Tex. Sept. 21, 2015), involved a claim that "describe[d] a well-known and widely-understood concept—making a telephone call—and then applies that concept to the Internet using conventional computer components as an intermediary to place and monitor the telephone calls."

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Emerson's Cases Are Distinguishable

Unlike the claims at issue, none of the cases cited by Emerson involved claims that solved problems particularly arising from computer technology with a computer-centric solution.

- *Rothschild Location Techs. LLC v. Geotab USA, Inc.*, No. 6:15-cv-682-RWS-JDL, 2016 WL 2847975 (E.D. Tex. May 16, 2016), the Court reviewed a report and recommendation from Magistrate Judge Love.

- Magistrate Judge Love found that the claims covered retrieving an address (for a GPS device), which "involves a fundamental concept humans have long performed." "[H]umans have long been able to retrieve an address from another location—by calling an operator or an assistant to ask for the address, for example." 2016 WL 3584195, at *5–6.

- Court held that the claims "simply related to ease, accuracy, and efficiency benefits achieved when any fundamental or well-known concept is implemented on a computer device." 2016 WL 2847975, at *2

- The *Rothschild* plaintiff has filed a motion for reconsideration based on *Enfish*, and requested to supplement its reconsideration motion based on *Bascom*.

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The Individual and Ordered Elements of the Claims Represent an Inventive Concept Under Step 2 of *Alice*

Step 2 of Alice
The Inventive Concept

"We now turn to step two, and the search for an 'inventive concept.' The 'inventive concept' may arise in one or more of the individual claim limitations or in the ordered combination of the limitations."

Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC, No. 2015-1763, slip op. at *6 (Fed. Cir. June 27, 2016) (citations omitted)

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Step 2 of Alice
The Inventive Concept

"The inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art. As is the case here, **an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.**"

Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC, No. 2015-1763, slip op. at *6 (Fed. Cir. June 27, 2016) (citations omitted)

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A Particular Arrangement of Elements Without Preempting The Field Indicates an Inventive Concept

"Nor do the claims preempt all ways of filtering content on the Internet; rather, they recite a specific, discrete implementation of the abstract idea of filtering content. Filtering content on the Internet was already a known concept, and the patent describes how its particular arrangement of elements is a technical improvement over prior art ways of filtering such content."

Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC, No. 2015-1763, slip op. at *7 (Fed. Cir. June 27, 2016) (citations omitted)

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A Particular Arrangement of Elements Without Preempting The Field Indicates an Inventive Concept

"By taking a prior art filter solution (one-size-fits-all filter at the ISP server) and making it more dynamic and efficient (providing individualized filtering at the ISP server), the claimed invention represents a "software-based invention[ ] that improve[s] the performance of the computer system itself."

Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC, No. 2015-1763, slip op. at *7 (Fed. Cir. June 27, 2016) (citations omitted)

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A Particular Arrangement of Elements Without Preempting The Field Indicates an Inventive Concept

The claims at issue in *Diehr* were patentable "because they improved an existing technological process [of curing rubber], not because they were implemented on a computer."

Although the claims in *Diehr* employed a "well-known" mathematical equation, they "used that equation in a process designed to solve a technological problem in 'conventional industry practice.'"

Those "additional steps … transformed the process into an inventive application of the formula."

Alice, 134 S. Ct. at 2358.

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The Inventive Solutions are Features of the Construed Claims

The Claims Were Construed To Include The Hardware Independent Improvement

Two courts in this District have already construed the claims in a way that impacts the Section 101 analysis.

- *Roy-G-Biv Corp. v. Fanuc Ltd.*, No. 2:07-CV-418-DF (E.D. Tex. Aug. 25, 2009), ECF No. 194 (Dkt. 114, Ex. 1).

- *Roy-G-Biv Corp. v. ABB, Ltd.*, No. 6:11-CV-622-LED-ZJH (E.D. Tex. July 25, 2013), ECF No. 196 (Dkt. 114, Ex. 2).

