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INVENTION

Patents of the Week

A distance-measuring device developed after World War II for use in proximity fuses could be used on airplanes today and on automobiles of the future—By Elizabeth Hall

➤ A DEVICE DEVELOPED just after World War II to measure the distance from bomb to target may one day keep automated autos a safe distance from each other on the highway.

The U.S. Patent Office issued patent 3,129,424 to inventor Jacob Rabinow, president of Rabinow Engineering Company, Rockville, Md. The distance-measuring device for detonating the proximity fuses of weapons was developed by Mr. Rabinow when he was a division chief with the National Bureau of Standards.

The device measures distance by sending out two beams of radiant energy, either light waves or radio waves of different intensity. The amount of light reflected back by both beams is then compared to find the distance to the target, Mr. Rabinow told SCIENCE SERVICE.

If only one beam was used, the color of the target would make a difference in the amount of light reflected. Using two beams, one straight and narrow and the other more spread out, the proportion of light reflected back by both beams will always be the same.

Because the device could automatically determine the distance from one car to another on the highway, it may someday be used in the "driverless" cars predicted for the future. Mr. Rabinow said his device also has application for airplane altimeters to tell the pilot how far he is from the ground.

Tracking Migrating Fish

The U.S. Department of the Interior received rights to a patent that will enable its Bureau of Commercial Fisheries to follow the migrations of salmon and other fish.

Keith B. Jefferts and Peter K. Bergman, Seattle, Wash., employes of the Washington Department of Fisheries, were awarded patent 3,128,744 for their method of tagging young fish and later recovering them.

A specially developed instrument, on which another patent is pending, implants a tiny steel wire in the head of the fish. The wire is coded with strips of color or magnetic bits of information, which the fish carries with him.

Electronic equipment installed in fish processing houses separates tagged from untagged fish and the wires are extracted for scientific study. The process was originally developed to learn why the stock of Columbia River salmon was diminishing.

Nose Ball for Space Vehicle

Instead of a pointed nose cone on the front end of a spacecraft, John P. Le Bel of Los Angeles, Calif., believes a water-cooled ball will best reduce excessive heat. Patent 3,128,964 was awarded to Mr. Le Bel for

his design that could be used in unmanned missiles and manned spacecraft.

Planes and other craft traveling faster than sound encounter extremely high temperatures, often exceeding 5,000 degrees Fahrenheit. Mr. Le Bel's nose ball causes heat striking the nose to evaporate.

The ball is magnetically held in place in a nose cavity and rotated by an internal motor or magnets. As it rotates, it is cooled by water coming from inside the cavity.

Automatic Marine Beacon

An automatic marine beacon attached to a sinking ship or plane begins to send out signals as soon as it is submerged. James R. R. Harter of Washington, D. C., received patent 3,129,403 for his device.

As water soluble seals on the beacon dissolve, an internal cavity fills with water and a voltaic battery begins to generate a current. The electric energy generated decomposes the water into oxygen and hydrogen gas and ignites the gas by a spark when it reaches a predetermined volume.

After exploding, the cavity again fills with water and the cycle continues, transmitting the vessel's location by the continuing explosion.

Other Significant Patents

Other patents included:
A device for braking either rear wheel of a vehicle when taking a curve—patent 3,129,035 to Giuseppe Alfieri, Milan, Italy; assigned to Fabbrica Italiana Magneti Marelli, S.P.A., also of Milan.

An illuminating grease gun that helps mechanics see the area of the car they are working on—patent 3,128,952 to Leslie C. Bloom, Libby, Mont.; assigned to Lubrilite Corporation, also of Libby.

An irrigation signal device for controlling the flow of water through crops—patent 3,129,413 to Jere H. Watson, Inglewood, Calif.

• Science News Letter, 85:286 May 2, 1964

Do You Know?

Approximately 200,000 miles of petroleum pipelines crisscross the U.S. today.

Florida's Key deer are the smallest of all North American deer.

A rocket plane is being designed that is expected to be able to streak 100,000 feet above the earth at more than one and a half miles a second.

Punched cards were first used in the 1890 census.

• Science News Letter, 85:286 May 2, 1964