Aug. 22, 1950 W. STEGEMAN 2,519,712

CONSTRICTOR

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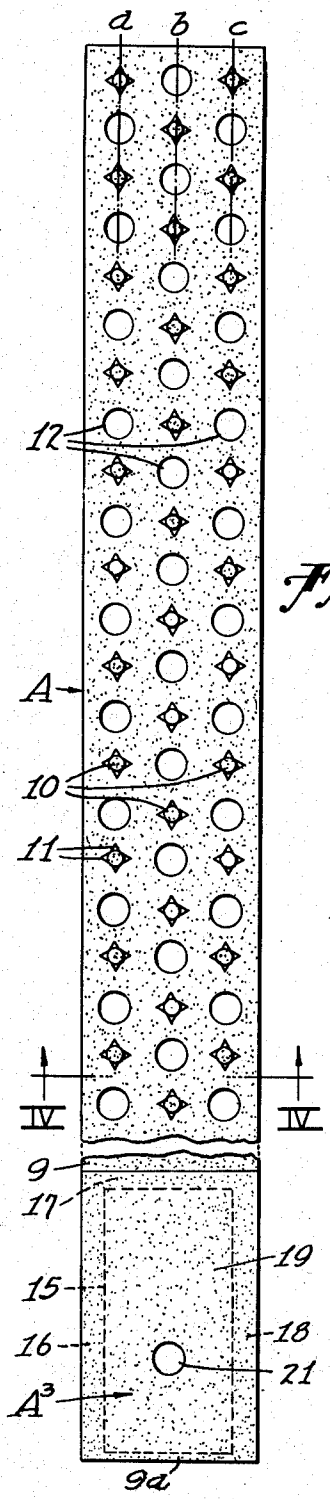


Fig. 1.

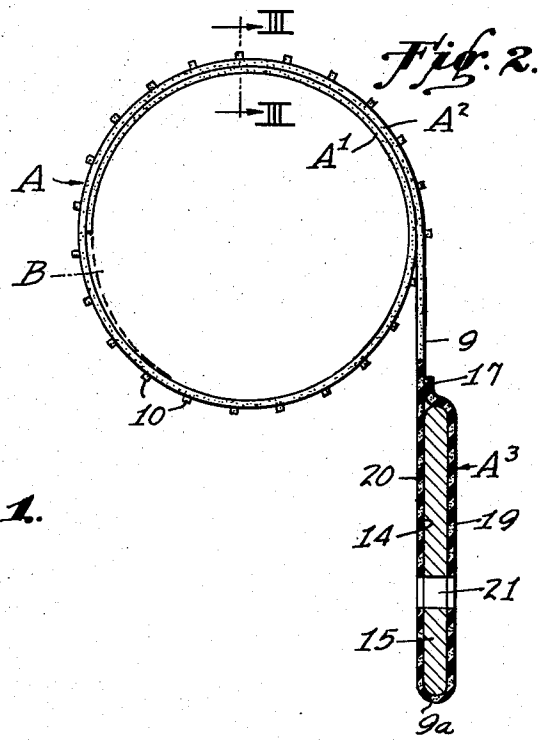


Fig. 2.

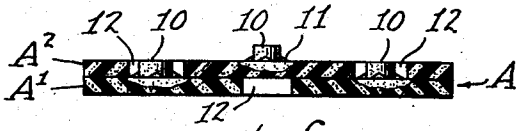


Fig. 3.



Fig. 4.

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CONSTRICTOR

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3 Claims. (Cl. 128—327)

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The present invention relates to improvements in a constrictor. It consists of the combinations, constructions and arrangement of parts, as hereinafter described and claimed.

At the outset of this specification, I desire to point out that a "constrictor" is a band which is wrapped around the arm or leg of a patient to shut off all or part of the blood-flow in the limb. Doctors have constant need for an efficient constrictor in modern medical practice.

The most common use of a constrictor is for distending the superficial veins of the arm so that they may be punctured with a needle attached to a syringe, either for the drawing of blood for laboratory tests, or for the introduction of medicines, blood or plasma into the veins. Occasionally, the constrictor must be used as a tourniquet to shut off the entire circulation of blood to the limb in order to stop hemorrhage.

In order that the use and advantages of my improved constrictor may be fully understood, brief reference will be made to commonly-used constrictors and their deficiencies.

At times, the fingers of an assistant are utilized for encircling the patient's limb to distend the veins. This practice is cumbersome, consuming time and personnel, and provides a poor constrictor since it is too inelastic.

Resort has been made to using a piece of rubber tubing and wrapping it around the patient's limb. However, the tubing must be secured by an assistant, or be tied, knotted or clamped. The tubing will constrict fairly well; but it may break, or compress the skin in a painful manner, especially if the patient is fleshy. The tubing is generally tied with a slip-knot (which often pinches the skin) so that it may be untied and loosened with a pull, once the needle has been introduced into the vein. The sudden release thus brought about frequently jars or jerks the needle out of the vein, if the vein is small, thus requiring repetition of the process.

The cuff of a blood-pressure apparatus has been used as a constrictor. It is cumbersome to apply, and generally in the way due to its size and shape. The cloth-covered bag is difficult to clean, if it gets stained with blood.

