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***The Computer System and
Patent Information at the
Japanese Patent Office***

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No. 97



From the Editor

As mutual interdependence assumes rapidly increasing importance in the world economy and the economy moves towards globalization, we are approaching the age of a borderless economy. People now face a great many problems involving the global environment, energy resources, and a rapidly growing population that must be solved for the sake of a viable future. Innovations in information and telecommunication technology are causing information promotion to spread widely and deeply into industry, society, and daily life, especially in major advanced countries. Such technological progress is playing an important role in developing and globalizing the economy and helping to solve global environmental problems, for example. For this reason, R&D in pioneering technologies such as microelectronics, high-density devices, biotechnology, and superconductivity is being actively undertaken through enormous amounts of investment in many countries. The achievements of such R&D activities can be classified into tangibles developed as products and intangibles produced through knowledge and creative scientific ac-

tivity. In the area of material goods, major advanced countries now occupy a severe situation due to the entry of developing countries into the market and overseas production strategies that tend to suppress domestic industries. The issue of intellectual property rights has thus assumed increasing importance. The reasoning is as follows: "R&D achievements attained as a result of heavy investment are a valuable property, and unfair infringement upon this property results in enormous loss." Intensive international competition has thus arisen in an effort to gain the upper hand in this area.

In December 1993, the GATT Uruguay Round, which took seven years and was the most large-scale trade negotiation in history, ended with an agreement that the 117 participating countries and regions adopt 18 agreements en bloc. The significance of the multi-lateral negotiations declared in Uruguay in 1986 lies in that GATT, which had originally sought to correct trade imbalances centering on products, worked hard to eliminate unfairness in almost all internation-

al economic activities, extending discussions to the area of intangibles including intellectual property rights, services, and capital movement.

In Japan, Patent Office of MITI decided to study the revision of the industrial property rights system to adjust the domestic system to Trade-Related Aspects of Intellectual Property Rights (TRIP) agreed to in the Uruguay Round.

In Japan, the promulgation of the Patent Ordinance in 1885 was followed by patent-related regulations. The patent system, established in 1921, was revised thereafter as the need arose. The framework of the current Patent Act was thus eventually established. Since each country has its own individual patent system, differences among countries have presented serious problems. A large difference exists, for example, in the basic patent philosophy between the US which holds that the earliest inventor has the patent right, and Japan and other countries, which hold that the earliest applicant has the patent right. Because of such differences, inventors of international inventions must apply for patents both in their own countries, and in countries abroad. International applications needed to obtain patents overseas

have thus started rapidly increasing. In 1991, Japanese enterprises made about 1,800 international applications, which was a three-fold increase over applications in 1986. Patent agencies in the US, Japan, and the EU have therefore begun a study for formulating common rules to be applied to the preliminary examination of patent applications, such as the "newness" of an invention and the "degree of progress" from an existing invention. Further effort is needed in internationally harmonizing areas including the scope of patent right claims.

In 1990, Japan implemented the world's first electronic patent application system. Computerization and the storage of patent information in databases have been promoted since 1984. About 30 million items have been input to the computerized database system. This has enabled fast, automatic examination for large numbers of patent applications. JIPDEC provided full-scale cooperation in the development of this system.

This issue of JIQ introduces Japan's patent system and the promotion of informatization in the patent field, including the paperless system recently completed and launched. I hope that you will find the information in

this issue useful, and thank the staff at the Patent Office for its cooperation in the preparation of articles.

A handwritten signature in black ink, appearing to read 'Yuji Yamadori', with a long horizontal flourish extending to the right.

Yuji Yamadori
Director
Research & International Affairs

The Computer System and Patent Information at the Japanese Patent Office

Introduction

Since we began using computer systems for handling administrative work related to patent applications in 1964, the Japanese Patent Office (JPO) has continually broadened the scope of computerization. In 1973, we installed the first online system, enhancing and expanding the system to implement kanji processing capabilities in 1976. In 1978, we developed a Registration Administrative and Trademark/Pronunciation Retrieval System, and computerized the administrative work of examiners, etc, in 1982.

Based on this computerization, we began constructing what we call the Paperless System in 1984. This is a comprehensive system covering all administrative patent processing for all applications using data from databases, systematizing all documentation from when the paperwork starts at the JPO, until when it goes out the door, using electronic filing. We continually promote system de-

velopment.

Our development policy for promoting this Paperless Plan includes:

- ① Use of international and Japanese standards such as the Open System Interconnection (OSI)
- ② Use of multivendorization
- ③ Introduction of the "machine-free" (i.e., manufacturer-independent) concept to permit flexible system expansion

The Paperless System features the following:

- ① A large-scale, sophisticated online system cover the complete administrative process from patent application to registration
- ② A system open to outside the JPO connectable to outside systems such as those of applicants, in addition to intra-JPO users

- ③ State-of-the-art technology including a database system capable of handling an enormous amount of information and coping with future data increases and a mixed-mode information processing system capable of handling code and image information simultaneously.

The recent, remarkable process in computer technology has enabled us

to plan continued development of the Paperless System, incorporating new advances now and in the future as they occur. This report introduces the JPO's Paperless Plan. I hope it will be useful in furthering patent computerization.

Tadashi Ishii
Director
Electronic Data Processing
Administration Division

I. Industrial Property Rights System in Japan

1. Overview

"Intellectual property" is the legal right with property value arising from intellectual activity. Intellectual property includes industrial property in the broad sense and copyrights. Laws related to industrial property in the broad sense include the Patent Law, the Utility Model Law, and the Design Law, which protect industrial creations such as inventions, utility models, and designs; laws related to the circuit arrangement of semiconductor integrated circuits, which protect semiconductor chips; the Seed and Seedling Law, which protects new plant species; the Trademark Law, which protects trademarks and service marks; the Commercial Code, which protects trade names; and the Unfair Competition Prevention Law, which protects trade secrets, products and business marks. Of these, the Patent, Utility Model, Design, and Trademark Laws, under the control of the Japanese Patent Office (JPO), are called industrial property rights laws in the narrow sense.

2. Purpose and Changes of Industrial Property Rights System

(1) Purpose

The purpose of the Patent, Utility Model, and Design Laws is to protect and utilize inventions (utility models and designs) and promote inventions (the creation of utility models and designs) to contribute to the advancement of industry. The purpose of the Trademark Law is to protect trademarks and, by doing so, to maintain the confidence of users in commercial trademarks and contribute to the advancement of industry. The objective of the individual laws is to protect user interests.

(2) Changes

Japan's patent system started with the official announcement of the Patent Monopoly Act in 1885. The Patent Law was enacted in 1899, and the Utility Model Law in 1905. In 1921, the system was completely revised by adopting a file-to-file principle and

publication-of-application system.

In 1959, a second overall revision was made and the basic framework of the current Patent Law created. Several subsequent revisions (incorporating systems for laying applications open, requests for examination, etc.) have been made. In 1993, the Patent Law, which had a lax amendment scope compared to other advanced nations was revised to optimize Japan's Patent Law. Another major revision simplified the judgment procedure. The Utility Model Law was revised the same year to enable registration of an application without prior examination on substantial matters such as novelty and inventive steps for the purpose of protecting short-life-cycle technologies correctly through quick implementation. Revisions took effect on January 1, 1994.

3. Overview of Industrial Property Administration

(1) Current Status and Problems

① Increased Number of Applications and Growing Technological Sophistication and Complexity

The number of applications for industrial property rights in Ja-

pan has remained higher than anywhere else in the world, reflecting improved technological standards and a strong interest in technological development. This increase in the number of applications has caused an explosion in the amount of examination materials, and the technological contents of applications have become increasingly sophisticated and complex. Severe administrative and financial restructuring has cut staffs to the bone. These factors have especially prolonged the period required to examine patents and utility models. The resulting delay has been criticized both in Japan and abroad.

Patent information is invaluable to the private sector in patent management and technological development, but the correct retrieval of required information is difficult under the conventional system due to the greatly increased volume of information and insufficient infrastructure of information supply services.

② Growing International Debate on Industrial Property Rights

Economic globalization has progressed and intellectual property

rights are now viewed from the standpoint of international trade, as illustrated in GATT and TRIP. There is a rising need for consistent protection of intellectual property rights on a global scale because of the current level of technological development activity and the resulting rise in R&D investments. Given this, differences in intellectual property rights systems and the level of protection in different countries have been closely watched and are significant international issues.

It has become increasingly important that each country has a harmonized intellectual property system and ensure a common protection level to ensure that the intellectual property system, which supports technological development, functions properly. The current situation, in which each country has a different intellectual property system, cannot meet current needs.

(2) Measures

① Improvement in Examination Processing Capability

a) Promotion of the Paperless Plan

Since 1984, JPO has promoted a Paperless Plan to create a comprehensive computerized database for general patent administration to cope with the prolonged examination period caused by the increased number of applications, for example. Particularly in the case of examination/judgment systems, smooth progress has been made in the retrieval system for designs, trademarks, and appeals cases, including functional enhancement of the retrieval system to obtain information from patent literature and the expansion of development areas. Steady progress has also been made in data collection for the JPO's comprehensive information materials database. The electronic applications acceptance system has operated smoothly since its inception in December 1990 and, as of December 31, 1993, the ratio of electronic applications has reached 95%. Since July 1993, two-way online communication between the JPO and applicants has become possible. An online dispatch facility has gone into operation that enables applicants to receive notifications, etc., from the JPO using online terminals and an online inspection system from which applicants can see

requested data.

b) Increase in Examiners and Other Staff

A top priority is to greatly increase staff, especially the number of examiners, to improve judgment capacity, which is the core of the examination procedure. Staff numbers steadily declined in the nine years since its peak in 1980. After the final report on the Structural Impediments Initiative talks between Japan and the US was published in June 1990, however, staffs have increased significantly each year strict overall administrative reform to cut government expenses.

c) Outsourcing for Patent Information Retrieval

As the volume of patent information has grown, we have provided detailed classification (the F-term search system) and promoted its electronic input to facilitate patent information retrieval. These facilities have been used by examiners in prior technical information searches. However, we have decided to actively use private outside agencies for patent information

searches, because examiners need not necessarily be involved in such searches. The outsourcing of these searches thus began in FY 1989; in FY 1993 alone, private outside agencies have made about 83,000 searches.

② "Quantity to Quality" in Applications and Requests for Examination

The number of patent applications in Japan is much larger than in other countries, but nearly half are rejected due to insufficient research prior to filing or obsolescence of the invention. Examination is delayed by such poor-quality applications, which hamper the speedy approval of patents for truly useful inventions.

A large number of provisional publications of unexamined patent applications ("Kokai Koho") have been issued without regard for quality. This has made it difficult for users to use patent information effectively and is a great loss from the viewpoint of the national economy. To resolve this situation, the JPO has strengthened its examination standards since 1976 and, at the same time, has asked for the co-

operation of applicants, including both individuals and enterprises, in the transition from quantity to quality in applications, using the publication rate as an index.

(3) Internationalization of the Industrial Property Rights System

With increasing economic globalization, active debate has risen in multilateral conferences such as the World Intellectual Property Organization (WIPO) and GATT regarding the development of international rules on intellectual property.

In GATT Uruguay Round negotiations, final agreement was reached in December 1993 after more than seven years of negotiations, and includes Trade-Related Aspects of Intellectual Property Rights.

Japan has taken an active role toward fulfilling its responsibility as a major country in terms of industrial property rights based on the recognition that such multilateral talks are indispensable to advancing the international economy, maintaining trade order, and stimulating technological development.

II. History of JPO Computerization

1. Prior to the Paperless Plan

Computerization at the JPO began with the development of the information system for patent application administration in 1964. In the 1970s, we constructed an administrative processing system including the committee for International Cooperation in Information Retrieval among Examining PATent offices (ICIREPAT) Retrieval System, Official Gazette Editing System, Official Gazette System, and Despatch System. In 1975, the JPO introduced patent application kanji processing.

2. Paperless Plan Phase 1

In 1984, the JPO began constructing of a Paperless System to computerize of industrial property information.

In Phase 1 of system development, we completed the following systems:

(1) Patent Application and Administrative Processing System

(2) Retrieval System

(3) Comprehensive Reference Database System

The system has operated smoothly since the JPO began accepting electronic patent applications in December 1990.

Using the system developed in Phase 1, the patent procedure can be completed on online basis, using flexible disks (FDs) in addition to written documents.

The JPO building was equipped with intelligent facilities in 1989 when six large-scale computers and about 1000 terminals were installed and connected with a local area network (LAN). The building has become the center for electronic patent information processing. Almost all documents used in patent administration, from when paperwork starts at the JPO, to when it goes out the door, are in electronic form.

Individual applicants are connected to the JPO online, and a wide area network (WAN) has been formed for patent procedures.

A multivendor system configuration ensures that hardware and software are manufacturer-independent. This means that the optimum technological features of each model or series, regardless of the manufacturer, can be implemented from a wide range of candidates (vendors).

3. Paperless Plan Phase 2

1991 saw the start of Phase 2 in system development, including:

- (1) An online dispatch system
- (2) An online demand system for inspection and so on
- (3) Examination Assist System, etc.

Systems started service in July 1993.

These systems enable us to access information stored in files and a magnetic-media master register. Access can also be made from a requesting part terminal. Information services have been improved because patent information is more easily accessed and the time required for information

acquisition has been reduced compared to the previous method.

Through further service improvement, requests for verification and certificates can now be made using online terminals.

Administration efficiency has improved because notifications prepared in the process of examinations of form and substance can now be sent as electronic data through an online system to applicants or their agents.

Examination efficiency has improved drafting, approval, and so on, in examination of the substance of an application, which can now be handled electronically. With storage, delivery, and forwarding in paper envelopes no longer necessary, labor saving has been achieved.

Compact-disk read-only memory (CD-ROM) can now be used as a medium to publish official gazettes. We began to use CD-ROM for published unexamined patent applications in January 1993, and for the publication of official gazettes in January 1994.

III. Paperless System

1. Background and Purpose

The number of applications for industrial property rights in Japan increased rapidly from the 1970s to the 1980s, especially in high-tech areas, reflecting improved technological standards, sharp increases in R&D investment, and the increasing significance of industrial property rights as a corporate strategy. (In the area of office automation, genetics, computers, and semiconductors, the number of applications is now 4 to 7 times that of 10 years ago.) Thereafter, the number of applications has remained high. In 1992, there were about 370,000 patent applications, 60,000 utility model applications, 40,000 design applications and 310,000 trademark applications. (Applications for trademarks increased rapidly due to the introduction of service marks in 1992.)

