3D Printing: Implications for Patents, Trademarks, Trade Secrets and Copyrights
Navigating the IP Challenges with Additive Manufacturing

WEDNESDAY, NOVEMBER 19, 2014
1pm Eastern  | 12pm Central  | 11am Mountain  | 10am Pacific

Today’s faculty features:

John J. Cheek, Senior Corporate Counsel, Caterpillar, Peoria, Ill.

John F. Hornick, Partner, Finnegan Henderson Farabow Garrett & Dunner, Washington, D.C.

Michael Weinberg, Vice President, Public Knowledge, Washington, D.C.

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3D Printing: Implications for Patents, Trademarks, Trade Secrets and Copyrights

John Cheek, Caterpillar
Michael Weinberg, Public Knowledge
John Hornick, Finnegan
November 19, 2014
Pioneer Road: Shaping the Landscape and Bulldozing a Defense to 3-D Printed Copies

IPO Annual Meeting, Vancouver, Canada
September 8, 2014

John Cheek
Deputy IP Counsel
Caterpillar Inc.
Klondike Highway
Pioneer Road
Agenda

• IP = Proprietary
• IP Protection Frameworks
• IP and 3D Printing Threats
• IP and 3D Printing Opportunities
• Legal Issues Other Than IP
• Patent Claim Strategies – A New Frontier
  – Digital Model Claims & §101 Issues
  – Beauregard 3-D Model File Claims
  – 35 U.S.C. 271(g) & Scan-to-Model File Method Claims
• A Case for a Legislative Solution?
Why IP: IP = Proprietary…More Proprietary Parts Requires More IP Protection

• “Proprietary” = owned by or otherwise exclusive to a company and protected by an exclusive legal right such as secrecy, copyright, or patent

• A "Proprietary Part" is one whose design - or at least some aspect thereof - is proprietary

• Patenting inventive part designs typically provides the strongest protection
  – secrecy and copyright may not stop all copying through reverse engineering
  – patents prevent the sale of copies even if copying through reverse engineering is possible.
3D Printing – New Threat, Same Threat?

- **Premise**: 3D printing doesn’t really create entirely new threats with respect to IP – it accelerates and amplifies the threats and demands more proactive innovation and IP management.

- **Analogy**: Compare to evolution of music recordings:

<table>
<thead>
<tr>
<th>Technology Evolution</th>
<th>Protection Challenges/Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live broadcast to phonographs (1870s)</td>
<td>Copying hard and media expensive</td>
</tr>
<tr>
<td>Phonographs to Reel-to-Reel Magnetic Tape (1920s)</td>
<td>Copying easier and media cheaper</td>
</tr>
<tr>
<td>Reel-to-Reel to Compact Tape Cassette (1960s)</td>
<td>Copying simple and media cheap</td>
</tr>
<tr>
<td>Compact Tape Cassette to Compact Digital Disc (1980s)</td>
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<td>File sharing &amp; Legal Battles</td>
</tr>
<tr>
<td>Digital Files to Digital Media Outlets (2000s)</td>
<td>Digital Rights Management</td>
</tr>
</tbody>
</table>

* Mainly implemented for video recordings.
Limits of Existing IP Legal Protection Regimes

**Copyright** – rights arise upon creation of a “work of authorship” but copyright does not prevent will-fit copying of 3-dimensional useful articles ($)

**Trademark** – rights can arise by mere use of a mark but only protect against use of a confusingly similar mark and trademarks easily omitted from will-fit copies ($$$)

**Patent** – rights prevent will-fit copying of patented useful articles or ornamental articles but requires filing of patent application for an invention that is new and non-obvious ($$$$

PATENTS, PATENTS, PATENTS
Evolution of IP Laws under Consideration

• **Copyright** – considering concept of “copyright-light” statutory protection with shorter term to protect against copying of articles that are useful but not entirely dictated by function

• **Trademark** – considering legislation to prevent “naked” use of OEM part numbers by will-fitters (we have 1R-1808 & 1R-0716 as registered trademarks but part numbers are difficult and costly to protect)

• **Patent** – pursuing creative new ways to cover 3D printer models/files for inventive parts and methods of offshore scanning/copying inventive parts for use in onshore 3D printers
IP and 3D Printing Threats

• A simple message – We need:

