INVENTION

Patents of the Week

The inventor of the Dymaxion house, the geodesic dome and the DEW line radomes has earned a patent for a dome built on the principle of catenary suspension.

➤ A SUSPENDED DOME built in Japan has earned a patent from the U. S. Patent Office.

R. Buckminster Fuller of Carbondale, Ill., earned patent 3,139,957 for his suspension building. He is the inventor of the durable radar structures, called radomes, that stand alert for an enemy attack along the DEW, or distant early warning, line.

He also invented the Dymaxion house, the Dymaxion world map and the geodesic dome, of which there are more than a thousand in use in 21 countries.

Although only one dome of the type just patented has been built, many structures of an improved type now in the process of being patented are planned.

One of Mr. Fuller's spectacular proposals is to build a dome two miles in diameter to enclose a large part of central New York City.

Within the dome, a totally controlled, naturally air-conditioned environment could be maintained, immune from the changing weather.

Mr. Fuller states in his new invention that he has found a way to build domes and other structures using the principle of catenary suspension. A catenary is the curve in which a cable hangs when freely suspended from two points. It is widely used for suspension bridges.

Suspension cables are broken up into small parts, each one hooked to a slightly higher frame, thus replacing the catenary sag of the bridge cables with a rising, arched suspension system.

The new patent is the 15th Mr. Fuller has earned in the United States. His inventions have been patented in 54 countries.

Air Cushion Vehicle

Two patents, 3,139,947 and 3,140,687, cover an improved air cushion vehicle that has flexible sides and a flexible underside.

The flexibility allows the vehicle to travel over rough ground or water much closer to the surface than is possible when the underside is rigid. Less power is required to maintain a given speed.

Melville W. Beardsley of Severna Park, Md., has assigned rights to both patents to National Research Associates, Inc., Laurel, Md.

Method of Making Transistor

Dr. William Shockley, one of the scientists who developed the transistor and co-winner of the 1956 Nobel Prize in Physics, earned a patent, with Robert N. Noyce, for one method of making a transistor. The two scientists, from Los Altos, Calif., assigned rights to patent 3,140,206 to Clevite Corporation, Cleveland.

The transistor is a tiny device that has replaced the vacuum tube in radios, computers and hearing aids, among other equipment.

The just-patented method consists of a way to make a transistor having a unipolar field effect that can be operated at high frequencies.

Joining Metals by Explosives

A process for bonding metals by using explosives, especially for coating a metal surface with one or more layers of another metal to gain corrosion resistance, was granted patent 3,137,937.

E. I. Du Pont de Nemours and Company, Wilmington, Del., were assigned rights to the patent awarded to George R. Cowan and Arnold H. Holtzman of Woodbury, N. J., and John J. Douglass of Glassboro, N. J., for the process.

The development consists of placing a layer of explosive on top of a layer of each of the metals to be joined, then detonating the explosive, which welds them together.

Other Interesting Patents

A method for determining the direction and velocity of nuclear particles using Cerenkov radiation and an image intensifier. Dr. Arthur Roberts of Chicago, Ill., assigned rights to patent 3,140,394 to the Government through the Atomic Energy Commission.

An apparatus in which single crystals can be grown with any desired axial orientation and external shape. Theodore H. Orem was granted patent 3,139,653 for his invention and assigned rights to the Government through the Secretary of Commerce.

A space suit, to be worn on the moon, that includes a mechanical pressure suit combined with a pressurized protective shell. Otto Schueller of Dayton, Ohio, assigned rights to patent 3,139,622 to the Government through the Secretary of the Air Force.

A free-air thermometer for use on airplanes that operates even in icing conditions. Paul Rosenthal of Tonawanda, N. Y., and John W. Kurzrock of Cheektowaga, N. Y., assigned rights to patent 3,139,751 to the Government through the Secretary of the Navy.

Three versions of a fuel cell. William E. Tragert of Scotia, N. Y., assigned rights to patents 3,138,487, 3,138,488 and 3,138,490 to General Electric Company.

• Science News Letter, 86:61 July 25, 1964

Blending cereal pulp with wood *pulp* improves paper quality.

TECHNOLOGY

Computer Teaches Correct Foreign Accents

➤ ELECTRONIC COMPUTERS are helping in language instruction by teaching the proper foreign accent.

SAID, short for Speech Auto-Instructional Device, compares a student's reading of a foreign phrase with a recording of the same phrase spoken by the instructor.

The computer compares the pitch, loudness and rhythm of the two versions, giving the student a "grade" by indicating points on a dial. If the students receives a "failing" grade, the machine repeats the phrase until he gets it right.

These "prosodic" features of speech are necessary for fluency in a language, but are often ignored in a classroom. They are being investigated by Associate Prof. Harlan L. Lane and Roger L. Buiten of the University of Michigan Behavior Analysis Laboratory, Ann Arbor, under a U. S. Office of Education research grant.

• Science News Letter, 86:61 July 25, 1964