In addition to the increased number of applications, technical contents have become more sophisticated and complicated and the volume of materials for examination has ballooned.

This has prolonged the period required for examination of patents, and utility models in particular, and the delay in examination has been criticized both locally and internationally. Although industrial property information is invaluable to private enterprises in patent management and technological development, it has become difficult to access necessary information because the volume has grown so.

To cope with such prolonged examination periods, we began promoting the Paperless Plan in 1984 to develop a comprehensive computerized database system for overall patent administration. The purpose of the Plan is to make industrial property rights available more quickly and accurately and to promote cooperation in the enhancement of industrial property information services, the efficiency of administrative processing, and information exchange regarding industrial property rights on a global scale.

The objectives of the Paperless Plan can be summarized in the following four points:

(1) Shortening of the Examination Period for Industrial Property Rights

Information materials used for prior art searches in the examination process are now filed electronically, making it easier to enhance and rearrange examination materials. Retrieval has become more efficient because of automation. These improvements are intended to shorten the processing period for the examination of industrial property rights, which was at issue in the US-Japan Structural Impediments Initiative talks.

(2) Enhancement of Industrial Property Information Services

To make patent information, which includes the latest technological information and is a basis for technological development, more widely available, Paperless Plan files and databases will be made available nationwide. Application information in electronic files will be inspected from remote locations, the comprehensive reference material database will be inspected from all over Japan, and official gazettes on CD-ROM will be used by inspectors nationwide.

Applicants will then be able to obtain necessary information quickly, and economic activities will be made more efficient by avoiding duplicated investments, unnecessary application procedures, etc.

(3) Improvement in Administrative Processing Efficiency

Conventionally, the JPO used file folders to store application documents together with a interim documentation, and administrative processing involved circulating these folders among JPO departments.

Under the Paperless Plan, after the implementation of electronic processing, documents will be filed electronically and electronic media (recording files) will be centrally controlled. This will eliminate the physical distribution of hard-copy documents within the JPO and the work of rearranging document files, which will contribute to administrative efficiency.

Applicants will be able to send their application documents electronically online and receive documents from the JPO electronically. We will then be able to manage documents using electronic media, which will also help improve administrative efficiency.

(4) Promotion of International Cooperation

Industrial property information is currently exchanged between the Japan Patent Office and patent offices in other countries, such as the US Patent and Trademark Office and European patent offices, in the form of paper (hard-copy) documents and CD-ROM.

Many problems, such as standardization, remain to be solved to collect industrial property right information into electronic files, but speedy, efficient international exchange will be possible once electronic file are used.

Developing countries such as ASEAN nations are aggressively enhancing their industrial property right systems. Providing industrial property right information to such countries will help to promote their information policies.

2. Overview

(1) Electronic Application/ Administrative Processing System

① Electronic Application System

Patent applications from online terminals or using flexible disk has been

possible since December 1990. Such electronic application has been used in addition to conventional written (paper) applications.

Documents submitted as paper or on flexible disk are converted to electronic data by the Electronic Information Processing Organization.

Application documents and related drafting documentation thus become electronic files from the start of processing.

Looking at the current status of electronic applications by type, in the second half of 1993, online applications accounted for about 62% on the average and flexible disk applications for about 34%. Applications in writing accounted for about 4%. As of January 31, 1994, about 700 online terminals were connected to the JPO.

The online application procedure is as follows:

- 1) Applicants using terminals at their offices or other locations. Operation is simple, and follows a number of instructions displayed at the terminal.
- 2) Applicants connect their terminals online to the JPO following the specified procedure, insert

their ID cards, enter their passwords, and send their documents. If there are omissions or errors in a document, applicants are notified.

- 3) When applications are satisfactory, the Patent Office acceptance system sends a proof to the applicant upon request. A receipt for documents sent for the application procedure is also sent.

② Online Dispatch System

The JPO dispatched documents by mail in the past, but these are now sent as electronic data using the online dispatch system, with users receiving them online from terminals.

Documents to be dispatched electronically are limited to patents and utility models. The Formality Examination Department sends decision documents, amendment instructions (format), decisions on application invalidation, orders for presenting an object, notices for return of a sample, etc. The Examination Department can also send notices of reason for rejection, decisions on publication of application decision of patent, final rejections, decisions on amendment rejection, etc.

The online dispatch procedure is as

follows:

- 1) Applicants wanting online forwarding must submit a Request for Receipt of Specific Notifications Using Electronic Information Processing System to the Patent Office in advance. Unless this is approved, users cannot receive online dispatch documents even if they own terminals.
- 2) When notifications and other files (electronic data) to be sent to applicants wanting online dispatch are drafted and approved by the Formality Examination Department and Substance Examination Department, such electronic data will be stored in the forwarding file of the JPO host computer and retained for a certain period in "forward" status (ready to be forwarded at any time).
- 3) Applicants check for forwarding documents on standby from their terminals during the "forwarding standby" period and request dispatch.
- 4) Applicants' terminals store electronic data such as notifications in files after receiving a notification in response to the forwarding request.

- 5) To acknowledge storing the file received, the terminal automatically sends a command for receipt to the JPO. Notification dispatch is completed in this way.
- 6) When applicants have received all forwarded documents, they can ask for a dispatch list (a list of the locations where drafted documents sent by the Patent Office are recorded), but can get this only on the day they receive documents.
- 7) If applicants do not receive (or do not request) notifications, etc., during the forwarding standby period or do not want online dispatch, the JPO sends hard-copy documents as was done conventionally.
- 2) After one and a half years have passed (after the application document has become publicly available), anyone can request to inspect and view the application document.
- 3) Applicants who request online inspection must first confirm that their terminals are connected with the host computer of the JPO, then must prepare an Inspection Request form electronically (inspection request data) and send the form. Inspection request data is registered with the JPO host computer (inspection request file) and the inspection request is completed.

③ Online Inspection System

- 1) For one and a half years after application submission (before the application document is publicly available), no one other than the applicants and their agents can view application documents online. During this period, the JPO checks whether applicants (or their attorneys, indicated in the application form) have made a request for inspection.
- 4) In the host computer, requested data is stored in an inspection file after transfer from the record file based on inspection request data. Data stored in the inspection file is retained five working days at the JPO.
- 5) Applicants view requested data stored in the inspection file from their terminals.

Requests for online inspection are limited to inspection requests for file record items for applications, forwarding documents, and JPO internal documents on patents

and utility models and record items in the magnetic-media record register (patents, utility models, designs, and trademarks) related to the law that took effect December 1, 1990.

Those requesting information must submit a Request for Using Electronic Information Processing System and have software installed on their terminal.

④ Online Certification Request System

- 1) When an online certification request is made, the JPO checks whether the person making the request is the same as the applicant (or agent) indicated on the application form.
- 2) Those requesting online certification must first confirm that their terminals are connected with the JPO host computer, then register the request for certification in electronic form (certification request file), upon which the request is completed.
- 3) The JPO host computer retrieves requested data from record files based on certification request data and issues a printed certificate.

- 4) The document cannot be received online, but is received it as specified on the request form (by mail or in person at the JPO).

Online certification requests are limited to certification (including priority certificates) for file record items on patents and utility models, other description items, and record items of the magnetic record register (patents, utility models, designs, and trademarks) related to the new law that took effect December 1, 1990.

Those requesting certificates must submit a Request for Using Electronic Information Processing System and have software installed on their terminal.

(2) Peripheral Examination Assist System

This system will automate peripheral examination in the JPO, especially preparation for examination, drafting, and approval, to draw up drafting documents efficiently, such as notification and decision of approval or rejection as electronic information, and to improve the efficiency of other work peripheral to the examination process.

For paperless applications, information on application items is automatically distributed to responsible ex-

aminers based on distribution instructions given by the individual examiner according to the distribution plan based on the progress of examination administration. After application distribution, related documents are used in drafting and approval by examiners using visual display terminals (VDTs). After approval is granted, documents are automatically transferred from the Peripheral Examination Work System to the Online Forwarding System as electronic draft document data, and forwarded online or as hard-copy documents.

(3) Comprehensive Document Database System

① Overview

The Comprehensive Document Database consists of about 35 million items, including official gazettes for patents and utility models applied for in Japan since 1868 and major foreign official gazettes. Storing data on optical disks began in 1984.

Reference services include International Patent Classification (IPCs) references, literature number references (application and publication numbers, etc.) references, and foreign literature

number references. The reference service for Japanese official gazettes was begun in 1985.

Reference services for outside users have been expanded gradually since 1986. At present, users can receive services at the Patent Office (World Industrial Property Right Data Center) and also at Regional Bureaus of International Trade and Industry in seven locations across Japan (Sapporo, Sendai, Nagoya, Osaka, Hiroshima, Takamatsu, and Fukuoka). Users view data on their terminals.

These facilities will help make the use of industrial property information more effective. The amount of information stored will be further expanded in future.

The JPO also plans to promote international cooperation, such as information exchange with the US Patent and Trademark Office and European patent offices, using the Comprehensive Document Database, etc., in the Paperless System.

② Use

In 1994, about 1 million cases were referenced within the Pat-

ent Office and about 2.5 million cases from outside. The rate of use has increased annually.

(4) Retrieval System

① F (File forming) Term Retrieval System

Examination (substantial examination) involves the judgment of whether the content of an application is an invention or idea that may properly be a patent or utility model. In this work, the literature must be searched to determine whether a similar invention or idea is found in the prior art (prior art search). The F-Term Retrieval System facilitates this prior art search through quick, accurate use of the prior art database. Patent information is mainly one of two ways: using natural language in which the patent information is described or using predetermined retrieval keys linked beforehand to patent information.

If each word in text can be clearly delimited, as in English, computer retrieval by the first method is possible. The US Patent and Trademark Office uses this method. However, in the case of Japanese, words in text cannot

be clearly delimited, so the JPO had to adopt the second method, which uses predetermined retrieval keys.

An F-Term is a retrieval key linked beforehand to patent information for retrieval from the huge amount of patent information.

F-Terms used as retrieval keys are selected based on the experience of examiners. The goal in their selection is efficiency in a literature search based on the technical area of the related field (function, structure, form, usage, material, objective, production method, etc.) and redeployed. F-Terms have been prepared by examiners in each area as classified by International Patent Classification (IPC).

By the end of 1993, about 90% of a total of about 2,100 themes had been completed, and about 60% of the themes could be retrieved from outside the Patent Office.

② D (Design) Term Retrieval System

The design term retrieval system calls up necessary materials from electronic files using a

logical expression which is a combination of retrieval keys, and screens materials on a VDT. In other words, codes specified for retrieval are linked to each material, and retrieval uses retrieval codes. The system is not intended to be an automatic graphics recognition system. Design classification is used for basic retrieval keys, but these codes alone do not maintain sufficient retrieval efficiency. Therefore, new retrieval keys have been developed based on a different view of design classification. These are called Design Facet Terms (D-Term). The retrieval keys are codes created from multiple points of such characteristics as the shape of designs, etc., making use of the fact that the necessary part of electronic file materials can easily be called up whenever needed.

Design classification is hierarchically structured and composed of about 5,000 classification items. Based primarily on the application of the design, design examination materials are classified into Groups A to N, and each group is classified into major, minor, and form subgroups.

In design classification, each ex-

amination material is given one classification, basically intended for subdividing of materials. Therefore, design classification is a basic retrieval code for computer retrieval. The D-Term is a retrieval code exclusively dedicated to computer retrieval that must be developed in those cases where subdivisions other than the design classification subdivision are required or where an interdisciplinary search beyond a certain scope is required to improve retrieval efficiency.

A D-Term is composed of themes, viewpoints, and deployments, and a D-Term list is prepared for each product to be retrieved.

In retrieval, a logical expression made up of a design classification and a D-Term must be prepared. Retrieval and referencing are used to identify materials that meet the conditions of the logical expression.

③ T (Trademark) Term Retrieval System

The Trademark Computer Retrieval System (T-Term Retrieval System) comprises systems from data entry and management to use. Classified in terms of func-

tion, these include an image data preparation system, a retrieval/referencing system, a retrieval assistance system, and an operational support system.

Trademark registration applications in Japan are based on examinations. The contents of a substantial examination cover such aspects as the examination of registration conditions of trademarks, reasons for rejection of registration, existence of similarities, examination of the ownership of products, and existence of similarities. Research on a wide range of materials is required. These include information on existing registrations, prior and new applications, literature on products, different types of dictionaries, approval cases, and judgment cases.

The most common reasons for rejecting most registration are existing registration and earlier application for a trademark by others. In the check for such similar registrations or applications, examiners input the name (trade name) of character trademarks and characteristic classifications (terms) of graphics trademarks. This input is used as retrieval keys for searching

for registered trademarks and earlier applications for trademarks, and the system outputs trademarks similar to retrieval standards. The system thus promotes examination and the efficient control of examination materials.

④ J (Judge) Term Retrieval System

The J-Term Retrieval System is a judgment/decision retrieval system developed as part of the Paperless Plan.

System development was begun in 1984, and in-house service at the JPO has been provided since 1986.

Research on cases of judgment and decision is performed in the judgment process for the following reasons:

- 1) For the confirmation of validity in technical and legal judgments in judgment proceedings
- 2) For preparation of reasons in answering questions in lawsuits and for constructing reasons for appeal
- 3) For finding text examples in preparation for a trial decision

- 4) For finding cited references in decision cases such as requests for judgment

In the past, this research was conducted with a collection of trial decisions. However, as the number of trial decision cases increased and retrieval became difficult, the J Term Retrieval system was developed.

The file structure of the J Term Retrieval System is composed of a code data file storing code data and an image data file storing image data on optical disk.

The code data file includes a J-Term file as an index file and keyword, bibliography item, and trial case item files. The image data file contains juridical decision files that contain juridical decision texts.

Users input a retrieval expression which combines J-Terms and keywords from the terminal, and the resulting case numbers (or trial decision numbers), bibliography items, and juridical decision texts are displayed. Trial

decision texts are also displayed through linkage with the comprehensive reference materials database.

3. Future of the Paperless Plan

The Patent Office will continue promoting the Paperless Plan, focusing on the following four items:

- (1) System development will be made for the administration of <1> registration, <2> design and trademark electronic applications and file envelopes, and <3> judgments.
- (2) Databases will be constructed for the examination of patents, utility models, designs, and trademarks.
- (3) System development will be based on trends in international harmony (cooperation).
- (4) Efficiency will be improved in ways such as cost reduction based on new advances in computer technology.

