

PETITIONER ASKS SUPREME COURT: HAS THE *DIEHR* HOLDING BEEN OVERRULED?

A discussion of *Ficep Corp. v. Peddinghaus Corp.* (August 21, 2023) and the resultant cert petition

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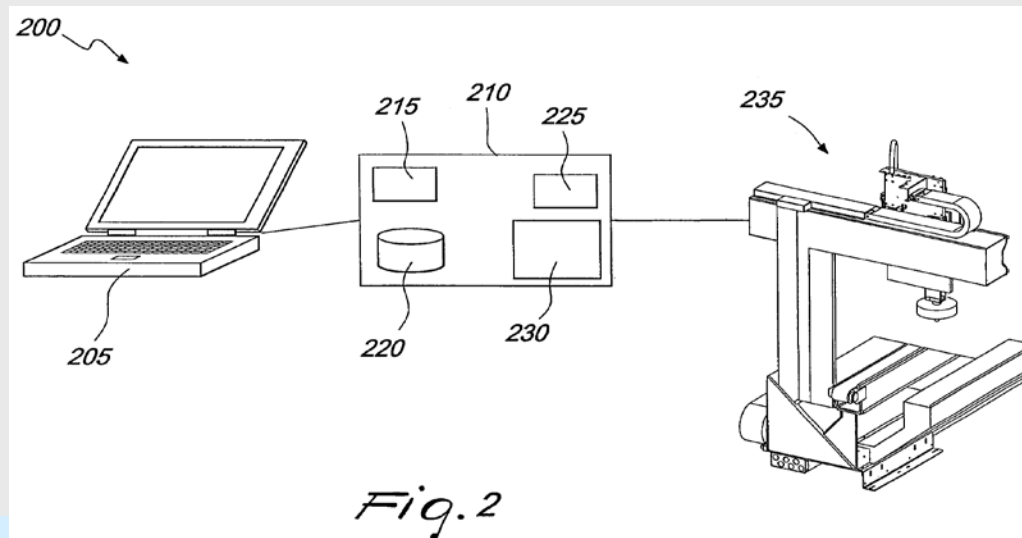


Introduction

- We'll discuss *Ficep Corp. v. Peddinghaus Corp.*, decided August 21, 2023 by the Federal Circuit, affirming the district court's grant of summary judgment on the basis that Ficep's claims are patent ineligible under 35 USC 101
- Involved automated transfer of design data from a computer-aided design (CAD) model to a machine that manufactures an object based on the data
- Ficep argued its claims are directed to statutory process of manufacturing, and are patent eligible under the Supreme Court decision *Diamond v. Diehr*.
- In its cert petition, Ficep says Supreme Court needs to confirm or overrule *Diehr's* holding that patent claims directed to statutory subject matter are statutory regardless whether or not they're improved with supposed non-statutory subject matter

Patent

- Patent No. 7,974,719 entitled “Method and an Apparatus for Automatic Manufacture of an Object with Multiple Intersecting Components”
- System includes a computer (205), programmable logic controller (PLC) (210), and manufacturing machine (235)
 - PLC includes a receiver (215), storage unit (220), and transmitter (235)



Patent

- Spec describes CAD model as “three-dimensional scale model of a structure or device” that may be “visually reproduced on a computer display or printed as a schematic diagram” (col. 1, ll. 18-20)
- Computer stores design model (e.g., CAD model) & communicates it to PLC
- PLC identifies and extracts information from the design model for transmission to manufacturing machine, which includes processor to receive & perform instructions
- Design model includes information such as “design specifications related to the structure or device” & “intersection and/or manufacturing parameters” (col. 1, ll. 20-22; col. 4, ll. 9-11)
- Intersection and/or manufacturing parameters = “design parameters related to intersections and points of contact or connections between components that come into contact with other components” (col. 1, ll. 49-53)

