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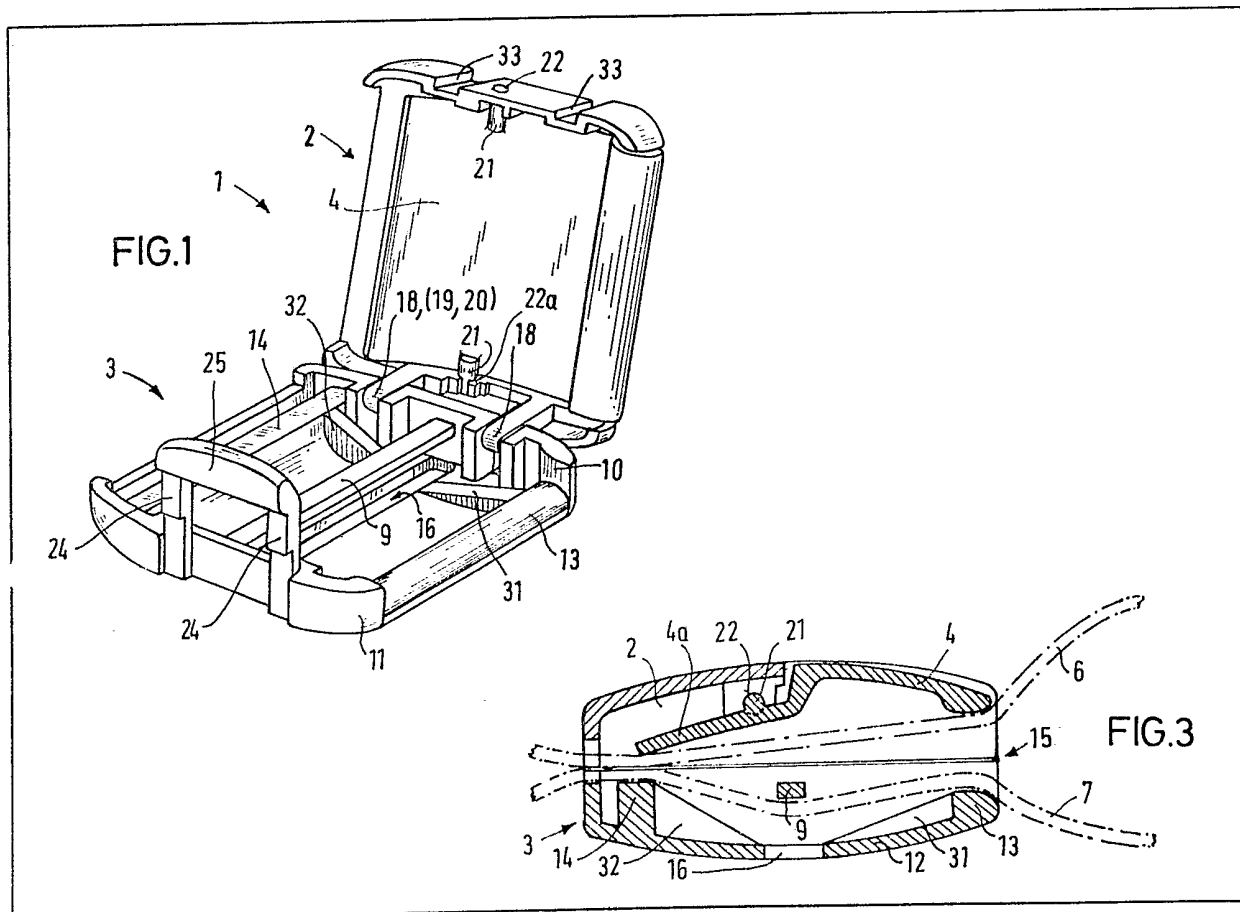
(57) A clamp for locking a ligature loop, especially a tying-off or restricting device for bringing about restriction effects at parts of the body, comprises a casing (1) through an elongate slot (15) of which the ends of a ligature forming a loop are passed and held fast by means of a pivot spring-loading clamping lever (4). The casing (1) is divided in the plane of the elongate slot (15) into an upper casing half (2) and a lower casing half (3), and the lower casing half (3) has a

bridge-like crossbar (9).

