

GLOBAL PATENT COSTS MUST BE REDUCED

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I. INTRODUCTION

Global patent costs are too high and must be reduced. These exorbitant costs are preventing U.S. inventors [n1] from seeking and maintaining global patent protection. Without global patent protection, a competitor may freely practice U.S. inventions outside the United States. Ironically, this inequity is occurring in the face of favorable progress reports on harmonization and the implementation of TRIPS.

The individuals, companies, universities, and other institutions that are or have been represented by the members of the International Intellectual Property Society (IIPS) represent a large part of the inventive genius that has transformed the U.S. into an economic superpower. Whether we are talking about fibers, pharmaceuticals, computers, chips, aircraft engines, or heavy construction equipment, we win when we have the technology. U.S. inventors spend billions each year to develop technology. Yet many U.S. inventors dedicate their inventions to the public outside the U.S. because they cannot afford global protection.

The United States Patent and Trademark Office (PTO) and the United States Trade Representatives (USTR) have been great friends and supporters of U.S. inventors for years, and they have performed an outstanding job in negotiating trade agreements that call for improved regimes for the protection of intellectual property rights. Improved world-wide patent systems have been a significant part of these agreements.

*474 But once again U.S. inventors need the help of the PTO and USTR to ensure that the requirements under TRIPS are not denied by the pricing practices of foreign patent offices. For example, TRIPS calls for a minimum patent term of at least twenty years from filing. Should a country be permitted to effectively limit the patent term to ten years by charging outrageously high maintenance fees for patents? The answer is clearly no.

II. PATENT COST FORECAST: ONE IPO MEMBER'S VIEW

Figures 1 and 2 illustrate the total cradle-to-grave costs for patents covering a single invention in fifty-two countries. [n2] The countries are listed in descending order from

highest cost to lowest cost. These costs are based on a chemical case with no drawings, twenty pages of application, and ten claims. [n3] The total costs for these fifty-two countries is \$472,414. Of these costs, on average, 30% occur in the first five years, 20% in the next five years, 22% in years eleven through fifteen and 28% in the last five years or years sixteen through twenty. Figures 1 and 2 illustrate a country-to- country cost range from \$40,000 in Japan to about \$2,000 in South Africa, with an average cost over fifty-two countries of \$9,085. In sum, these numbers expose some alarming trends.

For example, with a total patent cost of \$472,414, filing ten global applications each year and maintaining the resultant patents would eventually result in an annual cost of about \$5 million and fifty global applications per year would lead to an annual cost of about \$24 million. Most companies cannot afford an annual patent portfolio budget of \$24 million. Yet there are many companies that issue more than one hundred U.S. patents a year, and there are some companies that issue around one thousand patents annually. Global protection at this level, for the full twenty-year patent term, can lead to costs of \$500 million a year!

Alarmingly, three of the top four countries in figure 1 have just recently established their patent systems. Ukraine, Thailand, and Russia alone account for about \$55,000, or 12% of the total. If this is any indication of what we have to look forward to as more countries *475 promulgate new or improved patent systems in response to the TRIPS agreement, U.S. inventors could face a serious patent protection crisis.

Finally, costs over the first five years of \$143,000, were the highest of the four five-year periods in figures 1 and 2, and represent 30% of the total twenty-year cost. While it is true that a U.S. inventor can significantly save costs by dropping patents that lose their commercial value, if protection is pursued in the fifty-two countries, every invention that one guesses wrong on will cost \$143,000, assuming it takes five years to discover the error.

Breaking patent costs down into five year periods can be useful in making the cost/benefit analysis for patents covering products having different commercial life cycles. Technologies or inventions in different industries have different useful lives. At one extreme might be the pharmaceutical or chemical industry where a patent on a useful drug or useful chemical composition can be valuable for the full life of the patent. At the other extreme may be areas of the electronics industry where a product or design may have a useful life of five years or less. [n4]

III. PATENT COST FORECASTS BY GEOGRAPHIC REGION

A. Europe

Figure 3 represents the European region where Germany is the most expensive country at \$17,265. Germany is followed by Norway (\$15,785), Finland (\$14,300), and Austria

(\$14,265). France (\$8,335) and Britain (\$7,090) are bargains considering their size and their markets. Total costs for the seventeen countries shown is \$126,610. [n5]

*476 B. The Americas

Figure 4 represents the Americas region, excluding the U.S. [n6] Except for Mexico, these countries do not perceive maintenance fees as a revenue source. Accordingly, 65% of the costs in these countries occur in the first five years.

