INVENTION

Patents of the Week

Space-age devices highlight patents awarded, including a heat distribution method for atomic reactors, infrared scanner and processes for thermonuclear reactors.

➤ A METHOD of more evenly distributing the heat generated by atomic reactors was awarded a patent nearly 17 years after application was made.

Dr. Edward C. Creutz, who is now vice president in charge of research and development at General Atomic Division of General Dynamics Corporation, San Diego, Calif., devised the method while at Los Alamos Scientific Laboratory and filed for a patent on July 30, 1945.

The method consists of inserting a heat insulating material between the ends of the uranium rods, which are customarily laid end-to-end within the reactor, and a coolant circulated around them. Dr. Creutz assigned rights to patent No. 3,037,924 to the U.S. Atomic Energy Commission.

Space-Age Scanner

For the space age, three National Aeronautics and Space Administration scientists have invented an infrared scanner to determine the orientation of a space vehicle, manned or unmanned, relative to the earth. Warren Gillespie Jr., Newport News, Va., and Robert J. Guillotte and Norman M. Hatcher, Hampton, Va., assigned rights to patent No. 3,038,077 to National Aeronautics and Space Administration.

The method used is to compare the infrared radiation being sent toward space from the outer edge of earth's heavy atmosphere, known as the troposphere, with the extremely low radiation of space. The earth's infrared radiation is due to heat, and can be readily detected and scanned by infrared devices. The orientation of a space vehicle relative to earth can then be adjusted to maintain the desired attitude.

Fusion Reaction Devices

Two patents concerned devices aimed at making possible the conversion of the awesome power of hydrogen bomb reactions for peaceful purposes. Both were assigned to the Government through the Atomic Energy Commission.

James L. Tuck of the Los Alamos Scientific Laboratory, Los Alamos, N. Mex., was awarded patent No. 3,037,921 for his "method and apparatus for producing neutrons and other radiations." He devised a way to make ions, or charged particles, of light elements interact when heated to a high temperature by the so-called pinch effect.

Dr. Ernest F. Johnson of Princeton University, Princeton, N. J., won patent No. 3,037,922 for his method of surrounding a thermonuclear reactor with a blanketing system consisting of a molten lithium salt and a separately confined fluid, such as water, that acts as a neutron moderator. It is for use with a thermonuclear reactor known as a stellarator, one version of which is now being built at Princeton.

Other Patents of Interest

Patents of interest include:

A method of measuring the electrical fields in the atmosphere, for which Dr. Vladimir K. Zworykin and George C. Sziklai of Princeton, N. J., won patent No. 3,038,154. They assigned rights to the Radio Corporation of America. Electrical charges in clouds create electrical fields, and knowledge of the location of these electrical fields can provide useful information regarding the motion of air masses.

A way to increase the rate at which live births are obtained from incubated eggs by puncturing the egg shell to increase the ventilation within the egg during a critical period after the 14th day of the hatching cycle. Frank M. Flory of Manheim Township, Lancaster County, Pa., assigned rights to patent No. 3,037,479 to Indian River Poultry Farms, Inc., Lancaster, Pa.

A device and method for measuring, in a small sample of air, the number of tiny, invisible particles around which raindrops form by their scattered light. John E. Bigelow, Hales Corners, Wis., Frank W. Van Luik Jr. and Stuart B. Dunham, Schenectady, N. Y., and Theodore A. Rich, Scotia, N. Y., assigned rights to patent No. 3,037,421 to General Electric Company.

A way of finding the center of gravity of a missile section, for which Daniel J. Grant of Chevy Chase, Md., was granted patent No. 3,037,376, rights to which he assigned to the Secretary of the Army. His device directly and accurately determines the location of the center of gravity without regard to the shape of the section.

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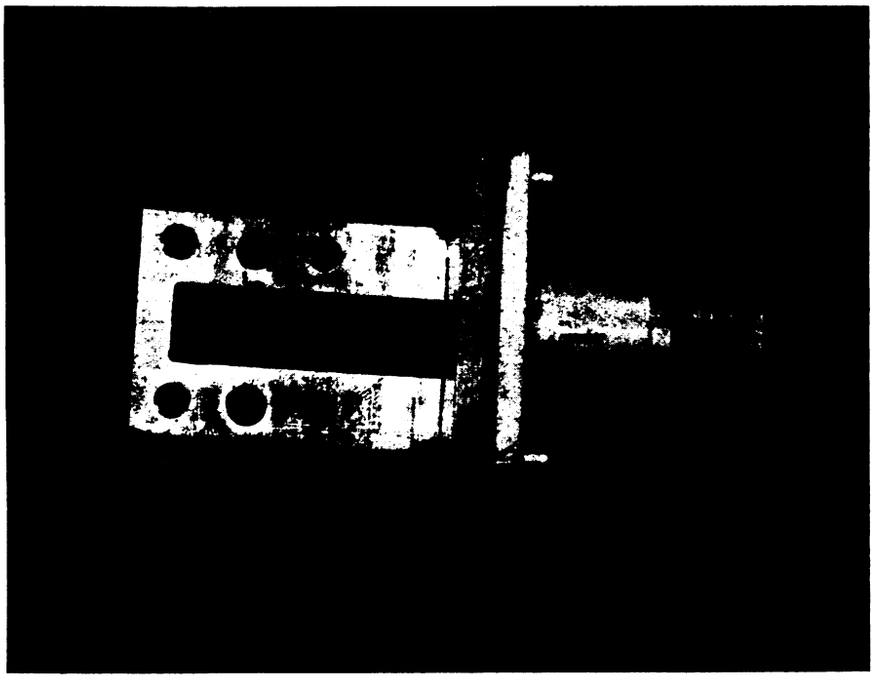

TINY CRYSTAL BEAD IN MICROWAVE RECEIVER

TECHNOLOGY

Crystal Bead Improves Microwave Equipment

➤ A TINY CRYSTAL bead can improve the performance of a delicate microwave receiver.

The little bead, a crystal of yttrium-iron-garnet, introduces an extremely low loss when tuning in the desired resonating frequency, Dr. Phillip S. Carter Jr., electronics engineer at the Stanford Research Institute, has determined.

Two French physicists discovered the properties of the crystal while engaged in purely basic research a few years ago. Application to microwave receivers came after a review of the literature.

The new compound has a garnet-like crystal structure and is "tunable" by a magnet, a great improvement over the mechanically tuned filters now in use. Tuning with the new filter is much faster, scanning the complete spectrum of wavelengths in one thousandth of a second as opposed to two seconds with mechanically-tuned filters.

The tuner will be of use to transportable as well as standard receivers.

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