  1. More inventive parts* created by our engineers and collaboration partners (with strong/protective collaboration agreements)
     ("Design For Proprietary")

  2. More patents for our inventive parts
     ("Patented Parts Goals & Metrics")

• Must commit resources for deliberate parts innovation and proactive invention harvesting and patenting

• 3D printing threat demands more vigilance and commitment

* But not just parts – see next slide
IP and 3D Printing Opportunities

• **New part designs** – fewer DFMA “shackles” on designs
  – Shapes (design patents)
  – Functional configurations (utility patents)

• **New materials**
  – Compounds
  – Material-based design features

• **New Validation Features**
  – Embedded Hidden features (voids, layer arrangements, etc.)
  – Micro-Trademarks

• **New Partners**
  – Patent Landscape Studies to identify and assess collaboration/acquisition targets
  – Patent Landscape Studies to identify patent infringement risks

• **New Business Practices**
  – “Localized” manufacturing/Print-to-Order (P-t-O)
  – Digital Rights Management
Legal Issues other than IP

- 3D Printing presents for risks and opportunities with respect to legal issues other than IP, for example:
  - Product Warranty
  - Product Safety
  - Product and Environmental Regulations
  - Accounting and Tax Treatment of P-t-O Revenue
  - Import/Export/Local Content Requirements
  - Dealer Relationships
  - Supplier Relationships
  - Packaging & Transportation

- Legal should establish a “cross-functional” team of lawyers to identify and summarize key issues for leaders and project teams
Claim Strategies – Pioneering The New Frontier

• Patent claims aimed at free-riding behavior of “bad guys” that copy or facilitate copying of innovative articles of manufacture
  – Creation or distribution of 3-D model files intended for use in 3-D printers
  – Scanning of genuine articles to create 3-D model files
  – Importation of offshore-origin 3-D model files

• Aimed at free-riders that hide offshore or that are effectively untouchable due to specific intent requirement for inducement

• Claims strategies to consider:
  – Digital 3-D Models Claims
  – Beauregard Claims for 3-D Model Files
  – Scan-to-Model File Method Claims
Digital 3-D Model Claims

1. A computer-readable three-dimensional model suitable for use in manufacturing a mobile machine track shoe, wherein the track shoe comprises (a) a ground engaging surface including a first grouser bar and a second grouser bar substantially parallel to the first grouser bar; and (b) a base opposite the ground engaging surface, the base including a first relief disposed opposite the first grouser bar and a second relief disposed opposite the second grouser bar.

2. The computer-readable three-dimensional model of claim 1, wherein the track shoe further comprises a third grouser bar substantially parallel to the second grouser bar and disposed proximate a leading edge of the track shoe.

3. A computer-readable three-dimensional model suitable for use in manufacturing a mobile machine track shoe, wherein the track shoe has an ornamental appearance as shown and described in connection with Figures 3 through 8.
Digital 3-D Model Claims

• Digital file/model product claims are likely to face §101 rejections at the USPTO and § 101 challenges in courts

• Generally, software detached from physical medium is information in the abstract (see Microsoft v. AT&T discussing a “component” under 271 (f)), but model file is not software itself

• Device profile for describing property of a device in a digital image reproduction system not §101 subject matter
  – See Digitech Image Technologies, Fed Cir 13-1600 (July 11, 2014)

• But digital data sets for use in creating dental appliances were found to “articles” by ALJ in §337 proceeding
  – See ITC Investigation No. 337-TA-833
Beauregard Claims – 3-D Model Files

1. A computer-readable storage medium having data thereon representing a three-dimensional model suitable for use in manufacturing a mobile machine track shoe, wherein the track shoe comprises (a) a ground engaging surface including a first grouser bar and a second grouser bar substantially parallel to the first grouser bar; and (b) a base opposite the ground engaging surface, the base including a first relief disposed opposite the first grouser bar and a second relief disposed opposite the second grouser bar.

2. The computer-readable storage medium of claim 1, wherein the track shoe further comprises a third grouser bar substantially parallel to the second grouser bar and disposed proximate a leading edge of the track shoe.

