<TOPIC>
<NUM>
P001
</NUM>
<LANG>
EN
</LANG>
<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
Sub-micron machine
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990311333</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Entertainment</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>378</A-WORDS>
<A-HEADLINE>[Forum] Tokushu Kika Kogyo's "Sub-micron machine" patented in 10 countries (Osaka)</A-HEADLINE>
<A-DATE>1999-03-11</A-DATE>
<A-TEXT>
Tokushu Kika Kogyo co., ltd. (Fukushima-ku, Osaka) has applied for a patent for a high-performance agitator "Sub-micron emulsification-agitator" (photo) of its own development in more than 10 countries including Japan, already has the product patented in 10 countries including the United States, and has begun a full-scale sales promotion.

This mixes differently natured liquids such as water and oil together. Water and oil agitated together by hand separate readily, however, when oil is mechanically reduced into particles with a diameter in the order of one-thousandth of a millimeter, the liquid mixture forms an emulsion whose cohesion overcomes separation and is utilized in cosmetics.

The sub-micron machine agitates liquid mixtures at even higher speeds to reduce their components into particles with a diameter of 0.5 microns or less and has been used by chemical companies for laboratory research. Their research has reported some hitherto unknown characteristics of ultra-fine particles in succession such as that an opaque emulsified liquid turns clear and the medicinal properties within the

liquid readily penetrate the skin.

The company expects use of this machine to spread to commercial production lines.
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
Limited to apparatus
</SUPPLEMENT>
<DESCRIPTION>
Agitators or apparatus for producing emulsions comprising of particles of a sub-micron diameter
</DESCRIPTION>
<NARRATIVE>
Sub-micron indicates a size of 1 um or less. The agitating machines/apparatus are not limited to those that use propellers and include all types of machine or apparatus. Those using emulsifiers such as added surface-active agents are not included. Those containing surface-active agents as stabilizers are also excluded since they are difficult to distinguish from emulsifiers.
</NARRATIVE>
<CONCEPT>
Emulsification, dispersion, mixture, agitation
</CONCEPT>
<PI>
PATENT-KKH-G-H08-016305
</PI>
</TOPIC>

<TOPIC>
<NUM>
P002
</NUM>
<LANG>
EN
</LANG>
<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
The natural farming method is to form a clump of clay around a seed, and to plant and cultivate it in this

form.

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-980624292</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Society</A-SECTION>

<A-AE>No</A-AE>

<A-WORDS>715</A-WORDS>

<A-HEADLINE>"Patented natural farming method quoted without permission" Withdrawal of edition of "SEED" comic book sought (Osaka)</A-HEADLINE>

<A-DATE>1998-06-24</A-DATE>

<A-TEXT>

"SEED" (Original author: Raddick Kujirai), a farming aid in serial cartoon form published in the youth comic magazine "Business Jump" (circulation 580,000) published by Shueisha, quoted Mr. Masanobu Fukuoka (85), a farmer from Iyo-shi, Ehime prefecture, without permission. Mr. Masanobu Fukuoka, who revealed his own farming method in his book, claimed piracy. It was discovered on June 23 that he had sent a written protest to Shueisha asking for withdrawal of all five volumes of the book of the same name. Shueisha admitted the content of the cartoon reflected the influence of Mr. Fukuoka.

In the story contained in the "SEED" cartoon, the main character provides assistance to developing countries with his unique farming methods. One of these unique methods appears under the part of the story identified as a "natural farming method" in which a clump of clay containing a seed is planted.

However, the clump of clay and the natural farming method are original farming methods Mr. Fukuoka has been practicing and advocating for the extended period of about 60 years. He acquired a patent on this clumped clay method in May 1996. According to Mr. Fukuoka, who wrote this farming method, a total of 42 parts from the book were quoted without permission. Thus, Mr. Fukuoka, through his agent, personally delivered to Shueisha a written document containing the quoted parts and requesting withdrawal of all five volumes of these books.

Shueisha made the counterproposal that (1) an interview with Mr. Fukuoka would be published in the magazine and (2) Mr. Fukuoka's book would be specified as the source reference document at the end of the publication.

However, Mr. Fukuoka countered, "The book portrayed my farming method in an easy-going manner and half in jest, and raised the issue that this farming method demands dexterity in practice. Regrettably, the drawing was made without my consent." He is ready to take legal means to address it.

The Shueisha Editing Department replied, "In some parts we did not agree with Mr. Fukuoka's ideas, but we want to respond quickly and in good faith."

- Hiroaki Miyakawa

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

First search for a similar seeding method as the clump of clay method in which the seed is coated with soil components before being planted.

</SUPPLEMENT>

<DESCRIPTION>

Regarding the clump of clay and its production method in which the plant's seeds are coating with clay and other inoculum in the form of a clump of clay and planted, it is used in natural farming methods by which it is cultivated in that form.

</DESCRIPTION>

<NARRATIVE>

The natural farming method described here is to sow a plant's seeds with various coatings and to cultivate it in this form. Similar coatings are many and include insulation and clay for the clay ingredient and mineral ingredients. The clay minerals usually include clay (kaolinite, monmorironite, etc.) with the lattice layer as the basic structure and a multiple chain lattice structure (atapalgite, sepiolite, parigoalskite, etc.). As for planting of the seeds, they are typically sown in an agricultural field. The inoculum includes root nodule bacteria and a fungus that promotes seed growth. Matsutake mushroom fungus is used for pines, mycorrhiza fungus for mycorrhiza plants, and root nodule bacteria for bean plants.

</NARRATIVE>

<CONCEPT>

Seed, sowing, soil, clay, inoculum, fungus coating, insulation and promotion of cultivation

</CONCEPT>

<PI>

PATENT-KKH-G-H03-017993

</PI>

</TOPIC>

<TOPIC>

<NUM>

P003

</NUM>

<LANG>

EN
</LANG>
<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
Stepping motor
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-981119370</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Entertainment</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>2494</A-WORDS>
<A-HEADLINE>"I'm excited!" said Mr. Naoyasu Yubasaki, the president of MYCOM, a precision-control motor and equipment producer (Osaka)</A-HEADLINE>
<A-DATE>1998-11-19</A-DATE>
<A-TEXT>
Mr. Tadayoshi Yubasaki, President of MYCOM INC. (52)
He took over a supply company producing electrical appliances from one of his relatives while still at university. He suffered stress due to a customers' irrationality and later when the contract with that customer was cancelled, he and all his employees closed ranks to form an unbreakable organization.
Now the company has been completely reestablished on a technological basis such that they collectively call themselves a "think tank". Mr. Yubasaki himself is a researcher, who is also a member of the Japan Fuzzy Society and has recently published a book titled "Intelligence and Technology Methodology". He said, "Now venture businesses are booming but in Japan these businesses would seem to have difficulties advancing unless technologists stop warring amongst themselves."

Supply contract cancellation necessitated a developmental mind.
---You started the business during your university student days!
President Yubasaki: I was earning some money for my educational expenses by teaching at a prep school, but I thought I could earn much more and also make better use of my knowledge if I took over an electronics manufacturing company from a relative of mine. The company was a subcontractor doing soldering and assembly. Since new control technology has being initiated in electronics at that time, I was expected to deal with the situation. I founded a laboratory of our own to begin research into computers while continuing to handle existing orders. In the meantime, the customer, affected twice by the repeated oil crises, began to reduce the number of its subcontractors and abruptly canceled our contract with nothing

more than a letter of notice despite there being no problems with our output. Maybe they thought that I was doing something impertinent and might rebel against them. We lost the job just like that and had to resort to anything - even cultivating mushrooms at our local sub-plant - to overcome the difficulty. This obstacle strengthened my ties with coworkers and spurred our development of new products.

The foundation was a 5-phase motor.

---How did you put your own products on sale?

President Yubasaki: We made several types of control devices by hand and went selling them door-to-door with the products wrapped in a furoshiki (traditional Japanese cloth wrapping). Our POS device for supermarket registrations was among the latest at that time. Gradually, we learned the precision-control technology required for motors to be used in electronic devices, and then began development of a 5-phase motor. Existing 5-phase motors required 10 wires, but we were able to reduce them to 5 by controlling the current. This led us to develop the stepping motor, which has grown to be our main product and has helped to build today's solid foundation. We applied for a patent for this concurrently in Japan and the United States. The patent was granted in the U.S. 15 years ago but, in Japan, there were various claims from within the trade, copies, and patent applications for different products created by modifying our idea while the patent was pending prior to when it was finally granted 3 years ago. Despite that, 90% of stepping motors for use in semiconductor production lines and robot parts are our products.

"Advancement will be destroyed in Japan"

---Are Japanese patent conditions strict?

President Yubasaki: I would rather call it "venture harassment". In the United States, when a patent for a useful product is applied for, some parties express an interest in partnership for a cooperative system while in Japan many researchers employed by big businesses often make counterclaims because our ideas resemble those from their research. The government places priority on the advantage for the whole industry and forced us to compromise rather than accepting new technology from venture businesses. When we were a subcontractor, "advancement was depressed", but now we are operating as a venture business, "advancement is being destroyed." The "Venture business advancement policy" led by the government and chamber of commerce in those days was substantially unfair. It was often the case that some companies could not secure any financial support for fear they might compete against local big businesses in the relevant industry, and in the worst cases I heard about, such companies were urged to accept absorption into the local big business.

At least one patent is to be applied for a month.

What are the requirements for establishing a technology-based company?

President Yubasaki: Without a doubt, research and development. We apply for at least one patent every month. But it's not enough to just make specimen products as scholars often do.

If we make a machine for use on a production line, we build it into the actual line and take care of it until the

line starts commercial operation. A technology can't be considered real unless it makes a customer exclaim, "Wow! This is just what I want." Persisting with a single technique, as is often the case with researchers, is also pointless. If one suggestion is rejected, then make another to conclude the negotiations or it can't be call a real idea. In the past, technical ideas were sometimes stolen on the basis of suggestions, but recently such problems have been avoided by forwarding patent applications in advance.

High technology advances in partnership with universities

--- Do you place great hope on educational-industrial complex?

President Yubasaki: Yes. I take much pleasure in listening to researchers at my old school, Osaka Electro-Communication University, and discussions with the students provide me with many lessons. I was an instructor at the Tokyo Institute of Technology until last spring, which provided me with a great opportunity to advance my studies. Technological advances in electronics can be seen in days and month just as in the Japanese saying. Industrialists who don't study get nowhere. At the same time, it's no good if a school remains an ivory tower with excessive emphasis on intellectual training. Enterprises are expected to regard universities as partners in research, not merely as a resource for recruiting new staff. However small they may be, if businesses are ready to learn new technology directly, we may advance Japanese industrial education and venture businesses with a resultant stimulation of the economy, don't you think?

-Profile

¡¦Date of birth: March 12, 1946

¡¦Hometown: Kyoto City

¡¦Alma mater: Department of Electro-Communication Engineering, Osaka Electro-Communication University

¡¦Family: Mother: Fumie (75), Wife: Toshiko (50), two daughters

¡¦Hobby: Listening to music

¡¦Respected person: Dr. Shockley, one of the inventors of the transistor

-Memo

-Head office: 12, Umano-cho, Saga Hirosawa Minami Shita, Ukyou-ku, Kyoto, 616-8303. Tel: 075-882-3601

-Corporate history: Established in 1968 and incorporated in 1970. After splitting from a regular customer, commenced development of a step stepping motor control device - the present company's key product - in 1977. Adopted present corporate name in 1984.

-Number of employees: 44

-Annual sales: ¥1.7 billion

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>
Stepping motor with minimum angular deviation not limited to only 5-phase motor.
</SUPPLEMENT>
<DESCRIPTION>
Drive control device or method to minimize angular deviation in stepping motor.
</DESCRIPTION>
<NARRATIVE>
A stepping motor rotates to a specified angle whenever a pulse is sent to an input control circuit. This angle of rotation is called the step angle and the positioning resolution becomes greater as this angle is reduced. The remarkable characteristic of the stepping motor is that it can minimize the angle. The step angle can be denoted as "step angle = 360/the number of steps" and "the number of steps = the number of phases of coiled wire x the number of teeth of a rotor", and thus the number of phases affects the resolution. Popular numbers include 3, 4, and 5. The patent information referred to here is that for control devices or methods for minimizing the minute angular deviations without limiting the number of phases.
</NARRATIVE>
<CONCEPT>
Stepping motor, minute angle, drive, device
</CONCEPT>
<PI>
PATENT-KKH-G-S59-080600
</PI>
</TOPIC>

<TOPIC>
<NUM>
P004
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<LANG>
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<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
Device to judge relative merits by comparing codes such as barcodes with each other
</TITLE>
<ARTICLE>
<A-DOC>

<A-DOCNO>JA-981031179</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Society</A-SECTION>

<A-AE>No</A-AE>

<A-WORDS>189</A-WORDS>

<A-HEADLINE>BANDAI lost a lawsuit for piracy filed by EPOCH at Tokyo District Court</A-HEADLINE>

<A-DATE>1998-10-31</A-DATE>

<A-TEXT>

In settlement of the lawsuit filed by EPOCH INC., the toy manufacturer, against BANDAI CO., LTD. as compensation of ¥264 million for damages for infringement of a card game patent, the Tokyo District Court ordered BANDAI to pay about ¥114 million on the 30th.