- The prior claim construction orders are explicitly referenced in the complaint, so they are not extrinsic evidence, and are subject to judicial notice.

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The Claims Were Construed To Include The Hardware Independent Improvement

"**Component function**" is "a hardware independent instruction that corresponds to an operation performed on or by a motion control device."

Ex. 2 Marshall *Markman* Order at p. 11

"**Motion control operations**" are a "hardware independent operations that are performed by a motion control device."

EX. 1 Tyler *Markman* Order at p. 15

"**Driver functions**" are "hardware independent functions that are separate and distinct from the component functions."

EX. 1 Tyler *Markman* Order at p. 39

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Defendants' Claim Construction Terms

Emerson fails to conduct an analysis of these prior plausible constructions of the claims, *as it is required to do on a motion to dismiss.*

- *Rockstar Consortium US LP, Inc. v. Samsung Elecs. Co., Ltd.*, No. 2:13-CV-00894-JRG, 2014 WL 1998053, at *3 (E.D. Tex. May 15, 2014) (dismissal under Rule 12(b)(6) is appropriate if "the *only* plausible reading of the patent [is] that there is clear and convincing evidence of ineligibility").
- *A Pty Ltd. v. Google, Inc.*, No. 1:15-CV-157, 2015 WL 5883354, at *6 (W.D. Tex. Oct. 8, 2015) (a party moving to dismiss has the "burden to show, as a matter of law, that every possible plausible construction of each of the … claims asserted … render the patent ineligible").

Instead, Emerson claims that it is "not aware of any construction in those orders that alters the below analysis or prevents dismissal under Section 101 at this stage."

- Dkt. 50 at 10 (emphasis in original).

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Defendants' Claim Construction Terms

The prior claim constructions refute Emerson's argument that the claims are directed to steps performed by a software engineer.

- One court in this District has already ruled that the '897 patent "contemplates embodiments in which designers are not utilized."
  - Marshall *Markman* Order at 27-28.
- The claims *do not* cover the process of developing a motion control system by a human—they cover finished systems.

This is *at best* a claim construction dispute, but, at this stage, all claim construction disputes must be decided in favor of AMS.

- *Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC*, --- F.3d ----, 2016 WL 3514158, at *7-8 (Fed. Cir. June 27, 2016) (ruling that, on a motion to dismiss, claims must be construed in the light most favorable to the nonmovant).

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Defendants' Claim Construction Terms

Emerson's argument that the claims recite functional, conventional capabilities runs contrary to these prior constructions and underscores the need for a *Markman* hearing.

- *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1273-74 (Fed. Cir. 2012) ("It will ordinarily be desirable—and often necessary—to resolve claim construction disputes prior to a § 101 analysis ....").

Indeed, just last night, Defendants served their list of proposed terms and claim elements for construction, which included *over 90 terms and over 40 means-plus-function terms that allegedly require construction.*

- Many of these terms demonstrate the inventive concepts of the claims.

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Defendants' Claim Construction Terms

Claim Term to Be Construed Under §112 ¶6	'897 Patent Claims
transmit stream code that determines how the control commands are to be transferred to at least one of the destinations of control commands	Claim 24

Claim Term to Be Construed Under §112 ¶6	'543 Patent Claims
driver code to control one or more motion control devices	Claim 1

Dated: August 2, 2016

Respectfully submitted,

By: _____ /s/

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Defendants' Flawed Analysis Ignores *Bascom*

Emerson does not reference, much less attempt to distinguish *Bascom* or *DDR* in its step-two analysis. Instead, it merely parses through select limitations, arguing that each limitation is conventional when viewed in isolation from other claim elements and stripped of alleged "technical jargon" (i.e., *the actual claim language*).

- Dkt. 50 at 25.

But, as both *Bascom* and *DDR* made clear, step two of the analysis must "consider the elements of each claim both individually and '*as an ordered combination.*'"

- *Bascom*, 2016 WL 3514158, at *4-5 (emphasis added).