IV. Patent Information Service

1. Basic Stance for Information Policy

In recent years, the number of patent applications in our country has continued to rise, reflecting intensified technological development in the course of rapid technological innovation. Consequently the volume of patent information has continued to rise.

In order to cope with this increase in the number of patent applications and the rising level of technological sophistication and complexity, the Patent Office promoted the implementation of a Paperless Plan since 1984. This plan is intended to replace the traditional method of submission, acceptance, examination, etc. of patents and patent information services in paper documents with a computerized method, with the objectives of shortening the examination processing period for patents and so on, expanding patent information services, improving the efficiency of administrative processing, and promoting international cooperation in patent information exchange and the like.

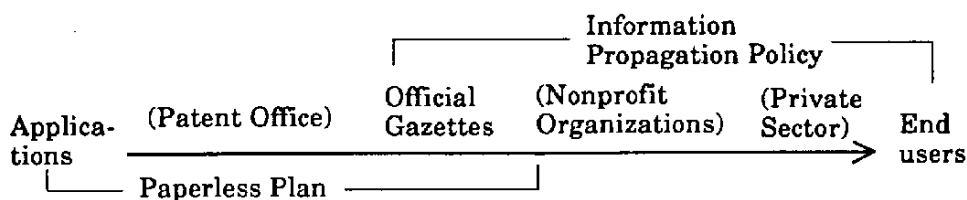
In the past, official gazettes in the form of paper documents were chiefly used for patent information. As one result of the Paperless Plan, the publication of unexamined patent applications in CD-ROM form began in January 1983. With CD-ROM publication, patent information service can be provided using electronic media, and utilization of patent information is expected to further expand through the use of computers.

In order to make effective use of such patent information functions, it is necessary to provide patent information to users in an accurate way.

The patent information policy is a comprehensive policy covering the media, the supply policy and the supply system. Information generated by the system (publication of official gazettes, inspecting at the terminal), information as a product of the system (comprehensive database, retrieval information, etc.), and information based on social needs and the like must be accurately provided to the end users, contributing to socioeconomic progress.

In providing information to end users, it is particularly important to cover all technological areas, to secure the minimum level of utilization nationwide, to establish a stable and continuous supply, and to prevent unexpected discontinuation. There-

fore, in Japan, patent information is supplied through a comprehensive supply system that includes the Patent Office, nonprofit organizations, and private-sector information services, as shown below.



2. Information Service Provided by Japanese Patent Office

(1) Comprehensive Database Available Outside JPO

There are 27 comprehensive database terminals installed in the World Industrial Property Rights Data Center.

Comprehensive database terminals are also available in Regional Bureaus of International Trade and Industry (except the Kanto Regional Bureau) for the inspecting service.

(2) Information Supply by Official Gazette (Issuance of CD-ROM Official Gazette)

① At the World Industrial Property Rights Data Center, one can see in paper media all official gazettes issued in Japan (including CD-ROM official gazettes), detailed patent documents published in the U.S. and 30 other foreign countries, and official gazettes and the like (including abstracts on detailed patent documents and the index) published in these and 37 other countries.

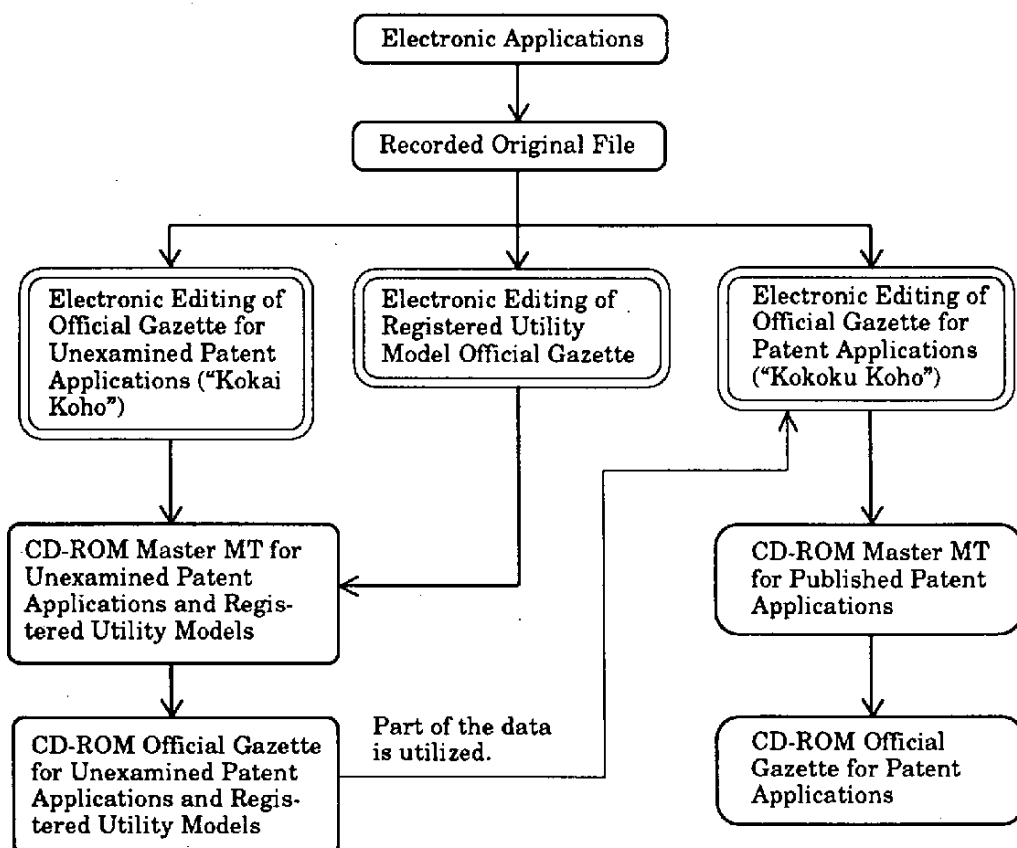
* Publication of CD-ROM Official Gazette

The publication of the electronic official gazette (CD-ROM official gazette) first became possible through the electronic editing of electronic information gained

from electronic applications, begun in December 1992. Publications included published unexamined application data and published application data. The Patent Office issued a CD-ROM Published Unexamined Application Official Gazette in January 1993 and a CD-ROM Published Application Official Gazette for Patents and Utility Models in January 1994. These CD-ROM official gazettes have been created as some of the end products

of the Paperless System. Patent information provided through electronic media is expected to create new modes of utilization of patent information, which in the past was chiefly used in official gazettes in paper form. Private information services and nonprofit organizations have already begun services providing processed information taken from published unexamined application data.

(Reference) Flow Chart for Publication of CD-ROM Official Gazette



The new Utility Model System was implemented in January 1994, and a new publication, the Registered Utility Model Official Gazette, has been issued. This official gazette has been issued in CD-ROM from its inception. In starting the publication, it was decided that the same CD-ROM as that used for official gazettes for published unexamined applications would be used to record the utility model information, for the purposes of promptness in reporting and utility. The entire contents of the applications are listed. The acceptance of applications under the new system was begun in January 1994. Official gazettes are published after formality examination and registration. With the publication of these CD-ROM official gazettes, further propagation of patent information is expected.

- ② Patent Official Gazette Local Inspection Centers (or Local Inspection Centers) are located in 109 cities in Japan, and provide information on official gazettes and the like. Local inspection centers are situated in Regional Bureaus of International Trade and Industry (excluding Kanto, but including the Okinawa Comprehensive Office Bureau), pub-

lic libraries, prefectural industrial research centers, Chambers of Commerce and Industry, local branches of the Invention Association, etc.

(3) Online Inspection of Files

Inspection files using online equipment became possible starting in July 1993 through the Paperless System. Items recorded on file (applications, specifications, drawings, abstracts, other procedural documents for patent and utility models applied for in December 1990 and after, etc.) and items described in the magnetic record register of the Patent Office are inspected online using an online terminal.

Inspection service is also available in person at the Application Section of the Patent Office and at the Patent Room of the Kinki Regional Bureau of International Trade and Industry, as before.

3. Information Services Provided by the Private Sector

(1) Services through Nonprofit Organizations (Japio and JIII)

- ① Supply of Databases

A nonprofit organization (Japio: Japan Patent Information Organization) provides information services online (PATOLIS Retrieval System) and offline (on optical disks) based on electronic patent data obtained from the Patent Office.

② Supply of F-Term Retrieval System

The F-Term Retrieval System was developed primarily as a means for searches for examination within the Patent Office. The F-Term database is currently under development. Part of this will be made available to the private sector as well through the PATOLIS retrieval system. It is used for the optimization of patent applications and so on.

③ Sales and Copy Service of Patent Official Gazette, etc. and Processed Information

The Patent Office sells official patent gazettes, excerpts and indexes, and the like. Since January 1994, nonprofit organizations (Japio and JIII: Japan Institute of Invention and Innovation) have produced and sold the paper media of official gazettes for unexamined applications.

④ Patent Research and Translation Services, etc.

These services provide patent research using the PATOLIS retrieval system, translate foreign official gazettes, and so on.

(2) Services Provided by Patent Information Service in Private Sector

Private patent information services sell and provide services related to a variety of forms of patent information to cope with the diversified needs of general users.

V. Present State of International Cooperation regarding Patent Information

1. International Problems related to Patent Information

With the advancing globalization of economic activities and the increased sophistication and complexity of technology, the effective utilization of foreign patent information in Japan and of Japanese patent information in the rest of the world have become necessary for the purposes of preventing unnecessary disputes on industrial property rights overseas and protecting rights appropriately on an international basis.

Also, the massive volume of patent information as examination materials has become a problem shared by Japan and major western countries alike. Patent offices in many countries, especially Japan, North American and European countries, are conducting search automation programs to make search operations and so on more efficient. The data created by these automation programs should be effectively utilized by patent appli-

cants in each country. It has become an important task to harmonize patent information propagation measures internationally.

For the proper protection of industrial property rights, international harmonization of the system and operations has been progressing. It is expected that a patent information infrastructure will be created so that all patent offices in the world may use a database with basically the same contents in order to appropriately provide property rights.

2. International Cooperative Activities regarding Patent Information

(1) Publication of Patent Abstract of Japan (PAJ)

① Present State

The Japanese Patent Office has published PAJ since March 1977 for the purposes of a) international distribution of patent in-

formation, b) technical support for developing countries, and c) examination materials for PCT international research organizations.

In 1992, the Patent Office published a total of 293,000 items in PAJ (586 issues) and sent PAJ to 55 countries and 3 organizations.

The targeted technical areas of PAJ are internationally important technologies. They include published unexamined patent applications made by Japanese citizens for all areas, starting with the July 1990 issue of "Kokai Koho."

The publication, in the form of paper booklets, includes the four sections of general and machinery, science, electricity, and physics. Each booklet includes abstracts for 500 items and has indexes by IPC and applicant.

② Future Development

Three patent offices in Japan, the US and Europe are currently proceeding with a project to introduce English text for the first page of each official gazette in a mixed mode CD-ROM, and are jointly developing software for

first page development and software for information utilization.

The Japanese Patent Office plans to use this software to make a CD-ROM version of PAJ, which is currently published as a paper booklet. The following effects are expected:

- 1) It will be possible to use the first page CD-ROM of the world's three major patent offices.
- 2) Text search in code data will be possible since data recording is in a mixed mode.
- 3) Since all text is written in English, word retrieval in a common language will be possible.
- 4) The space problem will be solved.

(2) Permanent Committee on Industrial Property Information (PCIFI)

For international cooperation, Japan has participated in PCIFI, which is sponsored by WIPO, and the following working group activities under PCIFI.

① Executive Coordination Com-

mittee (EXEC)

Policy decisions, work allotment among working groups, coordination, supervision, and prioritization.

- ② Working Group on General Information (GI)

Automation related items, items relative to exchange of industrial property literature, and research.

- ③ Working Group on Search Information (SI)

Preparation for the revision of IPC, development and utilization of IPC, items relative to the retrieval system based on IPC.

- ④ Ad Hoc Working Group on Management of Industrial Property Information (MI)

Items relative to the control of industrial property information, such as revision of annual technical reports.

- ⑤ Ad Hoc Working Group on Trademark Information (TI)

Standardization of trademark information, exchange and re-

search of automation related information.

- ⑥ Ad Hoc Working Group on Long Term IPC Revision Policy (IPC)

Examination of revision cycle and standards for proposals regarding IPC revision.

3. Cooperation among Three Patent Offices - Japan, US and Europe

The Japanese Patent Office (JPO), the US Patent and Trademark Office (USPTO) and the European Patent Office (EPO) began a cooperative relationship in 1983 with the recognition that close cooperation among the three patent offices in the creation of projects for individual tasks is essential in order to solve common problems in the area of industrial property rights such as automation of the patent processing procedure and propagation of patent information.

Based on this cooperative relationship, top level meetings are held among the three parties approximately once a year with the presidents of each patent office in attendance. The countries rotate the sponsorship of the meeting. Supplementary meetings among specialists and further detailed business meetings

among staff are held as required to resolve problems.

(1) Outline and Progress Status of Each Project

① Project 1-3-4: Study of Patent Application Processing

Study of standardization of mixed mode data exchanged among the three patent offices, preparation of mixed mode CD-ROM, and joint procurement of utilization software by the three parties.

② Project 2: Data Exchange

Study of electronic filing for back patent files, exchange of electronic data and mixed mode versions of exchange data based on the electronic filing work sharing program of the three patent offices, with the primary objective of exchanging official electronic gazette data in a mixed mode among the three parties.

③ Project 10: Patent Information Propagation Policy

Examination of the patent information propagation policy of the three patent offices and the propagation of patent informa-

tion through data exchange. The three patent offices have recently conducted market research to determine propagation policies, prices, etc. on the first-page (PAJ: Patent Abstract of Japan) and DNA databases.

④ Project 14.2: DNA Coding

A joint DNA database will be constructed by developing and exchanging DNA databases. To promote computer retrieval on DNA arrangement, the three patent offices are working on standardization of the methods for declaration and processing.

⑤ Project 14.5: F-Term Inventory

Study of the supply and use of F-Terms, a search tool of Japanese patent literature. JPO has provided F-Terms (data, manuals) on 135 of the published themes to USPTO and EPO.

