

INVENTION

Patents of the Week

Chemical coatings, that make clothing resistant to nerve gases developed by a team of scientists and a method for applying them, were granted patents.

► **CHEMICAL COATINGS** that make clothing resistant to nerve gases for at least 20 minutes and up to several hours were granted two patents.

The method for applying them can be used either in industrial production or in the battle field. The coatings give a person wearing the treated clothing time to find shelter and remove the hazardous liquid before it penetrates and touches the skin.

Nerve gases put in the air or water supply could completely change the normal behavior of people and allow an invading force to walk in and take over a country. Nerve gases are usually not gases at all but liquids in a vapor form. Their discovery resulted from the study of insecticides, to which many of them are related.

They are often called G-agents because the original compounds came from Germany. Nerve gases act on nerve endings, disrupting the nervous system and blocking messages from the brain to the muscles.

Different types of nerve gases can produce different effects, some being so lethal that death occurs almost instantaneously. Others can be tailor-made so people can be easily led.

Under the leadership of Dr. Leon Segal of the U. S. Department of Agriculture's Southern Regional Research Laboratory, New Orleans, La., a team of scientists developed the coatings that prevent such chemical warfare liquids from penetrating cloth. The scientists were awarded patents 3,054,695 and 3,054,696, rights to which were assigned to the Government through the Secretary of the Army.

The team also included Leopold Loeb of Louisville, Robert L. Clayton Jr., Frederick J. Phillips and Dr. Kuzuo H. Takemura of New Orleans, and Stanley P. Kolturn of Metairie, La.

The coatings are made of such polymers as the esters of methyl or ethyl acrylic acid, polyvinyl acetate and polyacrylonitrile. They can be formed on the fiber surfaces in a basically simple process requiring only two steps.

Underwater Mine Disposal

Harold J. Plumley, then of Washington, D. C., waited slightly more than 18 years to win patent 3,054,349 for his method of disposing of underwater mines, rights to which he assigned to the Government through the Secretary of the Navy.

The device he invented is used to make the mine safe without setting off any mechanical, magnetic or acoustic disturbances that would explode the mine. It is composed entirely of non-magnetic materials.

The compound used to destroy the explosive in the mine is Thermit, which is

fine-grained metallic aluminum mixed with an oxide such as iron. The Thermit sets off a slow, non-destructive reaction of the mine's explosive, the end product being a porous ash.

Meteor Trails for Communications

A method of radio communication using the trail of ionized air left by "shooting stars" as they burn up in the earth's atmosphere was granted patent 3,054,895. Peter Allan Forsyth of Ottawa, Canada, assigned rights to "Her Majesty the Queen" (Elizabeth) through the Canadian Minister of National Defence.

Mr. Forsyth found that sufficient meteors, most of which are not visible to the naked eye, hit the earth's atmosphere to allow reliable communications between two points in the very high frequency radio range.

Other Significant Patents:

An apparatus for timing the period needed to draw and shoot a gun. Patent 3,054,614 to Frank E. Dean of Los Gatos, Calif.

A folding cot for automobiles, two legs of which rest on the back seat, with the other two resting on the back floor. Patent 3,054,121 to Herman T. Bridges Jr. of Abilene, Texas.

A modification of the Tactical Air Navigation, or TACAN, system so that the range and bearing determinations are made at the ground station rather than in the airplane. Patent 3,055,001 to Percy E. Ricketts, Absecon, N. J., who assigned rights to the Government through the Secretary of the Air Force.

A missile-launching system to be used on destroyers or other ships of about the same size. Robert E. Carlberg of McLean, Va., assigned rights to patent 3,054,330 to the Government through the Secretary of the Navy.

• Science News Letter, 82:229 October 6, 1962

SPACE

Russia Launches New Unmanned Satellite

► **THE SOVIET UNION** has launched (Sept. 27) a new unmanned satellite into orbit around the earth within the artificial radiation belt created by the U. S. H-bomb high altitude test last July. The satellite, Cosmos Nine, has a maximum height of 220 miles altitude. The low point of its orbit is 187 miles above earth. The artificial radiation belt begins 200 miles above earth. The new satellite carries instruments to study outer space. The Sputnik is functioning normally, its instruments apparently unaffected by the radiation to which they are exposed.

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