

17	790 Patent Act, 73 793 Act section 3, description of invention, 160 793 Patent Act, 88	Aldrich, Edgar District Court judge, opinion in Continental Paper Bag case opposing injunction, 246 alienability
	870 Patent Act, 360 952 Patent Act, 345	patent rights, important feature of, 66 alizarin dye
		synthesis of, 296
a	ccused infringer importance of infringer having its own patent in	Allen, D.D. inventor, shoe peg cutter, 107
	defending against infringement charge, 234	alternating current, 222
A	CE inhibitor	and Westinghouse Corp. See AC current
	patents on, 310	Amazon, 399
A	dams v. Burke	amendment of patent claims, 183
	19th century patent exhaustion case, 171	America Invents Act of 2012 (AIA)
	daptive change, 28	genesis and impact of, 453
	daptive legal change, 15–16	American National Standards Institute (ANSI), 425
A	dministrative patent review	American Telephone and Telegraph, 197
	and the AIA of 2012454	Amgen, 401
a	dministrative state	Ampex, 282
	dated from 1870 on, Patent Office much earlier	case study in firm entry, 1920–1980, 283–85
	than, 186	amplifiers
a	dmiralty bar	for telephone lines, 206
	similarity to patent bar in pre-Federal Circuit	analytical chemistry, 295
۸	era, 416	aniline dye (mauve), 296
Λ	dobe Company	Anthropologists
	and patents on standard platforms,	study of cultural treatment of death, and 19th century patents on coffin adomments, 171
	example of strategic patent acquisiiton and	antitrust, 267
	assertion, 423	and auto patent pool, 328
a	drenalin, 306	and patents, 22
	dvertising	antitrust and patent licensing
-	in building national brand, 113	standards applied, 337
as	gents	antitrust and patents
	for licensing patent shares, 69	rise of anti-patent sentiment in antitrust law,
ai	ir brakes	329–32
	and formation of Westinghouse Corp., 216	antitrust scrutiny of contributory infringement, 365



498 Index

antitrust violation	Bakelite, 219, 297
and aggressive assertion of patents, 203	Baldwin half crank locomotive power drive, 122
antitrust, Progressive Era, 264–68	Baldwin, Matthias W.
appellate courts, federal	locomotive designer and inventor, 122
reform of, 1980s, 404	banks
apprenticeship, 46	presence of, correlated with faster economic
influence on term of patent protection, 49	growth, 129
arc lighting	bargaining
early interest of engineer Elmer Sperry, 222	based on patents, 197
Arkwright Frame	BASF, 305
textile manufacturing, 56	Bayer, 305
Arlington, Virginia	early patent on sulfa drugs, 307
and U.S. Patent Office, 372	Bayh-Dole Act
armories, federal	growth in U.S. university patent licensing, 387
Springfield, Mass. and Harpers Ferry, Va., 53	origin and purpose, 384–89
artisan	university patent ownership. See university
apprenticeships to become, 46	patenting
artisans, independent	Beauchamp, Christopher, 2
in federal armories, 18th-early 19th century, 54	Bell Labs, 205
Ashurst	early days. See AT&T research labs
seed drill inventor, 153	Bell Telephone
assembly line., 312	early organizational form, 198
asset	formation of AT&T, 197
patent as, changing nature in later 19th century, 18c	
assets	first coast-to-coast long distance call, 206
ownership of, in corporate form vs. individual	Berkshire County
patents, 155	Massachusetts, papermaking industry in, 237
assignment of patents. See Patent assignments	Bessemer Steel Co.
Early development of law of, 1790-1820, 83-88	formation of, in part to resolve atent blockage,
importance of law of, in facilitating exclusive	120
regional franchising, 83	Bessemer, Henry
Association of Licensed Auto Manufacturers	inventor of breakthrough steelmaking process, 118
(A.L.A.M.)	BetaMax, 285
and Selden auto patent, 314	bicycle bell
AT&T	patent for, enforced in New Departure Bell Co.
patents in formation of, 200	v. Bevin Bros. Mfg. Co., 229
strategic patent acquisitions by, 200	bicycle patents, 229
AT&T research labs	bicycle production
founding, early days, 205-30	prepared the way for auto industry, 312
automobile industry	Big Three auto companies, 319
early days and growth, role of patents, 312–25	Bigelow, John
Automobile Manufacturers Association (AMA), 331	9 . ,
auto industry patent pool. See patent pools	163
autonomy, corporate	biotechnology
role of patents in preserving, 225	patents and the Patent Office, 373
autopilot for battleships, 224	Blanchard lathe, 54-55
axes	regional franchise model, 70
many early patents on, 64–65	Blanchard, Thomas. See Blanchard lathe
Ayres, Ian, 141	lathe development, federal armory, 54
	blocking patents
Baekeland, Leo	in steel industry, 120
inventor of early plastic resin, 218	Bloomer v. McQuewan

bakelite

European patent litigation, 298

important early patent exhaustion case, based on

conflict over regional patent rights, 136



Carter, James Earl
U.S. President, 385
case studies
23 inventors and businesses, 24
caskets, patents for
origin of famous patent exhaustion case, 172
CCPA, 409
Court of Customs and Patent Appeals,
predecessor to Federal Circuit, 408
centralized ownership
relationship to employee invention rules, 191
Chandler, Alfred, 241
Chandler, Alfred D., Jr., 128, 191
Chandler, Alfred J., Jr., 150
chemical industry
emergence in 20th century, 291–93
chemical nonobviousness. See nonobviousness in
chemical patent cases
chemical patent, 358
chemical patents
Patent Office activities in response to, 372
chemical research
distinctive nature of, patent law adaptation to,
345
chemical structure, 352
importance to chemical research, patent law,
346
chemicals and pharmaceuticals
patents for, 20th century, 277
chemistry and chemical industry, 30
circle of appropriability, 423
Civil War, 103, See periodization, ages of
American patent law
claim
format of, nineteenth century, 161
claim elements
included in early claims with direct reference to
paent diagrams, 163
claim interpretation and infringement, 301
claim interpretation and infringement analysis
difference between nineteenth century and
more formalist approach under Federal
Circuit, 234
claim limitation
in paper bag patent case, 249
classical liberalism
libertarian, absolutist view of property not
relevant to patents, 99
* ''
Cleveland, Ohio
Cleveland, Ohio electrical industry research center, 222
Cleveland, Ohio electrical industry research center, 222 coal feeder
Cleveland, Ohio electrical industry research center, 222 coal feeder patents on, 366
Cleveland, Ohio electrical industry research center, 222 coal feeder



