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H. COHEN

1,957,992

TOURNIQUET

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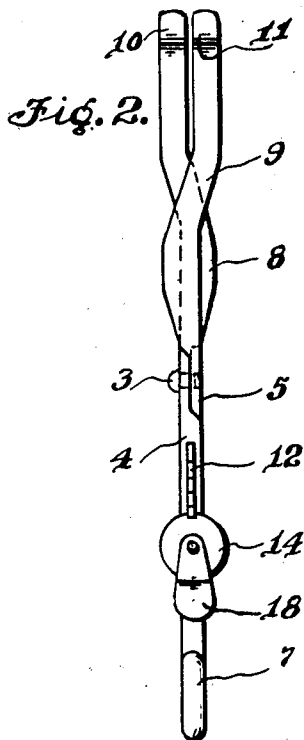
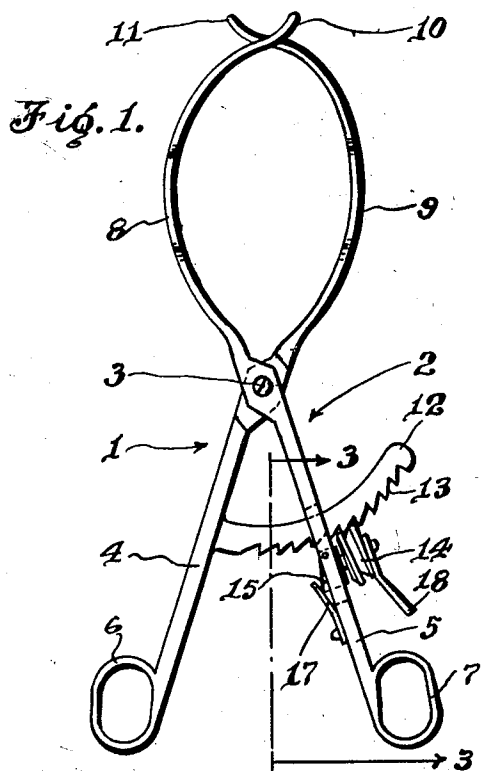
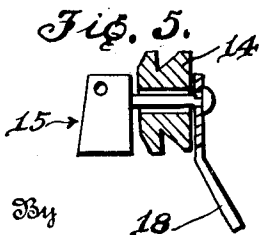
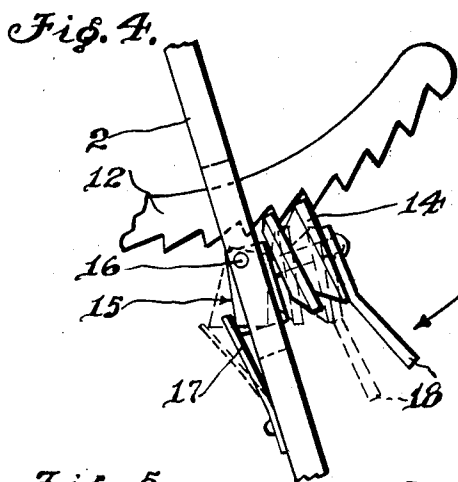
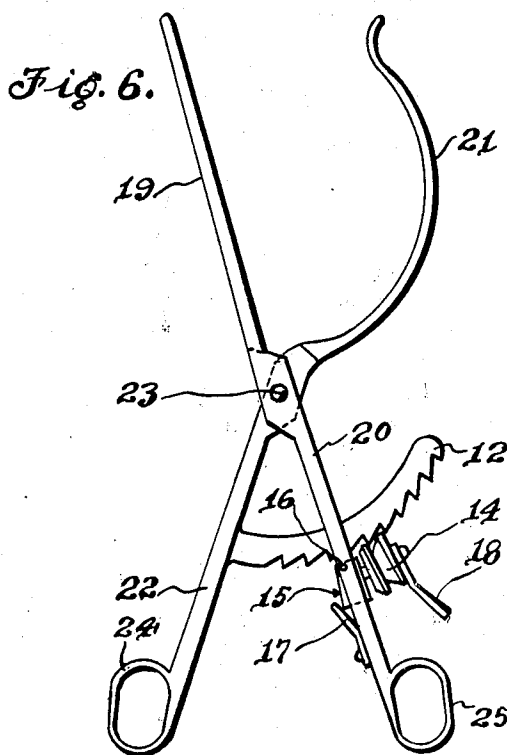
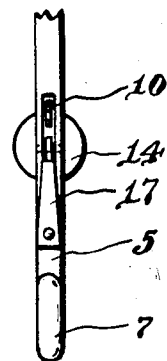


Fig. 3.



Inventor
Harry Cohen

J. Kaplan
Attorney

UNITED STATES PATENT OFFICE

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TOURNIQUET

Harry Cohen, New York, N. Y.

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4 Claims. (Cl. 128—327)

This invention relates to tourniquets.

The main object of the invention is to provide an instrument of this kind which is very simple in construction, easily applied to the limb of the patient and extremely effective.

Another object of the invention is to provide an instrument of this kind which will partially constrict a limb of a patient so as to make the veins below the constriction stand out prominently when making a medical test.

Another object of the invention is to provide an instrument of this kind having means to regulate the pressure of the gripping members exerted on the limb.

Another object of the invention is to construct the gripping members so that they will not cut or pinch the flesh of the patient.

Still a further object of the invention is to provide a ratchet mechanism for holding the gripping members in the desired locked position and means to release the gripping members from the ratchet mechanism.

Other objects will appear as the disclosure progresses. The drawing is intended to merely indicate a possible embodiment of the invention. It is obvious that the actual needs of manufacture may necessitate certain mechanical changes. It is therefore not intended to limit the invention to the embodiment illustrated but rather to define such limits in the appended claims.

