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G. GOSSRAU

2,123,891

SURGICAL TONGS

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Fig. 1a

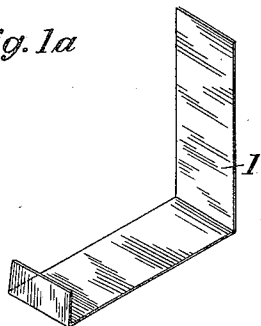


Fig. 1b

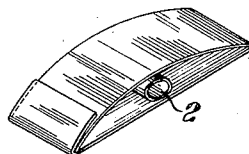


Fig. 1c

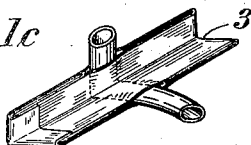


Fig. 2a

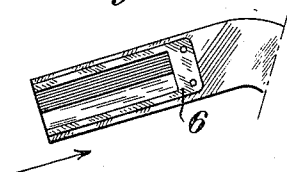
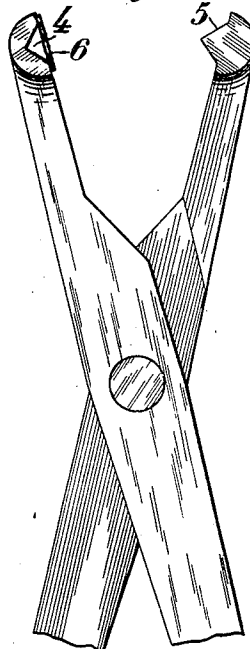


Fig. 2



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UNITED STATES PATENT OFFICE

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SURGICAL TONGS

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by mesne assignments, to Magnesium Development Corporation, a corporation of Delaware

Application November 28, 1936, Serial No. 113,171
In Germany June 3, 1933

1 Claim. (Cl. 128—346)

The present invention relates to improvements in surgical tongs.

For surgical purposes, for example for the underbinding and tying of veins etc. metal clasps made from silver, German silver, and aluminium-alloys are frequently employed. Magnesium metal which, in contradistinction to the aforesaid metals or alloys, is resorbed by the human or animal body without any difficulty, and which therefore would appear to be an unsurpassable clasp material for these purposes, has, however, up-to-date not been employed to any great extent, the reason being that the production of clasps having a sufficient strength and rigidity when applied to the body requires the employment of magnesium in the form of wire or ribbon of such a thickness that a bending of the material in the cold is impossible.

One of the objects of the present invention consists in devising a form of clasp for surgical purposes which enables the use of magnesium ribbon or tape of a thinness which will allow of a bending of the unfolded clasp without any risk of its breaking. The necessary rigidity of the clasp, the material of which would be too weak in itself, is, according to the present invention, achieved by a suitable shaping operation which takes place only after the ribbon or tape forming the clasp has been applied to the vein to be tied. According to the preferred embodiment of the present invention such suitable shaping is brought about by indenting or bending the folded clasp along a line in parallel with the longitudinal extension of the clasp with the aid of a suitable tool.

In the annexed drawing, Figures 1a, 1b and 1c are representative of the various stages of applying the clasp according to the present invention to the body, whilst Figure 2 is a frontal view of a pair of tongs to be employed in adjusting and bending the clasp, and Figure 2a a view of one of the jaws of the tongs in a position at right angles to that shown in Figure 2.

According to a preferred embodiment of the invention, a strip of magnesium sheet of 0.05 mm. thickness, being 15 mms. long and 5 mms. wide, is bent in U-shape fashion according to Figure 1a, the middle section being 7 mms. long and the two sides being 2 mms. and 6 mms. long, respectively. The middle section 1 thus formed

is then, with the aid of the tongs, brought into position around the vein 2 to be tied, and by closing the tongs first brought into the shape according to Figure 1b, whereupon, on the further exercise of pressure by the tongs, the clasp is folded along a line 3 which is in parallel to its longitudinal extension (compare Figure 1c). The bend thus produced in the clasp renders it entirely rigid and thus securely prevents the clasp from re-opening by itself.

In adjusting the clasp, there is preferably made use of the tool according to Figures 2 and 2a. This tool consists of a pair of tongs of the usual surgical form, of which the jaws 4 and 5 are suitably shaped to receive the unfolded clasp and to produce the longitudinal bend in the clasp after folding. To this end, one of the jaws is provided with a chamfer or furrow 4 corresponding in cross-section to the cross-section of the clasp in its final form, whilst the other jaw is provided with a ridge 5 adapted to register with the chamfer or furrow 4. In order to retain the unfolded clasp in its position, a metal frame 6 is attached to the first-named jaw which surrounds the chamfer or furrow 4.

In using the tongs, the strip of magnesium bent according to Figure 1a is superposed on the trough formed by furrow 4, being held in position by frame 6, the width of the frame corresponding to the width of strip 1. The strip 1 is then folded around the vein to be tied in the usual manner, the jaws of the tongs, on closing, first compressing the strip into the form shown in Figure 1b. On the further exercise of pressure the bend 3 as shown in Figure 1c, is formed in the clasp by chamfer or furrow 4 registering with ridge 5 so that finally the clasp tied around the vein assumes the form shown in Figure 1c. The clasp is then securely fastened and effectively prevented from re-opening.

I claim:

A surgical tongs, comprising a jaw provided with a chamfer or furrow of angular cross-section and a metal frame superposed thereon and adapted to receive a surgical clasp, and another jaw provided with a ridge adapted to register with said chamfer or furrow over its entire cross-sectional area.

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