500

collective invention

Index

consumers in early days of U.S. railway industry, 121 protected against impact of disputes among combination. See mergers regional franchiSees, due to exhaustion Commerce Department doctrine, 176 movement of Patent Office into, 274 protected by development of law of patent communication and transportation networks exhaustion, 137 importance in economic growth, 116 Continental Paper Bag comparing patented design to accused device aftermath, 253 prominent feature of 19th century patent later impact, 419 infringement analysis, 233 legislative proposal to overturn, 272 comparison of claimed invention to accused Supreme Court opinion, 248 device Continental Paper Bag case, 101 in 19th-early 20th century patent law, as case study of corporatization of research and patent strategies, 252-53 exemplified by Continental Paper Bag case, 249 Continental paper Bag Patent, 40 compass, nonmagnetic contracts gyroscopic compass, Elmer Sperry, 223 important private law instrument, in industroes competitiveness related to patents and those not so related, U.S. economic policy, 1980s, 379-82 complementary products contracts assigning employee inventions, 262 importance of to patent-related strategies, contributory infringement codification in 35 U.S.C. § 271(d), 431 component auto component production and patent explanation, legislative response to, 364 litigation, Ford Motor, 319 near abolition of, prior to 1952 Patent Act, 369 component patents Cooper, Carolyn C. litigation over, auto industry, 323 and Blanchard lathe history, 70 component patents, paper bag industry, 244 co-ownership of patents. See Patent co-ownership components, patents on relation to partnership contracts and case law, compared to single patent covering entire 143 marketed product, 156 Copyright Act, 95 need for centralized ownership of, with large corporate charters company R&D labs, 263 founding and federalist eras, 65 compulsory licensing corporate form and new entry, after DuPont and Imeperial emergence of, and impact on patent-intensive Chemical ordered to license rivals, 298 firms, 151-59 computer hardware corporate ownership growth in sales of, importance of after 1970s, 394 of patents, critique of, 1930s, 330 computer industry corporate R&D. See research and development growth of after 1970s, 394-98 corporate research. See Corporate R&D; Research, computer technology corporate emergence, 1970s, 373 corporate research and development (R&D), 15, concentration, industrial 101 pros and cons of late 19th century mergers corporation advantages of, 152 argued by economists, 241 consideration requirement in contract law as party to patent litigation, 193 and employee invention rules, 261 corporate form, federalist period, 65 consumer benefit emergence of general incorporation laws, 151 aspect of patent enforcement policy, 253 similarity of sophisticated trust, 148 Consumer harm corporations and unreasonable nonuse, in decisions whether percentage of patent holders that are to issue injunction in patent case, 252 corporations, 193 consumer welfare corporatization, 193 and modern antitrust law, 331 early movement toward, 158



corporatization of research and patents	Depression era
Continental Paper Bag case as case study, 236	unexpected increase in patenting, 278
Corporatization, as undermining centrality of	diagnostic kits
individual ownership, 12	and biotech industry, 402
Cotropia, Christopher A., 209	diamond fold
Courtier capitalism, 51–53	key to paper bag design of inventor Margaret
Courtier Capitalism, 10	Knight, 239
courts and administrative agencies	diffusion
patent system a special case, 188	of assembly line techniques, 313
co-wnership of patents	Digital Equipment Corporation
harsh default rules encourage affirmative	and VAX minicomputers, 397
contracting, 138–41	disclosure of invention in exchange for patent
Coxe, Tench, 77	rights, 250
credit	Dolby Labs, 285–88
availability of, as factor supporting machinery	Dolby, Ray, 41, 285
	Domagk, Gerhard
markets, 131	sulfa drug research, 307
in founding era, importance of Treasury	doorknob, 166
securities, 51	
post-Civil War expansion of, 131	patent for. See Hotchkiss v. Greenwood
Crick, Francis	double patenting, 160
DNA, 400	origin of, in U.S., 168
Crosby, Bing, 283	double patenting, doctrine of
cross-selling	prevention of patent term extension, 169
among exclusive regional franchisees - conflict	downstream profits
caused by, 134	Bayh-Dole Act encourages patents trying to
Cuno Engineering, 363	reach through to, 390
invention test case, 361	drafting committee
	1952 Patent Act, 361
damage awards	Duffy, John, 167
and movement of general law firms into patent	DuPont
space after Federal Circuit formed, 417	and spinoff of Gore-tex business, 289
damages for patent infringement	DuPont Chemical Co., 214
Federal Circuit cases on, 412	
Dann, C. Marshall	E.R. Squibb
Commissioner of Patents, 374	pharmaceutical company, 309
Davis, Lance, 129	Eastern Paper Bag Company, 239
decentralization, 21	Eastman, George, 219
defense against patent trolls, 444	eBay case, 37, 42
defensive patent strategies, 442-44	and patent injunctions, 254
defensive patents, 215	example of Supreme Court correction of
democratic nature of patent system, 3-4, 9, 13, 278,	Federal Circuit doctrine, 448
482-84	economic development, 93
sample patents, 1817. See democratic property	and patents, 3
development strategy	Economic development
democratic property, 3–4, 9, 13	as consensus policy in early American Republic
Democratic Property, 478	73
democratic property strategy	economic takeoff, 132
for economic development, applied to land and	Edison General Electric, 211
inventions, 99–101	Edison Phonograph Company, 210
Demsetz, Harold	Edison, Thomas, 40
Demsetz theory, 33	and telegraph inventions, 128
deposit	business incubation, 210
requirements, biotechnology patents, 373	formation of General Electric, 209
	on retainer at AT&T, 200
Depression, 274	on retainer at AT&T, 200