⑥ Project 16: Telecommunications

Study of online communication methods (information exchange) among the three patent offices and the new methods in communication systems such as PC communication.

⑦ Project 18: First Page Database

A database for bibliography items, abstracts and drawings given on the first page of the patent literature of PAJ, USPTO, EPO, WIPO and the patent offices of major European countries in a common language (English) will be developed in a mixed mode.

⑧ Project 19: Cooperation in System Architecture

Interdependent study of automated search systems (F-Term System by JPO, BACON by EPO, and APS by USPTO), information for system development and study for unified systems for the future.

⑨ Project 20: Electronic Application (EASY)

EPO and USPTO are jointly developing and implementing an

electronic application system. JPO is cooperating by providing advice based on its experience with electronic applications and in collecting information.

⑩ Project 20.1: Exchange of Priority Documents in Electronic Data

Study of exchange of priority documents, including PCT applications, in electronic data.

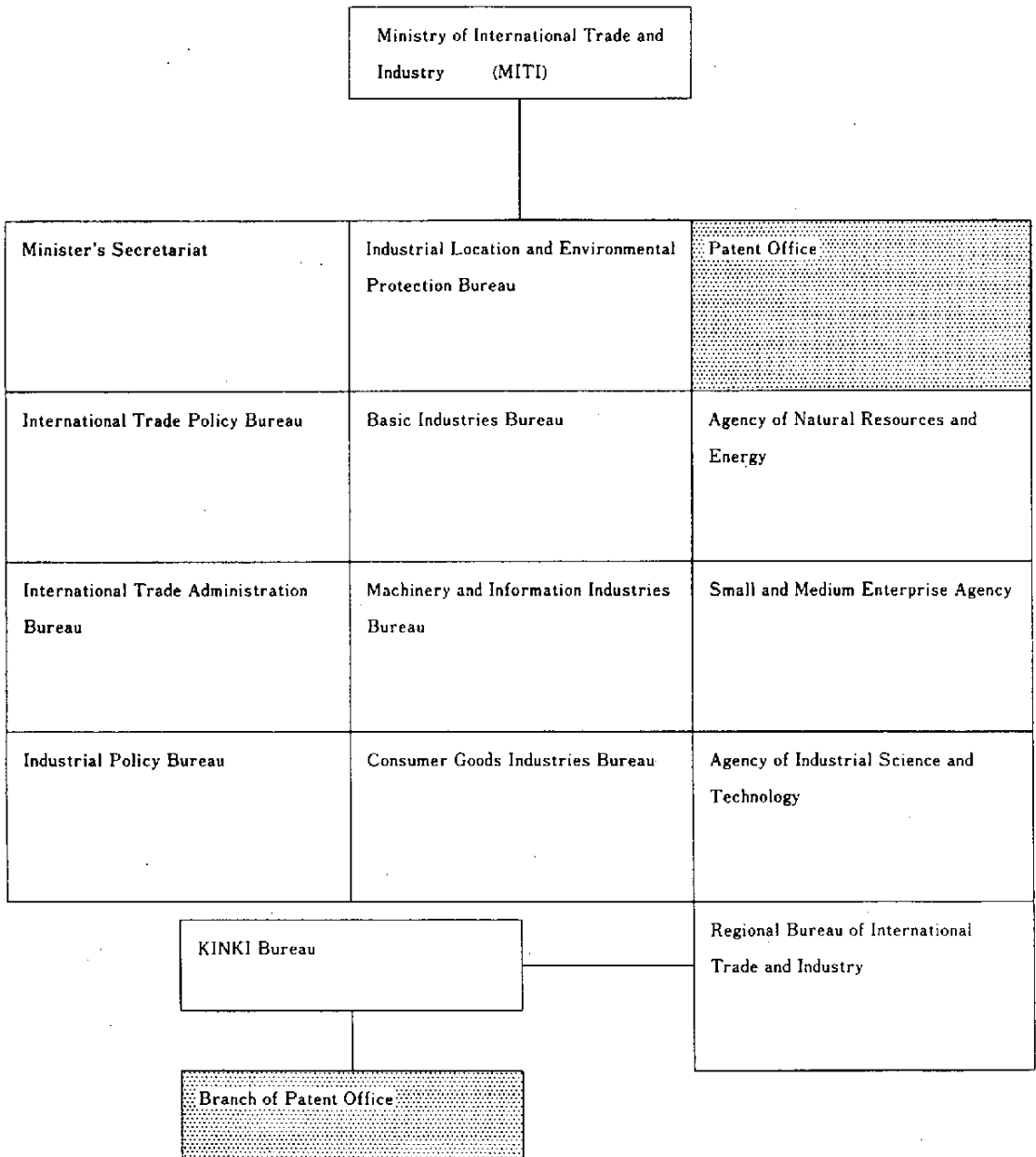
⑪ Project 21: Paperless Official Patent Gazette

Study of publication and distribution of patent literature in electronic media to further expand the distribution and utilization of patent information and to reduce the costs of publication and distribution. JPO is the leader in this project, applying its experience with the CD-ROM official gazette, and has actively provided information.

Appendix

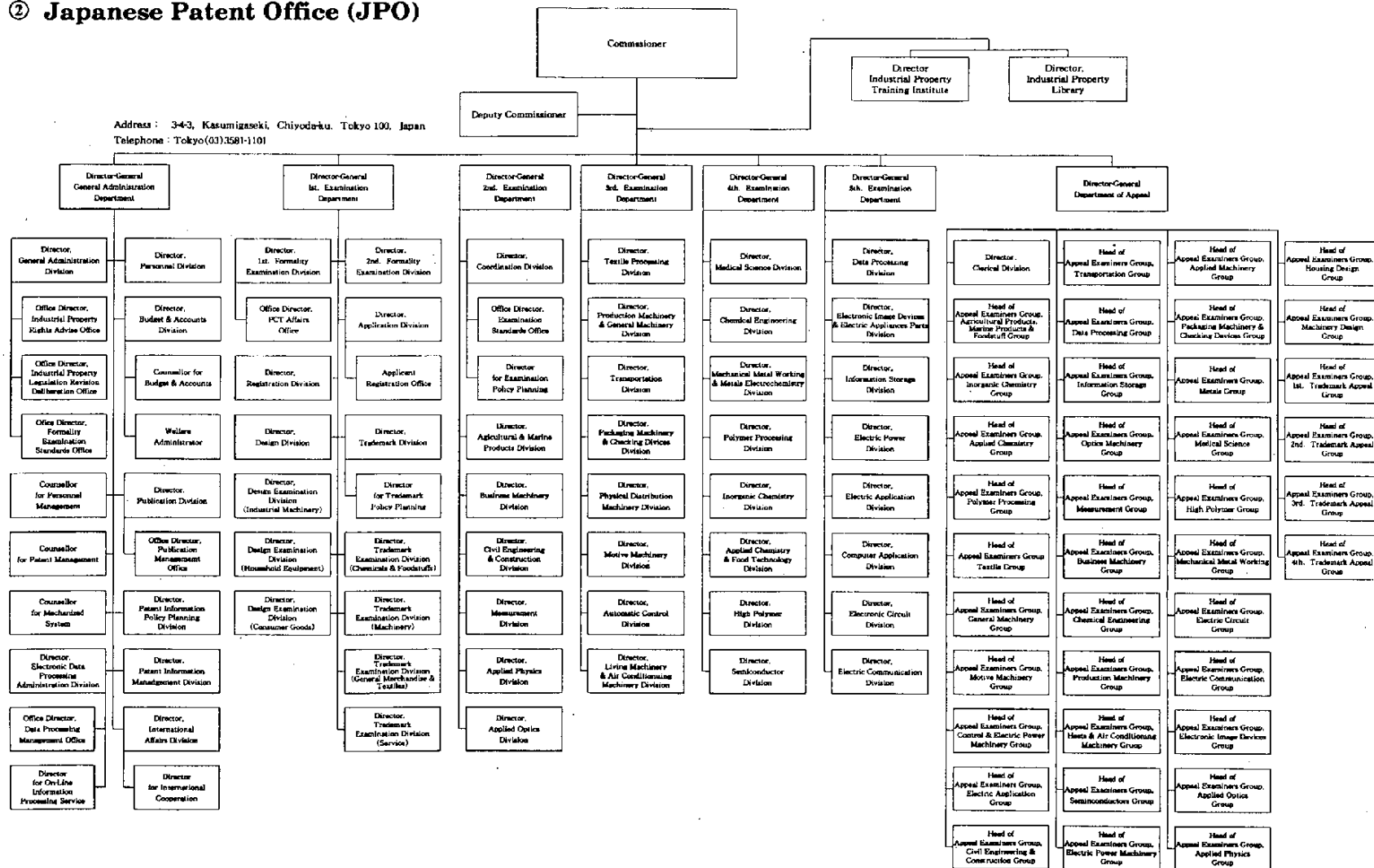
I. Organization

① Ministry of International Trade and Industry (MITI)



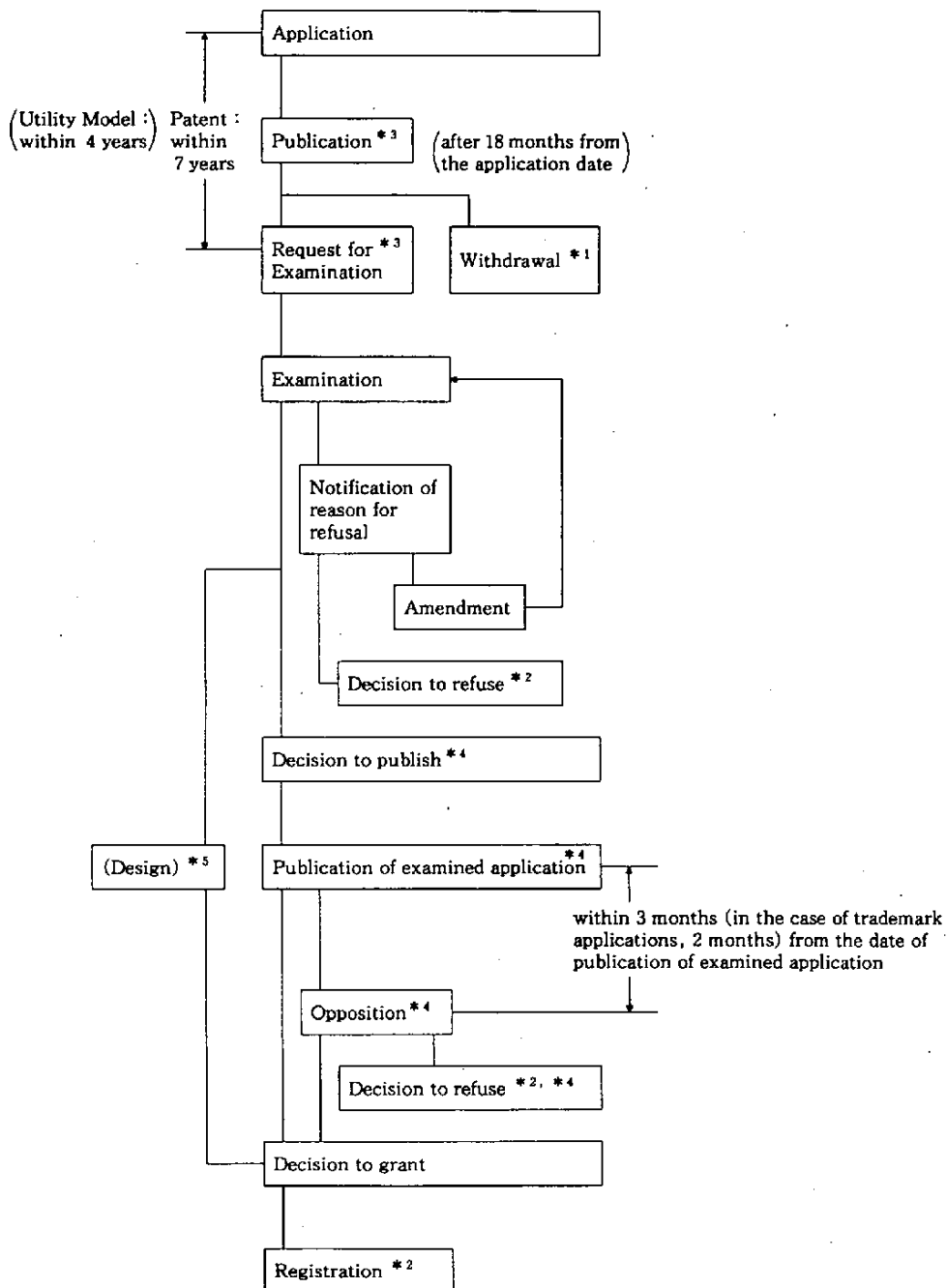
② Japanese Patent Office (JPO)

Address : 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100, Japan
Telephone : Tokyo (03) 3581-1101



(March, 31, 1993)

II. Flow of Applications



* 1 : If no "Request for Examination" has been filed within the prescribed period, the application will be taken to have been withdrawn.

* 2 : These may be appealed.

* 3 : These do not apply to design and trademark applications.

* 4 : These do not apply to design applications.

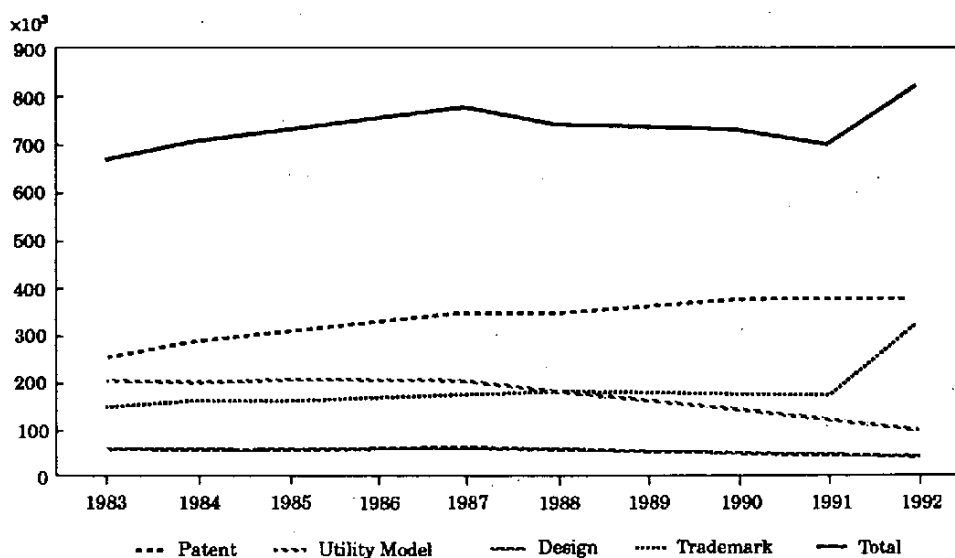
* 5 : Registered designs are published after the registration.