Preferably, the upper casing half (2) is mounted laterally hingeable on the lower casing half (3) and the clamping lever (4) is associated with the upper casing half (2).

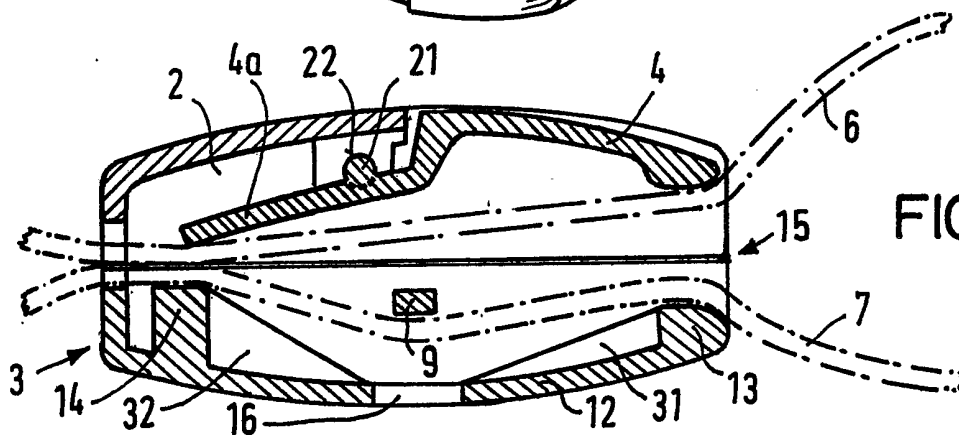
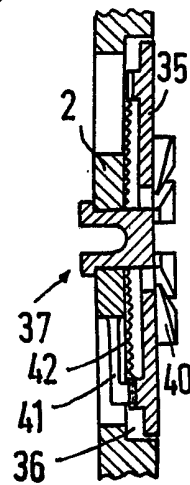
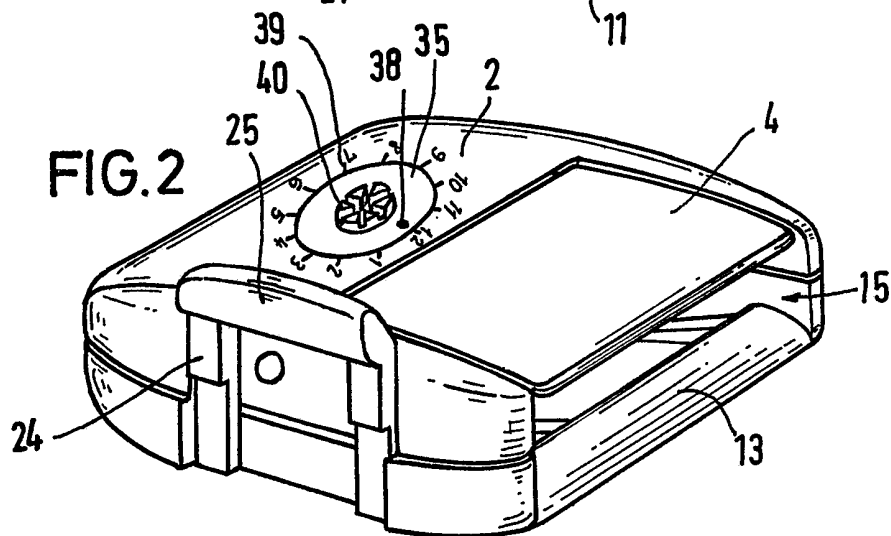
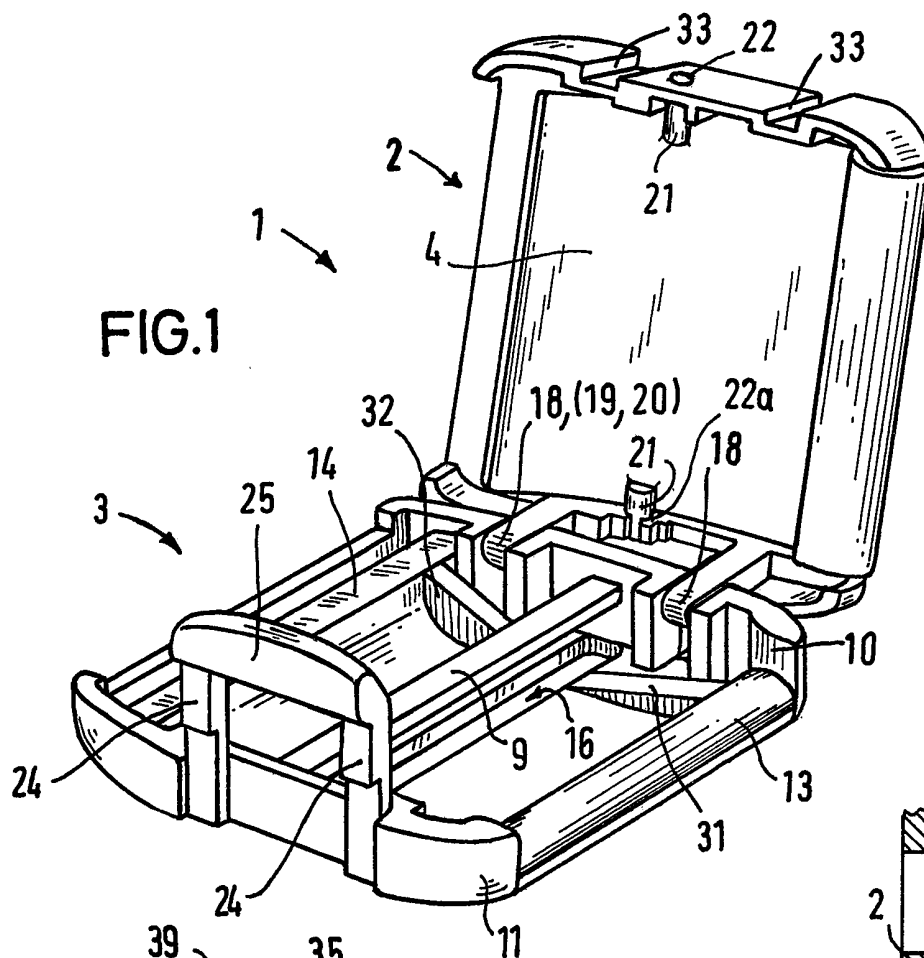
Preferably, also, the lower casing half — seen in longitudinal cross-section — is provided with a trough-shaped bottom (12) and has ridge-shaped transverse fins (13, 14) at the front and rear edges of the trough, and the crossbar (9) is arranged between the transverse fins (13, 14) at about the level of the upper surfaces of the latter.