The presiding judge, Mr. Yoshiyuki Mori, indicated that some functions including key operation for the "Super Barcode Wars" mini game machine manufactured and sold by BANDAI CO., LTD. in July, 1992 to March, 1993 fell under the "technical range of a patent licensed to EPOCH INC.".

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

Determination of victory or defeat by comparing each other's values based on codes from barcode readings does not conflict with the patent.

</SUPPLEMENT>

<DESCRIPTION>

What kind of devices determines leaders or victors by reading several codes such as barcodes and comparing the values corresponding to these codes?

</DESCRIPTION>

<NARRATIVE>

"Super Barcode Wars" is a type of mini game machine where recorded barcodes are read in cards featuring characters and the game proceeds in semi-real time by operating offence and defense keys. Sample codes include barcodes and magnetic codes, but shall not be defined as limited only to these.

</NARRATIVE>

<CONCEPT>

Sign, barcode, code, superiority or inferiority, victory or defeat, comparison, judgment

</CONCEPT>

<PI>

PATENT-KKH-G-H01-333373

</PI>

</TOPIC>

<TOPIC>
<NUM>
P005
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<LANG>
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<PURPOSE>
technology survey
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<TITLE>
Chito oligosaccharides
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-981019202</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Economy</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>1165</A-WORDS>
<A-HEADLINE>(Inspired Venture Series of Biographies) Takashi Toda, President of Toda Biosystem, Magic plant vitalizer (Osaka)
</A-HEADLINE>
<A-DATE>1998-10-19</A-DATE>
<A-TEXT>
This increases a plant's ability to photosynthesize and doubles the amount of carbon dioxide (CO2) absorbed simply by being spliced to its roots. This "Super Bine," developed by Toda Biosystem of Moriyama, Shiga prefecture, [phone: (077) 582-8901] is like a magic plant vitalizer. It has been patented in major countries including Japan, the U.S.A. and Germany. This product is already used on golf courses in the Kansai region, and in many cases it is used on weakened pines and the like, which are reported to recover to a state of health and greenery after being sprayed. It is said that its effectiveness has actually been proven.

The company's president, Mr. Takashi Toda (63), left his position at an air conditioner machinery maker about 30 years ago and worked independently in a field related to air conditioners. After that, when by chance the local government consulted him regarding sludge countermeasures for rivers, he began developing a business and taught himself about bioresearch. Though this was not in his line, he was fascinated by creatures and utilized a special microorganism in developing a fermentative sludge. Through his additional research, he developed a compost generation technology made from a sludge called "Bineron." Based on this, he established Toda Biosystem in 1984.

The base of the plant vitalizer, which became the company's second flagship product equal to Bineron, is a substance called chitosan. This substance is found in crab shells and the like, and is known to function as a plant growth hormone. Chitosan was expected to function as a vitalizer, but due to its large molecular weight, it had the disadvantage of not being readily absorbed by plants.

This issue was resolved with the special bacteria that Mr. Toda discovered. These bacteria proved to have the ability to decompose the chitosan molecule. As a result, the granular Super Bine composite "chito oligosaccharide," developed with the power of special bacteria, was created.

This product is sold wholesale to agricultural cooperatives in the neighborhood of Moriyama. Some of the product is sold to golf courses and garden traders. At the same time, Mr. Toda applied in various countries for a patent on a series of technologies. This company's Vitalizer series is effective at curing flower diseases in roses and the like as well as activating photosynthesis. Super Bine sells for ¥3,800 for two kilograms. A 30cm diameter pine tree needs only two kilograms of spray per year.

Toda Biosystem will hire new sales staff next year. The plan is to expand the market by mass-producing the Vitalizer series, of which 40 tons is currently produced annually. Mr. Toda is very pleased that "Weakened forests can be revived, because it doubles the absorption of carbon dioxide, and we wish to help with environmental protection."

-Shigehiro Takada

Toda Biosystem

Established: 1984

Employees: 3

Capital: ¥10 million

Sales: ¥60 million (Term ended June 30, 1998)

Photo caption: Fermentation tank at Toda Biosystem. The special patented bacteria are stored here.

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

Decomposition or manufacturing method for chito oligosaccharides

</SUPPLEMENT>

<DESCRIPTION>

Method for decomposing chitin or chitosan into chito oligosaccharides with microorganisms or enzymes

</DESCRIPTION>

<NARRATIVE>

Chitinase and chitosanase (enzymes that form chitin and chitosan into low molecules) are inhibited and not restricted to usage of chito oligosaccharides, which is the decomposition product. Read the participation of microorganisms or enzymes from the entire detailed statement. The compatibility is considered to be high when the origin of the catabolic enzyme strain is mentioned, or when the microorganism's direct

participation is mentioned.
</NARRATIVE>
<CONCEPT>
Chitin, chitosan, chito oligosaccharide, microorganism, enzyme
</CONCEPT>
<PI>
PATENT-KKH-G-H01-121989
PATENT-KKH-G-H02-108367
</PI>
</TOPIC>

<TOPIC>
<NUM>
P006
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<LANG>
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<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
Film with a lens unit
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-980214267</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>General Interest</A-SECTION>
<A-AE>No</A-AE>
<A-WORDS>251</A-WORDS>
<A-HEADLINE>Fuji Film claims patent infringement by 28 companies in the USA regarding film with lens unit</A-HEADLINE>
<A-DATE>1998-02-14</A-DATE>
<A-TEXT>
Washington 13th, Toshiro Hara) On the 13th, Fuji Film presented the ITC (International Trade Commission) with a case challenging 28 companies with patent infringement. The claim focused on the manufacture and sale of disposable film with a lens unit in the U.S.A. without payment of a patent license fee.

According to the lawsuit, Fuji Film sells film with a lens unit, covered by 15 patents, under the trademark "Fujicolor Quick Snap." It is manufactured and sold overseas without payment of a patent license fee by 28 companies including Konica. Also, the unit (container) made by Fuji Film is repackaged and sold in the U.S.A. Fuji Film presented a lawsuit challenging these 28 companies, 22 of which are U.S.A. companies.
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
Method of preventing illegal repackaging of film
</SUPPLEMENT>
<DESCRIPTION>
Structure for preventing illegal reuse of film with a lens unit
</DESCRIPTION>
<NARRATIVE>
Illegal repackaging of film is carried out by unauthorized manufacturers who repackage and sell the film in used container units. The problem with this practice is the damage to the credibility of the company's quality assurance. The prevention method concerns the unit's structure or miscellaneous functions.
</NARRATIVE>
<CONCEPT>
film with a lens unit, reuse, prevention of illegal use
</CONCEPT>
<PI>
PATENT-KKH-G-H05-281354
PATENT-KKH-G-H04-228963
PATENT-KKH-G-H03-200050
PATENT-KKH-G-H03-167741
PATENT-KKH-G-S62-032181
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<TOPIC>
<NUM>
P007
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EN
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<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
Gasoline direct-injection engine
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990825223</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>International</A-SECTION>
<A-AE>No</A-AE>
<A-WORDS>557</A-WORDS>
<A-HEADLINE>Toyota and Volkswagen tie-up concerning direct-injection engine technology</A-HEADLINE>
<A-DATE>1999-08-25</A-DATE>
<A-TEXT>
It was revealed on the 25th that Toyota Motor Corporation and Volkswagen (VW) of Germany are considering a tie-up to exchange technology on highly fuel-efficient engines regarding which international competition is intensified. Toyota is to provide VW with all the patents it holds for gasoline direct-injection engines developed while VW provides Toyota with its technology for direct fuel-injection diesel engines. Both companies have had a close relationship regarding sales and parts supply. In order to survive the competition, environment-enable technology is of the utmost importance for the global automotive industry's management policies of the 21st century.

In a direct-injection engine, the rate of injection of gasoline or light oil injected directly into the cylinders is automatically computer-controlled for improved fuel efficiency. This technology reduces carbon dioxide emissions which are thought to cause global warming.

The tie-up involves Toyota providing VW with its patented technology for "D4" gasoline direct-injection engine that VW will apply to its new type of engines.

In addition, Toyota plans to mount the direct-injection diesel engines produced by VW on its passenger cars sold in Europe.

Last April, Toyota entered into an agreement with VW to provide the latter with the patents for the catalyst system to reduce toxic NOx (nitrogen oxides) discharged by the "D4". The tie-up agreed upon this time

extends the existing close cooperation.

The VW executives in charge of this tie-up who came to Japan this week to announce the release of its NewBeetle addressed the strong volition for extending the tie-up.
- Jun Kimura
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
It shall be limited to the design of the shape of the piston top face of gasoline direct-injection engines.
</SUPPLEMENT>
<DESCRIPTION>
Investigation shall be limited to those gasoline direct-injection engines, regarding the shape of the combustion chamber, which have fuel injected into a concave position on the piston top face to realize lean-burn.
</DESCRIPTION>
<NARRATIVE>
The automotive industry pays close attention to environment-control technology involving fuel injected into a concave position on the piston top face to realize low fuel consumption.

The direct-injection engine means the engine feeds a large volume of air only into the cylinders, then injects gasoline directly into there to make a mixture gas, and finally burns it. Those having descriptions concerning direct-injection diesel engines shall be excluded.
</NARRATIVE>
<CONCEPT>
Gasoline direct-injection engine, combustion chamber, piston, concave, lean burn, low fuel consumption
</CONCEPT>
<PI>
PATENT-KKH-G-H02-314089
PATENT-KKH-G-H02-314090
PATENT-KKH-G-H02-315797
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</TOPIC>

<TOPIC>
<NUM>
P008
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<LANG>
EN
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<PURPOSE>
technology survey
</PURPOSE>
<TITLE>
Hair Care Cosmetic Products
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990401099</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Economy</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>180</A-WORDS>
<A-HEADLINE>"Business Information" Three-Week Trial Set of Jino Cosmetics on Sale -- Ajinomoto Co Inc.</A-HEADLINE>
<A-DATE>1999-04-01</A-DATE>
<A-TEXT>
Ajinomoto, a company whose principal business involves amino acid technology, introduced a skin care trial set (photo) on the first of the month. This product, available by mail order, was introduced with the objective of increasing consumption of the Jino brand of cosmetics the company introduced in 1997. It includes a three-week supply of face wash, lotion and beauty lotion. The set is available in both moisturizing and refreshing types, each of which sells for ¥1500 including shipping. For information, call 0120-787-727 (excluding Sundays and holidays, 09:00-20:00).
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
Hair care cosmetic products including shampoo and the like.
Silicone must be supplemented with amino acids.
</SUPPLEMENT>
<DESCRIPTION>
Hair care cosmetic products with silicone with added amino acid (-NH2)
</DESCRIPTION>
<NARRATIVE>
Most cosmetic products contain silicone. While silicone itself is harmless, denatured silicone with organic

radicals and the like is often used in order to achieve the goal of improved sensation. Because the amino acid is an organic ingredient, it is familiar to the human body and offers a high level of safety. Applies to hair care cosmetic products with denatured silicone with amino acid (-NH2) added.

</NARRATIVE>

<CONCEPT>

Silicone, Amino Acid, Cosmetic Products

</CONCEPT>

<PI>

PATENT-KKH-G-H09-177709

</PI>

</TOPIC>

<TOPIC>

<NUM>

P009

</NUM>

<LANG>

EN

</LANG>

<PURPOSE>

technology survey

</PURPOSE>

<TITLE>

Device to prevent fraudulent use of coins

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-991020074</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Economy</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>557</A-WORDS>

<A-HEADLINE>For "modified won coin" rejection, a new solution made a debut -- Judgment by external shape and area OK'd </A-HEADLINE>

<A-DATE>1999-10-20</A-DATE>

<A-TEXT>

Takamisawa Cybernetics co., ltd. (head office in Tokyo), whose stocks are publicly traded over the counter and which specializes in the manufacture of automatic ticket vending machines, has developed a new type of

coin identifying unit (middle photo) to reject modified won coins (photos top and bottom).

The Japanese 500-yen and Korean 500-won coins are almost identical in material and size. Because fraudulent use of Korean 500-won coins in automatic vending machines and money-changing machines have continuously taken place utilizing the above-mentioned fact, some beverage vending machines have stopped accepting 500-yen coins. The common trick to cheat is to drill or shave the won coins, which are slightly heavier than the yen coins, until they weigh the same. Recently, fakes made by casting imitation 500-yen coins using the same material as that used for the originals and that are difficult to identify visually have started to appear.

In 1978, Takamisawa Cybernetics co., ltd. led the industry in developing a new electronic device to mechanically identify coins mainly from the differences in material, external shape, and area in contrast to those using weight and thickness. This device has a market share of some 30% on automatic ticket vending machines at JR and other stations. The latest version has improved its identification accuracy by varying the composition of the detectors and increasing their number. As a result, 99.9% of coins modified by drilling and other methods and 90% of cast fakes can be rejected.

- Patents applied for in Japan and abroad

The company has applied for patents for this device in Japan and abroad, will soon install this type of device in ticket vending machines in November, as well as providing financial organizations with the device for ATMs (Automatic Teller Machines).

- Hideo Takahashi

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

This shall be limited to an electronic device to identify coins for detecting criminal use of coins for automatic vending machines.

</SUPPLEMENT>

<DESCRIPTION>

The coin-identifying device that identifies coins being illegally used to prevent such modified coins from being applied to automatic vending machines.

</DESCRIPTION>

<NARRATIVE>

The function to identify coins shall be limited to that for vending machines not for game machines.