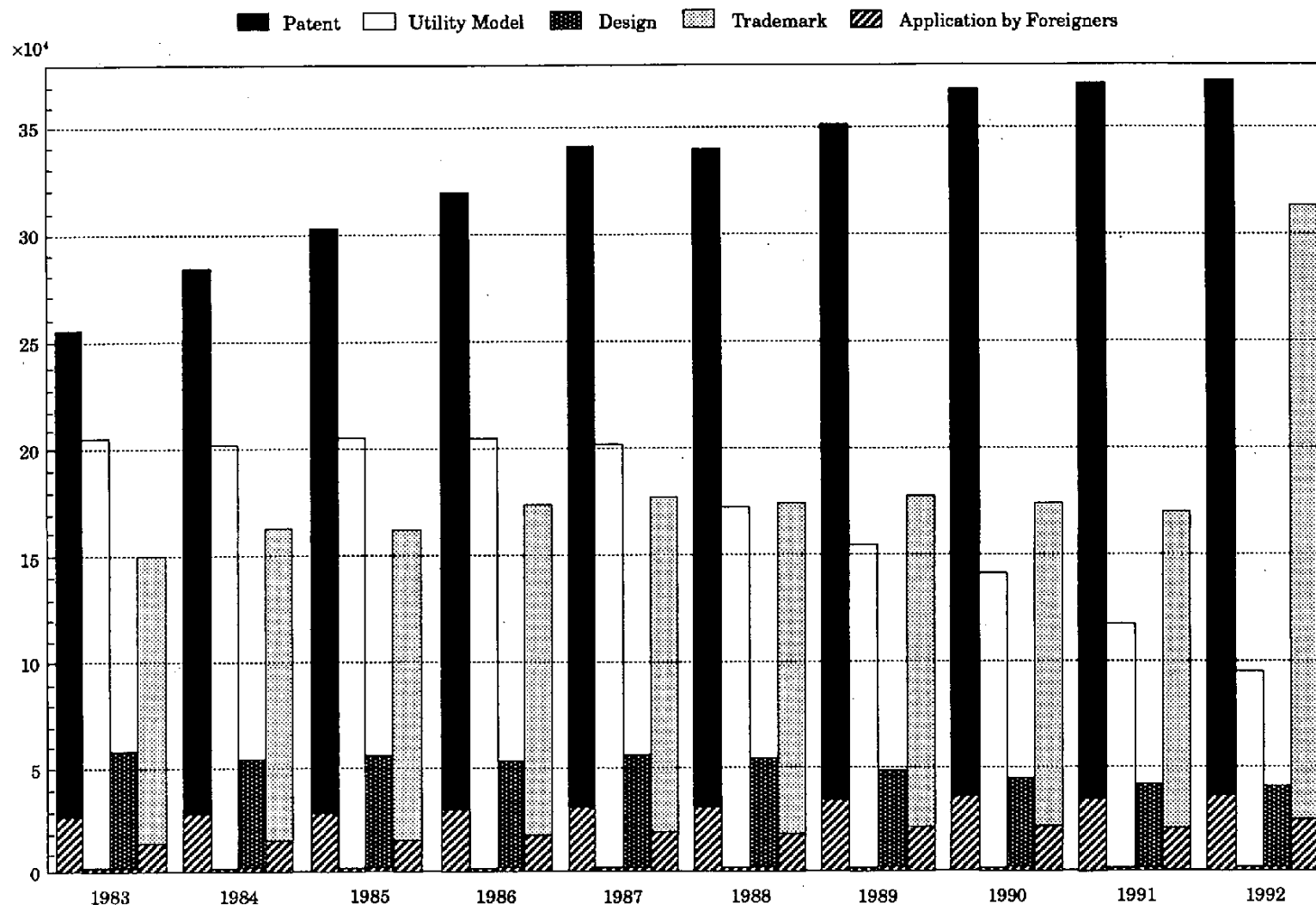
III. Trends in Number of Applications

① Number of Patent, Utility Model, Design and Trademark Applications

Category Calendar Year	Patent	Utility Model	Design	Trademark	Total
	Number	Number	Number	Number	Number
1983	(27,213) 254,956	(1,259) 205,243	(1,303) 57,618	(14,273) 150,318	(44,048) 668,135
1984	(28,562) 284,767	(1,278) 202,181	(1,411) 54,683	(15,148) 161,882	(46,399) 703,513
1985	(28,622) 302,995	(1,275) 204,815	(1,444) 55,237	(14,989) 161,546	(46,330) 724,593
1986	(29,887) 320,089	(1,275) 204,210	(1,395) 52,636	(15,894) 168,890	(48,451) 745,825
1987	(30,089) 341,095	(1,201) 201,614	(1,623) 54,017	(17,468) 175,861	(50,381) 772,587
1988	(30,491) 339,399	(1,107) 171,674	(1,795) 51,936	(17,786) 172,813	(51,179) 735,822
1989	(33,641) 351,207	(1,169) 153,302	(1,984) 48,596	(19,679) 172,780	(56,473) 725,885
1990	(34,360) 367,590	(1,255) 138,294	(1,962) 44,290	(19,791) 171,726	(57,368) 721,900
1991	(33,463) 369,396	(1,347) 114,687	(1,648) 40,134	(18,743) 167,906	(55,201) 692,123
1992	(33,875) 371,894	(1,284) 94,601	(1,492) 39,170	(22,654) 311,011	(59,305) 816,676

Note : Each figure in parentheses indicates the number of applications out of the total shown just below.

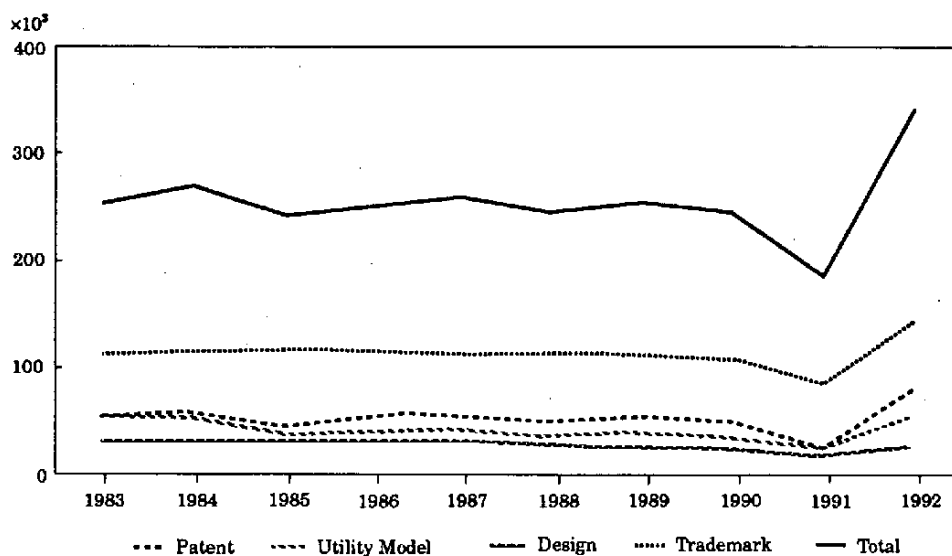


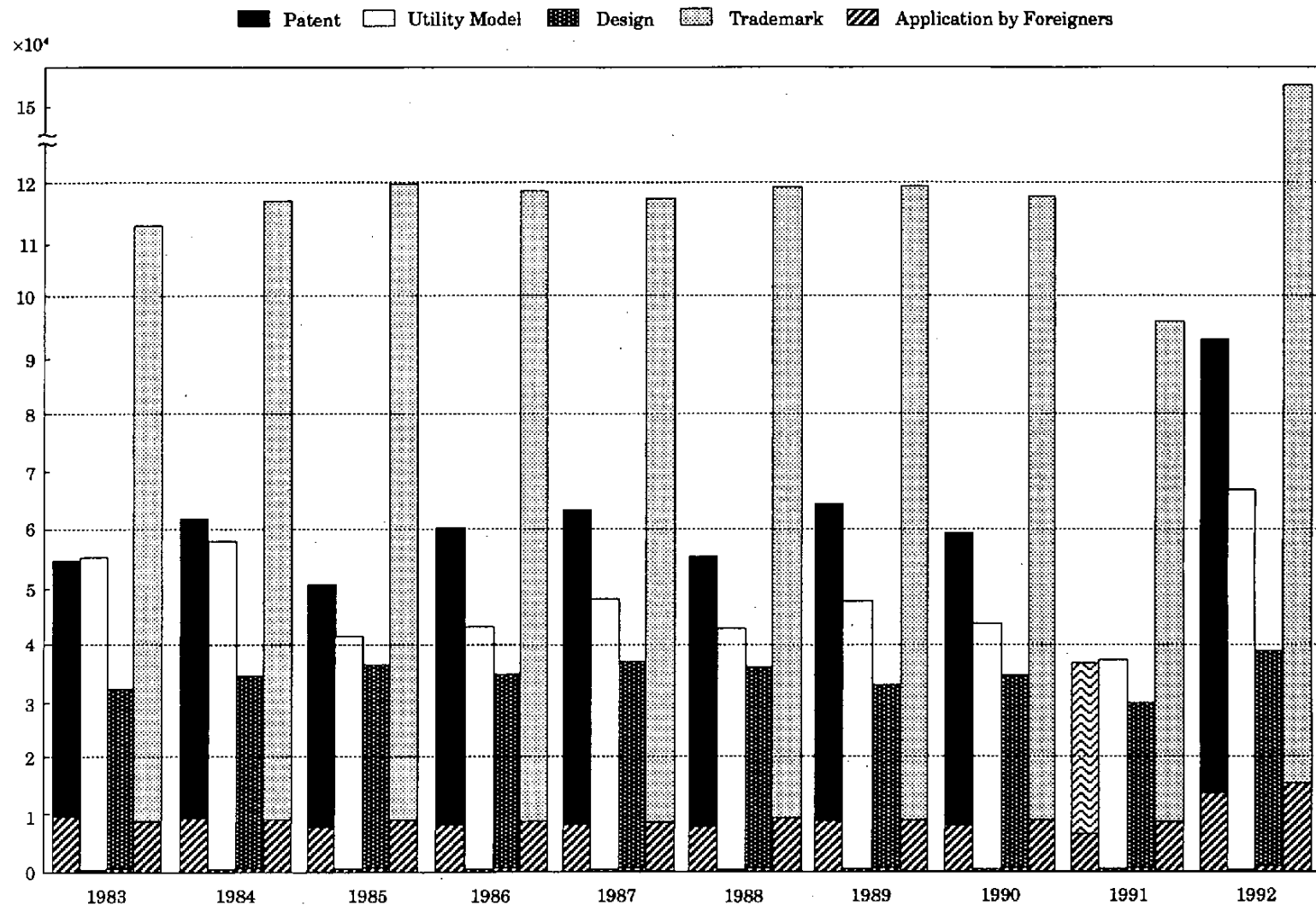


② Number of Patent, Utility Model, Design and Trademark Registrations

Category Calendar Year	Patent	Utility Model	Design	Trademark	Total
	Number	Number	Number	Number	Number
1983	(9,123) 54,701	(534) 55,000	(729) 32,237	(9,125) 113,245	(19,511) 255,183
1984	(10,110) 61,800	(578) 57,800	(668) 34,191	(9,483) 116,636	(20,839) 270,427
1985	(7,777) 50,100	(357) 41,100	(746) 35,890	(9,338) 119,534	(18,268) 246,624
1986	(8,624) 59,900	(436) 42,700	(728) 34,103	(9,019) 118,475	(18,807) 255,178
1987	(8,313) 62,400	(405) 47,800	(871) 36,614	(8,775) 117,075	(18,364) 263,889
1988	(7,388) 55,300	(323) 42,300	(895) 35,441	(9,293) 119,287	(17,899) 252,328
1989	(8,558) 63,301	(361) 47,100	(775) 32,250	(10,021) 119,598	(19,715) 262,249
1990	(9,031) 59,401	(367) 43,300	(905) 33,773	(9,867) 117,219	(20,170) 253,693
1991	(5,647) 36,100	(357) 36,500	(979) 28,854	(8,098) 95,329	(15,081) 196,783
1992	(13,107) 92,100	(556) 65,200	(1,385) 38,004	(14,568) 156,040	(29,615) 351,344

Note : Each figure in parentheses indicates the number of registrations out of the total shown just below.