3. A computer-readable storage medium having data thereon representing a three-dimensional model suitable for use in manufacturing a mobile machine track shoe, wherein the track shoe has an ornamental appearance as shown and described in connection with Figures 3 through 8.
Beauregard-style Claims

• *Beauregard*-style claims are a proven approach
  – Commissioner states "that computer programs embodied in a tangible medium, such as floppy diskettes, are patentable subject matter under 35 U.S.C. Sec. 101…"
  – See *In re Beauregard et al.*, 53 F.3d 1583 (Fed. Cir. 1995)

• Also see *Microsoft v. AT&T*, 550 U.S. 437 (2007)
  – A copy of software but not software in the abstract qualifies as a “component” under §271(f)

• Tangible medium claims meet §101 requirements, but will 3-D models be transferred via “old fashioned” tangible media in the “Cloud Storage” and digital download era? *In re Beauregard* was almost 20 years ago…
Scan-to-Model File Method Claims

1. A method of creating a computer-readable three-dimensional model suitable for use in manufacturing a mobile machine track shoe, wherein the track shoe comprises (a) a ground engaging surface including a first grouser bar and a second grouser bar substantially parallel to the first grouser bar; and (b) a base opposite the ground engaging surface, the base including a first relief disposed opposite the first grouser bar and a second relief disposed opposite the second grouser bar, said method comprising:
   a. projecting light onto a three-dimensional mobile machine track shoe master, wherein the master comprises (i) a ground engaging surface including a first grouser bar and a second grouser bar substantially parallel to the first grouser bar; and (ii) a base opposite the ground engaging surface, the base including a first relief disposed opposite the first grouser bar and a second relief disposed opposite the second grouser bar;
   b. receiving light reflected from said master; and
   c. computer-generating a computer-readable three-dimensional model suitable for use in manufacturing a mobile machine track shoe.
Scan-to-Model File Method Claims

1. A method of creating a computer-readable three-dimensional model suitable for use in manufacturing a mobile machine track shoe, wherein the track shoe comprises (a) a ground engaging surface including a first grouser bar and a second grouser bar substantially parallel to the first grouser bar; and (b) a base opposite the ground engaging surface, the base including a first relief disposed opposite the first grouser bar and a second relief disposed opposite the second grouser bar, said method comprising:
   a. projecting light onto a three-dimensional mobile machine track shoe master, wherein the master has an ornamental appearance as shown and described in connection with Figures 3 through 8;
   b. receiving light reflected from said master; and
   c. computer-generating a computer-readable three-dimensional model suitable for use in manufacturing a mobile machine track shoe.

• 35 U.S.C. 271

(g) Whoever without authority imports into the United States or offers to sell, sells, or uses within the United States a product which is made by a process patented in the United States shall be liable as an infringer, if the importation, offer to sell, sale, or use of the product occurs during the term of such process patent. In an action for infringement of a process patent, no remedy may be granted for infringement on account of the noncommercial use or retail sale of a product unless there is no adequate remedy under this title for infringement on account of the importation or other use, offer to sell, or sale of that product. A product which is made by a patented process will, for purposes of this title, not be considered to be so made after -

(1) it is materially changed by subsequent processes; or

(2) it becomes a trivial and nonessential component of another product.

• 271(g) defenses not available in ITC §337 Actions
  – Legislative History: “the amendments made by this subtitle shall not deprive a patent owner of any remedies available . . . under section 337 of the Tariff Act of 1930, or under any other provision of the law.”
  – Kinik Co. v. ITC, 362 F.3d 1359 (Fed. Cir. 2004),
Bayer and the requirements of §271(g)

- In *Bayer v. Housey Pharmaceuticals*, 340 F.3d 1367 (Fed. Cir. 2003), the court held that the “product” under 271(g) must be a physical article that was manufactured.
  - The holding was unnecessarily broad since the case dealt with the specific issue of whether “product” covered mere information that was determined using the patented process.

- Since *Bayer*, district courts have found that software embedded in a tangible medium is a “product” that is “manufactured.”

- At least one district court has denied summary judgment, finding that a 3-D model could be construed as a “product” under 271(g).

