

Patent Law and Defense Technology: Original Intent and Current Practice

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In this century, technology ascendancy has become an even more

vital part of defense

posture of this nation, therefore, encouraging, protecting and strategically disseminating emerging capabilities is as much a central function of national security as size of the armed forces. For centuries governments have sought to optimize innovation by

protecting the rights of the creators

of new products and methods, but these efforts may not have produced a system which is optimal for this era. The authors maintain that

a reevaluation

of the current patent system by the defense establishment is warranted

Historical Underpinnings

To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

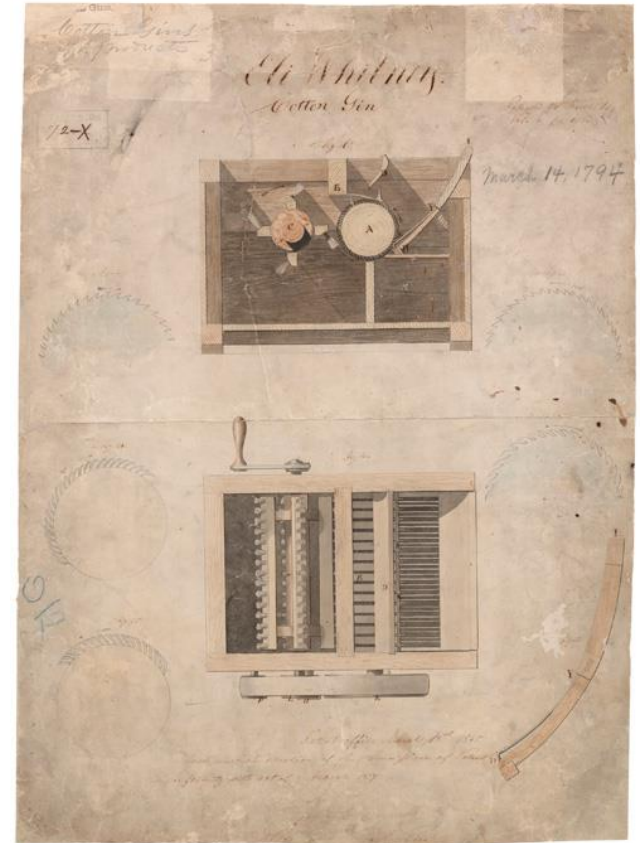
U.S. Constitution, Article I, Section 8, Clause 9:

“To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;”

- Important enough to justify inclusion in the Constitution
- As early as the 1400's, governments protected inventors
- Traded short term (~ decade) protection for later use
- Intended to encourage trade and foster commerce
- Founding Fathers adopted British tradition
- Left to the legislative branch to fully define and enable

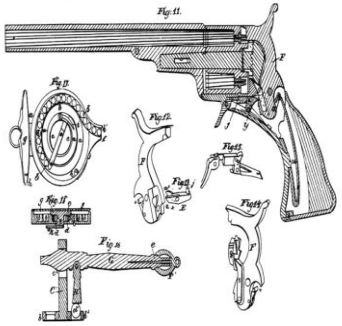
The Early Years

- First Attempt: Patent Act 1790
- Secretary of War part of review
- Led to Patent Act of 1793
- Very few applications filed
- Mainly oriented to agriculture
- Secretary of State and AG issued
- This act was in force 43 years
- Eli Whitney's Cotton Gin was granted a patent under this act
- Industrial revolution began

