

[54] BELT BUCKLE WITH DOUBLE ACTING UNITARY SPRING

3,675,281 7/1972 Stephenson 24/230 AL

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[57] ABSTRACT

A belt buckle and tongue combination wherein the latching device of the buckle includes a planar unitary spring which is tensed by the act of inserting the tongue into the buckle. The spring then urges the latch into locking engagement with the tongue, and also ejects the tongue when the latch is manually released.

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[51] Int. Cl. A44b 11/26

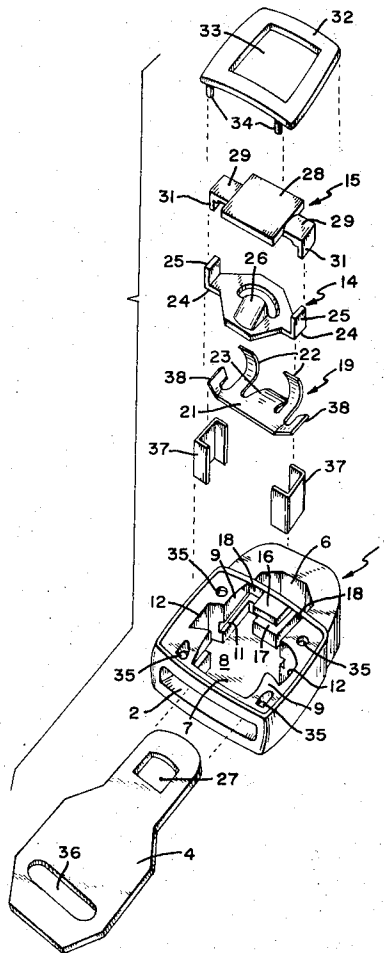
[58] Field of Search 24/230 AL, 230 AN

[56] References Cited

UNITED STATES PATENTS

3,656,211 4/1972 Turner 24/230 AL

9 Claims, 9 Drawing Figures



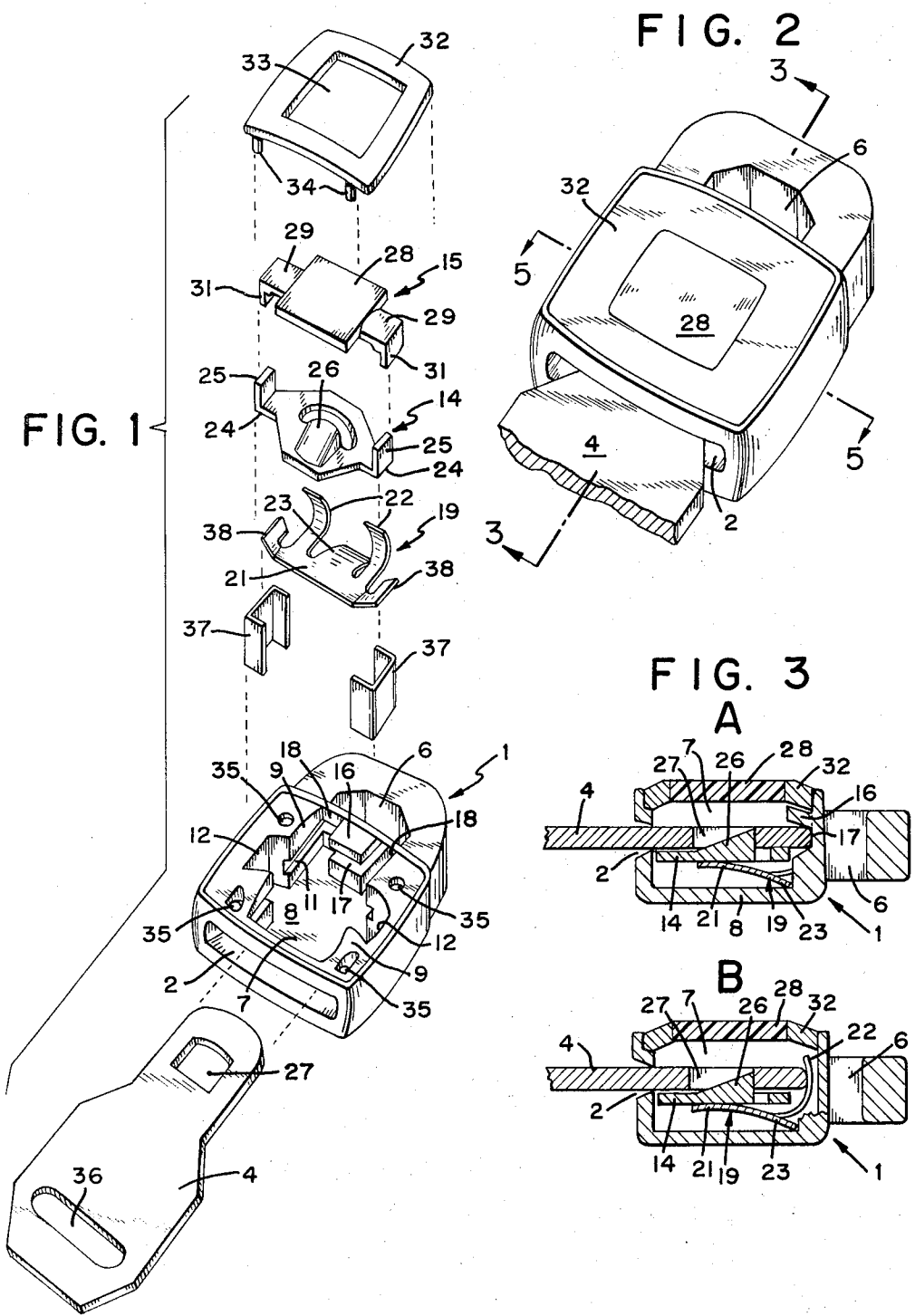


FIG. 4

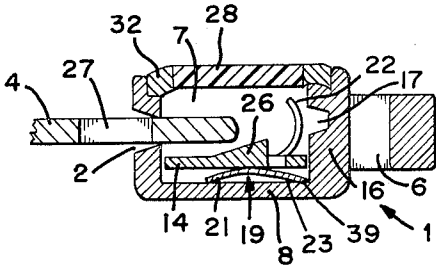


FIG. 5

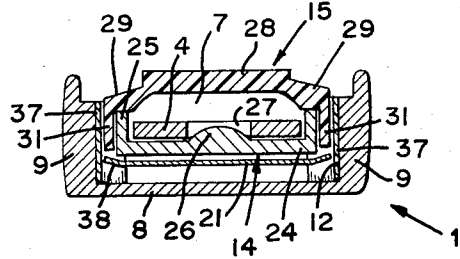


FIG. 6

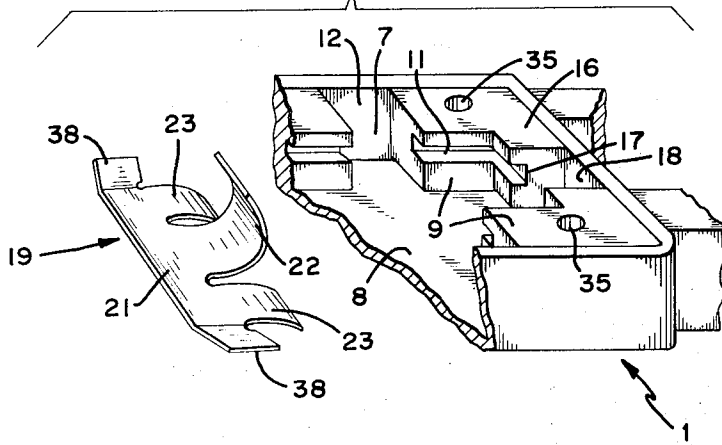


FIG. 7

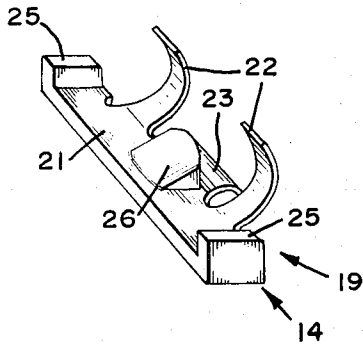
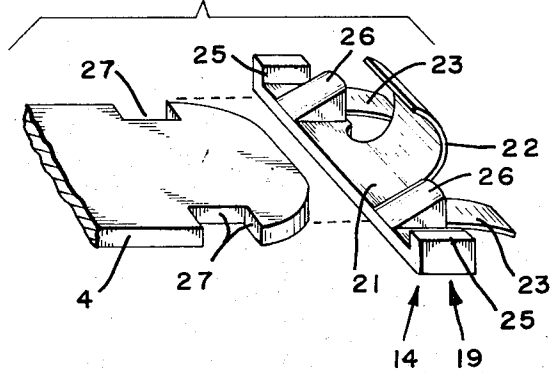


