

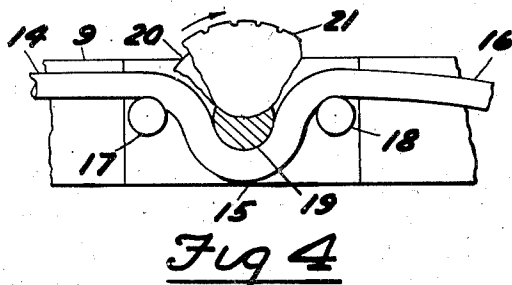
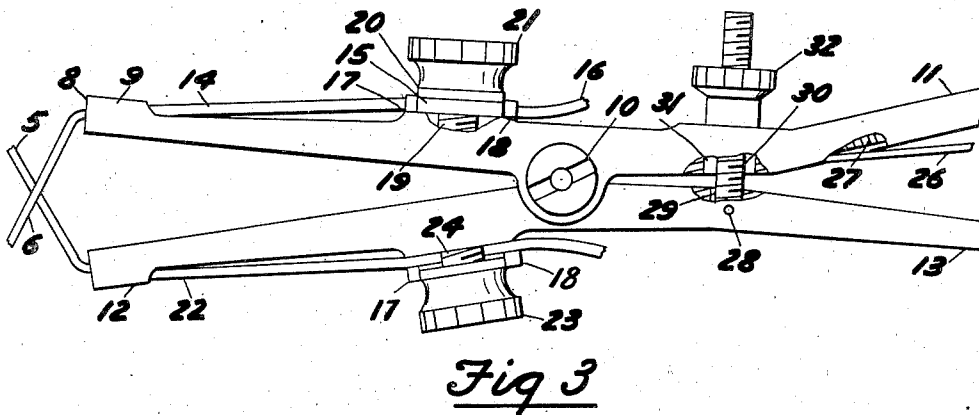
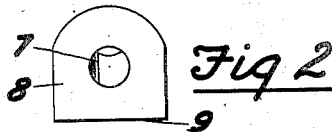
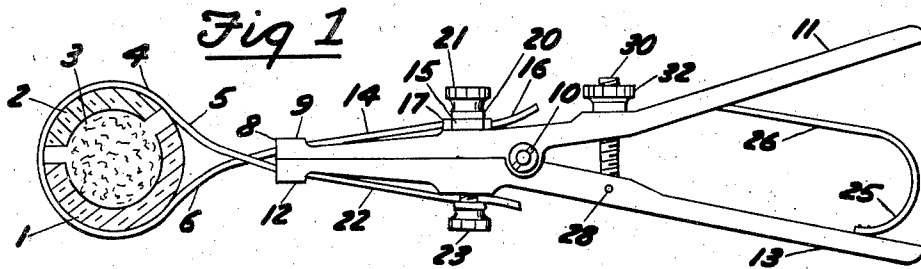
Dec. 7, 1948.

B. V. SCHEIB

2,455,609

WIRE APPLYING FORCEPS

Filed June 20, 1945



Inventor
Burton V. Scheib

Geo. E. Kirk

Attorney

UNITED STATES PATENT OFFICE

2,455,609

WIRE APPLYING FORCEPS

Burton V. Scheib, Toledo, Ohio

Application June 20, 1945, Serial No. 600,449

3 Claims. (Cl. 128-92)

1

This invention relates to line tensioning, twisting and wrapping hand tool devices.

This invention has utility when incorporated in a pivoted member pair structure, especially adapted to clamp engage a wire upon opposite sides of an intermediate portion to be acted upon. This intermediate portion may be a loop, say as a wrap about a bone fracture, in surgical use. The wire portions as extending from the initial wrap, are clamped independently, one in each of the two relatively movable or spreadable jaw portions. The jaws may then be spread to put an opening tension on the crossed ends of the wire. With this position locked at the handle portion, the handles may then be turned to twist the wire into the more taut desired final holding position therefor.

Referring to the drawings:

Fig. 1 is a side elevation of an embodiment of the invention at assembled position for a wrap at a bone fracture;

Fig. 2 is an end elevation of one of the wire holder engaging members or jaws;

Fig. 3 is an enlarged view in side elevation of the tensioning or spread position of the wire end engaging portions as locked for the twisting stage to start; and

Fig. 4 is a fragmentary plan view of a wire end holding clamp mounted on a wire end engaging arm of the tool.

Fractured bone sections 1, 2, about marrow 3, have a line or wire 4 wrap with crossed diverging wire portions 5, 6, therefrom. The wire portion 6 enters a port 7 in a face 8 of a wire engaging jaw or spread portion 9 as an arm of a member having a fulcrum at a pivotal connection 10 with a handle portion or grip 11. Complementary to the portion 9 is a spread portion 12 of the companion member of the tool extending past the common pivotal connection 10 to an additional handle portion 13, which with the portion 12 are assembled as a grip, adapted for twisting or turning in wrench-like action.

