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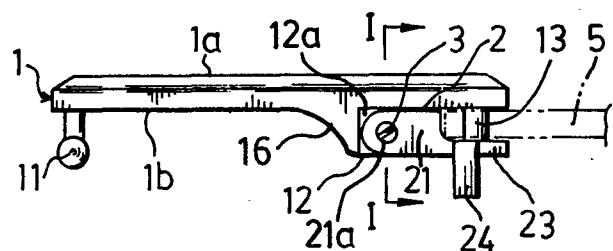
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⑤④ **Belt buckle.**

⑥⑦ A belt buckle comprises a substantially rectangular main body (1) having a relatively flat front side (1a) and a back side (1b) having a gradually rising portion (16) formed integrally with a substantially rectangular hinge housing (12) disposed transversely of said main body (1), a holding member (2) hinged to the main body (1) and comprising a pair of lugs (21, 22), a lid-like plate (23) and a loop (24) extending upwardly from opposite sides of the lid-like plate (23), and a staged pintle (3) adapted to be received within the hinge housing (12) comprising a front section and a rear section, the front section being shorter and smaller in diameter than rear section and the rear section being formed with a screw threaded end (31).



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1.

"BELT BUCKLE"

This invention relates to a belt buckle and more particularly to a belt buckle which is easy to operate and yet reliable in use.

5 Two types of belt buckles are in common use for fastening a belt to be worn. Normally, such buckles are equipped with two screws or a serrated clamping device for attachment and securement of the belt. However, these two
10 prior art buckles are inconvenient for use and can cause unexpected detachment of the belt from the clamping device.

In the former case, the belt is secured to the belt buckle by virtue of two screws turned
15 into one end thereof. Since a screw driver is indispensable for fastening or detaching the belt, replacement of the belt, when desired, will be, if not impossible, quite difficult without a screw driver at hand. Moreover even
20 if a screw driver is immediately available, the turning of screws into and out of the screw holes can be time-consuming.

In the latter case, the belt is clamped between a serrated clamping device and the buckle
25 body. As the end portion of the belt is deeply

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bitten by the toothed jaw portion, constant friction of the sharp teeth against the end portion tends to cause the bitten part to wear down and thereby to become loosely held. Thus
5 the occurrence of unexpected release of the belt from the buckle seems unavoidable.

Consequently, this invention intends to provide a belt buckle which a belt can be attached to or detached from without the use of any tools.

10 The invention also intends to provide a belt buckle which ensures firm securement of a belt attached thereto without causing any damage to and loosening of the belt.

15 The invention still further intends to provide a belt buckle having a holding member hinged to the buckle body to enable a belt to be easily attached or detached by only a single push at, or by exerting a little pressure on, the holding member by the finger of the user.

20 Other features and advantages of this invention should become apparent from the following description by reference to the accompanying drawings, in which:

25 Fig. 1 is a side view of a preferred embodiment of the invention;

Fig. 2 is a perspective view of the inverted buckle and shows in dotted lines the connecting end of a belt to be attached;

30 Fig. 3 is a rear side elevational view of the embodiment of Fig. 1;

Fig. 4 is a cross-sectional view on line 1 - 1 of Fig. 1;

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Fig. 5 is a cross-sectional view similar to Fig. 4 illustrating the holding member pressed in the direction indicated by the arrow against the spring;

5 Fig. 6 is a side view similar to Fig. 2 showing the holding member half-opened; and

 Fig. 7 is a rear side view of Fig. 6 showing the holding member in it's upright open position.

10 Referring now to Figures 1 to 3, there is depicted a belt buckle constructed in accordance with this invention and comprising a substantially rectangular main body 1, a holding member 2 and a staged pintle 3.

15 The main body 1 has a front side 1a, which may have an embossed or otherwise applied design on its relatively plane surface to enhance the decorative effect of the buckle, and a back side 1b having a gradually rising portion or slope 16 formed integrally with a substantially rectangular hingehousing 12 of a length shorter than the width of the main body. Protruding downwardly from the longitudinally opposed ends of the back side 1b are, respectively, a belt fixing pin 11 with a bulbous head and a pair of belt engaging pins 13 spaced transversely of the main body, as shown in Fig. 1. The hinge housing 12 contains a partially narrowed tubular passage 14 extending over its full length for receiving the pintle 3. The passage 14 has an inlet 14a and an outlet 14b located in opposite side walls 12a and 12b of the hinge housing 12,

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the narrowed section of the passage 14 being directed toward the outlet 14b. Protruding outwardly from the side wall 12b of the hinge housing is a lock pin 15 adjacent the outlet 5 14b of the passage 14.

