INVENTION

Current U.S. Patents

Joint disorders can be diagnosed early by using a microphone that "listens" to the activity of the joint, locating disorders not detectable by X-rays—By William McCann

➤ ARTHRITIS and other joint disorders can now be diagnosed in their very early stages with the help of a microphone that "listens" to the creaking of the joints.

If a patient has knee trouble, for example, one or more microphones are held against the joint in question while the patient, lying on his back, bends his leg up and down. The various electrical sounds from the microphone are then passed through an amplifier and recorded on tape, so that the physician can play the tape over and over to listen for unusual sounds.

Two devices, either a twin-beam galvanometer or a graphic analyzer, or both, can be used to study the various sounds graphically. The many peaks and valleys on the graph can also help the physician determine what is wrong.

Dr. Roy E. Brackin, orthopedist from Highland Park, Ill., was awarded patent 3,181,528 by the U.S. Patent Office in Washington, D.C., for the analyzing device that he built.

This unit permits the detection of joint disorders which are not detectable by X-rays and permits the detection of disorders without resorting to the laborious and time-consuming X-ray technique, Dr. Brackin reported in his patent.

However, in order to make accurate diagnoses, he said, records from hundreds of examinations for comparison will be necessary.

Space Blanket

A newly patented space blanket would not only keep an astronaut warm in his spaceship but would also keep him from floating out of bed.

In a no-gravity space environment, any time a sleeping astronaut moved in his sleep, he would probably get bounced out of bed and jostled around the cabin. The blanket, invented by Raymond J. Moore, Gardena, Calif., would keep the astronaut in the bed.

The space blanket is built somewhat like an electric blanket, but in place of the heating wires there are a series of plastic tubes that are connected to a larger tube at the foot of the bed. The large tube is connected to an inlet source for air. Air from the spacecraft's air system is forced into blanket tubes from a hose. The air then radiates out tiny holes in the tubes and exhausts vertically in minute jets. This reaction pushes the blanket down.

The blanket earned patent 3,181,180 for Mr. Moore. Patent rights were assigned to Northrop Corporation, Beverly Hills, Calif.

Supersonic Transport

The design of the supersonic transport that won Lockheed Aircraft a Government contract in the design competition more than a year ago has earned a patent.

The fixed-wing design, submitted in January 1964, won a contract for continuing studies and improvement.

Clarence L. Johnson, Encino, and William H. Statler, Northridge, Calif, assigned patent rights to Lockheed Aircraft Corporation, Burbank, Calif.

For a list of registered patent attorneys and agents and other Patent Office information, write the Commissioner of Patents, Washington, D.C. 20231, or call 202-967-4058 for specific information.

• Science News Letter, 87:335 May 22, 1965

Nature Note

Farmer Ants

➤ BILLIONS OF TINY, six-legged insects practice intricate methods of agriculture such as harvesting grain, cutting leaves to use as mulch for fungus gardens, and milking tiny plant lice to get honeydew.

The harvester ants, of genus *Messor,* are found in the United States, the Far East and in Africa. These ants gather grains and grass seeds from fields to store in underground tunnels and chambers.

During rainy seasons, the underground ant granaries become moist and the seeds can become moldy or start to sprout. On clear days, the harvester ants carry the seeds above ground to dry, then bring them back into the storeroom at night.

As a further precaution to prevent the seeds from sprouting, these careful farmers bite out the growing point of each seed.

Leaf-cutters, of the *Atta* and *Acromyrmex* species, hold high ratings as gardener-farmers. Found in Central and South America, these ants march in huge masses onto trees and shrubs and, moving their jaws like scissors, cut off good-sized circular pieces of the leaves, often leaving the tree stripped.

Holding these leaf pieces over their heads like a banner or parasol, the ants march back in orderly lines to their underground nests. Here they chew them into a pulpy mass to form mulch for growing a special type of fungus, food for the colony.

Many kinds of ants have developed a farmer-cow relationship with aphids, tiny green lice that cluster on plants and suck the sweet juices. The cornfield ant, *Lasius niger,* stores the eggs of a special kind of corn-eating aphid underground during the winter. In the spring, the ants transfer their aphids to feed upon the growing corn roots. By stroking and tapping the belly of the aphids with their antennae, the ants are able to "milk" them and drink the sweet honey.

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