

# Patents of the Week

An anti-collision system for ships and planes, a sensitive microphone whose working parts look like two mushrooms and a torpedo steering system have been patented.

➤ AN ANTI-COLLISION system for ships and planes has been patented.

Patent No. 3,025,521 was awarded to Dr. Jules H. Sreb of Washington, D. C., and Dr. Howard E. Tatel, now deceased, whose widow lives in Silver Spring, Md. It provides for a method by which a continuous picture is drawn, using radio, of all other ships or planes in the vicinity in all kinds of weather. The picture gives the relative directions and angles of motion of the other objects, thus providing information for avoiding collisions.

Each craft is equipped with a transmitter and receiver for radio waves of a specified frequency for all. The radio beam is sent as coded signals that tell the bearing and heading and contain interrogating signals to be answered by any craft receiving them. For airplanes, signals telling the altitude are also included.

The interrogating signals actuate the indicator in any craft receiving them. The indicator immediately shows bearing and heading, as well as altitude if applicable, of any transmitting craft within its zone. Distance of the craft is found from a delayed radio pulse automatically beamed to the transmitting craft.

Ground reflections are recognized and suppressed by a third reception channel. Rights to the patent were assigned to William L. Abramowitz of Swampscott, Mass., William Epstein and Joseph Zallen of Brookline, Mass., and to Drs. Sreb and Tatel.

## Sensitive Microphone

A sensitive microphone whose working parts look like two tiny mushrooms placed stem end to stem end won patent No. 3,025,359 for Arthur R. Schilling of North Plainfield, N. J., and Herman W. Erichsen of Nixon, N. J. They assigned rights to Gulton Industries, Inc., Metuchen, N. J.

The active element for the microphone is a piezoelectric ceramic. Output of the device is substantially free from any effects due to acceleration. This is accomplished by canceling the acceleration effects by connecting the two mushroom-shaped elements so that their electrical outputs due to acceleration are out of phase.

The instrument is now in quantity production. It has been supplied for Project Mercury and other space flights.

## Torpedo Steering System

Patent No. 3,024,755 was awarded to Harvey Brooks of Cambridge, Mass., for his method of steering a torpedo to its target. Rights were assigned to the U.S.

Government as represented by the Secretary of the Navy.

The homing device detects the presence of other objects by sending out sound waves and picking up any returned signal. The circuits provide guidance only when echoes are received from a moving target, and signals such as those due to reverberation and noise are said not to affect operation of the device.

If the torpedo is launched on an attack path and the signals guiding it cease for any reason, the device automatically starts a systematic search of the area surrounding the space toward which the torpedo is headed.

## Other Patents of Interest

A communications system in which the signals are coded for security reasons won patent No. 3,025,350 for Herbert G. Lindner of Red Bank, N. J., who assigned rights to the U.S. Government.

An improved ion magnetron was awarded patent No. 3,025,429. Inventors James Donald Gow and Robert W. Layman of Berkeley, Calif., assigned rights to the U.S. Government.

A delta-wing heliplane received patent No. 3,025,022. Rights were assigned to The Ryan Aeronautical Co., San Diego, Calif., by Peter F. Girard of La Mesa, Calif.

A process for making iron-epoxy floors for use where wear is heavy won patent No. 3,024,711 for Ralph E. Madison of Detroit, who assigned rights to Devoe & Reynolds Company, Inc.

An optical system in which parallax is eliminated was awarded patent No. 3,024,698. Inventor George William Hamstead of Barnet, England, assigned rights to W. Watson & Sons Limited, also of Barnet.

A miles-per-gallon meter was granted patent No. 3,024,646. Rights were assigned to Perc C. Sorenson and Lee Jewell of Wauwatosa, Wis., by Harry J. Lawrence of Milwaukee.

• Science News Letter, 81:207 March 31, 1962

# Questions

**BIOCHEMISTRY**—What is the name of a blood clotting agent newly found? p. 194.

**GENERAL SCIENCE**—Which are the five areas of Government research most likely to produce future headlines? p. 197.

**OPHTHALMOLOGY**—What are three new discoveries of the eye's structure? p. 195.

**Photographs:** Cover, National Park Service; p. 195, Bell Helicopter Co.; p. 197, U. S. Navy; p. 198, Boeing Company; p. 199, Westinghouse Electric Corporation; p. 202, National Aeronautics and Space Administration; p. 208, Marine Metal Products Co.



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