

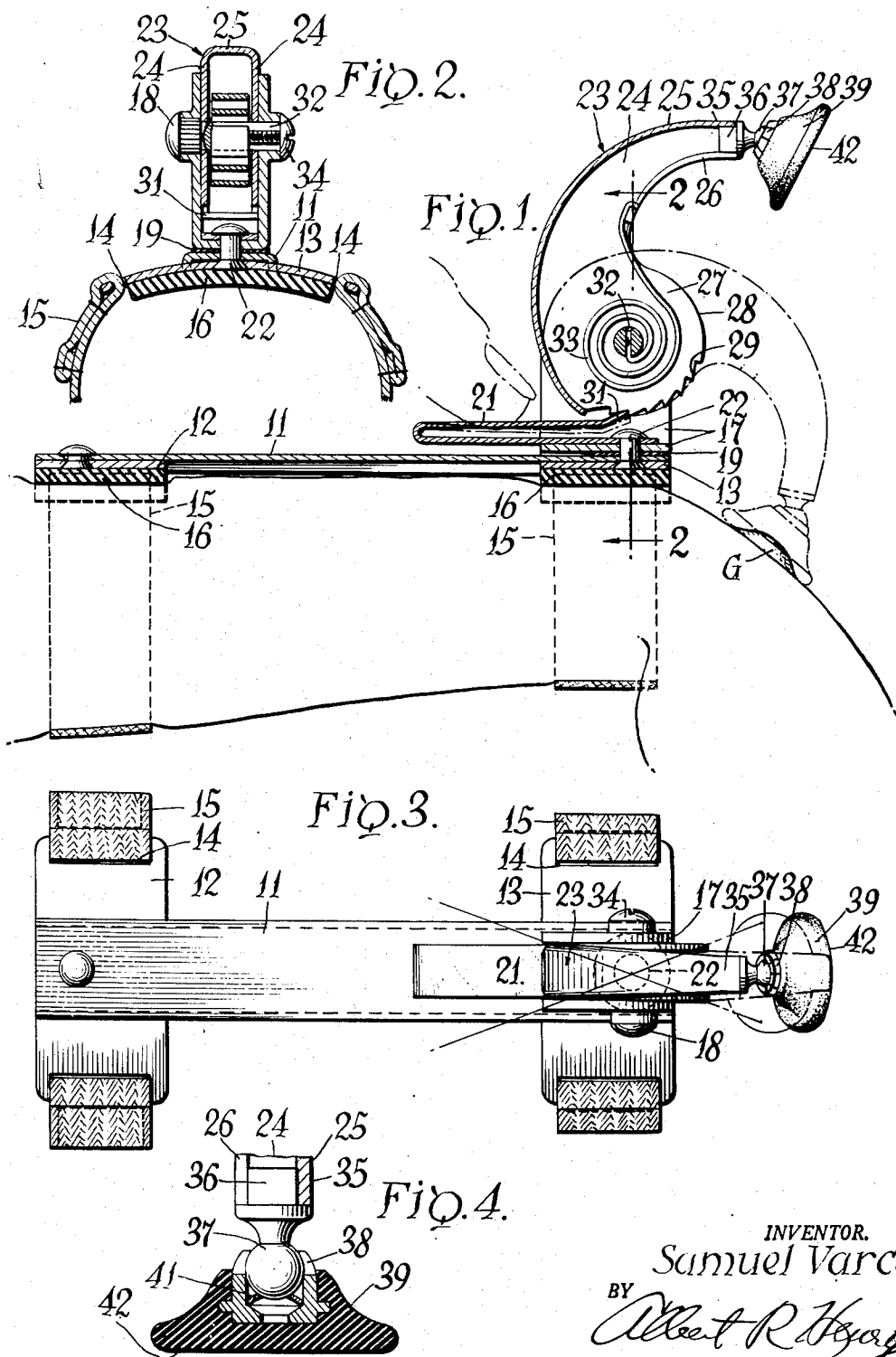
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INSTRUMENT FOR THE REDUCTION OF GANGLIA

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INSTRUMENT FOR THE REDUCTION OF GANGLIA

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This invention relates to an instrument useful in the treatment of that type of tumors medically known as ganglia, and it has particular reference to a device which may be placed on the wrist or forearm of the patient, and deliver a sharp blow to the afflicted area, thereby effecting a rupturing of the cyst sac, and enabling the contents to be drained.