Patent

- Prior methods of manufacturing component from CAD model – “a human operator typically must program manually the manufacturing machines associated with an assembly line based on the computer-aided design display” (col. 1, ll. 26-30)
- Problem arises “when the specialized human operator, capable of inputting data into the manufacturing machine, is unavailable” (col. 1, ll. 37-43)
- “[T]here is a direct need to improve the way in which the design parameters for all the components of an object...are provided to the manufacturing machine” (col. 1, ll. 43-49)
- Patent removes human operator from data transfer to improve efficiency and accuracy, lower cost, and eliminate possibility of human error when providing instructions to automated assembly line equipment

Patent

Representative Claim:

7. An apparatus for automatic manufacture of an object, comprising:

a computing device adapted to create a design model of an object having multiple individual components, at least two of the individual components defining an intersection at which the two components are in contact with one another;

at least one programmable logic controller in communication with the computing device and with at least one manufacturing machine;

a receiver associated with the programmable logic controller for receiving the design model of the object;

a database unit adapted to store the design model received at the receiver;

a processor which is associated with the programmable logic controller and extracts from the design model a plurality of dimensions of components which define a plurality of components of the object;

wherein the processor identifies a plurality of **intersection parameters which define the intersection of the two components**;

wherein the processor extracts from the design model the intersection parameters;

a transmitter associated with the processor for transmitting the intersection and machining parameters and the component dimensions from the programmable logic controller to the **at least one manufacturing machine**; and

wherein **the at least one manufacturing machine manufactures the components based** at least in part on the transmitted component dimensions and **on the transmitted intersection and manufacturing parameters**.

Patent

- Spec: intersection parameters are associated with intersection of any 2 or more components of object
- Example
 - If object is shed, each pillar (e.g., steel “H” pillar) is a component and each beam is another component
 - Pillars and beams intersect by means of installation of crossarms by means of bolts to pillars on which beam are laid
 - Point where pillar intersects beam is intersection point, and parameters associated with cross arms (distance from floor, bolts fixing point, point of support of beam, etc.) are intersection parameters
- CAD model typically includes component dimensions

Procedural History

- Ficep sued Peddinghaus in Dist of Delaware, alleging infringement of the 719 patent
- Peddinghaus filed petition requesting *inter partes* review of all claims in 719 patent; petition **denied** by PTAB
- Peddinghaus moved for summary judgment on basis that the 719 patent's claims are patent ineligible under 35 USC 101
- Dist ct granted motion, ruling the patent claims are directed to abstract idea without an inventive concept
 - Abstract idea = “identifying, extracting, and transferring data from a design file for the purpose of manufacturing an object”
 - Patent “seeks to simply automate the prior art methods to minimize human error and fails to recite any specific technological improvement to manufacturing or computer technology”; no inventive concept b/c claims “simply replac[es] the human operator with a conventional machine”
- Ficep appealed

Federal Circuit

- Nonprecedential disposition
- Before Circuit Judges Prost, Wallach, and Chen (opinion by Chen)
 - Reviews grant of summary judgment de novo
 - Patent eligibility under 35 USC 101 is issue of law reviewed de novo

Law of Patent Eligibility

- 101: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor...”
- Supreme Court has long held abstract ideas, along with laws of nature & natural phenomena, are not patentable
- *Alice Corp. Pty. Ltd. v. CLS Bank, Int’l*, 573 US 208, 217-18 (2014) & *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 77-78 (2012) set forth 2-step test to determine whether claimed subject matter falls within a judicial exception to patent eligibility
 1. Determine whether claim is directed to patent-ineligible concept (e.g., abstract idea)
 2. If so, examine elements of claim to determine if it contains inventive concept sufficient to transform the abstract idea into a patent-eligible application

Step 1

- Fed Cir agrees claim 7 is directed to abstract idea of extracting & transferring information from design file to manufacturing machine
- Must evaluate “the focus of the claimed advance over the prior art to determine if the claim’s character as a whole is directed to excluded subject matter” (*Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016))
- Where “focus of the claimed advance over the prior art” shows that “the claim’s ‘character as a whole’ is directed to” steps that “can be performed in the human mind, or by a human using a pen and paper” the claim is for a patent-ineligible abstract idea (*In re Killian*, 45 F.4th 1373, 13769 (Fed. Cir. 2022))