FIG. 8



BELT BUCKLE WITH DOUBLE ACTING UNITARY SPRING

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a belt buckle and tongue combination of the type used in automobiles, for retaining an occupant in a seated position when subjected to forces which develop during a collision. Such buckle and tongue combinations are usually included in safety seat belt assemblies having at least two belts anchored to the vehicle frame or body, with one of the belts connected to the buckle and at least one other to the tongue. With this arrangement, two of the straps may be disposed over an occupant's lap and the tongue inserted into the buckle, to be retained therein until manually released by manipulation of the buckle's latching mechanism. Frequently a third belt is also connected between the tongue and a point in the vehicle, which will permit the third belt to pass diagonally across the occupant's torso, for additional protection.

2. Description of the Prior Art

A large number of such buckle and tongue combinations are found in the prior art, practically all of which incorporate a buckle having some type of latching means to co-act with a tongue, said latching means being movable between a latched and a release position. The tongue is generally retained within the buckle in the latched position and may be removed from the buckle in the release position. These buckles employ various subassemblies, devices, linkages, etc. for attachment or co-action with the latching means.

In substantially all buckles of the prior art, one or more latch members are biased upwardly into the channel through which the tongue is guided when inserted into the buckle. These latch members slope upwardly away from the tongue, so that as the tongue is inserted, its leading edge depresses the biased latch member. Springs are generally employed to bias the inclined latching member into the path of the incoming tongue.

When such a tongue and buckle is used, the tongue, on insertion, first meets resistance as its tip encounters the obstructing biased latching member, and forces it out of its path. The latch member now scrapes across the surface of the tongue, against which it is biased, until a corresponding opening, slot or depression in the tongue meets the latching member. The biased latching member is thereupon urged into latching engagement with the tongue.

In actual use, it sometimes happens that the wearer mistakes the resistance of the biased latch member, and the firmness imparted to the unlatched tongue by the biased latch, for actual engagement. The wearer then incorrectly assumes that he or she is safely "buckled up." Such an effect is known in the art as "false latching."

The biasing means of the buckle and tongue combinations of the prior art generally have a single purpose, namely to constantly urge the latching member toward the tongue so as to engage the tongue the moment the corresponding opening is moved into coincidence. Such springs are constantly under tension and serve no other purpose. Although devices for ejecting a tongue from a buckle have been suggested, such devices generally involve additional parts and complication. They do

not utilize the latching spring, primarily because the force required to eject a tongue is perpendicular to that required for latching.

It is an object of the present invention to provide a buckle and tongue combination free of the danger of "false latching;" a latching mechanism which is positive acting, simply devised, and requires only a single spring; a mechanism which latches smartly and safely, yet when manually moved to the release position, ejects the tongue.

SUMMARY OF THE INVENTION

The present invention is directed to a belt buckle and tongue in combination, comprising a buckle housing having an opening at one end for the insertion of the tongue, means for attaching a length of belt, and an open face exposing a cavity extending to the base wall of the buckle housing. This buckle housing has grooves, parallel to the base wall of the housing and to each other, disposed in parallel side walls for slideably guiding and supporting the tongue upon its insertion into the buckle housing. The housing also has opposing guide channels, each centrally disposed in the parallel side walls, said channels being perpendicular to the base wall, for positioning a unitary biasing spring, a latching member and a latch release member within the cavity and restricted by the channels to limited motion substantially perpendicular to the base wall. A rear wall opposite the opening for the tongue serves to stop the tongue in its forward motion when inserted into the buckle. The unitary biasing spring comprises first, a flat elongated strip positioned within the cavity, against the base wall, with each end of the strip extending loosely into one of the two opposing channels. This strip has an arm extending therefrom in the direction away from the opening for the tongue, but arcuately upturned to pass through the path for the tongue, for contact with its leading edge at a point between about 0.1 to 0.6 inch from the end point of its inward travel.