C. The Pacific Region

Figure 5 represents the Pacific region. Total costs for the fourteen countries shown are \$171,365. It should be noted that three of the most expensive countries in the region, Thailand, Indonesia, and China, are relative newcomers to the world of patents.

D. Eastern Europe, the Middle East, and Africa

To complete the geographical picture, figure 6 illustrates the patent costs for Eastern Europe, the Middle East, and Africa. Newcomers, like Ukraine and Russia, are more than twice as expensive as most of the other countries. The same cost trend is also observed in the trademark arena. These countries seem to view the business of registering trademarks and issuing patents as a source of hard currency.

IV. THE TRILATERAL PATENT OFFICES: WILL THEY SET A GOOD EXAMPLE FOR NEWCOMERS?

With the implementation of GATT, a number of countries are expected to reform their patent legal systems or to put into place patent legal systems to comply with the TRIPS agreement. It is further expected that these countries will look to the trilateral patent offices, i.e., the U.S. PTO, EPO, and the Japanese Patent Office (JPO), for guidance and for examples of the best practices that should be followed.

The remainder of this article will focus on patent costs in the EPO, Japan, and the U.S., as illustrated in figures 7-10, and what example is being set for newcomer countries. [n7]

*477 As shown in figure 7, the total cradle-to-grave costs in the seventeen EPO countries is \$134,401, the total cost in Japan is \$30,498 and \$22,522 for a patent with ten claims and two claims respectively. The total cost in the U.S. is \$14,370. These numbers include all amounts paid to patent offices, all translation costs, and all fees paid to agents. Comparatively, the U.S. appears to be a bargain among patent law systems. This however does not suggest that the U.S. increase patent costs. On the contrary, if the system is to work for everyone, if there is to be a level playing field that will stimulate progress and

technology development by making patents affordable and therefore available as a practical matter to protect inventions, we must find ways to reduce patent costs.

Figure 7 shows the total patent costs for the original ten EPO countries to be \$102,044. The costs for these countries is shown because in October of 1993, I attended the 10th anniversary of the trilateral cooperation between the EPO, JPO, and the USPTO and had the opportunity to ask the three Commissioners questions that represented concerns of U.S. industry. As a representative of a large customer of all three patent offices, I indicated that it was encouraging to hear about the great progress that the three offices had made in harmonizing their activities and improving their cooperation. But, I also expressed my disappointment that this progress had not brought about any cost reductions and that to the contrary, over the ten-year period that was being celebrated, costs had skyrocketed. Our research at the time showed that from 1983 to 1993 the official fees paid to the EPO and the EPO national patent offices increased at a compounded average annual growth rate of about 11% each year. At this rate, these patent costs were doubling every 6.5 years--far in excess of the inflation rate during the same period.

Looking at the numbers in figure 7, it should be kept in mind that the market or economic unit defined by the EPO is about the same size as the U.S. in terms of Gross Domestic Product (GDP) and population, and it is about three times the size of Japan. Figures 8-9 show these markets in terms of GDP in 1992 and in terms of population in 1993. If the market is viewed solely in terms of population as in figure 9, then the U.S. is comparable to France, Germany, Italy, the Netherlands, and the U.K. combined.

*478 Figure 7 illustrates that patent costs are from four to nine times more expensive in the EPO than in the U.S. for patents covering essentially the same size market. In Japan the total cost for a patent containing ten claims is \$30,498. If the same patent had two claims, the cost would be reduced to \$22,522.

V. CUMULATIVE COST TO EXPIRATION OF A JAPANESE PATENT FILED AFTER 1987

Figure 10 illustrates the major component of patent costs in Japan for all applications filed after 1987. For these patents, the maintenance fee paid will depend on the number of claims in the patent and the number of years since the kokoku [n8] was published for opposition. Across the top of figure 10 are the number of claims in the kokoku. In the far left hand column are the number of years of patent life remaining at the time the kokoku was published for opposition. The numbers in the body of the table are the cumulative maintenance fees or annuities that are paid over the life of the patent. For a patent with one claim and fifteen years remaining, one would pay \$10,618. For a patent having twenty claims and fifteen years remaining, one would pay \$29,561. The table stops at twenty claims, but claims over twenty are not free; the fees simply keep multiplying. Consequently, U.S. inventors who file applications having more than a few claims will find Japan to be prohibitively expensive if they do not modify their cases. All claims are

counted, both dependent and independent, so U.S. inventors should drop all dependent claims that are not essential or do not add substance to the application.

