

Electronic Patent Application Fee Transmittal

Application Number:

Filing Date:

Title of Invention:

LINEAR VIBRATING MOTO FOR SEX TOY

First Named Inventor/Applicant Name:

Robin F Elenga

Filer:

Robert Walter Bergstrom/Joanne Bourguignon

Attorney Docket Number:

35099.002PROV

Filed as Small Entity

Provisional Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Provisional Application filing fee	2005	1	110	110

Pages:

Claims:

Miscellaneous-Filing:

Petition:

Patent-Appeals-and-Interference:

Post-Allowance-and-Post-Issuance:

Extension-of-Time:

Samsung et al. v. Resonant Sys.
IPR2023-00993 - Exhibit 1029

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				110

Electronic Acknowledgement Receipt

EFS ID:	5350692
Application Number:	61179109
International Application Number:	
Confirmation Number:	8206
Title of Invention:	LINEAR VIBRATING MOTO FOR SEX TOY
First Named Inventor/Applicant Name:	Robin F Elenga
Customer Number:	34395
Filer:	Robert Walter Bergstrom/Joanne Bourguignon
Filer Authorized By:	Robert Walter Bergstrom
Attorney Docket Number:	35099.002PROV
Receipt Date:	18-MAY-2009
Filing Date:	
Time Stamp:	14:29:22
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 110
RAM confirmation Number	552
Deposit Account	502976
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		35099_002PROVAPP.pdf	1598017	yes	8
			78c603a87edd067fc7b2ad59e711b972d8f2b1d2		

Multipart Description/PDF files in .zip description

	Document Description	Start	End
	Provisional Cover Sheet (SB16)	1	2
	Specification	3	8

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	29647	no	2
			71c7f4bee61d7d5ec4a3167268d14e33bb47b2cd		

Warnings:

Information:

Total Files Size (in bytes):		1627664
------------------------------	--	---------

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: **TR.PROV**

Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (04-07)

Approved for use through 06/30/2010 OMB 0651-0032

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

Provisional Application for Patent Cover Sheet					
This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)					
Inventor(s)					
Inventor 1					Remove
Given Name	Middle Name	Family Name	City	State	Country
Robin	F.	ELENGA	Seattle	WA	US
All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add
Title of Invention		LINEAR VIBRATING MOTOR FOR SEX TOY			
Attorney Docket Number (if applicable)		35099.002PROV			
Correspondence Address					
Direct all correspondence to (select one):					
☒ The address corresponding to Customer Number			☐ Firm or Individual Name		
Customer Number			34395		

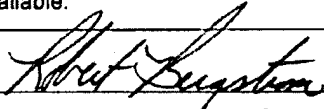
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.	
☒ No.	
☐ Yes, the name of the U.S. Government agency and the Government contract number are:	

Entity Status

Applicant claims small entity status under 37 CFR 1.27

☒ Yes, applicant qualifies for small entity status under 37 CFR 1.27☐ No**Warning**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Signature


Please see 37 CFR 1.4(d) for the form of the signature.

Signature				Date (YYYY-MM-DD)	2009-05-18
First Name	Robert	Last Name	Bergstrom	Registration Number (If appropriate)	39906

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. This form can only be used when in conjunction with EFS-Web. If this form is mailed to the USPTO, it may cause delays in handling the provisional application.

LINEAR VIBRATING MOTOR FOR SEX TOY

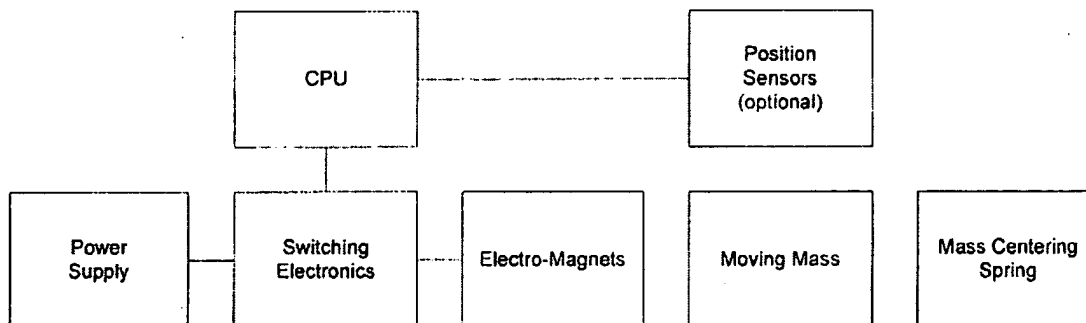
OVERVIEW

This patent covers several variations of a linear resonating vibration motor primarily for use in adult sex toys.