</NARRATIVE>

<CONCEPT>

coin, identification, sensor
</CONCEPT>
<PI>
PATENT-KKH-G-H13-118107
PATENT-KKH-G-H13-160172
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<TOPIC>
<NUM>
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technology survey
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<TITLE>
Functional Carpet
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-980723386</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Entertainment</A-SECTION>
<A-AE>No</A-AE>
<A-WORDS>188</A-WORDS>
<A-HEADLINE>"Forum" Formaldehyde absorbing carpet developed -- Suminoe Carpet (Osaka)</A-HEADLINE>
<A-DATE>1998-07-23</A-DATE>
<A-TEXT>
Suminoe Carpet, Chuo-ku, Osaka has developed a carpet that effectively absorbs the formaldehyde off-gassed by wooden furniture and plywood. It will go on sale on August 1 as "Forma Fresh."
Polymers, including special chemicals, have been applied to the carpet surface. For the time being, these three types of new carpet products include Macleen and Rendol. Their price ranges from ¥5,000 to ¥7,000 per tatami. Patents are pending, and curtains are expected to be introduced be introduced in the future.
</A-TEXT>

</A-DOC>
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<SUPPLEMENT>
A functional carpet that decomposes and removes formaldehydes absorption
</SUPPLEMENT>
<DESCRIPTION>
Fiber that can be employed in a carpet to remove formaldehydes through the use of chemical treatments
</DESCRIPTION>
<NARRATIVE>
Our living environment is now being impacted by aldehydes generated in housing incorporating adhesives with chemical substances. In particular, the improved airtightness of structures such as condominiums and prefabricated housing is becoming a problem. Recently "sick house syndrome" has been identified as a social issue. In such cases, a functional carpet intended to exhibit a deodorizing effect is included among the appropriate responses. It does not apply to chemical substances other than aldehyde. Moreover, aldehydes are restricted to formaldehyde and acetaldehyde.
</NARRATIVE>
<CONCEPT>
Formaldehydes, acetaldehyde, aldehydes, absorption, dissolve, chemical removing, carpet
</CONCEPT>
<PI>
PATENT-KKH-G-H09-036081
PATENT-KKH-G-H09-213587
PATENT-KKH-G-H09-220003
PATENT-KKH-G-H09-280173
PATENT-KKH-G-H10-065496
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<TOPIC>
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technology survey
</PURPOSE>

<TITLE>

Tea leaf extract

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-980415211</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Economy</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>456</A-WORDS>

<A-HEADLINE>"Shredded raw tea leaves" Development of tea with seven times the vitamin C of conventional green tea -- Kyoto Prefectural Tea Research Institute (Osaka)</A-HEADLINE>

<A-DATE>1998-04-15</A-DATE>

<A-TEXT>

The Kyoto Prefectural Tea Research Institute (Uji, Kyoto), employing a process for shredding raw tea leaves, has successfully developed a fine instant tea powder that contains more vitamin C and other ingredients than does regular green tea. One characteristic of this process is the stage at which the raw leaves are shredded. It is expected that, unlike commercially available instant tea, this method can make use of grade 2 and grade 3 teas (tea grown in summer and fall), which have lower utility value.

Conventional instant tea powder is made with green tea that is dried after being made into a drink and concentrated. The institute eliminates this middle step by obtaining juice from shredded raw tea leaves after they have been steamed. The juice is dried to produce "Powdered Tea Leaf Extract."

Depending on the variety of tea leaf used as the raw ingredient, this tea contains seven times the vitamin C and four times the amino acid (umami component) of a conventional green tea, exceeding the potency of any instant tea on the market.

Not only can it be poured into hot water to make a drink, it can also be used in the preparation of desserts and other dishes. Production costs are low because the product uses shredded raw tea leaves.

The Tea Research Institute commented, "Compared with first-grade tea, which has good flavor and high food value, the grade two and grade three teas with lower utility value reveal a new flavor when used in powdered form. In this way we have expanded the uses of tea as an ingredient in foods."

- Katsuyuki Ijichi

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

Limited to the manufacturing method for tea leaf extract. The common tea processing method that uses an oven in an intermediate process is excluded.

</SUPPLEMENT>

<DESCRIPTION>
Method for obtaining tea leaf extract from raw tea leaves without the use of an oven
</DESCRIPTION>
<NARRATIVE>
"Tea" refers to green teas that are widely consumed in Japan, not limited to the green tea varieties such as the gyokuro refined green tea and sencha green tea or the harvested order of grade 2 and grade 3 tea leaves. But this does not include fermented teas such as black tea, oolong tea or matte tea.
"Tea leaf extract" has a broad meaning, including an extract obtained from tea leaves as well as extract obtained with organic solvents (extractors) such as water (including hot water and boiling water) and alcohol and the like. This includes juice only, without the use of an extractor, but excludes pulverized tea leaves themselves.
Unlike the common tea-processing method, it does not require the use of an oven, but it is acceptable to include a certain degree of pretreatment work such as steaming in order to inactivate the oxidases of the raw tea leaves.
There is no question regarding the form of the finished product after extraction. (It is acceptable in either liquid form or powder form or mixed.)
Restricted to drinks or foodstuffs or their equivalents, excluding application to medical products and cosmetic products.
</NARRATIVE>
<CONCEPT>
tea, extract, extraction, production, method
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PATENT-KKH-G-H08-122426
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<TOPIC>
<NUM>
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technology survey
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<TITLE>

Blue light-emitting diode
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990717021</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Human Interest</A-SECTION>
<A-AE>No</A-AE>
<A-WORDS>802</A-WORDS>
<A-HEADLINE>"Jump! Japan!" Part 5 Heroes of the 21st Century/1 Close attention to "dream technology"</A-HEADLINE>
<A-DATE>1999-07-17</A-DATE>
<A-TEXT>
Blue laser became a reality after repeated experiments outside of common knowledge.
(Continued from the front page)
A spherical semiconductor has a surface area about 3 times larger than a flat chip of the same volume. Its uses are broader. Baking a circuit onto a silicone ball passing through a tube does not require a large-scale clean room.
A pilot product was completed last April. As a vital sensor for car navigation systems and air bags, for use in the medical and hospital fields, as a tag (electronic tag card) to replace barcodes - 50 researchers from 10 countries including Japan, the United States, Russia, and Korea compete with one another for how to best to use it.
Although the 3 optical colors are red, green, and blue, blue cannot be created in the field of semiconductors such as by light-emitting diodes or lasers. Blue is so difficult to create that Dr. Junichi Nishi, the former president of Tohoku University, who is an authority in the field, called it "dream technology".
The company that made this dream come true and heralded the "blue age" was Nichia Corporation in Anan City, Tokushima Prefecture (President: Eiji Ogawa; Number of employees: 1,400).
20 years ago, Mr. Shuji Nakamura (45) so disliked commuting on overcrowded trains that he turned down an offer of employment from Kyocera and joined a small local company that manufactured fluorescent materials, a typical small company with 200 employees and only 3 researchers.
Red diodes manufactured by the relatively unknown company did not sell well. "It was half out of despair that I suggested to the top management to try to create a blue laser - something that nobody else had achieved. This was readily approved." (Mr. Nakamura).
He chose gallium nitride, which was then regarded as unsuitable, as a possible material. That was because "nobody used it" in those days. He experimented repeatedly beyond what was then known using handmade apparatus until he finally succeeded in creating the world's first "blue". That was in 1993, 4 years after the beginning of the project.
The world now pays close attention to this blue-purple semiconductor laser. It's characteristics, such as

having a shorter wavelength than red lasers increasing optical disk capacity by 2.5 times may pioneer a wide range of new possibilities. Nichia Corporation thus began shipping samples ahead of the rest of the world last February.

40 years since Jack Kilby of TI developed the IC (integrated circuit). Now the heroes of the 21st century's digital revolution are not big businesses but "tiny giants".

- Takeo Iwasawa = to be continued.

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

The blue light-emitting diode and the laser device proper are included, but its manufacturing method and applied devices are not included in this application.

</SUPPLEMENT>

<DESCRIPTION>

In relation to the construction and composition of blue light-emitting diodes.

</DESCRIPTION>

<NARRATIVE>

Blue light-emitting diodes with wavelengths of 450nm or less include the (AL-Ga-In) N-based compound semiconductors and optical semiconductors based on ultraviolet laser oscillation.

Those improved from products in practical use and based on new construction and composition shall be investigated.

</NARRATIVE>

<CONCEPT>

Light-emitting wavelength, 450nm, blue, light-emitting diode, optical semi-conductor device, gallium nitride

</CONCEPT>

<PI>

PATENT-KKH-G-H02-114191

PATENT-KKH-G-H02-414843

PATENT-KKH-G-H03-116912

PATENT-KKH-G-H01-213900

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P013

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technology survey
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<TITLE>
Just-in-Time Method
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990419067</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Commentary</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>702</A-WORDS>
<A-HEADLINE>"Person" Mr. Fujio Chou: Unofficially named the next president of Toyota Motor Corporation</A-HEADLINE>
<A-DATE>1999-04-19</A-DATE>
<A-TEXT>
Mr. Fujio Chou: From the Tokyo Metropolitan area. While a student at The University of Tokyo, Mr. Chou was a member of the Kendo Club with Mr. Takaji Kunimatsu, former Director General of the National Police Agency, and earned a 3 dan. 62 years old.

- From saying to practice is sincerity. Softness overcomes hardness.

Gentle demeanor and sociable atmosphere makes the smile wane. His "natural state" is doing something in real life. Talking about himself, he says, "I follow a rather slow process and am not too intense." He reveals conspicuous color among Toyota management, which has a strong image of being brusque and warrior-like, similar to Mikawa.

Favorite expression is "Sincerity."

Graduated in a business-oriented field and spent nearly 20 years in the Production Management Division. Was a favorite student of late Vice-president Taiichi Ohno, the one who contributed to the Just-in-Time Method becoming well known as the Toyota Method. While Shoichiro Toyoda was the chairman, he commented, "He was a law school graduate, but he was trained in manufacturing by Mr. Ohno. We have high expectations for him."

In 1987, he was posted to a responsible position of management at the Kentucky Plant, the company's production hub in the U.S.A. He was active in training local employees in the Toyota Method and in production efficiency. At that time, after Japan's prime minister of the time commented that American workers seemed to lack a work ethic, he quickly announced that the reasons for the prime minister's comment was that the prime minister had no experience actually working with Americans, and he insisted that first-hand experience takes precedence.

Chairman Toyoda, while Chairman of the Federation of Economic Organizations, having evaluated Mr. Chou's personality highly for his sincerity and abundant international sense, appointed Mr. Chou to the position of assistant. Cumulative channels to the political and financial world of that time become substantial assets of the new president.

Mr. Hiroshi Okuda, the first president to be chosen from outside the Toyoda family, is known as "Tough Okuda." In contrast, Mr. Chou is known as "Soft Chou."

In an unofficial interview, he displayed a tendency to prefer forming a consensus within the company, saying "I've just received notice of having been appointed president, so I am not at the point of commenting on aspirations or anything else."

He gives the impression of having repressed his individuality due to virtue of his personality. Does it turn out that "Softness overcomes hardness"?

Text: Naoki Higuchi, Chubu News Center/Photo: Hiroshi Kusakawa, Chubu News Center
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
Nothing equals the "Just-in-Time System" of Toyota Motor Corporation.
</SUPPLEMENT>
<DESCRIPTION>
Patent on a business system related to Toyota Motor Corporation's "Just-in-Time System" (production system)
</DESCRIPTION>
<NARRATIVE>
Toyota Motor Corporation's "Just-in-Time System" (production system) is a production system that plans to optimize and enhance the efficiency of the entire system through comprehensive management extending from supply of raw materials to delivery of finished products. With the recent boom in patents on business systems, this business system combining the implementation of IT with Toyota Motor Corporation's

"Just-in-Time System" is known as "supply chain management." Basically, it is a business system that, in order to determine optimization conditions, implements IT in a comprehensive management system extending from supply of raw materials to delivery of finished products, always creating the optimum route. It can be said that Toyota Motor Corporation is applying for a patent on the "Just-in-Time System" for defensive purposes, to prevent another company from exercising its rights on a patented business system.
</NARRATIVE>
<CONCEPT>
Optimization of efficiency with the Just-in-Time System, a comprehensive production system
</CONCEPT>
<PI>
PATENT-KKH-G-H01-266302
PATENT-KKH-G-H01-279913
PATENT-KKH-G-H01-336407
PATENT-KKH-G-H05-233347
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<TOPIC>
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<PURPOSE>
technology survey
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<TITLE>
Vibrator for mobile devices
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-991224072</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Economy</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>767</A-WORDS>

<A-HEADLINE>"World leaders in Japan" 45 Vibrators for mobile phones from Tokyo Parts Industries</A-HEADLINE>
<A-DATE>1999-12-24</A-DATE>
<A-TEXT>
- Disk-type, thin and small ch their mobile phones to vibration mode to prevent their ringing tones from annoying those around them. Vibrators for use in mobile phones and PHS are without exception flat coreless "FM series" vibration motors manufactured by a small precision motor manufacturer, Tokyo Parts Industries Corporation (head office in Isezaki City, Gunma Prefecture; President: Norihisa Kai). It holds an incredible total domestic monopoly with a market share of 100%, while overseas it is 90%. Mr. Tadao Yamaguchi, the Developmental Technology Team Leader, proudly stated, "In terms of its miniscule dimensions and low current consumption, our product leads the world". The company had produced miniaturized motors for use in stereo headphones until it developed a card-type motor for use in pocket bells in 1988. Motors had generally been cylindrical in shape before the company developed a flat, thin, and semicircular rotor, which enabled small thin disk-type motors to be produced. This type of motor vibrates due to the centrifugal force from the rotor's revolution. It was patented in Japan, the United States, and Canada.