The wire end 6 as passing thru the port 7 passes along the outer side of the portion 9 as away from the portion 12 as a taut straight section 14 having a bend or hump 15 to free end 16. Upstanding lugs or pins 17, 18, determine the sides for the bend 15 as an arc about a screw stem 19 in the member arm 9 midway between the small posts or lugs 17, 18. The screw stem 19 as entering the arm 9 has a clamping flange 20 to crowd the hump 15 flat between the posts 17, 18, against the arm 9. A knurled head 21 fixed with the stem 19 is the operating means.

2

The thread direction of the stem 19, say as clockwise in Fig. 4, means that tensioning pull of the section 14 toward the port 7, is in the turning direction for the stem 19 to more tightly clamp and hold the wire at the hump 15. The spread arm portion 12, has thru its free end port from the wire portion 5 a straight section 22, similar to the portion 14. The portion 22, extends to a wire clamp device 23, similar to the device having the knurled head 21. Likewise here, clockwise turning of the device 23 is to effect wire clamping, with a hump about a stem 24, in its pull direction from the wire portion 5, effecting more firm binding at the device 23.

The handle portion 13 near its free end has fixed therewith an arched spring strap 25 with its free end 26 to ride in a slideway 27 along the inner side of the handle portion 11. There is thus provided yieldable means normally closing the jaws 9, 12. A pivot 28 in the handle portion 13 spaced from the hinge or pivot connection 10 away from the clamp devices 21, 23, has rockable clearance 29 for a threaded stem 30 extending from the pivot 28 thru a slot 31 in the companion handle portion 11, there to be engaged by a knurled nut 32. Setting of this nut 32 to flex the spring 25, acts to spread the jaws 9, 12, and thereby tension initially the cross reaches 5, 6, of the wire. As so locked by the nut 32, the handle pair unit 11, 13, may be readily twirled in twisting the clamped-ended wire in bending the cross portions 5, 6, upon each other to the desired binding extent.

What is claimed and it is desired to secure by Letters Patent is:

1. For initiating and adjusting a line loop to a desired completion, a two member tool body, a pivot connection between the members for the members to provide diverging handle portions extending one way from the connection and jaw portions the other way from the connection, each of said jaw portions terminating in an edge with a face one way therefrom toward the connection and an outward face from the edge having a port therethru for the line to be looped in its extent outward from the jaws away from the connection, a leaf spring fixed to one handle portion remote from the connection and having a bow portion therefrom to a free end having a slide connection with the adjacent side of the other handle portion and thereby to coact to spread the handle portions and cause the jaw edges to approach abutting relation, an adjusting device coacting between the handle sections to limit the effective spread action of the spring,

3

there being on each jaw spaced from the port, a flat seat for a hump of a reach of the line from the loop to lodge flatwise thereagainst, and a clamp to pinch the flat portion of the hump toward the seat and thereby effecting each direction locking of the line.

2. A spread type surgical two member tool, a pivot connection between the members for the members to provide a pair of opposing jaw portions one way from the connection and, the other way therefrom, a pair of diverging handle portions adapted as grasped to spread the jaw portions, each jaw having fixed therewith a line clamping seat, whereby grasping of the handles to move them toward each other holds the line clamped portions taut, a handle-portion-spreading spring coacting directly between the handle portions remote from the connection, and, toward the connection from the spring, adjusting means directly engaging the handle to limit the spread extent of the spring and thereby determine a held spacing for the jaw portions, whereby the tool may be set to hold the line tensioning for the line having opposite line portions engaged by the jaw portions.

3. A hand tool for forming a line loop, said tool comprising a pair of members, a pivot connection between the members for the members to provide diverging handle portions extending one way from the connection and jaw portions

4

the other way from the connection, each jaw portion outer side near the connection having a pair of posts with a flat seat therebetween, and a clamp screw to press a line hump arched about the screw and within the posts to be pressed against said seat to lock the line against thrust and pull disturbance.

BURTON V. SCHEIB.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,031,987	Domizi	July 9, 1912
1,299,102	Angle	Apr. 1, 1919
1,310,232	Albaum	July 15, 1919
1,470,313	Woolen	Oct. 9, 1923
1,496,906	Sacre	June 10, 1924
2,291,413	Siebrandt	July 28, 1942

FOREIGN PATENTS

Number	Country	Date
82,100	Switzerland	Sept. 1, 1919

OTHER REFERENCES

Catalog of V. Mueller & Co., Chicago, 1937, page 11.