Protecting Your Ideas: A Primer on Intellectual Property for Engineers

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Setting precedent.

Outline

- The Value of Intellectual Property
- IP Basics: US Law in Transition
 - America Invents Act What is to come
 - What does it mean for you?
- Contracting/Consulting and the Ownership of IP

The Value of Intellectual Property

 Increasingly, investors are focusing at the IP assets of an investment to at least partially determine value

Companies are increasingly sensitive to their IP positions

 The increase in non-practicing entity litigation is affecting the value of IP

- IP is often the single most valuable asset of a company
 - Percentage of intangible assets
 - 3M: 30.2% -2010-
 - Johnson & Johnson: 24% -2010-
 - Merck: Royalty income \$347 m, expenses \$1.38 b -2010-
- IP is increasingly important in today's corporate transactions involving technology
 - IP protects R&D, which is expensive
 - The deals are bigger
 - IP is more critical to the deals

U.S. Patents Granted in 2010 Total of 378,035 patents

IBM: 5866 (3.7% of Intangible Assets -2010-)

Samsung: 4518

Microsoft: 3086

Hynix Semiconductor: 973

Nokia Corporation: 758

Robert Bosch GMBH: 586

Individually owned – 16,605 patents

Examples of Patent related activity

- •IBM and Samsung signed a patent cross-license agreement: February 08, 2011:
 - "This licensing agreement will help both companies expedite innovation and achieve business growth by providing each company access to the other's patents for basic technologies," Seungho Ahn, IP head, Samsung
 - "Patents and innovation are a critical component of IBM's high-value business strategy," Ken King, VP Patents, Software & Services IP Licensing, IBM
- •Google purchase of Motorola patents: In order to enter the handset market, Google purchased for \$12.5 Billion Motorola's cell phone business in August, 2011
 - •The purchase of Motorola involved the purchase of approximately 14,600 granted patents and 6,700 pending applications worldwide

Case Example: Social Networks

- Anybody remembers Friendster?
- Filed first patent in 2003
- By 2010 portfolio was 9 issued patents and 11 patent applications
- Portfolio Acquired by Facebook in 2010 for \$40 m
- Litigation has started to rise in this business (primarily involving Facebook)
- Facebook litigation has increased 5-fold in the last 4 years

Litigation Galore

- In 2010, over 3000 patent cases where filed in the federal district courts
 - Most cases settle long before trial
- NTP v. RIM 2000-2006:
 - Manufacturer of Blackberry (RIM) sued by patent holding company (NTP).
 - Settlement: in 2006 RIM pays \$612.5 m to NTP
- Boston Scientific pays \$1.725 b to Johnson & Johnson over patents for coronary stents (January, 2010)

Litigation Galore

- Settlement is more likely than litigation damages:
 - Samsung licenses Rambus for \$200 m (January, 2010)
 - Hynix takes license from MOSAID (May, 2011)

What is IP?

Trademarks

- Protection of Commercially used Marks
 - Allows the owner to prevent others from utilizing the mark
- Title 15 of the United States Code (Lanham Act)
- Common Law Rights

Copyrights

- Protection of Expression (offers no protection to the underlying idea)
 - Allows the owner to prevent others from copying the material
- Title 17 of the United States Code
- Common Law Rights

Trade Secrets (Know How)

- Provides State Law remedies for a theft of the trade secret
- Trade secret protection is good only so long as you can keep the underlying technology a secret

What is IP?

Patents

- Title 35 of the United States Code
- Patents are the exclusive jurisdiction of the Federal Government
- Grant of a limited duration monopoly in return for publicly disclosing the invention
- The patent right is a right of EXCLUSION
 - The patent right allows the owner to prevent others from practicing the invention
 - The patent right does not provide a right of the patent owner to practice the invention
- The term of a patent is 20 years from the priority date