③ Number of Applications and Registrations from and to Foreign Countries

a) Number of Patent Applications and Registrations by Foreigners

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	13,087	12,843	12,903	14,847	15,830	3,976	3,824	3,229	3,799	4,112
United Kingdom	1,815	1,927	1,796	2,017	1,936	459	411	373	432	465
Italy	770	777	843	816	822	170	209	163	186	213
Netherlands	1,218	1,278	1,442	1,552	1,468	382	339	343	342	334
Canada	316	209	407	360	263	76	71	82	74	81
Switzerland	1,371	1,332	1,387	1,490	1,454	502	446	407	461	456
Sweden	622	583	451	559	552	186	175	150	199	217
France	2,029	1,950	2,201	2,363	2,474	581	607	539	654	695
Germany(F.R)	5,925	5,841	6,019	6,065	5,852	1,726	1,644	1,607	1,813	1,925
Denmark	158	154	159	116	183	49	44	124	36	44
Others	2,576	3,195	2,883	3,456	3,526	517	543	371	562	489
Total A	29,887	30,089	30,491	33,641	34,360	8,624	8,313	7,388	8,558	9,031
%(A/B)	9.3	8.8	9.0	9.6	9.3	14.4	13.3	13.4	13.5	15.2
Grand Total B	320,089	341,095	339,399	351,207	367,590	59,900	62,400	55,300	63,301	59,401

b) Number of Utility Model Applications and Registrations by Foreigners

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	300	253	200	228	278	182	184	120	144	128
United Kingdom	51	38	20	15	28	18	18	16	14	17
Italy	72	50	37	36	23	5	10	15	12	17
Netherlands	42	45	23	31	36	26	12	—	21	18
Canada	11	7	5	4	7	7	1	1	3	2
Switzerland	48	38	33	47	24	19	20	17	17	18
Sweden	26	24	11	14	12	16	12	5	7	5
France	27	31	26	22	27	20	13	20	14	9
Germany(F.R)	210	207	176	152	138	90	86	70	76	90
Denmark	9	3	1	4	5	2	—	—	2	2
Others	469	500	575	616	677	51	49	59	51	61
Total A	1,265	1,196	1,107	1,169	1,255	436	405	323	361	367
%(A/B)	0.6	0.6	0.6	0.7	0.9	1.0	0.8	0.8	0.8	0.8
Grand Total B	204,210	201,609	171,674	153,302	138,294	42,700	47,800	42,300	47,100	43,300

c) Number of Design Applications and Registrations by Foreigners

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	536	542	536	562	718	268	331	328	268	333
United Kingdom	78	92	123	93	96	75	51	52	44	40
Italy	66	165	145	130	139	27	32	48	43	93
Netherlands	44	51	48	61	70	43	31	29	31	28
Canada	26	20	18	25	38	9	11	16	9	4
Switzerland	59	85	123	109	80	30	68	37	29	75
Sweden	83	76	53	108	97	49	49	52	49	39
France	100	167	183	190	152	51	65	68	81	95
Germany(F.R)	124	142	151	213	195	62	90	93	79	76
Denmark	47	37	44	93	68	24	14	48	15	12
Others	232	246	371	400	309	90	129	124	127	110
Total A	1,395	1,623	1,795	1,984	1,962	728	871	895	775	905
%(A/B)	2.7	3.0	3.5	4.1	4.4	2.1	2.4	2.5	2.4	2.7
Grand Total B	52,636	54,017	51,936	48,596	44,290	34,103	36,614	35,441	32,250	33,773

d) Number of Trademark Applications and Registrations by Foreigners

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	6,603	6,767	6,238	6,927	8,159	3,622	3,549	3,673	3,983	3,952
United Kingdom	1,328	1,466	1,312	1,466	1,496	712	640	715	883	864
Italy	818	996	1,231	1,760	1,544	542	517	488	659	689
Netherlands	224	345	310	326	501	148	121	150	180	209
Canada	183	167	186	274	259	96	87	85	92	87
Switzerland	854	911	932	1,003	1,018	530	530	580	523	514
Sweden	264	284	245	247	226	177	160	162	184	146
France	1,641	1,874	1,806	2,396	2,336	1,183	1,155	1,113	1,235	1,073
Germany(F.R)	1,982	1,993	1,760	1,797	1,718	1,051	1,083	1,230	1,097	1,251
Denmark	192	141	201	153	112	69	97	127	103	67
Others	1,805	2,524	3,565	3,330	2,422	889	836	970	1,082	1,015
Total A	15,894	17,468	17,786	19,679	19,791	9,019	8,775	9,293	10,021	9,867
%(A/B)	9.4	9.9	10.3	11.4	11.5	7.6	7.5	9.9	8.4	8.4
Grand Total B	168,890	175,861	172,813	172,780	171,726	118,475	117,075	93,650	119,598	117,219

e) Number of Patent Applications and Registrations to Foreign Countries

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	22,895	25,526	29,613	33,104	35,771	13,209	16,557	16,158	20,168	19,524
United Kingdom	2,512	2,432	2,404	2,430	2,235	5,487	4,287	5,018	5,440	5,798
Austria	52	64	31	42	34	376	353	337	451	471
Netherlands	181	138	104	158	110	1,351	1,260	1,362	1,532	1,769
Canada	3,114	3,714	3,724	4,058	4,444	1,975	1,568	2,007	2,084	1,796
Switzerland	156	184	118	183	159	1,067	944	971	1,060	1,076
Sweden	144	149	130	123	100	983	873	994	1,018	1,066
France	1,074	1,098	1,024	982	879	4,465	3,700	3,990	4,294	4,771
Germany(F.R)	3,923	3,635	3,565	3,623	3,579	5,689	6,012	6,031	6,888	7,448
Denmark	299	371	425	386	116	37	53	124	143	133
Others	12,554	10,681	12,692	13,793	13,397	5,837	6,144	6,434	7,746	10,038
Total A (1)	46,904	47,992	53,830	58,882	60,824	40,476	41,751	43,426	50,824	53,890
%(A/B)	16.2	15.4	17.4	18.5	18.3	78.9	77.2	90.6	92.8	107.0
Total B (2)	290,202	311,006	308,908	317,566	333,230	51,276	54,087	47,912	54,473	50,370

Note : (1) "Total A" indicates the total number of patent applications from Japan to foreign countries.

(2) "Total B" indicates the total number of domestic patent applications.

f) Number of Utility Model Applications and Registrations by Foreign Countries

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A										
United Kingdom										
Republic of Korea		915	799	701	767		392		454	891
Brazil	9	9	5	10	2	7	2	4	2	9
China	40	41	62	42		36	38	36	35	
Switzerland										
Sweden										
France										
Germany(F.R)	511	64	51	66	68	40	61	55	63	71
Spain	57	15	4	3	6	98	81	31	23	6
Others	0	1	0	2	2	2	0	0	1	0
Total A (1)	617	1,045	921	824	845	183	574	126	578	977
%(A/B)	0.3	0.5	0.5	0.5	0.6	0.4	1.2	0.3	1.2	2.3
Total B (2)	202,934	200,413	170,567	152,133	137,039	42,264	47,395	41,977	46,739	42,933

Note : (1) "Total A" indicates the total number of utility model applications from Japan to foreign countries.

(2) "Total B" indicates the total number of domestic utility model applications.

g) Number of Design Applications and Registrations to Foreign Countries

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	959	1,064	1,054	1,356	838	620	698	795	861	1,137
United Kingdom	684	756	744	1,006	663	544	547	730	960	911
Austria	4	10	17	38	17	4	10	17	38	17
Netherlands	—	—	—	—	—	—	—	—	—	—
Canada	269	274	243	237	219	160	288	243	258	271
Switzerland	20	32	35	86	69	18	29	30	71	60
Sweden	34	40	45	63	52	20	32	42	46	45
France	187	259	208	312	262	264	472	302	490	365
Germany(F.R)	484	492	478	481	430	485	485	379	339	617
Denmark	15	17	26	11	13	10	6	8	22	29
Others	858	1,256	1,338	1,864	1,238	629	978	966	855	1,546
Total A (1)	3,514	4,200	4,188	5,454	3,801	2,754	3,545	3,512	3,940	4,998
%(A/B)	6.9	8.0	8.4	11.7	9.0	8.3	9.9	10.2	12.5	15.2
Total B (2)	51,241	52,394	50,141	46,612	42,328	33,375	35,743	34,546	31,475	32,868

Note : (1) "Total A" indicates the total number of design applications from Japan to foreign countries.

(2) "Total B" indicates the total number of domestic design applications.

h) Number of Trademark Applications and Registrations to Foreign Countries

Item Calendar Year Country	Number of applications					Number of registrations				
	1986	1987	1988	1989	1990	1986	1987	1988	1989	1990
U.S.A	—	1,019	1,062	1,554	2,353	—	788	722	842	988
United Kingdom	628	645	850	940	1,349	614	461	407	642	709
Austria	111	133	155	158	256	151	100	150	169	186
Netherlands	—	—	—	—	—	—	—	—	—	—
Canada	5	299	410	585	596	303	323	227	264	278
Switzerland	170	179	224	257	312	182	151	175	254	139
Sweden	187	186	220	249	308	130	124	106	65	124
France	689	664	866	838	1,225	649	662	712	857	1,039
Germany(F.R)	457	442	573	638	908	357	289	389	369	415
Denmark	124	126	182	160	218	102	97	74	132	187
Others	8,860	8,424	9,364	12,374	13,394	7,372	7,150	7,036	8,280	8,128
Total A (1)	11,231	12,117	13,906	17,753	20,919	9,860	10,145	9,998	11,874	12,193
%(A/B)	7.3	10.8	9.0	11.6	13.8	9.0	9.4	11.9	10.8	11.4
Total B (2)	152,996	158,393	155,027	153,101	151,935	109,456	108,300	84,307	109,577	107,318

Note : (1) "Total A" indicates the total number of trademark applications from Japan to foreign countries.

(2) "Total B" indicates the total number of domestic trademark applications.

④ Number of Appeal Demands and Disposals

Item Category	Calendar Year	Number of appeals demands	Breakdown of disposals							Pending at the end of year
			Appeals decided in favor of		Appeals decided against	Referred back to examiner	Dismissed	Withdrawn	Disposals Total	
				※ Preferential examination						
Patent	1988	12,379	5,564	(1,738)	3,077	1	119	1,284	10,045	33,735
	1989	10,652	6,480	(1,818)	2,906	—	130	1,419	10,935	31,634
	1990	12,350	6,177	(1,392)	2,814	—	54	1,272	10,317	32,275
	1991	13,699	6,727	(1,431)	2,757	—	181	1,339	11,004	33,539
	1992	13,821	7,553	(1,656)	2,345	1	232	1,206	11,337	34,367
Utility Model	1988	5,325	3,294	(642)	1,799	—	98	606	5,797	17,597
	1989	4,940	3,408	(705)	1,762	—	106	540	5,816	16,016
	1990	5,591	3,724	(557)	1,639	—	54	589	6,006	15,044
	1991	5,953	3,177	(613)	1,550	—	105	532	5,364	15,020
	1992	5,402	3,948	(692)	1,321	—	127	417	5,813	13,917
Design	1988	1,595	753	/	689	6	58	222	1,728	6,372
	1989	1,836	589	/	693	3	34	155	1,474	6,734
	1990	1,693	640	/	571	2	25	296	1,534	6,893
	1991	1,573	620	/	558	10	73	322	1,583	6,883
	1992	1,622	705	/	418	6	76	275	1,480	7,025
Trademark	1988	4,236	3,619	/	996	13	359	476	5,463	24,191
	1989	4,164	3,087	/	1,058	19	275	431	4,870	23,485
	1990	4,424	2,648	/	1,080	11	165	870	4,774	23,135
	1991	5,289	2,355	/	993	3	294	1,381	5,026	23,398
	1992	5,160	3,636	/	913	—	314	805	5,668	22,890
Total	1988	23,535	13,230	(2,380)	6,561	20	634	2,588	23,033	81,895
	1989	21,592	13,564	(2,523)	6,419	22	545	2,545	23,095	77,869
	1990	24,058	13,189	(1,949)	6,104	13	298	3,027	22,631	77,347
	1991	26,514	12,879	(2,044)	5,858	13	653	3,574	22,977	78,840
	1992	26,005	15,842	(2,348)	4,997	7	749	2,703	24,298	78,199

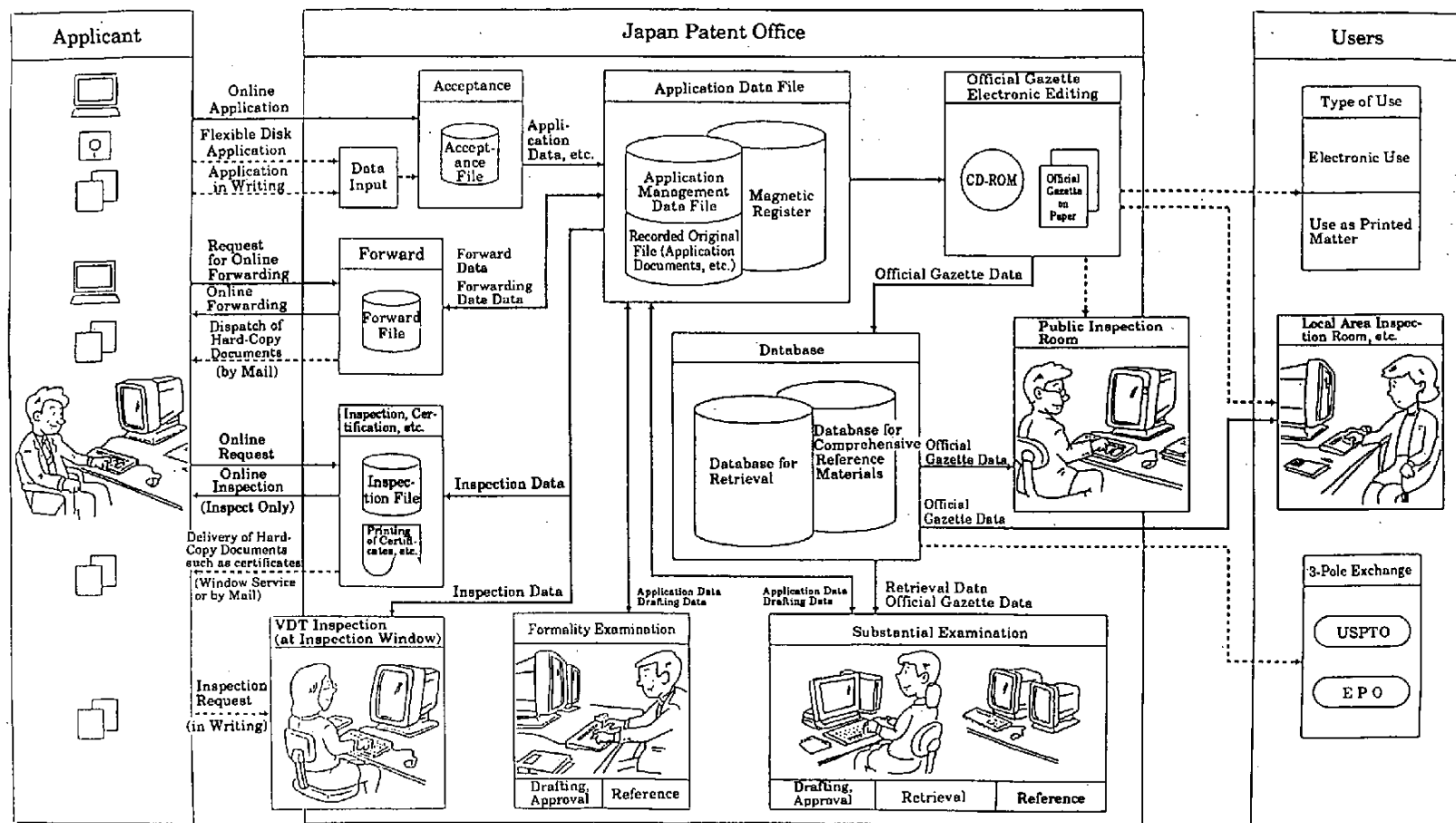
Note : 1. Each figure in parentheses indicates the number of decision to grant in preferential examination. In addition, it is not included in the number shown just left.

