**No. 00-1543**

In The

# Supreme Court of the United States

Festo Corporation,

*Petitioner,*

v.

Shoketsu Kinzoku Kogyo Kabushiki Co., LTD.,
a/k/a SMO Corp. and SMC Pneumatics, Inc.,

*Respondents.*

**On Writ of Certiorari to the
United States Court of Appeals
For the Federal Circuit**

## BRIEF OF THE CONSUMER PROJECT ON TECHNOLOGY AS *AMICUS CURIAE* IN SUPPORT OF RESPONDENTS

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## TABLE OF CONTENTS

## TABLE OF AUTHORITIES

### Cases

**Constitutional Provisions**

## Statutes



## Other Authorities

## STATEMENT OF INTEREST[1]

Amicus curiae Consumer Project on Technology (CPT) is a public interest non-profit organization founded by Ralph Nader in 1995. CPT represents the public who are the ultimate beneficiaries of the invention of new technologies. CPT's constituents are harmed whenever intellectual property legal doctrines unnecessarily discourage the invention, development, disclosure, and application of new technologies.

CPT seeks to protect the public interest in regard to intellectual property law in general, and in the fields of pharmaceuticals and biotechnology, computer software and information services in particular. Intellectual property rights in these fields are in some cases matters of life and death or of critical importance to the public's participation in economic activity. The public reaps the benefit of inventions in these fields by patentees and by their competitors. CPT thus has been involved in significant intellectual property law issues relating to these fields, both domestically and abroad.

CPT is gravely concerned that Petitioner has asked this Court to reverse the considered decision of the Federal Circuit in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.,* 234 F.3d 558 (Fed. Cir. 2000). To do so would overturn 130 years of settled patent law in this Court that has helped to assure proper incentives for patentees and competitors to invest in research and development and to sequentially invent additional and better pioneering and incremental goods and services for public benefit. Petitioner's request thus threatens the lives and livelihood of Americans and our economy.

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[1] Letters of consent of the parties to file this brief have been obtained and are being filed herewith. No counsel for a party authored this brief in whole or in part and no person or entity other than *amicus curaie* and counsel made a monetary contribution to the preparation or submission of this brief, but Shondell Foster, Sam Hechtman, Georgina McCaughan, and Justin Perillo, students in the Glushko-Samuelson Intellectual Property Law Clinic, assisted in the drafting of the brief.

## SUMMARY OF ARGUMENT

As this Court held in 1942, "file wrapper estoppel" (now called "prosecution history estoppel") prevents resort to the "doctrine of equivalents" to reclaim any subject matter disclaimed by the amendment of a claim element during prosecution of a patent. *Exhibit Supply Co. v. Ace Patents Corp.*, 315 U.S. 126, 136-37 (1942) (citing, *inter alia, Shepard v. Carrigan,* 116 U.S. 593, 598 (1886), *Hubbell v. United States*, 179 U.S. 77, 83 (1900), and *Smith v. Magic City Kennel Club*, 282 U.S. 784, 789-90 (1931)). This conclusion is logically compelled by the fact that the patentee intended to narrow the scope of the patent when filing the amendment. Petitioner urges the Court to overturn 130 years of settled patent law and to contravene logic by allowing patentees to "flexibly" reclaim through application of the doctrine of equivalents the subject matter that they had disclaimed by amendment. The Court should reject Petitioner's suggestion to overturn settled expectations and to jeopardize the "Progress of Science and useful Arts." U.S. Const., art. I, §8.

A flexible bar to the doctrine of equivalents would place in the hands of the patentee subject matter that the patentee had disclaimed to the public. The flexible bar thus would expand the patent monopoly at high cost to the public, without any consideration given in return in the form of additional disclosure of inventive subject matter. Such a grant of expanded monopoly rights is "odious," as it destroys beneficial competition that is the public's "common right." *Proprietors of Charles River Bridge v. Proprietors of Warren Bridge*, 36 U.S. 420, 567 (1837). Further, the flexible bar would unjustly enrich the patentee, which made the choice to disclaim that scope. Unlike in copyright law, the words of the patentee rather than of the accused infringer provide the line between beneficial competition and unscrupulous copying.

A flexible bar to the doctrine of equivalents also would destroy the "clear notice" provided by a patent's claims and by

the record of a patent's prosecution history. Competitors would be chilled from providing lower-cost and better goods and services, as they would face litigation risks and increased licensing costs that extend beyond the lines that would be drawn in infringement actions. This chill would harm the public as much as improperly granting a reclaimed monopoly to the full extent of disclaimed subject matter. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996).

A flexible bar to the doctrine of equivalents would likely discourage more innovation than it would promote, imposing direct and opportunity costs of increased prices and foregone goods and services. All invention, whether pioneering or incremental, is necessarily sequential to prior knowledge. A flexible bar would not retrospectively promote any additional invention by existing patentees, but would discourage competitors from prospectively investing in research and development. A flexible bar thus is likely to generate only additional windfall profits at public expense.

Even if the flexible bar would generate a dynamic incentive for patentees to increase investments and invention, the flexible bar would likely discourage investments and invention by competitors to a greater degree. The patentee should value the relevant sequential inventions less, as it will disclaim that subject matter to the public. Competitors should have the greater dynamic incentive to toil in the field of disclaimed scope that will be left open by the patentee.

This balance should weigh even more heavily against patentees when the sequential inventions at issue are pioneering rather than incremental. The competing incentives are of particular concern to smaller inventors, who are less able to afford either the costs of defending infringement actions or the costs of patenting. But even if net incentives would favor patentees, retaining the complete bar cannot make matters any worse. In contrast, adopting the flexible bar would require the public to pay too high a short-term price for any long-term increase in innovation that would result.

## ARGUMENT

### I. THE COMPLETE BAR OF PROSECUTION HISTORY ESTOPPEL IS NOT JUST THE LAW, IT'S A GOOD IDEA

#### A. A Complete Bar To The Doctrine Of Equivalents Is Logically Required By The Patentee's Own Narrowing Amendment Of The Claim

The "doctrine of equivalents" extends a patent's scope beyond the literal meaning of the language of a patent's claim. *See Warner-Jenkinson Co. v. Hilton Davis Chemical Co.,* 520 U.S. 17, 21 (1997). Over 50 years before *Warner-Jenkinson,* this Court cogently explained that the doctrine of equivalents does not apply to amended claim elements. This is because a patentee who narrows an element of a patent claim by filing an amendment during prosecution cannot recover in an infringement action any patentable scope beyond the literal meaning of the amended element.

Thus, the very existence of a narrowing amendment of a patent claim operates as a complete bar to application of the doctrine of equivalents:

> By the amendment he recognized and emphasized the difference between the two phrases and proclaimed his abandonment of all that is embraced in that difference …. The difference which he thus disclaimed must be regarded as material, and since the amendment operates as a disclaimer of that difference it must be strictly construed against him …. It follows that what the patentee, by a strict construction of the claim, has disclaimed … cannot now be regained by recourse to the doctrine of equivalents, which at most operates, by liberal construction, to secure to the inventor the full benefits, not disclaimed of the claims allowed.

