

INVENTION

Patents of the Week

Two civil defense system devices were patented for use by the Government. One could be used to start the alert signal and the other a receiver to pick up the warning signal.

► TWO DEVICES for use in the nation's civil defense system to alert all homes and business offices in case of an enemy attack were patented at the U.S. Patent Office.

One is the system that could be used to send the alerting signal over electrical power lines, the other is for the receiver that picks up the warning signal and emits a raucous, irritating buzz. The system is called "NEAR," for National Emergency Alarm Repeater. The receiver is expected to be a foolproof device costing between \$2 and \$12.

The Department of Defense has awarded a contract of more than a million dollars to the Midwest Research Institute, Kansas City, Mo., to build a model of the alerting system. Location of the test area is still to be announced.

Both of the devices are designed to be used with existing power nets of utility companies throughout the nation.

Frank H. Inderwiesen, Prairie Village, Kans., was awarded patent No. 3,035,251 for the "electrical intelligence receiver and signal emitter." He assigned rights to the Government through the Office of Civil Defense, now part of the Department of Defense.

The receiver is built to detect a change in the frequency of the normal electrical power supply in event of an emergency. When such a change is detected, the receiver emits a second signal, which is loud, distinctive and penetrating. The unit operates upon the reception of a 240-cycle signal at a voltage of appreciably less than one volt. Power for the warning signal is obtained from the usual 60-cycle electrical power supply.

A system to send the warning electrical signal over electrical power lines by a change in frequency was patented by Arthur Laudel Jr., Leawood, Kans., who assigned the patent No. 3,035,181 to the Government. Line voltage can ordinarily be maintained at 99% of its normal value when alert signals are being sent, tests have shown.

The signals are generated by using part of alternating current voltage of the power line and converting this into higher harmonics, which modify the existing power current to a slight degree. The change can be detected by a receiver such as patented by Mr. Inderwiesen.

Strong Glass Sheet

Dr. Vannevar Bush, former president of the Carnegie Institution of Washington and leader in the Government's science program during World War II, received a patent for his process of forming a glass sheet having very high strength from fragments of bro-

ken glass joined by a plastic. It won patent No. 3,034,945, rights being assigned to the Carnegie Institution.

Dr. Bush told SCIENCE SERVICE that his method was now under investigation by the U.S. Army Ordnance Corps. The new product is made by blowing glass until it is extremely thin, then shattering it. The fragments are collected in layers of the needed depth on a flat surface, and a plastic poured over them to hold them together.

The result is a sheet of "exceedingly strong" structure.

Other Patents of Interest

Among other patents of interest are the following:

A method for making fibers and fabrics retard effectively the growth of microorganisms. James L. Smith and Robert C. Harrington Jr., Kingsport, Tenn., assigned rights to patent No. 3,034,957 to Eastman Kodak Company, Rochester, N. Y. One of the chemicals they use to treat fabrics for microbicidal activity is 3, 4, 4'-trichlorocarbaniide in relatively low concentrations. This should make it possible to mildew-proof garments.

A revised system of digits, especially useful for dials in submarines, for which Paul C. Squires, New London, Conn., was awarded patent No. 3,034,806. He assigned rights to the Government through the U.S. Navy.

• Science News Letter, 81:351 June 2, 1962

MINERALOGY

Atoms Seen by World's Strongest Microscope

See Front Cover

► ATOMS OF MINERAL CRYSTALS are easily seen by a new, super-powered microscope produced commercially for the first time. This field ion microscope has a magnification up to 2,000,000 times that which can normally be seen. (See SNL, 73,131, Mar. 1, 1958.)

A nearly perfect tungsten crystal magnified in a photomicrograph 2,700,000 times is seen on this week's cover. This is an enlargement of original magnification of 1,300,000 times.

Developed by Dr. E. W. Mueller of Pennsylvania State University, the instrument is expected to open new vistas in basic science research. It is under production by Cenco Instruments Corporation.

The new microscope will allow scientists to study the crystal planes in metal by observing their atomic structure. This has never been possible with other microscopes before, the company explained.

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