

current patents

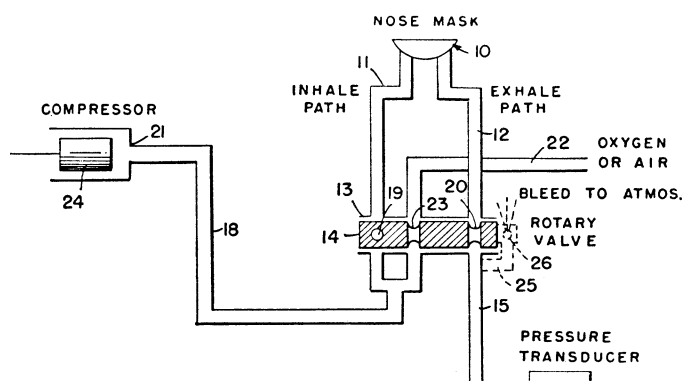
MEDICAL ENGINEERING

Device for Treating Hyaline Membrane

A device that increases respiration in premature infants stricken with hyaline membrane disease and is now in widespread use in hospitals throughout the country has been patented by Dr. David L. Carlson of Iowa State University.

In 1963 the disease killed Patrick Bouvier Kennedy, son of the late President. Each year it affects some 25,000 newborn babies in the United States, mostly premature ones. One out of every 15 babies is born prematurely; the greater the prematurity, the greater the danger that a baby's lungs will not inflate properly.

Dr. Carlson said his respiratory augmentor "is a useful adjunct to the intensive care normally given in the treat-



ment of premature infants with hyaline membrane disease." He stressed, however, that it "is a treatment only, not a cure."

The device, which has been on the market about a year, is made by Bourns, Inc., Ames, Iowa. It consists of a nose mask to which two conduits are attached, one for inhalation, the other exhalation. An electronic monitor and control are used to stimulate the infant to return to the natural breathing rate whenever it falls below that rate.

Although any mask can be used with the apparatus, the preferred one was designed by Dr. Carlson, with John B. Buck, and a patent on it will be issued shortly. Rights to both patents are assigned to the Government through the Department of Health, Education and Welfare.

Patent 3,357,428

SOLID STATE PHYSICS

Radiation Detecting System

Exposure to ionizing radiation, such as X-rays, gamma rays and nuclear radiation, is an increasingly serious hazard to human beings. To avoid excessive dosage, exposed persons must monitor the total radiation they receive.

A relatively new type of dosimeter uses thermoluminescent material to determine exposure. Ionizing radiation causes electrons within the crystal structure to be

626/science news/vol. 92/30 december 1967

trapped. They are released with the emission of visible light when the material is heated, and the radiation dosage determined by the amount of light after it is amplified by a photomultiplier tube.

Drs. Kenneth D. Cashion of Friendswood, Texas, and Benny R. Baker of Houston have developed an electronic switching method of measuring this light when the input signal is low, as would be produced by doses of 10 to 500 milliroentgens.

Patent rights were assigned to the Government through the National Aeronautics and Space Administration.

Patent 3,358,145

ACCELERATOR PHYSICS

Variable Bubble Chamber

A two-in-one bubble chamber that is in use at the world's second largest atom smasher, the 33 Bev accelerator at Brookhaven National Laboratory, earned a patent for its director, Dr. Maurice Goldhaber.

He said the device was also in use at several accelerators in Europe and that many institutions in the United States were planning to add it to their auxiliary equipment for studying the structure of atomic nuclei.

Dr. Goldhaber noted that its "two main values are that it allows a single chamber originally built for hydrogen as the liquid to be adapted for heavier liquids without building a special chamber for that purpose and that it combines a whole range of ratios."

These aims are accomplished by adding neon selectively to the hydrogen. A circulating system for the liquid mixture prevents separation of the neon and hydrogen.

As the energies of nuclear particles under study continue to grow higher, larger bubble chambers have been required to record the particle tracks because it takes longer for them to come to rest and react. Dr. Goldhaber's invention makes it possible to provide a bubble chamber for use with higher energy particles without scaling up the size of the chamber.

Dr. Goldhaber assigned rights to the Government through the U.S. Atomic Energy Commission.

Patent 3,358,144

TECHNOLOGY

Measuring Magnetic Materials

A method for measuring the magnetic characteristics of materials faster and more accurately than was previously possible has been devised by three Russians, including Mikhail M. Savkin of Novosibirsk, Russia's so-called science city. Rights were assigned to the Institute Gornogo Dela, part of the U.S.S.R. Academy of Sciences, also in Novosibirsk.

The apparatus, called a ferrometer, includes a magnetizing device, a computer to calculate the flux of the induced magnetic field and a measuring resistor connected to a high current circuit. Results of the ferrometer's measurements are displayed on an oscilloscope screen.

Patent 3,358,224