*Exhibit Supply Co. v. Ace Patents Corp.,* 315 U.S. 126, 136-37 (1942) (citations omitted) (emphasis added).

The complete bar of prosecution history estoppel is not only legally sound, it is logically required. When filing any amendment that reduces the scope of subject matter claimed, the patentee necessarily intends to restrict the scope of his claim to the added or limited element. The patentee thus should be careful to employ language in the added or limited element that excludes only unpatentable subject matter, or patentable subject matter that the patentee intends to disclaim:

> [I]f the patentee specifies any element as entering into the combination, either directly by the language of the claim, or by such a reference to the descriptive part of the specification as carries such element into the claim, he makes such element material to the combination, and the court cannot declare it to be immaterial.

*Fay v. Cordesman,* 109 U.S. 408, 420-21 (1883) (citing *Water-Meter Co. v. Desper,* 101 U.S., 332, 337 (1879)) (emphasis added). Regardless of how broadly the narrowing language of the amended element is literally construed, whether the allegedly infringing product or process was unforeseeable, or why the amendment was made, any subject matter beyond that literal meaning will have been disclaimed.[2]

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[2] The purpose of an amendment is relevant only to determining whether to construe ambiguous amending language as narrowing the scope of the original element. Such ambiguity will be extremely rare. In contrast, the common occurrence of adding elements or of adding unambiguous limitations necessarily narrows scope. *Warner-Jenkinson* thus recognizes the obvious, that absent an explanation for an amendment of ambiguous scope, the amendment is presumed to relate to patentability, to narrow scope, and to create a complete bar to the doctrine of equivalents. *See* 520 U.S. at 33. This understanding avoids resort to "confusing and arguably illogical" presumptions regarding whether prosecution history estoppel applies. Donald S. Chisum, *The Scope of Protection For Patents After the Supreme Court's Warner-Jenkinson Decision: The Fair Protection—Certainty Conundrum*, 14 Santa Clara Computer & High Tech. L.J. 1, 46 (1998) (hereinafter, "*Fair Protection-Certainty*"). If reasons other than patentability can be found for the amendment in the prosecution history,

*Exhibit Supply* simply restates the clear and unbroken precedent since the 1870 Patent Act. Amendments to claim language were required to be construed to disclaim all of the patentable subject matter of the disclosed invention between the original claim and the amended claim. As a result, the narrowing amendment itself necessarily creates a complete bar to application of the doctrine of equivalents. The patentee may not through the doctrine of equivalents reclaim any patentable subject matter beyond the literal meaning of the amended claim. To find equivalents to the amended element would require imputing to the patent a hypothetical claim that either: (1) would be invalid, because it would claim prior art already in the public domain or because it would lack enabling disclosure; or (2) would "entirely vitiate [the amended] claim element," which disclaims the entire difference. *Warner-Jenkinson*, 520 U.S. at 39 n.8[3]; *see Conopco, Inc. v. May Department Stores Co.,* 46 F.3d 1556, 1562 (Fed. Cir. 1994) (the doctrine of equivalents may not "eviscerate the plain meaning of the limitation").[4]

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the amendment must still be construed to determine whether it narrows patentable scope and thus whether it completely bars application of the doctrine of equivalents.

[3] *Cf. Fair Protection-Certainty*, 14 Santa Clara Computer & High Tech. L.J. at 37-38 ("In *Warner-Jenkinson,* the Supreme Court did not directly address the issue of dedication by unclaimed disclosure.").

[4] As *Exhibit Supply* held, patentees also may not argue for a narrow literal interpretation of a claim -- a broad disclaimer -- during prosecution of the patent and for a broader interpretation during the infringement trial. Statements made during prosecution thus may limit elements of claims (including an amended element) to embodiments and uses disclosed in the specification. In contrast, elements and claims may normally be construed liberally to include undisclosed enabled -- *i.e.,* foreseeable -- embodiments or uses of compositions of matter and combinations. Embodiments of compositions and combinations may be claimed -- threatening litigation and requiring licenses -- even if undisclosed uses of those compositions and combinations are not enabled. However, unenabled embodiments and uses of compositions or combinations -- "false prophesies" -- should not be claimed. *See Holland Furniture Co. v. Perkins Glue Co.,* 227 U.S. 245, 257-58 (1928) (limiting "functional" claiming of products); *Regents of the*

## B. The Flexible Bar Would Create "Odious" Monopolies and Would Unjustly Enrich Patentees

### 1. Monopolies That Lack Consideration Are "Odious" And Destroy Competition That Is The Public's "Common Right"

The grant of a U.S. patent creates a monopoly in the patentee to exclude others from making, using, or selling the claimed invention in the United States. 35 U.S.C. §§154(a), 271(a). Such a monopoly is not lightly granted. It always comes at great cost to the public. *See Bienville Water Supply Co. v. City of Mobile,* 186 U.S. 212, 220 (1902) (under common law, monopolies "were always deemed odious, not only as being in contravention of common right, but as founded in the destruction of trade by the extinguishment of a free and healthy competition. *Case of The Monopolies*, 11 Coke, 84b."); *cf.* Edward C. Walterscheid, *The Early Evolution of the United States Patent Law: Antecedents (Part 2)*, 76 J. Pat. & Trademark Off. Soc'y 849, 855-80 (1994) (hereinafter "*Antecedents (Part 2)"*) (discussing abuses of royal "letters patent" and public outcry that restored power to common law courts to determine patent validity, resulting in the *Case of the Monopolies* and subsequent codification of

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*University of California v. Eli Lilly & Co.,* 119 F.3d 1559, 1566-69, 1571-74 (1997) (same); *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.,* 750 F.2d 1569, 1574 (Fed. Cir. 1984) (limiting the scope of certain claims, because chemistry is an unpredictable art). Because the Patent Office and courts have improperly allowed claims to unenabled embodiments or uses, the "reverse doctrine of equivalents" exists to protect subsequent non-obvious inventors (although courts in-equitably apply the doctrine only to truly pioneering embodiments). *See* Robert P. Merges & Richard C. Nelson, *Market Structure and Technical Advance: The Role of Patent Scope Decisions,* in Antitrust, Innovation, and Competition at 185, 191-98, 211 & n.131, 212 (Thomas M. Jorde & David J. Teece, eds. 1992) (hereinafter "*Market Structure*"). For enabled embodiments and unenabled (or unclaimed) uses, competitors obtain second-best "blocking patents" for non-obvious uses (but should not for foreseeable uses). *See id.* at 195-96.

common law restrictions in the Statute of Monopolies).

In the seminal American case on publicly granted monopolies, this Court explained that consideration is always required for the monopoly, in order to make up for the corresponding losses to the public:

> A monopoly is that which has been granted without consideration; as a monopoly of trade; or of the manufacture of any particular article, to the exclusion of all competition. It is withdrawing that which is a common right, from the community, and vesting it in one or more individuals, to the exclusion of all others. Such monopolies are justly odious, as they operate not only injuriously to trade, but against the general prosperity of society.