It is proposed in the present invention to provide a constrictor, which may be quickly and easily applied; comfortable to the patient due to its width; constricts superficial veins perfectly, and even may be used as an efficient tourniquet to control hemorrhage.

Moreover, I propose to provide a constrictor that is self-secured as it is wrapped in layers around the patient's limb, without requiring tying, knotting, clamping, hooks or buckles. The constrictor can be released with one hand, quickly, smoothly, and without any jerk to the skin or limb. It is small in size, convenient for compact storing in a doctor's bag. It can be hung up conveniently in the doctor's office or in the hospital treatment or surgery room. The constrictor is sanitary in type and is easily cleaned.

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For a better understanding of my invention, reference should be had to the accompanying drawing, forming part of this application, in which:

Figure 1 is a plan view of my constrictor;

Figure 2 is an end view illustrating the constrictor applied to the limb of a patient, portions of the constrictor being disclosed in section;

Figures 3 and 4 are enlarged transverse sectional views taken along the lines III—III and IV—IV, respectively, of Figures 2 and 1, respectively.

While I have shown only the preferred form of my invention, it should be understood that various changes, or modifications, may be made within the scope of the appended claims without departing from the spirit thereof.

In carrying my invention into practice, I provide a strip of flexible material indicated generally at A. This strip is made preferably of soft pliable rubber and has sufficient length to be wrapped around a patient's limb B in overlapped layers, with the strip presenting a depending free end 9.

The strip A is provided on one face thereof with a plurality of projections 10, which are arranged in rows, *a*, *b* and *c* extending lengthwise of the strip, as clearly shown in Figure 1. These projections are integral with the body of the strip, and are reinforced by inclined webs 11 extending between projections and the strip body (see Figure 4). The strip A is broad and flat in transverse section so that it may bear against the patient's limb without causing discomfort to the patient.

Referring to Figure 1 in particular, it will be noted that openings 12 are fashioned between adjacent projections 10 in each of the rows *a*, *b* and *c*. The projections and openings in the row *b* are staggered with respect to the projections and openings in the rows *a* and *c*. When the strip is wrapped around the patient's limb B, the projections 10 in each row on one layer A1 of the strip protrude into the openings 12 in the same row on the next superimposed layer A2 of

the strip. The openings 12 are large enough to receive the inclined webs 11 (see Figure 3).

The depending free end 9 of the strip is turned back upon itself, as at 9a to provide a pocket 14 in which a weight 15 is accommodated. The marginal portions 16, 17 and 18 of the front wall 19 of the pocket are vulcanized or otherwise secured to the rear wall 20 of the pocket to retain the weight in place. The suspended weight in the free end of the strip keeps the inter-engaging projections and openings in apposition, preventing lateral and longitudinal slippage of the layers relative to one another.

The weight 15 provides a firm hand-grip A3 at the free end of the strip, which may be grasped by hand to pull the strip taut as it is wrapped about the patient's limb, or when removing the constrictor. This weight is sufficiently heavy to keep the strip from uncoiling, and the projections 10 are maintained in engagement with the openings 12 in which they are inserted. However, the strip may be removed very quickly without jerking the skin or limb of the patient by merely lifting the hand-grasp A3 with one hand. The weight causes the projections and openings to remain in apposition at whatever tension the strip is applied for as long as desired.

An opening 21 is fashioned through the weight 15 and the walls 19—20 of the pocket in order that the constrictor can be hung up conveniently in the doctor's office, or in the hospital treatment or surgery room.

The soft rubber strip A may be folded into a compact unit for storage in a doctor's bag. It is sanitary and easily cleaned, comfortable to the patient due to its width. It constricts superficial veins perfectly, and may be used as a tourniquet to control hemorrhage.

It should be understood that other methods may be employed for attaching the weight to the constrictor. For example, the weight could be hooked on to the constrictor, clamped to it (for instance, a flat piece of metal clamped around the rubber band at the end), or a weight which is tucked into or buttoned through the constrictor, or a weight which is slipped into a pocket in the end of the constrictor.

I claim:

1. A constrictor comprising a strip of yieldable and flexible material adapted to be wrapped around the arm or leg of a patient to partially overlap itself and shut off all or a part of the blood flow; said strip having openings and projections, certain of the projections in the lapped portion of the strip being freely received in the adjacent openings of the complementary lapped portion; and a weight secured to the free end of the strip for pulling downwardly on the outer end of the strip in the same direction the strap is wound for holding the outer lapped layer of the strip down upon the inner adjacent layer so that the projections of one layer will continue to extend through the openings in the adjacent layer and hold the lapped strip portions from relative longitudinal and lateral movement with respect to each other, the projections being freed from the openings when the weighted end of the strip is lifted and moved to unwind the wrapped portion.

2. A constrictor of the character described comprising: a strip of flexible material having a plurality of projections arranged in rows on one face thereof; the strip having openings therein disposed between adjacent projections in each row; and a weight anchored to one end of the strip.

3. A constrictor of the character described comprising: a strip of flexible material having a plurality of projections arranged in rows on one face thereof; the strip having openings therein disposed between adjacent projections in each row; the projections in one row being staggered relative to the projections in the adjacent row; and a weight anchored to one end of the strip.

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

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