In medicine, the term "ganglion" is used to connote a tense, globular, cystic swelling, or an encysted tumor, usually on the back of the wrist or the hand, communicating with or situated on a tendon, and probably formed by degeneration or herniation of the synovial membrane, or the sheath of the tendon or the covering of the joints between the wrist bones. As with other types of tumors protruding from the surface of the body, a sac is formed which contains a viscous fluid, the origin of which may be traced to the injury to the membrane itself.

Standard corrective procedure with many types of tumors calls for complete surgical excision of the membrane and contents, inasmuch as retention in the afflicted part of a portion of the membrane is conducive to recurrence of growth. With ganglia, however, skilled surgeons are often frustrated in attempts to remove all of the cyst, inasmuch as it may be embedded between the bones of the wrist, as well as on the tendon itself. Again, it is well understood that, in addition to the usual unpleasant post-operative effects on the patient, surgery involving the tendons is hazardous.

Accordingly, alternative methods of treatment have been proposed, including puncturing and draining by means of a needle, or by mechanical rupturing. For the latter, the physician may tell the patient, in substance, to hold out his arm and hand, and then he bangs on the afflicted part with some readily available object, frequently a sizable medical text book. The object is to strike a blow, at just the right spot, of sufficient force to rupture the sac, without, of course, injuring the patient's wrist, or adding to his annoyance and discomfort to an unnecessary extent. This is very much a hit-or-miss procedure, the physician does or does not achieve the desired result, and if he does not, the patient may decline a repetition of the experience.

The present invention proposes to eliminate the uncertainties and discomforts in the "book" approach, and to provide a simple instrument or tool which may be utilized, with a minimum of discomfort to the patient, to strike a blow of controllable intensity directly on the raised portion of the skin, beneath which the ganglion is embedded. The impact is sufficient to rupture the sac, thereby enabling the fluid therein to be washed away in the blood stream, and the swelling reduced. Patients appear to tolerate this type of treatment, so much so, that if the swelling reappears, as of course it may in some cases after a period of years, they will not be apprehensive concerning another reduction.

A preferred embodiment of the invention is shown in the accompanying drawing, wherein:

Fig. 1 is a longitudinal section through the instrument, shown as applied to a patient's forearm;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a top plan; and

Fig. 4 is an enlarged section through the hammer.

The instrument comprises a slightly curved supporting plate 11, which may be of sheet metal, riveted or otherwise secured at its ends to transverse curved supporting plates 12 and 13. These are formed with slots 14, through which are passed the ends of straps 15, by means

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of which the instrument may be secured to the forearm, as shown in Fig. 1. Resilient pads 16 may be secured to the under sides of the plates 12 and 13 for the comfort of the patient. Also, as shown in Fig. 1, a ganglion is on the back of the wrist, causing a swelling G, and the wrist is flexed to place the area under tension, and thus in the best position for treatment.

The front plate 13 is provided with an upstanding U-shaped clip 17, whose spaced arms are formed with aligned apertures for mounting a stud 18. A washer 19 is positioned between the base of the clip 17 and the plate 13, and a hairpin spring 21 is disposed on the upper surface of the base of the clip. These parts are held together, and on the plate 13, by a rivet 22 passing therethrough, and which is substantially perpendicular to the axis of the stud 18. Due to the interposition of the washer 19, the entire clip assembly may be turned to one side or the other, as shown by the broken lines in Fig. 3.

A hammer assembly is rotatably mounted on the stud 18, to overhang the front plate 13, and it comprises a curved or crescent-shaped arm 23 having spaced side walls 24 connected by a back web 25. The concave portion of the arm 23 is closed adjacent its small or outer end, by folding inwardly portions of the side walls 24, as indicated by the reference numeral 26 in Fig. 1. These folded portions are discontinued, however, about half way or less along the length of the arm, to provide an open gap between the side walls 24, as indicated by the reference numeral 27. At this region, the curvature of the side walls is also changed to provide substantially circular and convex arcuate portions 28, formed with ratchet teeth 29, which engage with the outer upwardly turned end 31 of the spring 21.

