



INVENTORS, INNOVATIONS & INTELLECTUAL PROPERTY

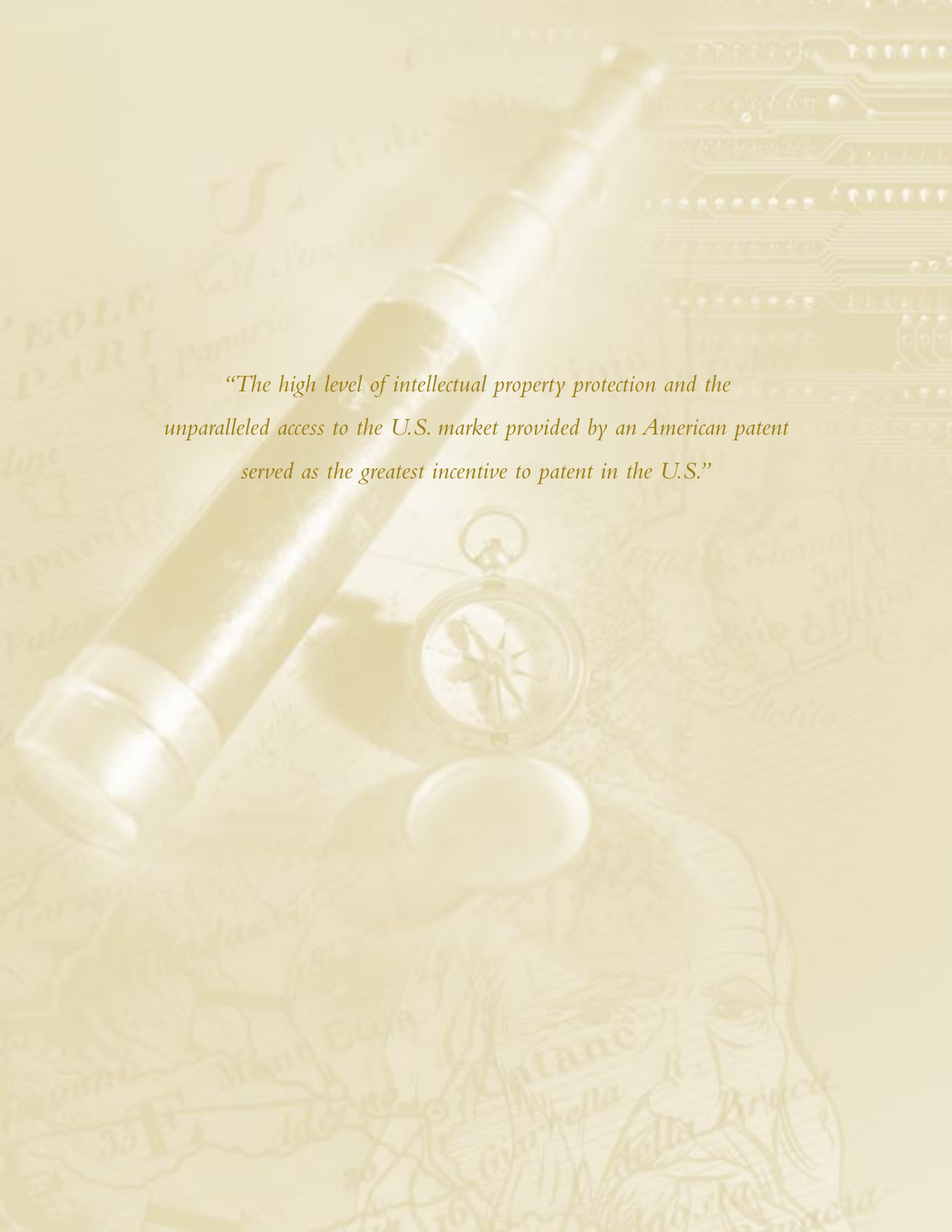
BY MARGALIT EDELMAN

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INTRODUCTION

With the U.S. economy thriving and advanced by an information revolution, the once staid subject of intellectual property has received greater public attention. The financial impact of such knowledge-based products as computer programs, pharmaceuticals, and even entertainment-related goods (films, video games, etc.) has increased awareness of the laws and principles that protect their producers. Much recent debate on the topic has spanned a wide gamut—from the legitimacy of software patents and the public health implications of owning genetic information to online swapping of digital music and software.

Nonetheless, the intrinsic value of intellectual property has long been enshrined in America. Indeed, the founding fathers included a provision on patenting in the constitution and the first patent office was created in 1790, headed by none other than Thomas Jefferson.

Yet, in many other countries, acknowledgment of intellectual property rights is a recent (and often controversial) development. As these countries struggle to implement an intellectual property rights regime that balances inventor's rights and the public good, many researchers have sought to demonstrate the benefits of establishing patent, copyright and trademark protections.

Much research has focused on the connections between intellectual property and foreign investment. Edwin Mansfield demonstrated a close correlation between American, Japanese and German firms' willingness to invest in foreign countries and the level of intellectual property protection provided. Similarly, Richard Rozek and Robert Rapp found a causal linkage between increasing intellectual property protection and stimulating economic modernization.

Rather than duplicate the work of these researchers, we sought to gauge the impact of intellectual property protection from another viewpoint: that of inventors. We hoped to find

out the ways in which such protections (or their absence) help or hinder these creators of intellectual capital.

We contacted foreign inventors who had patented inventions in the United States to determine the primary reasons for patenting here and to investigate any possible correlation between the level of intellectual property protection provided by the United States, the inventor's home country and the decision to patent in the United States.

We also wanted to see how countries could create optimum conditions to promote and support innovation and invention. In our original survey and in secondary interviews, we questioned inventors to find out what drove their inventive processes, what bureaucratic and institutional hurdles they faced, and what their governments (as well as the business community) might do to encourage inventive efforts.

We specifically targeted three countries often cited by the United States Trade Representative for poor intellectual property protection: Argentina, India, and Egypt. We also sought inventors in Mexico, a country that implemented intellectual property reform as a result of obligations under the NAFTA treaty. Additionally, we sent out surveys to a random selection of Latin American inventors.

Our results demonstrate that the high level of intellectual property protection and the unparalleled access to the U.S. market provided by an American patent served as the greatest incentive to patent in the U.S.A. A majority of the inventors also agreed that the U.S. patent process, particularly the speed and reputation of United States Patent and Trademark Office's (USPTO) technical examination, influenced their decision. A third of all respondents concurred that their country's lack of adequate intellectual property protection encouraged them to patent in the U.S., while about 22% said that an American co-inventor was a factor in the choice.



Thomas Jefferson, inventor and the first Commissioner of the U.S. Patent and Trademark Office

PATENTING IN THE U.S. AND INTELLECTUAL PROPERTY PROTECTION

**“[U.S.] Patent laws
are quite conducive
to inventors”**

—RAMADOSS SUNDER,
INDIAN INVENTOR

Our inventor respondents were nearly unanimous in their agreement that the high level of intellectual property protection provided by a United States patent influenced their decision to patent in the United States.

Nearly 60% of the inventors strongly agreed with the statement, “I patented my invention in the U.S. because the U.S. provides an extremely high level of intellectual property protection.” Another 33% agreed with the statement, while only 6% were neutral and 1% disagreed. [See Table I]

We also asked the inventors to respond to the statement, “I patented my invention in the U.S. because my country lacks adequate intellectual property protection”

The response to this statement was less homogeneous, but telling nonetheless. One third of all respondents strongly agreed or agreed with the statement, a relatively high percentage. About 25% were neutral, and 40% disagreed or strongly disagreed. [See Table II]

The notion of “adequate” intellectual property protection, however, involves much more than having patent, copyright and trademark laws on the books. The strength of the laws, actual implementation and enforcement vary greatly among the countries surveyed.

