

Current U.S. Patents

Weed killers capable of killing undesirable vegetation growing along highways and railroad tracks, leaving only bare ground, have been granted patents.

➤ SEVEN patents covering new chemicals to be used as weed killers when bare ground is the desired result were awarded by the U.S. Patent Office.

Two of the herbicides are commercially available, although only the one known as Hyvar X Bromacil can be bought in this country. The other five are still in the developing stage.

The seven classes of compounds for controlling undesirable vegetation, such as that along highways or railroad tracks, resulted from research by scientists at E. I. du Pont de Nemours and Company.

The patents, numbered from 3,235,357 through 3,235,363, were awarded variously to Dr. Harvard M. Loux, Edward J. Soboczenki, Donald S. Acker, Linus M. Ellis and Raymond W. Luckenbaugh, all of whom assigned rights to Du Pont.

Increasing Electroluminescence

A method of more than doubling the light from luminescent materials, such as those used in television tubes and watch dials, when an alternating electric current passes through them was granted patent 3,235,850.

Drs. Hartmut P. Kallmann and Eric Weissman of New York City, with Dr. Bernard Kramer of Bergenfield, N.J., assigned patent rights to New York University. Dr. Kallmann told SCIENCE SERVICE that the Rand Corporation is developing the patent idea, which is based on what scientists call "persistent internal polarization," or PIP.

Other Interesting Patents

A kind of "wave meter" that could substitute under certain conditions for a cathode-ray tube such as used in television sets earned patent 3,235,799 for Hyman Hurvitz. He calls his device an "electroluminescent frequency sensitive visual indicator." Among other things it could be used to tell what radio stations are on the air.

A method of taking X-ray pictures in color and the light-sensitive material with which to do it were granted patent 3,235,728. Heinz Berger and Raimo Gareis of Leverkusen, Germany, assigned patent rights to Agfa Aktiengesellschaft, also of Leverkusen. Their method involves using two silver halide emulsion layers containing chemicals that, when developed, yield the desired colors.

To make radar domes for airplanes that have the same properties no matter in which direction the radar waves are transmitted, three Lockheed scientists devised an electrically homogeneous radome. It can be made to have the desired transmitting properties over a wide range of tempera-

tures. Melvin F. George Jr. and Edward H. Burkart of North Hollywood, Calif., and Eli Simon of Los Angeles assigned rights to patent 3,235,441 to Lockheed Aircraft Corporation, Burbank, Calif.

For a storage tank that will dispense propellants under the zero-gravity conditions of space, two California scientists were granted patent 3,234,728. William D. Christian of Costa Mesa and Glenn D. Nosheim of Balboa Island, assigned rights to Douglas Aircraft Company, Inc., Santa Monica, Calif.

• Science News Letter, 89:155 March 5, 1966

CHEMISTRY

New Chemical Separation Principle Developed

➤ A RADICALLY DIFFERENT chemical engineering principle for separating fluid mixtures has been developed and tested successfully in the laboratory.

Prof. R. H. Wilhelm, head of Princeton's chemical engineering department, is developer of the technique, called chemical parametric pumping. Research on his principle is underway to determine how it compares economically with such conventional separation processes as distillation and solvent extraction.

It has long been known that the capacity of solids to adsorb material from a solution varies with temperature. Chemical parametric pumping capitalizes on this fact. It operates by causing a continuously oscillating change in the temperature of adsorbent particles.

These temperature changes cause material to be withdrawn or ejected into the solution stream that shuttles back and forth between the particles. A strategic timing among these steps causes material to build up in concentration more in one place than in another, indicating that separation has taken place.

For example, to separate salt from ocean water, a correct time sequence between the oscillating fluid and temperature change is established as the fluid flows through an absorbent resin bed.

Two major advantages of a chemical parametric pump are that it is self regenerating and that separation can be effected in the continuous manner.


Prof. Wilhelm's work is potentially important not only to chemical engineering separations in industry and petrochemical applications, but also his research implications for basic research in biology. Current research suggests that chemical parametric pumping exhibits some of the characteristics of active diffusion in biological cells.

The study was conducted under a grant from the National Science Foundation.

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