

Patent Basics and Specifics: What University Researchers Should Know

Akiko Kobayashi, Ph.D.
U.S. Patent Agent
Owner, LambentIP
San Diego, California

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1. What is a “Patent”?

“A patent is a property right granted by the Government of the United States of America to an inventor to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States.”

- Patent is a “property right” given to the inventor. (Territorial)
- Patent is a “right” to exclude others from making, using, selling, importing the invention.
- Patent is a “right” to monopolize the market in the country where the patent is granted.
- Patent is an “offensive right,” i.e., the inventor can sue the party who infringes the patent. (Patent is a sword, not a shield.)

Quiz

Q1: Suppose you invented a new device and obtained a **US patent**. A **Japanese company XYZ** manufactured the same device in **China**, and sold it in **Japan**. Is the company XYZ infringing your US patent?

Q2: The **Japanese company XYZ** manufactured the same device in **China**, and sold it in the **US**. Is the company XYZ infringing your US patent?

Q3: After you obtained the **US patent**, you obtained a **Chinese patent** on the device. A **US company YYY** sold the same device in **China**. Is the company YYY infringing your US patent or Chinese patent?

Rank (Number of Issued Patents)	Company Name
1 (6788)	International Business Machines Corporation (US)
2 (4652)	Samsung Electronics Co. Ltd. (Korea)
3 (3820)	Canon Kabushiki Kaisha (Japan)
4 (3073)	Sony Corporation (Japan)
5 (2659)	Microsoft Corporation (US)
6 (2582)	Panasonic Corporation (Japan)
7 (2365)	Toshiba Corporation (Japan)
8 (2013)	Qualcomm, Inc. (US)
9 (1945)	LG Electronics Inc. (Korea)
10 (1851)	Google, Inc. (US)

Top 10 Ranking by Company, Number of Issued Patents, USPTO, 2013
(Published by USPTO, April 2014)

Q4. A little over 50% of filers with the USPTO are foreign to the US. Why do **foreign (Japanese, German, Korean, Chinese, etc.) companies** bother themselves to obtain **US patents**?

Q5. What are the factors for determining in which countries you should obtain your patents?

2. Patent Timeline

Provisional vs. Non-Provisional Patent Application

- Provisional can be used to **quickly and cheaply obtain the "filing date."** "Provisional application" exists only in the US.
- Need to file a corresponding non-provisional within **1 year**; otherwise, you will lose the original (provisional) filing date.
- Filing a provisional application gives you time to : improve/substantiate your invention; investigate market potential, etc.
- When you are in a hurry to obtain the patent filing date, file a provisional with the USPTO to obtain a "**patent pending**" status.
(e.g., a conference presentation , a trade show, upload to internet, prototype field testing, PR, and other public activities)
- The contents of a provisional can be **cursory**. But, the description in a provisional has to **support the later-filed non-provisional**. (If it's too sketchy, the filing date by the provisional will not be granted. This requirement is becoming stricter, in particular, in the European Patent Office. Thus, It is important to describe all details as much as possible even in a provisional.)