Advantageously, the upper casing half (2) is closable with the lower casing half (3) through a snap engagement.



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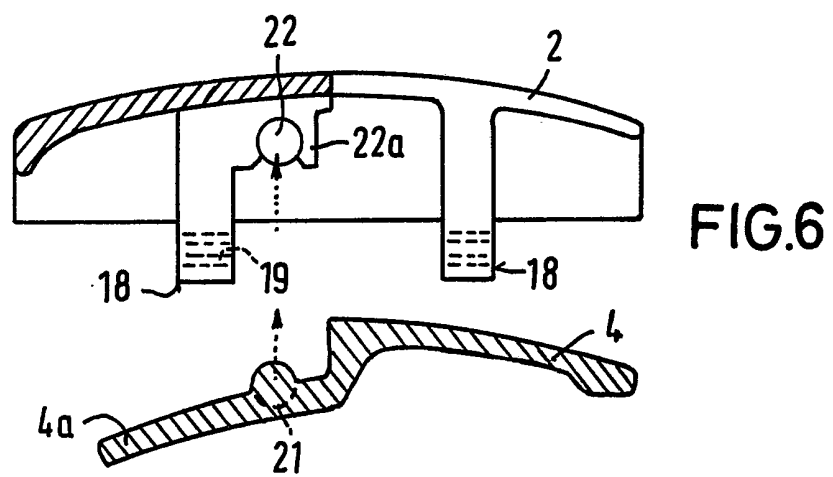
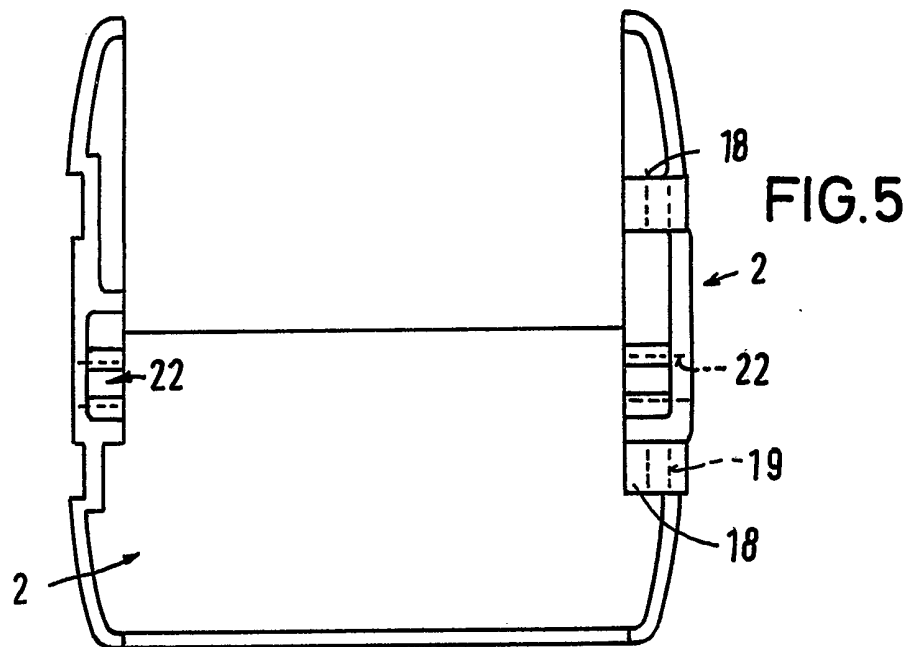
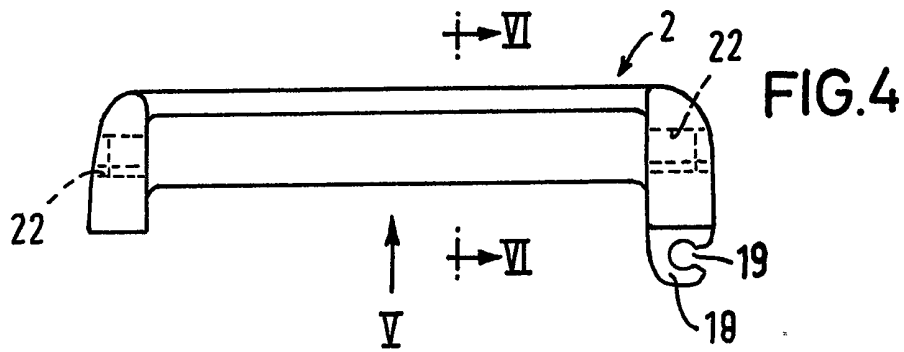


