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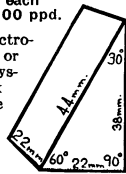
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INVENTION

Patents of the Week

A hand-held "divining rod" for fishermen in the shape of an underwater flashlight emits a beam of sound instead of light, identifying swimming fish—By Elizabeth Hall

➤ A TINY UNDERWATER "flashlight" not only pinpoints swimming fish for sportsmen, but also tells what kind of fish are there and how big they are.

It sends out a beam of sound instead of light.

If the beam picks up a moving fish, the sound is reflected back to the device and transmitted to the sportsman by earphones, similar to the way in which a stethoscope transmits a patient's heartbeat to a doctor.

The U.S. Patent Office issued patent 3,123,798 for the instrument, which, its inventors claim, can pinpoint a fish eight inches long swimming at a high rate of speed 500 feet away.

The tone and intensity of the response enable the operator to judge the speed, distance and size of the moving fish, say Rollind O. Holloway and John R. Holloway, both of Hollywood, Fla.

After a person has used the device for a while, he can tell exactly what kind of fish he is tracking because each fish makes certain characteristic sounds.

The frequency of the sound changes from a low rumble to a high whine as the fish swims faster and faster, while the volume diminishes as the fish swims away. Unlike other sonic locating systems which pick up all of the reflected pulse echoes, the fisherman receives a signal only when the hand-held device picks up a swimming fish.

Some of these devices are available for sportsmen at present, and the patent has been licensed for mass commercial production in the near future.

Nuclear Reactor

Nobelist Glenn T. Seaborg, chairman of the U.S. Atomic Energy Commission, has been granted a patent for the production of nuclear power from uranium-233, a man-made fissionable material.

After being kept secret for more than 20 years, the reactor received patent 3,123,535. Drs. John W. Gofman of the University of California Radiation Laboratory, Berkeley, and Raymond W. Stoughton of Oak Ridge National Laboratory, Tenn., also earned the patent, believed to be for the first nuclear reactor ever designed to use U-233.

In the reactor, a self-sustaining slow neutron chain reaction is achieved. The heat energy produced by the chain reaction is then used to convert water to high pressure steam for driving a steam engine or turbine. Radioactive fission by-products are also extracted for use as chemical and biological tracers, for example.

Using Satellites for Measurement

A complex, mathematical technique by which radio signals are bounced from orbit-

ing satellites to make physical measurements of part of the ionosphere, the earth's radio reflecting roof, earned a patent.

Irvin H. Gerks of Cedar Rapids, Iowa, was awarded patent 3,123,772 for his system of instrumentation that will enable scientists to determine the destiny of electrons in the ionosphere by measuring its refractive index. Using earth-based instruments to measure the ionosphere's refractive index is somewhat like determining the location of a pencil when it is partially immersed in a glass of water.

Mr. Gerks' system, which was assigned to Collins Radio Company, also of Cedar Rapids, enables physicists to make more accurate measurements when the satellite is at the point of closest approach to earth.

Other Significant Patents

Other patents include:

A hen harness that fits under the tail of the chicken and records the number of eggs as they are laid—patent 3,123,044 to Hans E. Birch-Jensen, Billeberga, Sweden.

A flying-saucer-like aircraft that takes off and lands vertically powered by ramjet engines—patent 3,123,320 to Eldon E. Slaughter, Kansas City, Mo.

A rotating drum that separates letters and other postal mail according to size—patent 3,123,216 to Eric George Hills, London, England, assigned to Her Majesty's Postmaster General, also of London.

A dog leash that automatically adjusts tension and rewinds as the pet returns toward the stake—patent 3,123,052 to Harold E. Marshall, Kimball, Neb.

A disposable diaper insert that protects the infant's bedclothing and can be flushed down the toilet after use—patent 3,123,075 to Paul Stamberger, Baltimore, Md.

• Science News Letter, 85:190 March 21, 1964

Do You Know?

Most of the gold in California within easy reach along rivers and streams is new gold washed down from the hills during the winter or gold lost from earlier mining operations.

It has been suggested that primitive man painted pictures of animals in a frantic attempt to bring back by magic the large beasts that had been slaughtered in great numbers at the end of the Ice Age.

An electronic memory so fast that it operates in 100 nanoseconds, the time in which light travels 100 feet, has been developed.

• Science News Letter, 85:190 March 21, 1964