The FM-series motor has been repeatedly improved for further miniaturization. The smallest of its type at present is 1.2 cm, 3.4 mm, and 1.3 g, in diameter, thickness, and mass, respectively. This has contributed to the reduction in size and mass of mobile phones. FM-series motor production reached 21.6 million units in 1999, which was about 2.3 times that (9.5 million units) in 1998, and will reach 70 million in 2000 once the Indonesian plant starts commercial operation.

Recently, rather ominously, a pirate version made in Korea started to appear on the market. "The global market share of the FM-series motor would be 100% were it not for the 10% share apparently taken by the pirate Korean version," said Mr. Yamaguchi. The company is considering persuading these Korean companies to license their patent to take back the lost share with the aim of absolute world domination.

- Hiroki Masuda
¡Ä
- Tokyo Parts Industries Corporation
Established in 1959, with a capital of ¥90 million, and 6,128 employees. = to be continued.
Photo caption: "Flat coreless FM series vibration motor"
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
If suggested for use in mobile device vibrators, it should be defined as a motor, not necessarily a flat coreless vibration motor.
</SUPPLEMENT>
<DESCRIPTION>

A patent in relation to a motor applicable to mobile device vibrator
</DESCRIPTION>
<NARRATIVE>
Mobile phones are equipped with a vibrating call-alert function without a ringing tone. The vibrator used for this purpose has an off-center weight on its small rotating motor shaft, which generates vibrations by rotating the motor. Here, we would like to have information on technological trends of vibration motors that can be incorporated in mobile devices.
</NARRATIVE>
<CONCEPT>
Vibration, vibrator, motor, electric mover, miniature, mobile
</CONCEPT>
<PI>
PATENT-KKH-G-H04-301763
PATENT-KKH-G-H11-223136
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<TOPIC>
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technology survey
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Porous metal
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-991006196</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Human Interest</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>566</A-WORDS>
<A-HEADLINE>"Porous steel" successfully made 40% lighter made porous using nitrogen gas--Institute of

Scientific and Industrial Research, Osaka University (Osaka)</A-HEADLINE>
<A-DATE>1999-10-06</A-DATE>
<A-TEXT>
Professor Hideo Nakajima (material engineering) of the Institute of Scientific and Industrial Research, Osaka University, announced on the 5th that he and his staff had succeeded in the production of lightweight "porous steel" pierced with a vast number of pores with diameters ranging from 0.001 to several millimeters using nitrogen gas. Despite the 40% weight reduction, this material remains as strong as conventional steel of the same volume because these pores are all lined up in the same direction. It is expected to be applied to automotive bodies to meet the increasingly demanding requirements of the automotive industry where competition in pursuit of energy-saving cars is ever tougher.

Professor Nakajima had noticed the fact that, although gases such as hydrogen and nitrogen are mixed with the metal into a molten state at high temperatures, the two separate out into gas and solid metal when cooled off. He put a metal-gas mixture into a mold and cooled it off in one direction, from the side or bottom using water, to cause the metal to solidify in a direction perpendicular to the area, with the gas being extended in the same direction. Then the solidified metal is cut and degassed to leave pores with diameters of 0.001 to 1mm regularly lined up in the same direction.

Professor Nakajima succeeded in the development of this process last year using hydrogen, which is applicable to various metals such as copper, nickel, and aluminum. But companies considering commercial metal production using this process suggested that he use a safe gas free from explosion for mass-production purposes and he researched the process using non-explosive nitrogen.

When the pores were made using nitrogen, it was found that a compound of iron and nitrogen coated the pore interiors, increasing their strength.
- Hideki Kujiraoka

Photo caption: "Porous steel" made using nitrogen with pores lined up in the same direction.
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
The porous metal manufactured by first melting the metal at high temperature, resolidifying it, and finally applying post-treatment if necessary or the manufacturing process for such a metal.
</SUPPLEMENT>
<DESCRIPTION>
The invention of porous metal manufactured by first melting a metal or alloy together with a gas into a mixed molten state at high temperature, then solidifying it, and finally applying post-treatment if necessary

or the manufacturing process for such metal.

</DESCRIPTION>

<NARRATIVE>

Porous metal means a metal block with numerous pores or holes in it. Two processes are known for the manufacture of such metals: the "process to expel gas from a metal during the solidification process after molten-metal metal-gas mixture" and the "process to pressurize and form metallic powder into a solid block and sinter it".

Though the main process for the manufacture of porous metal is that of pressurizing and forming metal powder into a solid block and sintering it, the process in this application shall be that to solidify a metal after molten-metal metal-gas mixture.

The invention concerning applications and products for heat exchangers and frictional members shall be excluded. Porous metals or ceramics manufactured by mixing metallic powder with a liquid-phase agent such as a binder into a slurry, extending, heating, and drying it, and finally sintering it shall also be excluded.

In addition, porous metals manufactured by applying a slurry made of metallic powder to a combustible foam which has continuous vents, heating it to burn the foam out, and finally sintering it shall also be excluded.

The metal in this application shall be limited to a metal or alloy and ceramics and their intermediates shall be excluded. The gas in this application may be of any type, not limited to hydrogen or nitrogen.

</NARRATIVE>

<CONCEPT>

Porous, porous, vents, foaming, metal, steel, alloy, melting, solidification

</CONCEPT>

<PI>

PATENT-KKH-G-H08-239580

PATENT-KKH-G-H11-195260

</PI>

</TOPIC>

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<NUM>

P016

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<PURPOSE>

technology survey

</PURPOSE>

<TITLE>

Water Pollution

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-990914271</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Society</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>982</A-WORDS>

<A-HEADLINE>"Lake Biwa, Serious Pollution" Deformed bass total 15% -- Survey by Shiga University Researchers</A-HEADLINE>

<A-DATE>1999-09-14</A-DATE>

<A-TEXT>

Akio Kumagai (24), a visiting researcher at the Shiga University Environmental Education and Lakes and Marshes Training Center, undertook a three-year survey of the entire Lake Biwa area and examined a total of 13,232 black bass and bluegill fish. Of these, 15.3% of the black bass and 5.9% of the bluegill were found to have deformed backbones. This is the first evidence that the fish in the Lake Biwa area exhibit deformities. A Shiga University survey of bluegill in the southern Lake Biwa area undertaken about 10 years ago determined that the rate of deformities was zero. According to the researcher, Mr. Kumagai, "The impact of agricultural wastewater and household effluent must be considered." Therefore, it can be said that the severity of water pollution has been revealed once again.

Mr. Kumagai selected these two species because they are abundant in this habitat and easier to catch; moreover, the areas inhabited by native species such as carassius are not evenly distributed, and their numbers are scarce. Therefore, having selected 40 locations in the area surrounding Lake Biwa, Kumagai caught bass and bluegill with a casting net, catching 30 fish of each species in each location every month until December 1998. The numbers of samples totaled 8,398 bass and 4,834 bluegill. The backbones of the fish were examined by means of X-rays, and the condition of their backbones was checked.

Most of the deformities were spine abnormalities, such as spines that appeared squashed. Eighty percent of the bass displayed this abnormality. Some bass had backbones that were greatly curved, some developed tumors, and some lacked spines entirely.

The greatest deformity rate, at 22.2%, occurred along the western shore of the northern part of the lake extending from Adogawa-cho to Takashima-cho. Next, at 18.4%, was the eastern shore of the northern part of the lake extending from the cities of Hikone to Ohmihachiman. A smaller rate of 9.5% was found in the southern region encompassing the two cities of Otsu and Moriyama. A high rate of occurrence overall, at 16.5%, was found in the northern region.

In a prefectural water quality survey taken during the preceding fiscal year in the northern part of the lake,

the numerical value of total nitrogens, the cause of eutrophication, reached 0.33 milligrams, exceeding the environmental standard (0.2 milligrams maximum per liter). This indicates that the pollution is not abating. According to Mr. Kumagai, "In the south part of the lake (south of the Lake Biwa Ohashi Bridge), the small fish that serve as the food source for bass and bluegill are almost nonexistent, so the prey of the bass and bluegill tend to gather in the northern part of the lake." We don't know what substance is causing the deformation, so it is unclear what the effect on the human body would be from eating these fish. Unlike bass, which live 5 to 6 years, ayu (sweetfish) live only one year, so they do not readily store pollutant substances.
The prefectural environmental policy section specifies that "Drainage clean-up measures are necessary because improving the water quality is an urgent matter."
- Tatsuya Ishida

(This article includes the figure "Deformation rate of black bass by survey site.")
(This article includes the figure "Deformation rate of bluegill by survey site.")
Photo caption: Deformed backbone found in black bass (Shiga University Environmental Education and Lakes and Marshes Training Center/Photo provided by Akio Kumagai, researcher.)
</A-TEXT>
</A-DOC>
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<SUPPLEMENT>
Total nitrogen measurement method limited by equipment. Measurement method not restricted.
</SUPPLEMENT>
<DESCRIPTION>
Totalnitrogen measurement method and equipment
</DESCRIPTION>
<NARRATIVE>
Looking at water pollution in recent years, it is clear the eutrophication issue includes nitrogen and phosphorous. The objectives are those mentioned regarding the total nitrogen measurement method and equipment. The main measurement methods include the ultraviolet absorption spectral method, chemiluminescence, gas chromatography and the like, but are not restricted. Related compact equipment is excluded.
</NARRATIVE>
<CONCEPT>
Water pollution, all total nitrogen, measurement, method
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<PI>
PATENT-KKH-G-H07-088182
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<TOPIC>
<NUM>
P017
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technology survey
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<TITLE>
Detergent for clothes with a "Dry-cleaning" symbol
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-980402100</A-DOCNO>
<A-LANG>JA</A-LANG>
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<A-WORDS>955</A-WORDS>
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<A-DATE>1998-04-02</A-DATE>
<A-TEXT>
- Adhere to "soak and wash"
- Why?
detergent that has recently been commercialized claims that clothes with a "dry-cleaning" symbol can actually be washed in a "soak and wash" manner. I understood that dry-cleaning meant that clothes must be washed with a special solvent in the absence of water. Can I really wash clothes with this detergent in water?
= Keiko Yamada, Kawasaki City (38)
Dry-cleaning is intended to remove oily stains with volatile organic solvents instead of using water. However, you should consider a detergent that has recently been commercialized by manufacturers under the catchphrase, "Clothes with dry-cleaning symbols are also washable", as that you can wash in water in a different way from dry-cleaning without damaging the clothes.

Some clothes shrink when they are manipulated in water, while others don't provided they are merely

soaked in water. This detergent can be used for these kinds of clothes, so you have to sort them out before washing.

Our neutral detergent "Emal" is only for these clothes. Unlike conventional detergents, this contains a substance called silicone to protect clothes from shrinkage. In addition, its performance has been improved. All you have to do is to soak the clothes in this detergent to remove soil and stains. However, any clothes can be washed with this detergent.

First of all, check the symbol or illustration on the clothes as to whether they can be washed at home. The clothes marked with "Dry-cleaning" together with "Manual cleaning" can normally be washed by hand. Even if the clothes are marked "Unwashable in water", they can be washed at home in a soak and wash manner if they are wool-mixture pants or shirts, hemp or wool blouses or pullovers, polyester or nylon blouses, or raincoats, etc. However it is difficult to wash them if they are a mixture of rayon, cuprammonium rayon, silk, acetate, or polynosic; or if pleated or wrinkled, having a thick texture such as velvets or jackets with pads or an easily changeable shape.

How to wash: First fold the clothes so that the soiled part such as the sleeve or collar is facing outwards, and soak them in a solution with this detergent for about 15 minutes. Then spin-dry and again soak in rinsing water for about one minute. Then rinse them twice.

Soil and stains can be washed away well without loss of texture and finished without shrinking. School clothes or uniforms can be washed at home. Try it once.

(The respondent is Ms. Nobuko Hasegawa, Chief of the Life Culture Institute of Kao Corporation.)

- Photo caption: Detergent on the market that can wash dry-clean marked clothes
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
Detergent must be for clothes, in liquid form and include silicone as a shrink prevention substance.
</SUPPLEMENT>
<DESCRIPTION>
Detergent must be domestic liquid detergent, which can wash clothes marked "dry-clean", and include silicone as a shrink prevention substance.
</DESCRIPTION>
<NARRATIVE>
Because wool becomes tangled and shrinks when soaked in water, it is generally dry-cleaned. Dry cleaning

requires many more processes compared to normal water cleaning (wet cleaning), and needs expensive organic solvents and special facilities, resulting in a high cost. This detergent is applicable to clothes such as those made of wool for easy washing at home.
</NARRATIVE>
<CONCEPT>
Clothes, shrink, cleaning, silicone
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<PI>
PATENT-KKH-G-H08-218855
PATENT-KKH-G-H08-219967
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<TOPIC>
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technology survey
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<TITLE>
On-line Karaoke
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-991004168</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Economy</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>1860</A-WORDS>
<A-HEADLINE>"Founding Forest" Extra edition: The founder of Crecsent, Mr. Daisuke Inoue, Glory and frustration of the Karaoke King (Osaka)</A-HEADLINE>
<A-DATE>1999-10-04</A-DATE>
<A-TEXT>
Mr. Daisuke Inoue (59, Nishinomiya City, Hyogo Prefecture), the founder of Crecsent, is the man who

invented Karaoke and was selected by US Time magazine as one of "The twenty most influential people in Asia in the 20th century". He was forced to withdraw from the karaoke business although he was listed on the same "historical altar" as Sun Yatsen, Mao Tse-tung, Gandhi, Tagore, and Akira Kurosawa. Now he is ¥150 million in debt. How rich he would be if he had taken out a patent? Mr. Inoue said, "He does not keep his earnings overnight." Still his glory and frustration in the "KARAOKE KING"(Time Magazine) are striking.