While most vibrating motors used for adult toys use rotary motors that push an off-center weight around to create vibrations, this invention moves a weight back and forth (linearly) to create vibrations.

THE MAJOR COMPONENTS

While there are several variations on the design, they all have the following common components. These components can be assembled in a variety of configurations to create the desired vibrations.

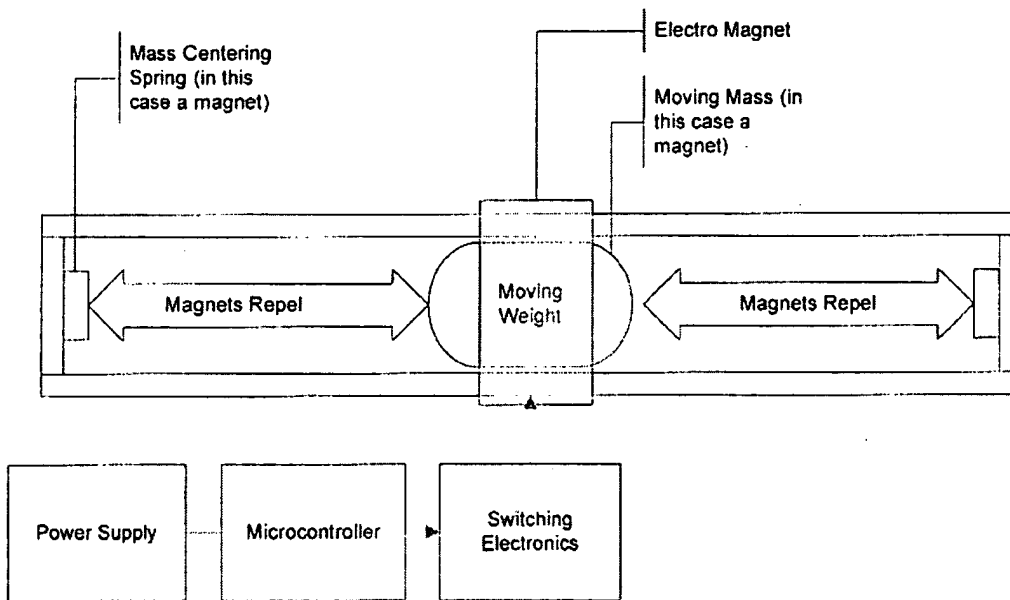


- Power Supply – can be battery or plug in power source
- Switching Electronics – allow the CPU to switch the power to the electro-magnets on and off at high rates of speed.
- CPU – microcontroller or other processor
- Electro-magnets – used to move the moving mass
- Position Sensors – these sensors can be used to allow the CPU to sense either the position of the moving mass and/or the vibrations that are being created. Hall-Effect, accelerometers, voltage or other sensors accomplish this.
- Moving Mass – the weight that moves back and forth generating the vibrations

- Mass Centering Springs – The springs make the Moving Mass return to its' center position. These springs may be magnetic, coil springs, gas pressure or elastomer.

THE THUMPER DEVICE – THE BASIC CONCEPT

The following diagram shows a basic 'Thumper' linear vibrator. The unit creates vibrations by forcing the moving magnet to move back and forth.



The Microcontroller sends pulses in to the switching electronics that turn power on and off to the electromagnet at fairly high rates of speed. The way the electromagnet is wired, it can be charged to attract and/or repel the moving mass. As the magnet approaches that spring it slows and reverse back towards the center. By charging the electromagnet in the correct way (push or pull) at the appropriate time, the device pushes/pulls the magnet so that it is, in effect, bouncing from one end of the device to the other end. The effect of the moving mass moving back and forth creates vibrations in the body of the device that holds these components. This process continues until the device is turned off.

THE THUMPER – VARIATIONS

MOVING MASS

In the basic concept diagram, above, to create vibrations, the moving mass moves back and forth fast and hard enough to vibrate the mass of the entire device, which includes the power supply (battery), the case, the electronics, and etc. for the user to feel the vibrations.

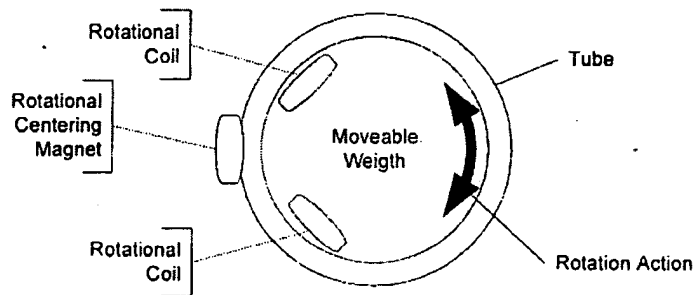
An alternative would be to build the moving mass to contain the power supply (batteries), electronics, electro magnet, etc, instead of using just the weight of the magnet to create the moving mass. In this method, the weight of the non-moving parts would be minimized, maximizing the vibration.

