

## SURGERY

# Gadgets Save Lives

Shoestrings, staplers, rubber wells and clamps on fakirs' bed-of-nails principle help surgeons in modern miracle operations.

By JANE STAFFORD

► GADGETS CAN be life-saving. These are the gadgets surgeons use. Many of the dramatic operations now performed are done more smoothly because of gadgets. Some of these, such as operations on the heart and blood vessels, would not be possible without the gadgets.

Dr. Alfred Blalock of Johns Hopkins Medical School, famed for the "blue baby" operation that has given a new, long lease on life to thousands of small sufferers, recently decried criticism of some newly invented surgical tools by those who scornfully called them "gadgets."

One of these is known as the Potts ductus clamp. When it was first developed by Dr. Willis J. Potts of Chicago, professional surgical and medical journals were not interested in publishing a report about it because it was considered just a gadget. Now surgeons use it so much that the manufacturer has difficulty in supplying the demand.

Army surgeons have credited these clamps with doing a tremendous arm and leg saving job among the wounded during the Korean fighting.

Its value is that it clamps a blood vessel, vein or artery, so that blood does not flow through it and spill out to be lost by the patient. Yet at the same time, the clamp does not damage the delicate blood vessel walls. Consequently when the surgeon has stitched the cut ends of the blood vessel together or has inserted graft of blood vessel, and removes the blood-stopping clamps, the delicate tubes that carry the blood are in good shape to resume their vital function.

## Pressure Evenly Distributed

The special feature of these clamps are their 20 very small and perfectly aligned teeth. The teeth of the clamp follow the principle of the bed of nails Indian fakirs lie on without injury. The nails in the bed, and the teeth of the clamps, are so evenly placed there is no undue pressure at any one point and therefore no injury.

Another of Dr. Potts' inventions that some might put in the gadget class is a knife that opens after it has been inserted in a blood vessel.

A recent joke about a surgeon operating on a shoestring is not quite so fantastic as it sounds. Shoestrings, white ones, actually are used by surgeons. They fit over the ends of an instrument called the Foss colon

clamp to keep the clamping ends from slipping. Slipperiness is a characteristic of all sorts of body tubes from arteries and veins to the digestive tube of which the colon is a part.

Surgeons, as everyone knows, do a lot of sewing, or stitching, in addition to cutting. The stitches, or sutures, the patient knows about are the ones that close the outside edges of the wound, but many other lines of stitches are taken below the surface of the wound. When a piece of stomach is cut out, for example, the edges of the stomach must be sewed together. And the surgeon may have to sew together the inside wall of the stomach and then the outside wall.

Some of this stomach stitching is now done by an instrument that is, in effect, a stapler. It is known as the Von Petz sutur-

ing apparatus and is used for the first suture, or stitch, line in stomach dissections. Its jaws open and then close over the cut pieces that are to be stitched and then a special mechanism releases many tiny metal staples to hold the edges together.

The staples are about the size of those used in offices to hold papers together.

## Button Up Hearts

Surgeons can now button up hearts that have holes in them. The holes in such cases are in the wall dividing the two upper blood chambers of the heart, called auricles. These holes are present at birth and are probably the most common of heart malformations in young adults. They can cause a blue baby condition, but are not the only cause of such a condition.

The nylon and Lucite buttons for permanently closing these defects were devised by Dr. Charles A. Hufnagel and associates at Georgetown University School of Medicine, Washington.

Each of these buttons is made in halves



**SURGICAL TOOLS**—Major Edna Parker, Army Nurse Corps, now stationed at Walter Reed Army Hospital, shows the Von Petz suturing apparatus used in stomach operations. It staples instead of stitching cut ends. Other surgical instruments on tray, left to right, are part of stomach stapler; Potts ductus clamp; bull dog clamp; Bailey-Glover-O'Neil commissurotomy knife; Potts-Smith aortic clamp; Blalock pulmonary artery clamp and the Foss colon clamp (white shoestrings are used over its ends to keep them from slipping).

that fit together something like a snap hook. They are made slightly larger than the hole to be closed. One half is pushed through the heart hole by a special instrument, and then is pulled back so that teeth on the flat side of the button catch in the tissue of the heart's dividing wall, or septum. The other half button is then fastened to the first half, and the instrument withdrawn.

A plastic ball for remedying another heart condition was devised by the same Georgetown surgeons.

Some 200,000 persons are living today with a valve on the aorta that does not close. The aorta is the biggest artery of the body, leading directly from the heart. It opens for blood to be pumped into the body. When it fails to close, much of the blood rushes back into the heart.

**Common Heart Difficulty**

This condition, call aortic regurgitation, is the fourth or fifth commonest type of heart trouble today. In order to pump blood when the aortic valve is faulty, the heart must work harder and harder.

To remedy this, the plastic ball is fastened into the aorta with nylon rings. When the blood is pumped into the big artery, the ball valve moves forward to let the blood through. However, if the blood starts to rush back into the heart, the ball valve moves back and closes the opening.

Other surgeons have devised various clamps for special purposes, among them some named "bull dog" clamps that Dr. Robert E. Gross of Boston originated. A "bull dog" clamp has a rubber well to close an abnormal opening in the wall between the heart auricles.

Knives, bone saws and curved needles are only the beginning of the tools used by modern surgeons. Scissors play a far more important part than most laymen realize. They are used not merely for cutting stitches and bandages. In operating on large blood vessels they are more useful than the scalpel, or knife, for cutting the blood vessel free from the tissue around it so that the surgeon can work on the damaged blood vessel.

Science News Letter, July 10, 1954

**ASTRONOMY**

**Spot Comet in Southwestern Sky**

➤ A COMET has been spotted near the constellation of Virgo, the virgin. It was discovered June 29 by Leslie C. Peltier of Delphos, Ohio, an amateur astronomer who is credited with having found a dozen or so comets.

The comet is of ninth magnitude, thus a telescope will be needed to locate it in the southwest sky. Its motion is south southwest, according to Harvard College Observatory, clearing house for astronomical news in the Western Hemisphere.

Science News Letter, July 10, 1954

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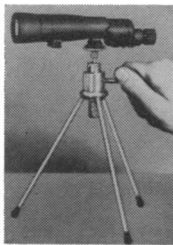
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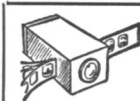
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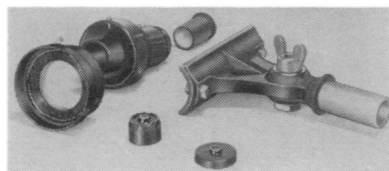
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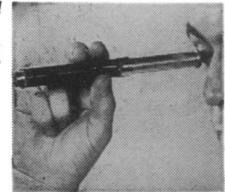
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