*Proprietors of Charles River Bridge v. Proprietors of Warren Bridge*, 36 U.S. 420, 567 (1837) (emphasis added). If consideration provided in exchange for a grant of monopoly power is insufficient or wholly lacking, the monopoly is necessarily "odious." *See Antecedents (Part 2)*, 76 J. Pat. & Trademark Off. Soc'y at 853 (under common law, whether a monopoly was illegal "turned always on whether the monopoly grant was perceived to be of benefit to the realm. When not, the monopoly grant was deemed to be odious and was condemned."); *id.* at 878-79 (describing the common law standards codified in the Statute of Monopolies).

### 2. The Flexible Bar Would Withdraw Patentable Subject Matter From The Public Domain Without Providing Consideration

The U.S. Constitution tolerates -- even encourages -- the grant of a patent excluding all competition in trade or the manufacture of a particular product or process. U.S. Const., art. I, §8. This is because the Founders thought monopoly patents were necessary to "encouraging the rise of manufacturing while at the same time preserving the desired

pecuniary incentive to inventors." Edward C. Walterscheid, *To Promote the Progress of the Useful Arts: American Patent Law and Administration, 1787-1836 (Part 2)*, 80 J. Pat. & Trademark Off. Soc'y 11, 24-25 (1998). However, in exchange for the right to exclude competition, inventors were required to provide valuable consideration to the public. That valuable consideration is the invention's enabling disclosure. *See* 35 U.S.C. §112, ¶1; *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.,* 489 U.S. 141, 151 (1989) (citing *United States v. Dubilier Condenser Corp.,* 289 U.S. 178, 186-87 (1933)).

It is the disclosure of the invention -- and not the fact that the patentee has invented it or "worked" it for the public good -- that provides the required consideration in exchange for which a patent will issue. *See Bonito Boats,* 489 U.S. at 149 (an inventor who "lift[s] the veil of [trade] secrecy, … must choose the protection of a federal patent or the dedication of his idea to the public at large."); Edward C. Walterscheid, *The Early Evolution of the United States Patent Law: Antecedents (Part 3)*, 77 J. Pat. & Trademark Off. Soc'y 771, 792 (1995) ("the crown came increasingly to recognize that working the invention was no longer the consideration for the patent grant, but that instead a wider dissemination of new skills to the public in general should be the desideratum.").[5] If an inventor fails to teach the public what it has learned, no patent will issue because the inventor provides no consideration to the public for the monopoly grant. Instead, the inventor keeps the profit and potential of the invention for itself and prevents others from building upon that learning to further benefit the public. Similarly, no consideration is provided and no patent should issue if the applicant does not

[5] *Cf. id.*at 777-802, 849-50 (discussing common law cases leading to the requirement for a written specification of the invention and to recognition that written disclosure was the "quid pro quo" for the monopoly); *Antecedents (Part 2)*, 76 J. Pat. & Trademark Off. Soc'y at 860-62 (explaining why conflict with the "royal prerogative" eliminated disclosure requirements as of 1399 and delayed their later reemergence).

disclose an "invention," *i.e.,* when what the patent would disclose is already known to the public or is obvious in light of what is publicly known. *See* 35 U.S.C. §§102, 103; *Graham v. John Deere Co.,* 383 U.S. 1, 6 (1966).

As recognized by this Court in *Exhibit Supply,* when making a narrowing amendment, an applicant necessarily disclaims to the public all disclosed subject matter that is not claimed. The flexible bar thus would reclaim subject matter that is already known to and in the hands of the public, because it was placed there by the patentee in the "disclaimed" parts of the specification. The flexible bar would wrest this inventive subject matter from the public domain and would place it in the patentee's hands without any consideration for the taking. By withdrawing the disclaimed subject matter from the public domain and placing it in the hands of the patentee, the flexible bar would create an "odious" monopoly.

### 3. The Flexible Bar Would Unjustly Enrich Patentees

When prosecuting its patent, the patentee did not ask for but rather expressly disclaimed a monopoly to control the additional subject matter that a flexible bar would place in its hands. To provide the patentee with this disclaimed subject matter during infringement actions would undeservedly and unjustly enrich the patentee at public expense. It is the patentee's own words that disclaimed the patentable subject matter and called forth the competition from which the patentee seeks to be protected.

Unlike in copyright law, it is the patentee's words -- rather than the competitor's words or conduct -- that define the "unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the … matter outside the claim, and hence outside the reach of the law." *Graver Tank & Mfg. Co. v. Linde Air Products Co.,* 339 U.S. 605, 607 (1950); *cf. Computer Assocs.*

*Int'l., Inc. v. Altai, Inc.,* 982 F.2d 693, 702-12 (2d Cir. 1992) (discussing non-literal infringement under copyright law). Far from being an "unscrupulous copyist," *Graver Tank*, 339 U.S. at 607, the defendant to non-literal patent infringement has simply taken the patentee at its word and has entered the field to benefit the public. To punish the competitor and the public for accepting the patentee's invitation to enter the unfenced portion of the field would surely make a mockery of patent infringement as a "trespass" on the claim. *See Merrill v. Yeomans,* 94 U.S. 568, 573-74 (1877) ("nothing can be more just and fair, both to the patentee and to the public, than that the former should understand and correctly describe, just what he has invented, and for what he claims a patent.").[6]

### C. The Flexible Bar Would Destroy Clear Notice And Would Inexorably Chill Competition

In 1836, Congress created an examination system within the Patent Office, in order to prevent the issuance of patents that failed to disclose enabled inventions or that disclosed known or obvious subject matter that the applicant did not "invent." *See* Act of July 4, 1836, 5 Stat. 117 (hereinafter "1836 Act"); 35 U.S.C. §131. An examination system had been created in 1790, but was subsequently abandoned in 1793 when found to be too burdensome to the senior officials charged with examination. *See* Act of April 10, 1790, 1 Stat. 109; Act of February 21, 1793, 1 Stat. 318. Under the registration system enacted in 1793, many patents had been "fraudulently" issued. Compliance with formalities alone resulted in the issuance of invalid patents that provided no consideration to the public for the monopoly conveyed and were therefore injurious to competition. *See* Edward C. Walterscheid, *To Promote the Progress of the Useful Arts:*

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[6] *Cf. United States v. Heth,* 7 U.S. 399, 413 (1806) (Paterson, J.) ("[T]he words of a statute [words proscribing conduct], if dubious, ought, in cases of the present kind, to be taken most strongly against the law makers.").

*American Patent Law and Administration, 1787-1836 (Part 1),* 79 J. Pat. & Trademark Off. Soc'y 61, 62-78 (1997).

The 1790 Act also had required a full and clear disclosure of the invention that would distinguish it from the prior art and would enable others to "make, construct, or use" the invention when the term of the patent expired. Edward C. Walterscheid, *Charting a Novel Course: The Creation of the Patent Act of 1790,* 25 AIPLA Q.J. 445, 447 (1997) (quoting Section 4 of H.R. 10 of 1789, which formed the basis for the 1790 Act's requirement for a contemporaneously filed specification); 35 U.S.C. §112, ¶1. This too proved insufficient to protect the public's right to competition:

> The growth of the patent system in the last quarter of a century in this country has reached a stage in its progress where the … interests involved require accuracy, precision, and care in the preparation of all the papers on which the patent is founded.