502 Index

electrical industries, 197 telegraph, 126 electrical outlet example of technical standards, 425 Eli Lilly Company, 305 eminent domain pragmatic view of, founding era, 100 employed to invent employee invention doctrines, 260 employee compensation for employee inventions, 191, See service inventions employee invention ownership of, functional explanation for changes in rules regarding, 214 employee inventions legal changes in rules relating to, and centralizaiton of corporate R&D, employee mobility and diffusion of technical information, 243 enablement chemical claims invalid, as too broad, 355 chemical patents, 356 enablement, chemical patent claims, 354-58 enantiomers, 353 Enforcement private rights, 21 enforcement of patents role in collecting royalties, Ithiel Town bridge patent, 70 engineering colleges formation at universitives in 19th century, 268 engineers professional societies for, organization in 19th century, 268 entrants. See entry, new firm in auto component field, 322 entry by new firms and patents, 215-25 environmental movement, 382 early movement, attitudes toward technology, Epstein, Stephen R.. See guilds equities. See stock market equity law of patent injunctions, 412 equivalents, doctrine of, 248 applied to paper bag patent, 249 Erie Canal, 52 role in stimulating economic activity, 60-62 Evans, Oliver

exclusive regional rights and regional patent assignments, 19th century exhaustion case, 173 exhaustion of patent rights development of doctrine in era of exclusive regional franchises, 135-38 relationship to exclusive territorial franchises, later 19th century, 130-71 extraction of rents, 6 Factor VIII biotech patents and, 401 failure of others, evidence of, 229 cited in Learned Hand opinion, 324 Fairbanks Scale Co. business model and business organizations, as of 1833112 centralization of manufacturing in 1840s, 114 growth of patent portfolio in 19th century, manufacturing limited to pfrecision metal parts, partial regional manufacturing model, 111 regional licensing business, 111 role of patents in business model, 1830s, 109 Fairbanks, Thaddeus inventor of Fairbanks scale, 109 Fairbans scale company business model and structure in 1830s, 109-16 patent related to, 273 federal armories, 53-95 Federal Circuit, 41 early years, 409–14 U.S. Court of Appeals for the Federal Circuit, Federal Circuit, U.S. Court of Appeals for origins, 403-9 Federal Courts Improvement Act (FCIA), 407 federal government, 20 federal power small dollop behind each patent, 22 federal prestige, 21 federal property right prestige of, 65 Federico, P.J. "Pat" 1952 Patent Act drafting committee, 361 Feicht, Bertha Lamm first U.S. woman mechanical engineer in corporate research, 217 Fessenden, Thomas Green, 161 author of first U.S. patent treatise, 80 developments in, 19th century, 129-32

financing, role of patents. See Capital formation

hopperboy patent, 71



finders fees	Fulton, Robert, 52, 144
for patent share buyers, 72	functional explanations
firm boundaries	functional braid, 29
and patent portfolios, 490	functional historical account, 26
firm entry	fundamental research, 217–18
1920–1980, 281–83	in early Bell Labs. See scientific research
and patents, late 19th century, 215	,
role of patents in promoting, 482	Genentech, 400
firm entry, early 20th century, 280	General Bakelite Corp., 221
first to invent, 300	General Electric, 197
Fish, Frederick	criticism of patent matters, Oldfield Hearings,
master patent strtaegist, founder of two	271
prominent patent law firms, 203	formation from merger of Edison General
Fitch, John, 52	Electric and Thomson_houston Electric
steamboat inventor. See steamboats	Co., 209–15
flash of genius	patent strategy, 212
	use of field "agents" to evade price fixing issues,
test for patentability, 360 Fleming, Alexander	266
and penicillin, 308	General Land Office, 95–99, 178
Food and Drug Act of 1906	General Land Office, U.S See General Land
and the FDA, 358	Office of the U.S.
Food and Drug Administration (FDA)	organization and functions, late 19th century,
drug approvals and patents, 349	95–98
Ford Motor Co.	general law firms
mostly defensive use of patents, 319	movement into patent law, 1980s
Ford Motor Company, 312	and after, 417
and Selden patent, 314	General Mining Act of 1872, 1872 See Mining Act
Ford, Henry, 40, 326	of
Fourdrinier paper process, 236	General Motors, 322
fractional interests	generic drug companies, 359
in patents, 87	genus claim, 354
fractional patent shares	German chemists
in federalist period, 72	important in founding chemical industry, 296
franchise, as state privilege in colonial and	German patent law, 305
Federalist eras, 11	German universities, 304
franchises, patent-based, 14	Gilchrist, Percy
franchises, regional	steel process inventor, 119
dependent on patents as organizational	girdling
structure, 19th century, 134–38	of trees, for frontier farm development, 64
during founding and federalist eras, 65–67	Glaser, Donald
FRAND	U.C. Berkeley scientist, co-founded Cetus
fair, reasonable and non-discriminatory	Corp., 391
licensing, of standard essential patents	Goeddel, David V.
(SEPs), 426	early Genentech scientist/inventor, 400
FRAND licensing	Google, 399
litigation over, 429	Gordon, Robert J., 277, 378
fraud	Gore, W.L., 288
cause of action for assignment of worthless	Gore, Wilbert, 41
patent, 88	Gore, Wilbert L.
in patent transactions, 65	unique corporate structure of W.L. Gore &
Freeman, Christopher, 295	Assocs., 291
frontier, 45	Gore-tex
effect on labor supply, 48	W.L. Gore & Associates, 288–91
frontier agriculture. See agriculture, frontier	Gould, Jay, 199
	J=-11 = 77



504 Index

government partnerships, 52 in founding era. See business organizations Graham v. John Deere, 449 nonobviousness, 410 Granger movement opposition to abusive patents, 270 grant land and inventions, 4 of property, importance of, conceptually and practically, 3-5, 21 Great Inventions General Purpose Technologies (GPTs), 277 guilds trade guilds, 47 gyroscope, nonmagnetic invention of by Elmer Sperry, 223 Habakkuk, H.J., 46 Habbakuk, H.J., 79 Haber, Ludwig F., 294 Hamilton, Alexander, 4, 19, 51, See Treasury securities, U.S. Report on Manufactures, 1791, 77 Hamilton, Walton, 329-30 Hamiltonian moments in history of US patent law, 76 Hand, Judge Learned, 362, 403 and opinion on Jungerson jewelry tool patent, opinion in auto component infringement case, 323 Hatch-Waxman Act pharmaceutical patents, 359 high-density polyethylene development of, from effort to avoid polyethylene patents, 299 hobbyist culture in radio and early computer industries, 397 Hoeschst, 305 holdout by co-owners of a patent, 87 holdup, patents related to, 488 Holley, Alexander Lyman steel process improvement inventor, 119 Homebrew Computer Club, 398 homologue, chemical and patent law, 348 Honeywell contributory infringement litigation, 1940s, 365 Hoover, Herbert founding of Commerce Department, 274

