July 24, 1934. W. K. KEARSLEY 1,967,888

SURGICAL APPLIANCE

Filed April 19, 1933

Fig. 1.

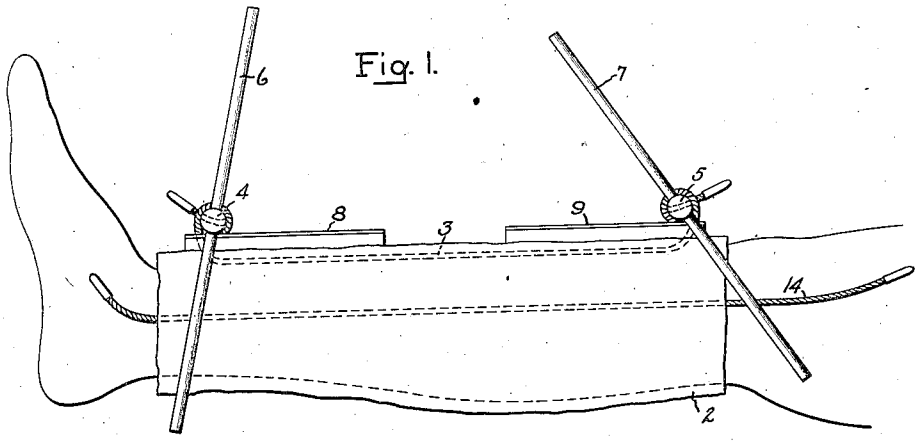


Fig. 2.

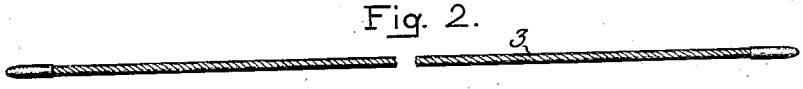
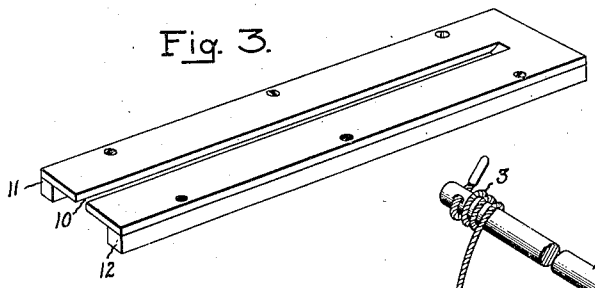


Fig. 3.



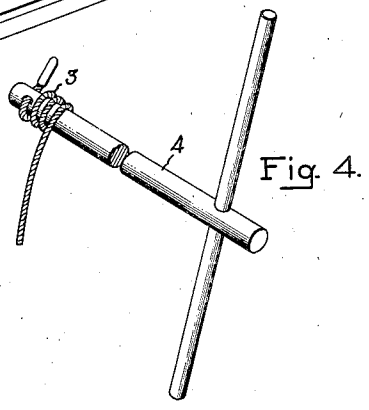
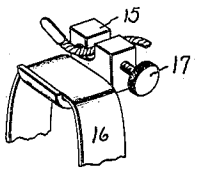
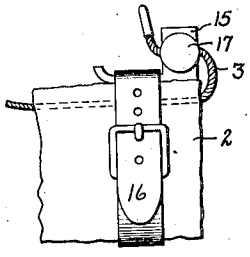


Fig. 4.

Fig. 6.

Fig. 5.





Inventor:
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by Charles O'Mallon
His Attorney.

Patented July 24, 1934

1,967,888

UNITED STATES PATENT OFFICE

1,967,888

SURGICAL APPLIANCE

William K. Kearsley, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Application April 19, 1933, Serial No. 666,859

3 Claims. (Cl. 128—317)

The present invention relates to the plaster casts which are used by surgeons and physicians to secure immobility of parts of a living body, for example, to permit healing of a broken bone.

