

SCIENCE FAIR HEADQUARTERS

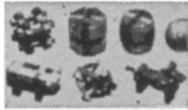
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GIANT WEATHER BALLOONS

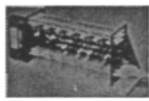
Create a neighborhood sensation. Great backyard fun. Exciting beach attraction. Blow up with vacuum cleaner or auto air hose. Filled with helium (available locally) use balloons high in the sky to attract crowds, advertise store sales, announce fair openings, etc. Amateur meteorologists use balloons to measure cloud height, wind speed, temperature, pressure, humidity at various heights. Photographers can utilize for low-cost aerial photos. Heavy duty neoprene.
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Actual Miniature Version of Giant Electronic Brains

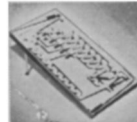
Fascinating new see-through model computer actually solves problems, teaches computer fundamentals. Adds, subtracts, multiplies, shifts, complements, carries, memorizes, counts, compares, sequences. Attractively colored rigid plastic parts easily assembled. 12" x 3 1/2" x 4 3/4". Incl. step-by-step assembly diagrams, 32-page instruction book covering operation, computer language (binary system) programming, problems and 15 experiments.
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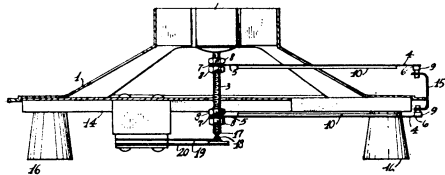
current patents

OCEANOGRAPHY

Wave profile recorder

A deep-water wave recorder made essentially from a moving-coil loudspeaker has been patented by Reginald L. G. Gilbert of Dartmouth, Nova Scotia, who has assigned rights to Canadian Patents and Development Limited.

In the device the frame and magnet of the loudspeaker are arranged to



move with the motion of the waves while the coil is suspended under the influence of gravity. The difference between the motions of magnet and coil is detected electrically and the device puts out a signal whose frequency varies with the acceleration of the frame and magnet. From the record of such acceleration the profiles of the waves can be determined.

The signal can be recorded directly or broadcast to a recorder. The device can be set up far out at sea and left unattended for long periods.

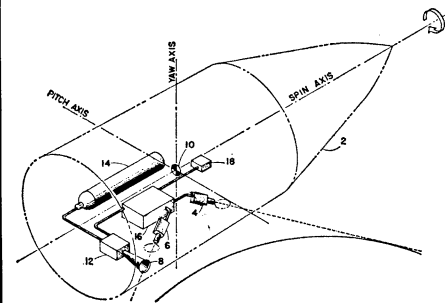
Patent 3,383,915

SPACE TECHNOLOGY

Attitude and coning control

In controlling the flight of space vehicles it frequently happens that a force applied to correct one sort of undesirable motion—pitch or yaw, for example—will cause another undesirable motion, precession of the vehicle's axis about the direction of its motion, called coning.

Harold D. Gilbert of Dallas and Eugene Harrison of Atlanta have



patented an attitude control system that simultaneously controls pitch,

yaw and coning without introducing errors of motion. When the system senses the need to correct one of the three kinds of motion, it checks to see whether firing of the appropriate rocket at that time will cause either of the other errors. It fires only when such danger is not present.

Rights have been assigned to LTV Aerospace Corp. of Dallas.

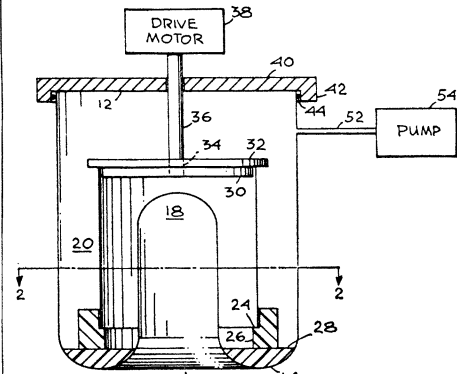
Patent 3,384,323

MAGNETISM

Warm, field-free region

A device that uses cryogenic means to provide a space free of magnetic fields at room temperature has been patented by Lorin L. Vant-Hull of Pasadena, Calif.

The device consists of a Dewar flask with an inward pointing protuberance in its bottom. Within the Dewar a cylinder of superconductive metal is positioned so that it surrounds the protuberance. If the



Dewar is filled with liquid helium at 4.7 degrees K. and the cylinder is rotated, eddy currents in the cylinder will tend to exclude horizontal magnetic fields from within the cylinder—a volume that also includes the space inside the protuberance, which remains at room temperature. If the device is cooled till the cylinder becomes superconducting, the eddy currents become supercurrents and the field exclusion is greatly enhanced.

Rights have been assigned to California Institute Research Foundation.

Patent 3,384,847

POWER TRANSMISSION

Superconducting switch

A cryogenic switch for power transmission lines has been patented by Osman K. Mawardi of Cleveland Heights, Ohio.

A tube of superconductive material

such as niobium-tin is connected at one end to a rod of normally conductive material, say copper, which runs down the middle of the tube. The other ends of rod and tube are connected to the conductors of a transmission line in a high-current pulse circuit. The whole assembly is immersed in a Dewar flask full of a refrigerant such as liquid hydrogen.

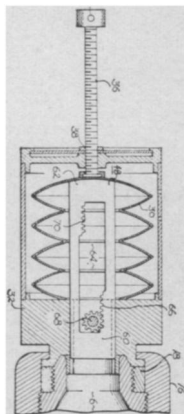
Quenching—returning the superconductor to its normal state—cuts the heavy current flow. This can be accomplished either by heating or by the magnetic field generated by the superconducting element when it exceeds a critical value. Rights have been assigned to Case Institute of Technology. **Patent 3,384,762**

HYDRAULICS

Meter calibrated in place

To measure the pressure in fluid systems one attaches a meter that senses the pressure and transduces it to the motion of a needle or some similar convenient readout.

Such meters need calibration from time to time, but disconnecting them for the purpose puts wear and tear on seals and involves dangers of contamination by foreign substances.



With an invention by Frank J. Bogusz of Monrovia, Calif., such meters can be calibrated without removal. The transducer is fitted with a fluid container of variable size. When this container is in its maximum or minimum size, the meter is subject to line pressure. In any other position the variable chamber cuts off the line pressure, but traps whatever pressure is within the container. If the volume of the chamber is altered, the trapped pressure is changed in a way determined by the known relations between volume and pressure, and the meter can thus be calibrated.

The patent was issued to James E. Webb as administrator of the National Aeronautics and Space Administration. **Patent 3,383,903**

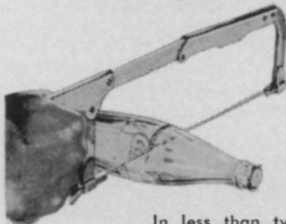
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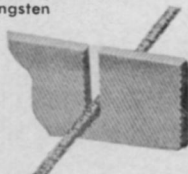
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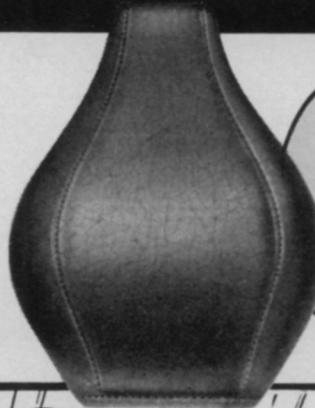
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