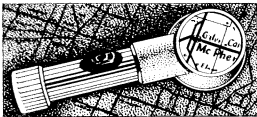


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INVENTION

Current U.S. Patents

A newly patented navigation-by-satellite system uses the Doppler effect to help Polaris submarines and U.S. Navy ships find their exact positions at sea—By William McCann

► AN ALL-WEATHER system of navigation-by-satellite, widely used by Polaris submarines and U.S. Navy ships at sea, was granted a patent by the U.S. Patent Office.

The system is the basis of the Navy Department's navigational satellite program, Project Transit. Several such globe-circling satellites are now in operation for use around the world.

Dr. Frank T. McClure, Johns Hopkins University's Applied Physics Laboratory, Silver Spring, Md., received the first National Aeronautics and Space Administration contribution award of \$3,000 in January 1961 for the invention.

The navigation system uses the Doppler effect to help give navigators their positions. In the Doppler effect, sound waves coming from a moving object appear to have a higher pitch as the source of the sound approaches and lower as the source moves away. A train whistle, for instance, seems to change pitch as the train passes by.

A navigator, listening with a radio, can trace the shift in a satellite's frequency as it moves in the sky. The satellite also broadcasts its exact location. Thus, with these two pieces of information plus a computer, a navigator can quickly find out his position, Dr. McClure told SCIENCE SERVICE.

The navigation-by-satellite system earned patent 3,172,108 and patent rights were assigned to the Government through the Secretary of the Navy.

Space Oven

An oven that someday may warm the food of astronauts in space has been granted a patent.

The oven is part of a "space kitchen" developed for use in future manned space stations.

The manned Gemini flights, beginning with GT-3 this spring, will utilize a food management operation developed from the space kitchen project. The kitchen was built under an Air Force contract by Whirlpool Corporation, St. Joseph, Mich.

In the space oven, which earned patent 3,171,346, food in its container can be warmed in widely varying environments. The oven's inventors, James W. Lannert and George Boswinkle, both of St. Joseph, Mich., assigned patent rights to Whirlpool Corporation.

Auto Lights-Out Device

Drivers who get out of their cars and forget to turn off the headlights can be warned in time by a newly patented sound-signaling device.

The warning device, which uses a sounder connected to the vehicle's electrical system, will go off when the car lights are on and the motor is off.

The signaler earned patent 3,172,080 for George L. Webb and Erich E. Late, both of Lancaster, Ohio. Patent rights were assigned to the Essex Wire Corporation, Detroit.

Other Interesting Patents

A heart beat frequency analyzer to help discover changes in the condition of the heart over a long period of time earned patent 3,171,406 for Jerome N. Baum, Alexandria, Va., and Samuel J. Campanella of Springfield, Va. Patent rights were assigned to Melpar, Inc., Falls Church, Va.

A process of conditioning plants to resist everything from insects to frost earned patent 3,171,231 for Thomas W. W. Forrest, Fresno, Calif. The plants are treated with a chemical solution that is taken into the sap stream.

For a list of registered patent attorneys and agents and other Patent Office information write the Commissioner of Patents, Washington, D.C. 20231, or call 202-967-4058 for specific information.

• Science News Letter, 87:190 March 20, 1965

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