Step 1

- Here, focus of claimed advance is automating a previously manual process of transferring info from a CAD design model to manufacturing machine
- Patent spec states that “problem arises when the **specialized** human operator, capable of inputting data into the manufacturing machine, is unavaible” & parties agree (in joint claim construction brief) that “[t]he ‘specialized’ operator is a human who can translate the CAD drawing into the instructions that program the machine on where to make marks”
- 719 patent claims a PLC that automaties identification, extraction, and transfer of information from design model
- Automating a previously manual process is not suffiicent for patent eligibilty

Step 1

- 719 patent is “quintessential ‘do it on a computer’ patent,” like *University of Florida Research Foundation, Inc. v. General Electric Co.* (916 F.3d 1363, 1367 (Fed. Cir. 2019))
 - In *University of Florida*, patent at issue sought to improve upon “pen and paper methodologies of acquiring, analyzing, and displaying bedside patent information from various bedside device in a single interface
 - Fed Cir held claims abstract b/c patent acknowledged that data from bedside machines was previously collected, analyzed, manipulated & displayed manually; patent simply proposed doing it with computer
- Ficep argued their claims are more like patent-eligible claims in *McRO, Inc. v. Bandai Namco Games America, Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) (method using rules to automate 3D animator’s tasks of determining keyframes in a sequence of facial expressions)

Step 1

- Ficep argued claimed invention identifies intersection parameters differently than human
 - Manual method requires:
 1. Using crane to take component off manufacturing line
 2. Comparing 2D printout of design to identify intersecting parts & intersection location
 3. Using ruler & soapstone to mark intersection
 4. Using crane to move component back to manufacturing line
 - In contrast, claimed invention identifies the intersection parameters from the 3D CAD design model

Step 1

- Fed Cir not persuaded claims require novel means of garnering intersection parameters for object
 - Claim doesn't specify whether design model somehow on its own generates intersection parameter based on other data, or whether intersection param data is fed into computing device by hand to create design model
 - Short specification, offers no clues how intersection parameters are derived; that info simply exists in design model
- At oral argument, Ficep said either computing device or PLC could create intersection params; shows how unlimited claim feature is
- Only difference b/w manual and automated processes is performance by computer

Step 1

- Even if claimed process differs from manual process, it's still abstract
 - No particular method to derive intersection params
 - Broad enough to be derived and added to design model by human
- *McRO* involved “specific asserted improvement in computer animation, i.e., the automatic use of rules of a particular type” (837 F.3d at 1314)
- Claims don't include specific means or method to derive intersection params
 - Ficep in App brief, “[T]he invention here was not *how* to identify intersection parameters using a computer, but rather, when setting up one's manufacturing line, the decision to do so from a 3D CAD model and to use them within the manufacturing line rather than outside it”
 - Ficep in Rep brief, “The improvement to manufacturing technology does not depend on the specific algorithm for identifying parameters”

Step 1

- As to *Diehr*, it precluded evolution of modern-day *Alice/Mayo* test, but at step one “the *Diehr* claims were directed to an improvement in rubber curing process, not mathematical formula” (*Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1348 (Fed. Cir. 2017))
- Like *McRO*, *Diehr*’s claims were patent eligible for reciting specific means for technological improvements
 - Claims “describe[d] in detail a step-by-step method” for curing synthetic rubber that would “significantly lessen[] the possibly of ‘overcuring’ or ‘undercuring’” (*Diehr*, 450 U.S. at 187)
 - Fed Cir wants to distinguish *Diehr* from 719 patent based on problem solved
- In contrast, 719 patent claims don’t recite any means of technical improvements to existing process

Step 1

- Eliminating human error by automating data transfer is not type of improvement making claims patent eligible
- Ficep argues extraction of intersection params from CAD model allows for automated manufacturing process differing from prior methods b/c manufacturing machine marks components rather than human
- However, claim doesn't require marking components, only manufacturing components

