

## INVENTION

# Patents of the Week

**A method that automatically computes the exact moment when a bomb should be released from a plane has been devised and rights assigned to the Government—By Ann Ewing**

➤ A SYSTEM for automatically computing the exact moment at which a pilot coming in on his target low and fast should release his bomb was awarded a patent by the U.S. Patent Office.

The system is for use by the pilot on a loft-bombing mission in which the bomb is tossed from the plane toward its target as the plane is pulling into a curve that will reverse its direction.

Loft-bombing is a technique developed for the military especially for use with atomic bombs. Using it, the pilot can toss his bomb so it lands on or near its target, but he can still be far away from the area in which blast effects are felt. An approach at tree-top level is used to avoid detection by enemy radar.

In the loft-bombing system devised by Pliny G. Holt of Philadelphia and Louis S. Guarino of Hatboro, Pa., the point at which the plane's pull-away curve should start is computed automatically from the flight conditions at the time. In previous systems, that point was preset by computations made before departure.

The inventors assigned rights to patent 3,136,595 to the Government through the Secretary of the Navy.

## Method for Cooling Reactors

A method for cooling atomic reactors earned patent 3,136,699 after being kept secret for 18 years. The inventor, Dr. Walter H. Zinn, Windsor, Conn., was formerly

director of Argonne National Laboratory in Illinois. He is now president of General Nuclear Engineering Corporation, an affiliate of Combustion Engineering.

Dr. Zinn assigned patent rights to the Government through the U.S. Atomic Energy Commission. His method provides for cooling the fissionable material on which the reactor operates by continuously circulating canned containers of the material through water on the outside of the reactor.

## Apparatus for Tire Chains

Although the season for driving with chains is several months in the future, Theodore R. Smith-Miller of Mount Kisco, N. Y., was awarded patent 3,136,188 for his apparatus for applying traction chains.

Mr. Smith-Miller told SCIENCE SERVICE by telephone that he had pending another patent on an improved version of this apparatus. He is now negotiating with a manufacturer for production of the device, which consists of three basic units—a chain carrier, a tire clamp and a support.

## Recovering Phosphorus

A method of recovering phosphorus from what would otherwise be waste material earned patent 3,136,604 for James C. Barber, George H. Megar and Thomas S. Sloan of Florence, Ala. They assigned patent rights to the Tennessee Valley Authority.

According to their patent, phosphorus can be removed from the sludge if a small amount of a dispersing agent, such as ammonium lignosulfonate, is added to the sludge, and the mixture then agitated for several days.

The sludge is the material left when phosphorus is produced by smelting phosphate rock. It contains not only phosphorus but such impurities as rock, sand and fluorine compounds.

## Inflatable Tank Hatch Cover

A collapsible, enclosed shelter can be inflated by the driver of a military tank over the hatch opening to protect him from the weather. The rubberized cloth shelter, complete with glass fiber windshield and metal windshield wiper, would allow the driver to ride in an elevated position with the hatch cover open in bad weather.

The shelter has a "collar" that fits under the rim of the hatch opening. Inflatable tubes in the shelter's sides keep it upright.

Herbert Q. Blair, Tallmadge, Ohio, an engineer with the B. F. Goodrich Company, Akron, was awarded patent 3,131,598 for his invention. The shelter has not yet been licensed to the Government.

## Other Significant Patents

A gun mount with a shield, kept secret for 12 years. Rights to three patents—3,136,212, 3,136,213, 3,136,214—were assigned to the Government through the U.S. Navy by the inventors, Philius H. Girouard of Washington, D. C., the late Carl V. Hickman of Kensington, Md., Thomas C. Collier of Portsmouth, N. H., and Garold A. Kane, John I. Nelson, Milton C. Neuman and Harrison Randolph of Minneapolis.

A process and apparatus for separating individual metals from a mixture or alloy of them, for which Herbert S. Caldwell Jr. of Hyattsville, Md., and Max J. Spendlove of Takoma Park, Md., were awarded patent 3,136,627. Rights were assigned to the Government through the Secretary of the Interior.

• Science News Letter, 85:410 June 27, 1964

## TECHNOLOGY

### Instant Housing Where You Want It

➤ "INSTANT HOUSING—just heat and inhabit" may be the instructions on a new plastic "sandwich" that expands to form walls or even entire buildings.

When the outside layers of the sandwich are heated, the plastic core bubbles up, forming foam-filled walls more than three inches thick. Developed by the Ontario Research Foundation, Toronto, the substance will enable persons working in remote locations to carry rigid-walled shelters on their backs. It also provides good insulation from cold.

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## Nature Note

### Tree Frogs

➤ NOW THAT the Northern Hemisphere is filled with warm days and nights, and many plants and animals are busy with their summer activities, a peeping, quacking and croaking of hundreds of frogs can be heard around ponds and streams.

Among them are the fascinating *Hyla cinerea*, the American green tree frog. They usually are about two inches long—large as tree frogs go; bright green, and equipped with suction cups on the ends of each toe.

These suction cups make them the acrobats of the pond. They can hang by one toe from a twig or squeeze themselves into a crack between leaves or beneath bark where no hungry enemy can follow. This is one reason why they have been so successful in the struggle for survival.

There are nearly 500 kinds of tree frogs. Some occur on every continent from sea level to about 15,000 feet. Most eat insects.

Their bright colors and suction cup feet make them delightful pets. They need a steady supply of live insects and a dish of water where they can bathe. They will die very quickly if their skins dry out. At the end of summer, they should be released near a pond where they can hibernate for winter at temperatures they are used to.

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