horizontal restraints in antitrust law, 332 Hotchkiss v. Greenwood, 362 inventin test, 1850166 Hounshell, David, 55, 313 Houston, Edward, 211 Hovenkamp, Herbert, 93, 187 Hughes, Thomas P., 213, 281 Hurst, J. Willard, 21, 226, 235 law and 19th century economic development, 187 I.G. Farben, 307 **IBM** patent portfolio licensing, 419 IBM 360 mainframe computer, 395 idea factories, 435 innovation and licensing companies, 287 immigrants, skilled, 78 immigration, 278 immigration, and U.S. economic development, 18 Imperial Chemical Industries, 298 implementers of standards-based technologies, 429 improvement patent, 160 improvement patents and Bell Telephone - AT&T corporate strategy, covered in Justice Story opinion, 76 development of, roots in democratic property concepts, 79-83 example of, from coffin adornment industry, 178 necessity of licensing, even for basic patent holder, 303 improvements and improvement patents air brake research at Westinghouse, 216 improvements, and earning title to property, 8 incorporation. See Private ordering incremental innovation, 81 incremental invention and papermaking technology, 236 indeminification for atent infringement as marketing tool, 204 independent inventors network connecting them to larger firms, 238 Independent inventors and changing structure of railroad industry, 124 indigo, synthetic synthesized by German chemist, 296 industries, 19th century steel, railroads, telegraphs, 117 inflation late 1970s, 378

Hopkins, Samuel

first U.S. patent, 160



in-house R&D lab advent of, beginning in railroad industry, 125 injunction Continental Paper Bag case, First Circuit, 246 injunction against patent infringement Continental Paper Bag case, 245 injunction against patent infringment complexity in standard essential patent (SEP) cases, 428 injunctions, in patent cases equitable considerations, 252 injunctions, patent	Jackson, Justice Robert, 344 Japan economic competition with, as spur to 1980s US policy, 41 U.S. economic competition with, 379–82 Japanese industrial competition stimulus to U.S. innovation policy, 1970s, 375 Japanese Miracle, 379 Jefferson, Thomas, 4, 73 Jeremy, David textile technology transferred from Britain, 56
early Federal Circuit rule regarding, 412	Johnson Commission Report, 374
Innovation	Journal of the Patent Office Society, 192, 269
in period 1820-1880, 277	Jungerson jewelry business, 341
inscription plate	Jungerson jewelry tool, development of
patent for, 174	subject of important "invention test" case,
insulin	340–42 Lungaran Than
early target of biotech companies, 400 Inter Partes Review, 42	Jungerson, Thor jewelry tool inventor, 340
Inter Partes Review (IPR)	
importance of, as alternative to patent validity in	juries in patent trials absence of pre-Federal Circuit, 415
district court litigation, 455	absence of pre-rederal circuit, 415
interchangeable parts, 55	Keller, Charles M.
Interior Department	first U.S. patent examiner, 179
home of Patent Office beginning in 1849, 178	Kennedy, Justice Anthony
internal combustion, 313	important concurrence in eBay case, 448
interoperability	ketchup industry
and patents, 421	definitive history of, 333
invention	Khan, Zorina, 1, 74, 192
as a distinct occuption, 19th century, 106	Kilby, Jack
inventive principle, courts' attempt to identify,	inventor of integrated circuit, 397
in early cases, 76	Kimble v. Marvel Entertainments, Inc
within guild structure, 48	post-patent expiration royalties, 492
invention test. See nonobviousness requirement	Knight, Maragert E.
1836 Act cases, 166	textile loom invenion at age 12238
target of patent reform in 1930s, 276	Knight, Margaret
turn toward antipatent doctrine, criticism of by	noteworthy 19th century inventor, 238–40
Judge Learned Hand, 343 use of, in 1930s and 1940s, as anti-patent	Knight, Margaret E. compensation for invention of paper bag
doctrine, 340–45	making machine, 240
inventive activity	knowledge, tacit. See Polanyi, Michael
relationship to expansion of credit, 132	Kurland, Philip
inventive space, 83	noted absence of Supreme Court interest in
inventor, minority race, 9, 31. See	patents pre Federal Circuit, 415
inventors, corporate, 192	
inventors, university-employed	labor
importance in effectively applying university	shortage of, 3
research, 388	labor saving technology, 30
iron	labor shortage
role in steel industry, 117	caused in part by exclusion of black and women
isomers	citizens, Native peoples, etc., 32
patents for, 353	tounding era, 47–71
Israel, Paul, 210	labor, shortage of, 19



> Index 506

Lamoreaux, Naomi R., 18, 42, 65, 152, 184, 211 Land Office, 17 land patent, 8, 8, 20, 95-99 land sales Congressional policy to keep land prices low,

land settlement

relationship to concepts in early U.S. patent law, 82 Landes, David S., 291

Langmuir, Irving, 213 large firm formation

role of patents, held by merging firms, in formation, 215-39

lathe

Sylvester Nash gun-turning lathe, 54

lead candidate

in chemical research, 346

Lear v. Adkins

loicensee estoppel case, 492

LeBlanc process, alkali production, 294

Lee, Peter, 78

Lemelson, Jerome

inventor, associated with early patent troll

business model, 432

Lemley, Mark

research on patent troll litigation, 441

License on Transfer (LOT) Network

defense against patent trolls, 445

license, patent

scope of, 370

licensing

as basis of early Bell Telephone, 198

of Ithiel Town bridge patent, 69 licensing of patents, 69, 202, 214, 290, 299, 374,

396, 449

income from licensing, Waltham Machine Shop early nineteenth century. See patents, licensing of

licensing strategies

Thomas Edison, 210

licensing strategy

Dolby Labs, 286

licensing, biotechnology patents developed at universaities, 391

licensing, chemical process patents, 295

Liddell patent

paper bag making, 245

Liddell, William

paper bag patent inventor, 244-47

life sciences companies

and licensing of university patents, 392

light bulb, 210

contribution to, by various inventors, 211

Lilly, Eli, 306

Lincoln, Abraham

second Inaugural Ball held at Patent Office, 181

Lindsay, Harold

sound engineer, 283

litigation

of patents, 86

patent litigation win rate, founding era, 74

in patent cases, 414

Livingston, Robert, 52

lobbying, 5

locked up patent, 276

paper patent doctrine. See paper patents

long nineteenth century. See nineteenth century

lost wax technique

applied to casting tiny parts for jewelry, 340

Lowell, Henry Cabot

financier for early textile mills, 56

machine shops

as locus of inventive activity, 1820-1880, 103

Machlup, Fritz, 374

Magnavox, 282

Manson patent

Brenner v. Manson utility case, 347

market economy

common experience of in founding era, 45

market power

and patents, in antitrust analysis, 337

marketing of patent shares

as feature of regional patent franchises, 67

Markush claims, 357

chemical patents, 354

in chemical patents, 358

Marshall, Texas

concentration of patent litigation in, 2000s and

2010s, 450

Mashaw, Jerry L., 178

Mathieson Alkali Company, 294

Mattioli, Michael

research on patent pools, 430

McCaw, Thomas

regulatory agencies, history of, 186

McGaw, Judith

history of papermaking in Berkshire region of

Massachusetts, 237

McKenna, Josephauthor of Supreme Court opinion in Continental Paper Bag, 250

Meador, Daniel J.