We refer to such a spring as a "planar spring," being fabricated of flat spring stock, but shaped to provide an up-sweeping or arcuately upturned arm, with other embodiments to include other curved extending arms, as will be later described. The planar spring need not be of uniform thickness. A latching member is disposed above the strip of the unitary spring, also extending on each side into the opposing channels, said latching member having located thereon an upwardly sloping latch structure for engaging a corresponding opening in the tongue. A latch release member with two legs to straddle the inserted tongue contacts the latching member, and a retaining cover plate is provided, having an opening therein and means for attachment to the housing. This plate serves to retain the latching and unlatching components within the housing while permitting access to the press button.

The spring is normally relaxed, so that the latch member is not urged against the tongue to offer resistance or cause frictional drag. The spring is tensed by the act of inserting the tongue, for as the leading edge contacts the upturned spring arm, it forces it back to the rear wall of the housing which tends to rock the flat elongated strip upward against the superimposed latching member. Since this member is restrained by the plane of the tongue, the spring is tensed at substantially the same moment that the opening of the tongue coincides with the latch structure. As the opening in the

tongue becomes aligned with the latch structure the now tensed spring urges the latching member into positive engagement with the tongue, and the tip of the tongue maintains the spring in this tensed condition. If now the latching member is manually depressed, in opposition to the bias of the spring, to withdraw the latch structure, the tension on the spring is increased still further, and the upturned arm pressed against the leading edge of the tongue forcefully ejects the tongue. We thus have a spring, normally relaxed, which is tensed by the insertion of the tongue. Although tensed by the force applied parallel to the base, this spring releases the stored energy in two directions at right angles to each other. It applies a force perpendicular to the base wall of the housing to urge the latch structure upwardly for engagement with the tongue, and parallel to the base to eject the tongue from the buckle on its release.

In a preferred embodiment of the buckle and tongue combination of my invention, the side walls of the buckle housing adjacent to the opening for the tongue, are thickened and carry the grooves for the tongue, as well as the channels for limiting the latching means and press button to motion perpendicular to the base wall.

In one embodiment the rear wall of the buckle housing, opposite the opening for the tongue is also thickened, and carries a groove to receive the tip of the tongue at the end of its forward travel. Preferably, these grooves are flared outwardly somewhat, to guide the leading edge of the tongue. The thickened portion of the wall is not continuous, but is broken in the central portion leaving a channel-like space, perpendicular to the base wall, between the two grooved sections of thick grooved wall. These block-like sections of grooved wall, are referred to as "guide-blocks" for the tongue. The channel-like space between them is of a width sufficient to receive the upturned arm of the spring when it is forced to the end of the buckle housing by the incoming tongue. On each side of the upturned arm of the spring there is a shorter arm curved slightly downward. Each of these short arms contacts the base wall of the housing at the point where the guide-blocks intersect the base. They therefore contact the base in a line perpendicular to the direction of the incoming tongue, and form a fulcrum on which the planar unitary spring rocks when the upturned arm is forced backward by the leading edge of the tongue. Besides fixing the degree of leverage, these short arms add additional resilience to the planar spring. Further resilience may also be obtained by upturning the tips of the elongated flat strip of the spring where they enter the channels.

In the preferred embodiment, a single guide-block for the tongue is centrally located in the rear wall of the buckle housing. This too is grooved for receiving the tip of the tongue, and preferably the groove is outwardly flared to guide the tip of the tongue to the end point of its travel. This guide-block leaves two channel-like spaces, one on each side, beside the block and the opposing side walls of the buckle. In this embodiment, there are two arcuately upturned spring arms, which when forced back by the advancing edge of the tongue, fit into the two channel-like spaces beside the guide-block, the groove of which extends within the guide-block to a plane substantially in line with the rear wall of the channel-like spaces; preferably the rear wall of

the buckle housing. A third spring arm extends from the flat strip in the same direction as the two upturned arms. This arm, shorter than the upturned arms, curves slightly downward to contact the base wall of the housing along the line of its intersection with the guide-block, thus forming the fulcrum. If desired, this downturned short arm may engage a ridge or depression in the base wall to form the fulcrum.

In still another embodiment, either of the abovedescribed springs may have a flat elongated strip which has a thickness of between about 0.1 and 0.3 inch, with a latch structure extending upward therefrom. The latching member disposed above the spring is therefore a part of the unitary spring itself, thus eliminating one of the moving parts, the latching member. With this arrangement, the extending arms of the spring are thinned, or are added to the strip as by spot welding, riveting or other means.