The holding member 2 comprises a pair of longitudinally extending lugs 21 and 22 spaced from each other, a lid-like plate 23 and a loop 24. The lug 21 is formed with a screw hole 10 21a disposed in alignment with the inlet 14a and outlet 14b of the passage 14 and a hole 22a in the lug 22. Adjacent the hole 22a is a pin hole 22b which is adapted to be engaged by the lock pin 15 on the hinge housing 12.

15 When the holding member 2 is positioned flatwise, the lid-like plate 23 will be brought into close contact with the free end surfaces of the belt engaging pins 13 so that a belt connecting end 5 may be secured to the buckle as long as the 20 pins 13 engage with a pair of corresponding belt holes 51 shown in chain lines in Fig. 2, while the opposite end (not shown) of the belt may be inserted through the loop 24 which extends upwardly from the lid-like plate.

25 Referring now to Figure 4, there is illustrated a belt buckle sectioned along line 1 - 1 of Figure 1. The holding member 2 is hinged to the main body 1 of the buckle by the pintle 3 received within the hinge housing 12. The pintle 3 is formed 30 with a screw-threaded end 31 adapted to fit in the screw hole 21a in the lug 21 so as to be detachably secured at one end to the holding member. In addition,

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the pintle 3 is staged like a rocket so that its front section extending toward the outlet 14 is shorter and smaller in diameter than its rear section which extends approximately two-thirds of the length of the hinge housing, thus enabling the pintle to pass through the outlet 14b of the partially narrowed tubular passage 14 and into the corresponding hole 21a in the lug 21 of the holding member 2. A compression spring 4 which encircles the front section of the pintle 3 within the passage 14 reacts at one end against the annular flange of the narrowed section of the passage 14 and at the other end against the end surface of the rear section of the pintle. Since the pintle is constantly urged toward the lug 21 by the compression spring 4, the lug 22 is caused tightly to abut the side wall 12b of the hinge housing while the pin hole 22b is engaged by the pin 15 on the hinge housing so that the holding member 2 is retained in locked position. In order to enable the holding member to move forward even when in locked position, however, the hinge housing is arranged in such a position that the distance D1 between the side wall 12a of the hinge housing and one side edge of the back side 1b is about twice as long as the distance designated D2 between the side wall 12b of the hinge housing and the other side edge of the back side.

The mode of operation of the belt buckle of this invention should be readily understood

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from the following description with reference to Figs. 5 to 7. By pressing the screw end 31 of the pintle 3 against the resistance of the compression spring 4 in the direction indicated 5 by the arrow shown in Fig. 5 until the lug 21 impinges upon the side wall 12a of the hinge housing, the lug 22 of the holding member will be caused to separate from the side wall 12b of the hinge housing to a position slightly beyond the main body 10 1 as a result of the predetermined difference in length between D1 and D2 so that the pin 15 is caused to disengage the hole 22b in the lug 22. Since at this time the holding member is no longer in locked position but in a position capable of 15 pivoting upon the pintle 3, by continuously pushing the lid-like plate 23 upwardly in the direction indicated by the upper arrow shown in Fig. 6 the holding member will be swung to an upright open position shown in Fig. 7. Upon 20 removal of the pressure exerted on the pintle screw end 31, the lug 22, due to the spring elasticity, will be pulled back immediately toward the hinge housing and the retracting motion of the lug 22 will be obstructed as soon as part of the 25 lug 22 strikes against part of the top surface of the free end of the lock pin 15, at which time, as the lug 22 bears tightly against the lock pin 15 and both lugs 21 and 22 lean upon the spaced vertical walls of the slope 16, the holding 30 member can be maintained in an upright open position. To replace the holding member in locked position is easier, however, since by only pushing the holding member downwardly in the opposite direction indicated

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by the lower arrow shown in Fig. 6 until the hole 22b in the lug 22 aligns with the lock pin 15 and is thus engaged by the same, the lug 22 will be drawn back immediately to strike against the side wall 12b of the hinge housing with a snapping sound, thereby causing the holding member to return to the original locked position .

