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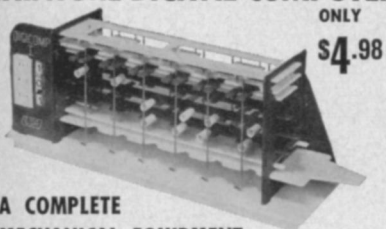
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Piasecki Aircraft

"RING-TAIL" PLANE—The Pathfinder combines a helicopter rotor with wings that provide lift and has a propeller in its "ring-tail" for propulsion.

INVENTION

Patents of the Week

➤ A COMBINED "ring-tail" helicopter-airplane that can take off either vertically or on a short runway, was granted a patent by the U.S. Patent Office.

The Pathfinder, as the aircraft is called, is now undergoing flight tests for the U.S. Army at Ft. Eustis, Va. Patent 3,138,349 was awarded to Frank N. Piasecki, president of the Piasecki Aircraft Corporation of Philadelphia, to which rights were assigned.

The Pathfinder combines a helicopter-type rotor with wings that provide lift in forward flight. A propeller in the ring-tail adds propulsion. The arrangement of propellers and vanes in the ring-tail also furnishes anti-torque and directional control.

The ring-tail eliminates the exposed tail rotor required in conventional helicopters, a source of high maintenance costs and high-frequency vibrations, as well as a threat to ground personnel.

Although the helicopter rotor is the most effective method of hovering and vertical flying yet developed for practical use, wings and propellers provide greater efficiency for forward flight.

The "compound" aircraft has been flying successfully for two years. Last year it reached a speed of 170 miles an hour, higher than the world speed record for rotary wing aircraft in its weight class of 5,700 pounds.

Even though the Pathfinder has the advantages of an airplane, it has the safety feature of being able to land on the helicopter rotor in case of engine failure. The aircraft is receiving attention from commercial as well as military aviation.

For storage in minimum space the outer wing panels fold under the rotor and the rotor blades fold backward, attaching to the top of the ring-tail. In this way, the aircraft can be stowed in small areas, or go through standard truck doors.

Vaccine for Dogs

An improved live-virus vaccine to protect dogs from distemper earned patent 3,138,531 for Dr. Vincent Marshall of Omaha, Nebr., who assigned rights to Eli Lilly and Company of Indianapolis, Ind.

As the vaccine is now sold to veterinarians, it usually also includes protection against hepatitis and two strains of leptospirosis.

Distemper is a general disorder of dogs for which no successful treatment is known. It usually results in death. The disease is controllable only by preventive methods.

Dr. Marshall has developed a system for growing the most potent strain of distemper virus yet known, called Snyder Hill, in a culture of canine kidney tissue instead of eggs. This method gives a vaccine considered much superior to those previously available.

The live distemper virus is attenuated by passing it through successive cultures for at least 25 times until it is no longer deadly.

Dr. Marshall has several other patents pending on various aspects of his method for making vaccines in the "Tempacine" family.

Other Significant Patents

An apparatus in which materials can be subjected to extremely high pressures and very high temperatures at the same time. William B. Daniels of Princeton, N. J., assigned rights to patent 3,137,896 to Union Carbide Corporation.

A disposable drinking cup having a flap that can be used to stir the contents by swishing the flap back and forth. The cups can be nested together, according to patent 3,138,371 awarded to George Fehér of the University of California at La Jolla, Calif., and Aaron Gibor of Rockefeller Institute, New York.

• Science News Letter, 86:30 July 11, 1964