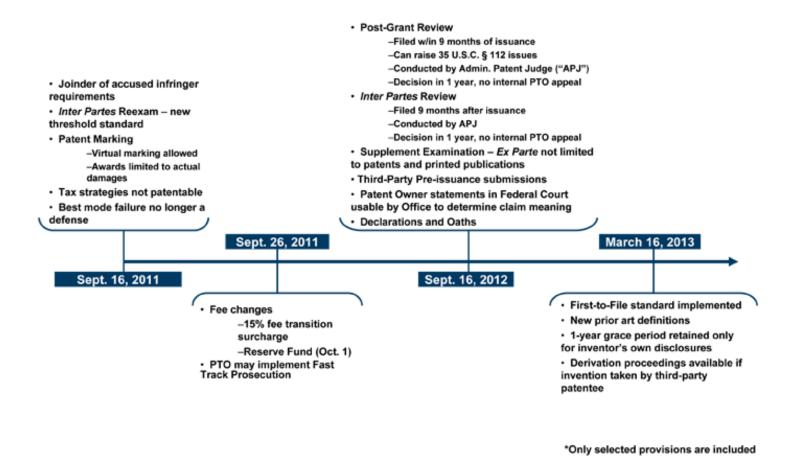
Basics of Patent Law: Patent Law in Transition

http://www.uspto.gov/aia_implementation/index.jsp

America Invents Act of 2011 Major changes to the Patent Law

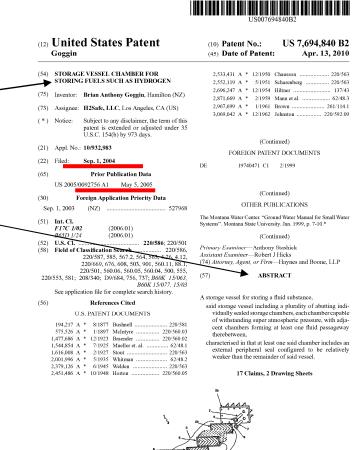
- •From first-to-invent to first (inventor) to file (disclose) (March 16, 2013)
- Derivation proceedings (March 16, 2013)
- Patent Marking (Sept. 16, 2011)
- •Elimination of Best Mode as a defense to infringement (Sept. 16, 2011)
- Post Grant Review (Sept. 16, 2012)
- •Third party submissions before issuance (Sept. 16, 2012)
- Supplemental Examination (Sept. 16, 2012)
- •Changes to prior art definitions (March 16, 2013)
- •Interpartes reexamination standard change (Sept. 16, 2011)
- •Interpartes review (Sept. 16, 2013)
- Prior Use Defense
- Creation of a micro-entity

Timeline – Patent Reform Provision Effective Dates



How to Read a Patent

- U.S. Patent Office guidelines
 - Title
 - Abstract
 - Background
 - Summary
 - Figures (if needed)
 - DetailedDescription
 - Claims



Components of a Patent

- Claims, claims, claims!
 - Boundary of what you own



US 7,694,840 B2

panels (2) by provision of a straight peripheral groove (9) to the seal (10). Consequently, a more even scaling effect may be achieved, particularly if the seal (1) involves brazing or the like. In alternative embodiments (not shown), the groove (9) may be omitted, or the peripheral edge of the panels (2) may be differently configured, e.g. with the corrugations (6) extending to the edge of the panel (2). Depending on the choice of seal (10), some further treatment (for example heart treatment) of the assembled plate pack may be required and this treatment may be effected under special conditions (for example under pressure and/or in an inert atmosphere) according to the specifies of the materials involved.

Aspects of the present invention have been described by

Aspects of the present invention have been described by way of example only and it should be appreciated that modifications and additions any or made the early without departing from the same thereof as defined in the approvided claims. What begin its:

storage vessel for storing a substance, the storage comprising:

lurality of individual storage chambers assembled so as the capable of withstanding pressures greater than

wherein at less a first individual storage chamber is adjacent to a second individual storage chamber, thereby creating at least first and second adjacent chambers, and the first and second adjacent storage chambers are each

tream at teast in some accordance chambers are each formed from a pair of plates, the pair of plates being spaced apart a predetermined distance by a plurality of surface features extending from at least one surface of at least one of the pair of plates, the surface features extending from at least one surface of at least one of the pair of plates, the surface features creating a circuitous fluid flow path that restricts a rate of flow of the substance through the stornee vessel;

of the substance through the storage vessel: a peripheral seal, the peripheral seal being formed along a periphery of at least one of the pair of plates in at least one of the plurality of individual storage chambers and joining the pair of plates to form the at least one of the plurality of individual storage chambers, wherein the peripheral seal is formed to fail or erack prior to a remainder of the vessel in an impact; and

at least one passageway between the first adjacent chamber and the second adjacent chamber, allowing the substance to move from the first adjacent chamber to the second adjacent chamber.