ROTATION OF THE MOVING MASS

In the basic concept diagram, the moving mass moves longitudinally creating vibration. The moving mass may also rotate while it is moving longitudinally, or while the moving mass is stationary from a longitudinal perspective. This may be achieved by using either permanent magnets and/or electro magnets. If permanent magnets are used, the moving mass will rotate back and forth on a fairly predictable and stable nature. If electro-magnets are used, the microcontroller may power one or more electro-magnets as the moving mass moves longitudinally to create rotational action as desired or programmed.

By using multiple Rotational Coils, the extent to which the Moving Mass rotates can be altered (i.e. a set of Rotational Coils that make the moving mass rotate 90° and another set that make it rotate back and forth 120°).

The following diagram shows a cross section of a device. It shows a moving mass inside of a tube. There are electro-magnets in the moving mass as well as a rotational centering magnet on the external surface. This design will make the moving mass rotate as it moves longitudinally.



MULTIPLE MOVING MASSES

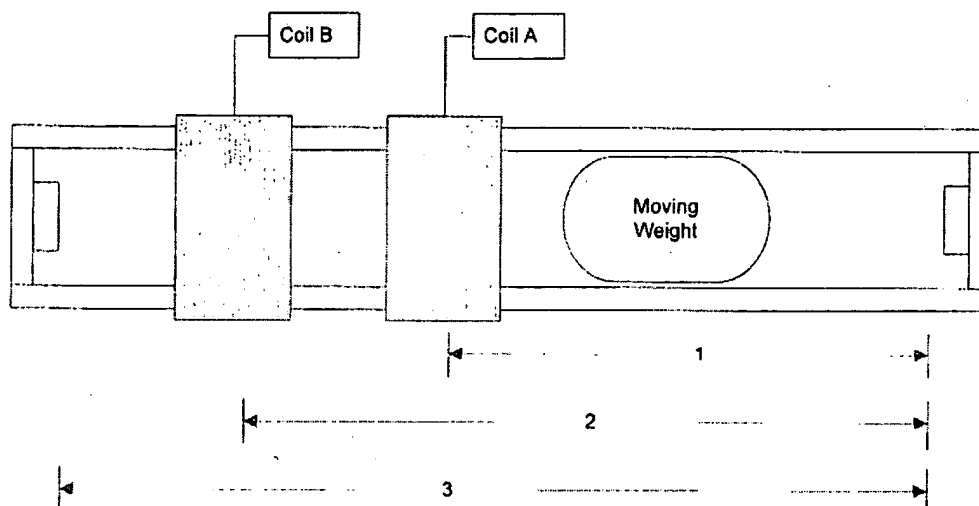
A device may have multiple moving masses. They may have different weights, lengths of travel, or other dimensions that will allow them resonant or vibrate at different frequencies. This will allow the creating of a device that has multiple resonant frequencies.

MULTIPLE RANGE OF MOTIONS

A device may use a moving mass that may have different range of motion controlled by one or more electromagnets. This allows for different frequency/amplitude combinations in a single device.

The following diagram shows a device with a moving mass in a tube. Each end of the tube has magnets (springs) that repel the moving mass. There are two electro-magnets wrapped around the tube. These coils may be used to drive the magnets (creating vibration) and/or to repel the magnet to change the

effective length of the amplitude that the moving mass uses. When Coil B is turned on to repel the moving mass, the effective length of travel is reduced to something less than '2'. When addition if Coil A is turned on to repel the moving mass, the effective length of travel is reduced to something less than '1'.