For a more general understanding of the invention attention is called to the drawing. In this drawing like reference characters denote like parts throughout the specification.

In the drawing:

Figure 1 is a front view of the tourniquet.

Figure 2 is an edge view thereof.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is enlarged detail of the adjusting mechanism.

Figure 5 is a view of the bearing for the worm wheel showing the worm wheel in section.

Figure 6 is a view of a modified form of the invention.

Referring now to the drawing in detail, numerals 1 and 2 designate a set of complementary members hinged together by the screw 3. Each of said members comprises a handle portion 4 and 5 terminating at the bottom into eyes 6 and 7 for the insertion of the fingers of the operator and at the upper ends into curved gripping members 8 and 9 adapted to fit the limb of the patient. The tips 10 and 11 of the gripping members are bent in the reverse direction to the normal curvature

of the said members so as not to pinch the flesh or skin of the patient.

Attached to the handle 4 is an arc-like ratchet 12 having teeth 13 at the bottom face which are adapted to engage with a worm wheel 14. Said worm wheel is mounted on the bearing 15 which is pivoted to the member 2 by the pin 16. Behind the bearing is a leaf spring 17 whose free end is adapted to urge the worm wheel into engagement with the teeth 13 of the ratchet 12. Numeral 18 designates a lever keyed to the bearing against rotation and adapted to be operated by the thumb of the hand for swinging the gear wheel downwardly.

The instrument is applied to the limb of the patient by first fully opening the curved gripping members 8 and 9 for embracing the limb. The members 1 and 2 are then brought together thereby closing up the curved gripping members around the limb of the patient. As the members 1 and 2 are brought together the, worm wheel 14 will successively ride over the periphery of the ratchet teeth 13 and automatically lock itself against reverse movement. Now to obtain a stronger grip or stronger constriction of the limb of the patient the curved gripping members can be brought more forcibly together by revolving the worm wheel clockwise, the said worm wheel acting like the thread of a screw and bearing against the flat face of the ratchet teeth 13. For the initial gripping of the limb the gripping members are brought together but to obtain a firmer grip the worm wheel mechanism is used. To release the grip of the curved members 8 and 9 it is not necessary to revolve the worm wheel anti-clockwise but simply to press the lever 18 downwardly by the thumb against the spring 17 so that the gear wheel will clear the ratchet. This downwardly position of the gear wheel is shown in dotted lines in Figure 4.

The modified form of the invention shown in Figure 6 is the same as that illustrated in Figure 1 with the exception that the gripping member 19 leading from the complementary member 20 is made straight while the gripping member 21 leading from the complementary 22 is curved similar to the member 9. Numeral 23 designates the pivoting screw connecting the two complementary members 20 and 22 together, 24 and 25 the eyes and 12 the arc-shaped ratchet for regulating the pressure of the gripping members and for keeping them in a set position. The worm gear mechanism is the same as that shown in Figure 1. This form of the invention is mainly adapted for operating on

patients when lying in bed. The straight gripping member 19 can easily be pushed underneath the patient's arm or leg without disturbing and without the necessity of raising his limb.

It will thus be seen that I have provided a simple and efficient tourniquet which is easy to operate and which will not unduly annoy or disturb the patient. The gripping members can quickly be adjusted to the limb by simply bringing the handle members together. Now to apply the necessary pressure the worm wheel mechanism is used. The device can be manipulated and adjusted to any desired pressure with the fingers of one hand only and can easily and quickly be released without revolving the worm wheel. By moving the two eyes together the two gripping members will simultaneously move together and vice versa, when the eyes are separated the gripping members will move away from each other. The worm wheel is adapted to float or swing with its bearing and can easily be released from engagement with the ratchet by pressing downwardly against the leaf spring.

Having described my invention, I claim:

1. In combination a pair of pivotally connected members, an arcuate ratchet carried by one of said members and crossing the other member, said ratchet being concentric to the pivot of the members, a bell crank lever pivoted to said other member and having one arm extending along the member to form a finger piece, a worm wheel journalled on said bell crank lever, and a spring urging said worm wheel into engagement with the ratchet.

2. In combination a pair of pivotally connected members, an arcuate ratchet carried by one of said members and crossing the other member, said ratchet being concentric to the pivot of the members, a bell crank lever pivoted to said other member and having one arm ex-

tending along the member to form a finger piece, a worm wheel journalled on said bell crank lever, a spring urging said worm wheel into engagement with the ratchet, and finger grips on said pivoted members spaced to permit engagement of the finger piece by a finger of one hand while a second finger of the hand is engaged in a finger grip.

3. In combination a pair of pivotally connected members, an arcuate ratchet carried by one of said members and crossing the other member, said ratchet being concentric to the pivot of the members, a bell crank lever pivoted to said other member and having one arm extending along the member to form a finger piece, a worm wheel journalled on said bell crank lever, and a spring urging said worm wheel into engagement with the ratchet, said ratchet having teeth abruptly shouldered on the sides facing the member to which the ratchet is attached and the worm having a thread shouldered coaxingly to the ratchet teeth.

4. In combination a pair of pivotally connected members, an arcuate ratchet carried by one of said members and crossing the other member, said ratchet being concentric to the pivot of the member, a bell crank lever pivoted to said other member and having one arm extending along the member to form a finger piece, a worm wheel journalled on said bell crank lever, a spring urging said worm wheel into engagement with the ratchet, said ratchet having teeth abruptly shouldered on the sides facing the member to which the ratchet is attached and the worm having a thread shouldered coaxingly to the ratchet teeth, and finger grips on said pivoted members spaced to permit engagement of the finger piece by a finger of one hand while a second finger of the hand is engaged in a finger grip.

HARRY COHEN.

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