Application of Alice/Mayo Step 2

- Fed Cir agrees with dist ct that claims don't contain an inventive concept
- Beyond abstract idea, claim 7 recites generic, conventional elements of computing device, PLC, receiver, database unit, processor, transmitter, and manufacturing machine
- Since claimed manufacturing machine is no different than conventional machine, it is merely **post-solution activity** and “insignificant post-solution activity will not transform an unpatentable principle into a patentable process” (*Diehr*, 450 U.S. at 191-92)
- Even if extracting intersection params from CAD model is unconventional, abstract idea “cannot supply the inventive concept that renders the invention ‘significantly more’ than that [abstract idea]” (*BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018))

Cert Petition – Questions Presented

1. Does a claim directed to patent-eligible subject matter (here, manufacturing) nevertheless become ineligible as “abstract” if the process is improved using automation?
 - a. Should an “abstract idea” behind a claim to a patent-eligible process be identified and, if so, how and at what level of abstraction?
2. What is the appropriate standard for determining whether a claim is “inventive,” conferring eligibility under *Alice* Step 2, including whether objective evidence of inventiveness and technological improvement is relevant?
3. Is either what a claim is “directed to” and whether that is abstract, or whether a claim is “inventive” as articulated in *Alice* step 2, only for a judge to decide as a legal matter or does it include fact issues and, if the latter, are they for a jury?

(quoted from Cert Pet. at i-ii)

Cert Petition – Reasons for Granting

- I. The Supreme Court needs to provide guidance defining “directed to” under step one of *Alice*
 - A. **This Court needs to confirm (or overrule) *Diehr*’s holding that patent claims “directed to” statutory subject matter are statutory, whether or not improved with supposedly nonstatutory matter**
 - B. If this Court overrules *Diehr*, this Court needs to provide guidance on how to abstract a claim
 1. At a minimum, the level of abstraction should include the reasons for patentability
 2. The nature of the invention and whether that is too abstract to meet the statute are fact issues for a jury
- II. The Supreme Court needs to provide guidance on what is a technical advance under step two of *Alice*
 - A. This Court should clarify that inventions resulting in technology improvements to statutory subject matter are patent eligible
 - B. Technological advance is a fact question for a jury

Cert Petition – Quotes from Preliminary Statement

- “In *Alice*, this Court declined ‘to delimit the precise contours of the “abstract ideas” category.’ [] In the ensuing ten years, the ability to secure patents in the ‘useful arts’ has not just eroded but become a ***panel-dependent game of chance***” (Cert Pet. at 2, emphasis added)
- “Historically, and under all of this Court’s precedent, patents ‘directed to’ patent-eligible processes like manufacturing remain patent-eligible whether improved through an abstract idea or otherwise. This is reflected in *Diehr*...” (Cert Pet. at 3)
- “Recent Supreme Court jurisprudence did not change this, as confirmed by this Court’s citing *Diehr* with approval, while cautioning that Section 101 does not preclude patenting an invention ‘designed to solve a technological problem in “conventional industry practice”’. *Alice*, 573 U.S. at 223 (quoting *Diamond v. Diehr*, 450 U.S. 175, 177, 178 (1981))” (Cert Pet. at 3)
- “Federal Circuit precedent has diverged from this Court’s guidance. The Federal Circuit [] searches for some underlying essence of the invention, whether or not ‘designed to solve a technological problem in conventional industry practice,’ seeks to characterize that essence at some level of abstraction, and then decides whether that level of abstraction is too high to be patent-eligible” (Cert Pet. at 3)

Cert Petition – the “Abstract-Idea” Exception

- For years, leading Supreme Court precedents regarding “abstract idea” were *Benson*, *Flook* and *Diehr*
 - “*Benson’s* patent claim consisted of an algorithm for converting one form of binary code (binary coded decimal) to another (straight binary encoding), and no more. There was no change in the real world, the claims were entirely computational/theoretical, and the claims were ineligible” (Cert Pet. at 7; footnote omitted).
 - “*Flook* similarly claimed calculating (or ‘adjusting’) a number using a recited equation – *and no more*. The claim limitations were ‘directed’ only to a calculation, and not even an automated one” (Cert Pet. at 7; footnote omitted).
 - *Diehr* was directed to (no more than) using the known Arrhenius equation to determine when to *automatically* open a press when curing rubber. That the alleged abstract idea was an equation was again easy to identify. The claim recited “the Arrhenius equation” (Cert Pet. at 8-9; with original emphasis).

