

INVENTION

Patents of the Week

A satellite TV that sees better in dim light, a submarine escape device and a chemical method for preventing frost damage to plants were among patents granted.

► TWO TELEVISION systems for satellites—one for low light levels and one to transmit additional information—won patents for Radames K. H. Gebel of Wright Air Development Center, Dayton, Ohio.

Patent 3,046,331, assigned to the Government through the Secretary of the Air Force as is the other, covers use of transmitting additional information during the time that the light beam making the picture on a TV tube sweeps back to its starting position. The system would be particularly useful for reconnaissance planes or guided missiles, as well as satellites.

Besides the usual TV picture of a military installation to be bombed, for instance, the location of such heat sources as steel mills or such radiation sources as transformers or generating stations could be indicated during the retracing period of the light beam. A third device indicates the condition of instruments aboard the missile.

Patent 3,046,333 provides transistors (such as used in tiny hearing aids) for a television camera where light levels are low, as they are in photographing earth's cloud cover from a satellite. Other satellite requirements satisfied by Mr. Gebel's patent include low power consumption, small size, low distortion and long-range transmission.

The TV camera taking the picture contains one or more light amplifiers of the electron type.

Submarine Escape Device

A method by which crew members can escape from a sunken submarine using a buoyant sphere carried aboard received patent 3,045,622. U.S. Navy Capt. George William Kittredge, now of Boston, and William E. Heronemus, now of Portsmouth, N.H., assigned rights to the Government through the Secretary of the Navy.

The escape buoy, seven feet in diameter, can hold six men including an operator. It can make repeated trips from the sunken submarine to the surface until all crew members are rescued. The escape buoy is made of steel sufficiently strong to withstand high underwater pressure.

Capt. Heronemus told SCIENCE SERVICE that he did not expect the system to be adopted by the U.S. Navy because of conversion costs.

Preventing Frost Damage

A chemical method of preventing frost damage to plants and fruit trees won patent 3,045,394 for Thomas H. Coulter of Jackson, Miss., who assigned rights to Dumas Milner Corporation, also of Jackson.

Methods now being used, such as heating

the air or covering plants with shielding paper or cloth, are often expensive and sometimes unreliable, Mr. Coulter noted. His method involved spraying the ornamental plants, shrubs or trees with a polymer of N-vinyl-2-pyrrolidone using conventional spraying equipment.

The chemical spray gives protection from frost damage for extended periods of time and is effective for all sizes of plant life without regard to the lay of the land upon which the fruit trees or other plants are grown, Mr. Coulter claimed.

Other Interesting Patents

Other patents include:

Two optical designs for telephoto lens. Patents 3,045,548 and 3,045,549 to Dr. James G. Baker of Winchester, Mass., who assigned rights to both to the Government through the Secretary of the Air Force. Dr. Baker is the inventor of the wide-angle telescope.

A method of lighting the cloud chambers and bubble chambers used to detect nuclear particles. Patent 3,045,528 to Dr. Duane U. Norgren of Berkeley, Calif., who assigned rights to the Government through the Atomic Energy Commission. Dr. Norgren developed an improved method for lighting objects that appear bright in contrast to a dark background, as in the case when photographing nuclear tracks in detection chambers.

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TECHNOLOGY

Convert Satellite Cloud Photos to Mercator Views

► AN EXPERIMENTAL technique which converts satellite cloud photographs to digital form, reconstructs them in a digital computer, and then reproduces them as a Mercator projection, was disclosed by International Business Machines Corporation.

The new technique, developed by engineers of IBM's Federal Systems Division, promises to make available a powerful tool for the study of the earth's cloud cover, which should contribute to man's ability to understand the vagaries of weather.

Work on this experimental technique was sponsored by the Geophysics Research Directorate of the Air Force Cambridge Research Laboratories, Office of Aerospace Research, Bedford, Mass.

The digital computer technique makes possible production of composite cloud photo maps over large land areas, including continents, for the first time. The composite maps can be made by automatically super-

imposing a number of reconstructed satellite photos on a Mercator map of the same scale.

"Obtaining a Mercator projection of an area of the earth's surface by digital manipulation of the data contained in the photograph of the area is only one example of the use of this technique," the authors state. "Other photo map projections can be obtained and, in addition, any distortions in the images capable of being expressed mathematically can be automatically corrected during the processing."

The experimental work is described in the IBM Journal of Research and Development, July, 1962, by R. E. Mach, and T. L. Gardner of the IBM Command Control Center at Kingston, N. Y. They point out that this technique should also find other uses, including the processing of photographs of the earth's surface.

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