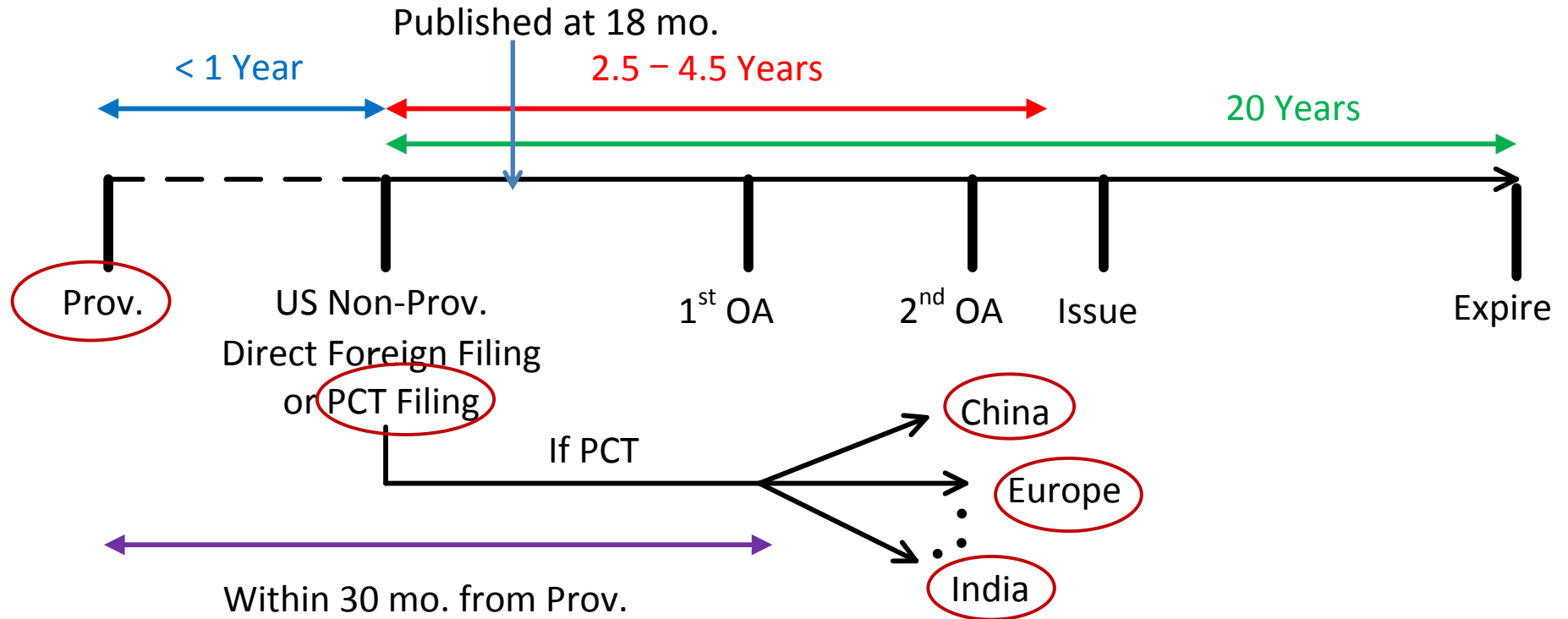
Direct filing of a foreign patent application – Paris Route (Based on Paris Convention, 175 member countries)

- File a patent application in a first country; then, file the same patent application in a second country **within 1 year** from the first filing date.
- first filing date = priority date
- You can file a **US provisional application** first; then file the same patent application in a second country **within 1 year** from the first filing date (i.e., the provisional filing date).

Use PCT to file a foreign patent application

- a.k.a. International Application, based on Patent Cooperative Treaty (PCT), headquarters at Geneva, Switzerland.
- PCT is a procedure agreed upon by WIPO (World Intellectual Property Organization).
WIPO member countries =187 as of August, 2014
- File a patent application in a first country; then, file the PCT application **within 1 year** from the first filing date. The first application can be a **US provisional application**.
- Equivalent to filing a patent in all WIPO member countries. But, filing a PCT application **does not mean that you get patented in all WIPO member countries**.
- Within **30 months from the priority date**, you decide which countries you want to proceed with patent examination. (“National Phase”)
- During the PCT phase, you get **patentability opinion from Search Authority (Europe, US, Korea, etc.)**.