The Trade Related Aspects of Intellectual Property (TRIPs) agreement, a part of the 1995 Uruguay round of negotiations that created the World Trade Organization, set global standards for intellectual property protection. Depending on their level of development,

countries had between one and ten years to implement agreed minimums of patent, copyright and trademark protection.

Many countries used the transition period to improve copyright laws, adding protections for software and other innovations. However, TRIPs—required patent law adjustments have faced more controversy.

While copyright laws are frequently considered to be a way of protecting the interests of local performers, artists and others, stronger patent protection is often perceived to be in direct conflict with local industries—most notably in the pharmaceutical sector—that copy patented products. Many countries did not protect pharmaceutical patents prior to the Uruguay Round, and the implementation of such protections has met with much political strife as local copy-based industries often challenge research-based (usually foreign) companies. For many politicians, the long-term benefits that a culture of intellectual property rights offers do not necessarily outweigh the political costs of short-term adjustments.

Ironically, many of the local companies that reject stronger patent protection end up patenting their innovations in the United States. As one surveyed Indian scientist freely admitted, India presently accepts, “...process patent, not product patent, whereas in USA and Europe, product patent is accepted. In such a scenario, when we invent a new drug, we prefer to protect it in those countries.”

More often than not, independent inventors support reform that strengthens intellectual property protection for every type of invention, though they are wary of the influence of the companies that dominate both sides of the debate. When questioned about their perception of intellectual property laws, several inventors expressed the opinion that such laws were, “...imposed by multinational industries.” Others welcomed changes in laws and praised stronger protection as beneficial for local industry.

One Argentinean scientist who invented several devices used during heart surgery compared protection in the U.S. and Argentina, “There is no doubt that intellectual property is better [in the U.S.] and you are more protected. It is difficult to protect it here, some things are copied a lot.”

TABLE I: Statement 1
I patented my invention in the U.S. because the U.S. patent system provides an extremely high level of intellectual property protection.

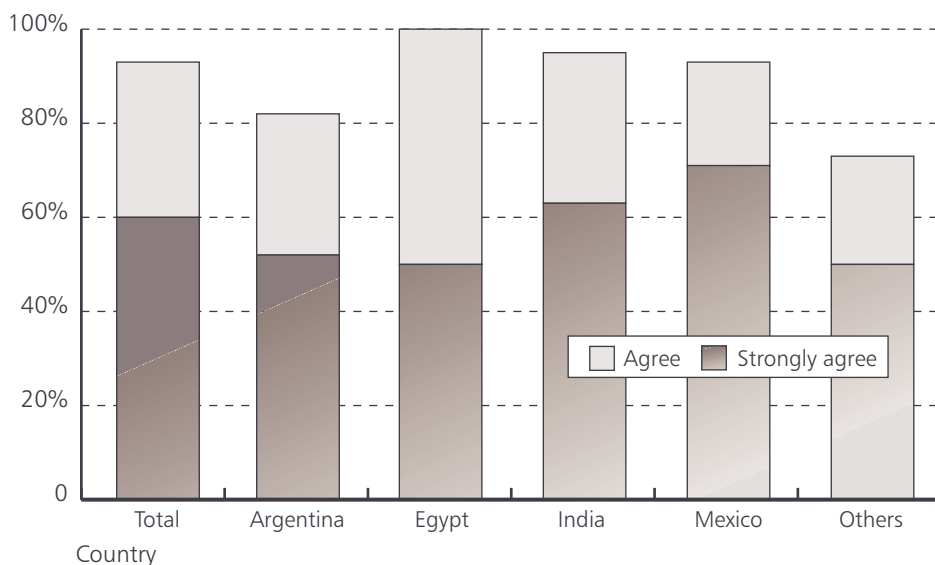
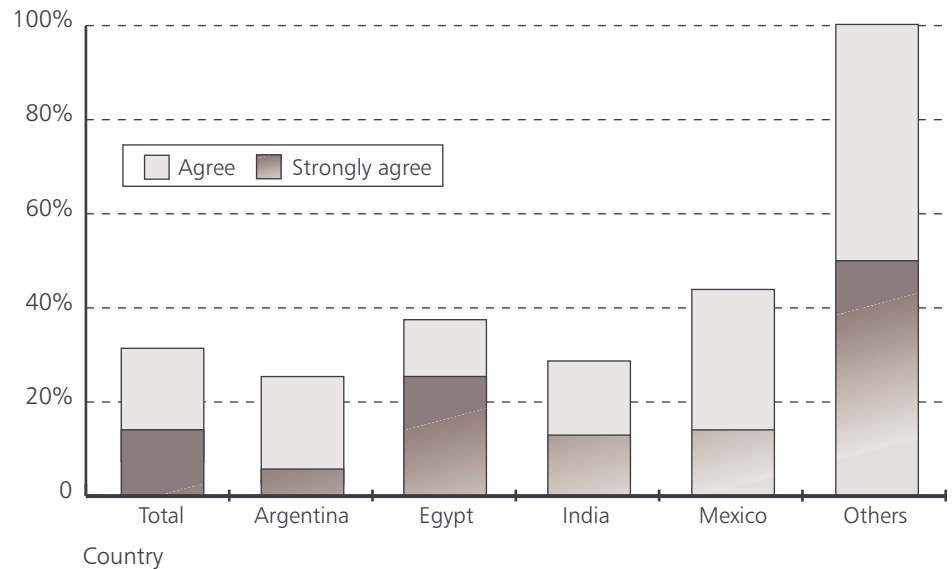


TABLE II: Statement 4
I patented my invention in the U.S.
because my country lacks adequate
intellectual property protection.



Independent Inventors and the Fight over Pharmaceutical Patents

Frustrated with inadequate patent offices, spotty judicial backing, and little civil recognition of intellectual property, many independent inventors have labored to make government attentive to their needs. In this context, the TRIPS agreement offered new possibilities of intellectual property reforms that would promote innovation and help them safeguard their inventions. Inventors hoped that new TRIPS regulations (and the deadlines it set) would truly spur governments to recognize intellectual property

“The discussion of pharmaceutical patents has poisoned the bureaucracy...which is always afraid of granting too many rights to inventors...there is a lot of mistrust.”

—ARGENTINEAN PATENT LAWYER ERNESTO O’FARRELL

rights and allow inventors to take an active role in crafting new laws and readjusting old ones.

While TRIPS and other WIPO treaties did promote the principle of strengthening intellectual property protection, the practice of putting laws into place has met with much controversy. The fiercest debates surround the TRIPS mandated protection accorded to pharmaceutical products. In countries where previous intellectual property laws did not provide patent protection for pharmaceuticals, a number of interested parties have faced off in the press, in front of legislative bodies and in the public realm.

In many cases, the voice of independent inventors has been drowned out by industries affected by changes in patent legislation. In Argentina, India, and other countries, local pharmaceutical manufacturers, who rely on

weak patent protection in order to copy products protected in other markets, have fought tooth and nail against any strengthening of the patent regime. Research based pharmaceutical manufacturers, largely multinational companies from Europe, Japan or the U.S., have tried to improve patent protection, as their products are often copied with little to no reimbursement.