DAMPENING IN THE DEVICE

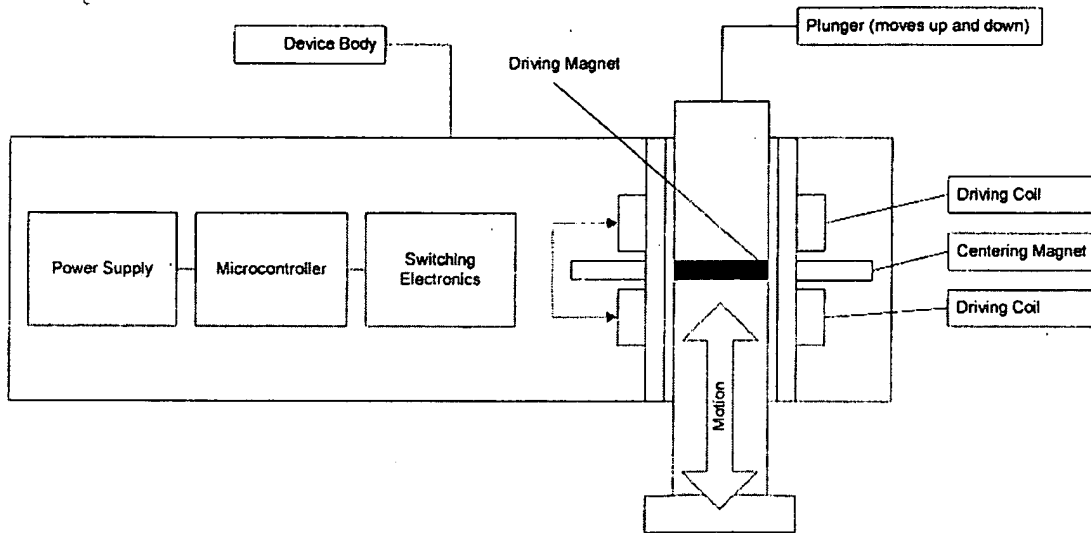
In the device described above, the moving mass moves back and forth within a tube. If the tube is sealed, any air in the tube that is in front of the moving mass will have to go around the moving mass. This will create a dampening effect and potentially an air bearing that will have the effect of minimizing the friction between the moving mass and the tube. The amount of dampening can be altered by:

- Putting a hole in the middle of the moving mass to allow air to go through the moving mass, instead of around it.
- Putting fins on the side of the moving mass that keep it centered in the tube, yet allow more air to go around the moving mass
- Putting holes in the tube on each end that allow air to escape the tube as the moving mass approaches that end of the tube.

THE PATTYCAKE DEVICE – THE BASIC CONCEPT

The following diagram shows a basic 'Pattycake' linear vibrator. The unit creates vibrations by forcing the plunger to move up and down.

5



The Plunger is held in place within the device because it has a (driving) magnet inside of it that wants to remain centered inside the magnetic field of the Centering magnet in the device. The plunger may easily be pushed out of the device for cleaning.

The Microcontroller sends pulses in to the switching electronics that turn power on and off to the electromagnets (Driving Coils) at fairly high rates of speed. As the electromagnet is charged, it tends to repel (or attract) the driving magnet in the Plunger, moving out of center with the Centering Magnet. When the electromagnets are not charged or the charge is reversed, the plunger moves the other way in an attempt to re-center itself with the centering magnet. This process continues until the device is turned off with the moving mass moving back and forth, thus creating vibrations in the body of the device that holds these components.

THE PATTYCAKE – VARIATIONS

DIFFERENT PLUNGERS FOR DIFFERENT RESONANT FREQUENCIES

In certain devices, a user can put in different plungers. Each plunger has a different resonant frequency because of a number of factors, primarily the mass of the plunger and/or the strength of the Driving Magnet. The device can be programmed to sense the plunger and or the resonant frequency by a training run. In devices with hall-effect sensors, accelerometers, and/or other methods to sense when the plunger is resonating, it can train itself to run at the proper frequencies for a particular plunger.

SINGLE OR MULTIPLE CENTERING/DRIVING MAGNETS

The diagram, above, shows the device with a single Centering magnet in the Device Body and a single Driving magnet in the Plunger. A device may have one or more of each of the Centering and Driving magnets.

ALTERNATIVE SPRINGS

In the Pattycake description, above, the device uses a magnet in the device body and a magnet in the Plunger to make the Plunger body center itself in device body. A device may have a mechanical (probably a coil or flat) spring to make the plunger tend to want to center in the device.

ROTATIONAL MOTION

A device may be equipped with springs or magnets to make the plunger tend to rotate as it moves up and down as described in the section, above, for the thumper.

Claims:

1. An adult sex toy comprising:
 - a power supply;
 - a CPU that receives power from the power supply;
 - a mass;
 - electromagnets that linearly move a mass within the sex toy to create vibrations;
 - switching electronics that allow the CPU to switch power to the electromagnets on and off at high rates of speed; and
 - position Sensors that allow the CPU to sense either the position of the mass and/or the vibrations that are being created.
2. The adult sex toy of claim 1 wherein the mass vibrates at between 120hz and 350hz .



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
61/179,109	05/18/2009		110	35099.002PROV		

CONFIRMATION NO. 8206

34395
OLYMPIC PATENT WORKS PLLC
P.O. BOX 4277
SEATTLE, WA 98104

FILING RECEIPT



OC000000036134356

Date Mailed: 06/04/2009

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Robin F. Elenga, Seattle, WA;

Power of Attorney:

Robert Bergstrom--39906

If Required, Foreign Filing License Granted: 05/22/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 61/179,109**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

LINEAR VIBRATING MOTOR FOR SEX TOY

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international

patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and

Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).