"Darling, we cannot afford to pay the rent." Those words of his wife made him decide to quit the karaoke business completely. That was in 1993. Nine years earlier, he left the position of president of Crecsent, his own company that manufactured and sold karaoke machines, and he tried his hardest to reconstruct the company. As a result, Crecsent applied for bankruptcy and resettlement with about 9.8 billion yen in liabilities last July. Bankruptcy and resettlement have been approved now, and the company has set a goal of reconstructing their business and management.

"Now all I have is a 150 million yen debt," he said with his eyes smiling behind his glasses.

Mr. Inoue played the drums in a live band on a dance hall near Mt. Rokko in his freshman year of high school. He took a job at an insurance company after graduating from high school. He went to work in a Presley style suit and duck's arse hairstyle. Naturally his style was not accepted in Kitahama. He kept playing in the band, and did not concentrate on his work.

When a female coworker who joined the company in the same year as he was scolded by her boss in front of Mr. Inoue, he hit the boss with the telephone. He left to travel with his guitar soon afterwards.

He wandered about in a cabaret, and played in strip show houses all over Japan from Aomori to Kyushu for 17 years. When he was somewhat over 30, he thought that he could not keep on going as a band member, and that he would like to find something for their members to live on after they grew older. Band members had no security. This anxiety led him to invent the karaoke machine.

"Karaoke" was originally used among band members, referring to music without a song. "What if we could create Karaoke on a machine?"

The idea hit on Mr. Inoue. A car stereo also gave him a hint. He bought a tape deck, motor, clock timer, and other elements at Nipponbashi, Osaka, and assembled them with his band group members. The members played the music and recorded it.

- First machine in 1971

The first machine was made in 1971. Karaoke was played for five minutes against the timer with the tape running. Since it stopped while the second track was playing, it was necessary to put another 100-yen coin in in order to finish the song. They made eleven machines, ten of which they leased to a snack bar at Sannomiya, Kobe City.

Astonishingly, it became a hit in the Kobe night town. News spread quickly round town by word of mouth. Some clubs changed from live performers to karaoke machines. When a house in Kobe opened another in Osaka, they took the karaoke with them. Crecsent Co. was established in 1973, and gained in success as the Karaoke trend spread all over Japan.

Technological innovations move rapidly, and soon laser disks became the mainstream. Daiichi Kosho and

Nikkodo, which were founded around the same time as Crecsent, made great progress, while Crecsent began to fall behind with investment in facilities, and faced a bankruptcy crisis in 1984 after eleven years in business. Turning the company over to his brother, he set about reconstructing the company, but he was unable to fight the tide.

He now runs a manufacturing and sales company dealing with a machine for removing cockroaches and rats in Nishinomiya City, Hyogo Prefecture. The company has four staff including Mr. Inoue and his wife. They handle this machine because cockroaches and rats cause Karaoke machine failure.

There is a strong possibility that Mr. Inoue could have obtained a patent on karaoke machines. Now there are 550,000 Karaoke machines, and sales on this market including software was estimated at one trillion 98.2 billion yen last year. Patent royalties are decided between the licenser and the licensee, and there is a protected period for the patent (20 years after application). Just one percent of those sales would amount to 10 billion yen. Mr. Inoue could have led a wholly different life if he had obtained a patent on the machine.

However the Karaoke King said in low-key voice.

"I started this business with the idea that the band members could survive once they grew old, and I never considered a patent. I always think the present is the best. So I don't regret anything."

Time Magazine values Mr. Inoue's achievements: His simple invention contributed to thousands of people finding their own voice.

- Mitsuru Nakanishi

- Photo caption: Mr. Daisuke Inoue smiling beside the first machine (offered by Mr. Inoue)

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

Karaoke device with communications function

</SUPPLEMENT>

<DESCRIPTION>

Karaoke device enabling access to a massive Karaoke database record via communication lines

</DESCRIPTION>

<NARRATIVE>

Karaoke refers to music without songs. Online Karaoke, as compared to standalone Karaoke, is used without changing laser disks. There is no need to store any disks, and the ease of responding new songs is another advantage of online Karaoke. Included is a Karaoke device using satellite communication.

</NARRATIVE>

<CONCEPT>

Karaoke, communication system

</CONCEPT>

<PI>

PATENT-KKH-G-S59-073515

PATENT-KKH-G-S61-098382

PATENT-KKH-G-S62-332149

</PI>

</TOPIC>

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P019

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<PURPOSE>

technology survey

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<TITLE>

Ear thermometer

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-990611074</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Economy</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>211</A-WORDS>

<A-HEADLINE>"Business information" A high-precision ear thermometer - OMRON</A-HEADLINE>

<A-DATE>1999-06-11</A-DATE>

<A-TEXT>

Omron Corporation put a thermometer named "Ken-On-Kun Quick MC-509" (photo) on the market on the 21st that can measure body temperature just by applying it to the ear. It performs thermometry in about 1 second and has improved accuracy over the company's conventional version. It also has design improvements such that you can switch it on while holding it firmly just by one hand. The desirable retail price is ¥6,000. Omron launched its first ear thermometers for home use on the market the year before last, to great acclaim for its convenience in enabling thermometry within a few seconds without upsetting babies and infants. This was followed by new product launches by various other companies culminating in annual sales of about 900,000 units in total in 1998.

</A-TEXT>

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<SUPPLEMENT>
A thermometer designed to take one's temperature via the ear shall be the subject of investigation.
</SUPPLEMENT>
<DESCRIPTION>
An ear thermometer able to measure body temperature merely by applying it to the ear.
</DESCRIPTION>
<NARRATIVE>
Thermometers, which measure body temperature by insertion into the underarm or mouth, have long been common.
Underarm thermometry is troublesome while oral thermometry may cause an accident. The ear thermometer is convenient in that it facilitates thermometry of babies and infants who would otherwise dislike it. The accessories and container for the ear thermometer shall be excluded from the investigation objective.
</NARRATIVE>
<CONCEPT>
Ear application, for ear, eardrum, thermometer, thermometry, sensor
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<PI>
PATENT-KKH-G-H07-002327
PATENT-KKH-G-H07-277273
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technology survey
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Recycling of used oil
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<A-DOC>

<A-DOCNO>JA-980803173</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Economy</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>1188</A-WORDS>

<A-HEADLINE>"Series of biographies on ventures working to apply 'Eureka moments'" Recycling of used edible oil into a fuel for diesel engines (Osaka)</A-HEADLINE>

<A-DATE>1998-08-03</A-DATE>

<A-TEXT>

Rinsing off used edible oil left in dishes and pans - this long prevalent practice thoughtlessly done in many homes is regarded as one of the most significant causes of water contamination globally. What then of solidifying the oil using a coagulant and subjecting it to incineration? This emits large amounts of carbon dioxide resulting in global warming. Used edible oil causes a substantial problem. Can it be recycled into a clean fuel instead of disposed of? Such a basic idea initiated a dream project.

Lonford Development Limited. (Nakagyo-ku, Kyoto City), an environmental equipment company that conducts its own research and development, manufacture and sales, developed a new "E-OIL" energy jointly with Kyoto City and is the first district in Japan to start test use as a diesel engine fuel for Kyoto City's 220 refuse collection vehicles and 2 city buses since last November.

This new fuel is recovered from used edible oil by removing impurities from the oil and adding methanol to cause a chemical reaction within a fuel. It has less sulfur content than light oil, emits little diesel smoke, and works as well as light oil in terms of fuel consumption and power. It meets the standard requirements of the Road Transportation Vehicle Law and Oil Quality Security Law and can be applied as it is to diesel cars commonly on the market.

The president, Mr. Sigeto Hayafuji (45), became an independent venture businessman 4 years after graduating from university. At one stage, he ran a convenience store chain comprising of 200 or more stores in Shiga and Kyoto. But 8 years ago, he found out he was suffering from liver cancer and sold his business to a major convenience store to dedicate himself to medical care. Fortunately, he recovered and mentally determined, "As I almost lost my life, I'll dedicate myself to a business that profits society."

Coincidentally, he contemplated the water pollution in Lake Biwa around which he used to play in his childhood. He was advised and instructed by the Honorary Professor Takeo Shimizu of Kyoto University, whom he got acquainted with through one of his friends, that "even used edible oil could be recovered as a fuel", for which he started research and development 4 years ago.

At present, he collects used edible oil via Kyoto City from about 240 municipal communities throughout Japan to recycle it into fuel at his plant. Priced at ¥70 to 80 per liter; it is equivalent in cost to light oil. A spokesman of the City's Bureau of Cleaning said confidently, "Putting this oil to practical use for private cars is a matter of course. There are no major problems except that it smells a little like tempura when approaching the car."

President Hayafuji said, "The ancient city of Kyoto is concentrating its efforts on environmental conservation and recycling. Starting from this city, I would like to contribute to the total renovation of Japan and the global environment."

Dream is now close to reality.

- Fumiaki Fujimoto

- Lonford Development Limited.

Established: 1996

Number of employees: 20

Capital: ¥37.30 million

Annual sales: ¥140 million (as of May, 1998)

Photo caption: Worker filling cleaning car with diesel fuel recovered from used edible oil (at Takano Cleaning Office, in Sakyo-ku, Kyoto City)

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

Recycling of used edible oil into a fuel

</SUPPLEMENT>

<DESCRIPTION>

A fuel such as diesel fuel recycled from waste oil such as used edible oil or its manufacturing method and equipment shall be investigated.

</DESCRIPTION>

<NARRATIVE>

Edible oil used at home and waste oil are often thrown awayficant cause of water contamination. They can be solidified using a coagulant and disposed of as refuse to be incinerated, but this emits carbon dioxide resulting in global warming. Disposal of used edible oil is a tricky problem.

As one solution, technology to recycle such oil into diesel fuel has been realized.

Technology related to merely reducing or preventing environmental contamination such as improvements in incineration plants shall be excluded from the investigation objective.

</NARRATIVE>

<CONCEPT>

Used oil, waste oil, recycle, diesel fuel, fuel

</CONCEPT>

<PI>

PATENT-KKH-G-H09-327018

</PI>

</TOPIC>

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technology survey
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Tablecloth
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<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990819338</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Entertainment</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>2566</A-WORDS>
<A-HEADLINE>"I'm excited," said Mr. Yasuhiro Ohshima, Chairman of the Board of Directors of Meiwa Gravure Co., Ltd., the No.1 printed tablecloth manufacturer in Japan (Osaka)</A-HEADLINE>
<A-DATE>1999-08-19</A-DATE>
<A-TEXT>
- Mr. Yasuhiro Ohshima, Chairman of the Board of Directors, Meiwa Gravure (77)
Mr. Ohshima is a real professional printing craftsman, who was trained in an army organization during World War II to make counterfeit bank notes to cause logistical disturbances. After World War II, he reverted to a peacetime industry to become successful in a business to manufacture plastic cloth to wrap lunch boxes for school children. He improved the manufacturing process for plastic lace he had seen in the United States to take a 90% share of this type of lace in the Japanese market. He has continued to have success in related fields such as printing on electronic calculator panels and number printing on X-ray films. He looked back on his success and quoted Edison: "The secret of success is 1% inspiration and 99% perspiration!"

- Furoshiki (wrapping cloth) for school children
-- How did you come to make lace?
Mr. Ohshima: I was attached to a special army laboratory called the Noborito Research Center where I counterfeited Chinese bank notes during World War II. It was a kind of economic strategy, where I was

anxious to master the gravure technique. After the war, I founded a printing company together with an older friend of mine, where we utilized the techniques learned during the war for peaceful purposes, the manufacturing of lunch box wrapping cloths for school children. The company was liquidated due to operational problems, following which the present company was established to continue the former business. Plastic wrapping cloths had been favored in Japan and Southeast Asian countries, but I was not so sure about the future. So I went to the United States for market research 5 years after the company's establishment where I found a table lace made of gravure-printed plastic cloth, and I thought, "This is it!" I solicited the manufacturer to see the process but only got permission to see the metal mold process. It was lithography on a single-sheet basis. Based on this, I created and initiated a rolling (rotary printing) system for continuous printing in Japan.

- Stereoscopic vision and complexity

-- From counterfeit bank notes to lace?

Mr. Ohshima: In order to make counterfeiting difficult, bank notes is intaglio-printed with multiple layers of ink. I put the material in a concave in the intaglio process, heated it, and took it out after it solidified. This was a technique called mold printing, which could realize a complex lace pattern with a stereoscopic view. It took about 6 years to establish the process and patent the process and its peripheral techniques. Protection by patents was the only way for a small company to survive in a mature business like the printing industry. This almost monopolized the market because suddenly luxurious lace was available cheaply. I commissioned its sales to trading companies in Japan and also in the United States where I established a lace manufacturing company. This incurred higher costs than those of latecomers and I got out of this business. After this failure, I changed our sales to a direct distribution system.

