

# International Patent Cartels and Patent Statistics Between World War I and World War II

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**Abstract :** After World War I there were many patents invented by employees of some member companies of international patent cartels, and patented to domestic member companies. Editing the "Centennial History of Japanese Patent System", we manually checked all Japanese patent specifications and counted such patents. Those patents reached 8.81% of Japanese granted patents from 1885 to 1945. Such international patents increased the number of domestic patents in progressive technological fields.

**Keywords:** *patents, Japanese patent system, patent statistics, patent cartels*

## 1 INTRODUCTION

The Japanese Patent Office edited "Centennial History of Patent Systems of Japan" (3 volumes) in 1984-85, and I was engaged several years in the work.

During the editorial work, I counted the nationalities of patentees for evaluating the technology transfer in the class of 196-1 "measurement of electricity and magnetism", and found that there was a distinguishable number of granted patents, of which inventors were foreigners (their residents are in the USA or elsewhere) and patentees are Japanese companies.

For instance, patent applications of Philips, RCA or Siemens were applied by Japanese companies of members of the cartel as Nihon Electric Company or Victor of Japan. Such patents were officially counted as domestic patents, but they should have been counted as foreign patents.

We found that the granted patents of domestic patentees overcame those of foreign patentees if we counted those patents as domestic inventions (see upper part of Graph 1: Delay of Overcoming Time of Domestic Patents of 196-1 "Measurement of Electricity and Magnetism"). However, the overcoming point delayed to 1931 or 8 years delay if we counted those patents as foreign patents (see the lower part of the Graph 1).

We decided to count all specifications and tried to make the process of technology transfer to Japan clear, as one of our important tasks of editing the centennial history was to give the standard history of technology in Japan to

Japanese staying and working in foreign countries.

Then we began the manual counting of about 20,000 patent specifications from 1885 to 1945. There seems to be no similar data elsewhere.

All those patents are 3842, whereas all foreign patents (patentees are foreigners) are 39772 until 1945, or 8.81 % of all foreign inventions patented in Japan, especially from 1925 to 1943.

There are two kinds of such patents: (1) Those before 1896, the age in which Japan did not grant patents to foreigners, and some inventors sold their inventions to Japanese who applied them in Japan. (ii) The second is what are discussed in this paper.

## 2 HISTORICAL BACKGROUND OF ANALYSIS

After World War I we had the age of blocked economies. Production of new technologies became over-production, and competition to cultivate new technologies became severe.

In the USA it was recognized that there were no full sets of radio communication devices without using all patents of the age. The US Navy thought the situation serious and took the policy for all US radio companies to make a patent pool cartel and use members' patent with each other(1). Then they established the Radio Corporation of America (RCA) for this purpose. In their contracts, we find the names of governments and companies of international radio communication.

Also it was only one system to justify the dividing of markets, except for patent and trademark contracts.

Then many international patent cartels covered all fields of international industries.

Inventions of some employees of certain member companies of such cartels were exchanged with similar inventions of member companies of other countries, and those patents were granted to domestic member companies.

With this phenomenon, we find that many export troubles relating to patents have infringed the same set of patents (patent family)

This type of patent is estimated to be found in the patent data in all countries.

These international patent cartels made the typical system of blocked economy between the two world wars, divided the international market, and had an effect upon technology transfer.

In the USA it is well known that those patents made serious shortages of materials and paralyzed weapons manufactures just after the beginning of World War II because many large US companies were spellbound by their contracts with the Nazi Government of Germany (2).

Contrary to the USA, Japan obtained large technological support from German, who had the technology for making artificial gasoline, tungsten-carbide, artificial gum, optical technology (3).

For Japanese industries, we had two serious problems. First, there occurred many infringement suits of exported products abroad, and the prohibition of exports damaged producers outside the cartel members. Almost all of those suits were based upon related patent infringements.