*Merrill,* 94 U.S. at 573. The boundaries of patented scope and the limits to competition thus had to be more clearly defined.

In 1836, Congress required a patentee to "particularly 'specify and point' out what he claims as his invention." *Winans v. Denmead,* 56 U.S. 330 (1853) (quoting the 1836 Act, §6). This formal requirement for claims, however, did not require a substantive change from prior practice, under which the specification pointed out what was claimed. It thus resulted only in "central claiming," under which the nature of the invention continued to be disclosed by the specification and the claim stated only that the invention was "substantially as described." *Goodyear Dental Vulcanite Co. v. Davis,* 102 U.S. 222, 223 (1880). The Patent Office and courts thus were required to determine the limits of a patent's scope from the specification, rather than from the language of the claims.

In the 1870 Patent Act, however, Congress put a substantive stake through the formalist heart of central claiming. *See* Act of July 8, 1870, ch. 230, §26, 16 Stat. 198, 201 (the applicant "shall particularly point out and distinctly

claim the part, improvement, or combination which he claims as his invention or discovery") (emphasis added); 35 U.S.C. §112, ¶2. As this Court subsequently held, failure to include within the claim language all of the patentable subject matter disclosed in the specification resulted in a "disclaimer" to the public, because of the 1870 Act. *See Miller v. Brass Co.,* 104 U.S. 350, 352 (1881) ("an omission to claim other devices or combinations apparent on the face of the patent are, in law, a dedication to the public of that which is not claimed.") (emphasis added). In contrast, disclaimers of patentable scope were logically inconsistent with central claiming, because the claim covered the entire subject matter of the specification.[7]

As a result of the "distinctly claim" requirement of the 1870 Act and its later recognition, "peripheral claiming" developed. Claim language, rather than the specification, now points out the limits of invention to which patent rights attach. The 1870 Act thus made possible a disclaimer of some of the invention disclosed in the specification. *See* William R. Woodward, *Definiteness and Particularity in Patent Claims,* 46 Mich. L. Rev. 755, 760-62 (1948) (it took until 1877, the year *Merrill* was decided, for the change to be acknowledged by the Court). In contrast, the 1836 Act only prevented a patentee from claiming a broader scope of embodiments than was disclosed and enabled or was patentable given the prior art. Thus, in the seminal case on "utility," the Court held that patentees were "required and permitted to disclaim" unenabled embodiments. *O'Reilly v. Morse,* 56 U.S. 62, 120 (1853).

The clarity of patent scope provided by the 1870 Patent Act was the result of a long history of abuse. Congress thought this requirement necessary to assuring that beneficial competition would be preserved in the face of monopolies generated by patents. This conclusion has not changed in the intervening years, and was only recently reasserted:

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[7] The Court in *Warner-Jenkinson* did not have before it a disclaimer of patentable subject matter when discussing the change from central to peripheral claiming. *See* 520 U.S. at 27 n.4.

> "[T]he limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public." … Otherwise, a "zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field," ... and "[t]he public [would] be deprived of rights supposed to belong to it, without being clearly told what it is that limits these rights."

*Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996) (quoting *General Elec. Co. v. Wabash Appliance Corp.,* 304 U.S. 364, 369 (1938), *United Carbon Co. v. Binney & Smith Co.,* 317 U.S. 228, 236 (1942), *and Merrill v. Yeomans,* 94 U.S. 568, 573 (1877)) (emphasis added).

The flexible bar would destroy the clear limits of disclaimed patentable subject matter for amended claims, both for the patentee and for competitors. Unlike the amended claim, the limits of a flexible bar can never adequately be predicted in advance of infringement litigation. This uncertainty will, due to the risk of litigation, push competition entirely out of the market defined by the patentable scope of the unamended claim. Competitors may not enter the market or may seek licenses even for disclaimed subject matter that may be unpatentable because of prior art or because of a lack of enabling disclosure.

By chilling competition to the full extent of disclaimed subject matter, the flexible bar in practice will accomplish what it disavows in theory, *i.e.,* to "eviscerate" the amendment that disclaimed patentable scope. The Federal Circuit majority in this case was correct to be concerned as a matter of policy with these practical effects. *See Festo Corp.,* 234 F.3d at 574-78. But the same result is required as a matter of law, as *Miller* held over a century ago.

## D. The Flexible Bar Would Discourage Rather Than Promote Investment and Invention

All invention is necessarily sequential, because all inventors build upon prior knowledge.[8] Thus, all "Progress of Science and useful Arts" must reflect the sequential discovery of pre-existing elements and the sequential invention of new ways to combine or transform them. For this reason, patents to "Inventors" for their "Discoveries" may be issued for compositions of matter and for all useful and unobjectionable ways of combining them into products or processes. U.S. Const., art. I., §8; *see* 35 U.S.C. §101.

Because all invention is sequential, a patent monopoly discourages as well as encourages development of both pioneering and incremental inventions.[9] A patent will inhibit sequential invention because competitors will fear an infringement suit[10] or will recognize that even if research is successful a license must be obtained from the patent holder in

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[8] *See* Suzanne Scotchmer, *Standing on the Shoulder's of Giants: Cumulative Research and the Patent Law,* 5 J. Econ. Perspectives 29 (1991); *cf. Morris v. Bramson,* 1 Carp. P.C. 30, 1 Abbott's P.C. 21, 22 (King's Bench 1776) (Lord Mansfield) (mere improvements in manufactures were patentable, because to hold otherwise "would go to repeal almost every patent that ever was granted.").

[9] *See* Mark A. Lemley, *The Economics of Improvement In Intellectual Property Law,* 75 Tex. L. Rev. 989, 998-1013 (1997) ("creators" are "on both sides of the equation" and improvements on prior patented inventions may be "minor," "significant," or "radical").

[10] *See Market Structure* at 217 ("one must bear in mind that every potential inventor is also a potential accused infringer. Thus, a "strengthening" of property rights will not always increase incentives to invent; it may also greatly increase an inventor's chances of being enmeshed in litigation."); *cf.* Carl Shapiro, Antitrust Limits to Patent Settlements, 3, 29 (May 1, 2001), at www.haas.berkeley.edu/~shapiro/settle.pdf (intellectual property disputes are of increasing importance in determining which firms compete; some competitors will not enter markets in order to compete if there is even a small fixed liability cost of entry).

order to profit from the invention.[11] Accordingly, patent scope at some point becomes overbroad: The prospect of a broad patent monopoly will provide less net incentive to innovate than the prospect of a more narrow patent grant. In such cases, competitors will fear to lose their research investments from patents more than patentees will fear to lose their research investments from competition. *See generally* F.M. Scherer, *Nordhaus' Theory of Optimal Patent Life: A Geometric Reinterpretation,* 62 Am. Econ. Rev. 422 (1972); W.D. Nordhaus, *The Optimum Life of a Patent: Reply*, 62 Am. Econ. Rev. 428 (1972); *cf. Market Structure* at 208 ("technical advance has been very rapid under a regime where intellectual property rights were weak or not stringently enforced. We think [such a] regime is the better social bet.").[12]