2. The number of Pending at the end of year excludes the number of decision to registration in preferential examination.

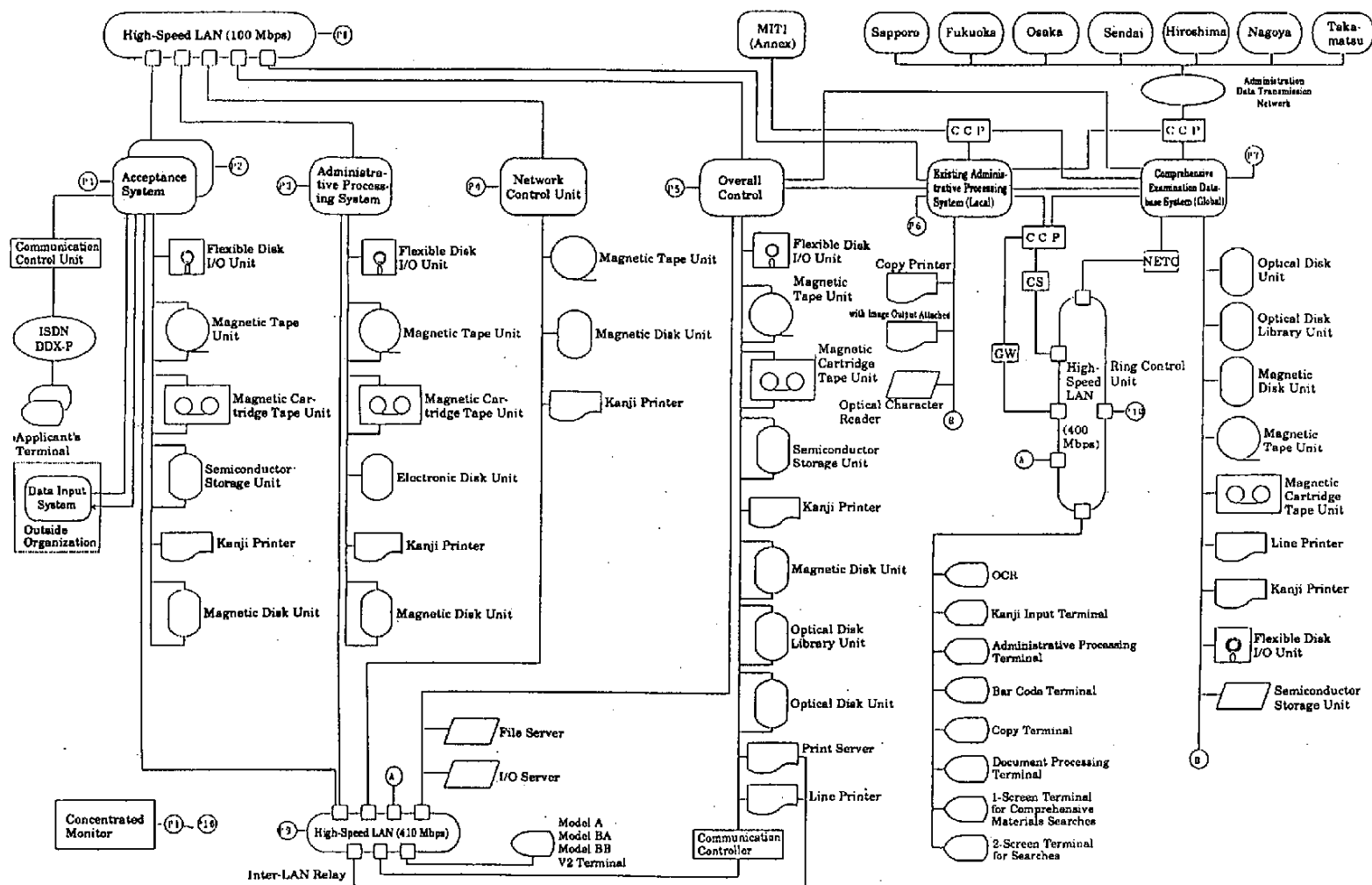
3. ※Preferential examination is performed by an examiner where a trial against the decision to refuse a patent/utility model application is demanded and the application is amended within thirty days from the date of the demand for the trial.

IV. Paperless System Overview

① Paperless System Concept



② System Configuration Chart



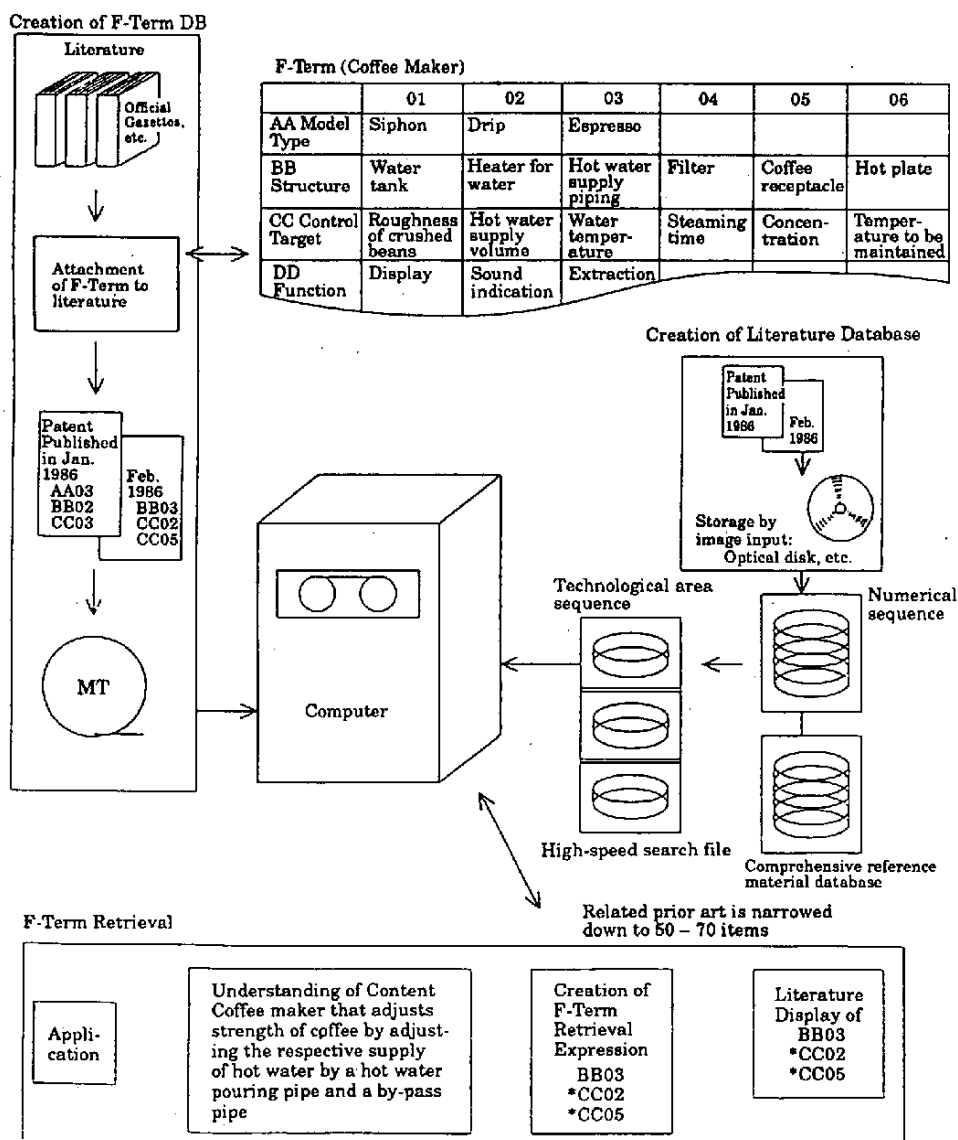
V. Outline of Retrieval System

① Conceptual Chart of Multi-viewpoint Term (F-Term) Search System

F-Term (File Forming Term) is a technical classification developed for quick prior art search for patent examination through computer retrieval, made necessary by recent trends such as a phenomenal increase in the volume of literature, increased complexity and fusion of technologies, and diversification of products.

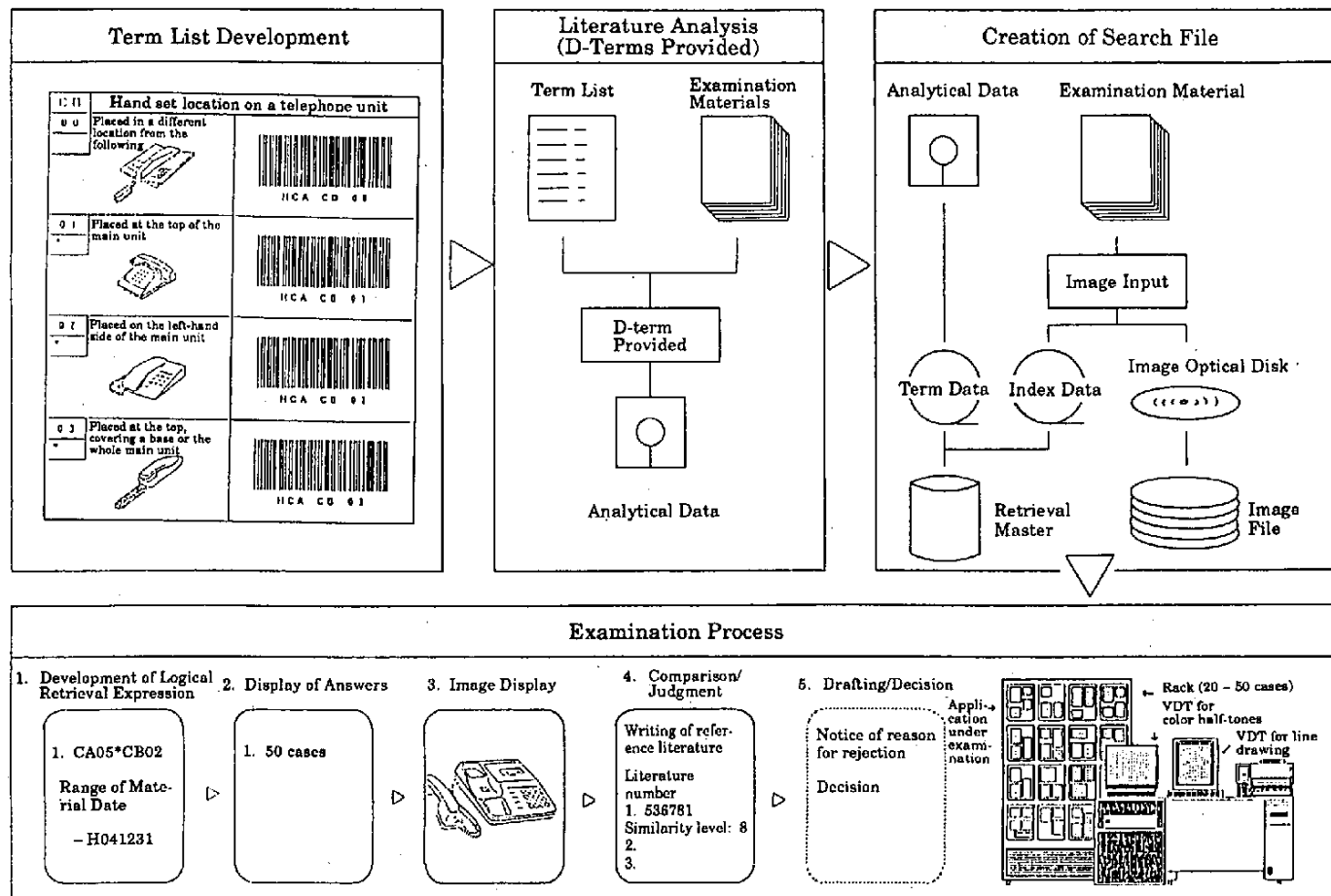
The current International Patent Classification (IPC) is based on a single technical viewpoint, and its classification is too rough. Therefore prior art searches must be conducted for hundreds to thousands of state-of-the-art technologies. In the F-Term system, IPC has been further subdivided according to various technological viewpoints (purpose, application, structure, function, material, production method, processing operation method, control method, etc.). Further development is made by selecting useful technological viewpoints for searching in each technological area. The target is to narrow down the related prior art search to 50 to 70 items.

The F-Term Retrieval System uses 2 kinds of databases: a retrieval database with retrieval keys including F-terms created on the basis of literature analysis, IPC, free words, etc. and a literature database, which is an accumulation of image data from the content of the literature itself. The system allows the display of literature on the screen of a VDT after the literature resulting from the search has been gleaned for relevance.

