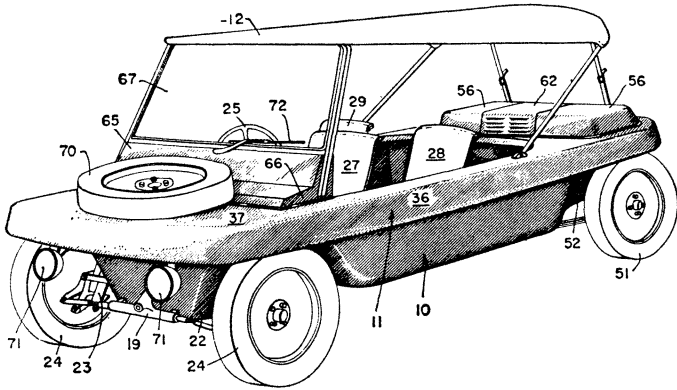


# Current Patents

## TRANSPORTATION

### Cheap, Lightweight Vehicle

A cheap three-or-four passenger vehicle that is road-worthy at highway speeds but can travel off-road as well was patented last week by W. S. Eggert Jr., who assigned rights to the Budd Co.



The rear-engined buggy weighs less than 800 pounds, according to the patent. It can be lifted by four people. It has an air-cooled engine, a watertight body and high ground clearance. Low sides allow passengers to step into the car, which has no doors.

A Budd Co. spokesman said the design was practical for underdeveloped countries as well as for general use here and abroad. The patent is No. 3,323,608.

## LASER COMMUNICATION

### FM to AM Light Converter

A device that converts a frequency-modulated light signal into an amplitude-modulated signal—an essential part of an FM laser communications system—was patented last week.

The converter, invented by Stephen E. Harris, uses a double-refracting crystal of calcite to change from FM to AM. An incoming beam of light that has a varying frequency passes through the crystal and hits a phototube. The amount of light that gets through the crystal—the amplitude—depends on the frequency of the incoming light. This means that variations in frequency are converted to variations in amplitude.

Inventor Harris assigned rights to the patent, No. 3,324,295, to Research Corp. of N.Y.

## INFORMATION DISPLAY

### Thermochromic System

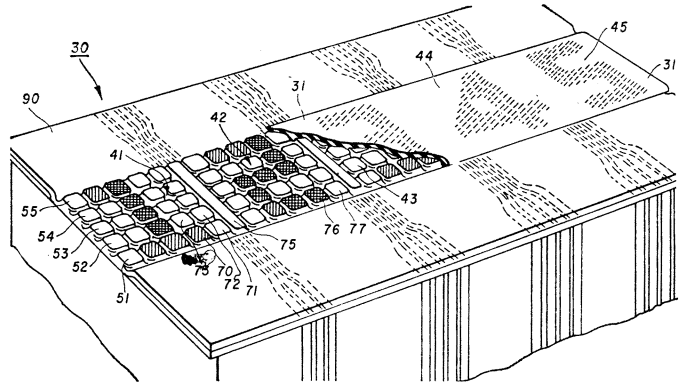
A large number of materials change color when heated. For some, the change is abrupt and startling—at a particular temperature the material changes suddenly to a color that contrasts sharply from its cooler hue.

Using this principle, two engineers at Texas Instruments Inc. have designed a figure display system that

works without switching on lamps in pattern—the method commonly used to display fast-changing information.

The new system has two advantages over the bulb-lighting method. It takes up much less space, and can be read easily when there is a lot of background light.

The new display system, patented last week by John W. Blair and Hilton W. Spence, has a pattern of tiny resistors arranged on a base and covered with a material that changes color when heated, such as copper iodide. When a current is passed through the proper series of resistors, the heat from the resistors warms up the thermochromic substance in the area of the resistor, changing its color.



By mounting the thin-film resistors on a slab of semiconductor material, much of the switching circuitry involved in picking the right resistors can be included right in the display unit, eliminating a lot of wires.

The display unit can fit five figures onto a slab only a half-inch long.

The patent, No. 3,323,241, was assigned to Texas Instruments.

## REFINING

### Residual Oil Made Usable

A method to get the sulfur out of residual oil and reduce the oil's viscosity was patented last week. Inventors Harold Beuther and Bruce K. Schmid assigned the patent to Gulf Research and Development Co.

Residual petroleum is a cheap leftover of many oil fields that is too thick to use as fuel oil, and too sulfur-filled for today's pollution-minded municipal governments.

It is possible to reduce the viscosity some by a mild form of chemical cracking of the oil molecules, called visbreaking. But this seldom makes the oil fluid enough, and actually increases the sulfur content.

It is also possible to remove the sulfur chemically, but this doesn't reduce the viscosity.

The Gulf chemists found, however, that if they first removed the sulfur, the visbreaking process worked much better, producing a usable fuel. They hypothesize that removing the sulfur atom made the oil molecule much easier to crack.

The patent is No. 3,324,028.