-X-rays, electronic calculators, and cakes

-- You have made many successive developments.

Mr. Ohshima: Yes, as a result of responding to the situation where many people came to see me to consult about tasks that may be possible by printing. Once at a dentist's clinic, I saw the staff there took time to identify and sort X-ray films. Then I developed a method where numbers are printed somewhat thickly on the film case using ink with a lead content printing which does not sensitize the film to make the printed parts visible. This has spread throughout the world to totally monopolize the market. Meanwhile, when an electronic calculator manufacturer planned to develop a key-touch system, the problem was that the symbols on the keyboard were worn away by touch. So I developed a special printing process that does not wear out and provided it to the calculator manufacturer. Since then, my company has also been part of the electronics industry. In a recent case, a confectioner consulted me about inscribing characters over cakes and I developed a technique to print stereoscopic characters on cakes using albumen as ink.

- In response to local requirements abroad

-- Internationalization resulted from local requirements

Mr. Ohshima: One of my businesses failed in the United States but another in Indonesia is running well. Initially only a printing factory was planned there, but the plan escalated to build a plant to make sheets because of the lack of support industries there, then automobile seat covers, complete automobile seats, and finally plastic parts for front panels. It became a larger one in which 4,000 people were working. It has worked well through repeated efforts such as using well-acquainted, used equipment to reduce costs. But due to the recent recession and politically unstable situation, the business results deteriorated. It has had to be downsized and finally recovered profitability this year. I feel much easier now. I will do my best to increase the number of products whose production can be shifted abroad to enable employees laid off to return to their jobs.

- In-company invention contest

-- What is your policy for future development?

Mr. Ohshima: In the first place, development of a new material to replace plastic (vinyl chloride). The vinyl chloride industry blames incinerators for dioxin emissions. But I think it would be more appropriate to utilize polyethylene or polypropylene than to blame someone else. My company has been dealing with polyethylene printing for 40 years and is ready to tackle this problem. Our new products are spreading in addition to our original lace products to include those for architectural purposes such as flooring, curtain materials, and design sheets to cover windows. We have some 30 R&D staff and some designers to develop "people-friendly products". Procedures for developing new products are suggested to the employees and invention contests are sometimes held. The audition is simply just to check, "Can it be manufactured, sold, and earn money?" Most of the 300 patents held by my company are my own ideas, but I expect much from younger people from now on.

- Profile

Date of birth: September 25, 1921

Hometown: Saitama Prefecture

Alma mater: Specialist course, Nihon University

Family: Wife: Setsuko (71), one son

Hobby: Cameras

Favorite words: Sincerity, zeal, originality

Other titles: Sub-manager, Osaka branch, Inventors Society; Kansai Chairman, Japan-Indonesia Association for the Economy

- Memo

Head office: 12-18, Kashitahigashi-machi, Higashi-Osaka City, 577-8510 Japan; Tel. 06-6722-1131

Corporate history: Co-founded a printing company in 1945, developed vinyl-chloride printing in 1949, established the present company in 1953, developed polyethylene printing in 1960, opened a liaison office in the United States in 1961, renamed to the present corporate name in 1989

Number of employees: 465

Annual sales: ¥17.3 billion, as of September, last year

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</A-DOC>

</ARTICLE>

<SUPPLEMENT>

The process and equipment for manufacturing highly decorative printed tablecloths.

</SUPPLEMENT>

<DESCRIPTION>

The process and equipment for manufacturing highly decorative printed tablecloths.

</DESCRIPTION>

<NARRATIVE>

Printing methods may include the intaglio, anastatic, or any other methods; however, materials to be printed on shall be limited to synthetic resin sheets and films. These sheets shall be suitable for use as tablecloths and table covers and have decorative characteristics.

</NARRATIVE>

<CONCEPT>

Printing, sheet, tablecloth, decoration, lace

</CONCEPT>

<PI>

PATENT-KKH-G-H07-144358

PATENT-KKH-G-H08-116102

PATENT-KKH-G-H09-134042

PATENT-KKH-G-H09-217910

PATENT-KKH-G-H10-092097

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<PURPOSE>

technology survey

</PURPOSE>

<TITLE>

NOx reducing device
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-991101173</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Economy</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>586</A-WORDS>
<A-HEADLINE>An exhaust gas reducing device has been developed & patented in the United States and Korea by Mr. Hideaki Makita running a transport company in Hyogo Prefecture (Osaka)</A-HEADLINE>
<A-DATE>1999-11-01</A-DATE>
<A-TEXT>
The exhaust gas reducing device "Futures" developed by Mr. Hideaki Makita (64) who runs a transport company in Amagasaki City, Hyogo Prefecture has been just been patented in the United States and Korea. This device was invented based exclusively on Mr. Makita's idea, and is very effective at reducing nitrogen oxides (NOx) encouraging him to launch into an international business to take advantage of the patent.
Mr. Makita commenced his transportation business in 1963. He experienced a surge in fuel costs following the first oil crisis in 1973. He tried such devices from some 6 companies to cut his fuel costs but in vain, and began his own development. He got numerous ideas for exhaust gas reducing devices in the process of such development, carried out several thousand experiments over 20 years, and finally succeeded in its realization.
The most significant characteristic of the "Futures" is the use of a combination of permanent magnets with far-infrared radiating ceramics. The mechanism involves splitting the interior of a cylindrical container into several chambers made of permanent magnets to facilitate perfect fuel combustion.
It is said not only to reduce fuel costs by 30%, but also to do the same to NOx. 1,300 sets of the devices have already been sold. Prices vary depending on the model, though it is typically around ¥300,000.
Mr. Makita commented, "It was the wisdom of a small business to survive. It can serve as a solution for the global warming problem. I have accepted offers from abroad and wish to make a further advances." The telephone number of Makita Transportation: 06-6436-9390.
- Mitsuru Nakanishi
</A-TEXT>
</A-DOC>
</ARTICLE>
<SUPPLEMENT>
It shall be limited to the method and system to reduce NOx in exhaust gas by treating a fuel fluid or a gas mixture made by combining it with the air using magnetism and far infrared radiation. It shall also be limited to use in combustion engines.

</SUPPLEMENT>

<DESCRIPTION>

The method and device to reduce NOx in exhaust gas by treating a fuel fluid or a gas mixture made by combining it with the air in a combustion engine using magnetism and far infrared radiation.

</DESCRIPTION>

<NARRATIVE>

Combustion engines refer to thermal engines including internal and external combustion engines; fuel fluids means liquid or gaseous fuels which have fluidity other than solid fuels. In concrete, consequently, all the ideas exhibited as methods and devices to directly or indirectly reduce nitrogen oxides in exhaust gas by treating a gas/liquid fuel such as for a gasoline or diesel engine or a gas mixture made by combining same with the air in a combustion engine using magnetism and infrared radiation before combustion shall be applicable.

</NARRATIVE>

<CONCEPT>

Nitrogen oxide, NO, NOx, magnetism, ray, infrared, fuel, gas mixture

</CONCEPT>

<PI>

PATENT-KKH-G-H08-021179

</PI>

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<NUM>

P023

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<LANG>

EN

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<PURPOSE>

technology survey

</PURPOSE>

<TITLE>

Low-corrosive metal-plated steel sheets

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-991005068</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Economy</A-SECTION>

<A-AE>No</A-AE>

<A-WORDS>236</A-WORDS>

<A-HEADLINE>Action taken for infringement of a patent against NKK - Nippon Steel Corporation</A-HEADLINE>

<A-DATE>1999-10-05</A-DATE>

<A-TEXT>

Nippon Steel Corporation brought a case before the Tokyo District Court on the 4th, wherein it appealed that NKK had infringed on a patent for automotive high-class metal-plated steel sheets developed and held jointly by the former and Toyota, and was claiming damages of ¥2.8 billion. Nippon Steel and Toyota had licensed the patent to NKK under an agreement that NKK does not sell any products related to the patent to any parties other than members of the Toyota group, but they claim that NKK manufactured and sold this to Hyundai Motors in Korea in contravention of the agreement. NKK totally denied it as "the product in question is different from that produced under the license agreement with Nippon Steel" and has stated its intention to fight the suit.

- Yoko Fukumoto

</A-TEXT>

</A-DOC>

</ARTICLE>

<SUPPLEMENT>

It shall be limited to the mother steel sheets for galvannealing and the composition except Fe is shown. It is also limited to mother steel sheets containing titanium (Ti). The manufacturing process shall be excluded.

</SUPPLEMENT>

<DESCRIPTION>

Titanium-containing mother steel sheets with lower corrosiveness while maintaining the workability of conventional galvannealed steel sheets.

</DESCRIPTION>

<NARRATIVE>

Physical and chemical properties of steel sheets vary depending generally on the components except Fe and the composition of the mother steel.

Conventional galvannealed steel sheets made by dipping cold rolled sheets into a molten zinc bath during the cold strip process have sufficient corrosive resistance as rust-preventing automotive steel sheets. However, improved corrosive resistance to corrosive penetration of the steel sheets caused by cracks in the galvannealed surface layer possibly made by chipping from small stones on the road and wheel rotation has been required.

Workability is vital for this use, but workability and corrosiveness have to be traded off against each other in terms of the composition of the components (except Fe) in the mother steel, and it is difficult to maintain compatibility. Here, the mother steel sheet designed to improve its corrosive resistance while maintaining

workability when galvannealed and for which its contents are exhibited shall be regarded as correct.
In addition, the mother steel sheets for the purpose shall be limited to those containing titanium, as it is necessary to have titanium in order to trap the harmful nitrogen.
</NARRATIVE>
<CONCEPT>
Galvanneal, corrosion, corrosion resistant, titanium, steel-alloy
</CONCEPT>
<PI>
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technology survey
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<TITLE>
Solid high-polymer-type fuel cell
</TITLE>
<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990924037</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Editorial</A-SECTION>
<A-AE>No</A-AE>
<A-WORDS>1308</A-WORDS>
<A-HEADLINE>"Leading article"　New energy - Increased expectations on fuel cells</A-HEADLINE>
<A-DATE>1999-09-24</A-DATE>
<A-TEXT>
Global warming and atmospheric pollution are accelerated by the use of various energies.　At the same time, fossil fuels are steadily depleted.　Is there such a thing as an ideal energy source?
Recoverable energies such as solar and wind power generation are thus attracting attention.　These are

promising but cannot be expected to become widespread because these types of power generation are expensive and, in addition, their development has been left to take its natural course.

Under these circumstances, the fuel cell has been highlighted as one of the new energies. It comprises of a pair of electrodes and electrolytes to generate power, in a process that is essentially the reverse of water electrolysis, by electrochemically reacting hydrogen with oxygen. It emits almost no carbon dioxide or nitrogen oxides.

Some scientists claim that it has a promising future, saying, "We will see no energy problems in the future."

Following on from the alkali-type fuel cell used in spaceships, four types of fuel cells are under development: phosphoric acid, molten carbonate, solid oxide, and solid high-polymers using high-polymer ion exchange membranes.

The phosphoric acid-type cell has already reached a practical use level, though it is still expensive. More than 160 units have been installed in hotels, hospitals, and research laboratories in Japan, supplying power and heat. This type of cell is suitable for use as a medium-level power source with power outputs of up to 1,000 kilowatts.

The molten carbonate and solid oxide type cells may be able to replace thermal power generation with power outputs of up to 100,000 kilowatts. The former has already entered the validation phase and a 1,000kW plant exists in Japan.

Development of the solid high-polymer-type cell by automobile manufacturers has made remarkable progress over the past several years. The world's automobile manufacturers have committed themselves to putting this type of fuel cell on the market in 2003 or 2004.

The solid high-polymer-type fuel cell is likely to spread to use in electrical home appliances as a useful power source.

It would be ideal if such a clean fuel cell with high power generation efficiency came into popular use. It is hoped that challenges in significant power generation cost reductions and improvement in durability and safety involving power and gas companies can be realized.

The Agency of Natural Resources and Energy of the Ministry of International Trade and Industry (current Ministry of Economy, Trade and Industry) will start an infrastructure provision project from the next fiscal year to facilitate the popular use of fuel cells for their many advantages including increased durability. Cost reduction is vital for their popularization. In the future, governmental and municipal organizations need to take positive measures to promote the introduction of the fuel cell.

Japan leads the world in the development of the solid high-polymer-type fuel cell. Under circumstances where "the next 3 to 5 years will be vital", industry-wide cooperation and industrial-governmental-educational complexes must be concentrated to further advance technological innovation for this purpose.

The world's automobile manufacturers are in the middle of tough developmental competition, and avoid announcing performance data for their solid high-polymer fuel cells. This tendency may be natural because any successful development will result in a huge profit.

However, this will have a great influence on mankind's future and must be performed under international cooperation. International standardization of terminology, parts quality, shapes, and sizes comes up as another consideration. This will require much more government involvement.

What hydrogen will be produced from will be among the most important concerns. The United States considers gasoline as a resource, but this is, however, inferior in terms of cleanliness. Other possible resources include methanol, natural gas, and coal gas; how to efficiently process these into hydrogen is where each nation's technologists are going to show their skills.