The end result is usually a vicious battle, with politicians unsure of where their interests lie.

Many of the copy based industries have local power, can offer financial support to politicians, and promote a nationalistic worldview that appeals to many politicians. They also highlight their impact on the local economy as a large scale employer, industrial motor, and provider of competition. Politicians must weigh the short term trade-

offs of alienating this constituency with the benefits that strong protections offer (some in the short, some in the long term): increased investment, promotion of innovation and rule of law.

The harsh atmosphere takes its toll, often exacting political costs on what should be a non-partisan entity, the patent office. Argentina’s patent office provides an example of an institution caught in the divisive battle over pharmaceutical patents. According to renowned Argentinean patent lawyer Ernesto O’Farrell, “The discussion of pharmaceutical patents has poisoned the bureaucracy...which is always afraid of granting too many rights to inventors... there is a lot of mistrust.”

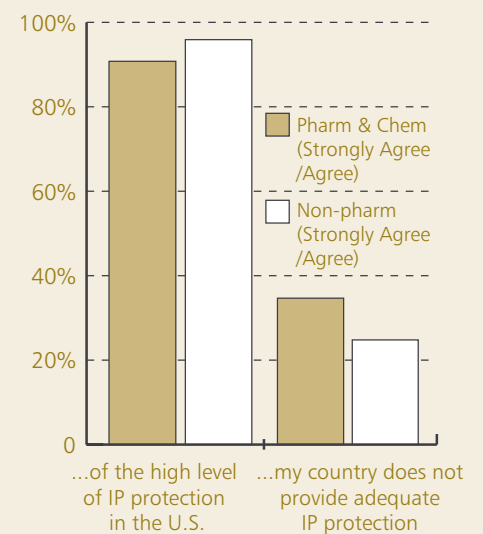
As for the inventors themselves, they often feel torn between the need for better protection

and a hesitancy to believe the big companies on either side that claim to speak for their interests.

In our survey, we looked at the responses of inventors whose inventions fell under the auspices of pharmaceutical and/or chemical compositions that would be affected by TRIPS patenting provisions. {See chart below}

There was little statistical difference between the two groups agreement with regard to patenting in the U.S. because of the high level of intellectual property protection. However, 34% of the inventors of pharmaceutical and chemical compounds strongly agreed or agreed that they patented their inventions in the U.S. because their home countries did not provide adequate intellectual property protection, 8% more than the inventors of non-pharm products. ■

I patented my invention in the U.S. because...



Once countries have established or improved existing intellectual property legislation, the actual implementation can be lacking in any number of areas. For many countries, especially those with limited resources, maintaining a fully functioning patent office can present a number of challenges. Finding enough competent examiners to conduct technical examinations, efficiently process applications and award patents in a timely manner takes time and effort, and most importantly, funding. Additionally, if the fight over intellectual property laws has been especially divisive, patent offices tend to be a locus of partisan bickering, with politics interfering in day-to-day operations.

Inventors who do receive patents still need the legal recourse to back them up. Yet poor judicial infrastructure or corruption may stymie government efforts to promote and enforce intellectual property laws. A Guatemalan software designer and inventor explained the challenges that his and other countries face, “Public legality in developing countries cannot...catch up to the US in these matters for quite a few years (say, twenty or thirty). The reason is that our total legal system is in trouble. Even when we have the right laws, we still don’t have the budget to enforce. We also have so many contradicting laws, that passing a new law (or several) won’t help much, either.”

Developing a consciousness of intellectual property rights, among the judicial and enforcement ends as well as the general populace, can improve the situation. As the Mexican inventor of a medical method commented, “Intellectual property protection is a new concept in Mexico, it didn’t really exist prior to NAFTA...That is very different from other parts of the world, such as the U.S., where such recognition forms part of daily life. In general, no one [there] would dare to violate or question these laws.”

U.S. PATENTS AND MARKET ACCESS

The vast majority of our respondents also concurred with the statement that they chose to patent their invention in the United States because of the great opportunities for licensing and commercialization.

Although the numbers were slightly lower than the first statement, with 47% strongly agreeing, 41% agreeing, 10% neutral, and 1% disagreeing, the respondent comments emphasized the importance of the U.S. market access an American patent provides. [See Table III]

One Argentinean, the inventor of a bone-stabilizing apparatus, summarized his decision to patent in the U.S. succinctly, “The principle reason is the possibility of licensing or commercializing my invention in the United States.”

By virtue of size and consumer spending—a population of 260 million in a \$6 trillion dollar marketplace—inventors have an obvious advantage with a U.S. patent. An Indian inventor who created a special alignment film used for LCD displays also pointed to the size of the U.S. market, “U.S. is a major economy and the useful exploitation of a patent is more likely in the U.S. than in any other country.”

And while a number of inventors’ clubs and for-profit organizations have sprung up recently in many countries to help inventors sell their inventions, the U.S. maintains a large, nearly unparalleled network of such groups.

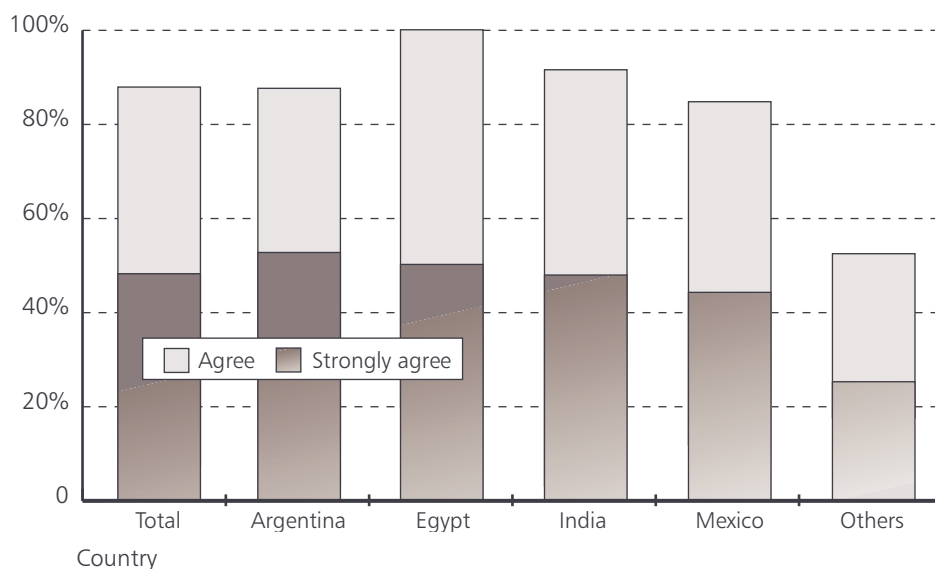
Another Indian scientist, a member of a team that created a new and distinct hybrid plant, summed up the general sentiment, “[We desire] Protection and popularization of our invention among global communities.”

“I wanted to protect my invention in a large market”

—ENRIQUE G. SEQUOIA, CORDÉS, MEXICO

TABLE III: Statement 2

I patented my invention in the U.S. because the U.S. offers extensive licensing/commercial opportunities



Argentina's Inventors

The simple, unadorned room in a Buenos Aires elementary school contrasts sharply with the incredible energy and passion of the twenty or so inventors gathered here. It's a mild Monday winter night, and the Argentine Association of Inventors (AAI) is holding its weekly meeting.