In accordance with present practice such casts are removed, when they have served their purpose, by the use of heavy pliers or other powerful cutting tools which not only are inconvenient to the user but also may unnecessarily alarm the patient. They may cause injury to the patient if unskillfully employed.

As a consequence of my present invention I have provided an improved method and apparatus for removing plaster casts which avoids such disadvantages. The apparatus provided in accordance with such invention comprises a cable, wire or the like, and a cooperating mandrel or equivalent means whereby such cable or wire is forced through the cast to sever it without any discomfort to the patient. The novel features of my invention will be set forth in the appended claims and described in detail in connection with the accompanying drawing.

In the drawing Fig. 1 is a side elevation of the cable and tension-producing parts in position ready for use to cut the cast; Figs. 2, 3 and 4 show a cable, a spacer and a mandrel; and Figs. 5 and 6 are detail views of an auxiliary attachment part which may be used in some cases.

Referring to Fig. 1, the cast 2 is shown in position on a leg (shown in outline) the cast consisting as well known of fabric and a quick-hardening cement, such as plaster of paris. Threaded between the cast and the leg is a wire cable 3, the ends of which are secured to the mandrels 4, 5 as best shown in Fig. 4. The wire may be placed in position when the cast is to be removed or may be introduced at the time the cast first is applied. In Fig. 4 one end of the wire 3 is shown as threaded through a perforation in the end of the mandrel 4, but of course other convenient methods of securing the end of the cable may be employed. As shown in Fig. 2 the ends of the cable may be provided with solid metal tips secured to the cable by welding, swaging, or otherwise.

The mandrels or spindles 4 and 5 when rotated manually by the lever handles 6, 7 are caused to travel on slotted tracks 8, 9 which may consist of metal, artificial resin, wood or other suitable material. One of these tracks is shown in perspective in Fig. 3 and can be seen to provide a slot 10 through which the cable 3 passes, and also spacing bars 11 and 12 which raise the bearing surface of the track from the surface of the cast. This arrangement permits the cable to be pulled clear through the cast instead of merely being pulled up against the cast as would be the case if the track upon which the mandrel or mandrels were revolved fitted snugly against the cast. By rotation of the mandrels the wire cable 3 is wound up helically in a single layer upon each of the mandrels, sufficient tension on the wire being secured thereby to sever the cast along a desired line of fissure without discomfort to the patient. A second wire has been indicated at 14 so that a second line of cleavage in the cast may be effected sufficiently far removed from the first to permit ready removal of the parts. The two wires have been shown as located close to one another so that both will be in view, but ordinarily they should be on opposite sides so that two lines of severance will cause the cast to separate into halves.

In some cases, for example when but a single operator is available it may be desirable to employ but one mandrel for forcing the wire through the cast. In that case the opposite end of the wire must be fastened securely with respect to the cast. As shown in Figs. 5 and 6 a bracket 15 is fastened to the cast 2 by means of a strap 16. The wire 3 is secured to the bracket 15 by a binding screw 17. This arrangement allows a single operator to remove the cast by the use of a single mandrel without assistance. There is an advantage however in the use of two mandrels turned in opposite directions so as to exert tension with respect to one another as in that case the resultant force exerted on the cast and hence on the patient is practically zero. In any event, the rupturing pull on the wire is exerted with the cast as a fulcrum and without discomfort to the patient.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An apparatus for severing plaster casts and the like comprising the combination of a wire, tension-exerting means for forcing said wire through a zone of desired severance in said cast and a spacer between said cast and said tension-exerting means, said spacer being positioned during use of said apparatus between said tension-exerting means and said cast.

2. An apparatus for severing a plaster cast, comprising the combination of wire, a mandrel

for winding said wire thereupon to force said wire through said cast and a spacing means located between said mandrel and said cast.

3. An apparatus for cutting a friable cylindrical body comprising the combination of a wire, means for anchoring said wire, a slotted spacing member which is placed during use adjacent a zone at which severance is required and a mandrel for winding said wire to cause said wire to sever said body while being drawn through said slot.

WILLIAM K. KEARSLEY.