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[11] *See Market Structure* at 195-98, 205-15 (discussing innovation incentives flowing from subservient blocking patents and licensing failures in different industries). The discouragement of follow-on innovation is a particular concern for the fields of pharmaceuticals, biotechnology, computer software, and information services. In these fields, patents may "lock up" basic compositions or methods and ways of combining them, wholly precluding subsequent inventors from research and development or forcing subsequent inventors to pay substantially for licenses to perform research and to develop products using those patents. *See* Arti K. Rai, *Evolving Scientific Norms and Intellectual Property Rights: A Reply to Kieff,* 95 Nw. U. L. Rev. 707, 710-13 (2001). These industries also may exhibit "network effects," where the value of a product to buyers increases with the number of buyers who previously purchased it. Strong network effects can further increase the reward to a patent monopoly and further discourage subsequent innovation. *See Testimony of Joseph Stiglitz Before the Federal Trade Commission*, (Oct. 12, 1995), at www.ftc.gov/opp/global/GC101295.htm (discussing patent scope and network effects).

[12] When patent scope is overbroad, the public loses the benefit (incurs the opportunity cost) of foregone sequential invention that would otherwise have resulted, and must pay the additional cost of monopoly prices for the less useful goods and services produced by the patentee relative to what competitors would have produced. *See* Arti K. Rai, *The Information Revolution Reaches Pharmaceuticals: Balancing Innovation Incentives, Cost, and Access in the Post-Genomics Era,* 2001 U. Ill. L. Rev. 173 (2001); Joseph Farrell, *Arguments for Weaker Intellectual Property Protection in Network Industries,* 3 StandardView 46 (June 1995).

The most comprehensive recent study documents that as patent protections and the number of patents have increased, competitors have increasingly obtained "defensive" patents to protect their research investments against potential infringement challenges and to assure their ability to obtain reasonable licenses from earlier patentees.[13] The potential to prevent copying remains the principle motivation for patenting, but patent protection nevertheless provides only a weak incentive for investment in innovation (with pharmaceuticals, medical equipment, special purpose machines, and computers as the only exceptions).[14] For most industries, patents now rank far below secrecy, lead time advantage, and other measures in regard to inducing research and development investments, and for all industries patents rank below at least one other measure.[15] These concerns are even more salient for small firms and individual inventors,

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[13] *See* Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (Or Not),* Nat'l. Bur. of Econ. Res. Working Paper 7552, 16-24 (Feb. 2000), at www.nber.org/papers/w7552 (hereinafter "*Protecting Assets*"); *cf. id.* at 18 (firms that patent the most "are disproportionately concerned about prevention of suits and the use of patents in negotiations"); *id.* at 26-27 ("it is not surprising … that we observe the prevention of suits to be one of the most important uses of patents across all industries, notwithstanding the … technology.").

[14] *See id.* at 9 & Table 1; F.M. Scherer, *Industry Structure, Strategy, and Public Policy* 361-62 (Harper Collins 1996) (citing Richard Levin et al., *Appropriating the Returns from Industrial Research and Development,* Brookings Papers on Economic Activity 783-820 (Brookings 1987)) (hereinafter "*Industry Structure*"); *cf.* Bronwyn H. Hall & Rosemarie H. Ziedonis, *The patent paradox revisited: an empirical study of patenting in the U.S. semiconductor industry,* 1979-1995, 32 RAND J. Econ. 101, 106 (2001) (with greater protection, "there is no *a priori* reason to expect that these increased R&D dollars should yield proportionately more patents.").

[15] *See Protecting Assets* at 9 & Table 1; *cf. Industry Structure*, *supra* at 370-72 (first mover advantages have limited generic pharmaceutical competition even after patents have expired).

which are more sensitive to the costs of infringement litigation and patenting than are large firms.[16]

Existing patent law may already discourage investment and invention -- through the fear and expense of infringement litigation incurred by competitors -- more than patent law promotes investment and invention -- through the protection provided to patentees.[17] Put in economic terms, "[t]he broad issue posed, … by the pervasive defensive use of patents is whether the social value of patenting is substantially reduced 'because it requires all to assume the overhead of defensive patenting.'"[18] Given this status, the Court should be particularly reluctant to provide additional expansions of patent scope through generally applicable legal doctrines to benefit particular industries. To do so would increase already-high levels of defensive patenting and litigation costs for all industries, and could be redundant for some industries.[19]

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[16] *See Protecting Assets* at 27; Charles R. Macedo, *First-To-File: Is American Adoption of the International Standard In Patent Law Worth The Price,* 18 AIPLA Q.J. 193, 227-29 (1990).

[17] *See generally* John Barton, *Patents and Antitrust: A Rethinking In Light of Patent Breadth And Sequential Innovation,* 65 Antitrust L.J. 449 (1997).

[18] *See Protecting Assets* at 27 (*quoting Eric von Hippel, The Sources of Innovation* 53 (Oxford U. Press 1988). *See generally* John Barton, *Reforming the Patent System,* 287 Science 1933 (2000).

[19] In particular, the pharmaceutical industry already receives numerous protections against competition and supports for innovation besides the general patent law. For example, Congress: (1) extends drug patent terms to compensate for delays in the regulatory approval of products, and further extends market exclusivity for six months as a reward for conducting pediatric studies, 21 U.S.C. §505A; (2) provides seven years of market exclusivity for "orphan" drugs for patient populations of less than 200,000 persons, 21 U.S.C. §360cc(b); (3) offers tax credits that pay half the cost of clinical trials on orphan drugs, 26 U.S.C. §45C; (4) authorizes special five-year exclusive rights in data used to support FDA regulatory requirements to establish the safety and efficacy of pharmaceutical products, 21 U.S.C. §355(c)(3)(D) (ii); and (5) directly subsidizes and offers grants to commercialize drugs, including the massive investments in research provided by the National Institutes of Health. *See generally* Rebecca S. Eisenberg, *The Shifting Functional Balance of Patents and*

The economic literature, however, evaluates the incentive effects of patent scope generally and does not specifically address the incentive effects that would arise from the additional subject matter to be reclaimed by a flexible bar. Existing studies nevertheless provide a persuasive analogy from which to judge the effects of increasing patent monopoly scope through the flexible bar. That analogy suggests that increasing patent scope beyond existing levels through a flexible bar is not likely to increase investment or invention.[20]

As close analysis of incentives regarding amended patent claims demonstrates, moreover, it is unlikely that the flexible bar would promote investment and invention in any industry from the levels that currently exist under the complete bar. This is true whether one looks at the actual patent that would be before a court when applying the flexible bar or at the dynamic incentives that would be produced if this Court were to adopt the flexible bar. In contrast, patentees under the complete bar since 1870 have retained substantial value in amended claims. If the Court retains the complete bar, that value will remain and cannot decrease.[21]

The application of a flexible bar can have no incentive effects for patentees on invention for patents already awarded. A flexible bar cannot retrospectively alter the incentives that

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*Drug Regulation,* Health Affairs, Sept. 1, 2001 at 20. If any additional protection and support were demonstrated to be necessary, which is not evident, it is evident that Congress could and would provide it.