AAI President Eduardo Fernández, an accomplished inventor himself, is leading the discussion. If there is any person in Argentina that has his finger on the pulse of this dynamic community, it is Fernandez. He also works as the executive director of Fundación Biro, an organization founded by famed Argentine inventor Laszlo Biro (he invented the Birome, or ball point pen) that gives out annual awards for national inventions and helps the winners attend an international competition in Geneva, as the director of a unique "young inventors school" which is held Saturday mornings, and is also a consultant to the World Intellectual Property Organization (WIPO) and the International Federation of Inventor Associations (IFIA).

Since its founding ten years ago, the AAI has served a crucial role for Argentine inventors. More than 500 members benefit from the organization's leadership and support. As an advocate for independent inventors in Argentina, AAI helps promote the image and activities of its inventors and also advises national and international authorities on necessary changes to fortify industrial property rights that affect independent inventors. AAI also helps its members navigate the sometimes rough waters of the inventive process, from patenting their product to marketing and commercialization, in Argentina and abroad.

According to Fernandez, the Argentine patent office receives approximately 6000 patent applications annually, about 60% from foreign firms, and 40% from local inventors. By contrast, only 2% of all patent applications in other Latin American countries, such as Brazil and Mexico, are filed by local inventors.

Many of the inventors at this evening's meeting hold U.S. Patents. Some also hold Argentine patents, or are waiting for the

lengthy application process to be completed.

Conversations with the inventors yields almost unanimous responses regarding the reasons for (and benefits of) patenting in the United States.

All the inventors interviewed cited the large American market as their greatest motivation for patenting in the United States. In general, the chances of attracting investors and successfully commercializing a product are substantially higher in the U.S. than in Argentina.

According to a number of inventors, the intellectual property protection afforded by a U.S. patent also makes it indispensable.

Finally, the speed and efficiency with which U.S. patents are granted also make them attractive to foreign inventors. It took only one year for Hector Luis Galano to receive a U.S. patent for a unique sculpting compound he created. He is still waiting for his Argentine patent, even though his initial application was filed over six years ago.

Other inventors tell similar horror stories of their frustrating interactions with the National Institute of Industrial Property (INPI).

Often mired in political controversy, the inventors believe that this essential institution has failed to meet its potential. Fernandez argues that the lack of institutional continuity—there have been five directors in seven years—inefficiency, and dearth of resources, including qualified personnel, "paralyzes inventors...they lose hope and prefer to patent and market elsewhere." Fernandez estimates that his inventors wait on average three to five years for their Argentine patents to come through. Yet despite these complaints, echoed by local lawyers and business people, INPI employees seem to be equally frustrated with the political strife their embattled institution has suffered, and would like nothing more than to have the resources and support many other patent offices receive. The employees



Meeting of the Argentine Association of Inventors

there greet customers with characteristic Argentine warmth, and do their best to overcome institutional shortcomings.

In October 2000, a new patents law took effect in Argentina. The subject of much controversy and political wrangling, the law has earned mixed reviews from the AAI. The inventors are frustrated that, according to the new law, INPI will publish the formula or specifications of the new product while the patent is still being considered, allowing others to easily copy the invention before an inventor has received protection. They have also expressed disdain with the amount of discretion given to INPI in awarding compulsory licenses. ■



The Argentine Industrial Property Office

“The U.S. is more organized. Legal services are very good—especially in helping get a patent—but you have to pay a lot of money.”

—DOMINICAN INVENTOR
GUILLERMO SOLOMON PADIAL

THE U.S. PATENT PROCESS

A slight majority of respondents agreed that the simplicity and accessibility of the U.S. patent process affected their decision to patent in the United States.

18% Strongly agreed and 35% agreed with Statement 3, “I patented my invention in the U.S. because the patent process is simple and accessible.” 32% were neutral, 14% disagreed and 1% strongly disagreed. [See Table IV]

Respondent comments showed a great respect for the U.S. patenting process, with much praise for the efficiency and technical capability of the United States Patent and Trademark Office (USPTO).

Indeed, the U.S. patent was often prized as international recognition of an invention’s legitimacy and distinction. For example, in profiling scientists and engineers, many Indian newspapers often boast about the number of U.S. patents the individual has obtained. A Mexican inventor confirmed this opinion, “A patent in the U.S.A. is a guarantee of worldwide prestige, since your analysis is of great technical and scientific quality.”

That prestige also carries weight that can aid in the commercialization of an invention. According to one Argentine inventor, “[The patent is useful for] the high level of influence [it] has on negotiations in and outside the U.S.”

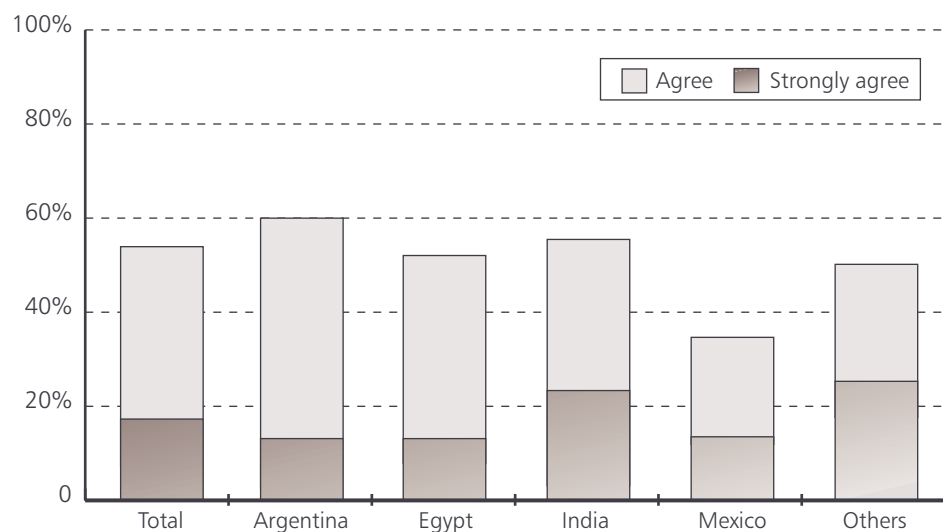
Many inventors praised the speed at which patents were awarded, a particularly crucial factor in some fields. As one inventor explained, “Time taken in scrutinizing and granting a

patent in U.S. is much less in relation to other countries, including India.”

According to Walter Park, an economics professor at American University who is an expert in patent laws, “One of the reasons why firms might find the U.S. ‘simple and accessible’ is that the rules are all laid out. A nice web page at the USPTO guides patentees well. The U.S. search and examination process is also top notch in terms of quality review and turnaround time. Also most firms retain the services of law firms to help them file patents here in the U.S., and there are many expert qualified attorneys here (who are of course also very expensive). There is trust in the system and its representatives. If something goes wrong, firms have ways to sue attorneys for malpractice. Not so in Europe (at least not for foreigners), especially from developing countries. It’s a lot more difficult. Plus, the European patent office rules are complex, and there are turf wars between national offices and the European Patent Office (EPO), revenue sharing and so-forth, which might discourage firms from wanting to apply there rather than the U.S. Plus, EPO fees are high.”

However, many of the respondents criticized the high cost of obtaining a U.S. patent, out of reach for many independent inventors or requiring great personal sacrifice. As the Dominican inventor of special engine explained, “The U.S. is more organized. Legal services are very good—especially in helping

TABLE IV: Statement 3
I patented my invention in the U.S. because the patent process is simple and accessible.