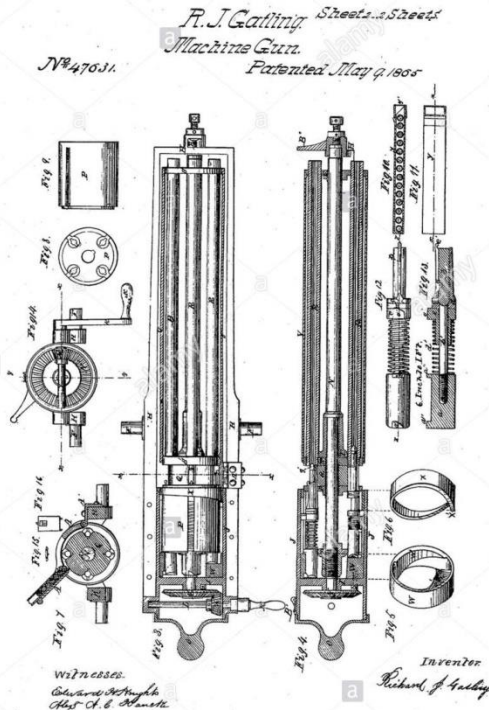


**Patent drawing of Eli Whitney
Cotton Gin 1794 USPTO (US
Patent and Trademark Office)**

The Industrial Revolution



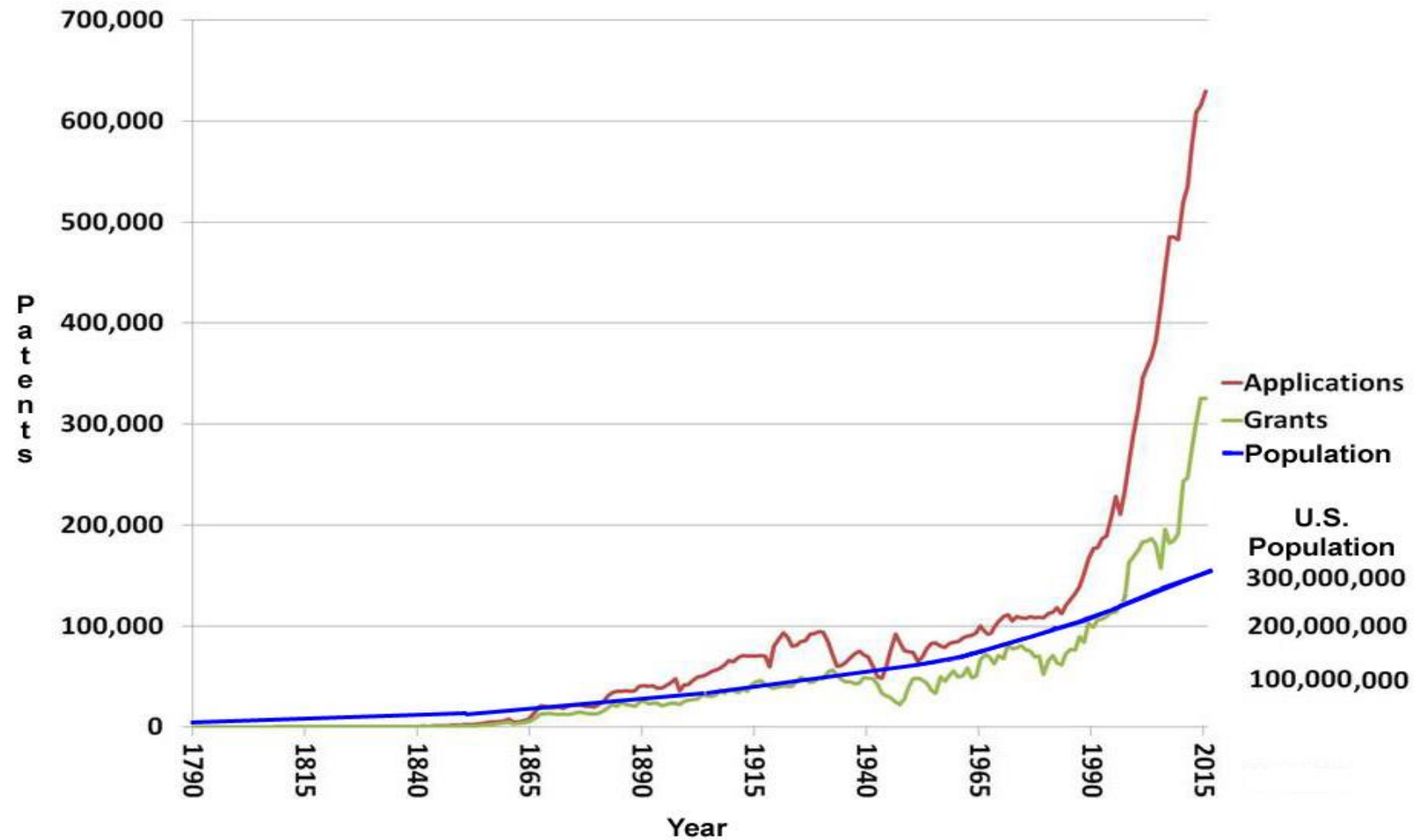
**Patent
drawing for
the Colt
Paterson
1839 USPTO
drawing.**