Emerson's analysis is no different than the improper shorthand obviousness analysis rejected by *Bascom*.

- *Bascom*, 2016 WL 3514158, at *6 ("The district court's analysis in this case ... looks similar to an obviousness analysis under 35 U.S.C. § 103, except lacking an explanation of a reason to combine the limitations as claimed.").

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Defendants' Flawed Analysis Ignores *Bascom*

The fact that the claims are directed to "hardware independent" systems and processes does *not* mean that the claims are untied to computer hardware or specific devices.

- Dkt. 50 at 27.

Hardware independence means that the claims will work with any type of motion control device, unlike the prior art.

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Defendants' Flawed Analysis Ignores *Bascom*

The Court cannot consider Emerson's vague extrinsic evidence at this stage of the proceeding to contradict the statements in the patents-in-suit showing that the claims are not conventional.

- *Baker v. Putnel*, 75 F.3d 190, 197 (5th Cir. 1996) ("[T]he trial court adopted portions of defendants' claims as fact without acknowledging any contradiction with the complaint. Thus, the court failed to accept as true the [plaintiff's allegations]. In so doing, the court failed to apply the standards of Rule 12(b)(6). Dismissal under these circumstances was error.").

Even if the Court could consider the evidence, it does not show that all of the claim limitations were conventional, much less that the ordered combination of the steps was conventional.

- Dkt. 50 at 22-23.

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Example Claim from the '236 Patent

The '236 Patent focuses generally on the software system that controls the motion control devices

1. A system for generating a sequence of control commands for controlling a selected motion control device selected from a group of supported motion control devices, comprising:

a set of motion control operations, where each motion control operation is either a primitive operation the implementation of which is required to operate motion control devices and cannot be simulated using other motion control operations or a non-primitive operation that does not meet the definition of a primitive operation;

a core set of core driver functions, where each core driver function is associated with one of the primitive operations;

an extended set of extended driver functions, where each extended driver function is associated with one of the non-primitive operations;

a set of component functions;

component code associated with each of the component functions, where the component code associates at least some of the component functions with at least some of the driver functions;

'236 Patent, Claim 1 (highlighted for pedagogical reasons only)

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a set of software drivers, where

each software driver is associated with one motion control device in the group of supported motion control devices

each software driver comprises driver code for implementing the motion control operations associated with at least some of the driver functions, and

one of the software drivers in the set of software drivers is a selected software driver, where the selected software driver is the software driver associated with the selected motion control device;

an application program comprising a series of component functions, where the application program defines the steps for operating motion control devices in a desired manner; and

a motion control component for generating the sequence of control commands for controlling the selected motion control device based on the component functions of the application program, the component code associated with the component functions, and the driver code associated with the selected software driver.

'236 Patent, Claim 1 (highlighted for pedagogical reasons only)

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Example Claim from the '557 Patent

The '557 Patent focuses generally on a combined software and motion control device system

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16. A motion control system, comprising:

an application program comprising at least one call to at least one component function;

a plurality of motion control devices, where a plurality of unique controller languages are associated with the plurality of motion control devices,

each controller language comprises at least some control commands for processing information associated with motion control devices, and

each of the motion control devices comprises

a controller capable of generating electrical signals based on at least one control command of the controller language associated with the motion control device, and

a mechanical system capable of causing a motion control operation based on electrical signals generated by the controller,

a set of software drivers each comprising driver code, where each software driver is associated with at least one of the plurality of controller languages, and

'557 Patent, Col. 50, Ln. 42 to Col. 51, Ln. 35

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each software driver exposes a service provider interface defining a set of driver functions, where the driver functions are independent of the plurality of controller languages,

at least one driver function is an extended driver function that is associated with a non-primitive motion operation that can be performed using at least one primitive motion operation, where the at least one primitive motion operation cannot be performed using a combination of primitive or non-primitive motion operations,

at least one driver function is a core driver function that is associated with a primitive motion operation,

the driver code of at least one software driver associates at least one driver function with at least one control command of the at least one controller language associated with at least one of the software drivers, and

at least one selected software driver is associated with at least one selected motion control device;