Cert Petition – the “Abstract-Idea” Exception

- Regarding *Diehr*
 - “Because the claim (and its limitations) was for a ‘method of operating a rubber-molding press,’ however, it was statutory. *Diehr*, 450 U.S. at 191-93. Automating part of a statutory manufacturing process (opening the press) using an abstract idea (mathematical Arrhenius equation) did not remove the process from eligibility” (Cert Pet. at 9).
 - If claimed subject matter (e.g., curing rubber) is statutory, claim is patent eligible even if it invokes automation or an idea (e.g., Arrhenius equation), regardless that performing calculations like Arrhenius equation is not statutory nor “under the sun made by man”
 - Curing rubber (or manufacturing) is statutory regardless of whether it’s improved by abstract idea

Diehr Claim

A **method of operating a rubber-molding press** for precision molded compounds with the aid of a digital computer, comprising:

- providing said computer with a data base ...,
- repetitively calculating in the computer, at frequent intervals during each cure, the Arrhenius equation...,
- repetitively comparing ... each said calculation...and said elapsed time, and
- opening the press automatically** when a said comparison indicates equivalence.

Cert Petition – the “Abstract-Idea” Exception

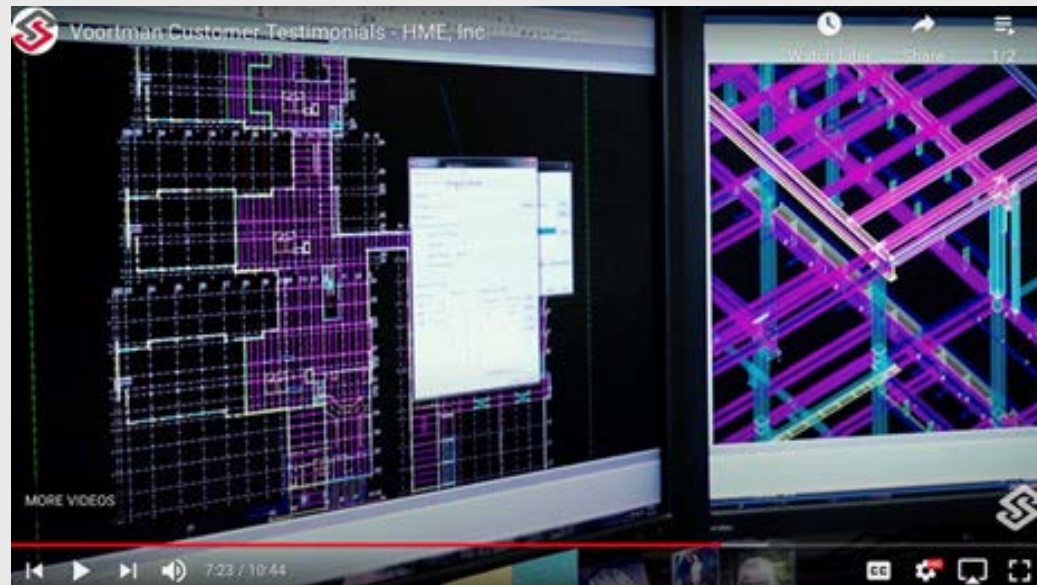
- Compare with business method cases like *Bilski* and *Alice*
 - Both addressed claims outside of what was considered statutory process, product, or machine when 1952 Act passed
 - Court found *Bilski*'s claim found to be “directed to” hedging risk in transactions; on its face not directed to statutory subject matter
 - *Alice* involved claim reciting “method of exchanging obligations as between parties,” which was found by Supreme Court to be directed to nonstatutory abstract idea of intermediate settlement
 - *Alice* also included claims to automated systems for performing nonstatutory process; Court ruled such automation does not **save** otherwise ineligible process

