

Current Patents

ATOMIC ENERGY

Gas-Cooled Reactor Patented

Progress in nuclear power reactors was highlighted last week by a patent for a new type of reactor issued to Arthur M. Harris and assigned to General Atomic, a subsidiary of General Dynamics Corp.

The new patent covers a design for a large gas-cooled reactor which was carried out for the Empire State Atomic Development Associates, a New York utility group. The design solves several of the problems involved in expanding the size of reactors to commercially desirable output levels.

General Atomic has pioneered the development of high-temperature gas-cooled reactors, which have several advantages over the more conventional boiling-water and pressurized water reactors. The major gain is in more efficient use of the heat produced by the nuclear fission. Since the gas coolant can be heated to much higher temperatures than the water coolants of the conventional reactors, it can more efficiently produce steam to drive the electric turbines.

A small gas-cooled plant at Peachbottom, Pa., producing 40 megawatts of electric power, has operated for several years, but designers had some difficulty in increasing the size of the steel pressure vessel containing the reactor because of construction expense.

In order to cram the largest possible amount of reactor material into the smallest space, the new design, planned to produce about 250,000 megawatts of electricity, included a spherical steel pressure vessel. This created the additional problem of access to replace exhausted fuel elements within the spherical vessel, which the design—patent 3,293,136—also covers.

Further solution to the problem of pressure vessel size, currently being studied by General Atomic, would be to use pre-stressed concrete, which is cheaper than steel. Several European countries have had considerable experience using concrete in gas-cooled reactors.

ELECTRONICS

Lasers Granted Patents

Two patents for techniques that improve the efficiency of lasers have been assigned to Technical Operations, Incorporated, Burlington, Mass. One of the patents, 3,289,101 covers a system for linking lasers together in an optical antenna array that could be used in long-distance communications, a method now under study by the company.

The second patent, 3,289,099, is for a passive laser Q switch, a device that holds back coherent light emission until a ruby laser stores enough energy to generate a burst of power in the multimewatt range.

New Ideas and Gadgets

Ask for Gadget Bulletin 1385 for source information. Send Self-addressed stamped envelope to SCIENCE NEWS, 1719 N St., N.W., Washington, D. C. 20036.

Micro Slide File Box

Useful for cataloging and storing microscope slides, the box has a metal identification card holder on the front. The unit is 9½ by 6 by 3¼ inches in size and will handle 480 1-by-3-inch or 240 2-by-3-inch microscope slides. A lid chart and compartmentation help keep the slides in order and easy to select.

Lint-Free Swabs

Suitable for clean room applications, electronic assembly lines and hospitals are swabs made of urethane foam that will not fragment, chip, crack or peel. Totally lint-free and resistant to chemicals, they soak up and hold solutions and medications being used. They can be safely sterilized in water or steam up to 250 degrees F.

Snowmobile Trailer

A trailer that can be equipped with removable ski-type runners that fit over the tires, can provide winter fun for five or more persons (load capacity 800 pounds). The aluminum trailer, 33 inches wide and 8 feet long, is also suitable for hauling game and pack equipment. The runners must be purchased separately.

Rat Repeller

Ultrasonic waves audible only to rats and other rodents are emitted by a small pneumatic generator for repelling rats. The instrument, useful in food plants,

bakeries, flour mills, restaurants or storage buildings, discourages rats from entering the area in which the device is in operation and is 80 percent to 100 percent effective. The portable unit weighing only 12 pounds operates on 115-volt AC.

New Battery Cable

Longer life to batteries is the aim of a corrosion resistant battery cable assembly. Its terminals are equipped with high-density polyethylene cups that fit over the battery post and provide an oil seal, thus preventing acid from escaping the cells to cause corrosion. Color-coded nylon knobs securely hold the cable connectors.

Telephone Dial Plate

Extra-large clear numbers are used on a telephone dial that will be helpful to the elderly and others with defective vision. Made of high-impact durable white plastic, the dial fits into the depressed area around the regular dial with its self-stick backing.

Woodworking Tool

Even inexperienced hobbyists can shape a molded edge and inlay and decorate furniture, cabinets or bookcases using the compact high-speed electric router weighing just over three pounds. Guided by both hands, it is safe and easy to handle. It can be set to cut up to one inch deep. Accessories are available for use with aluminum, plastics and laminates.