- If targeting foreign entities, 271(g) may still have limited usefulness if the foreign entity does not itself import the digital content and instead only uploads the digital content onto a non-US based server where it can be accessed by a US entity.
§271(g) District Court Decisions

• CNET Networks, Inc. v. Etilize, Inc., 528 F. Supp.2d 985 (N.D. Cal. 2007)

  – Involved a process for creating an electronic catalog
  – Court distinguished Bayer on basis that Bayer patented process was not used in the actual manufacture a drug – Bayer process did not lead to creation of a drug
  – Microsoft decision is instructive, but catalog is not simply an intangible collection of information – has a physical, tangible embodiment once expressed and stored on computer readable media
  – Electronic catalog is a physical article no different from a catalog manufactured and assembled on paper
  – Catalog is a “product” within the meaning of §271(g)
  – Also distinguished NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005)
  – A catalog is a product that is bought or sold, whether its physical form is etchings on a CD-ROM, magnetic fields in a server, or ink on paper
  – When passing §271(g), Congress was concerned about patented processes whose commercial value is derived from the sale of the resulting product.
271(g) District Court Decisions

  - Involved a 3-D digital model of a dental patient’s teeth – not tangible and contained in a data file
  - Court characterized *Bayer* holding to be limited and only that “research data or information obtained from using the patented methods” could not provide basis for a §271(g) claim
  - Per the court, it does not necessarily follow that anything contained in electronic format will not be a “product made” by patented methods.
  - Court found *CNET* decision instructive and applied same logic to 3-D models
  - 3-D digital model is not a mere package of information, but a “creation” produced by “practicing each step” of a patented process
  - Court denied summary judgment on §271(g) claim because defendant failed to establish that the 3-D digital model is not a “product made” by a process patented in the United States.
A Case for a Legislative Solution?

• Is there a need for Congress to adapt patent statute to today’s technology?
  – Cloud file sharing, digital transmission rather than “old fashioned” media
  – Are four categories of “process, machine, manufacture, or composition of matter” in step with current technology?
  – District courts are attempting to address technological evolution but more certainty will drive more investment in innovation

• Is there a need for a statutory form of protection other than a “patent” under Title 35?
    • The owner of a mask work provided protection under this chapter has the exclusive rights to do and to authorize any of the following:
      (1) to reproduce the mask work by optical, electronic, or any other means;
      (2) to import or distribute a semiconductor chip product in which the mask work is embodied; and
      (3) to induce or knowingly to cause another person to do any of the acts described in paragraphs (1) and (2).
Now go be a pioneer!

John Cheek
Deputy IP Counsel
Caterpillar Inc.
Cheek_John_J@cat.com
IT WILL BE AWESOME IF THEY DON'T SCREW IT UP:
3D Printing, Intellectual Property, and the Fight Over the Next Great Disruptive Technology

Michael Weinberg
November 2010

WHAT'S THE DEAL WITH COPYRIGHT AND 3D PRINTING?

MICHAEL WEINBERG
JANUARY 2013
If Taxpayers Pay for It, Taxpayers Should Have Access to It

By Charles Duax | July 18, 2013

Myriad Genetics is using patents to suppress taxpayer-funded medical technologies, just as journal publishers used copyrights to suppress taxpayer-funded medical research.

When our tax dollars go to funding potentially lifesaving medical technology research, we rightly have an expectation that the fruits of that research will be available to us as taxpayers. And it should concern us when companies, in the interest of making their own profits, raise the costs of and limit access to those technologies.

Recently, Senator Leahy asked Dr. Francis Collins, Director of the National Institutes of Health, to uphold these principles in a bipartisan dispute. We applaud.

PKthinks

Five Fundamentals for the Phone Transition
Protectable by Copyright

Produced Since 1923

Protectable by Patent

Worth Patenting

Successfully Patented

Patented Within Last 20 Years
License

FAT SHARK Video Transmitter Mount for DJI PHANTOM - FPV / UAV by bustmold is licensed under the Creative Commons - Attribution - Non-Commercial license.
March 28, 2014

To Whom it may concern:

RE: Kevin Scanlan

This note is to confirm that Mr. Kevin Scanlan is no longer an Employee of Anubis Manufacturing Consultants Corporation, Kevin’s employment with Anubis was terminated.

Should you have any further questions or concerns please do not hesitate to contact me directly.

Regards,

[Signature]

Managing Director
Anubis Manufacturing Consultants Corp.
4100A Sladewview Crescent unit 3&4
Mississauga, Ontario, L5L 5Z3
Phone: 905-581-0630
fax: 1-866-611-8740
3D Printing Implications for IP

John Hornick

November 2014
First, a Disclaimer

“Are these the shadows of the things that Will be, or are they the shadows of things that May be?”