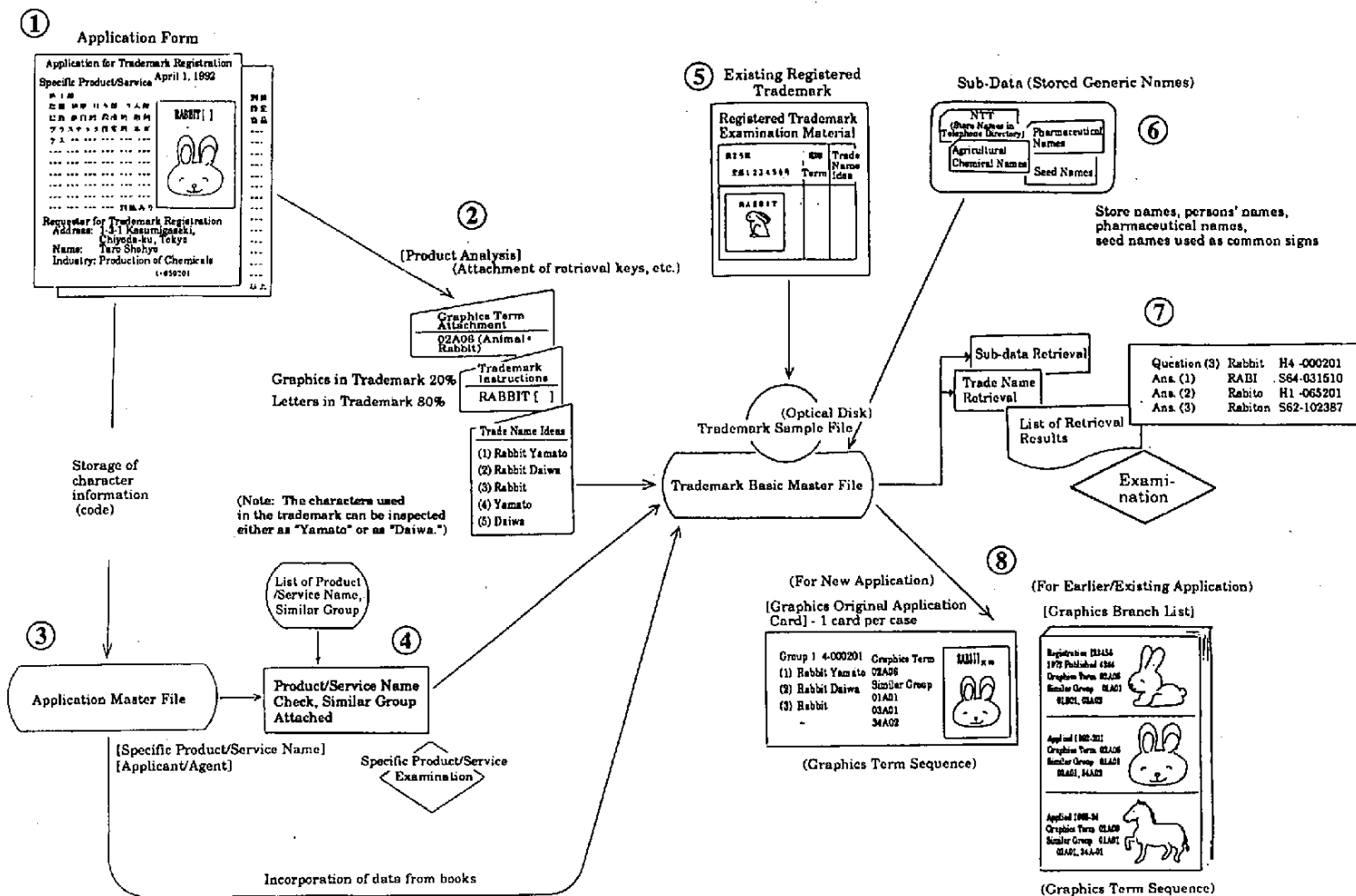


② Overview of Design Examination Process Using Comprehensive Design System

- The Comprehensive Design System is a computer retrieval system for efficient reference on a VDT by narrowing down electronic design examination materials using D-Terms.
- D-Terms are hierarchical retrieval codes developed from the viewpoints of those design characteristics (form, pattern, function, etc.) which are factors for the decision of whether there have been similar designs up to the time of design examination.



③ Conceptual Chart of Trademark Computer Retrieval System



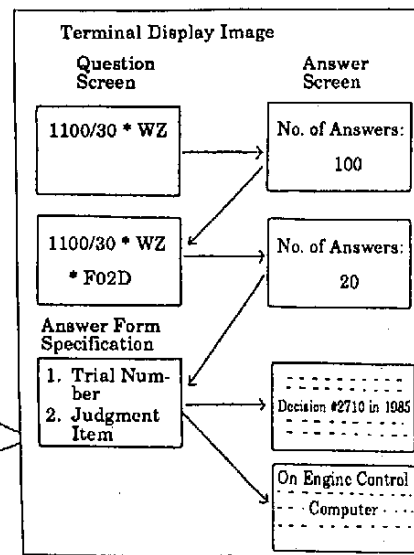
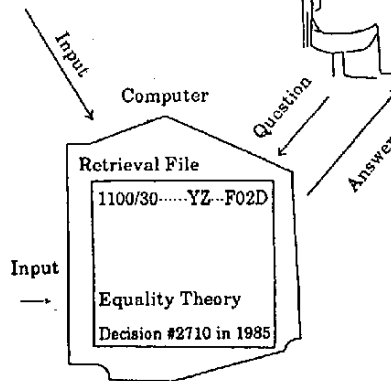
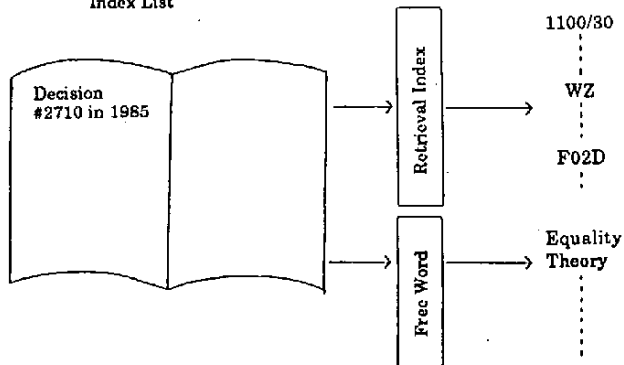
④ Retrieval from Trial Decision Retrieval System

- Concrete example ① Was "lack of inventive step" judged in any past trial decisions? →
 ② Were any of these cases in the field of engine control?

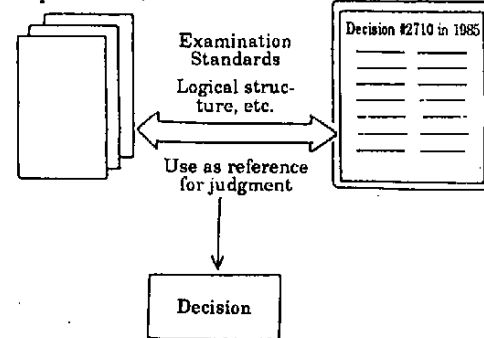
Retrieval Index List

				(IPC)	
1100	Patent requirements	W	Cancelled and returned	F01N	Exhaustion
1100/1	Publicly known	WY	Cancelled and patent authorized		
1100/2	Publicly implemented	WZ	Patent rejected	F01P	Cooking
1100/3	Patent rejected	X	Trial rejected	F02D	Engine control
		XX	Decision rejected		
1100/30	Lack of inventive step	Y	Will not be nullified	F02M	Fuel
				F02N	Starting
1100/100	Industrial utilization				

Extraction of Retrieval Index List



The present case



= Notes =

- **ICIREPAT** (Committee for International Cooperation in Information Retrieval among Examining PATent offices)

ICIREPAT was founded in 1961 for the purpose of promoting international cooperation in the storage and retrieval of technological information, particularly in the searching and examination of patent applications, applications for inventor's certificates, etc. In 1968, this became an official specialized committee for Paris Alliance. It was dissolved in 1979 when PCPI (Patent Committee on Patent Information) was created.

- **FD** (Flexible Disk)

To form this external storage media for magnetic recording, a magnetic powder is coated on a plastic record disk, which is covered with paper and plastic.

- **LAN** (Local Area Network)

A network connecting computers, printers, servers, etc. located in the same building with communications lines.

- **Multi-vendor Configuration**

Combining equipment of multiple vendors, or being operational with multiple vendor equipment.

- **CD-ROM** (Compact Disk-Read Only Memory)

A CD like the CDs used for music on which digital signals indicating characters, graphics, and so on are recorded. CD-ROM has recently become more popular as a recording medium for documents.

- **OA** (Office Automation)

Mechanization of administrative processing using computers.

- **IPC** (International Patent Classification)

Patent classification established by the Strasbourg Treaty on International Patent Classification for the purpose of unifying patent classification of all countries (effective in 1975).

- **VDT** (Visual Display Terminal)

A display unit for a computer using a cathode ray tube.

- **PATOLIS (PATent On-Line Information System)**

The name of a commercial online system on patent information in Japan, serviced by the Japan Patent Information Organization.

- **PAJ (Patent Abstract of Japan)**

English abstracts of Japan's official gazette for published unexamined patent applications ("Kokai Koho"), published to make Japan's patent information available in the rest of the world.

- **DNA Arrangement**

Arrangement of four bases (A: Adenine, T: Thymine, C: Cytosine, G: Guanine) that comprise DNA (DeoxyriboNucleic Acid). It expresses the genetic codes of life.

- **BACON (BAckfile CONversion)**

The name of EPO's computerized patent information processing system. Besides referring to the whole system, the term is sometimes used to indicate image data development of past patent literature.

- **APS (Automated Patent System)**

The name of USPTO's computerized patent information processing system.

- **EASY (Electronic Application SYstem)**

The name of an electronic application system being developed jointly by EPO and USPTO. At present, they are developing software for electronic applications using floppy disks.

Current News

*** Mitsubishi Electric Develops Security Assessment Technology for Cryptograph**

Mitsubishi Electric has developed security assessment technology for a communication network cryptograph to keep telecommunication data confidential. The technology determines the difficulty of deciphering a specific cryptograph and the password updating cycle needed to ensure data security. It applies a deciphering technique called linear cryptanalysis, and is the world's first technology that computes the minimum computing time needed for finding an "encryption key," a password common to all data, from raw data and encrypted data if leaked.

The Data Encryption Standards (DES), the standard commercial cryptograph used in the US, was assessed by Mitsubishi's technology and it was found that the encryption key must be updated after about 9 trillion

data items have been encrypted. This is equivalent to 65-hour occupation of an optical communication line at the highest speed currently available for data transmission. It is estimated that it would take about 2,000 years to decode the DES key using a supercomputer. According to the assessment by the new technology, the key can be inferred from encrypted data and corresponding raw data by computing for 50 days using 12 workstations — hence the 9 trillion data-item estimation.

For communication cryptographs used widely for transmitting proprietary business information and private information via networks, the number of years a supercomputer would take to decipher it has been the indicator of difficulty. This indicator does not show specifically how often, however, a password should be changed to protect confidentiality from outside deciphering attempts. This makes Mitsubishi Electric's new technology epoch-making.

*** PCs Shipped in 1993 Outdo Previous Year After Three-Year Hiatus**

According to statistics announced by the Japan Electronic Industry Development Association (JEIDA), some 2,913 thousand PCs have been shipped in 1993, showing the first rise over the preceding year in three years. Four large overseas-based manufacturers, including IBM Japan and Apple, were added to the 1993 statistics, however, so this data must be compared with that for the preceding year taking this difference into account. The JEIDA estimates that real growth from the preceding year is about 5%, or about 1,260.0 billion yen.

Of total shipments, exports accounted for 759,000 units — a considerable increase from the 407,000 units shipped in 1992, considering that the four new manufacturers added to the statistics hardly exported from Japan at all. The demand for notebook PCs with color displays leaped, especially in the US. The favorable exports increased total shipments.

PCs shipped to the domestic market numbered 2,153,000, showing growth from the preceding year because competition in the low-priced machine

market lowered PC prices and high-performance PCs sold well among users of Microsoft Windows 3.1.

The JEIDA sees indications of a bright outlook even though PCs for business users are still stagnant in contrast to those for personal use.

*** Mitsubishi Materials and National Institute of Bioscience and Human-Technology Develop Display System for Blind**

Mitsubishi Materials and the Agency of Industrial Science and Technology's National Institute of Bioscience and Human-Technology have developed a 3-dimensional information display for the blind that enables the visually handicapped to recognize 3-D shapes and images on a computer display through touch. R&D for the system began in fiscal 1989 under the Industrial Science and Technology R&D System of MITI's Agency of Industrial Science and Technology. The contract for software such as image processing went to the National Institute and the hardware contract to Mitsubishi Materials.

The system has three major components: (1) image input equipment that receives 3-D information, (2) a computer system that processes images

and edits input information, converting data to an algorithm that enables recognition as 3-D information by the blind, and (3) a 64-by-64 3-D pin display that expresses image information in 3 dimensions by vertically driving pins in short, accurate, and even strokes through stepping motors.

The 4,096 pins are arranged on a plane to form an uneven 3-D surface on which shapes can be recognized by touch. This is the first equipment of its kind in the world, and is expected to facilitate the introduction of computers into schools for the blind, where use in teaching geometry, geography, and the arts is being considered.

*** Mitsubishi, Mitsui, Tokyo Power, and Tokyu Tie Multimedia Knot**

Mitsubishi Corp., Mitsui & Co., Ltd., Tokyo Power Co., and Tokyu Railway have announced a tie-up agreement to promote multimedia development by linking communication business, e.g., telephones, with cable television (CATV). They are inviting other CATV and trading companies to join in and expect to eventually have 10 to 20 participants.

They plan a field experiment in the near future using bidirectional serv-

ice involving Tokyu Cable Television, Japan's second largest CATV service with some 80,000 subscribers. They will be connected to the optical fiber communication network of Tokyo Telecommunication Network (TTNet), whose major shareholders include Tokyo Power, Mitsubishi, and Mitsui. They are considering services such as digital telephone, personal handy phone (PHP), video on demand to send programs at a TV user's bidding, and karaoke and game distribution.

The experiment, in which several hundred households will participate, is to study technological problems and user needs to determine practical service. Once the communication and CATV networks are connected, TTNet can expand the optical fiber network constructed to link companies and homes in one step. Mitsubishi and Mitsui, which have lagged in the CATV business until now, will now participate in a CATV station network. CATV companies can offer new services and gain subscribers while minimizing the need for new investment by using existing cable networks.

In the US, tie-ups between regional telephone companies and CATV companies are regularly announced because interactive CATV is consid-

ered the nucleus of multimedia. In Japan, this is the first attempt to connect a regional common carrier's network with a CATV network.

*** NTT Ties up with Microsoft in Multimedia Business**

NTT has announced a multimedia tie-up with Microsoft, the world's largest PC software maker. Specifically, this involves the following two fields: (1) a multimedia information distribution service that enables users to obtain as much information as they need from CD-ROM and (2) a system supporting PC communications on NTT's facsimile network, F-Net. NTT plans to start the information distribution service in 2 or 3 years in conjunction with a number of software companies and add higher value to F-Net within one year.

With the multimedia information distribution service, information is distributed first by CD-ROM. An in-

formation user buys partially encrypted CD-ROM and check the non-cipher part free of charge to determine whether to subscribe. The user gets a deciphering key through a telephone network. This system benefits both users, who then purchase only the information they need, and software companies, which can then prevent illegal copying. NTT will develop the cryptograph and Microsoft will develop user terminal software.

Microsoft is developing software support equipment that enables communication between equipment such as PCs and fax machines, and is planning to connect it to F-Net and start a service sending text data on PC screens to a number of fax machines simultaneously.

NTT thus has clearly indicated that its principal strategy for surviving in the multimedia age is to tie up with overseas enterprises.

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