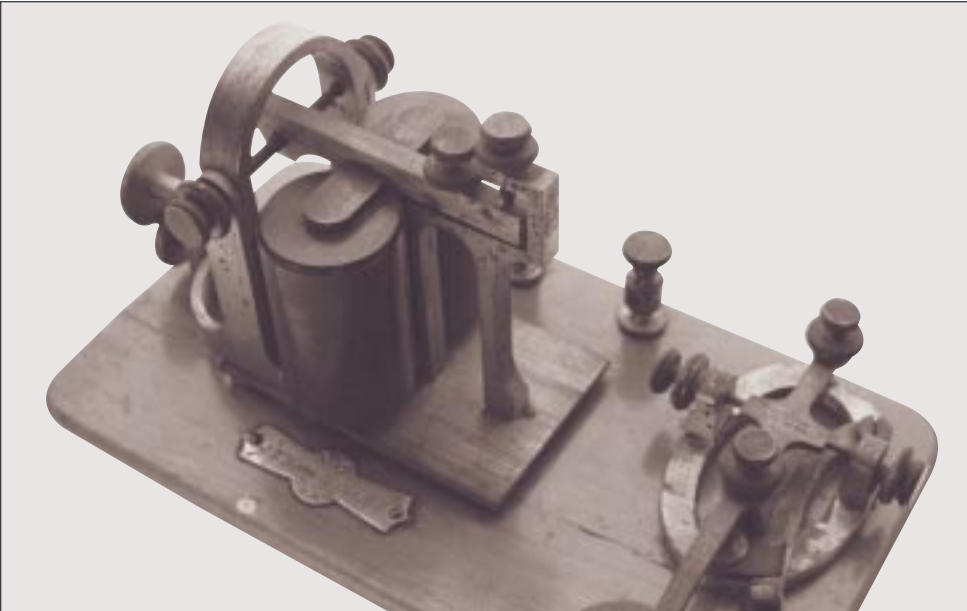


Photo of telegraph

get a patent—but you have to pay a lot of money.” Consequently, efforts to profitably market the invention take on greater urgency.

A small number of inventors also listed their partnership with an American inventor or company as a factor in their decision to patent in the U.S. 22% of all respondents strongly agreed or agreed that they patented in the U.S. because their partner is American, 17% were neutral, and 52% disagreed or strongly disagreed.

Some of the inventors stated that they worked for U.S. companies, which required them to patent and also facilitated the process. One inventor explained that his company incentivized patents in the U.S.

Patent Costs

There are few things that can stanch a passionate inventor’s need to create. Perhaps the greatest antidote to the exhilaration of innovation are the associated costs. Aside from the logistical costs of translating an idea to an actual object, are the expenses incurred to ensure adequate protection through obtaining a patent.

Inventors in the U.S. and particularly other countries with much lower per capita incomes, sacrifice much in terms of time, effort and funding to secure intellectual property protection.

While the U.S. offers the shortest waiting time generally for a patent, approximately 1 to 2.5 years, the corresponding costs can be discouraging. Independent inventors can expect to spend anywhere from \$5000 to \$10,000 in lawyers’ fees, application and processing fees, and additional annual maintenance fees once the patent is granted. They may also incur costs either defending their patent or challenging someone else’s.

Patenting costs, from filing fees to lawyer’s costs, vary widely among different countries. Few surveys exist, and even these cannot easily be compared due to differences in methodology, samples surveyed, the patent

model used, and the prospective inventor country. In “Highlights and Perspectives on the First Three International Symposia on Reducing Patent Costs,” Walter Park summarizes some of the recent literature on patenting costs. His review finds that one of the greatest expenses inventors encounter is the cost of translating their patent applications, particularly if they choose to file in the European Patent Office or Japan.

Maintaining a patent is also a serious financial commitment. Park cites a study by Edwin Berrier (“Global Patent Costs Must be Reduced” from *Idea: The Journal of Law and Technology*, Vol. 36, No. 4, pp. 473–511) that estimates the costs of applying for and maintaining until expiry a chemical patent in 52 countries at \$472,414. The costs associated with Japan are most expensive, about 8.5% of total costs, while Hong Kong’s are the cheapest, accounting for just 0.2% of the total.

Patscan News estimates that obtaining and maintaining a patent for its full course in the United States would cost approximately \$12,000. Maintenance fees for a similar patent would cost US\$70,000 to cover eight European Community countries and \$30,000 in Japan. ■

A sample of patent waiting time and filing costs (does not include attorney’s fees, translation costs or other charges)

Country	Patent Wait (in years)	Filing Costs (in U.S.\$)
U.S.A.	1 – 2.5	1390
Japan	5 – 7	4772
France	2 – 3	3042
Germany	1.5 – 5	3066
Italy	2.5 – 3	3662
Spain	1.5	3504
Switzerland	2	2995
UK	3 – 4	1220
Argentina	2 – 4	2415
Brazil	3.5 – 4	1770
Chile	2	1170
Mexico	3	2605
India	2 – 3	460
Australia	2	970
Canada	3 – 4	690

PATENTING AT HOME AND ABROAD

Many of our respondents were also seeking or planning to seek patents in their home countries or other countries, such as Japan or the European Union.

For those inventors who plan to commercialize their inventions locally, a patent in their home country is a necessity. However, if they are also planning efforts to market their invention internationally, a foreign patent from the U.S., Japan and/or Europe is especially valuable since it is often awarded quickly, denotes legitimacy and offers solid intellectual property protection.

The Patent Cooperation Treaty (PCT) has facilitated patenting in more than one country.

Globalization has increased the necessity of seeking patent protection throughout the world. As inventors attempt to sell their innovations beyond local boundaries and the most recognized markets, they must also thoroughly protect their products. Thus, the PCT allows inventors to seek patent protection simultaneously in each of a large number of countries by filing an international patent application. The end result is not actually an “international patent,” but rather a process that serves as a clearinghouse, so that one patent application can take effect in all 89 PCT member states.

Indian Inventors and Intellectual Property

You need not go much further than India’s newspapers to gain insight on the conflicting attitude towards inventing, innovation, and intellectual property protection.

Local press lavish Indian scientists there and abroad with praise for their accomplishments, often lauding the number of U.S. patents they hold.

Yet the same newspapers also feature vitriolic editorials or opinion pieces lambasting efforts to impose “first world” patent laws and urging India to delay implementation of the TRIPs accord.

In no other country has the issue of intellectual property inspired such heated and emotional discourse. Although local and foreign industries with a huge stake in the issue have often steered the debate, a number of highly publicized intellectual property cases involving local products, and a strong sense of nationalism has invigorated the public to sound off as well.

In his article, “The Indian Intellectual Property Rights Regime and the TRIPs agreement,” London School of Economics professor Shondeep Banerji deftly explains the Indian patent regime and the circumstances which have led to loud public and political discussion of TRIPs and its implementation.

According to Banerji, India did have a strong legacy of patent protection, exemplified by the

Indian Patent and Design Act of 1911. However, a number of amendments passed in 1970 severely weakened protection. The “...reasons for this apparently unusual act are embedded in the broader economic and ideological environment that prevailed between 1947 and 1970. At that time, steps taken by the Indian government seemed logical in light of its overall development plan.” That plan strengthened local companies, giving them distinct advantages over foreign companies operating in India.