[20] *See* Mariko Sakakibara & Lee Branstetter, *Do stronger patents induce more innovation? Evidence from the 1988 Japanese patent law reforms,* 32 RAND J. on Econ. 77, 78 (2001) ("We find no evidence of a … significant increase in either R&D spending or innovative output that could plausibly be attributed to these reforms," including authorizing multiple independent claims and providing patent term restoration for pharmaceuticals).

[21] The flexible bar will reclaim only patentable scope in excess of the literal meaning of the narrowed (amended) element. Absent further narrowing statements in the prosecution history, that narrowed element may continue to claim and thus to require licenses for undisclosed, enabled -- *i.e.* foreseeable -- embodiments and uses of combinations and of compositions (such as pharmaceuticals). *See supra* note 4.

led patentees to invent, to disclose their inventions, and to claim less than the full scope to which they were statutorily entitled. Similarly, the flexible bar cannot increase patentees' investments in research and development that led to the particular inventions patented or to the scope of subject matter claimed. In contrast, as discussed in Part II *infra*, the flexible bar would raise prices for goods and services and would discourage competitors from inventing for public benefit.

The flexible bar also should not significantly affect dynamic incentives of patentees to invest and invent, and thus to disclose additional innovations for public benefit. Patentees have proved willing under the complete bar to invest and invent, to disclose and disclaim patentable subject matter. Rather than increasing the degree of investment, invention, and disclosure that patentees would provide, the flexible bar would be likely only to reduce incentives for good claim drafting and to provide *ex post* windfall profits above levels previous found sufficient to warrant the research and development capital already invested by patentees.[22] Existing large profits to patentees did not increase investments, inventions, or disclosures from what the patents described. The windfall profits that would be provided by reclaiming scope thus are unlikely to be put to significant inventive uses.

Of greater importance, even if dynamic incentives for patentees to invest and invent would increase, the flexible bar would discourage innovative effort by competitors. It is likely that the latter incentives will prove the greater and thus that net incentives to invest and invent will decrease. This perceived asymmetry is inherent in the application of the flexible bar, resulting from patentees' disclaimers of inventive

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[22] *See* Marcia Angell and Arnold S. Relman, *Prescription for Profit,* Washington Post A27 (June 20, 2001) ("The pharmaceutical giants spend two or three times as much on marketing and administration as they do on R&D, and their profits are about twice their R&D costs."); *cf.* F.M. Scherer, *The Link Between Gross Profitability and Pharmaceutical R&D Spending,* Health Affairs, Sept. 1, 2001 at 220 (pharmaceutical firms dissipate supranormal profits by increasing promotional and R&D costs).

subject matter. Patentees will not place as high a value on the disclaimed subject matter of the patented invention as will competitors before patent issuance, sequential invention by competitors, and infringement actions. As a result, competitors are likely to invest more heavily in sequential invention in regard to the disclaimed subject matter. In contrast, no such intuition exists for the contrary proposition that patentees will have greater incentives to sequentially invest and invent.[23]

The conclusion that the flexible bar is likely to confer little or no incentive on the patentee to innovate, while more strongly discouraging successive innovation from competitors, is likely to be even stronger when the competition at issue relates to pioneering inventions. For such inventions, the size of the prize for reclaimed scope is relatively large, and the potential for profits are significantly greater. Thus, the disclaimer will reflect a greater asymmetry of incentives.[24]

These considerations are wholly independent of the current state of relative incentives for patentees and competitors to invest and to invent within a given industry. However, these concerns are even greater for small firms and for individual inventors. (Indeed, small firms and independent inventors may be the greater source of innovation in our economy because an incrementally smaller prize means so

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[23] *See* Jonathan B. Baker, *Promoting Innovation Competition Through the Aspen/Kodak Rule,* 7 Geo. Mason L. Rev. 495, 514 (1999) (hereinafter, "*Aspen/Kodak*") (when the legal rule creates a "winner-take-all" decision about whether monopolization will result [such as occurs when expanding patent scope through a flexible bar], vigorous antitrust enforcement [similar to what occurs through the complete bar] "can be expected to encourage fringe firm innovation effort without markedly discouraging dominant firm innovative effort").

[24] On the one hand, "it is [even less ]likely that small reductions in the expected return to the dominant [patent-holding] firm would make much difference to that firm's innovative effort and prospects for innovation success, so long as the total reward remains large." *Id.* at 515. On the other hand, reduction in the prizes for innovation to competitors may make large differences to their incentives to innovate. *See Protecting Assets* at 16-24.

much more to them.[25]) Although one would normally be sensitive to protect smaller inventors' abilities to obtain and enforce patents in order to protect and promote their inventive behavior, in this context doing so would likely do more harm than good. If any additional incentives for small businesses and independent inventors to obtain and enforce patents were demonstrated to be necessary, however, Congress should provide them (*e.g.,* by eliminating Patent Office user fees and subsidizing attorneys' fees).[26] In any event, retaining the complete bar cannot make matters any worse.[27]

Finally, even if the flexible bar would provide some net increase in investment and invention, it would still come at too great a cost to the public. *Cf. O'Reilly v. Morse,* 56 U.S. at 120 ("The evil is the same if he claims more than he invented, … He prevents others from attempting to improve upon the … specification -- and may deter the public from using it, even if discovered."). The short-run cost counsels judicial restraint, and in the long run Congress or the people can act. The flexible bar thus should not be found to promote the "Progress of Science and useful Arts." U.S. Const., art. I, §8.[28]

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[25] *Cf.* Joseph J. Cordes et al., *A Survey of High Technology Firms,* U.S. Small Bus. Assn., at 15, Feb. 1999, at www.sba.gov/advo/research/rs189tot.pdf (hereinafter, "*High Technology Survey*") ("small firms perform R&D with less resources per R&D scientist or engineer.… [S]mall firms are more likely to perform basic research than large firms.… [P]er dollar of sales, the R&D intensity of small technology-based firms is greater than the R&D intensity of large firms.").

[26] Again, this Court should not seek to revise the complete bar applicable to all participants in order to benefit one sector, here smaller inventors.

[27] *Cf. Aspen/Kodak*, 7 Geo. Mason L. Rev. at 514 n.75 (in some cases, "the rule may make little difference to aggregate innovation incentives. But even then, it is not likely to reduce aggregate innovative efforts and … prospects for innovative success.").

[28] *See generally* Pamela Samuelson, *Economic and Constitutional Influences on Copyright Law in the United States,* at www.sims.berkeley.edu/~pam/papers/Sweet&Maxwell_1.htm (economic theory and constitutional influences shape intellectual property law).

## II. A FLEXIBLE BAR TO THE DOCTRINE OF EQUIVALENTS FOR AMENDED CLAIMS WOULD HARM THE PUBLIC

The flexible bar would reclaim a monopoly in some of the disclaimed scope of the original claim that was amended, and would create uncertainty in regard to the remainder of the disclaimed scope. The flexible bar thus would discourage and chill competitors from entering the market, fostering higher prices and reducing choices for goods and services. Consequently, these direct and opportunity costs would harm the public. The effects will be most noticeable in important and rapidly developing industries, such as pharmaceuticals, biotechnology, computer software, and information services. These concerns are particularly salient for small businesses and independent inventors, which may provide the greatest source of innovation.