It will be seen that by the above described invention, there has been provided a relatively simple, yet highly effective and easy-to-operate novel belt buckle mechanism which facilitates attachment and securement of a belt to the buckle without the need of any screws or serrated clamping means, as is commonly employed in conventional belt buckles, and which facilitates detachment of a belt from the buckle in that only a little pressure exerted on the pintle screw end by the thumb of the user and a single pushing of the holding member are needed.

It is believed that the construction and operation of the novel mechanism herein described will now be understood and that the advantages of the invention will be fully appreciated by those persons skilled in the art.

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CLAIMS

1. A belt buckle comprising a rectangular main body having a relatively flat front side and a back side having a gradually rising portion formed integrally with a substantially rectangular hinge housing disposed transversely of said main body, a holding member hinged to the main body and comprising a pair of lugs, a lid-like plate and a loop extending upwardly from opposite sides of the lid-like plate, and a staged pintle adapted to be received within said hinge housing comprising a front section and a rear section, the front section being shorter and smaller in diameter than the rear section and the rear section being formed with a screw end.
2. A belt buckle according to Claim 1, wherein the back side of the main body at one end has a belt fixing pin with a bulbous head and at the other end has a pair of belt-engaging pins spaced transversely of the main body, both the belt fixing pin and the engaging pins protruding outwardly from the back side.
3. A belt buckle according to Claim 1 or Claim 2, wherein the hinge housing comprises a partially narrowed tubular passage having an inlet and outlet disposed in its opposite side walls for reception therein of the staged pintle, and an outwardly extending lock pin adjacent the outlet in the side wall.

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4. A belt buckle according to Claims 1 and 3,
wherein the hinge housing is of a length shorter than
the width of the main body such that the distance
between the side wall formed with the inlet and one
5 side edge of the back side is about twice as long as
the distance between the other side wall formed with
the outlet and the other side edge of the back
side.

5. A belt buckle according to Claim 1, wherein the
10 holding member has a pair of lugs disposed in parallel
with and spaced from the side walls of the hinge
housing, one lug being formed with a screw hole with
which the screw end of the rear section of said
pintle can snugly engage and the other lug having
15 both a pin hole adapted to be engaged by the lock
pin on the hinge housing for retaining the holding
member in locked position and a hole which is adjacent
the pin hole and into which the front end of the
pintle extends.

20 6. A belt buckle according to Claims 1, 3 and 5,
wherein the rear section of the staged pintle is
secured at its screw end to the holding member and
the front section is encircled by a compression spring
whereby the pin hole is caused to engage with the
25 lock pin to retain the holding member in locked
position and whereby the pin hole is caused to
disengage from the lock pin to enable the holding
member to pivot upon the staged pintle.