Timeline: First Filing is US Provisional



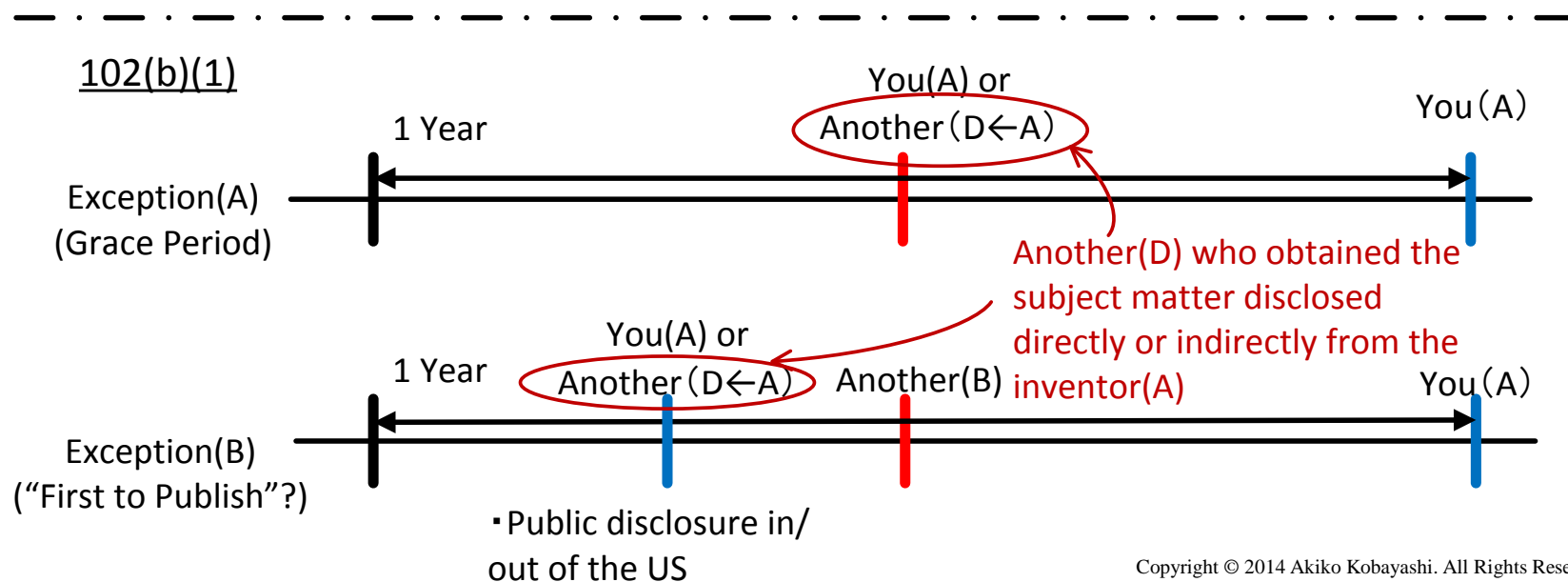
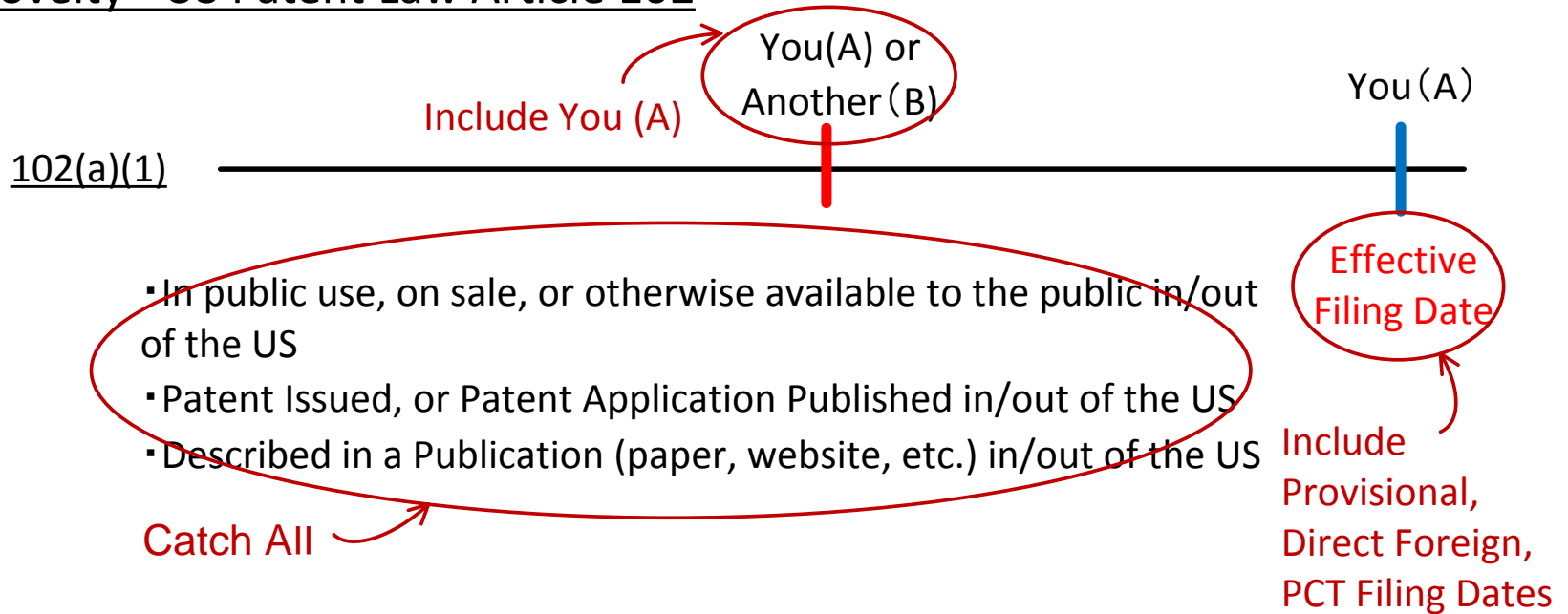
*OA = Office Action, Rejection or Allowance

- Drawback of PCT – Takes a long time till you get the patent granted.
- Recommended for university research.

3. How Do You Get a Patent?

- When does your patent application get rejected?