“...To become globally competitive, especially, in emerging areas such as IT, pharma and biotechnology, strong intellectual property protection both within India and outside is a necessity.” —INDIAN SCIENTIST

The local pharmaceutical companies blossomed in this environment, producing copies of patented drugs that were sold in India and exported to other countries as well. This enormous market power was also a source of national pride. The increased patent protection mandated by TRIPs naturally threatens these industries.

Many Indians also raised the issue of “bio-piracy,” the patenting of traditional or indigenous knowledge that appears to be in the public domain. Several high profile disputes involving efforts to patent well known Indian products such as turmeric, neem and

Basmati rice have heightened sensitivity and increased hostility to patent laws. Nonetheless, a number of safeguards have effectively invalidated undeserved patents. For example, in 1993, two American scientists of Indian origin filed a patent for use of turmeric to heal wounds. However, the U.S. Patent and Trademark Office (USPTO) revoked the patent after a number of groups challenged its legitimacy, successfully citing ancient texts as prior art. Similarly, a Texas company that patented the “Basmati” Rice variety withdrew several of

its patent’s claims after the Indian government contested the patent. In the future, similar disputes may be resolved by new measures regarding geographical indications. Several groups have also been pushing for amendments to TRIPs which would specifically protect indigenous knowledge.

The scientists and inventors we surveyed held mixed opinions. Some saw intellectual property protections as the result of unwanted, outside influences, and unlikely to help the scientific community, “There is no genuine encouragement in India for good and creative



This Argentine Inventor created a unique sculpting compound

CONCLUSION

While our sample was relatively small, the results of our survey and follow-up interviews are nonetheless significant.

Many countries recognize the value of promoting innovation and by speaking first hand with inventors, we have gleaned some information on how they can best accomplish that.

The purpose of a patent is to reward an inventor with exclusivity for a period of time in exchange for the public disclosure of his invention. Thus, we find that the inventors highly value intellectual property rights. Moreover, the intellectual property protection they seek involves not just the granting of a patent, but more importantly, the actual

functionality of that patent, and the necessary institutional infrastructure to defend that patent (through adequate legal procedures).

There can be little doubt that in a rapidly evolving information economy, a frank discussion of how we access and protect knowledge is crucial to promoting innovation and the public good.

However, a less encouraging trend now emerging is a seemingly wholesale distrust of intellectual-property rights. So long as intellectual property rights are viewed as a “first world imposition,” it will be difficult to make gains in promoting reform and improvement. As J. Michael Finger and Philip Schuler explain in their study, *Implementation of Uruguay Round Commitments: The Development Challenge*, “The lack of instinctive ownership of the reforms needed to comply with WTO obligations will make implementation very difficult, and will likely push governments to superficial adjustments aimed at avoiding clashes with trading partners. Private and social sector shareholders were not involved in the creation of these obligations—nor even the government agencies that will ultimately be responsible for implementation.”

Some of our inventors seemed to display a contradictory attitude, which lauded stronger intellectual property laws (that protected their efforts) but then criticized them as heavy-handed intrusions into local sovereignty. Others, particularly in scientific fields, thought the new laws would help attract investment, but recognized that they would be inadequate without proper government backing and structure, as well as increased public support.

A second theme that emerges from our survey is the importance of access to certain markets and greater investment opportunities. Most of our inventors felt that they were more likely to succeed in gaining financial backing and commercializing their products in the United States or Europe than in their own countries. However, in many cases, their inventions have an international applicability. Inventor associations and for-profit marketing arrangements can help inventors gain market access locally and abroad. The internet has become an excellent resource for advertising inventions and ideas as well.

scientific work. Elitist Indians in India have a slavish mentality and the pharmaceutical multinationals are the new colonists. They use money [and] power to suppress good scientific work on traditional Indian medicinal concepts and practices.”

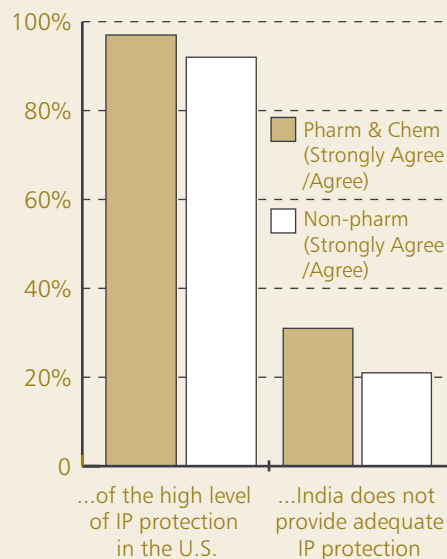
But others urged India to see strong intellectual property protection as an important means of modernization, “As far as industry grows, the very fact that India is getting integrated into the world patent conventions leads to investments in patentable R&D. It is now recognized by the Indian industry that for it to become globally competitive, especially, in emerging areas such as IT, pharma and biotechnology, strong intellectual property protection both within India and outside is a necessity.”

Banerji points out that despite the tremendous profitability of the copy-based pharmaceutical sector in India, only 1 to 2% of sales are actually dedicated to research and development of new molecules. This is in sharp contrast to research based pharmaceutical companies, which reinvest over 20% of sales back into research and development.

As one analyst at the Liberty Institute, a think tank in New Delhi, argues in the organization’s newsletter, “...the cost of rejecting IPR, whether on ideological grounds (as in the

former socialist countries) or on pragmatic grounds in the hope of bringing immediate benefits to the people (as in India) are increasingly becoming obvious. It is not coincidence that even with one of the highest levels of scientific and technical manpower, India has failed to develop the scientific temper and make her presence felt globally.” ■

I patented my invention in the U.S. because...





An inflatable remote control protector was designed by Argentine inventor, Mario Ribeiro.

Promoting Innovation

How can governments and business help promote innovation and support the work of inventors in many different fields? The following comments from different inventors help highlight the many areas that can be addressed to foment inventive activity.

● Helping inventors individually

"Bridging the gap between the inventors and the business community is the area where effort needs to be put. Inventors need to understand their rights and obligations. Most inventors come from a very technical background and lack the basic business skills such as writing a business plan, understanding the concepts of Venture Capital, how to deal with banks, private investors, what revenue (royalties) they should expect if they license their invention, etc." —*Adel Danish, Egyptian inventor of a telephone keypad matrix.*

● Increasing private/public sector participation and funding

"Private industry needs to play an important role in raising the level of research in Indian universities. There is no lack of talent/capability in academia, however, a greater exposure to the latest/relevant areas of research based on business needs will be of great help." —*Mahesh Mehendale, Indian inventor of a configurable logic circuit and method.*

"I think we need to direct research to solve our problems, not problems of developed countries. I also believe that we need to establish a link between industry and University, state the problems, commercialize the solutions developed and maybe even market these

solutions, turn them into inventions if they are of that quality. Also, we need to make use of our large number of scientists and researcher in a more practical sense in the field by giving them a chance to practice and produce. A link with the developed world is essential to exchange knowledge and cooperate on international projects."