A better understanding of the operation of the buckle and tongue combination of the present invention may be had by reference to the accompanying drawing wherein like reference characters refer to like parts throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view of the buckle and tongue combination of the present invention.

FIG. 2 is a perspective view of the assembled buckle with the tongue inserted and latched.

FIGS. 3A and B are longitudinal cross-sections taken through line 3—3 of FIG. 2. In FIG. 3B, a portion of the stopblock has been broken away to show the position of the upturned arm of the spring which is hidden in the illustration of FIG. 3A.

FIG. 4 is also a longitudinal cross-section taken through line 3—3 of FIG. 2 except that the tongue has not been inserted all the way. It can be seen that the latch does not obstruct the entry of the tongue as it does in the case of most buckles of the prior art.

FIG. 5 is a transverse cross-section of the buckle and tongue combination taken along line 5—5 of FIG. 2.

FIG. 6 is a perspective view of a section of the buckle housing adapted to receive a single upturned arm of the spring. The planar unitary spring is also shown having an upturned arm and two short downturned arms to form the fulcrum or pivot line with the base wall of the buckle housing. The terminals of the flat elongated strip which normally lie within the channels of the buckle housing, are shown as partially upturned.

FIG. 7 represents another embodiment of the spring wherein the flat elongated strip has substantial thickness, and has a latch structure on its upper surface. The ends of this elongated strip have upward projections for contacting matching surfaces of the press button. Such a spring also serves as the latching member, thus eliminating the latching member as a separate component.

FIG. 8 represents a modification of the unitary spring of FIG. 7. In this case we have a single upturned spring arm, two short downwardly turned arms to meet the base wall of the buckle housing to form the fulcrum, and two latch structures for cooperating with openings in the tongue, which actually constitute slots in the sides of the tongue. A tongue may have openings, slots, or carry a surface depression for co-action with the latch structure.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

WITH REFERENCE TO THE DRAWINGS

With particular reference to FIG. 1, but also to FIGS. 2, 3, 4 and 5, my invention is directed to a safety seat belt buckle and tongue combination comprising: a seat belt buckle housing 1 having an elongated, substantially rectangular opening 2 at one end, for the insertion of a tongue 4, a loop 6 at the other end for the attachment of a length of belt, and an open face, exposing a cavity 7 extending to the base wall 8 of the buckle housing. The housing has opposing thick parallel side walls 9 adjacent to the opening for the insertion of a tongue, extending inwardly and having in their inner faces, grooves 11, parallel to the base wall of the housing and to each other. These are disposed for slideably guiding and supporting tongue 4 on its insertion into the buckle housing. The thick walls also each have a guide channel 12, centrally located therein and perpendicular to the base wall 8 of the housing, with the channel openings opposing each other. These channels serve to position the moving components of the buckle, namely a spring 19, a latching member 14 and a latch release member 15 disposed within the cavity 7, and restricted by said channels to limited motion substantially perpendicular to the base wall 8. The housing also has a guide-block 16 extending centrally from the rear wall facing the opening for the tongue, said block being grooved at 17 for receiving the tip of tongue 4 and for stopping its forward motion when fully inserted into the buckle. The housing also has two channel-like spaces 18, vertical to the base wall 8, between the guide-block and each adjacent thick side wall 9. A normally relaxed, unitary biasing spring 19, fabricated from spring metal sheet stock is positioned within cavity 7 above the base wall 8. This spring has an elongated strip 21, each end of which extends loosely into one of the two opposing channels, said spring strip having two arms 22 extending at right angles to the strip toward the channel-like spaces 18, but curling upward into the path of tongue 4, and directly in front of these channel-like spaces. These arms extend upwardly, substantially to the open face of cavity 7. A third arm, 23, centrally located between the other two, curves slightly downward from strip 21 to contact the base wall 8 at its junction with guide-block 16, there forming a fulcrum.

The latching member 14, disposed above strip 21 of the unitary spring 19 has arms 24 on each side extending partially into opposing channels 12 to limit movement of said latching member 14 to motion perpendicular to the base wall 8 of the housing, said extending arms each having at its terminus, disposed within the channel 12, a short upward projection 25 to provide a contact surface for cooperation with the latch release member 15. The latching member 14 has, centrally located on its upper surface, an upwardly sloping latch structure 26, for engaging a corresponding opening 27 in tongue 4. Opening 36 in tongue 4 is adapted for the attachment of a belt.