» Ebenezer Scrooge, to the Third Spirit
What’s Different Here?
What’s Different Here?

- Principles
What’s Different Here?

- Principles
- Magnitude
  - All IP
What’s Different Here?

- Principles
- Magnitude
  - All IP
  - Most products
What’s Different Here?

- Principles
- Magnitude
  - All IP
  - Most products
  - Scale/targets
What’s Different Here?

- **Principles**
- **Magnitude**
  - All IP
  - Most products
  - Scale/targets
- **Gartner: $100B by 2018**
What’s Different Here?

– Results
What’s Different Here?

– Results
Three Reasons

- Democratization of manufacturing
Some People Don’t Like IP

“There is a persistent widespread belief that intellectual property law (and patents in particular) encourage innovation. This is intuitive, however, the evidence to the contrary is now overwhelming and the unavoidable conclusion is that intellectual property actually stifles innovation.”

Prof. Joshua Pearce, Materials Science, Mich Tech
Three Reasons

- Away from Control
Democratization of Manufacturing
Democratization of Manufacturing

- Democratization of manufacturing
  - No entry barriers
Democratization of Manufacturing

- Democratization of manufacturing
  - No entry barriers
  - Customers become manufacturers
Democratization of Manufacturing

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  - Customers become manufacturers
  - Product demand drops
Democratization of Manufacturing

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- As democratization increases . . .
Democratization of Manufacturing

- As democratization increases
  - PTC less effective
Democratization of Manufacturing

- As democratization increases
  - PTC less effective
  - Customization/Value Added
Democratization of Manufacturing

- As democratization increases
  - IP increasingly irrelevant
  - Customization/Value Added
  - Trade secrets
Democratization of Manufacturing

- As democratization increases
  - IP increasingly irrelevant
  - Customization replaces IP
  - Trade secrets
  - Non-IP-based models
Away From Control
Away From Control

- What if:
  - anyone could make things
  - with virtually any functionality
  - away from control?
Away From Control
Away From Control

- Effect on:
  - Traditional Business Models?
  - IP rights?
Away From Control

- IP suffers the 5 Is (Eyes)
  - Infringement
Away From Control

- IP suffers the 5 Is (Eyes)
  - Infringement
  - Identification
Away From Control

- IP suffers the 5 Is (Eyes)
  - Infringement
  - Identification
  - Impractical or Impossible
Away From Control

- IP suffers the 5 Is (Eyes)
  - Infringement
  - Identification
  - Impractical or Impossible
  - Irrelevant
Away From Control

- IP suffers the 5 Is (Eyes)
  - Infringement
  - Identification
  - Impractical or Impossible
  - Irrelevant/Impotent
Who?
Who?

- **Designs/3D Prints**
  - OEMs
  - Fabs
    - Authorized
    - Independent
    - Rogue
  - Designers
  - Scanners
  - Customers

- **Designs/3D Prints**
  - Distributors
    - ISPs
    - peer-to-peer networks
    - design marketplaces/repositories
    - retail
  - Consumers
  - Friends Networks
When?
"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten"

Bill Gates
Industries at Risk
Industries at Risk
IP Strategies for Today
Utility Patents
Big Issues
Utility Patents: Big Issues

- How to protect against:
  - product infringement
  - digital blueprints

- Who is an infringer?
Utility Patents
Patent Claim Strategies
Patent Claim Strategies: Methods

- US Pub 2014/0020191

A method of direct three-dimensional printing onto an article of apparel, comprising:

- designing a three-dimensional pattern for printing onto the article;
- positioning at least a portion of the article on a tray in a three-dimensional printing system, . . . ;
- printing a three-dimensional material directly onto the article using the designed pattern;
- . . . removing the article from the three-dimensional printing system.
Patent Claim Strategies: Methods

- US Pub 2014/0020192

A method of three-dimensional printing and assembly of an article of apparel, comprising:
Patent Claim Strategies: Methods

- US Pub 2013/0306198

A method comprising:

producing a molten alloy . . . ;

depositing the molten alloy to selected positions on a platen or a workpiece; and

forming a solid layer-by-layer construction of the . . .
A method comprising:

- fusing a layer of bulk metallic glass (BMG) powder to a layer below by heating the layer of BMG powder . . . ; and

- forming a solid layer-by-layer construction of the BMG, wherein . . .
Patent Claim Strategies: Product by Process