The official fees paid to the respective offices from filing through grant are shown in figure 11. The \$10,831 in the EPO is more than five times the amount in Japan and the U.S. [n9] Also, translation costs in the national phase at the EPO are \$15,543 versus \$3,000 in Japan as shown in figure 12. [n10]

*479 Finally, as shown in figure 13, agent fees in Japan and the U.S. are about equal in cost and the EPO is about twice as expensive at \$12,258.

VI. MAINTENANCE FEES: THE TAXES WE PAY TO KEEP OUR PATENTS ALIVE

Maintenance fees are what make patent protection in Japan more expensive than the U.S. and what makes the EPO virtually unaffordable. As illustrated in figure 14, maintenance fees in Europe are over \$95,000. Maintenance fees for the original ten EPO countries are over \$74,000, and for the five largest EPO countries the fees are \$48,385. This compares with \$19,591 for ten claims or \$11,615 for two claims in Japan, and \$5,790 in the U.S.

Of course, the value of a patent in any particular country or territory is a function of the size of the market and the level of economic activity in the territory that is covered by the patent. Again, one way to measure a market is to look at the GDP for the covered territory; another way is to look at the total population in the market covered by the patent.

Figure 15 shows that dividing the U.S. population into the total U.S. patent cost yields a per capita patent cost in the U.S. of \$56 per million people, while the same per capita cost in the EPO is 6.5 times higher, and in Japan is from 3 to 4 times higher. Similarly, figure 16 shows that dividing the U.S. GDP into the total U.S. patent cost yields a per capita patent cost in the U.S. of \$2.60 per billion dollars of GDP, while Japan is from 4 to 5 times higher, and the EPO is eight times higher at \$21.

The high maintenance costs are excessive and set a bad example and precedent for less developed countries as their laws are modified to comply with TRIPS. The EPO has provided a model form of harmonization. U.S. inventors file one application in English, go through one prosecution and then register the resulting patent in many countries. Although the EPO appears efficient, during the years from 1983 to 1993 official fees increased at an average annual growth rate of 11%. These numbers suggest that U.S. inventors have "taken their eye off the ball." While U.S. inventors have made sure that all the "i"s are dotted and all the "t"s are crossed properly in treaties calling for improved and harmonized patent laws, patent costs have continued to escalate. Without question, harmonization is an admirable and desirable goal. I do not want to be misunderstood. I am 150% in favor of harmonization. But it is not because I crave neatness; it is because

harmonization should *480 provide speed, predictability, and lower cost. U.S. inventors should not forget the cost factor.

VII. CONCLUSION

If patent offices around the world make global protection of an invention unaffordable, then as a practical matter U.S. inventors will lose the benefits expected to flow from harmonization and TRIPS. Harmonization should be linked to lower patent costs that can be afforded by the individual inventor, university, small company or large company. Furthermore, because a company is large does not mean that it can afford to pay outrageously high fees. What is not economically sound for the small entity is not economically sound for the large entity; one is just a multiple of the other.

Global patent costs are a critically important issue for all inventors and patent practitioners and the timing is critical. It is one of the top strategic initiatives that has been identified by the IPO board. The Japanese Intellectual Property Association has formed an ad hoc committee to work with IPO in this effort. The American Intellectual Property Law Association, American Bar Association Section of Intellectual Property Law, and the Pacific Intellectual Property Association are also working on this issue. Similarly, the PTO and the USTR, along with the international patent attorneys who represent U.S. intellectual property owners, must help press this issue until it is resolved.

As customers, it is time to speak out about the high cost of acquiring and maintaining patents outside the U.S. Through lobbying targeted at cost control and reductions, congressional leaders can be informed of the inequities facing U.S. inventors in their pursuit of global patent protection. The U.S. must not allow the world's patent offices to take away through pricing what they are required to provide in their patent law by TRIPS and other trade agreements.

*481 Patent Cost Forecast

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*483 Patent Cost Forecast

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*485 Patent Cost Forecast -- Europe

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*487 Patent Cost Forecast -- Americas

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*489 Patent Cost Forecast -- Pacific

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*491 Patent Cost Forecast -- Africa, Eastern Europe

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*493 Patent Cost

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*499 Cumulative Cost to Expiration of a Japanese Patent Filed after 1987

[Note: The following TABLE/FORM is too wide to be displayed on one screen. You must print it for a meaningful review of its contents. The table has been divided into multiple pieces with each piece containing information to help you assemble a printout of the table. The information for each piece includes: (1) a three line message preceding the tabular data showing by line # and character # the position of the upper left-hand corner of the piece and the position of the piece within the entire table; and (2) a numeric scale following the tabular data displaying the character positions.]