**Dr. Richard Gatling's
gun, patented during
the Civil War
1865 USPTO Drawing.**

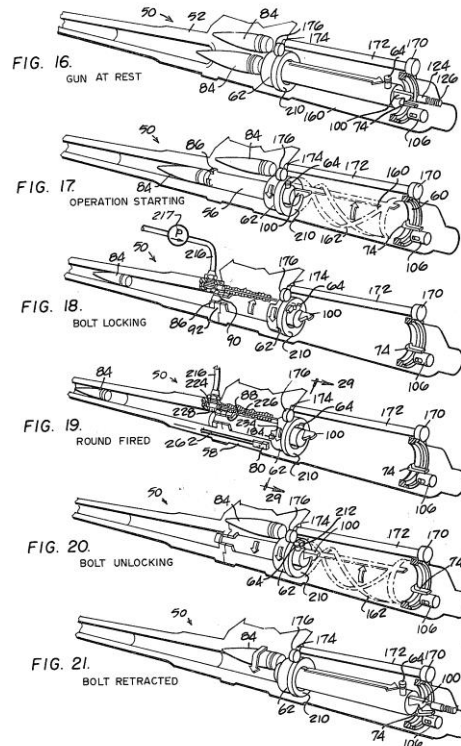
- ▶ Patent Act of 1836
- ▶ Established Patent Office
- ▶ In the Department of State
- ▶ Growth of Patent applications was making it onerous on Sect of State.
- ▶ This act was in force 43 years
- ▶ Many famous weapons patented under this act
- ▶ Industrial revolution was transforming nation
- ▶ Colt, then White (Smith & Wesson)

The Growth of Patents 1790 - Present



20th Century Patent Issues

U.S. Patent Aug. 21, 1979 Sheet 5 of 10 4,164,889



**Barrel and chamber design:
Vulcan weapons systems
1979 USPTO Drawing**

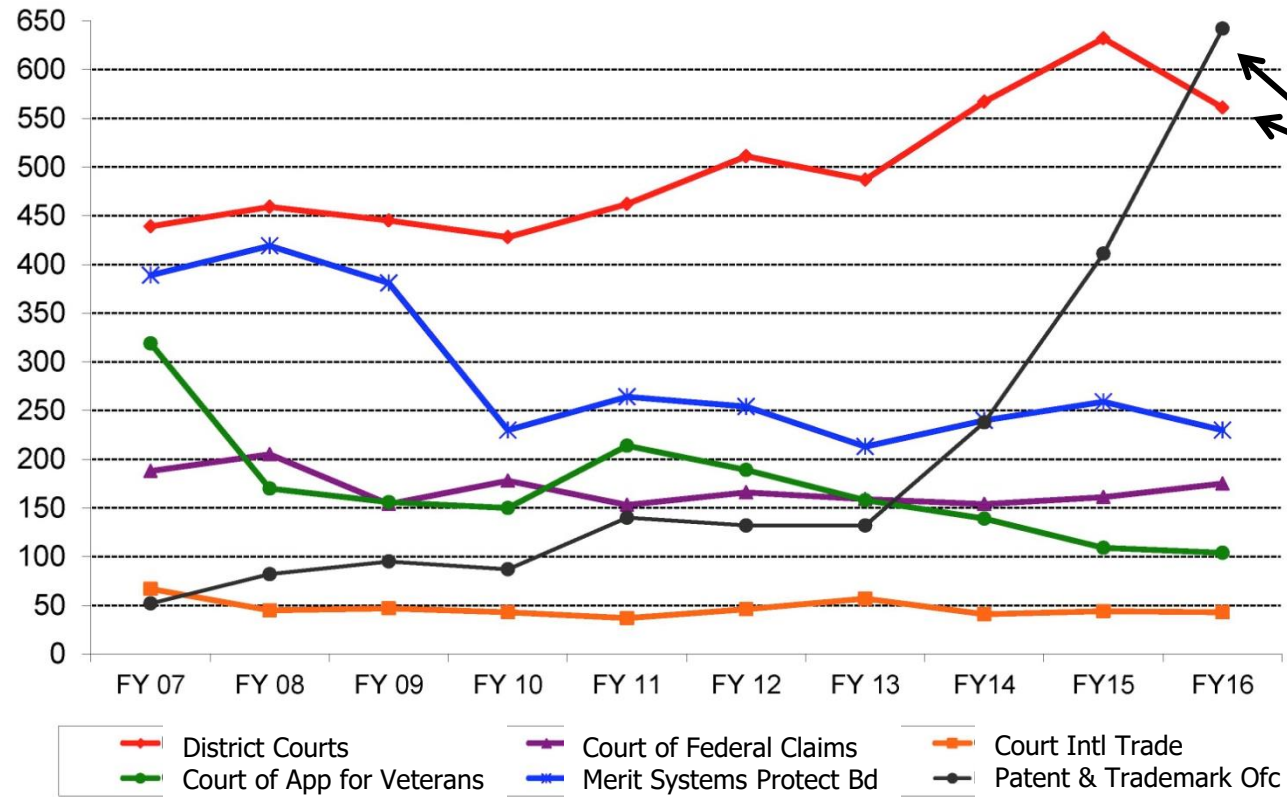
- 1925: Patent Office moved to Department of Commerce
- 1952: U.S. Patent and Trademark Office (USPTO) established
- Growth remains about same as growth in population until 1980
- Major reason for filing still to protect inventor from other's use
- Ford vs Seldon
 - Rights to automobile in 1911
 - Seldon precursor to patent trolls

