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INVENTION

Patents of the Week

The son of a Nobel Prize winner in Medicine received a patent for an alternating tourniquet system used in heart surgery all around the country—By Elizabeth Hall

➤ **WILLIAM PARRY MURPHY JR.**, whose father received the Nobel Prize in Medicine in 1934, was awarded a patent for an alternating tourniquet system by the U. S. Patent Office.

The young Dr. Murphy, who is an engineer as well as physician, is the president of Cordis Corporation of Miami, Fla., a biomedical instrumentation company specializing in the cardiovascular area. The corporation received the rights for U. S. patent 3,101,085, now being used in about 22 locations around the country.

The tourniquet system, which was first used by the Miami Heart Institute in 1959, was designed for floor nurses' use, when the doctor in charge wanted a tourniquet applied to one specific limb at automatic time intervals. The system alternates pressure to both arms simultaneously and both legs individually for 20 minutes and then rests for 10 minutes.

Tourniquets have often been used in relieving pulmonary congestion by trapping blood in the patient's limbs and limiting the blood flow to the heart. However, tourniquets left on for too long can cause gangrene, and the abrupt changing of the tourniquet's position could be too much of a shock to the heart.

Dr. Murphy's tourniquet system automatically inflates the tourniquets in three rotation periods, for predetermined time intervals and at different pressures depending on the area.

The tourniquet cuffs, the parts that wrap around the arm or leg, are made of Velcro material, which adheres to itself. Thus, there is no need for the tourniquet to be wrapped around and around.

Dr. William Parry Murphy Sr., Brookline, Mass., received the Nobel Prize in Medicine for his work with pernicious anemia.

Fluoroscope System

The U. S. Navy has received rights to a fluoroscope system permitting maximum viewing of a human body or object with a minimum dose of radiation. Although its current Navy use is secret, the system may have medical applications.

U. S. patent 3,101,407 was awarded to John D. Shipman Jr. of Alexandria, Va., who is a radiologist in the Naval Research Laboratory in Washington.

The system includes a source of radiation and detection that moves along opposite sides of the body. The fan-like beam of radiation passes through the subject and onto photomultiplier tubes, which immediately display their output on a memory tube.

The memory tube holds the internal image for a long time after the radiation

is cut off, allowing the operator to study the picture at leisure. The device requires only small doses of radiation and does not subject an operator or observer to the rays.

In previous devices, operator as well as subjects, particularly pregnant women, have received large radiation doses of X-rays, since the body is viewed only while the radiation is applied. In the X-ray method, there is a delay in seeing the results while waiting for film to be developed.

Abstract Painters

Amateur abstract painters do not need to worry about the expense and mess of painting pictures if they use a paint dispenser device, patent 3,100,063, designed by Henry Henriksen of Minneapolis, Minn.

Held in the painter's hand, the device holds several tubes of paint and dispenses a single stream of paint or several different kinds simultaneously to produce a new type of design in abstract painting. The paint itself is fairly thick and forms a rough, uneven surface.

Other Significant Patents

Other patents included:

A diaper washing composition developed by Joseph Hack of Baltimore, Md. Patent 3,101,297 was assigned to Sir Properties, Inc. The compound cleans and deodorizes not only diapers, but all forms of cloth, leather, plastic, metal or glass objects, and prevents diaper rash and irritation.

A wild-fowl call simulating the cry of the wild goose, which earned patent 3,100,948 for Edward J. Tax of Skokie, Ill.

An automatically scoring target board for darts, arrows and other such missiles that signals electrically as soon as dart strikes the target. James E. Williams of Norwalk, Conn., received patent 3,101,198 for his invention.

• Science News Letter, 84:158 September 7, 1963

Do You Know?

Three main food groups furnish about 90% of the fat humans eat.

Fuel pumps for space boosters can move enough gasoline in one second to drive a full-sized automobile halfway around the world.

Jet streams of water, operating at great speed, are being used to cut lumber quicker and more economically than conventional buzzsaws.

• Science News Letter, 84:158 September 7, 1963