A latch release member is also included comprising a push or press button 28 with two arms 29, each extending into one of the two opposing channels 12 for engaging the contact surface of the short upturned projection 25 of the latching member, and having at its terminus a downwardly extending leg 31. These legs are disposed within channels 12 for straddling tongue 4 and

the latching member 14, said latch release member 15 thereby being guided by channels 12 to limited motion perpendicular to the base wall 8 of the housing. A cover retaining plate 32 is provided, having an opening 33 therein, and a plurality of downwardly extending lugs 34 for fixed engagement with corresponding openings 35 in the thick side walls 9 of the housing, to thus retain the latching and unlatching components 14, 15 and 19 within the housing, while permitting access to press button 28. In regard to the buckle and tongue combination of the present invention, when tongue 4 is inserted all the way into the buckle, its tip presses the two upwardly extending spring arms 22 of the unitary spring 19 into the channel-like spaces 18 on either side of the guide-block 16 to thereby rock the unitary spring 19 on its fulcrum, thus raising elongated strip 21 against the overlying latching member 14, and urging it into latching engagement with opening 27 of tongue 4. When manual pressure is applied to press button 28, to overcome the bias of the now tensed, planar unitary spring 19, the latch structure 26 is withdrawn below opening 27 of the tongue, whereupon the two arms 22 of spring 19 pressing against the tip of tongue 4 will eject the tongue and leave planar spring 19 in its normally relaxed condition.

In the exploded view of FIG. 1, two metal guides or channel pieces 37, preferably of stainless steel are also included. These guides may be inserted into the opposing channels 12 to reduce the size of the containing channels, prevent galling of the metal of the housing by the moving components of the buckle, and provide slideable surfaces for the latching member and the latch release member. Preferably, the buckle housing itself is die cast.

FIG. 2 illustrates the assembled buckle with the tongue in latched engagement.

FIG. 3A is a longitudinal cross-section of FIG. 2 taken along line 3—3. The tongue is latched, latch structure 26 being urged into opening 27 of the tongue by spring 19 which is shown rocked upwardly and tensed by the tongue 4 which has pressed the upturned spring arms against the rear wall of the buckle housing. In FIG. 3B, the guide-block 16 has been partially broken away to show the position of the tip of the tongue in relation to the upturned spring arms 22. When latch structure 26 is withdrawn downward, by manually pressing button 28, spring arms 22 will eject the tongue and return to their relaxed position.

FIG. 4 illustrates the buckle and tongue combination in the unlatched condition. Spring 19 is relaxed, and latch structure 26 is below the incoming or outgoing tongue. This differs from most buckles of the prior art, wherein latch structure 26 would be biased up into the path of the incoming tongue, and would be displaced downwardly by the tongue. As the tongue presses against upturned spring arms 22, the spring will rock back, using line 39 at the intersection of base wall 8 and guide-block 16 as a fulcrum, as in FIG. 3.

FIG. 5 is a transverse cross-section along line 5—5 of FIG. 2. Latch 26 is latched with the tongue. This illustration shows the manner in which the latch release member 15 contacts the latching member 14 in guide channels 37.

FIG. 6 illustrates another embodiment wherein there are two guide-blocks 16 for the tongue, extending from the rear wall into the cavity 7 of the buckle. These guide-blocks have grooves 17 for receiving the leading

edge of the tongue upon its insertion. Between the two guide-blocks there is a channel-like space into which the arm 22 of planar unitary spring 19 recedes when urged thereto by force applied to the tongue during its insertion. Planar unitary spring 19 has, in addition to arcuately upturned arm 22, two slightly downturned arms 23 between about 0.1 to 0.6 inch long. The terminals of the elongated strip 21 of this spring are upturned to add resilience. When inserted in the buckle shown in the break-away perspective drawing, these upturned termini are disposed in channels 12. The short arms 23 contact the base wall 8 along the line where the two guide-blocks 16 join the base wall, to there establish a fulcrum. Pressure of the tongue against arm 22 causes the spring to rock back on the lower edge of the short arms 23, raising elongated strip 21 against the latching member disposed above it, and urging the latch structure into engagement with the tongue. When the latch bar is manually depressed by means of the press button, the latch structure is withdrawn from the belt, and spring arm 22 ejects the tongue.