and formation of Federal Circuit, 404

measuring chain

land parcel demarcation, 96

mechanization, 189

in form of turning lathe, 55



Menell, Peter S., 266	Morgan, J.P.
Menlo Park, New Jersey	and AT&T, 204
site of Edison research labs, 210	Morse, Samuel F.B.
Merck	telegraph inbentor, 126–28
Heinrich Emanuel, 303	Morton Salt Co., 334
Mercoid Corporation v. Mid-Continent	machinery division, accused of patent
Investment Company	infringement, 335
contributory infringement case, 365	MOSFET, 395
merger mania, 1890s-1910s, 240	Mossoff, Adam, 65
Merges, Robert P.	Mowery, David C., 279
Federal Circuit nonobviousness doctrine, 411	Mulford, Henry Kendall, 306
research on patent pools, 430	multi-component products
Merrill and Horner	and patents, patent pools, 327
patent related to coffins, and 19th century case	multiple components
on patent exhaustion, 173	and devlopment of patent doctrine, 170
Microsoft	multiplex
founding and first product, BASIC, 398	early telephone technology, 198
migration of skilled artisans. See diffusion of	Murmann, Peter, 296, 304
technologies	Mushet, Robert
Miller v. Eagle Mfg. Co.	and improvement to Bessemer steel process, 119
case in which U.S. Supreme Court first	mutually assured destruction (MAD)
articulated "double patenting" doctrine,	and defensive patent strategy, 442-44
168	
Mills, 56	Natick, Massachusetts
importance to early economic development. See	famous patent exhaustion case, 176
Evans, Oliver	National Institutes of Health, 385
mimeograph machines	Native Americans, 45, 63
patents for, and tying agreements reharding	negative claim limitations, 161
mimeo ink, 265	Nelson, Theodore H.
Mining Act of 1872, 351	author of early "hacker" manifesto,
mining claims	ComputerLib, 398
conceptual relation to patents, 350	Nelsron, Richard R., 47
mining, legal claims. See Federal Mining Act	Nepera Chemical Co.
mobile phone	and Leo Baekeland, 218
processing power, 395	New England
Model T, 312	and shoe machinery inventors, patents, 109
modular	new use
product designs, 197	of chemical structure, patents for, 352
modular technologies	no challenge clause
and patents, 420–21	in patent licensing agreement, 492
modularity, 37	Nobel Prize
monopolies	for early polypropyle catalyst research, 300
Statute of Monopolies, 75	for research in mechanism of hypertension, 309
monopoly power	to Irving Langmuir, General Electric, 213
and patent reform after Continental	Noble, David, 294
Paper Bag case, 253	nonobviousness, 167
monopoly, extension of	and Supreme Court KSR case, 2007449
in Supreme Court patent cases	as a legal requirement, original to the U.S.
from 1940s, 368	patent system, 168
Moody, Paul	early Federal Circuit cases on, 410
American textile machinery, 57	in Learned Hand opinion, 325
Moore, Gordon	of chemical compounds, 353
founder of Intel, source of "Moore's Law," 395	origins and 1952 Act codification, 361–64
Moore's Law, 399	nonobviousness in chemical cases, 352-54



508 Index

Non-Practicing Entities. See patent trolls Non-Practicing Entity. See Patent Assertion Entity norethindrone, 309 normative component of this book, 33 North, Douglass C. capital formation in federalist New England, 58 Noyce, Robert N. co-founder, Intel, 397 nylon development of, at DuPont Chemical, 298 Office of Technology Assessment (OTA) origin and role, 383 oil refinery construction industry, 295 oil shock of 1973, 378 Oldfield Bill, 271 patent reform, early 20th century, 253 Oldfield Hearings, 271 Oldfield, William A., 270 oligopolies, late 19th century, 241 oligopolistic industries lack of patent litigation in, 124 Oliver Evans, 47 optional nature of patent rights, 328 as applied to long-term corporate R&D, 208 origami, industrial and folding of paper bags, 244 Otto engine, 315 ownership importance of in enforcement flexibility, 85 ownership, divided purpose of trust and corporation, to integrate patent co-owners in single entity, 150 Page, Charles Grafton early U.S. patent examiner, public scientist, 179 Palace of Fine Arts, San Francisco location of first coast-to-call phone call, Alexander Graham Bell presiding, 207 papavarine, 305 Paper Bag case. See Continental Paper Bag case paper bag making key invention, Margaret Knight, 1871, 239 paper patent, 192 paper patents doctrine applied in case involving printing presses, 233

Partial interests in patents, 14 partnership example of, steamboat enterprise 19th century, partnerships Early Fairbanks Scale business organized as partnership, 110 organizational form in 19th century patentintensive businesses, 141-45 prevent oppportunism among patent co-owners, 130-45 role in re-integrating scattered patent co-owners, 146 Partnerships important early business organizations, 66 patent end of era when firms were typically formed around a single patent, 156 land and invention, 5 patent "troll line" socially beneficial litigation versus rent seeking, 440 patent "waiver" zone patent pools an example of, 328 Patent Act of 1836 role of Comissioner William Thornton to promote, 91 Patent Act of 1952, 360 characterized as mere "codification," 360 House Report, 361 patent agencies to help inventors acquire patents, 184 patent agent example of role of, 19th century invention franchise case, 142 patent appeals, 181 patent application pressure to file early, 347 patent applications "open" (pending" application, value in patent portfolio transactions, 486 assignment of, as financing tool, 84 at Bell Labs, 208 patent assignments complex patterns of, early Republic, 71 typical chain of, regional franchising business odel, late 19th century, 175 promotion of Federal Circuit court, 405 patent bar exam commencement of, 1938269 patent claim increasing importance of, late 19th century, 183 patent claims. See claims