- US Pub 2014/0033538

A razor cartridge comprising:

a) a housing . . .; 

b) a metal insert located within the housing; and 

c) one or more blade assemblies . . ., 

wherein said razor cartridge is formed by rapid prototyping such that said razor cartridge can be used for repeated shaving.
Patent Claim Strategies: Product by Process

- Valid only if product itself is patentable, regardless of process

- Unpatented product does not become patentable by 3D printing it

  Thorpe, 777 F.2d 695 (Fed. Cir. 1985)
  Amgen, 580 F.3d 1340 (Fed. Cir. 2009)

  - Can’t make old product patentable by filing for the process of 3D printing it

- If an old product is covered by a P-by-P patent for traditional process,
  patent is not infringed if product is 3D printed

  Abbot Labs, 566 F.3d 1282 (Fed. Cir. 2009)
Patent Claim Strategies: Digital Blueprints

- **Beauregard** claims:
  
  “A computer-readable medium storing instructions that, when executed by at least one processor of a printing device, cause the printing device to generate a three-dimensional object, comprising . . .”

  *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995)

- But is the invention the medium?

  *Cybersource*, 654 F.3d 1366 (Fed. Cir. 2011)
**Patent Claim Strategies: Digital Blueprints**

- **Beauregard** claims:
  
  - “A computer-readable medium storing **instructions** that, when executed by at least one processor of a **printing device**, cause the printing device to **generate a three-dimensional object**, comprising . . .”

  *In re Beauregard, 53 F.3d 1583 (Fed. Cir. 1995)*

- “Medium” may be . . .
Patent Claim Strategies: Digital Blueprints

- *Beauregard* claims:
  
  - “A computer-readable **medium** storing **instructions** that, when executed by at least one processor of a **printing device**, cause the printing device to **generate a three-dimensional object**, comprising . . .”

  *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995)

- “Medium” may be . . .
Patent Claim Strategies: Digital Blueprints

- 3D model claims:
  - “a computer-readable model of a three-dimensional object for use in manufacturing a three-dimensional object, namely, a . . .”

- § 101 issues

- Digital models = articles
  - Certain Digital Models (ITC)
Scanning method claims:

- “a method of creating a computer-readable model of a three-dimensional object for use in manufacturing a three-dimensional object, namely, a ________, said method comprising:
  - scan step 1,
  - scanning step 2, etc.”
Utility Patents
Who Infringes?
## Who Infringes?

<table>
<thead>
<tr>
<th></th>
<th>Direct</th>
<th>Contributory</th>
<th>Induced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3D Printer Makers</strong></td>
<td>No</td>
<td>No (substantial noninfringing uses)</td>
<td>Unlikely</td>
</tr>
<tr>
<td><strong>Blueprint Creators</strong></td>
<td>No</td>
<td>No (not components of patented product)</td>
<td>Possibly, if knowledge/willful blindness</td>
</tr>
<tr>
<td>(scratch, scan, derivative)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3D Printed Product Fabricators</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Commissioning Party</strong></td>
<td>No</td>
<td>No</td>
<td>Possibly, . . .</td>
</tr>
<tr>
<td><strong>Distributors: Designs</strong></td>
<td>No</td>
<td>No (not components of patented product)</td>
<td>Possibly, . . .</td>
</tr>
<tr>
<td><strong>Distributors: Products</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Who Infringes?

- Repair v. Reconstruction
Design Patents
Design Patents

- To buttress utility patents
  - Object itself
  - Replacement parts
- Shape of article or surface ornamentation
- Less expensive and quicker to obtain than utility patents
- Easily avoided?
3D Printing Patent Wars
Snapshot of the 3D Printer Players

<table>
<thead>
<tr>
<th>HIGH-END PRINTERS</th>
<th>LOW-COST PRINTERS</th>
</tr>
</thead>
</table>
Patent Landscape

- USA 60%
Patent Landscape

- Top issuing: USA 60%
  - 2002 to 2014: 12,000
Patent Landscape

- Top issuing: USA 60%
  - 2002 to 2014: 12,000
  - Pending: ~4000
  - Issued: ~8000
Patent Landscape

- Top issuing: USA 60%

- Expiring:
  - 2003 to 2014: (225)
  - 2013 to 214: ~16
  - ME, PBF, VP
3D Printing Patent Wars
3D Printing Patent Wars
Copyrights
Big Issues
Copyrights: Big Issues

- What’s copyrightable?