The storage vessel as claimed in claim 1 wherein the substance is flammable liquid or gas substance.
 The storage used as claimed in claim 1 wherein the storage used as claimed in claim.

 The storage vessel as claimed in claim 3 wherein the substance is compressed hydrogen gas.

 The storage vessel as claimed in claim 3 wherein the substance is liquefied hydrogen.

The storage vessel as claimed in claim 3 wherein the substance is a compressed hydrographon are

substance is a compressed hydrocarbon gas.

7. The storage vessel as claimed in claim 3 wherein the substance is a liquefied hydrocarbon gas.

8. The storage vessel as claimed in claim 1 wherein each of the individual storage chambers are formed by assembling a plurality of plates together to form an integral vessel.

9. The storage vessel as claimed in claim 1 wherein the at least one passageway further allows venting between the first and second adjacent chambers.

10. The storage vessel as claimed in claim 9 wherein the at least one passageway between the first and second adjacent chambers are offset in relation to at least one passageway between the second and third adjacent chamber. It is not passageway between the second and third adjacent chamber.

11. The storage vessel as claimed in claim 10 wherein the

 The storage vessel as claimed in claim 10 wherein the first and second adjacent chambers include at least two passageways therebetween, permitting the movement of a settled quid through a first passageway and a gas or vapour through a second passageway.

N. The storage vessel as claimed in claim I wherein said untility of surface features extend from a first and a second produce plate surface and are corrugations.

13. The storage vessel as claimed in claim 12 wherein the corrugations extending from the first opposing plate surface are majed in opposing directions to the corrugations extending from the second opposing plate surface, creating a plurality of contact points between the plurality of surface features.

14. The storage vessel as claimed in claim 12 wherein the corrugations are arranged in a pattern chosen from chevron

and intringione.

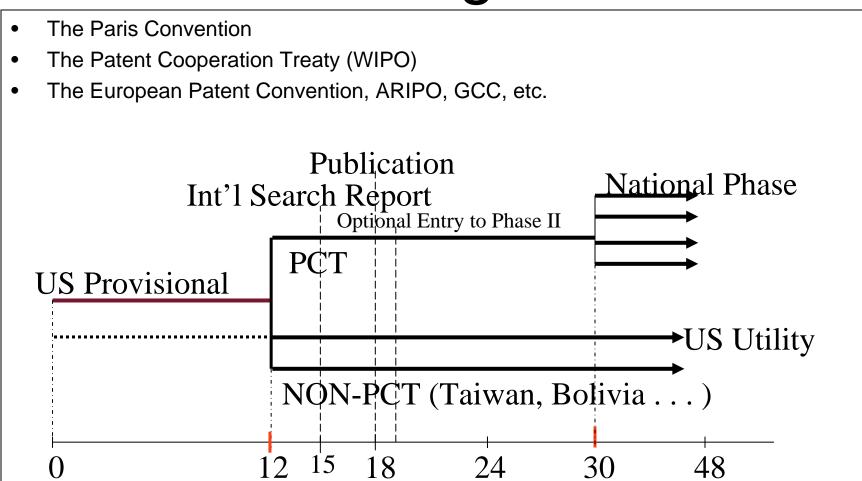
15 The storage vessel as claimed in claim 1 wherein the surfice features are selected from regular corrugations, require corrugations, require shapes, integular shapes, integular shapes, and pojections or protrusions including saw-tooth, castellations, washboard corrugations and simusoidal extrusions.

16. The storage vessel as claimed in claim 15 wherein the surface features terminate at a distance from the peripheral edge of the plate.

17. The storage vessel as claimed in claim 15 wherein the surface features extend to the peripheral edge of the plate.

. . . .