doctrine disfavoring passive patent holdings, 226

Paper patents, 192

Parchamovsky, Gideon

research on patent portfolios, 419



patent claims, successively narrower	patent monopoly
in an application, to create more options for the	increase in use of this phrase, over time, 264
future, 165	patent office
patent classifications	operation in early years of American Republic,
as of 1858, 182	88–91
as of 1872, 183	Patent Office, 17
patent courts. See Federal Circuit	bureaucratization of, post-Civil War, 181
patent damages	growth and operations, 1820–1880, 178–84
"doctrine of savings" and impact of railroad	made gatekeeper for certification of patent
patent suits, 125	practitioners, 269
patent enforcement	professionalization during 1880–1920 era, 268
optional with owners, 121, 422	removed from central Washington in move to
via patent litigation – regional franchiSees, 87	Virginia, 371
patent examination, 186	Patent Office Society, 192
proto-examination by Patent Commissioner	founding, 1918, 269
William Thornton, 90	patent office, founding era
patent examiners	
	as proto-administrative agency, 94
growth of examining corps, 1820-1880, 178	Patent Office, U.S.
second careers of, as patent agents, 184	administrative operations 1920–1982, 371
Patent examiners	patent owners. See private ordering
professionalization of, 268	patent ownership
patent infringement	U.S. government, and Bayh-Dole Act, 385
ability to sue for, on part of regional assignees of	patent pledges, 423–24
patent rights, 86	patent pool
patent inputs	need for, in auto industry, 325
markets for patents as inputs, 480	patent pools
patent interference	create "inner circle" of patent owners, 327
took many years, polypropylene patent, 299	formation and rationale in high transaction
patent law firms	costs, 325–28
distinctness from general law firms, changes	rationale and formation, 430–32
over time, 415	patent portfolio
patent leverage, 365	Dolby Labs, 287
patent licensing	emergence from centralized R&D labs, 209
and private ordering, 480	growth in size of, Fairbanks Scale Co., 19th
in erly railroad industry, 121	century, 115
income from, U.S. universities, 387	of Bakelite Corp., 221
income source for inventive craftspeople, 107	patent portfolios, 419
pursued by Bakelite Corp., 220	and the secondary market for patents, 483-85
patent licensors	distinct bundles of rights, unique corporate
failed product companies, a special class of	assets, 488
licensors, 437–42	early emergence, 155
patent litigatio	growth in, post-1982, 418
changing nature of patent litigation bar after	legal changes facilitated, late 19th century,
Federal Circuit, 414–18	225–39
patent litigation, 8	Westinghouse Corp., 218
and rise of patent trolls, 1980s and after, 432–37	patent quality
increase in volume, 434	and the 1836 Patent Act, 184
patent litigators	efforts to promote, early 19th century, 90
some opposed formation of Federal Circuit, 405	
	mentioned in Supreme Court opinions, 345
patent markets "shadow market" concept, 481	Patent quality
"shadow market" concept, 481	and Report to President Johnson, 1960s, 373
patent medicines, 303	patent reform
patent models	typical forces behind, political economy
display in Patent Office, museum-like function, 180	explanation, 185



510

Index

patent reform after 2000, 446-49 patent repeal action early 19th century, 91 Patent rights increase of precision in, over time, 160 patent scope, 200, 231 19th century approach to, 202 and infringement, Selden patent case vs. Ford Motor, 317 chemical patents, 355 policy regarding, 185 patent seizures during World War II, 308 patent shares, fractional as qualsi-stock in early Republic, patent sharks, 270 patent strategy and George Westinghouse, 218 patent term, 181 patent terms adjustments to, for pharmaceutical patents, 359 patent transactions and regional franchise model, federalist period, Patent Trial and Appeal Board (PTAB) created by AIA of 2012, 455 patent troll, 42 patent trolls assertion of standard essential patents (SEPs), role in stimulating passage of the AIA of 2012, 454 taxonomy, different types, 433-37 patent, unused or unimplemented. See paper patents patents as business asset, 107 as instruments of private law, 115 fractional shares in, as deployed by Fairbanks Scale Co., 112 on Bakelite plastic, 220 role in facilitating experimentation with various business models, 114 sample of, issued in 1817, 59 strengthening of, implicit goal in 1982 formation of Federal Circuit, 405 importance in chemical industry, 292 patents and business organizations

patents of importation rejectionof in early American Republic, 79-95 patents, business uses of patents as future options, 485 patents, improvements, 79-83 patents, secondary market for, 242 patents, strengthening of early Federal Circuit damages decisions, 413 patents, under-utilization when pwned by U.S. government, impetus for Bayh-Dole Act, 386 Pearl Street power station, 211 penalty defaults, 141 and patent co-ownership rules. See Ayres, Ian penicillin, 308 periodization ages of American patent law, 39-42 Perkin, W.H. inventor of mauve dye, 296 petition for Inter artes Review (IPR), 456 pharmaceutical drug development, 358 pharmaceutical industry calls for specialized patent system for, 457-75 early growth, early patents, 303-7 pharmaceutical research 20th century approaches, 312 resin used to make Baekelite plastic, 219 Philco, 282 Phillips Petroleum sponsor of polypropylene research, 300 physicists at Bell Labs, 206 pioneer invention not appropriate for Selden auto patent, 318 pioneering patent doctrine, 248 piracy as applied to transfer of textile know-how from Britain to the US, 56 plastics industry, 220, 300 platform, technological, 399 point of novelty in patent infringement analysis, 250 Polaroid v. Kodak 1980s case, injunction granted, effects of, 413 political economy rent-seeking, 36 Political Economy, 35-36, 52, 125, 135, 182, 185, 308, 364, 457 founding era. See Federalist era, political economy polyethylene development of, at DuPont Chemical, 298 polypropylene, 299