FIG. 7 illustrates still another embodiment wherein the flat elongated strip 21 of the spring 19 and the latching member comprises a single unit. Strip 21 has a substantial thickness of between about 0.1 and 0.3 inch, and an upwardly sloping latch structure 26 for engaging the corresponding opening in the tongue. Additionally, the strip may have upwardly extending projections 25 at the ends, extending into channels 12, to provide contact surfaces for cooperation with corresponding surfaces of the latch release member 15 (FIG. 1). With this arrangement, one moving part has been eliminated, leaving only two moving parts, the latch release member 15 and the combined spring and latching member of FIG. 7.

FIG. 8 illustrates a variation of the embodiment of FIG. 7, wherein the flat elongated strip 21 of the spring 19 and the latching member are a single unit. Strip 21 has a substantial thickness of between about 0.1 and 0.3 inch, and two upwardly sloping latch structures for engaging corresponding openings 27 in the tongue. Additionally, the strip may have upwardly extending projections 25 at the ends extending into channels 12 to provide contact surfaces for cooperation with corresponding surfaces of the latch release member 15 (FIG. 1). As with the embodiment of FIG. 7, only two moving parts are employed. The tongue may have one or more openings, slots, or depressions for cooperation with a latch structure.

While I have described preferred embodiments of my invention, it will be understood that various modifications and changes can be made in the buckle and tongue combination described, without departing from the spirit of this invention or the scope of the following claims.

I claim:

1. A belt buckle and tongue in combination comprising:

- a. a buckle housing having an opening at one end for the insertion of the tongue, means for attaching a length of belt, and an open face, exposing a cavity extending to the base wall of the buckle housing;
- b. said housing having grooves, parallel to the base wall of the housing and to each other, disposed in parallel side walls for slideably guiding and sup-

porting the tongue on its insertion into the buckle housing;

- c. said housing having opposing guide channels, each centrally disposed in the parallel side walls, said channels being perpendicular to the base wall, for positioning a unitary biasing spring, latching member and a latch release member disposed within the cavity, and restricted by said channels to limited motion substantially perpendicular to the base wall;
 - d. a rear wall opposite the opening for the tongue, serving to stop the tongue in its forward motion when inserted into the buckle;
 - e. said unitary biasing spring comprising a flat elongated strip positioned within the cavity against the base wall, with each end of the strip extending loosely into one of the two opposing channels, said strip having an arm extending therefrom in the direction away from the opening for the tongue, but arcuately upturned to pass through the path for the tongue, for contact with the leading edge of said tongue at a point between about 0.1 to 0.6 inches from the terminus of its inward travel;
 - f. a latching member disposed above the strip of the spring, and also extending on each side into the opposing channels, said latching member having located thereon, an upwardly sloping latch structure for engaging a corresponding opening in the tongue;
 - g. a latch release member with two legs to straddle the inserted tongue, and to contact the latching member;
 - h. a retaining cover plate having an opening therein, and means for attachment to the housing for retaining the latching and unlatching components within the housing while permitting access to the press button.
2. The belt buckle and tongue combination of claim 1 wherein the opposing guide channels have channel pieces inserted therein to reduce the size of the containing channels and provide slideable surfaces for the legs of the latching member and latch release member.

3. The belt buckle and tongue combination of claim 1 wherein there are two guide-blocks for the tongue, extending from the rear wall into the cavity of the buckle, said guide-blocks having grooves for receiving the leading edge of the tongue upon its insertion, and wherein there is a channel-like space between the guide-blocks into which the arm of the spring recedes when urged thereto by force applied to the tongue during its insertion.

4. The belt buckle and tongue combination of claim 3 wherein the unitary spring has additionally, two short arms between about 0.1 to 0.6 inches long, one on each side of the upwardly extending arm, said additional arms curving slightly downward to contact the base wall along the line where the two guide-blocks join the base wall, to there establish a fulcrum about which the unitary spring may rock when the upwardly extending arm is urged toward the rear wall by the inserted tongue.

5. The belt buckle and tongue combination of claim 1 wherein there is a guide-block for the tongue extending from the rear wall into the cavity of the buckle, said guide-block having a groove for receiving the tip of the tongue when inserted, and two channel-like spaces, one

on each side of the guide-block and wherein the arm of the unitary spring comprises two arms, one on either side of an additional short arm between about 0.1 to 0.6 inch long which curls slightly downward to contact the base wall along the line where the guide-block joins the base wall, to establish a fulcrum about which the unitary spring may pivot, when the upwardly extending arms are urged toward the rear wall and into the channel-like spaces by the inserted tongue.