Patenting Timeline



A Patent is Allowable, if:

- A. The subject matter is patentable
- B. The invention is novel
- C. The invention is non-obvious
- D. The disclosure requirements are met and
- E. The invention is filed in the name of the inventors

Invention and Inventorship

- A. Invention is a multi-step process:
 - Conception
 - Reduction to practice
 - Diligence
- B. An inventor is anyone who has contributed to at least one element of one claim of the patent

What is Patentable? (35 USC §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, subject to the conditions and requirements of this title

- Includes: plants, genetically engineered microorganisms, software, certain business methods
- Excludes: laws of nature, abstract ideas, human body, certain business methods (tax "evasion" strategies)
- AIA: Explicit ban on tax strategies (Sept. 16, 2011)

Software Is Patentable, But . . .

- Types of claims
 - Process (Machine or Transformation Test)
 - Apparatus performing the process
 - Computer-readable medium (as an article of manufacture)

and

System performing the process.

35 U.S.C. §102 Current Law

- You may get a patent unless:
- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent

or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States

or

35 U.S.C. §102 AIA (March 16, 2013)

- You may get a patent unless:
- (a) (1) the claimed invention was described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention

or

- (2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention . . .
- (b) EXCEPTIONS

35 U.S.C. §102 AIA (March 16, 2013)

- You may get a patent unless:
- (b) EXCEPTIONS Disclosures made one year or less prior to filing, provided that
 - The disclosure was from the inventors or from a third party derived from the inventors

or

 The disclosure follows a disclosure by the inventors or by a third party derived from the inventors

35 U.S.C. §103

Current Law (AIA effective March 16, 2013)

You may get a patent unless:

The invention is **obvious to a person having ordinary skill in the art** in view of other patents
and publications as defined in section 102 prior
to the <u>invention thereof</u> (filing date)

35 U.S.C. §112

- You may get a patent if:
 - The disclosure includes a written description of the invention (written description)
 - 2. The disclosure is sufficiently detailed to allow one of ordinary skill in the art to make and use the invention (enablement) and
 - 3. The best way in which the inventors know to make and use the invention is disclosed (best mode)
- AIA: The best mode requirement can not be utilized to invalidate the patent. (Effective September 16, 2011)

Derivation Proceedings

- Replace Interference Proceedings
- Patentee has 1 year from the date of issuance of the patent with the earlier filing date to file a civil action based on derivation of the invention
- Must show that the prior patent was derived from the inventor

Prioritized Examination

- A patent application may be fast-tracked --- For a fee
 - Final disposition is on average 12 months from priority date
- Application must be complete, have no more than 4 independent claims, 30 total claims, and no multiply dependent claims
- Total fees: \$6,480.00
- Limited number (10,000) may be accepted per year
- Application may be terminated (without refund) if the requirements are not met, the applicant takes an extension, or application requests to suspend action on the application

Third Party Submissions prior to Issuance

- During prosecution, any third party may submit:
 - Any patent application, patent, or printed publication
 - Concise statement of relevance and fee required
 - May include statements of the patent owner before a federal court or the Office taking a position on the scope of any claim of a particular patent
- The submission may be done anonymously
- If successful, the patent may not issue

Post Grant Opposition

- Applies to patents issued with an effective filing date after March 16, 2013 or later
- Allows a third party to contest validity within 9 months of issuance
- Any grounds of invalidity
- After the PTO period, the patent can still be challenged by reexamination proceedings

Supplemental Examination

- Only available to the patent owner
- Allows for the cure of defects in the patent, but only if the owner has not been charged with withholding art
- Can be used to "cure inequitable conduct" prior to asserting the patent

Prior Use Defense

- Applicable to commercial use at least 1 year before the effective filing date of the claimed invention
- Available with respect to "...subject matter consisting of a process, or consisting of a machine, manufacture, or composition of matter used in a manufacturing or other commercial process"

Micro- Entity

- Small entity (< 500 employees)
- Previously filed < 5 patent applications, except under contractual obligation
- Gross income < 3 times household median in previous 3 years (~ \$150 k)
- Not assigned application to non-micro entity
- University employee is micro-entity
- Available until fee setting authority is implemented

2011 2013 (March)

	First-to-invent	First-to-file
Ownership	Inventor must invention	Inventor must invent the invention
Evidence	Conception and reduction to practice	Filing date – first come, first served
Effect	The person who starts first wins	The person who finishes first wins
Invention priority	Interference	Derivation proceeding

AIA Changes	Little Guy	Large Corporation
First to file	X	
Fees	25%	100%
Prioritized Examination	\$	\$
Post-grant review	\$	\$
1 year grace		
No best mode (validity, enforceability)	?	?
No separate litigation	No trolls	111

Why and When to File a Patent Application

- Before publication or offer for sale
- Before public use
- When you are concerned that your competitors are getting close
- Before you need patents or patent applications to establish credibility to attract partners or financing
- Before you are required to, because of your agreements
- When the inventions are in your core business areas

When to File a Patent Application?