We have a typical record of such suits, the first 3 cases in America by General Electric from 1929 to 1931, and then Jakarta, Netherlands and Ostrich by Philips, Brazil and Canada by GE, and some trademark infringements in China, England, Basla and Batavia. Through those suits the troubled companies differed but the infringed patents were the same in all cases.

Second, the technology of foreign patents and relating knowledge do not spread outside the member companies. The member companies had to pay a large amount of money, especially in foreign currency that should be spent for all of the nation but not for private companies.

In Japan almost all of electric engineering were transferred by such international cartels. Then academies and industries called such patents as "enemy-like" patents. Enemy assets were confiscated during the World War II but the patents were not as they were assets of Japanese companies. We see those patents granted through

World War II in the graph. Finally, an order for compulsory licensing during the war made transfers of such technology free in the country (4).

### 3 DATA AND ANALYSIS

#### 3.1 DATA

All patented specifications were classified into the files of the Japanese patent classification of the age and a set of them was reclassified with the classification of 1921 after the Patent Office was burnt down by the Grand Kanto Earthquake of 1923. A team of my editing group counted about 20,000 granted patents by 1945 according to the classes and kinds of patentees with the files. We could not continue the work for patents after World War II because of an excessive number of patents, many changes of patent classifications, and switching into the International Patent Classification.

The patent classification of 1921 had 207 classes and 2212 groups, with some classes divided into several subclasses. Some specifications had been classified into plural classifications. Also we classified the kinds of patentees as individual (hereafter in), corporate (co), governmental or prefectural offices (of), foreign inventors (fi), American (AM), Great Britain (GB), German (DT), and those of other foreign nationalities (OT).

Foreign inventors (fi) means that the patents

have Japanese patentees but their inventors were not Japanese. Such cases are divided into two types, some cases appeared while the patent system was not open to foreigners by 1899, the other cases mainly appeared between World War I and World War II when the international cartels divided world-wide market into several territories according to the then map of empires and their colonies, ie. during the blocked economies. The member companies of an international cartel exchanged the patent applications with each other. The member company of a country applied the exchanged application to his country and was granted.

In the data there are at least two kinds of miscounting errors of about 5% in total .. One is that secret patents for military purposes were not counted. The other is plural classifications for a patent. For instance, the number of patent in 1885 was 99, but in this table there were 111 patents. These errors were not particularly influential in

our analysis.

### 3.2 PATENTS OF FOREIGN INVENTORS

The distribution of patents of foreign inventors and domestic patentees yielded the following tendencies.

For Graph 2: Distribution of Patents for Inventors Foreigners and Domestic Patentees, there was a first patent of this kind in 1903 when

Japan had not entered the Paris Convention, and there were no foreign patentees. From 1910 there were some cases every year and jumped from 1920 with 70 patents. In 1925 those patents reached 244 and increased by more than 100 every year until 1943.

The number of granted patents of technological fields are given in Table 1

**Table I: Distributions of Patents of Foreign Patentees and Ones of Foreign Inventors and Japanese Patentees**

	Ordinary patent A	Type in this paper B	Percentages $B/(A+B) \times 100\%$
Agriculture and fishing	775	3	0.39
Machinery	18300	606	3.21
Textiles	1964	50	2.48
Chemistry	9108	620	6.37
Electricity	7229	2429	25.15
Daily necessities, stationary.	2396	134	5.30
<i>Total</i>	<i>39772</i>	<i>3842</i>	<i>8.81</i>

Thus, those patents were concentrated in the fields of "Chemistry" and "Electricity". For "Machinery" we cannot determine the related fields of industry. The very few numbers of "Textile" means the Japanese textile industry had good development without technology transfer from foreign countries ..

The obtained phenomena are not limited to patents granted in Japan. Patents granted in any country have same tendencies, i.e. the numbers of patents by domestic companies are larger than the real patents, and patents by foreign companies become fewer than the real numbers.