FIG.7

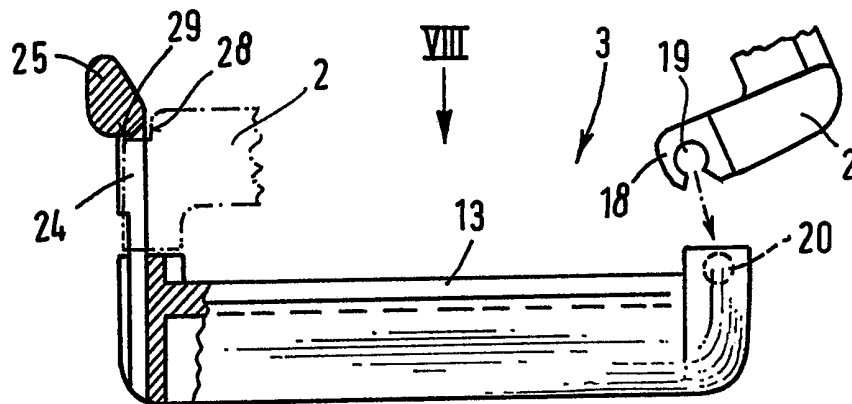
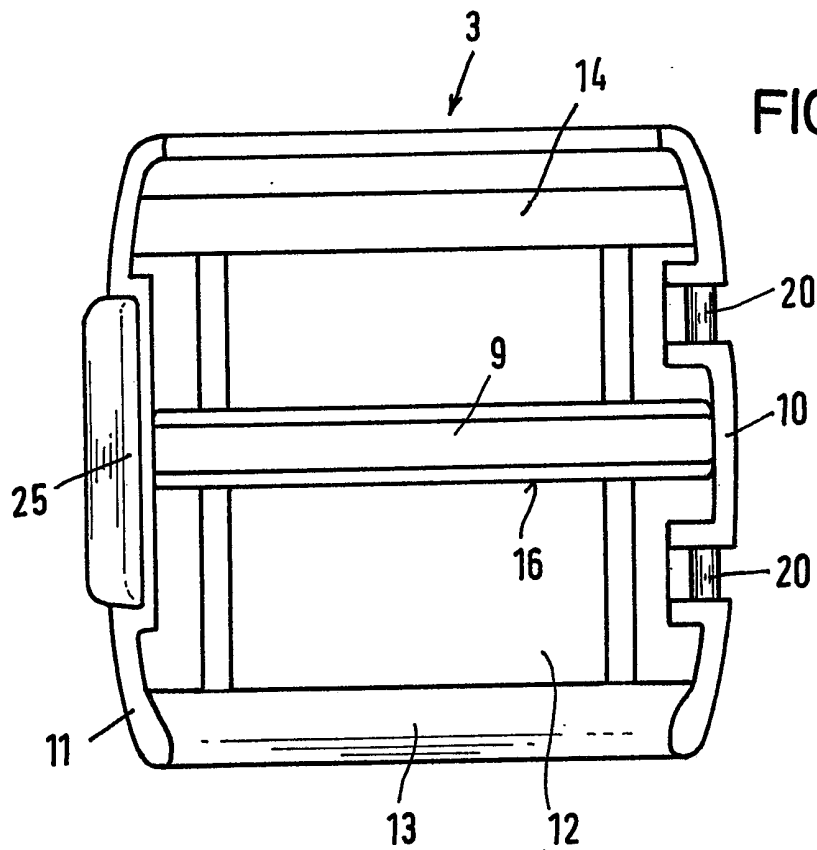


FIG.8



SPECIFICATION

Clasp for locking a ligature loop, especially tying-off or constricting device for restriction effects at parts of the body

5 The invention relates to a clasp for locking a ligature loop, especially to a tying-off or restricting device for bringing about restriction effects at parts of the body, in which the ends of a ligature forming a loop are passed through an elongate slot of the casing and held fast by means of a pivoted spring-loaded clamping lever.

10 In the case of the known tying-off or constricting devices for accomplishing restriction effects at part of the body, it is necessary that the end lengths of a ligature formed into a loop are inserted through a closed elongate slot in the casing of the tying-off or constricting device in order to enable the loop to be made smaller or larger by displacing the clasp.