—*Mohab Hallouda, Egyptian inventor of an adjustable speed drive used for motors in residential applications (such as air conditioners).*

"...I believe we already have a number of elements in place to develop research in Mexico (the National Council of Science and Technology, National System of Researchers, etc.). It would be enough just to channel greater resources to the sciences to help them grow. They have never given this sector priority, and this is translated in insufficient funds to help it grow. The private industry here, especially if you compare it with the U.S.A., does not participate in the development of research. Greater participation by the private industry could vastly change the panorama." —*Felipe Vadillo, Mexican inventor of a method of predicting premature fetal membrane rupture in pregnant women.*

● Raising awareness of importance of innovation and patenting

"The concept of inventorship and the necessity as well as compulsion to create wealth out of knowledge is of a recent origin in India. Only in the last ten years has this country realized that its immense intellectual potential must be harnessed to generate wealth. Consequently, patenting has become

more visible in the last decade. There are several incentives in place within publicly funded organizations such as NCL to reward inventors in monetary terms." —*S. Sivaram, India inventor of a chemical catalyst system for the preparation of "drag reducers" that help improve the flow of petroleum in pipelines.*

"The government of Mexico should set aside a bigger budget to stimulate this type of [inventive] activity, create patent offices, and recruit business specialists to work for the research institutions so that we can really patent and commercialize what we patent. This would be particularly helpful since we researchers ourselves don't have our own funds nor the adequate experience to realize these objectives" —*Dra. Ma. de Lourdes Munoz, Mexican inventor of a process to obtain antibodies that identify pathogenic amebiasis, a disease that is a major public health problem in developing countries.*

"We are exporters of talent. There needs to be greater protection for inventors and stimulation of inventive capacity." —*Mercedes Suarez, Argentinean inventor of an umbrella for publicity purposes.*

● Better Intellectual Property Laws and Patent Offices

"The first step the government has to take is to strengthen the Indian patent office and modernize its functions. Secondly, it has to frame legislation in areas such as agriculture, biodiversity etc. by which Indian inventors can obtain protection for new ideas. Lastly, both government and industrial organization will need to create an internal value system by

Governments and the private sector can also play a role in promoting inventive activity. Public-private partnerships which bring together universities, research institutions, and private companies offer unique collaborative opportunities. Overall, however, the inventors we spoke with lamented a general disinterest on the part of governments in aiding and advancing innovation. They criticized not just a lack of funding, but also the absence of educational and civil initiatives. They wished their governments would hold a more enlightened view on the importance of inventive activity in generating economic growth.

Finally, our inventors often registered frustration with the patenting process and the functioning of their patent offices, which were usually mired in politics. Two important issues emerge from this observation: the inability of patent offices with few resources to handle the great demands of the patent process and also the need for governments to depoliticize patent offices.

The first problem is in some ways being rectified by technology, expanded use of the Patent Cooperation Treaty and increased attention (and resources) devoted to improving national patent offices, though there is still much to be done in the way of infrastructure.

The second problem is more complex. While the TRIPs agreement is binding, there is still much debate over its implementation, and the applicability of patent laws to certain products or processes, most notably pharmaceuticals. Yet, patent laws and offices as a whole often suffer even if the debate is just

focused on this one area, since the weakening of patent laws for a specific type of invention also erodes the overall intellectual property protection provided to all inventions. Moreover, if the patent office is converted into a political tool, its resources become dependent on the outcome of partisan assaults, with appointees often hired and fired with little thought to continuity. Inventors and investors have little confidence in the inefficient and unstable institution that can result from these circumstances.

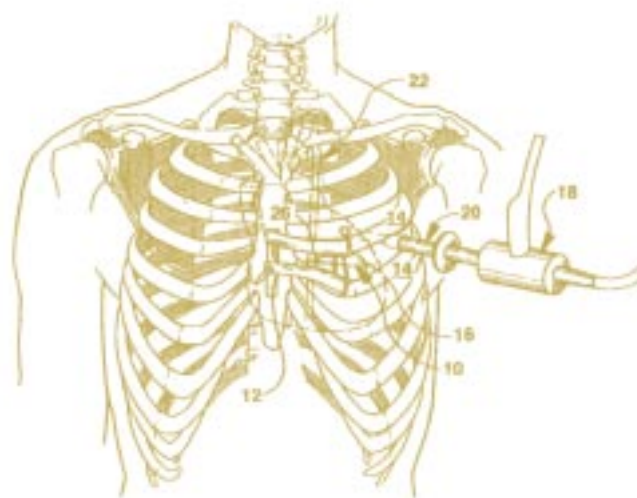
Inventors will always exist, and they will always invent. Indeed our inventors reminded us that there are few obstacles that can thwart the compulsion to create, the need to seek solutions for problems small and large. However, there are ways to help inventors, to reward them for their efforts and to ensure that their inventions benefit society. In a world increasingly dependent on knowledge and technology, those countries that best support inventors and innovation have the most to gain. There is no set formula to establishing an environment that will produce the next renaissance, but there are some essential ingredients: solid intellectual property protection, institutional infrastructure, rule of law, and a civil society that recognizes the importance of inventors. No country, regardless of size or situation, holds a monopoly on inventiveness. Nonetheless, those nations that view their inventors as valuable resources and treat them as such are most likely to see an explosion of innovation in the 21st century and reap the resulting benefits. ●

which inventors are accorded the same level of peer recognition which academic scientists enjoy at the present time." —*S. Sivaram, India inventor of a chemical catalyst system for the preparation of "drag reducers" that help improve the flow of petroleum in pipelines.*

"Govt. should make strict laws and vigil to establish patent protection and stop piracy." —*Ranjan Chalkrabarti, Indian inventor of pharmaceutical compositions used in the treatment of diabetes and related diseases.*

"Set up an intellectual rights educational program for developing countries. In Guatemala, for example (in all of Central America, for that matter), patents are *almost* the same as copyright, and this is terrible! Patents are presented and "inscribed", and that's it: "you've got a patent to your name," they'll say. And this confuses everybody. They can't now distinguish between a copyright and a patent. (Once again, this happens because there is no budget to review each application, and the rest is simply put...lack of education.)" —*Armando Amado, Guatemalan inventor who holds a number of patents, including one for a supporting technology integrating spreadsheets and databases.*

"Unfortunately, the INPI (Argentine Industrial Property Office) does not function as it should and is often counterproductive for inventors. It should not be a controversial subject that the patent office works, offers good protection, and ultimately helps inventors reach the marketplace." —*Eduardo Fernandez, Argentinean inventor* ■



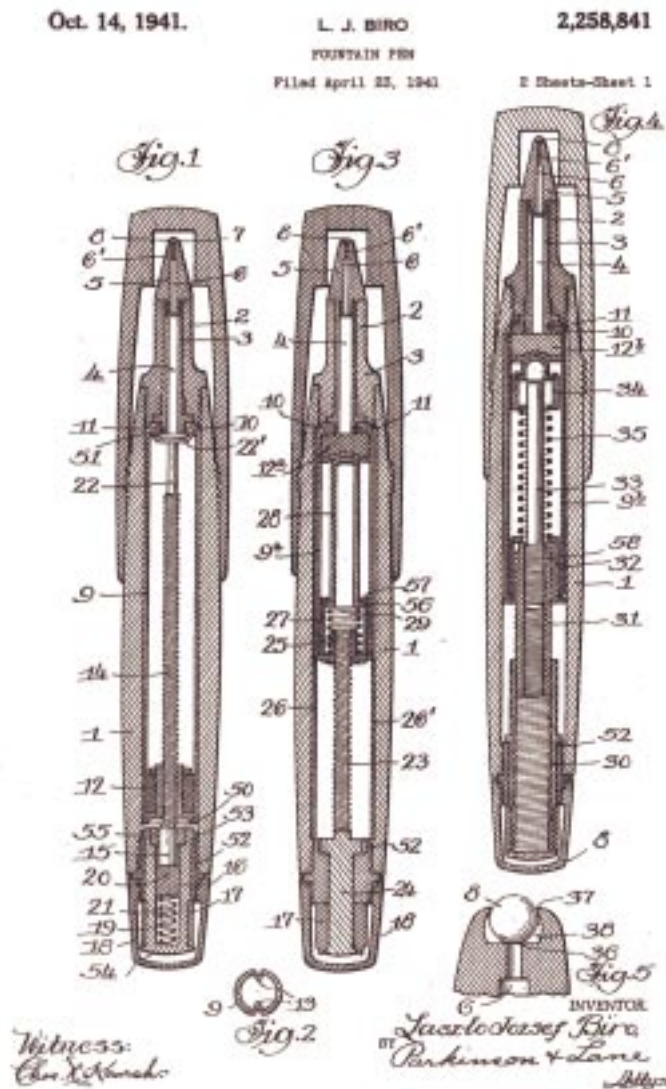
Patent illustration for a surgical tool

Acknowledgements

The author would like to thank the following institutions for their support and assistance in completing this study:

