

## INVENTION

# Patents of the Week

An improved rocket motor to help land a man on the moon and a method for making a suit for his use while there were awarded patents.

► A METHOD for making a suit for use on earth, in space, on the moon or on planets was granted patent 3,049,896 by the U.S. Patent Office.

Dr. Paul Webb of Yellow Springs, Ohio, assigned rights to Environment, Inc., also of Yellow Springs. He told SCIENCE SERVICE that such a suit could be used wherever it was necessary to supply a man with his own atmosphere.

On earth, this would include work in areas contaminated by radioactive dust or gases or cleaning the interior of large tanks used to store deadly gases. The same principle could be used for space suits for exploring the moon or planets where the atmosphere would not support earth-type life.

The suit is completely self-contained and allows complete freedom of movement, Dr. Webb said. It has an air-conditioning unit to maintain normal body temperature and water vapor content, and equipment to reprocess exhaled air.

Power and material for the air-conditioning and reprocessing equipment are stored and carried within the suit, thus allowing freedom from connecting hoses or cables. Dr. Webb, who is a physician, suggested that a suitable power source would be a rechargeable silver-zinc battery using an alkaline electrolyte, sometimes known as an Edison battery.

Suits similar to the one described in the patent are now in use at several industrial companies and their use for space and planetary work is under investigation.

## Improved Rocket Design

To help man and his instruments get into space and land on the moon, James F. Connors of North Olmsted, Ohio, assistant to the director of Lewis Research Center, Cleveland, has devised an improved rocket motor. The Lewis Center is a research facility of the National Aeronautics and Space Administration, to which rights to patent 3,049,876 were assigned.

Mr. Connors has developed a method that can be used to put several rockets in a cluster to boost one payload into space, yet avoid the problem of the interaction effects of hot gases, known as base heating, as in the large Saturn that will be powered by eight smaller rockets. His concept provides for feeding the gases from each small rocket into a single nozzle.

This system gives more effective use of rocket power, Mr. Connors told SCIENCE SERVICE, and allows a wide range of altitudes under which high nozzle efficiency can be maintained. The method is being widely explored by the National Aeronautics and Space Administration, the Air Force and industrial companies.

## Other Significant Patents

The following were among significant patents granted:

An "electro-piano" that provides the same damping effect on strings as a normal piano, even though it is without the usual sounding board and bridge. Dr. Hugo Benioff of California Institute of Technology, Pasadena, one of the world's top earthquake experts, assigned rights to patent 3,049,958 to The Baldwin Piano Company, Cincinnati, Ohio.

An improved method of cooling the nose cone and outer surfaces of a missile entering the earth's atmosphere by feeding to the forward surface a material that is vaporized by atmospheric friction and then flows toward the rear. David J. Katsanis of Philadelphia, Pa., awarded rights to patent 3,050,000 to the Government through the Secretary of the Army.

Apparatus for continuously weighing smoked products so the process can be discontinued when the desired weight loss has been achieved. Rights to patent 3,050,144 were assigned to Hagan Chemicals & Controls Inc., Pittsburgh, by Owen Rice of Upper St. Clair Township, Allegheny County, Pa., and Donald M. Stough of Pittsburgh.

A system for controlling the amount of tilt and the altitude of a so-called "ground effects machine," which rides close to the earth's surface on a cushion of air. Almer D. Crim of Falls Church, Va., assigned to the Government through the Secretary of the Navy rights to patent 3,050,146.

Turbine blades for high temperature use made of refractory metals or their alloys, such as tantalum, niobium, tungsten or molybdenum, and operated in a controlled atmosphere so that combustion occurs with an excess of fuel to prevent oxidation. Herbert E. Grenoble of Amsterdam, N. Y., assigned rights to patent 3,049,869 to General Electric Company.

• Science News Letter, 82:165 September 8, 1962

Strawberry fruit rot is not caused by weather, but by a *fungus*.

Canada's first nuclear power station has now reached its full power output of 20,000 kilowatts of electricity.

Metallurgical chromite is the principal ore for the production of *ferrochromium*, which in turn is used as an alloying additive in steel.

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