Adjustments to 20th Century Reality

- Technology complexity grows to burden court system
- Few lawyers are trained in the technical fields
 - Patent law becomes an educational “silo”
- 1982: Court of Appeals for the Federal Circuit
 - Created to hear special cases from all circuits, including patents
 - Jurisdiction includes several special issues ranging from Veterans’ to Postal Service Claims, as well as Patents
 - Judges and clerks are all technically trained and experienced in intellectual property law
- The Executive and Judicial Branches are active in patent law

Patent Cases taking over Courts

United States Court of Appeals for the Federal Circuit
Appeals Filed in Major Origins



Both are nearly
all Patent Law
Cases

Notes: Includes reinstated, cross-, and consolidated appeals.

- A patent: background and the claims
 - Claims describe the important aspects of the patented device
 - Discoveries and algorithms are not patentable
 - A substance can't be patented; a process to make it can
 - Claim language: very precise, usually written by a patent attorney
- A smart phone could have tens of thousands of patents
- Litigation is expensive (\$20 to \$30 million)
- Oracle vs Google:
 - Application Programming Interfaces (APIs) can be copyrighted
 - and only Oracle's code could implement APIs
 - Google had written reverse-engineered code to do same thing
 - The jury found that this was fair use (still under appeal)

Change in Use by Public

- No longer protecting the individual inventor
- Patent “Trolls” or Non-practicing entities
 - Acquire or file patents and sue manufactures
- Manufactures take defensive stance:
 - Patent every conceivable innovation
 - Support consortia to set licensing terms
- Perversion of the original intent is debilitating
 - Filing’s growth is burdensome on government & inventors
 - No current sanction for this destructive technique
- Reliance on industrial security is no defense against trolls
- Some legislative attempts to reduce this practice
 - Little effect in practice so far

Impact on the Defense of the Nation

- Three major impacts
 - IP protection is a mainstay of the economic strength of the country, upon which defense must rely
 - In an economy where innovation largely comes from private sources, patent rights encourage invention
 - Patent enforcement may have a curtailing effect of delaying adoption of technologies by others
- Without these the economy will suffer
- New inventions are necessary to maintain technical ascendancy on the battlefield
- Lack of innovation advantage will harm the U.S. Warfighters

Impact of Nation's Industrial Power

Wartime GDP of the Great Powers

1938 to 1945 in International Dollars and 1990 Prices (billions)*

Country	1938	1939	1940	1941	1942	1943	1944	1945
USA	800	869	943	1094	1235	1399	1499	1474
UK	284	287	316	344	353	361	346	331
France	186	199	164	130	116	110	93	101
Italy	141	151	147	144	145	137	117	92
USSR	359	366	417	359	274	305	362	343
Germany	351	384	387	412	417	426	437	310
Austria	24	27	27	29	27	28	29	12
Japan	169	184	192	196	197	194	189	144

- Gross Domestic Product (GDP) moved from economic to geopolitical measure
- National strength measured as much by GDP as troop, tank, ship and aircraft numbers
- Some argue defense strength depends on a system that fosters economic and technical growth

- Importance of intellectual property is “Defense Offsets”
 1. Reliance on Nuclear Weapons to offset numerically superior foes during the Cold War
 2. Reliance on better intelligence and precision weapons to offset several asymmetric foes
 3. Targets information superiority and security, robotics, and collaboration with the civilian sector to offset the increasing technology of foes
- All of these depend on technology advantage
 - Benefit from a more efficient patent law implementation
 - Suffer from a continuing protection rather than innovation

Moves to Mollify Negative Impacts

- Control information flow
 - Classify more work and disseminate it as “need to know”
 - Publish material early to preclude later patents by trolls
 - Establish new USPTO site for registering protected ideas
- Set new standards requiring showing concept origination
- Get Department of Defense experts on government patent law committees
- Enact and enforce punitive damages against trolls
 - Include inducements to strictly enforce current rules
- Reexamination of the First to File/First to Invent
 - Optimize the granting to the actual inventor

Conclusions

- Patents have evolved to conflict with national security
 - Patent purpose migrated to corporate economics
 - The temporary protection of inventor is irrelevant to security
 - Military technology advantage harder to protect
- Recommendations
 - Increase awareness of impact on procurement systems
 - Policy changes to consider:
 - Legislation to address non-practicing entities
 - Accommodating classified inventions
- Making progress is important:
 - Alternative: revised military strategy without technical advantage

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Questions?