Cert Petition – “Nature of the Invention” Test

- Ficep argues that Fed Cir (at least some panels) is turning away from “directed to” test, in favor of
 1. identifying underlying nature or essence of invention at an ill-defined level of abstraction, and then
 2. testing it for abstractness
- Examples:
 - *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1298 (Fed. Cir. 2020) -- improvement of dampening vibration in vehicle shaft is ineligible b/c it’s based on Hooke’s law
 - *Interactive Wearables, LLC v. Polar Electro OY*, 501 F. Supp. 3d 162, 174 (E.D.N.Y. 2020), *aff’d without opinion*, No. 2021-1491, 2021 WL 4738803 (Fed. Cir. Oct. 14 2021 -- media player (music or video) reduced to nonstatutory abstract idea, i.e., “providing information in conjunction with media content”

Cert Petition – Characterization of Patent

- “[The 719 patent] is directed to manufacturing structural steel” (Cert Pet. at 13)
(this statement not actually in patent)
- 3-dimensional CAD is used (prior to invention, didn’t include intersection params)



Cert Petition – Characterization of Patent

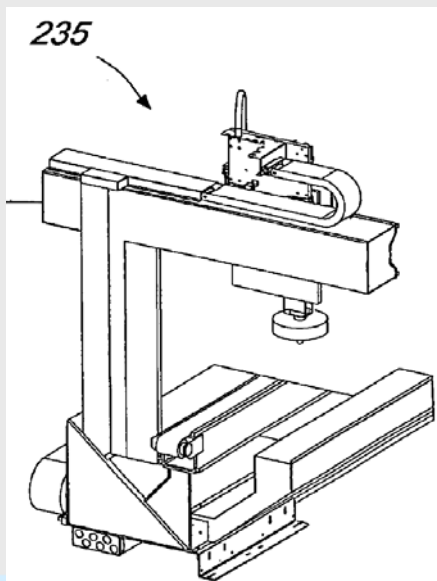
- Manufacturing lines for producing components (e.g., I-beams) of structure (e.g. building)



- After entering bottom right, steel is automatically moved to shotblaster for surface cleaning, then to saw for cutting beam to length, then to drill, then to coper
- Coper automatically etches lines (scribes) onto beam based on intersection params

Cert Petition – Characterization of Patent

- Intersection params tells scribing tool in coper where to scribe lines onto steel indicating where other steel beam intersects



- Fig 2 of 719 patent shows a scribing tool (but not actually referred to as “scribing tool”)
- Abstract: “...instructing a manufacturing machine to **mark out** the position of the components **and manufacture** the object...”
- Col 1 ll 56-8: “... manual marking out operations can be performed automatically.”

Cert Petition – Discussion

- While Ficep’s Cert Petition brings up interesting questions, claim appears much broader than how 719 patent is characterized
- While patent spec touches upon the feature of automatically marking components of object, it’s missing much of the details in the Cert Petition
- Is marking or scribing the same as “manufacturing”?
 - Abstract seems to distinguish marking from manufacturing
 - Should claim have recited something like a method for automatically marking steel components in an assembly line?

Cert Petition – Discussion

- Even if claim can withstand 101 challenge, would it really be patentable under other sections of Patent Act such as 112(a), 112(b), 103?
- Cert Petition opens by laying out objective evidence of inventiveness including
 - Industry recognition
 - Copying by competitors (and advertising the copied improvement)
 - Customer demand

Discussion – 2019 PEG

- Under the October 2019 Update to the Patent Eligibility Guidelines (2019 PEG), Ficep appears to have integrated the claim into a practical application (manufacturing)
- Relevant to Prong 2 of Step 2A of *Alice* test
- According to Oct 2019 Update, to satisfy prong 2, claim must integrate judicial exception into practical application “in a manner that imposes a meaningful limit on the judicial exception”
- **Specificity** of claim limitations is relevant to this evaluation “including use of **particular machine**, particular transformation and whether the limitations are mere instructions to apply an exception”
- Is Ficep’s claimed “manufacturing machine” a particular machine?

Thank you

