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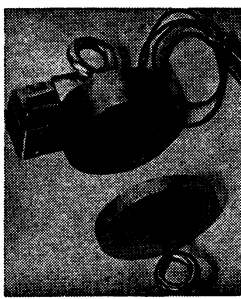
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INVENTION

Patents of the Week

A swivel-winged plane with two sets of wings can reach supersonic speeds, yet take off and land as easily as a conventional plane—By William McCann

➤ AN AIRPLANE that has two sets of wings, one for flying slower and the other for flying faster than the speed of sound, was awarded a patent from the U.S. Patent Office.

For subsonic flight the wings, which are perpendicular to each other like a cross, are swiveled hydraulically so that the long pair stick out and the short pair line up with the fuselage. For supersonic flight the positions are reversed.

The design earned patent 3,155,344 for Richard Vogt, Santa Barbara, Calif., and patent rights were assigned to the Boeing Company, Seattle.

Boeing and Lockheed are the two airframe companies competing for the job of building the nation's first 2,000 mile an hour transport.

The "double-wing" structure serves the same purpose as the variable-sweep wing on the F-111 (TFX) supersonic fighter, giving a large area and a high lift for subsonic flight and a reduced area with accompanying reduced drag for supersonic flight.

The aircraft will be capable of flying at very high speeds, yet will be able to take off and land as easily as a conventional plane.

Mounted atop the fuselage like a propeller on a beanie, the "double-wing" structure has ailerons on the outer ends of the supersonic wings, while the subsonic wings have ailerons on the trailing edges and the leading edge and landing flaps. The extremely long fuselage permits a very large-span subsonic wing.

Mr. Vogt said in his patent that his concept would allow various shapes of "double-wing" design.

Three-in-One Vaccine for Dogs

A three-in-one vaccine for dogs that simultaneously guards against rabies, distemper and hepatitis earned a patent for Eben A. Slater, St. Joseph, Mo., who did the work on the vaccine in 1957. He combined three live weakened viruses into one vaccine and showed that each retained its specific immunizing properties.

For this method of creating and combining the viruses, Mr. Slater was awarded patent 3,155,589. Patent rights were assigned to the Upjohn Company, Kalamazoo, Mich.

The three-in-one vaccine will not only save dog owners from extra visits to the veterinarian, but will reduce the danger of post-vaccinal reactions. The vaccines can also be manufactured, packaged and distributed more efficiently, Mr. Slater claims.

In addition, under the conventional method of giving a separate vaccination for each disease, there is a waiting period between each vaccination. This means that a

dog might contract a disease before it gets a vaccination for it. The new vaccine eliminates this danger, Mr. Slater said.

Trash Crusher

A machine that feeds trash through a crusher to smash the debris earned patent 3,155,028 for Donald J. Morgenson, Racine, Wisc. Patent rights were assigned to the Shatter King Manufacturing Co., Inc., Racine.

• Science News Letter, 86:334 November 21, 1964

Nature Note

The Alligator

The tough-hided, horny-scaled alligator is a member of the crocodylian group which includes the largest reptiles now living in the world. They usually grow 8 to 12 feet long, and the longest 'gator on record was over 19 feet.

These reptiles, cold-blooded creatures that lay eggs, have four short, rather weak legs whose toes are widely spread apart and joined by skin almost to their tips. This enables them to move readily in water, and helps them walk without sinking into the soft mudbanks of the swamps and marshes.

An alligator's head is large, long and flat, with enormous jaws armed with rows of formidable teeth. Its powerful neck and jaw muscles enable it to easily crush turtles, birds, frogs and muskrats with one snap—even the bones of a full grown cow. Once it closes its jaws, no one man has the strength to pry them apart.

The tail of an alligator is long, tough and heavy, often used as a powerful weapon of defense. Alligators propel themselves rapidly through the water by powerful sweeps of this tail from side to side, their legs drawn up close to their big body.

When the female is making her nest, she uses her tail to thrash around and flatten bushes and other plants before building a well-packed mound of mud and vegetation upon which she deposits 29 to 68 eggs.

Alligators are largely restricted to the New World, with the exception of the Chinese alligator which is now nearly extinct. Formerly extremely abundant in southern parts of the United States, particularly in Florida, the American alligators were slaughtered in great numbers. Now they are protected in refuges.

Their name may have come from the early Spanish settlers along the Gulf Coast who called it "el largato," meaning "the lizard." This name was gradually corrupted to "el lagato" and finally to "alligator."

• Science News Letter, 86:334 November 21, 1964