File Early and File Often

IP ownership: Contracting/Consulting

General Ownership -- Patents

- Patents are filed in the name of the inventors and, until assigned, remain the property of the inventors
- "Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States" 35 U.S.C. § 261
- "In the absence of any agreement to the contrary, each of the joint owners may make, use, offer to sell, or sell the patented invention within the United States, or import the patented invention into the United States without consent and without accounting to the other owners." 35 USC §262 Joint Owners

General Ownership – Copyrights and Trademarks

- Copyrights are owned by the creator of the copyright and are assignable and licensable
- Trademarks are owned by the trademark holder and are assignable provided that the "good will" associated with the trademark is assigned with the trademark
 - A trademark holder that licenses a trademark is well advised to monitor the quality of the products produced under the mark to insure the retention of the "good will"

General Ownership – Trade Secrets

- Trade Secrets are valuable property so long as they are kept secret
 - NDAs
 - Processes and procedures for keeping the Trade Secret secret
- Trade Secrets can be assigned or licensed as well

Consultants and Contractors

- A consultant brings in expertise in a narrow, well defined area to solve a specific problem in a broad project
- Many scenarios are possible, but most likely we have a single consultant working for a large corporation, with all in-between gradations depending upon case

Consulting Work and Inventorship

- An inventor contributes to a definite and permanent idea of the complete and operative invention as defined by the claims
- Having the wrong inventorship can result in the patent being invalid or unenforceable!!!
- Nobody wins if inventorship is not accurate
 - Except the infringer!

Who's an inventor?

- Conception is the touchstone of inventorship:
 - Complete performance of mental part of invention
 "Formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention"
 - Conception must be complete
 - (i) Recognize the ultimate result desired and develop means to accomplish
 - (ii) **Communicate** completed thought such that one of skill in the art can make the invention
 - Only inventors conceive, others can reduce to practice
- Conception must be corroborated by evidence

The Contracting Entity

- Protection of its Trade Secrets and those of third parties received by the Contracting Entity that may be exposed to the Consultant
- Disclosure of third-party Trade Secrets to the Contracting Entity by the Consultant
- Ownership of the Intellectual Property developed by the Consulting during the consultation period
- Licensing to the Contracting Entity all of the Consultant's IP required to utilize the work of the Consultant
- Exposure or use of third-party IP that may require a separate license

The Consultant

- Protection of its Trade Secrets that may be exposed to the contracting entity
- Retention: The ability to take what is learned in one contract and utilize that in the next contract
- Ownership of the Intellectual Property developed by the Consulting during the consultation period, or ability to utilize the property developed during subsequent contracts

Solution

- Contract between consultant and corporation needs to spell out clearly the agreement with regard to ownership
- Negotiate terms of the contract prior to start project, to avoid a later dispute

Typical Terms of the Consulting Agreement

- Non-Disclosure clause (either one-way or two-way)
 - Agreement to keep contracting entity confidential information confidential
 - Agreement to keep third-party confidential information received by the contracting entity confidential
 - Agreement to not disclose the confidential information received during previous or concurrent employers
- Identification and assignment of IP to the contracting entity
 - Duty to report the IP
 - Duty to cooperate in securing the IP
 - Agreement to assign and/or actual assignment of IP (subject to California Labor Code Section 2870)
- Identification of previously owned IP and license of that IP to the Contracting entity
 - License may be non-exclusive or exclusive and may or may not have a right to sub-license.
 - In some cases, the contracting entity may want to purchase the consultant's IP
- Definition of the Consulting tasks and timeline
 - May include progress goals that trigger payments to consultant, etc.