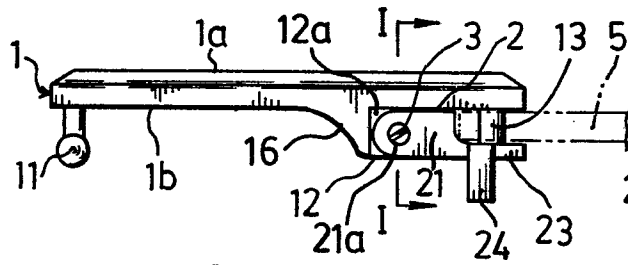


FIG. 1

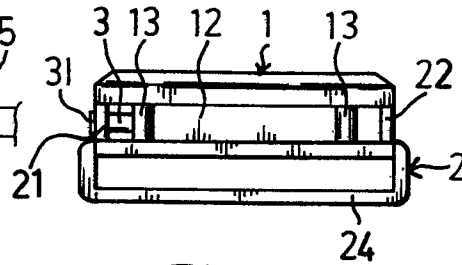


FIG. 3

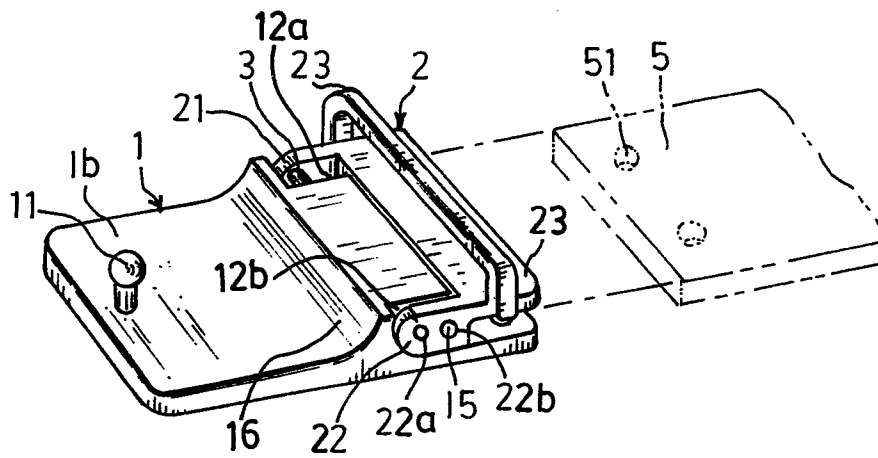


FIG. 2

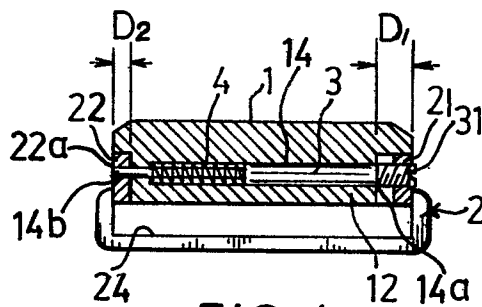


FIG. 4

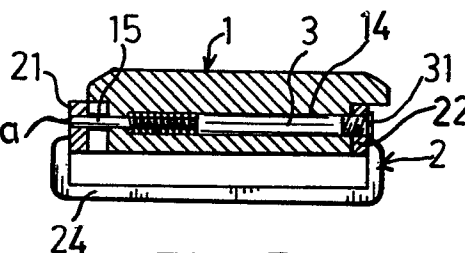


FIG. 5

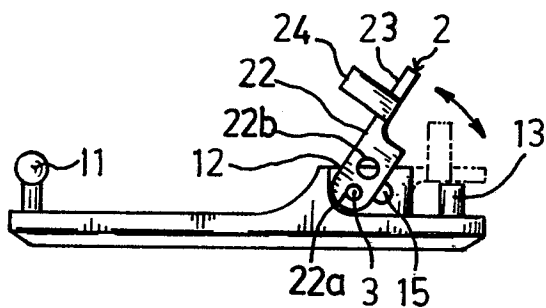


FIG. 6

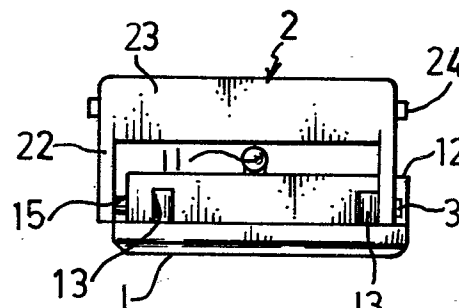


FIG. 7



European Patent
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EUROPEAN SEARCH REPORT

0058798 Application number

EP 81 30 5404

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	US-A-2 537 307 (AIR ASSOCIATES INC.) *Column 1, lines 36-55, column 2 entirely, column 3, lines 1-74, claim 1; figures*	1,3-6	A 44 B 11/22
A	FR-A-2 478 968 (ETS.G.GAUTIER) *Page 1, last paragraph, page 2, entirely, page 4, lines 6-21; claims 1-4,6; figures 4 and 5*	1,2	
A,P	FR-A-2 464 663 (SOCIETE PS GUENE SA) *Entirely*	1,2	
A	US-A-1 763 100 (JH.A.MENDOSA) *Page 1, lines 49-100, page 2, lines 9-17; figure 4*	1,2	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			A 44 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13-05-1982	Examiner GARNIER F.M.A.C.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			