Lack of Novelty - US Patent Law Article 102

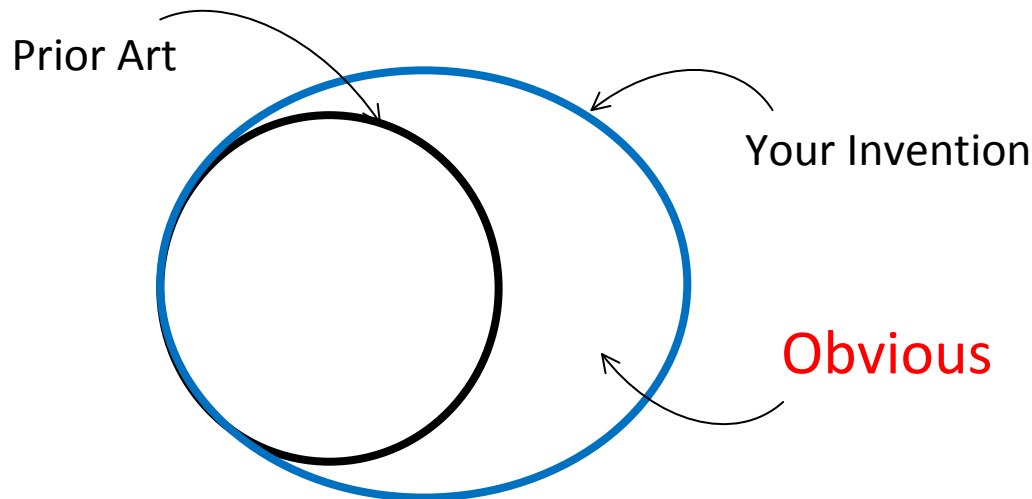


Lack of Novelty – Japan Patent Law, Article 29, Paragraph 1, Item 3

Since the invention described in the claims of the present application was the one that had been described in publications distributed in Japan or foreign countries, or the one that had become available to the public through electronic communications, prior to the filing of this patent application, this invention cannot be patented according to the provisions of the Patent Law, Article 29, Paragraph 1, Item 3.

Obviousness (Lack of Inventive Step)– US Patent Law Article 103

A patent for a claimed invention may not be obtained, ... if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious ... to a person having ordinary skill in the art ...

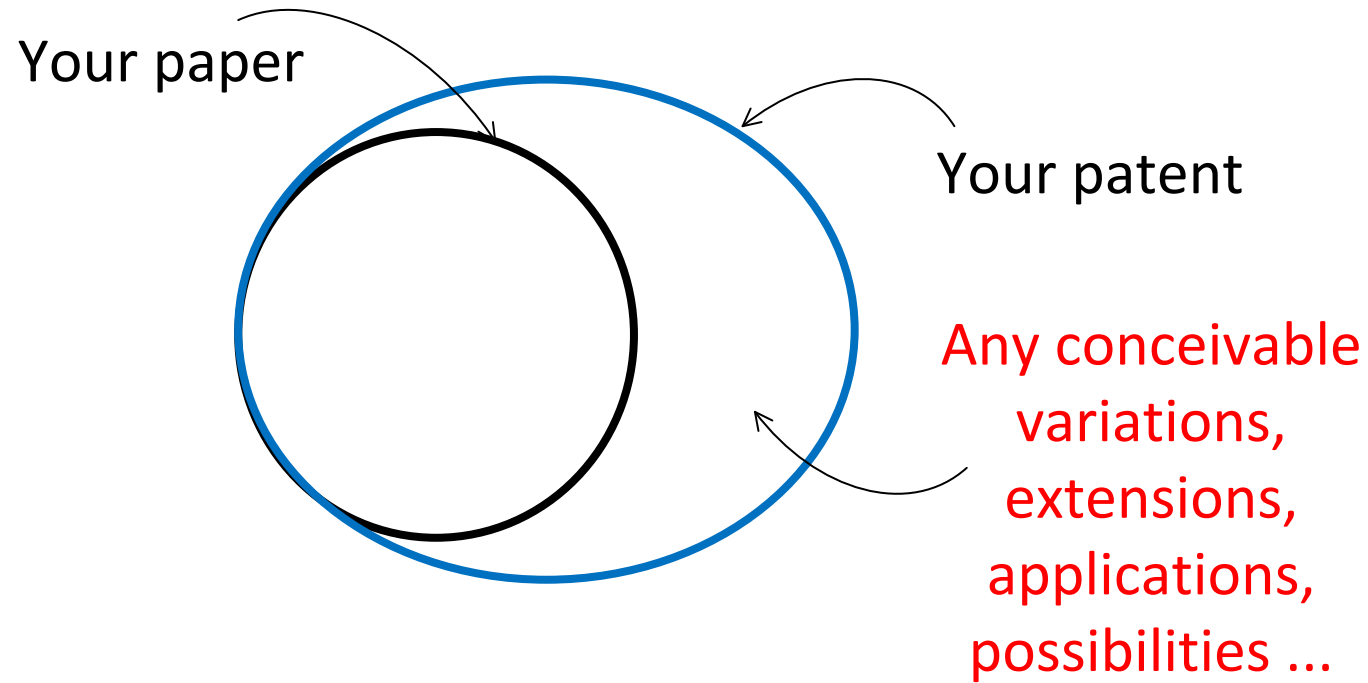


- Obvious variation that a person in the field (“one with ordinary skill in the art”) can easily come up with.
- Can be covered by another reference(s).