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Number of Claims Published for Opposition (Kokoku)

Years 1 2 4 6 8 10 14 17

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Kokoku

1...+...10...+...20...+...30...+...40...+...50...+...60...+...70...+....

***** This is piece 2. -- It begins at character 80 of table line 1. *****

80..+...90.

***** This is piece 3. -- It begins at character 1 of table line 7. *****

15	\$10,618	\$11,615	\$13,609	\$15,603	\$17,597	\$19,591	\$23,579
14	8,807	9,635	11,290	12,944	14,599	16,253	19,562
13	6,998	7,656	8,970	10,285	11,601	12,916	15,546
12	5,188	5,675	6,651	7,627	8,603	9,578	11,530
11	4,283	4,685	5,492	6,298	7,104	7,910	9,522
10	3,377	3,695	4,332	4,969	5,605	6,241	7,514
9	2,472	2,706	3,173	3,639	4,106	4,573	5,506
8	2,020	2,211	2,593	2,975	3,356	3,738	4,502
7	1,568	1,716	2,013	2,310	2,607	2,904	3,498
6	1,115	1,221	1,433	1,645	1,858	2,069	2,494
5	889	973	1,143	1,313	1,482	1,652	1,992
4	662	726	853	980	1,108	1,235	1,489

3	436	479	563	649	733	818	988
2	291	319	376	432	489	546	658
1	145	160	188	216	244	272	330

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\$26,570 \$ 29,561

22,044 24,526

17,519 19,492

12,994 14,457

10,731 11,941

8,468 9,423

6,206 6,906

5,074 5,647

3,944 4,389

2,812 3,130

2,247 2,501

1,680 1,871

1,115 1,242

744 828

371 414

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Figure 10

*501 Patent Cost

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*503 Patent Cost

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[n1]. Erwin F. Berrier, Jr. is General Patent Counsel at the General Electric Company in Fairfield, CT.

[n1]. The term "U.S. inventor" includes: individuals, colleges, universities, businesses, corporations, and any U.S. entity with an interest in protecting its intellectual property abroad.

[n2]. Patent cost data used in figures 1-6 was computed by a member of the Intellectual Property Owners, Inc. (IPO).

[n3]. Japan is an exception where five independent claims and a pre-1988 filing date are assumed. Also, in Europe an EPO application is assumed. The IPO member that compiled these numbers has its own patent agents in Europe, thus agent fees for filing and prosecution of the EPO case have not been included. Agent fees for the national phase are included.

[n4]. One presenter at an Association of Corporate Patent Counsel meeting had performed a study of the mix of his company's product sales over several years. He found that 90% of his company's sales in any given year were products that had been introduced within the last three to five years.

[n5]. The average one to five year cost for the EPO countries is shown at about \$750. This is because the IPO member that generated the data from which this chart was made has "in house" European patent agents through whom they file EPO applications, and so those agent costs have not been included. This data also assumes that the national phase is included in the years six through ten cost. Based on personal experience, I would be inclined to include the national phase costs in the years one through five cost build-up.

[n6]. U.S. cost is addressed below. For the purposes of a direct comparison with the rest of this data, the reader can assume the U.S. would be about \$12,000.

[n7]. Figures 7-10 are based on the following assumptions: (1) September '94 exchange rates; (2) a twenty page application; (3) ten claims (but for Japan we will assume a post-1987 filing date and also show the costs for two claims); and (3) two sheets of drawings, two office actions, and two amendments (in the U.S. we have also included the cost of preparing the original application, but to compensate for that, we have not included translation fees). Further, published fee schedules were used to compute agent fees in Europe and Japan. 1993 population estimates and 1992 GDP numbers were also used.

[n8]. Kokoku is the publication of the examined patent application for pre-grant opposition. The law changed effective January 1, 1996. For examined patent applications that were not published for pre-grant opposition prior to January 1, 1996, substitute the date of patent grant for the Kokoku date in figure 10.

[n9]. The EPO cost quoted includes the fees paid to the national patent offices during the national phase of the EPO patent.

[n10]. As noted above, an amount for translation for the U.S. has not been included. However, this omission has been compensated for by including the cost of preparing the original patent application and two amendments as the patent attorney fees in the U.S., while the fees that have been included for Japan and Europe are simply for filing and prosecution of the corresponding application.