### A. A Flexible Bar Would Lead To Higher Prices For Goods and Services

In general, broadening patent monopolies eliminates competition and results in higher prices. Claims are being made and patents are being issued to increasingly broad "inventions" that may later be found invalid.[29] In particular, a

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[29] *See, e.g.,* Andrew Pollack, *Battling Searle, University Gets Broad Patent for New Painkiller*, NY Times, at www.cif.rochester.edu/~craig/ cox2patent.html (describing a broad patent for "Cox 2 inhibitors," which could cover a whole area of new pain-relief medications, which have fewer side effects such as stomach ulcers); *An Alta Vista Search Engine Monopoly?*, January 19, 2001, at www.pandia.com/ searchworld/2001-05-altavista.html (describing how a patent on search engine indexing could create a monopoly on the Internet, because the Internet is essentially a distributed set of indexed databases); *Aggressive Patenting May Stifle Gene Discovery Benefits*, Los Angeles Times, February 8, 2000, at www.tech.mit.edu/V120/N3/shorts_23w.html (explaining how a patent on

flexible bar would broaden a patent monopoly by allowing the patentee to recapture disclaimed subject matter. In addition, the uncertainty of the limits of applying the flexible bar would chill competitors from entering the market between the original and amended claim. With fewer companies in the market, prices would invariably rise. As one public health scholar put it, "[t]he best way to break down price controls is to open up markets."[30]

A visible example of how broad patent scope prevents price competition can be observed from the government's use of compulsory licenses. For example, Cipro -- a drug used to treat antibiotic-resistant anthrax -- was available only from the patentee. Cipro cost $4.67 for the general public and $1.77 for the government. When the government threatened to buy Cipro from generic manufacturers -- using compulsory license authority limited to government uses -- the patentee significantly reduced its price to 95 cents per pill. This price is still far above the price for generics in countries where Cipro is not patented.[31] Similarly, a recent comprehensive study of pharmaceutical competition after the expiration of patent term shows that prices normally drop dramatically when generic manufacturers enter the market.[32]

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the "BRAC-1" and "BRAC-2" genes – which determine the probability of ovarian and breast cancer -- could stifle the development of tests for breast and ovarian cancer); Craig Bucknell, *British Telecom: We Own Hyperlinking*, June 19, 2000, at wired.com/news/politics/0,1283,37095,00.html (describing a patent that could require Internet service providers to obtain licenses to hyperlink between Internet sites.).

[30] Statement of Steven W. Schondelmeyer, *Prescription Drugs,* at www.gil.house.gov/isspd.htm.

[31] *See* Gardiner Harris, *Bayer's Cipro Will Be Profitable, Even on Discount Deal With U.S.,* Wall St. J., October 26, 2001.

[32] *See* Stephen W. Schondelmeyer, *Patent Extension of Pipeline Drugs: Impact on U.S. Health Care Expenditures* PRIME Institute, July 28, 1999 at www.house.gov/berry/prescriptiondrugs/schondelmeyer.htm (generic drugs enter the market on average 27% lower than the dominant firm price, and after two years the generic price is 61% lower and the generic manufacturer captures 52% of the market (by units sold)). *See also*

Broad patent scope thus prevents competition and keeps prices at often unaffordable levels. With exploding prices for health-care products, many citizens have to choose between purchasing medicine or a meal. For example, Mr. and Mrs. Riley, a couple from St. Louis, are forced to make this unthinkable choice. Mr. Riley is a diabetic with heart trouble and Mrs. Riley suffers from high blood pressure. Given the sky-rocketing cost of drugs and their limited income, Mrs. Riley "admits that she skips her medication as long as a month at a time in order to pay bills."[33] "Life-saving medicines are available but they are too expensive, due in a large part to patent protection."[34]

Similarly, a flexible bar would raise prices both by expanding the patentee's monopoly and by chilling competitor entry into the market beyond the reclaimed scope. For example, in *Pharmacia & Upjohn Company v. Mylan Pharmaceuticals Inc.,*[35] the Federal Circuit completely barred the patentee from reclaiming the disclaimed scope of the amended element. Had the flexible bar rule been in effect, Mylan either would not have produced its anti-diabetic drug or might have been found to infringe the patent. The public, like the Rileys, would have had to pay higher prices for needed

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Testimony of Bernard Schwetz, Acting Principal Deputy FDA Commissioner before the US Senate Committee on Appropriations Subcommittee on Agriculture, Rural Development, and Related Agencies, May 10, 2001at www.fda.gov/oc/oms/ofm/budget/2002/senatefinalwritten.htm (Statement by Commissioner Schwetz) ("generic drugs substantially reduce the cost of purchasing pharmaceuticals by typically offering price discounts from 50-70%."); Center for Drug Evaluation and Research, *Report to the Nation: Improving Public Health Through Human Drugs*, Food and Drug Admin., U.S. Dept. of Health and Human Servs., at www.fda.gov/cder/reports/ rtn99.htm (generic drugs may be priced between 20 percent and 75 percent of the cost of brand versions).

[33] Matt Dace, *An Impossible Choice: Juggling Medical Needs and Food*, Food Bank at www.stlfoodbank.org/Need/barbara.htm.

[34] Danielle Knight, *WTO Urged to Address Access to Medicine,* TWN Online at www.twnside.org.sg/title/address-cn.htm.

[35] 170 F.3d 1373 (Fed. Cir. 1999).

pharmaceuticals. The public might not be able to afford the reduced competition that would result from the flexible bar.

As with pharmaceuticals, the public would have to pay higher prices for information services if a flexible bar were adopted. In *Bell Atlantic Network Services v. Covad Communications Group,*[36] the public benefited when the Federal Circuit completely barred the doctrine of equivalents to the amended claim element of Bell Atlantic's digital subscribe line (DSL) patent. Had the flexible bar rule been in effect, Covad either would not have provided its DSL service or might have been found to infringe the patent. The public would have been deprived of competition for internet access or would have had to pay higher prices and might not be able to afford them. In fact, this problem already exists, and the flexible bar thus would widen the so-called "digital divide."[37]

In addition to the loss of competition, the flexible bar would cause prices to rise due to the costs of additional litigation and licensing fees. The uncertain application of the flexible bar would generate litigation costs when competitors are not chilled from entering the market. "Based on historical costs, the patent litigation within USPTO and the federal courts begun in 1991 will lead to total legal expenditures (in 1991 dollars) of about $1 billion, a substantial amount relative to the $3.7 billion spent by U.S. firms on basic research in 1991."[38] Firms affected by these high litigation costs (including firms that pay higher insurance costs due to the

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[36] 262 F.3d 1258 (Fed. Cir. 2001).

