

MEDICINE

Plastic False Lung Made

It is shaped to fill a lung cavity in patients who have had a lung removed due to TB or cancer. Purpose is to keep neighboring body parts in place.

➤ A FALSE lung, made of a plastic material shaped into a bag and filled with fiberglass, may become the newest thing in human spare parts to replace those lost because of injury or disease.

The false lung, under experimentation now at the Mayo Clinic in Rochester, Minn., would be used to fill the hollow space left when a lobe or an entire lung is removed surgically in cases of tuberculosis or cancer. It would not, of course, do any breathing.

The need for such a lung and results of experiments to date were reported at a staff meeting of the clinic by Drs. John H. Grindlay, O. Theron Clagett and Arthur H. Bulbulian.

When a lung or a lobe of a lung is removed, the body tries to obliterate the space, Dr. Clagett pointed out. This is done by a raising of the diaphragm, a shift of the partition between the lung sacs, narrowing of the spaces between the ribs and overexpansion of the remaining lung tissue.

Usually this is accomplished without any serious disturbance or disability, particularly in young people. But in cases where the operation has been performed for tuberculosis, overexpansion of the remaining lung tissue is "highly undesirable" because it may light up tuberculous infection in the

remaining lung. And cancer of the lung, chief condition for which an entire lung is removed, occurs most often in older patients who do not have very elastic tissues and consequently can stand least well the overexpansion of the remaining lung.

The first false lung tried by the group was a sheet of polythene made into a lung-shaped bag by fusing the edges together with heat and pressure. This bag, however, had some mechanical defects. In eight dogs on whom it was used, it burst and the non-sterile interior of it caused infection which killed the dogs. Two more out of a series of 21 died because of injury produced by the sharp seam of the bag on neighboring blood vessels. But nine dogs are still alive, eight to 12 months after the operation.

An improved false lung has since been made of another plastic, methyl methacrylate. This is lucite or plexiglass. It is thin-walled, lightweight, has a perfectly smooth surface and has been shaped to fit the lung cavity. It was first tried on another series of dogs four to five months ago. So far, the dogs are all well and X-ray pictures have shown no signs of leaks of their false lungs.

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ENGINEERING

New Mechanical Spring

➤ A UNIQUE mechanical spring that becomes easier to deform as a load is continued to be applied has been developed by W. J. Cook, of the Hunter Spring Company, Lansdale, Pa., and many applications for its use in the mechanical world are promised. It is reported to be unlike all other springs.

Everybody knows that in winding a clock, it becomes harder to wind as the spring is tightened. Mechanics know that with the familiar coil spring, a little pull will start the lengthening of the coil but as it grows in length a stronger pull is required to continue the action at the same rate. The new spring, called the neg'ator, acts contrary to accepted engineering principles, and resists less the more it is deformed from its normal condition.

The secret of the new spring, Mr. Cook states, lies in prestressing each successive increment of length of a flat strip by a predetermined, but not necessarily constant, amount. In its relaxed position the device forms into a tight coil, each turn pressing

on the others. In use, this new type of spring is progressively unwound, or drawn out like a tape rule, over its range of action. Its resisting force is developed as each successive length of the metal strip is drawn off the coil, and is straightened thereby. The force required to do this varies inversely as the radius to which the metal strip has been prestressed at that point.

Obviously, he continued, if the neg'ator is heavily prestressed near the free end and only lightly prestressed farther along the coiled length, the device will pull back more at the beginning of its range of action than at the end of the action.

Among applications in which the device may be found valuable, are in toasters, delicate instruments, hose wrapping, extension or compression spring, automatic coiling device, a friction band, a telescopic tube form, and many others. It has a wide range of action, up to 50 times any original dimension, and can act around corners and through small openings with the same

freedom as non-elastic bands or cables. This new spring gives promise of greatly influencing the future of mechanical design.

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VETERINARY MEDICINE

'Teen-Age Boy Wins Prize For Devotion to His Dog

➤ A BOY'S devotion to his dog received recognition and reward when the 1949 National Humane Act Award of the American Veterinary Medical Association was presented at their meeting to Richard Rose, 17, of Detroit, together with a \$100 U. S. savings bond.

When Richard was an 18-month-old baby he was given a bulldog puppy named Jiggs. Boy and dog grew up together, but the inevitable tragedy occurred, for while Richard was still young Jiggs became, for a dog, very old, and began to go blind.

An operation to save the dog's sight was attempted, but it was unsuccessful. Richard gave up most of the fun a 'teen-ager likes, to take care of his old companion. He built a headgear equipped with bumpers, to save Jiggs from running into things.

Veterinarians think this type of headgear will be useful in making life easier and less risky for other blind dogs.

The Humane Act Award of the AVMA is given each year after a consideration of cases of kindness to animals to which its attention has been called.

At the same meeting, the Association's



DEVOTION BRINGS AWARD—
The 1949 National Humane Act Award of the American Veterinary Medical Association was granted Richard Rose for building a headgear equipped with bumpers, to save his dog from running into things.