Obviousness (Lack of Inventive Step) – Japan Patent Law, Article 29, Paragraph 2

Since the invention described in the claims of the present application could have been easily made by a person with ordinary skill in the art to which the invention pertains based on inventions that had been described in publications distributed in Japan or in foreign countries prior to the filing of this patent application or based on invention that have become available to the public through electronic communications, this invention cannot be patented according to the provisions of the Patent Law, Article 29, Paragraph 2.

4. Difference between a Patent Document and a Paper



Your patent document should be written in such a way as to:

- Prevent your competitors from **designing around your invention by making a minor modification to your invention.**
 - Cover the scope of your invention as **broadly** as possible.
- Your patent document should be written so that **your competitors may possibly infringe your patent.**

Patent Doc	Paper
<ul style="list-style-type: none"> <li data-bbox="167 211 917 254">• Broad, including possible variations <p data-bbox="167 325 1006 539">eg. 1) The control unit sends <u>signals to a terminal</u> of the active unit to move the attached arm <u>transversally or longitudinally</u>.</p> <p data-bbox="167 611 969 768">eg.2) <u>One or more bias circuits are coupled to</u> the system to increase the output power.</p> <p data-bbox="167 839 1006 996">eg.3) <u>Ne, Ar, Kr or a combination thereof may be</u> injected in the chamber.</p> <p data-bbox="167 1068 940 1282">eg.4) ... is computed <u>by using an optimization method such as the least-squares-fit</u> algorithm.</p>	<ul style="list-style-type: none"> <li data-bbox="1052 211 1421 254">• Narrow, specific <p data-bbox="1052 325 1893 539">eg. 1) The control unit sends <u>current signals to the base of a BJT</u> of the active unit to move the attached arm <u>longitudinally</u>.</p> <p data-bbox="1052 611 1881 768">eg.2) <u>An additional bias circuit is attached to the</u> system to increase the output power.</p> <p data-bbox="1052 839 1607 939">eg.3) <u>Ar is</u> injected in the chamber</p> <p data-bbox="1052 1068 1852 1225">eg.4) ...is computed <u>by using the least-squares-fit</u> algorithm.</p>

Patent Doc	Paper
<ul style="list-style-type: none"> <li data-bbox="182 311 1011 411">• Few adjectives, adverbs except for “adverbs expressing structural aspects” <p data-bbox="182 482 911 639">eg. 1) The simulated results on linearity are plotted in FIG. 3.</p> <p data-bbox="182 711 596 811">eg.2) Yield of <u>80% or more</u></p> <p data-bbox="182 882 901 982">eg.3) Detachably, translationally, rotatably</p>	<ul style="list-style-type: none"> <li data-bbox="1060 311 1641 354">• Lots of adjectives, adverbs <p data-bbox="1060 482 1757 582">eg. 1) The result shows <u>excellent</u> linearity.</p> <p data-bbox="1060 711 1798 811">eg.2) <u>High (superb, great, amazing, ...) yield</u></p> <p data-bbox="1060 882 1309 982">eg.3) Hardly used.</p>

Patent Doc	Paper
<ul style="list-style-type: none"> Avoid using definitive terms <p>eg.)</p> <p>Optimized.</p> <p>Substantially 90° (0 Amps, 100Hz, ...)</p> <p>Substantially 90° (0 Amps, 100Hz, ...)</p> <p>Avoid “all, required, must, need, should, preferred, advantage, ...”</p> <p>May/can be, do,</p>	<ul style="list-style-type: none"> Lots of definitive terms <p>eg.)</p> <p>Maximized. Minimized.</p> <p>90° (0 Amps, 100Hz, ...)</p> <p>Exactly 90° (0 Amps, 100Hz, ...)</p> <p>All, required, must, need, should, preferred, advantage, ...</p> <p>Is, do, ...</p>

Patent and Technology Evolution

VHS ~20 patents

DVD ~400 patents

Blu-ray Disc ~2000 patents

Smart Phone ~250,000 patents