INVENTION

Patents of the Week

Two devices that were kept under security wraps for 18 years and a new way of checking what is wrong with the heart were among patents granted.

➤ TWO PATENTS that have been kept under security wraps for 18 years have been granted by the U.S. Patent Office.

One is for a method of igniting an explosive by fusing a wire made of platinum, tungsten or nickel-chromium. Lawrence H. Johnston, then of Los Angeles, Calif., assigned rights to patent 3,040,660, which he applied for in 1944, to the Government through the Atomic Energy Commission.

A high-voltage source of electricity, such as a condenser with a capacity of two microfarads charged to 1,500 volts, can be discharged through the wires to detonate the high explosive within a microsecond. Pentaerythritol tetranitrate, or PETN, makes a suitable explosive charge, several of which can be set off at the same time.

There is some speculation that this method of exploding wires is useful in detonating nuclear devices including the atomic bombs, and may have been the one used for the device called "Big Boy."

The other 18-year-old application won patent 3,040,661 for Daniel W. Ross of Silver Spring, Md., who assigned rights to the Government through the Secretary of the Navy. It is for an improved fuse for the nose cone of missiles, to detect objects by the light they admit to a photoelectric cell.

Security Tampering Check

To show whether the file drawers in which such information and other secret data are kept have been tampered with, Richard W. Armstrong of Rockville, Md., devised the method granted patent 3,041,124. It consists of a canopy covering the open portion of a filing drawer that pulls out with the drawer to show physical damage from a burglar's attempt, but that rolls back into the cabinet after the drawer is fully open.

Heart Testing Method

A new way of checking on what is wrong with a heart as well as the heart's reaction to drugs, by measuring tiny vibrations in the lungs, received patent 3,040,736. The method was devised by Dr. Dennis E. Jackson, a physician who has a Ph.D. in physiology, now retired from the University of Cincinnati and living in Cincinnati.

Dr. Jackson told SCIENCE SERVICE by telephone that he had spent many years perfecting the machine, which can also be used to detect diseases of the lungs. Heart and general circulatory diseases, he said, are main causes of death.

His method can be used to follow the day-to-day changes as a patient reacts, or does not react, to treatment. It gives permanent graphic records of the heart's action and the blood's circulation in the lungs and chest, by picking up the small and rapid vibrations caused in air or other gases in the chest.

Other Inventions of Interest

Other significant patents include:

An improvement on the tunnel diode for a frequency conversion circuit. Patent 3,041,452, to William J. Roberston and John R. Copeland of Columbus, Ohio, who assigned rights to the Ohio State University Research Foundation.

A method for making a solar cell panel of large area. Patent 3,040,416 to Sheldon L. Matlow of Chicago and Eugene L. Ralph of Skokie, Ill., who assigned rights to Hoffman Electronics Corporation.

A device for driving a motion picture camera in space-traveling missiles or vehicles, using the gases propelling the vehicle. Patent 3,040,618 to William G. Hokett of Phoenix, Ariz.

A process for producing sparkling apple cider by fermenting the varieties of apples usually used in North America for desserts. Canadian inventors Francis E. Atkinson, West Summerland, and John F. Bowen, Penticton, British Columbia, assigned rights to Canadian Patents and Development Ltd., Ottawa, Ontario.

The use of Teflon, or polytetrafluoroethylene, for the part of bullets normally touching the gun barrel rifling, in order to increase the firing life. William A. Zisman of Silver Spring, Md., and Vincent G. Fitz Simmons of McLean, Va., assigned patent 3,040,662 to the Government through the U.S. Navy.

A bird feeder for parakeets in which the seed thrown out of the main feeder is collected in auxiliary trays. Patent 3,040,706 to William E. O'Dell of Kansas City, Mo.

• Science News Letter, 82:30 July 14, 1962

MEDICINE

Heart Surgeons Use New Study Technique

➤ AN IMPROVED heart study technique reported in the Journal of the American Medical Association, 180:1095, 1962, by two Minneapolis heart surgeons uses catheters in the leg arteries and a nearby vein.

Drs. Aydin M. Bilgutay and C. Walton Lillehei reported successful work with five heart patients following tests with dogs.

Acetylcholine, a drug previously used to stop the heart in open heart operations, was first injected and then radiopaque dye is used so pictures can be made to outline procedures. A pacemaker shocks the heart into action again.

• Science News Letter, 82:30 July 14, 1962