6. The belt buckle and tongue combination of claim 5 wherein the short downwardly turned arm forms a fulcrum by engaging a ridge in the base wall, said ridge being perpendicular to the line of travel of the tongue in the buckle, and wherein the ends of the flat elongated strip of the spring extending into the channels are angled upward to provide additional resilience to the spring.

7. The belt buckle and tongue combination of claim 1 wherein the flat elongated strip of the spring, and the latching member disposed above it, are a single unit and an upwardly sloping latch structure for engaging the corresponding opening in the tongue, said strip having additionally, upwardly extending projections at the ends extending into the channels to provide contact surfaces for the latch release member.

8. The belt buckle and tongue combination of claim 4 wherein the flat elongated strip of the spring and the latching member disposed above it are a single unit, having two upwardly sloping latch structures for engaging corresponding openings in the tongue, said strip having additionally, upwardly extending projections at the ends extending into the channels to provide contact surfaces for the latch release member.

9. A safety seat belt buckle and tongue in combination comprising:

- a. a seat belt buckle housing having an elongated substantially rectangular opening at one end for the insertion of the tongue, a loop at the other end for the attachment of a length of seat belt, and an open face, exposing a cavity extending to the base wall of the buckle housing;
- b. said housing having opposing thickened parallel sidewalls adjacent to the opening for the insertion of a tongue, extending inwardly, and having in their inner faces, grooves, parallel to the base wall of the housing and to each other, disposed for slideably guiding and supporting the tongue on its insertion into the buckle housing;
- c. said thickened walls each having a guide channel centrally located therein and perpendicular to the base wall of the housing, with the channel openings opposing each other, said channels serving to position a spring, a latching member and a latch release member, disposed within the cavity and restricted by said channels to limited motion substantially perpendicular to the base wall;
- d. said housing having a guide-block extending centrally from the rear wall facing the opening for the tongue, said block being grooved for receiving the tip of the tongue and for stopping its forward motion when fully inserted into the buckle;

e. said housing having two channel-like spaces vertical to the base wall of the housing, between the block and each adjacent thickened wall;

f. a normally relaxed, unitary planar biasing spring fabricated from spring metal sheet stock, comprising an elongated strip which is positioned within the cavity above the base wall, with each end of the strip extending loosely into one of the two opposing channels, said spring strip having two arms extending at right angles to the strip, toward the channel-like spaces, but curling upwardly into the path of the tongue, and directly in front of these channel-like spaces, said arms extending upwardly substantially to the open face of the cavity; a third arm centrally located between the other two and curving slightly downward from the strip to contact the base wall at its junction with the guideblock, there forming a fulcrum;

g. a latching member disposed above the strip of the unitary spring, and having arms extending on each side partially into the opposing channels, to limit movement of the latching member to motion perpendicular to the base wall of the housing, said extending arms each having at its terminus disposed within the channel, a short upwardly extending projection to provide contact surfaces for cooperation with the latch release member, said latching member having centrally located on its upper surface, an upwardly sloping latch structure, for engaging a corresponding opening in the tongue;

h. a latch release member comprising a press button with two extending arms each extending into one of the two opposing channels, for engaging the contact surface of the latching member, and having at its terminus a downwardly extending leg, said legs disposed within the channels whereby the latch release member straddles the tongue and the latching member, said latch release member being guided by the channels to limited motion perpendicular to the base wall of the housing;

i. a covering retaining plate having an opening therein and a plurality of downwardly extending legs for fixed engagement with corresponding openings in the thickened wall of the housing to thus retain the latching and unlatching components within the housing, while permitting access to the press button whereby; inserting the tongue all the way into the housing will cause its tip to press the two arms of the unitary spring into the channel-like spaces on either side of the guide-block, to thereby rock the strip of the spring on said fulcrum and raise the overlaying latching member, urging it into latching engagement with the opening in the tongue; and whereby manual pressure on the press button to overcome the bias of the tensed spring will depress the latching member below the opening in the tongue, whereupon the two arms of the spring pressing against the tip of the tongue will eject the tongue, said spring then returning to its normally relaxed condition.

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