[37] See Mark Lloyd, *Understanding the Digital Divide: A Speech at Audrey Cohen College*, July 10, 2000, at www.civilrightsforum.org/audreycohen.html ("[A]ccording to the latest release of the Department of Commerce report: Falling through the Net, people with a college degree are 16 times more likely to have Internet access than those with only an elementary school education. A high income household in an urban area is 20 times more likely to have Internet access than a rural, low-income household.").

[38] Josh Lerner, *Patenting In The Shadow Of Competitors*, 38 J.L. & Econ. 463, 470 (1995).

risks of litigation) will pass on some portion of the costs of the flexible bar to the public rather than internalize them.

Similarly, the uncertain application of the flexible bar would cause companies to obtain otherwise unnecessary licenses before they enter the market. Patentees may charge high prices to license the expanded patent rights and the subject matter that the patentee does not have a right to claim. For example, in the semiconductor manufacturing industry, "a new manufacturer would need to spend $100-$200 million or 12%-15% of revenues to license what are now considered basic manufacturing principles but which do not transfer any currently useful technology."[39] The costs of similar licenses required by the flexible bar would be passed on to the public through higher prices for the competitors' goods and services.

The flexible bar thus would harm the public by raising prices for needed goods and services that many citizens could not afford. The flexible bar would prevent competition, leading directly to higher prices from the expanded monopoly. Even if competitors would not be not chilled, prices would inevitably rise due to litigation costs and licensing fees.

## B. A Flexible Bar Would Lead To Fewer And Poorer Goods and Services And Thus To Fewer Choices

In general, broadening patent monopolies discourages competitors from investing to develop additional and better goods and services. Similarly, a flexible bar would broaden the patentee's monopoly and would create uncertainty as to the limits of patented subject matter. The flexible bar would therefore result in fewer innovations by competitors.

A visible example of how patents prevent beneficial innovation is illustrated by comparison to a jurisdiction that

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[39] Symposium, *The Stanford Workshop on Intellectual Property and Industry Competitive Standards: Rapporteur's Report*, Stan. Tech. L. Rev. 1998. at stlr.stanford.edu/STLR/Symposia/Antitrust/99_VS_7/article.htm.

does not recognize certain patents for pharmaceuticals.[40] For example, Cipla Ltd., a drug company in India, created a powerful AIDS drug that is not available in the United States. Cipla created its new drug by combining three drugs, each of which was patented by a different United States company.[41] The result was not only a new product, but also a better product, because those afflicted with the disease have to take one pill rather than three.

Similarly, a flexible bar would prevent innovation and would limit citizen choices both by expanding the patentee's monopoly and by chilling competitor entry into the market beyond the subject matter reclaimed by the flexible bar. For example, in *Glaxo Group Ltd. & GlaxoWellcome, Inc. v. Ranbaxy Pharmaceuticals,*[42] the court applied the complete bar to Glaxo's amended element and allowed Ranbaxy to stay in the market. Had the flexible bar rule been in effect, Ranbaxy would never have entered the market or the court might have required Ranbaxy to exit. Thus, the public would have been denied the choice of an alternative antibiotic.

In addition, the flexible bar would deprive citizens of better products that innovation by competitors can provide. As discussed above, the Federal Circuit applied a complete bar in *Bell Atlantic Network Services,*[43] assuring continued access to Covad's improved DSL technology. The difference from the claimed invention related to Covad's use of "echo cancellation," which permitted two-way communication in a single frequency range over a single channel. Covad's DSL technology was found not to infringe Bell Atlantic's amended claim to unidirectional channels separated by frequency. Had the flexible bar rule been in effect, Covad would not have

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[40] *See* Jesse Pesta, *India Braces for a Brave New Drug World,* Wall Street J., Mar. 7, 2001, at A17.

[41] *India: Cipla Launches 3-In-1 Aids Pill,* Reuters, at www.dailynews.yahoo.com/h/nm/20010806/h/1/aidspull_1/html.

[42] 262 F.3d 1333 (Fed. Cir. 2001).

[43] 262 F.3d 1258 (Fed. Cir. 2001).

invented its improved technology or the public might have been deprived of an innovation then in existence and use.

Similarly, the flexible bar would restrict development of new applications in the software industry, by increasing the breadth of patent monopolies and by chilling innovation. The flexible bar would effectively discourage technology innovators from creating new products that attach to or that interoperate with patented software that has been widely adopted.[44] For example, innovators could be discouraged from creating new application software that runs in the Microsoft Windows operating environment. To avoid similar results under copyright law, courts have limited the scope of protection for computer program interfaces by applying the "fair use" doctrine in infringement cases involving "reverse engineering." *See, e.g., Sony Computer Entertainment, Inc. v. Connectix Corp.,* 203 F.3d 596 (9th Cir. 2000).[45]

## C. A Flexible Bar May Harm Small Businesses And Independent Inventors, Which May Be The Most Important Sources Of Innovation

Concerns that a flexible bar will result in higher prices and reduced choices for the public are most significant for small businesses and independent inventors. Small businesses produce 2.38 times as many innovations per employee as large firms, even though larger firms spend much greater sums on research and development.[46] If a flexible bar were adopted, small businesses and independent inventors may be more likely than larger firms to produce fewer inventions. This is because small businesses would be more sensitive to the high litigation costs of uncertain patent scope that the flexible bar

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[44] *See* Joseph Farrell, *Standardization and Intellectual Property*, 30 Jurmetrics J. 35 (1989).

[45] *See* John P. Sumner, *The Copyright/Patent Interface: Patent Protection for the Structure of Computer Code,* 30 Jurmetrics J. 107 (1989).

[46] *See High Technology Survey* at 15.

would generate.[47] Small businesses, which often are strapped for money, would have to divert limited resources away from research and development to pay for defensive litigation and licensing.

While larger firms can afford research and development as well as comprehensive patent protections in a particular area, small businesses cannot.[48]

> A large number of high-tech small firms do not share a sentiment for tougher patent protection.… [T]ightening of patent regulations is not as important to small high-technology enterprises as it is to large, R&D-intensive corporations that can hope to blanket entire technology areas through a series of patents under consistent long-term strategies. Such large firms can also afford to maintain expensive patent portfolios, and spend whatever it takes to enforce their legal rights in case of intellectual property problems.[49]

## CONCLUSION

In sum, if a flexible bar were adopted, the public would bear the costs of higher prices and foregone invention, because competitors -- particularly small businesses -- would have to spend money on litigation and licensing rather than on research and development. The short-term cost of the flexible bar is simply too great. The Court should not adopt it. For the foregoing reasons, the judgment below should be affirmed.

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[47] Small firms are also sensitive to the high costs of obtaining and enforcing patents. *See Protecting Assets* at 27; *High Technology Survey* at 58. But small firms should be more concerned about infringing dominant firms' patents, as such larger firms have the greater ability to litigate to enforce those patents and thus to prevent small firms from competing in the market. *See Protecting Assets* at 15-16 (larger firms are better able to spread the fixed costs of applying for and defending patents over greater levels of output).

[48] *See High Technology Survey* at 17-24.

[49] *Id.* at 59 (emphasis added).

Respectfully submitted,

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October 31, 2001