Description of Plaster Cast Cutter

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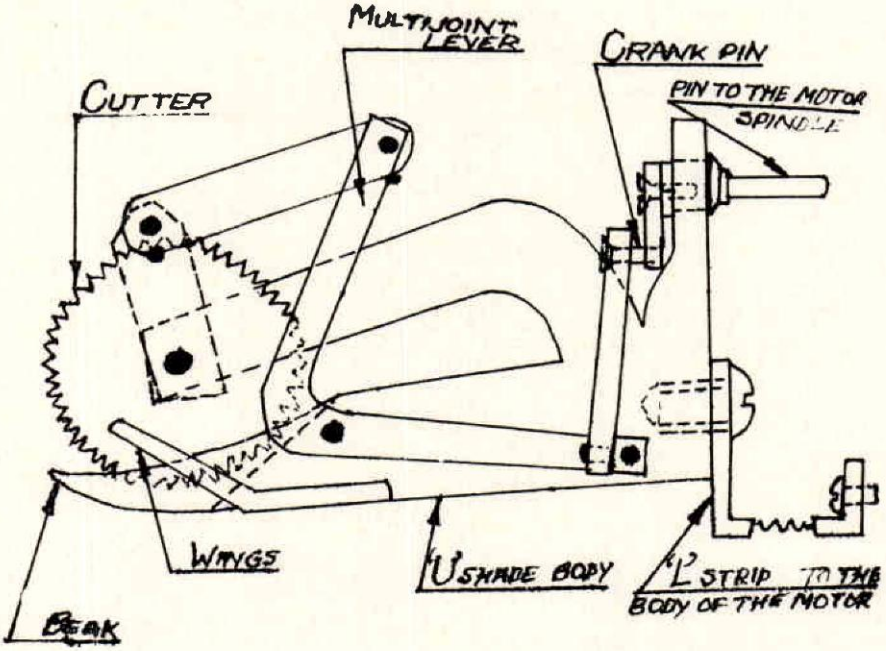
The cast cutter attachment here described can be operated by an electrically driven hand drill gun or a fractional motor. The attachment is designed for easy cutting by pressing the cutter directly against the plaster cast. It is devised in such a way that the cutting edge of the vibrator cutter does not come in direct contact with the skin of the patient because a beak-like projection, which is underneath the cutter, separates the skin from the cast.

The cast cutter consists of a circulator vibrator made up of surgical steel 1½″ in diameter and .025″ thick, which is moved by means of an eccentric pin. This pin is attached to a multijoint lever as shown in the illustration. Every joint has a brass bush in it to keep friction to a minimum while moving. This lever is attached to the motor spindle or to the drill by a crank shaft like pin. The fractional motor used for operating the cutter is of .25 H.P. with 2800 R.P.M.

The whole attachment is mounted on a U-shaped metal bar which extends from the centre to the base of the cutter via the outer attachment to



the motor. The lower end of the U is slotted and has the shape of a beak. The beak tip is rubber covered. The cutter moves in the slot of this beak. There are two wing-shaped metal plates, size 1″ x ½″ x ⅛″, welded on either side of the beak at a 60° angle. The whole device is fixed to the body of the motor by means of the metal strip shown in the illustration. This metal strip is screwed to the base of the plaster cutter with ¼″ screws. Gross weight of the attachment is 200 grams.

When the beak is introduced between the patient's skin and the plaster cast, it not only lifts the cast, but also holds the cast in tight position all around the limb, which enables easy cutting of the cast by the vibrating cutter. This lever mechanism permits the cutter only 60° torque and not the full rotation, when it is driven by the motor.

The whole mechanism works very smoothly and cuts the plaster which is inserted between the beak and the cutter. The rubber tips of the beak avoid any injury to the patient. The cut edges of the plaster are pressed and channelized by the wings attached to the side of the beak. In order to prevent the cut ends of the cast from becoming "fuzzy," the wings press them down.

This mechanism has been put to limited trial, especially with the help of electrically operated hand drill guns and the motor shop hand drill.