The fuel cell is also expected to be a solution to environmental and energy problems, but for some reason the government's introduction target is only 2,200,000 kW in 2010, equivalent to the power output from two large-scale nuclear power plants. We would very much like the government to raise this target even higher.

Ideas to combine a fuel cell using biomass such as raw refuse with solar cell are also coming out. Full efforts must be concentrated on new energy development now.

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<SUPPLEMENT>

It shall cover electric vehicle and domestic use.

</SUPPLEMENT>

<DESCRIPTION>

It shall be related to component materials for solid (high-polymer fuel cells):(polymer fuel-cells) such as the electrolyte membrane and electrodes.

</DESCRIPTION>

<NARRATIVE>

The fuel cell generates power by ionizing hydrogen gas at the anode, passing it to the electrolyte, and reacting it with an oxidizing agent at the cathode. The supply of hydrogen from fuels such as natural gas generates constant electric power. The high-polymer type refers to cells using a solid high-polymer electrolyte.

</NARRATIVE>

<CONCEPT>

Ion exchange membrane, high-polymer electrolyte, gas, hydrogen, methanol

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PATENT-KKH-G-S58-188002

PATENT-KKH-G-S59-163304

PATENT-KKH-G-H01-033526

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<TITLE>
Ultra hydrophilization of plastic surfaces
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<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990719064</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Science</A-SECTION>
<A-AE>No</A-AE>
<A-WORDS>550</A-WORDS>
<A-HEADLINE>"Thorough study" Mr. Toshiya Watanabe (39), Visiting Professor of the Advanced Scientific Technology Research Center, Tokyo University</A-HEADLINE>
<A-DATE>1999-07-19</A-DATE>
<A-TEXT>
- To advance research into optical catalysts

"The charm of science lies in the fact that unexpected experimental findings often results in new discoveries," said Professor Watanabe, who had just such an experience 4 years ago when he worked as a TOTO researcher.

A chemical compound which is activated by applying ultraviolet rays to decompose organic substances on the surface is called an optical catalyst. He discovered the fact that by mixing silicon oxide with an optical catalyst of titanium oxide forms a surface on which water spreads in a very thin film, in a process termed "hydrophilia". Coating a mirror with this optical catalyst keeps the surface always wet, thus preventing the formation of water droplets and keeping the view clear. It even rejects oil stains.

This discovery resulted in the development of epoch-making products such as condensation-proof glass and stain-proof paint. Looking back on his past research, however, he said, "Actually, I was trying to work out how to make an optical catalyst that repelled water," and "because I imagined stains would be rejected together with water."

"The hydrophilia was an unexpected result, but then I got some inspiration as to how this could be applied.

If I had stuck to only considering water repellency, I would have missed its usefulness. I realized then that being flexible enough to accept any experiment results is very important," he said.
His current challenge is to form an optical catalyst film over plastic. Optical catalysts work well with such non-organic materials such as glass and porcelain, but poorly with organic substances such as plastic.
"This substance will have wide applications such as the development of liquid-crystal displays. I'm finding the way for that purpose," he said with confidence.
- Kimio Kamoshida
</A-TEXT>
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<SUPPLEMENT>
The antifogging method for highly hydrophilifying the surface of plastics by the action of a photocatalyst.
</SUPPLEMENT>
<DESCRIPTION>
The defrosting method and agent for plastics based on ultra hydrophilia using an optical catalyst
</DESCRIPTION>
<NARRATIVE>
Defrosting treatment includes methods that make it difficult for water droplets to adhere, and hydrophilization of the surface to prevent the formation of any water droplets. This is in relation to surface hydrophilization treatment using an optical catalyst and also the composition of surface treatment agents.
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Photocatalyst, titanium oxide, antifogging, hydrophilic, surface treatment, film, coating
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<TITLE>

Natural gas-powered car

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-980612287</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>General Interest</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>575</A-WORDS>

<A-HEADLINE>"Dashboard" A natural gas-powered version of the Honda CIVIC put on the market - Honda</A-HEADLINE>

<A-DATE>1998-06-12</A-DATE>

<A-TEXT>

Honda Motor Co., Ltd. announced that it would commercialize the world's first natural gas-powered car (CIVIC GX). This is another suggestion from HONDA for environmentally friendly cars following its low-emission gasoline cars (CIVIC FERIO LEV, PARTNER 1.6 LEV, DOMANI LEV, and ACCORD/TORNEO 2.0 LEV) and electric car (Honda EV PLUS).

The CIVIC GX (photo) uses compressed natural gas as the fuel to minimize toxic substances in its exhaust to almost zero as well as reducing CO2 by about 20%. The engine is a 1.6-liter VTEC-E producing 115 horsepower. It overcomes the most significant disadvantage of natural gas regarding its fuel tank by employing a lightweight large-capacity fully composite fuel tank to realize the capability of running about 340 km per tank.

This engine is also arranged to ensure a sufficient safety margin in the event of a crash and is housed in a highly rigid body for enhanced safety. This model will be produced on the same line as used for gasoline cars (the East Liberty Plant, Honda of America Manufacturing in the United States) on a process-through basis.

The problematic filling system can be handled using a high-pressure filling system, which can completely fill the tank in a few minutes. At present there are only 62 swift-filling stations in Japan, which is far from sufficient. A simple method of filling includes a CNG tank into which highly pressurized city gas is pumped. This is a pressurized gas supplier (small-scale gas pump), which can perform a full filling in 3 to 5 hours. The price is ¥2 million.

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<SUPPLEMENT>

A natural gas-powered car

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The patent in relation to the fuel tank of a natural gas-powered car
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<NARRATIVE>
Electric cars have already been developed as an environmental-friendly solution, following which is a car using natural gas (mainly methane gas) as the fuel source - a natural gas-powered car. The construction and materials for its fuel tank and body construction to permit mounting of the fuel tank are the next technological considerations.
</NARRATIVE>
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Natural gas, car
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Thin electric wave absorber
</TITLE>

<ARTICLE>
<A-DOC>
<A-DOCNO>JA-990411204</A-DOCNO>
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<A-AE>Yes</A-AE>
<A-WORDS>192</A-WORDS>
<A-HEADLINE>"Business information" Extra-thin electromagnetic wave absorbing material - Nippon Paint (Osaka)</A-HEADLINE>
<A-DATE>1999-04-11</A-DATE>
<A-TEXT>
Nippon Paint Co., Ltd. announced that it had succeeded in the development of an "extra-thin lightweight electromagnetic absorbing material" (photo), which prevents reflection of unnecessary electric waves. It comprises of three layers including a polyethylene film made by vapor-depositing aluminum in a lattice pattern plus some other materials and is one-third thinner and one-fifth lighter than conventional products. It can be laminated over furniture in offices, where wireless LANs (in-company information communication network) operate, to prevent any problems from data communications due to irregular reflection of electric waves. The price has not been fixed yet, but the product will probably be commercialized this year.
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Thin electric wave absorber
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Patents related to thinner and lighter electric wave absorbers
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Electric wave absorbers were initially developed and improved as products related to military purposes such as for use over the stealth fighters and bombers until it came into wider use in applications other than military concerns.
It is used over the exteriors of buildings, towers, bridges, and many other structures to absorb unnecessary electromagnetic waves. It also serves in offices for the same purpose and also to prevent industrial robots from malfunctioning.
The electric wave absorption technology forms a domain of study known as environmental electromagnetic engineering.
Covered here are thinner, lighter electric wave absorbers for use over building materials, furniture, etc.
</NARRATIVE>

<CONCEPT>
Thin, electric wave absorber
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PATENT-KKH-G-H07-183915
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Electromagnetic wave removal system for mobile phones
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<ARTICLE>
<A-DOC>
<A-DOCNO>JA-980521252</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Economy</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>210</A-WORDS>
<A-HEADLINE>"Business information" Kyoshin Shoji, Removing 99% of electromagnetic waves from mobile phones (Osaka)</A-HEADLINE>
<A-DATE>1998-05-21</A-DATE>
<A-TEXT>
Kyoshin Shoji Co. (Head office: Osaka) has just put an electromagnetic wave absorber "Wave Saver" (photo) which removes electromagnetic waves harmful to one's health from mobile phones. This product is made by

combining ceramics which absorb electromagnetic waves with tourmaline which generates negative ions good for one's health at a price of ¥2,500. The company explains that it can remove 99% of electromagnetic waves just by attaching it to a receiver. Its patent is now pending and consideration is now being given to putting it on overseas markets where electromagnetic wave regulations are strict. Inquiries are to be referred to the company (06-910-8470).
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Shape, material, and durability do not matter as long as it removes electromagnetic waves harmful to one's health from mobile phones.
</SUPPLEMENT>
<DESCRIPTION>
What kinds of products are available to remove electromagnetic waves harmful to one's health from mobile phones?
</DESCRIPTION>
<NARRATIVE>
Electromagnetic waves are known to be harmful to one's health.
Electromagnetic waves can be absorbed by ceramics.
There are strict electromagnetic wave regulations in overseas countries.
Products to remove electromagnetic waves specifically from mobile phones are included.
Products to remove electromagnetic waves from objects other than mobile phones are excluded.
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Mobile phone, electromagnetic waves, removal, absorption
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Moth Repellant for Rice Tubs
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<ARTICLE>
<A-DOC>
<A-DOCNO>JA-980423370</A-DOCNO>
<A-LANG>JA</A-LANG>
<A-SECTION>Entertainment</A-SECTION>
<A-AE>Yes</A-AE>
<A-WORDS>2482</A-WORDS>
<A-HEADLINE>"I'm excited!" said Mr. Takayasu Okubo, President of Arromic: A best-selling moth repellant for rice tubs (Osaka)</A-HEADLINE>
<A-DATE>1998-04-23</A-DATE>
<A-TEXT>
- Takayasu Okubo, President of Arromic (54)
Since 30 years ago when there was a so-called "Datusara" boom (setting oneself free from a life of white-collar work), he suffered the loss of management rights at a successful cram school due to illness, and then the bankruptcy of his company that had just been established. Around 10 years ago when bank transactions were practically impossible for him, he set up his present company, which eventually succeeded in manufacturing a product called a "Rice tub teacher" and has since begun to move along the right lines. "Interview? With such a small company as mine?" he said humbly. "No problem!" Here is the secret to his vigor in the venture business.

-Mimicking the lives of the Great
-- What had you been doing before you established this company?
President Okubo: Once I got a job after graduation from university, I left it and hopped from job to job because I wanted to distinguish myself. Actually, I lost my father when I was a child and was raised by my mother, a teacher. Since she made me read about the lives of the great, I wanted to mimic their extravagant lives.... I launched a cram school along culture school lines in my thirties and succeeded in it, but I lost the right to manage it because of illness. There was no other way forward than to found my own company, and I set out to design a product using ceramic materials, which I had been studying before, and produced a ceramic cooker "Gohan no Sato (village of rice)" for cooking rice deliciously, but it failed within a year. I continued to study more about it and established another company in my wife's name. Again I released a series of ceramic cookers, such as "Agemono no Sato (village of fried food)" and "Tsukemono no Sato" (village of pickles), and somehow managed to keep a presentable reputation for this company.

-All our products outsourced

-- How did you secure capital?

President Okubo: As I had been both bankrupt and divorced, all the main banks turned me down. I first had to rely on private banks at high interest rates, usually around 30%. Such expensive capital cannot be used for production facilities, so all products were outsourced. Only the desks, telephones and a fax were installed in a room of my condominium. The labs are in the kitchen and on the veranda, and the materials are from the library. The package designers are women working part time, and the catch phrases are my own inspiration. Every single yen has to be saved.

I targeted a product genre where the efficacy of the products cannot be represented in figures, such as cooking rice deliciously or making pickles tasty. In such a product genre the difference is unmistakably understood once you eat the rice or pickles, but is judged subjectively, so major companies avoid this field.

- Efficacy of the products has been advertised by word of mouth

-- What is your current success story?

President Okubo: The "Rice-tub teacher" is. I have studied subjective "odors" and found that there are odors that are repellant to vermin nesting in rice tubs, and that vermin have long been repelled by putting garlic or chilies in rice tubs. Our rice tubs, which had those substances infused into the ceramic material, were first put on the market. Because my experiments had also shown that those substances also prevented mold on the product, this benefit was mentioned in the advertising. Since their release in August 1993, their efficacy has widely become known by word of mouth and our products have been put on the shelves of major supermarkets and categorized as best sellers. However, in the case of ceramics, the effectiveness wears off after a year and the box becomes waste. Therefore, in order to make them more environmentally friendly and to reduce domestic waste, I substituted the material to a plastic box made of corn, which can be incinerated and is biodegradable. The statement concerning it being mold-proof was deleted from the label, because some mold appeared in very moist circumstances. People recognized those improvements, and we recorded sales of 2.8 million boxes last year. Sales of 5 million boxes are expected this year.

- Confidence of product reliability

-- Were there any imitations?

President Okubo: Yes. But I obtained the patent this time. Before it was easy to evade patent restrictions with slight changes in material, but now it is difficult because the patent system has been made more similar to the American style, and I emphasized the point, "garlic or chilies must be used in a rice tub" in order to deter imitations. Some boxes produced by others feature mustard, but such substances that vermin hate do not last long. It is necessary to make vermin feel that "they are in a garlic field, not in a rice tub". According to market surveys, our company's reliability is by far the best. I have no worries.

- Wholesalers registration system

--What are your future prospects?

