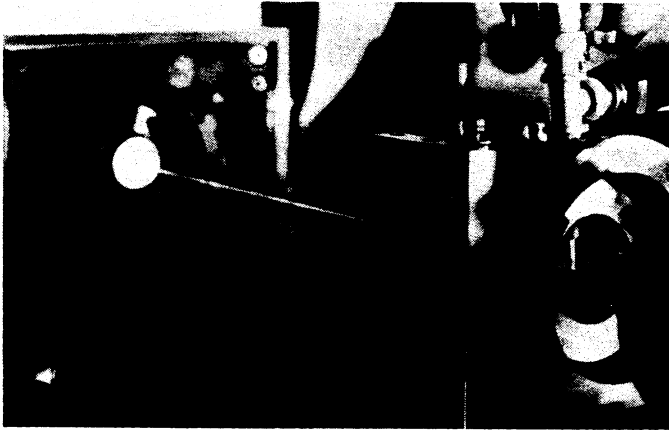


Current Patents

ELECTRONICS



Laser Modulator

A key stage in a laser communications system was patented last week when Bell Telephone Laboratories were assigned patent No. 3,295,911 for a semiconductor light modulator. The inventors of the device were Arthur Ashkin and Murray Gershenzon.

The modulator converts variations in electric signals [as from a microphone] into variations in a laser beam. It depends on the light-transmitting qualities of gallium phosphide, a transparent semiconducting material used in transistors and diodes. Light entering the transparent diode is reflected back and forth within the area of the junction and does not leave it.

If a voltage is applied to the diode, the width of the junction is increased, changing the reflection path of the light passing through it. The voltage also makes the diode pass light at different speeds depending on

the way the light is polarized.

By polarizing an incoming laser beam in two directions, and applying a voltage to the diode, the two polarized beams emerge from the diode at different times. This phase-shift, as it is called, can be increased or decreased by varying the voltage applied to the diode.

The phase shift is then converted to a change in the amplitude of the light beam. In this way small changes in an electrical signal can be converted into large changes in light intensity.

The device is one of several which BTL is developing. Lack of efficient modulators have been obstacles to the development of laser communications systems.

SPACE ENGINEERING

NASA Patents Space Vehicles

A booster rocket which can return to earth after its job is done and a soft-landing vehicle which will not tip over on rough terrain, were among the items patented last week and assigned to the National Aeronautical and Space Administration.

The recoverable booster, invented by Philip Bono of Douglas Aircraft Corp. and assigned to NASA, could be used as part of a post-Saturn rocket program. The rocket, patent No. 3,295,790, is designed with a heat shield and retrorockets so that it can be returned to earth after its payload has been put in orbit and separated.

Patent No. 3,295,798 covers a landing gear which would allow a space vehicle to land on rough terrain without oversetting. The gear, which uses telescoping legs, was invented by R. L. Hopping, W. R. Forlifer, and R. P. Gaston Jr. of Martin Marietta Corp. NASA officials said it would not be used in the Apollo program but was being considered for future use.

New Ideas and Gadgets

New Ideas and Gadgets is an editorial service to readers; more information on items can be secured from the manufacturers.

Biochemistry Kit

Five basic experiments in biochemistry are included in the kit that is designed to introduce fifth to ninth graders to biochemistry. The experiments, which can be repeated 25 to 30 times with the materials in the kit, involve digestion, protoplasm and vitamins. A teacher's manual is included.

Kimtec, Inc., Houston, Texas

Handy Hitches

The soft synthetic rubber hitches are mounted against boat cockpit sides to hold anchors, rope, water skis and other equipment securely and safely out of the way when not in use. They come in several sizes and will withstand 100 pounds of pull. The ties are also convenient for strong materials in the home or trailer.

Peters and Russell, 550 W. Liberty St., Springfield, Ohio

Anti-Laser Shield

Consisting of a removable compound filter plate and a pliable vinyl contoured coverall, and equipped with six light-tight vents, the eye shield fits snugly over the eyes and is held securely in position with a wide elastic

band. It has a plate that reflects 90 percent of the laser energy and an absorptive plate behind it to provide additional safety. Five different filter plates for protection against specific laser wavelengths are available.

Bausch & Lomb, 635 St. Paul St., Rochester, N.Y.

Graphite Tape

Useful for insulating, separating material for hot pressing applications, heating elements and fluid barrier for crucibles, the graphite foil comes in thicknesses of 5 or 10 mils. The flexible tape can be shaped around irregular objects as well as formed into laminates by bonding together in layers.

J. F. Revilock, Carbon Products Division, Union Carbide Corp., 270 Park Ave., New York, N.Y. 10017

Disposable Thermometer Set

Individual thermometer unit for patients includes a rigid plastic receptacle with an adhesive that adheres to any dry surface to hold it secure and upright. Antiseptic or mouthwash changed daily is placed in the holder which has a screw cap with opening for inserting the thermometer. It is especially useful for contagious cases.

Busse Hospital Disposables, Great Neck, N.Y. 11021