

# Current Patents

## PATIENT CARE

### Mattress Warns of Emergencies

A hospital mattress that will trigger a remote alarm if the person on it stops breathing, lapses into coma or falls out of bed has been granted patent No. 3,325,799.

Patients not under individual surveillance in hospitals, rest homes or nurseries can die without detection due to adverse drug reactions or side effects, says Robert L. Farris of Ft. Worth, Texas. However, says Farris, the patient's simple, involuntary motions such as breathing can be used to save his life.

Farris's system consists of a mattress wrapped with belts in all three directions—lengthwise, crosswise and horizontally around the edge. Joining the ends of each belt is a strain gauge that produces an electrical signal as long as the patient's movements cause the gauge to expand and contract. The gauges in turn are connected to a device that will set off an alarm in the nurses' station if the incoming signals cease for any reason.

There were two problems that the inventor had to overcome in designing the system. First, it had to be "immune" to outside motions such as the ripples of a breeze upon the bedclothes, which might falsely indicate "a situation of well being." Also, it had to take into account that a person's breathing motions reach a minimum point periodically in each respiration cycle.

The system does both, without touching the patient's body. In addition, it is designed to trigger its alarm for an extended period of time even during a power failure.

Farris assigned half his patent rights to Edward W. Cohen, also of Ft. Worth.

## TRANSPORTATION

### Dead Man's Throttle Improved

For many years railroad locomotives have been equipped with a "dead man's throttle," a device that automatically stops the train if the engineer removes his hand from the unit. The system is intended to keep the engineer alert, and to act as a safety device if something happens to him.

The system, however, is not foolproof, says John F. Yerger of Union, N.J., and engineers have been able to "disarm" the system by keeping its handle depressed with a tool box or other heavy object. Last week, Yerger was granted patent No. 3,325,225 for a tamper-proof dead man's control that could be used not only on trains, but in automobiles as well.

The device sounds a buzzer periodically, warning the vehicle operator that unless he throws a certain switch in, say, 30 seconds, the brakes will go on automatically. Except for the switch, says Yerger, all parts of the system would be completely inaccessible to the operator.

## PHOTOGRAPHY

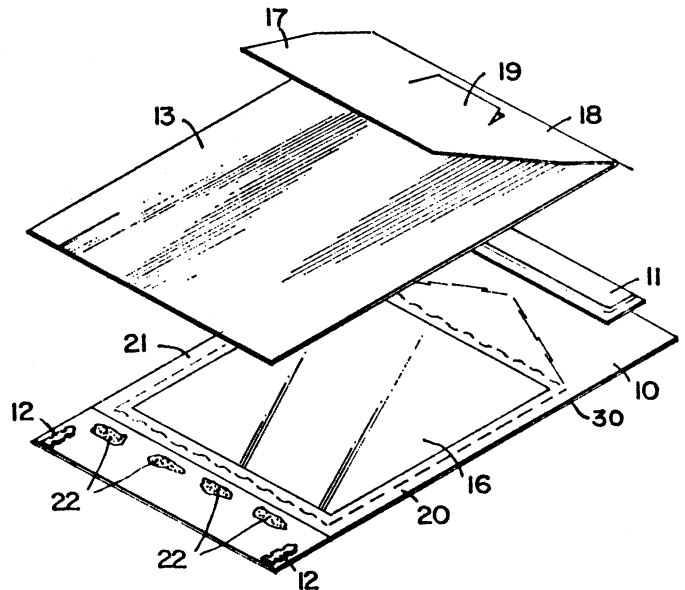
### Electron Micrographs in Seconds

A film pack for electron microscopes that enables a positive image to be produced in seconds has been patented for the Polaroid Corp., Cambridge, Mass.

The pack produces a negative at the same time, al-

though this feature is not covered by this patent, which is No. 3,325,642, assigned to Polaroid by Eugene S. Emerson.

Conventional electron microscope photos are formed



on glass plates that require developing in a darkroom. Polaroid's system, like its conventional film packs, is self-contained. In addition, the images produced are reportedly less grainy and have a wide-range gray scale, which the company says is not available with usual glass slides.

## NUCLEAR TECHNOLOGY

### Safer Reactor Fuel Grains

A way of controlling the escape of dangerous vaporized fission products from the fuel elements of nuclear reactors has been awarded patent 3,325,363.

The individual fuel particles, the size of grains of sand, are usually coated with a layer of pyrolytic carbon to prevent the release of vaporized fission products into the reactor, which would force construction of elaborate shielding and vapor-trapping systems. In the heat of the reactor, however, the carbon coating sometimes cracks, releasing the dangerous vapor.

Two researchers at General Dynamics Corp., San Diego, Calif., have patented the idea of using several layers of carbon of different structures as a safer, more reliable technique. The innermost coating is one of porous carbon that acts as a sponge to help trap the fission vapors. Next are one or more layers of very dense pyrolytic carbon, which do the actual shielding.

The multi-layered coating offers an improved dimensional stability that renders it less susceptible to cracking, similar to the way in which plywood, with the grain of different layers running in different directions, is stronger than a single board.

Walter V. Goeddel and Charles S. Luby assigned rights to General Dynamics.