20 In the case of such a clasp, the loop from the ends of the lengths thereof to be tied off must be placed on the latter. In order to make possible putting of the ligature around transverse to the axis of the body part or the like, it is moreover known to form the clasp or the tying-off device in such a way that an end length of the ligature forming a loop can be unhooked from the clasp casing, whereby the loop is opened directly.

25 To this end the clasp is provided with a screw device or a further clamping device or the like which make possible the direct disengagement of the end of the ligature from the clasp, so that the loop can be opened without it being necessary to pull one end or both ends of the ligature through the closed elongate slot of the clasp casing. Such a clasp is provided with various movable parts.

30 The object of the invention is to provide a clasp for securing in position or locking a ligature loop, which makes possible the laying around and opening of the loop by a very simple manipulation, and, moreover, is kept extremely simple in assembly. The clasp of the kind mentioned at the beginning is characterised according to the invention in that the clasp casing is formed divided in the plane of the elongate slot into an upper casing half and a lower casing half, and in that the lower casing half has a bridge-like crossbar.

40 Through such a construction of the clasp casing it is made possible, by the division, to be able to open the casing itself, so that the ends of the ligature loop can be placed from above into the casing. After closure of the casing halves, the ligature is also closed and locked. At the same time, the crossbar enables simple locking of the other end of the ligature loop with the lower casing half, so that on opening the clasp casing the lower casing half remains connected with the other end length of the ligature loop despite the opened clasp, so that only the other end of the ligature loop requires to be placed into the clasp from above or from below. The clasp casing itself is extremely simple in construction. Former movable parts other than the clamping lever are not present.

65 According to a further feature of the invention, the upper casing half is mounted laterally hingeable on the lower casing half, the upper casing half having the clamping lever. The ability of the one casing half to hinge laterally relative to the other enables manipulation to be very simple, an excellent facility of inspection being afforded for this. Moreover, the foldability of the casing halves relative to one another by means of a hinge makes possible sure and quick manipulation for the making fast in the casing and for the release from the casing of the removable end length of the ligature loop.

70 The lower casing half according to another feature of the invention — seen in longitudinal cross-section — is preferably trough-shaped in form. With this, ridge-shaped transverse fins are provided at the front and rear edges of the trough. With them the crossbar must be arranged between the transverse fins and at about the level of the upper surfaces of the latter. Such a construction of the lower casing half contributes substantially towards the other end length of the loop remaining with certainty along the lower casing half. Through the slight sagging of the ligature within the lower casing half, the latter is secured against displacement along the ligature. The lower casing half cannot without help slide to the end of the ligature when the casing is opened. In that way a substantial freedom to move from place to place in the manipulation is guaranteed.

80 A further feature of the invention consists in the additional possibility of removal of the hingeable upper casing half from the lower casing half. The upper casing half preferably has supporting attachments, the recesses whereof engage snap-like over bearing spindles. The consequence of this is that in the normal case the hingeable casing halves remain connected with one another. However the possibility is also afforded of separating the hingeable casing halves completely from one another when this is necessary to facilitate the manipulation.

85 Moreover, the upper casing half can be kept closed with the lower casing half, preferably through a snap engagement. To this end the lower casing half can be provided with an inherently-resilient attachment which grips by means of a projecting edge over a ledge of the upper casing half. With this the inherently-resilient attachment of the lower casing half must overhang the upper casing half in the closed condition. With such a construction of the clasp, all components for the opening, closing and separating the casing halves are formed as a snap connection. With this, there are no additional loose components which can be lost. Moreover, the use of tools becomes superfluous. Finally, the clamping lever may also grip snap-like with its trunnions in bearing blocks of the upper casing part, so that in the case of this movable component also additional fixing components and the use of tools for securing same becomes superfluous.