1820–1880, 133–38 patents as private ordering, 494

patents in vertical (supplier) contracts

antitrust attacks on, 1930s, 332-40



population, 45	public grants, instruments for private ordering
founding era, 45	as economic development strategy, 99
portfolio, patent	Property rights
basic unit of analysis in post-1980s corporate	as exclusionary governance strategy, 36
patent strategies, 486	property strategy
relationship to firms organized ascorporations,	property as instrument of decentralized
159	economic development policy, 3-4, 9, 22,
portfolios, patent, 191	99, 179
as distinct corporate assets, 493	PTAB trials
postdoctoral study	outcomes and statistics, 456
pioneered in Germany, 304	PTFE
practical utility, 350	polytetrafluoroethylene - Gore-tex, 288
preliminary injunctions	public law
relationship to paper patents, 228	and patents, 16
Principal Examiners, 181	Purdy, Jeremiah
Prindle, Edwin	sap bucket patent, 60
corporate patent specialist, 260	sup bucket putern, so
Prindle, Edwin J.	Queen Elizabeth I
opposition to Oldfield Bill, 272	and patents of importation, 77
printing press patents	and patents of importation, //
litigation over, 231	R&D spending, 381
9	. 9 /
prior art, 182, 302	relationship to patent troll classification, 442
and patent scope, 318	race, patent
prior art, obscure	patent rules related to, 350
hard for inventors to discover but still capable of	railroad industry
invalidating patents, 231	development of, 19th century, 121–26
private law	role of patents in, 121–26
and patents, 16	RCA, 282, 284
charms of, 23	Reagan, Ronald
patents and, 22	U.S. President, 379
private law and patents, 478-93	recording
private law and private ordering	of patent assignments, beinning 179385
relationship to patent law, 370	Reese, Jacob
private ordering, 13, 20, 38	Pittsburgh-based stell process inventor, 119
process technologies	regional field agents
in auto industry, 321	role in finding and reporting on patent
productivity	infringers, 114
increase in, as crucial driver of economic	regional franchisee
growth, 132	protection against cross-selling, relationship to
professional societies, 192	patent exhaustion, 171
sociological role and function, 270	regional manufacturing
Progressive Era. See periodization	as impetus for regional patent assignments, 67
property	regional production
assignability of, importance for patents, 86	relationship to patent assignment and licensing, 62
Demsetz theory regarding evolution of,	regulatory capture
33-35	of Patent Office, 184
individual property rights as innovation and	Reich, Leonard, 199
economic development strategy, 115	historian of early AT&T company research, 200
property rights	Reiner v. I. Leon Company
benefits of, as instrument of econonomic	Learned Hand opinion in, 362
development, 3–4, 9, 22, 99	reissue of patents
evolution of, 33	reforms to, post-Civil War, 182
for patents and land, end of close association	rent, 5–8
between, 1920s, 274	rent seeking, 185
	· /



rent-seeking, 7, 36, 193
resale price maintenance, 266
Research Branch
AT&T research labs, 206
research, chemical industry, 292
research, corporate
at General Electric, drawing on multiple
technical specialties, 214
residual rights
as feature of property, 489
feature of property rights, 484
Revocation
of patents via patent revocation proceeding,
early 19th century, 88
revocation of patents
proceeding, 1793 Act, 188
Rich, Gikes, 362
Rich, Giles
1952 Patent Act drafting committee, 361
Roosevelt, Hilborne
telephone improvement inventor, 200
RPX Corp. and defense against patent trolls, 445
9 1
Ruggles, John Senator from Maine, backer of 1836 Patent Act,
179
rule of reason, 266
Schmookler Jacob 121 125
Schmookler, Jacob, 121, 125 science-based industries
science-based industries
science-based industries telegraphy an early example, 126
science-based industries telegraphy an early example, 126 Scientific American
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias action in Britain to repeal patents, 92 second sourcing
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias action in Britain to repeal patents, 92 second sourcing of auto parts, by Ford Motor Co., 321
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias action in Britain to repeal patents, 92 second sourcing of auto parts, by Ford Motor Co., 321 secondary considerations
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias action in Britain to repeal patents, 92 second sourcing of auto parts, by Ford Motor Co., 321
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias action in Britain to repeal patents, 92 second sourcing of auto parts, by Ford Motor Co., 321 secondary considerations
science-based industries telegraphy an early example, 126 Scientific American founded by Munn Scientific agency to promote patent-based businesses, 134 scientific publications importance of, 389 scientific research, 279 at Bell Labs, 208 at General Electric, 212 Scientific Tablet Company tomato canning salt additives, 333 scientific training and corporate research labs, 215 scientists as early patent examiners, 180 scire facias action in Britain to repeal patents, 92 second sourcing of auto parts, by Ford Motor Co., 321 secondary considerations in doctrine of nonobviousness, 410

```
Seelye, Jacob
  improvement patent for coffin adornment, 177
  licenSee of coffin patent, exhaustion
       case, 175
Selden patent, 313-17
Selden, George
  and Selden patent, auto industry, 313-17
semiconductors, 395
serial entrepreneur
  Elmer Sperry, 222
shadow markets
  market for patents as, 482-83
sharks, patent, 8
Sherman Act, 265
shoe industry
  manufacturing in, transition from workshop to
       factory, 109
shoe peg cutters
  multiple patents for, 108
shoemaking
  and mechanization, 19th century, 106
Sichelman, Ted, 48
  and Sean O'Connor, guild article. See Venice
Silicon Valley, 398
single patent
  as nucleus of business firm, 195
Slater, Samuel
  textile mill, 56
Smith, Merritt Roe, 53
Smithsonian Institution
  founding, relationship to Patent Office, 180
social construct
  patent law as, 29
social groups
  as mediators of adaptive change, 31
software industry
  and economics of open source programs, 424
Sokoloff, Kenneth
  Erie Canal and early American inventions, 61
solar power, 383
Solvay
  process for making alkali, 294
Solvay Process Corporation, 294
specialization
  in nineteenth century, related to scope of
       individual patents, 160
specialization of firms
  and patents, 38
specialized courts
  debate over, 403
Specialty chemicals, 295
specification
  importance of for "claiming" invention, early
       19th century, 161
```



