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(54) IMPROVEMENTS IN OR RELATING TO TOURNIQUET DEVICES

(71) I, HEINZ DROOFF, a German citizen, trading as PRAMETA PRAZISIONS-METALL- UND KUNSTSTOFFERZEUGNISSE G. BAUMANN & CO., of 5 Köln 91, Hardtgenbuscher Kirchweg 111, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a tourniquet device for applying pressure to body parts.

According to the present invention, there is provided a tourniquet device for applying pressure to body parts, said device having a tape loop with free end portions guided through and extending out of a housing, which housing is slidable along the tape and has a pivotable clamping lever for clamping said end portions together, the free extremity of one said end portion having a flat end which enables said one end portion to be pulled freely through the housing and the other tape end portion being provided with a catch which comprises a tongue disposed on the outside of said other tape end portion to engage the exterior of said housing to prevent withdrawal of said other tape end portion through said housing.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawing, in which:—

Figure 1 is a part-sectional schematic side vie of a tourniquet device for applying pressure to body parts,

Figure 2 is a plan view of the device shown in Figure 1,

Figure 3 is a longitudinal schematic sectional view of part of the device shown in Figures 1 and 2, and

Figure 4 is a view of the underside of the part of the device shown in Figure 3.

Referring to the drawing, the device (generally designated 1) to apply pressure to body parts by constriction effect is provided with a resilient tape 6 and with a substantially U-shaped housing 2 in which a clamping lever 3 is supported so as to pivot around a transverse axis 4. The clamping lever 3 is formed by a push button 3*a* to one side of the axis 4 and a member 3*b* to the other side of the axis 4 which is biased onto the tape end portions 6*a*, 6*b* by a spring 5. The resilient tape 6 of rubber, for example, is formed into a loop 7 at one side of the housing 2 and is guided around a pin 8, the tape being retained in position on the pin 8 by a slotted sleeve 9. Free tape end portions 6*a* and 6*b* extend to the other side of the housing 2. One tape portion 6*b* is provided with a catch 10 the underside of which is provided with a tongue 10*a* which projects slightly from the plane of the tape. The other tape portion 6*a* is able to extend freely and has a flat end provided with an endpiece 11 which bears tightly on the tape end to maintain the flat end of the tape flat. The tape portion 6*b* with the catch 10 and tongue 10*a* is with advantage kept, in normal use, shorter than the other tape portion 6*a* having the flat endpiece.

In use, the loop 7 embraces a body part to constrict blood flow, for example, to apply pressure to one side of the loop. To release or enlarge the tape loop 7, the housing 2 is slid towards the ends of the tape portions 6*a*, 6*b* by depressing button 3*a* to release the pressure of the member 3*b* of the clamping lever 3 bearing on the tape, the tape portion 6*a* lying between the lever 3 and the tape portion 6*b*. The housing is moved until the tongue 10*a* of the shorter tape portion 6*b* abuts on the housing 2. Further application of pressure on the housing 2 in the direction towards the tape ends causes the two tape portions to be stressed so that the tape portion 6*a* snaps through the housing 2 thus releasing the tape loop.

The housing 2 is advantageously constructed of plastics material which assists sliding of the tape through the housing. At least one longitudinally extending slide strip 12, which substantially assists guiding of the tape portion 6*a* when the button 3*a* of the clamping lever 3 is depressed, is situated in a hollow formed by the clamping lever 3

between side walls 3*c* thereof under the button 3*a*.

As can be seen from Figures 1 and 3, the member 3*b* of the clamping lever has a free edge which is positioned to the same side of the pivot axis 4 as the spring 5, this free edge being provided with a curvature to facilitate passage of the tape portion 6*a* through the housing 1.

The tape itself is a resilient tape with longitudinal elasticity and may comprise, for example, a textile tape with integrally woven resilient threads of rubber or plastics.

It will be appreciated that with the present device, it is possible to detach and remove the constricting tape loop 7 surrounding a body part from the body part without the need for displacing the tape loop 7 longitudinally of the body part or for pulling it over a hypodermic syringe, for example, which has been set in place. By applying the appropriate pressure on the clamping lever 3, the housing 2 can be adjusted towards the tape ends until the tape loop 7 has been widened to the maximum possible extent. Any further sliding motion of the housing 2 enables the extremity of the tape portion with the smooth endpiece 11 to be pulled through the housing 2 while the end of the tape portion 6*b* bears upon the housing and thus enables the other tape portion 6*a* to be withdrawn from the housing 2. The tape 6 can thus be withdrawn with one hand from the body part around which it has been applied in a radial direction. This is very advantageous, more particularly for large body parts, the tape 7 being of sufficient length for such parts.

WHAT I CLAIM IS:—

1. A tourniquet device for applying pressure to body parts, said device having a tape loop with free end portions guided through and extending out of a housing, which housing is slidable along the tape and has a pivotable clamping lever for clamping said end portions together, the free extremity of one said end portion having a flat end which enables said one end portion to be pulled freely through the housing and the other tape end portion being provided with a catch which comprises a tongue disposed on the outside of said other tape end portion to engage the exterior of said housing to prevent withdrawal of said other tape end portion through said housing.

2. A tourniquet device as claimed in claim 1, wherein a flattened endpiece engages tightly on said one end portion of the tape to maintain said flat end flat, said one tape end portion being kept, in normal use, longer than the other tape end portion.

3. A tourniquet device as claimed in claim 1 or 2, wherein the housing is made from plastics material.

4. A tourniquet device as claimed in any one of the preceding claims, wherein said clamping lever is resiliently biased onto said end portions and has a push button on one side of a pivot axis of the lever, under which button there is provided a slide strip extending longitudinally of the housing, the resilient bias being applied at the other side of the said pivot axis.

5. A tourniquet device as claimed in claim 4, wherein said clamping lever has a free edge which is positioned to said other side of said pivot axis, this free edge being provided with a curvature to facilitate passage of said one end portion of said tape through said housing.

6. A tourniquet device as claimed in claim 4 or 5, wherein said one end portion lies, when it extends through said housing, between said lever and said other tape end portion.

7. A tourniquet device for applying pressure to body parts, substantially as hereinbefore described with reference to the accompanying drawing.

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3. A tourniquet device as claimed in claim 1 or 2, wherein the housing is made from plastics material.

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