- Who infringes?
## What’s Copyrightable?

<table>
<thead>
<tr>
<th></th>
<th>Digital Blueprints</th>
<th>Unmodified Scans</th>
<th>Nontrivial Modified Scans</th>
<th>3D Printable Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Domain Objects</td>
<td>Maybe (Feist)</td>
<td>No (Feist)</td>
<td>Maybe (Feist)</td>
<td>No</td>
</tr>
<tr>
<td>Functional Objects</td>
<td>Maybe (Feist)</td>
<td>No (Meshworks)</td>
<td>Maybe</td>
<td>No</td>
</tr>
<tr>
<td>Nonfunctional Objects</td>
<td>Yes</td>
<td>Maybe/Maybe Not</td>
<td>Probably</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Who Infringes

- Depends on copyrightability
  - creating digital blueprint from scratch
    - copying an object, not independent development
  - printing a digital blueprint
  - scanning an object
  - printing a scan

- Important tool:
  - DMCA takedown notices
Trademarks

- Counterfeiter’s Dream Machine
  - Copying products
  - Affixing trademark to a product
Trademarks

- Non-genuine products
  - What does genuine mean?
  - “Post-sale” confusion eroded
    - No reason to assume brand owner made it
    - No reason to assume branded products are licensed
Trademarks

- Why buy brands?

- Brand as Savior
  - OEM’s value-added
  - Consumers may demand greater brand assurance
Trade Dress

- Trade Dress
  - Easy infringement
    - Substantial exclusivity undermined by widespread 3DP
  - Undermining of:
    - Inherent distinctiveness
    - Secondary meaning
Reactions
Reactions

- Patent applications
- Licensing
- Lawsuits
- Calls for legislation
- DRM
Solutions?
Solutions?

- **Personal exemption**

  “It is unclear why personal 3D printing should be unlawful, especially given the futility of enforcement”

  Desai & Magliocca

  Rosario, Doherty

- **Increased jurisdictional amount to shield personal 3D printing**

  Desai & Magliocca

- **Teach respect for IP laws**
Solutions?

- New laws
  - Digital Millennium Patent Act
    Doherty; Desai & Magliocca
    - Subject to abuse
    - Inconsistent application
    - Who interprets claims?
    - Slanted toward patent owners

- Light regulation
  "enables precisely the kind of creation and progress of the useful arts and sciences that intellectual property is supposed to foster"
  Desai & Magliocca
Solutions?

- Central Inventive Commons
  Doherty
  - to maximize anticipatory and analogous prior art
  - to ensure that:
    - unpatented innovations are quickly identified
    - no patent removes ideas from the commons
Solutions?

- DRM

- Non-IP rights based business models
An Unlikely Scenario?
An Unlikely Scenario?

- US Constitution
  - Power:
    - To Grant Exclusivity
  - Purpose:
    - Incentivize Innovation
  - Obligation:
    - No
- IP Laws: 2 assumptions
An Unlikely Scenario?

Assumption # 1

- Power accomplishes purpose

“There is a persistent widespread belief that intellectual property law (and patents in particular) encourage innovation. This is intuitive, however, the evidence to the contrary is now overwhelming and the unavoidable conclusion is that intellectual property actually stifles innovation.”

Prof. Joshua Pearce, Materials Science, Mich Tech
An Unlikely Scenario?

– Assumption # 2

- Exclusivity sufficiently enforceable to justify exercising the power
  - “not to thwart all infringement”
  - “tamping down massive infringement”
  - Desai & Magliocca

- infringement not easy enough to be commonplace
An Unlikely Scenario?

- What if assumptions fail?
  - If exclusivity
    - does not incentivize innovation?
    - is not sufficiently enforceable?
An Unlikely Scenario?

- What if assumptions fail?
  - If exclusivity
    - does not incentivize innovation?
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- Democratization and Away from Control
An Unlikely Scenario?

- What if assumptions fail?
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- Squeaky wheels
An Unlikely Scenario?

- What if assumptions fail?
  - If exclusivity
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- Democratization and Away from Control

- Squeaky wheels

- IP laws could be:
  - narrowed
  - eliminated
Another Unlikely Scenario
Another Unlikely Scenario
Thank you for your time!

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