90 The invention will be explained hereinafter with reference to an exemplary embodiment thereof

shown in the accompanying drawing, wherein:

Figs. 1 and 2 show diagrammatically in perspective views, in the opened and closed condition, respectively, an exemplary embodiment of the clasp according to the invention for locking a ligature loop;

Fig. 3 is a longitudinal cross-section through the clasp of Figs. 1 and 2 in the closed condition;

Fig. 4 represents diagrammatically the upper half of the clasp casing in cross section;

Fig. 5 is view on to the upper half of the casing in the direction of the arrow V in Fig. 4;

Fig. 6 shows diagrammatically a section along the line VI—VI of Fig. 4 in association with the clamping lever;

Fig. 7 shows a front elevation on to the lower half of the casing with the indicated possibilities of snap closure with the upper half of the casing and removal of the latter from the lower half of the casing;

Fig. 8 represents a plan view on to the lower half of the casing following the arrow VIII in Fig. 7; and

Fig. 9 shows a time dial in section.

The clasp 1 for the locking of a ligature loop includes an upper casing half 2 and a lower casing half 3, which are subdivided in substantially the median plane. A clamping lever 4 is pivoted in the upper casing half 2 and may be under the influence of a spring. The free lever arm 4a is pressed against the inserted end lengths 6 and 7 by the opened ligature loop, and this may be assisted by the spring.

The lower casing half 3 is provided in the vertical median plane with a crossbar 9 which is in one piece with the wall members 10 and 11. The lower casing half 3 preferably has a trough-shaped bottom 12 which is fitted at both edges with ridge-shaped transverse fins 13 and 14. The ligature end 7 passes in the elongated slot 15 provided between the upper casing half 2 and the lower casing half 3 below the crossbar 9 and lies on the transverse fins 13 and 14. This is adequate for securing the ligature end 7 in position against the open lower casing half 3. A transversely-extending recess in the trough shaped bottom 12 below the crossbar 9 is denoted 16.

The casing halves 2 and 3 are interconnected for relative lateral hingeing movement. To this end hinge-like parts are provided. The upper casing half 2 may have supporting attachments 18, which have round recesses 19 which are engaged through a snap action with bearing spindles 20 which are provided in recesses in the side wall 10 of the lower casing half 3. The snap-action interengagement of the recesses 19 with the bearing spindles 20 comes about through the circular recesses 19 extending over more than half a circle. The snap action comes about herewith through inherent resilience of the parts. The recesses 19 are preferably open outwardly. In the same way the clamping lever 4 may engage with its laterally-projecting trunnions 21 in circular recesses 22 in the upper casing half 2 (Fig. 6), a termination part being preferably in the form of a

tongue 22a. Pins 21 and recesses 22 interengage in a snap-like manner. The clamping lever 4 may be disengaged and re-mounted through a snap movement.

The holding together of the upper casing part 2 with the lower casing part 3 is preferably likewise effected by means of a snap engagement. The lower casing part 3 is provided at the side wall 11 with one or more inherently-resilient attachments 24 which are preferably interconnected by a handle crossbar 25. A snap-interlocking results through the upper casing half 2 being provided with a ledge 28 which grips in below a resilient shoulder 29 of the handle part 25. The handle part 25 also serves as handle for disengaging the two interengaging parts 28 and 29 of the casing upper part 2. The snap closure both at the parts 28, 29 and at the parts 26 and 27 can be disengaged by pressing the inherently-resilient handle-shaped part 24, 25 back outwardly. In general the arrangement of the snap parts 28 and 29 is adequate.

The lower casing half 3 is preferably provided at the sides with sloping surfaces 31 and 32 which facilitate guidance below the crossbar 9 for the ligature length 7 to be inserted. Because the crossbar 9 is arranged at about the level of the transverse fins 13 and 14, the inserted ligature length 7 adopts a slightly-sagging attitude. In that way there arises between the ligature length 7 and the parts 9, 13 and 14, such a friction that, when the clasp is opened, the lower casing part 3 cannot slip inadvertently relative to the ligature length 7. The upper casing part 2 is provided with recesses 33 into which the attachments 24 engage when the casing parts are closed together, so that the casing parts 2 and 3 in the closed condition are secured against displacement in the axial direction of the ligature lengths 6 and 7. On pressing the clamping lever 4 downwards and exerting a pull on the ends of the ligature lengths 6 and 7, the clasp can be displaced along the ligature lengths for reduction or enlargement of a ligature loop.