Non-Disclosure

- Company Information. I agree at all times during the term of my consulting and thereafter to hold in strictest confidence, and not to use except for the benefit of the Company or to disclose to any person, firm or corporation without written authorization of the Board of Directors of the Company, any Confidential Information of the Company. I understand that "Confidential Information" means any Company proprietary information, technical data, trade secrets or know-how, including, but not limited to, research, product plans, products, services, customer lists and customers (including, but not limited to, customers of the Company on whom I called or with whom I became acquainted during the term of my consulting), markets, software, developments, inventions, processes, formulas, technology, designs, drawings, engineering, hardware configuration information, costs, pricing, discount practices, marketing, finances or other business information disclosed to me by the Company either directly or indirectly in writing, orally or by drawings or observation of parts or equipment. I further understand that Confidential Information does not include any of the foregoing items which has become publicly known and made generally available through no wrongful act of mine or of others who were under confidentiality obligations as to the item or items involved
- Former Employer Information. I agree that I will not, during my consulting with the Company, improperly use or disclose any proprietary information or trade secrets of any former or concurrent employer or other person or entity and that I will not bring onto the premises of the Company any unpublished document or proprietary information belonging to any such employer, person or entity unless consented to in writing by such employer, person or entity
- <u>Third Party Information</u>. I recognize that the Company has received and in the future will receive from third parties their confidential or proprietary information subject to a duty on the Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. I agree to hold all such confidential or proprietary information in the strictest confidence and not to disclose it to any person, firm or corporation or to use it except as necessary in carrying out my work for the Company consistent with the Company's agreement with such third party

Assignment of Inventions

Assignment of Inventions. I agree that I will promptly make full written disclosure to the Company, will hold in trust for the sole right and benefit of the Company, and hereby assign to the Company, or its designee, all my right, title, and interest in and to any and all inventions, original works of authorship, developments, concepts, improvements or trade secrets, whether or not patentable or registrable under copyright or similar laws, which I may solely or jointly conceive or develop or reduce to practice, or cause to be conceived or developed or reduced to practice, during the period of time I am in the employ of the Company (collectively referred to as "Inventions") and which (i) are developed using the equipment, supplies, facilities or Confidéntial Information of the Company, (ii) result from or are suggested by work performed by me for the Company, or (iii) relate to the business, or to the actual or demonstrably anticipated research or development of the Company will be the sole and exclusive property of the Company, and I will and hereby do assign all my right, title and interest in such Inventions to the Company, except as provided in Section 3(f). I further acknowledge that all original works of authorship which are made by me (solely or jointly with others) within the scope of and during the period of my consulting with the Company and which are predictable by copyright are "works made for hire," as that term is defined in the United States Copyright Act

Inventions Owned by Consultant

• Inventions Retained and Licensed. I provide below a list of all inventions, original works of authorship, developments, improvements, and trade secrets which were made by me prior to my consulting for the Company (collectively referred to as "Prior Inventions"), which belong to me, which relate to the Company's proposed business, products or research and development, and which are not assigned to the Company hereunder; or, if no such list is attached, I represent that there are no such Prior Inventions. If in the course of my consulting for the Company, I incorporate into a Company product, process or machine a Prior Invention owned by me or in which I have an interest, the Company is hereby granted and shall have a nonexclusive, royalty-free, irrevocable, perpetual, worldwide license to make, have made, modify, use and sell such Prior Invention as part of or in connection with such product, process or machine

Consulting for the US Government

- Applies to inventions made by small businesses and nonprofits with federal assistance
- 35 USC §202 (Disposition of rights): US government holds "non-exclusive, non-transferable, irrevocable, paid-up license" throughout the world
- 35 USC §203 (March-In Rights): US government can compel patent owner or assignee or exclusive licensee to grant license to 3rd parties
- 35 USC §204 (US industry): "substantially manufactured" in the US (waiver possible)

Ownership/Licensing Scenarios

Owner	Consultant	Corporation
Consultant	Exclusive/non-exclusive license to Corporation, license for field of use, license on future developments	License back of future IP to Consultant, royalty payment, lump sum payment for license rights
Corporation	Assigns per contract. License-back? (field of use or other restrictions) Sublicense rights?	Owner in full
Consultant & Corporation	Contract: not to unilaterally license to a third party	



Thank You!

haynesboone Setting precedent.

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