The stud 18, which also passes through suitably located apertures in the side walls 24, is formed with an axial slot 32 between its ends, to receive one end of a spiral spring 33, the other end of which is engaged in a slot formed in the inwardly turned portions of the side walls 24, as is clearly shown in Figs. 1 and 2. Assembly of the spring with the stud and arm 23 is effected by inserting the spring through the clearance gap 27 and hooking its ends into the respective slots. It will now be apparent that, as the arm is pulled backwardly, the tension in the spring is increased, and that the arm will be retained in any one of a number of positions, by reason of the engagement of the spring end 31 with one of the ratchet teeth 29. Depression of the spring, as by means of the thumb illustrated in Fig. 1, causes the arm to snap forward and downward, from the full to the dotted line position. The stud 18 is retained in position by a screw 34 entering an opening tapped into the end of the stud, and the screw may be of such length as to enter the slot 32 to bind the end of the spring 33, and thereby restrain it from accidental disengagement.

The small or outer end 35 of the arm 23 detachably receives the shank 36 of a ball element 37 constituting one part of a universal joint. A socket element 38, constituting the other element of the joint, is embedded in a hammer head 39, which may be made of hard rubber or similar material. Tightness of the joint is maintained by a cupped washer 41, contained within the socket element 38, and bearing against the ball 37, as is clearly shown in Fig. 4. It will now be apparent that the hammer head 39 may be adjusted to any desired position, so that its striking face 42 may be applied normal to the ganglion to be reduced.

It is believed that the method of employing the instrument will be understood from the foregoing description. The physician adjusts the arm 11 lengthwise of the patient's forearm, swivels the clip 17 to one side or the other, and similarly turns the hammer head 39, so that the head will strike squarely on the afflicted area. The straps 15 are then taken up to retain the tool in position, and the arm 23 is then retracted to the desired extent, so that, for example, the tension in the spring 33 will exert a force of from say eight to twelve pounds. By making the shank 36 frictionally and detachably engaged in the end of the arm 23, various sizes of hammers may be utilized. The retaining spring or pawl 21 is then

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depressed, so that the hammer 39 may impact the ganglion and cause it to rupture.

It will be understood that various details of the invention may be modified without departure from its spirit, or its scope as set forth in the following claims.

I claim:

1. Apparatus for the reduction of tumors apparent on the surface of the body comprising a supporting structure and means for attaching the structure on the body adjacent the area to be treated, a retractible arm and hammer assembly rotatably mounted on the supporting structure and adapted to overhang and project beyond a portion thereof, and spring means interposed between and connected to the supporting structure and the arm and hammer assembly to urge said assembly from a retracted to an overhanging position, whereby a blow may be administered on the area to be treated.

2. Apparatus as set forth in claim 1, wherein the arm and hammer assembly is swivelly mounted on the supporting structure about an axis substantially perpendicular to its axis of rotation.

3. Apparatus for the reduction of body surface tumors comprising a supporting plate, straps connected to the plate to enable the same to be attached to the body, a clip connected to the plate and projecting upwardly therefrom, a hammer arm mounted on the clip for rotation about an axis generally parallel to the surface of

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the plate, spring means interposed between the clip and the arm to urge the arm downwardly toward the plate, and a hammer mounted at the outer end of the arm, said hammer having a striking face adjustable into a plurality of planes with respect to the axis of rotation of the hammer arm.

4. Apparatus as set forth in claim 3, wherein the hammer arm is formed with a plurality of ratchet teeth, and a releasable pawl mounted on the clip for engagement with said teeth.

5. Apparatus for the reduction of body surface tumors comprising a supporting plate, a strap connected to the plate to enable the plate to be attached to the body, a clip swivelly mounted on the plate and projecting upwards therefrom, a stud disposed transversely of the clip, a hammer arm rotatably mounted on the stud and clip, said hammer arm comprising a curved hollow member formed with ratchet teeth, a pawl mounted on the clip to detachably engage said teeth, a coiled spring disposed generally within said hammer arm and having its ends respectively connected to the arm and stud, and a hammer adjustably mounted on the outer end of the arm.

6. Apparatus as set forth in claim 5, wherein the hammer is mounted on the arm through a universal joint.

No references cited.