The clasp with the casing halves is preferably made of plastics material. All parts can thereby be held to each other by easily definable snap devices. Loose component parts at the bearings, otherwise necessary and having in addition to be made fast, become superfluous. A straightforward construction results through the snap connections. The parts can be easily disengaged and disassembled. The clasp is universally suitable for the most varied purposes when a ligature loop has to be tightened. This may take place particularly for the tying off or constructing of parts of the body to achieve restriction effects, but also with such kinds of utilization wherein what matters is merely the holding together by means of a loop of objects contained therein, for example documents, impedimenta, and the like.

Preferably the locking clasp 1 for locking a ligature loop, especially for constriction effects upon human bodies, is provided with a time dial 35 through which it is made possible to be able to

set a precise clock time at the start of the intended action or for determining the end of the latter. The time dial is in a recess 36 preferably in the upper casing half 2 and is connected with the latter through a snap interengagement 37. The time dial 35 has at its periphery a multipoint graduation 38, and all around the dial is a scale or a clock dial. The multipoint graduation 38 may also be arranged on the upper casing half 2 and the clock dial on the dial. Dogs 40 may be provided for the actuation of the time dial. In order that the time dial occupies a stop position in a precise position, the upper casing half 2 can be provided with a stop spring 41 which interengages with a circular scoring 42 at the underside of the time dial.

CLAIMS

1. A clasp for locking a ligature loop, such as a tying-off or restricting device for bringing about restriction effects at parts of the body, in which the ends of a ligature forming a loop are passed through an elongate slot of the clasp casing and held fast by means of a pivoted spring-loaded clamping lever, characterised in that the clasp is formed divided in the plane of the elongate slot into an upper casing half and a lower casing half, and in that the lower casing half has a bridge-like cross bar.
2. A clasp according to claim 1, in which the upper casing half is mounted laterally hingeable on the lower casing half, and the upper casing half has the clamping lever.
3. A clasp according to claim 1 or 2, in which the lower casing half — seen in longitudinal cross-section — is provided with a trough-shaped bottom and has ridge-shaped transverse fins at the front and rear edges of the trough, and the crossbar is arranged between the transverse fins at about the level of the upper surfaces of the latter.
4. A clasp according to claim 2, or claim 3 when appendant to claim 2, in which the hingeable upper casing half is removable from the lower casing half, and in the upper casing half has supporting attachments, wherein are recesses which engage snap-like over bearing spindles of the lower casing half, the snap recesses being directed outwardly.
5. A clasp according to any one of claims 1 to 4, in which the upper casing half is closable with the lower casing half through a snap engagement, and the lower casing half is provided with an inherently-resilient attachment which grips by means of a projecting edge over a ledge of the upper casing half.
6. A clasp according to claim 5, in which the inherently-resilient attachment of the lower casing half overhangs the upper casing half in the closed condition.
7. A clasp according to claim 3 or 6, or claim 4 or 5 when appendant to claim 3, in which a transversely-extending recess is arranged in the bottom of the trough-shaped lower part below the crossbar.
8. A clasp according to any one of claims 1 to 7, in which the clamping lever engages with its trunnions in a snap-like manner in circular recesses in the upper casing half, a termination part being formed on the latter as a resilient tongue.
9. A clasp according to any one of claims 1 to 8, the upper casing half mounts a time dial which is pivoted in a recess in the upper casing half and is connected through snap inter-engagement with the upper casing half, a multi-point graduation cooperating with a circular scale.
10. A clasp according to claim 9, in which the time dial has at its underside a circular scoring which cooperates with a stop spring, while on its upper side dogs are arranged for actuation of the time dial.
11. A clasp for locking a ligature loop, substantially as hereinbefore described with reference to the accompanying drawings.