'557 Patent, Col. 50, Ln. 42 to Col. 51, Ln. 35

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a motion component comprising component code, where the motion component exposes an application programming interface comprising a set of component functions, where each component function is implemented by component code,

at least the component code is independent of the plurality of controller languages, and

the component code associates at least one of the component functions with at least one of the driver functions;

Wherein

the at least one selected software driver generates at least one control command in the controller language associated with the at least one selected motion control device based on the calls to component functions of the application program, the component code, and the driver code of the at least one selected software driver.

'557 Patent, Col. 50, Ln. 42 to Col. 51, Ln. 35

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Example Claim from the '897 Patent

The '897 Patent focuses generally on a method that controls motion control devices using the software system

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17. A method of generating a sequence of control commands for controlling a motion control device to perform a given series of motion steps based on an application program defining the given series of motion steps, the method comprising the steps of:

defining a set of motion control operations, where each motion control operation is either a primitive operation that is necessary to perform motion control and that cannot be simulated using other motion control operations or a non-primitive operation that does not meet the definition of a primitive operation;

defining a core set of core driver functions, where each core driver function identifies one of the primitive operations;

defining an extended set of extended driver functions, where each extended driver function identifies one of the non-primitive operations;

defining a set of component functions; providing component code for each of the component functions, where the component code cross-references at least some of the component functions with at least some of the driver functions;

'897 Patent, Col. 46, Ln. 42 to Col. 37, Ln. 12

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developing a set of software drivers, where (i) each software driver is developed for a motion control device in a supported group of motion control devices and (ii) each software driver comprises driver code for implementing the motion control operations identified by at least some of the driver functions;

selecting one motion control device from the group of supported motion control devices;

selecting from the set of software drivers the software driver developed for the selected motion control device; and

generating control commands based on the application program, the component code, and the driver code of the selected software driver.

'897 Patent, Col. 46, Ln. 42 to Col. 37, Ln. 12

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Example Claim from the '058 Patent

The '058 Patent focuses generally on the network system that allows communications between the software and the motion control devices

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1. A system for allowing an application program to communicate with any one of a group of supported hardware devices, the system comprising:

a software system operating on at least one workstation, the software system comprising:

at least one application program comprising a set of component functions defining a desired motion sequence, the desired motion sequence being comprised of primitive operations that are necessary to define the desired motion sequence and non-primitive operations that may be simulated using a combination of primitive operations,

a core set of core driver functions, where each core driver function is associated with one of the primitive operations,

an extended set of extended driver functions, where each extended driver functions is associated with one of the non-primitive operations, component code associated with each of the component functions, where the component code associates at least some of the component functions with at least some of the driver functions,

'058 Patent, Col. 49, Ln. 50 to Col. 2, Ln. 19

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a set of software drivers, where each software driver is associated with one of the hardware devices and comprises driver code for implementing the driver functions, and

a control command generating module for generating control commands based on the component functions of the application program, the component code associated with the component functions, and the driver code associated with the software drivers; and

a network communication protocol that allows the control commands to be communicated from the control command generating module on the at least one workstation to at least one of the supported hardware devices over a network.

'058 Patent, Col. 49, Ln. 50 to Col. 2, Ln. 19

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Example Claim from the '543 Patent

The '543 Patent focuses generally on a method that controls motion control devices using software drivers and an application program

13. A method for generating a sequence of control commands for controlling a motion control device to perform a series of motion steps, the method comprising the steps of:

providing an application program comprising a series of component functions; selecting the motion control device from a group of supported motion control devices;

selecting a software driver associated with the motion control device from a set of software drivers; and

generating the sequence of control commands based on the component functions of the application program and the software driver.

'543 Patent, Col. 48, Ln. 24-37

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