- Atlas Economic Research Foundation - www.atlas-fdn.org
- Hispanic American Center for Economic Research
- The Fraser Institute - www.fraserinstitute.ca
- Fundación Republica para una Nueva Generación
- Fundación Libertad - www.libertad.org.ar
- Alexis de Tocqueville Institution - www.adti.net

We are also extremely grateful to the many inventors who graciously completed our surveys, as well as the Argentine Association of Inventors for their cooperation and U.S.P.T.O. staff who helped us track down patents.



Patent illustration for the ballpoint pen

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Appendix B: Survey Results

TOTAL [Argentina, Egypt, India Mexico, Other Latin America]

	S1	S2	S3	S4	S5
Strongly Agree (SA)	59.57%	46.81%	18.09%	13.83%	12.77%
Agree (A)	32.98%	41.49%	35.11%	19.15%	9.57%
SA/A	92.55%	88.30%	53.19%	32.98%	22.34%
Neutral	6.38%	10.64%	31.91%	25.53%	17.02%
Disagree (D)	1.06%	1.06%	13.83%	35.11%	31.91%
Strongly Disagree(SD)	0.00%	0.00%	1.06%	6.38%	20.21%
SD/D	1.06%	1.06%	14.89%	41.49%	52.13%

ARGENTINA TOTALS	S1	S2	S3	S4	S5
Strongly Agree (SA)	52.00%	52.00%	12.00%	4.00%	16.00%
Agree (A)	36.00%	36.00%	48.00%	20.00%	8.00%
SA/A	88.00%	88.00%	60.00%	24.00%	24.00%
Neutral	12.00%	12.00%	20.00%	40.00%	16.00%
Disagree (D)	0.00%	0.00%	20.00%	36.00%	24.00%
Strongly Disagree(SD)	0.00%	0.00%	0.00%	0.00%	24.00%
SD/D	0.00%	0.00%	20.00%	36.00%	48.00%

EGYPT TOTALS	S1	S2	S3	S4	S5
Strongly Agree (SA)	50.00%	50.00%	12.50%	25.00%	37.50%
Agree (A)	50.00%	50.00%	37.50%	12.50%	12.50%
SA/A	100.00%	100.00%	50.00%	37.50%	50.00%
Neutral	0.00%	0.00%	50.00%	25.00%	25.00%
Disagree (D)	0.00%	0.00%	0.00%	25.00%	0.00%
Strongly Disagree(SD)	0.00%	0.00%	0.00%	12.50%	25.00%
SD/D	0.00%	0.00%	0.00%	37.50%	25.00%

INDIA TOTALS	S1	S2	S3	S4	S5
Strongly Agree (SA)	62.79%	46.51%	23.26%	13.95%	6.98%
Agree (A)	32.56%	44.19%	32.56%	13.95%	6.98%
SA/A	95.35%	90.70%	55.81%	27.91%	13.95%
Neutral	4.65%	9.30%	30.23%	16.28%	11.63%
Disagree (D)	0.00%	0.00%	13.95%	44.19%	48.84%
Strongly Disagree(SD)	0.00%	0.00%	0.00%	11.63%	20.93%
SD/D	0.00%	0.00%	13.95%	55.81%	69.77%

Percentage of inventors with or waiting for a patent in their home country

Total	71%
Argentina	76%
Egypt	25%
India	88%
Mexico	50%
Other respondents	25%

MEXICO TOTALS	S1	S2	S3	S4	S5
Strongly Agree (SA)	71.43%	42.86%	14.29%	14.29%	14.29%
Agree (A)	21.43%	42.86%	21.43%	28.57%	21.43%
SA/A	92.86%	85.71%	35.71%	42.86%	35.71%
Neutral	7.14%	14.29%	42.86%	35.71%	28.57%
Disagree (D)	0.00%	0.00%	14.29%	21.43%	7.14%
Strongly Disagree(SD)	0.00%	0.00%	7.14%	0.00%	14.29%
SD/D	0.00%	0.00%	21.43%	21.43%	21.43%

Percentage of inventors with or waiting for a patent in other countries

Total	61%
Argentina	72%
Egypt	13%
India	74%
Mexico	43%
Other respondents	0

OTHER LATIN AMERICAN RESPONDENTS

	S1	S2	S3	S4	S5
Strongly Agree (SA)	50.00%	25.00%	25.00%	50.00%	0.00%
Agree (A)	25.00%	25.00%	25.00%	50.00%	0.00%
SA/A	75.00%	50.00%	50.00%	100.00%	0.00%
Neutral	0.00%	25.00%	50.00%	0.00%	25.00%
Disagree (D)	25.00%	25.00%	0.00%	0.00%	50.00%
Strongly Disagree(SD)	0.00%	0.00%	0.00%	0.00%	0.00%
SD/D	25.00%	25.00%	0.00%	0.00%	50.00%



The United States.

To all to whom these Presents shall come. Greeting.

Whereas Samuel Hopkins of the City of Philadelphia and State of Pennsylvania hath discovered an Improvement, not known or used before such Discovery in the making of Pot ash and Pearl ash by a new Apparatus and Process, that is to say, in the making of Pearl ash 1st by burning the said Ashes in a Furnace, 2^d by dipping and boiling them when so burnt in Water, 3^d by drawing off and setting the Lye, and 4th by boiling the Lye into Salts which then are the true Pearl ash; and also in the making of Pot ash by flowing the Pearl ash as made as aforesaid, which Operation of burning the said Ashes in a Furnace preparatory to their Dipolition and boiling in Water, is new, leaves little Residuum, and produces a much greater Quantity of Salt: These are therefore in pursuance of the Act, entitled "An Act to promote the Progress of useful Arts", to grant to the said Samuel Hopkins, his Heirs, Administrators and Assigns, for the Term of fourteen Years, the sole and exclusive Right and Liberty of using, and vending to others the said Discovery, of burning the said Ashes previous to their being dipoluted and boiled in Water, according to the true Intent and meaning of the Act aforesaid. In Testimony whereof I have caused these Letters to be made patent, and the Seal of the United States to be hereunto affixed. Given under my Hand at the City of New York this thirty first Day of July in the Year of our Lord one thousand seven hundred & Ninety.

G. Washington

City of New York July 31st 1790.

I do hereby certify that the foregoing Letters patent were delivered to me in pursuance of the Act, entitled "An Act to promote the Progress of useful Arts", that I have examined the same and find them conformable to the said Act.

Edm. Randolph Attorney General for the United States.