speculation	Suppiger
economic policies to prevent, 351	infringement lawsuit vs. Morton Salt, defeated
speculative patents	by Morton Salt's shift in focus to Suppiger
role of patent doctrine in preventing, 347	licensing practices, 335
Sperry Gyroscope Company, 223	Suppiger cannery
Sperry Marine Company, 224	and sideline in canning machinery, 333
Sperry Rand Corporation, 224	Suppiger, Gerhart S.
Sperry, Elmer, 41, 221–24	tomato canning operation, 333
spray and pray	suppression of patents, 272
drug discovery research technique, 309	Supreme Court
squatters	renewal of interest in patents, after 1990447
and resolution of title disputes over land, 96–97	Swanson, Kara W., 184
squatting and squatters	synthetic dyestuffs. See dye industry
in earning title to land, 351	System/360
standard essential patents, 424-30	from IBM, 395
Standard Parts v. Peck	
employee invention ownership case,	Takamine, Jokichi, 309
258	inventor of purified adrenalin, litigated in H.K.
standards, technical	Mulford v. Parke-Davis, 306
and patents, 422	Taylor, C.T. and Z.A. Silberston
standard setting organizations (SSOs), 425	students of innovation, 293
Star Wars	TC Heartland LLC
and Dolby sound, 286	case on venue in patent cases, related to patent
startup companies	troll business model, 450
and patents, 420	teaching, suggestion, or motivation
startup company	and nonobviousness doctrine, 449
role of Bayh-Dole Act in promoting, 389	
state law. See federalism	technological platform, 399 technological space
	S 1
Statute of Artificers, 48	and patent coverage, patent value, 189
steam boiler explosions, 133	technology
steel industry	attitudes toward, 1980s, 382–84
development of, 117–21	Teflon
role of patents in, 19th century, 117–21	and origins of Gore-tex, 288
Steinmetz, Charles P., 213	telegraph industry
stock, 71, 142 n. 102, 152–59, 202, 467	development of, 19th century, 126–29
ownership of, compared to ownership of a	role of patents in early development of, 126–29
patent. See equity, capital formation	television industry
stock market	migration to Japan, 1970s, 381
relationship of stock market to research	Temporary National Economic Committee
expansion and research, 130	(TNEC)
Story, Joseph, 74	and anti-patent movements, 1930s, 329
and patents of importation, rationale for	tenancy in common
banning, 78	property estate held by patent co-owners, 150
patent case opinions, 74	Tesla Car Co.
strategies, 3	open patent pledge, 2015424
streptomycin	Tesla, Nikola, 211
patent on, 308	Texas Instruments
substantial non-infringing use	invention of integrated circuit development, 397
in contributory infringement law, 366	Texas Instruments Corporation
substitution effect	use of "patent bridge" (licensing revenue) to
outside capital frees up internal company funds	survive low profit period, 420
for R&D, 132	textile industry, 12
sulfa drugs	thalidomide
development of, patents over, 307	and tightening of FDA approval, 358



514

Index

The Telegrapher trade journal, 210 The Temporary National Economic Committee Hearings of 1935 aggressive pursuit of patent abuses, 276 Thomas, Sidney steel process inventor, 119 Thomson, Elihu, 211 Thomson, Ross and shoe industry, 70 Thomson-Houston Electric Company and formation of General Electric, 200 Thornton, William Early Patent Commissioner, 88 efforts to encourage withdrawal of weak patent applications, 88 Thursby, Marie and university patent ownership, 389 tie-ins, 266 tie-ins, patent-related, 367 Tissue Plasminogen Activator early biotech success story, 401 title, certainty of importance in land allocations, 4, 8, 20, 97 Town lattice bridge. See Town, Ithiel Town, Ithiel, 23 regional franchise model. See Ithiel Town bridge design transaction costs, 37 of patent licensing, auto industry - led to formation of patent pool, 326 rationale for patent pools, 431 Transaction costs as factor in initial assignment of rights, 36 transaction costs, of patents strategies and tactics for reducing, 481 transistors, 395 Treasury Department Land Office, Boards of Commissioners for settling disputes, 97 triple-valve, train brake design, 216 trolls, patent. See patent trolls as organizational form for patent-based companies, 19th century, 122-46 trusts, 141

U.C. Berkeley

U.S. Land Office

Ampex, 283

unexpected applications in chemical patents, 352 Union Carbide acqiusition of General Bakelite Corp., 221 Union Oil Products (UOP) refinery construction firm, 295 Union Paper Bag, 242 unitary government Patent Office, courts and Congress united in goal of economic development, 188 universities as patent owners, 390 university patent licensing data on, 391-93 university research and pharmaceutical industry, 305 university technology licensing offices, 392 unpredictable arts and enablement, 357 unreasonable nonuse of a patent, in relation to grant of an injunction, upstream patenting Bayh-Dole Act promotes, with potential problems, 389 Usselman, Steven W., 280 as technology licensee, 121 utility requirement applied to chemical patents, 346-50 utility standard and chemical research, chemical patents, 350 Vail, Theodore early executive at AT&T, 205 unitary phone service advocate, 205 validity rate

early executive at AT&T, 205
unitary phone service advocate, 205
validity rate
in patent appeals, pre-Federal Circuit, 407
Vane, John
angiotensin research, 309
vatman
component of paper making machines, 237
Velox photographic paper
patents sold by Baekeland to George Eastman,
219
Venice, 9
venture capital, 393
Vermont
Fairbanks Scale Co. location, 109
vertical agreements

related to patents, investigated in patent reform

vertical contracts

hearings 1930s, 277

home of early sound engineers who foounded

similarity with Patent Office, in terms of

allocating ownership claims, 83



Index 515

vertical integration
as firm organization, role of patents in, 197
permissive antitrust policy toward, Progressive
Era, 264
vertical restraints
era of per se condemnation,
332
vesting of title. See property, earning title to
Via Licensing
patent pool formation offshoot from Dolby Labs,
287
visible hand
concept promoted by business historian Alfred
Chandler, 241
von Hofmann, August Wilhelm
German chemist, 296

Wagner, R. Polk, 419
waiver of patent rights
as part of business strategy, 121
waiver of patents, strategic, 421–23
Walterscheid, Edward, 1
Waltham Plan, 56
War of 1812, 62
British troops come close to burning down
Patent Office building, 89
Washington, Bushrod, 74
Washington, George
support for first Patent Act, 73
Watson, James
DNA, 400

Webster, Daniel representation of Waltham textile mill patent owners, 58 weighbeam in scales, 109 Western Construction telephone patent, and dealings wth AT&T, 201 Western Union, 128, 198, 205 Westinghouse, George, 211, 216 Whitman, Walt poignant memoir of tending to dying Civil War soldiers bivouacked in Patent Office, 181 Whitney, Eli and work in federal armories, 54 Whitney, Willis, 213 Wilf, Steven, 267 Wintel standard 1990s, 399 wood importance of in early American invention, 61 lathes, for turning, 54 relationship to early American inventions, 63-65 wooden plates patent for making, 163 Woodworth, William patented wood-planing machine, 135 workshop culture, 57, 62-63, 67, 106, 109 and artisans. See apprenticeship workshops, 62 World's Largest Ketchup Bottle and its thin connection to patent law, 333