President Okubo: Our company does not have a factory yet. High risk/high return is supported by a slim system. Also we cannot ignore social influence at the cost of our benefit. Therefore recently I have adopted a wholesaler registration system, because some wholesalers sold three boxes in one set (one box is enough for one year), which troubled some customers. This is also wasteful for people. In order to set up efficient production and distribution systems, I decided to distribute the products only to those wholesalers who understood our business policy. I hope to sell 10 million boxes within a few years time. My goal is to sell ceramic water-cleaning materials, and build up a 100-billion-yen company in the future.

If my hopes are within reach, I will leave the front line and engage in social work, such as working to remove the trauma of environmental hormones. Regardless of whether one is successful or not, I think it is a manly life to take up a challenge, just as my mother taught me.

- Profile

Date of Birth: June 10, 1943

Native place: Ikeda-cho, Tokushima Prefecture

Alma mater: Hosei University, Engineering Dept.

Family: Wife (Emiko - 52), son, daughter and grandchild

Hobbies: Golf, Shogi (an amateur ranked fourth dan)

Motto: "Bare hands", since I started from scratch without a factory or lab.

- Memo

Address: 1-12-5, Senba-higashi, Minoo City, Osaka, 562-0035

Tel: 0727-28-5150

Corporate history: Started business from a room in a condominium with just 2 rooms and a dining/kitchen in 1986. Founded the company in July 1987. Commercialized products mainly in the field of deodorants and water purification, based on the study of ceramic materials.

Number of employees: 23

Annual sales: 2.7 billion yen as of June this year.

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<SUPPLEMENT>

Moth repellant for rice tubs, regardless of shape, material or durability.

</SUPPLEMENT>

<DESCRIPTION>

What kinds of moth repellants for rice tubs are there?

</DESCRIPTION>

<NARRATIVE>

Vermin nesting in rice tubs are sensitive to odor.

Garlic or chilies are known as moth repellants for rice tubs.

Garlic or chili odor can seep down into the ceramic material of rice tubs.

The targeted subject is moth repellant for rice tubs.

If mustard is listed as moth repellant for rice tubs, it is applicable.

Preservatives for rice tubs are excluded.

The effective period of moth repellant is unlimited.

</NARRATIVE>

<CONCEPT>

Rice tubs, moth repellant, insect repellant, garlic, chilies, mustard, mold-proof

</CONCEPT>

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PATENT-KKH-G-H05-111200

PATENT-KKH-G-H09-049535

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technology survey

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<TITLE>

Space solar power generation

</TITLE>

<ARTICLE>

<A-DOC>

<A-DOCNO>JA-990330111</A-DOCNO>

<A-LANG>JA</A-LANG>

<A-SECTION>Science</A-SECTION>

<A-AE>Yes</A-AE>

<A-WORDS>2323</A-WORDS>

<A-HEADLINE>"Close-up 99" Space solar power generation is under way towards realization</A-HEADLINE>
<A-DATE>1999-03-30</A-DATE>
<A-TEXT>
- Solar rays are 10 times stronger in space than that on earth, and there is infinite "space" free of any carbon dioxide emissions.

A space solar power generation project to convert sunlight into electric energy in space and transmit it to earth is now well under way toward realization. The absence of any atmosphere in space permits ten times as much sunlight to be utilized as on earth. In addition, "space" is infinite. This project is set to utilize such characteristics of space to operate numerous solar cells, which would generate only a small amount of power on earth, for large-scale power generation. Unlike fossil fuel power generation systems, they have no emissions such as carbon dioxide and are expected to be ideal clean energy resources with unlimited availability for mankind.
- Yuriko Matsumura

- 63 units cover the US
There is a conceptual design for a space solar power generation project organized by the US National Aeronautics and Space Administration (NASA) in September last year.
In the design, many round films with diameters of 50 to 60m are interconnected like leafs, the total of which is named a "Sun Tower". A solar cell using a gallium-gallium arsenide semiconductor is located at the center of each film through which solar rays are refracted and collected.
A single solar cell generates a direct current power of 2,000 kW while 50 round films interconnected would form a power plant with an output of 100,000 kW. Power thus obtained would be transmitted to earth after conversion into microwaves, and finally reconverted into alternate current for practical use.
Power plants are being considered for launch into both orbital and stationary orbits. If 63 Sun Towers with a power output of 250,000 kW per unit were operational, they would to be able to cover a significant proportion of the US's domestic power requirements.
This is not the first research into space solar power generation. NASA has already spent 10 years researching full-scale space solar power generation from the second half of 1970s in cooperation with the US Department of Energy. The system announced in 1979 was designed to be launched into a stationary orbit. It was supposed to be a huge structure with an area of 50 km2 where many solar cell panels, for which silicon semiconductors are used, are fully applied for power output totaling 5 million kW.
This research was terminated in the 1980s when President Reagan advocated smaller government. In the 1990s, however, environmental and energy problems have been highlighted and attracted attention to space solar power generation again. The "Sun Tower" has been designed to the requirements of the US Council.

* Widely researched in Japan

In Japan, several teams are promoting research into space solar power generation as well. In November, 1998, the "Committee for Space Solar Power Generation System Study" was initiated at Mitsubishi Research Institute, Ind. Professor Hiroshi Matsumoto of the Aerosphere Electric Wave Research Center, Kyoto University, was inaugurated as chairman and nine people including Mr. Kazuo Imasaki, Chief of the 4th Research Department, Institute for Laser Technology, and Professor Takamitsu Sawa of the Institute of Economic Research, Kyoto University, joined as commissioners. The committee held three meetings to make a wide range of evaluations from technology to costs.

The model evaluated at the meeting is nearly identical to that designed by NASA in the 1970s, where many solar cell panels using silicon semiconductors are spread out in stationary orbit over an area of 10 km2 for power generation. Power is transmitted using an antenna with a diameter of 1,000 m, which is received by receiving elements each constructed by combining an antenna with a rectifier and arranged over an area of 10 km2 at a terrestrial station.

Professor Matsumoto explained, "In Japan, installation of an offshore station over a shoal is being considered. It would be possible to utilize the sea area under such a station for other purposes such as a marine ranch".

It was estimated at the meeting that production of such a power plant, its launch, and facilities on earth would cost a little more than ¥2 trillion, but operation of the plant would earn a profit of a little under ¥400 billion over 30 years if the resultant power was sold at ¥20 per 1 kWh.

Microwaves, as used in domestic ovens, may be thought likely to affect lives on earth, however, the microwave energy used for power transmission is one-several hundredth that of domestic ovens and would never harm birds, even if flying above the center of the antenna, on earth.

- Transportation costs may be problematic

On last 23rd, an international strategic meeting to discuss the feasibility of space solar power generation was held in Paris at the initiative of the France National Center for Space Research. Researchers from around the world, including those from Japan and the US, exchanged opinions there.

According to the World Bank, the price of power supplied by new power plants stood at 3.8 cents/1 kWh. (1 cent almost equals 1.2 yen) in 1996, which will leap to about 5.5 cents in 2020 bearing in mind exhaust from oil resources and costs for disposal of waste from nuclear power plants. NASA aims to set the price of power available from space solar power generation at 5.0 cents by 2020.

Mr. Masahiro Mori, chief of the Development Section, Research Center, National Space Development Agency of Japan, said, "The most expensive element in space development is the transportation costs. Any solution to this problem will considerably reduce space power plant costs and, in addition, developmental costs would be recovered when the plant operates and sells its output."

"Japan must be positively involved in the development of clean solar energy particularly because it is a 'resource-poor country'," suggested Professor Matsumoto.

¡Ä

- Microwaves

These are super high frequency waves with a wavelength of 1 m or less featuring superior directivity. They travel through the atmosphere and only a small ratio of them are absorbed into water making them suitable as a medium to transmit energy from space. Besides, as the wavelengths are shorter, waves can be received with smaller antenna. In addition to communications purposes, microwaves are used for high-frequency heating and radar.

- Solar cells

Semiconductors such as silicon generate power when subjected to light. The solar cell converts solar energy directly into electrical energy using the photovoltaic effect. The conversion efficiency is around 40% for cells using silicon semiconductors, and rises to 55 to 60% for those using gallium-gallium arsenide semiconductors.

- Photo caption: Image illustration of a "Sun Tower"-type power plant constructed by interconnecting many round films (source: NASA)

- Photo caption: Space solar power generation, if realized, makes power supply to the earth and space stations (bottom left) possible (source: Professor Hiroshi Matsumoto, Kyoto University).

</A-TEXT>

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</ARTICLE>

<SUPPLEMENT>

It is limited to plants, which generate power in space and transmit it to earth, and those that merely generate solar power are excluded.

</SUPPLEMENT>

<DESCRIPTION>

A patent in relation to space solar power generation where solar energy is converted into electrical energy in space and transmitted to earth

</DESCRIPTION>

<NARRATIVE>

Space solar power generation indicates a power generation system that a satellite equipped with solar cells are floated in space subject to strong solar radiation to generate power, convert it into electromagnetic waves (microwaves), and transmit it to earth, thus supporting power resources on earth. It is expected to be an ideal clean energy because it can be supplied at a constant rate regardless of weather and differences between day and night and does not emit carbon dioxide or radioactive waste, which cause global warming. In addition, it has many other advantages such as being a solution for power plant site problems. The power generation satellite, placed in orbit at an altitude of 36,000km, has to transmit beams very accurately to an antenna installed on earth.

Here, we would like to know technological trends for space solar power generation.

</NARRATIVE>

<CONCEPT>

Sun, power generation, space, microwave

</CONCEPT>
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PATENT-KKH-G-H12-163717
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Steel cans
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<A-DOC>
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<A-HEADLINE>"After all, please provide beer in a steel can" - Steel companies make earnest sales promotions to recover their market share</A-HEADLINE>
<A-DATE>1999-04-20</A-DATE>
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- PET bottles enjoy the broadest popularity --- making sales promotions harder for market share recovery -- Steel producers
Steel producers have begun to make earnest sales promotions into the beer can market which is almost fully cornered by aluminum cans. This has been affected by the fact that the use of small-size PET bottles has sharply increased in the area of drinking water where steel cans have held a substantial market share. In addition to the reduced demand for steel caused by the slump in the economy, materials other than steel have invaded the main area for steel, such as on automobiles and electrical home appliances. To cope with this situation, steel producers are keen to find a way to increase the use of steel cans in the beer can market.

Nippon Steel Corporation is the most eager about marketing steel beer cans. It began last December to supply Sapporo Beer with steel cans for use with its sparkling drink "BRAU", which is sold in Kita-kyushu City, where Nippon Steel Corporation Yawata Works are a major component of the city. The company will concentrate its energy on this market "fully expanding its sales from Kyushu even to Kanto in the future".

Steel cans give an impression of heaviness, but those for the "BRAU" are only 1.9mm thick, the thinnest of any steel ever provided by the company, and such steel cans weigh only 25g, only 5g heavier than an aluminum can. A spokesman for the company confidently said, "Its strength and recyclability are remarkable. It shapes up well against aluminum beer cans."

Another case occurs in 5 cities in Hiroshima and Okayama Prefectures including Fukuyama, where Asahi Breweries, Ltd.'s "SUPER DRY" has been put on sale this month in steel cans made originally of NKK's material. Thus, the progress of steel beer cans has recently been remarkable. NKK makes publicity of this fact on its homepage.

To counter this onslaught, rolled aluminum producers such as Kobe Steel, Ltd. stress the excellent characteristics of aluminum. There stress, to counter the offensive of steel can's, the advantages of aluminum, such as its lightness and non-corrosive qualities, as well as that in terms of recycling, "Steel cans, unlike aluminum cans, deteriorate in quality when recycled and can not be reused as beer cans" (the industry interest).

Beverage containers have seen increased use of PET bottles since the 1980s, reaching an overall annual production in 1998 triple that of 1991. For beverage cans, those made of aluminum have increased from 10.2 billion in 1991 to 16.5 billion in 1997, while the use of steel cans has remained flat at 20 billion. The relative downtrend in steel can production is increasingly serious.

- Toshiaki Hashimoto

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<SUPPLEMENT>

An invention covering overall steel beverage cans used with soft drinks and beer.

</SUPPLEMENT>

<DESCRIPTION>

An invention in relation to the shape and material of steel beverage cans used with soft drinks and beer.

</DESCRIPTION>

<NARRATIVE>

Steel cans for beverages are normally 2-piece or 3-piece in construction, the former of which has recently been predominant. Here, those with descriptions suggesting steel cans under expressions like "aluminum cans, etc." are excluded.

Inventions covering parts or local areas of steel cans such as tops, bottoms, and drums are excluded. Those covering surface-treated steel sheet can stock, bonding agents, or tops with a pull-top are also excluded.

There are many inventions related to methods and equipment concerning improvements in steel can forming

and welding technology and manufacturing process, however, those covering part of the manufacturing process such as punching, pressing, forming, printing, rust prevention, cleaning, or drying are excluded. However, inventions related to processes covering the production flow itself are included. Inventions with no or illegible descriptions of "invention covering steel beverage cans" in their specifications are excluded. Accordingly, inventions with descriptions only of "2-piece or 3-piece beverage can" are excluded unless it has a description such as "surface-treated steel sheet" or "steel can" in the detailed instructions or sample applications in its overall specifications.

</NARRATIVE>

<CONCEPT>

Beverage, beer, soft drink, steel can, 3-piece can, 2-piece can, container, steel sheet, surface treatment

</CONCEPT>

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</TOPIC>