### 4 CONCLUSION

Throughout our analysis it has become clear that any analysis using patent data between the two world wars, we notice the curious behavior of submitting patents by the members of international patent cartels.

Those patents decrease the numbers of patent of foreign patentees, and increase those of domestic patentees. This phenomenon is not limited to the patentees of Japan, but is applicable to the patentees of any country.

We must therefore pay serious attentions to analyze the patent statistics between two world

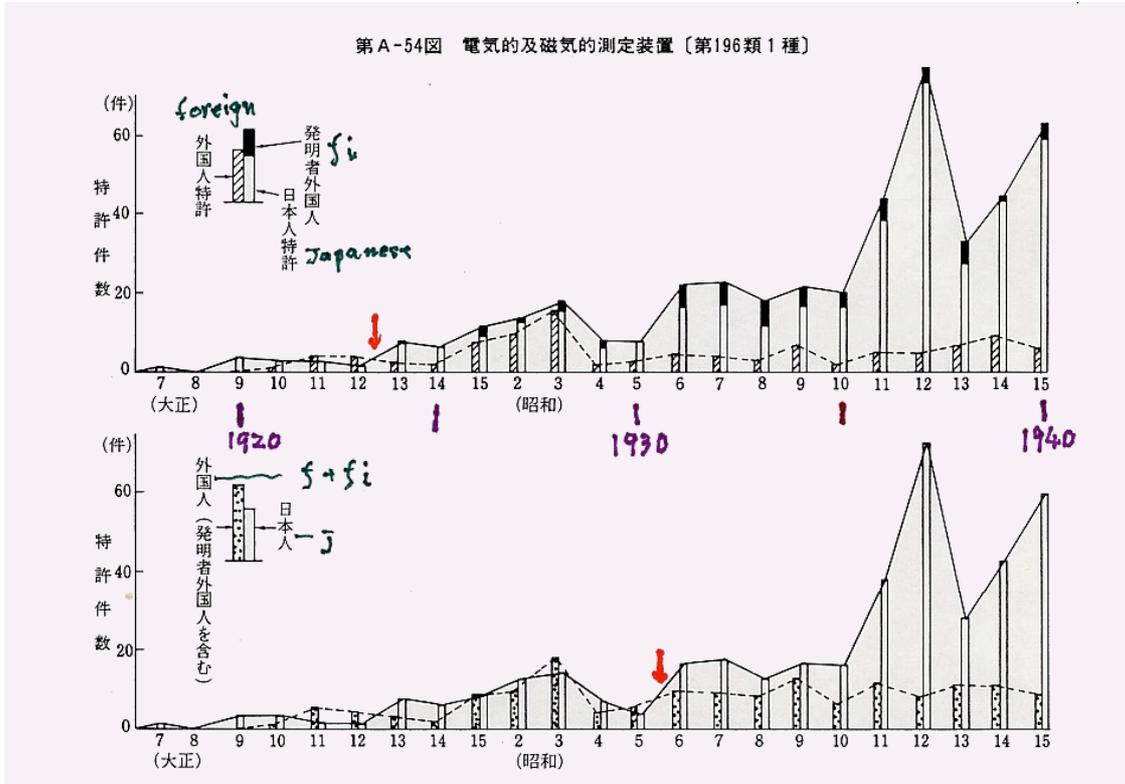
wars.

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- 2) Guenter Reimann "Patent for Hitler" (1942)
- 3) Reimann also said without such artificial gasoline Japanese bombardment to Pearl harbor was impossible
- 4) No suitable introductory books in English. In Japanese, see the relating chapter of Japanese Patent Office ed. "Centennial History of Japanese Patent System Vol. 1" (1984)

This paper was once read at the "International Congress of History of Technology" Aug.10 1996, Budapest, Hungary.

Graph 1: Delay of Overcoming Time of Domestic Patents of 196-1 "Measurement of Electricity and Magnetism"



Graph 2: Distribution of Patents for Inventors Foreigners and Domestic Patentees

