

March 29, 1966

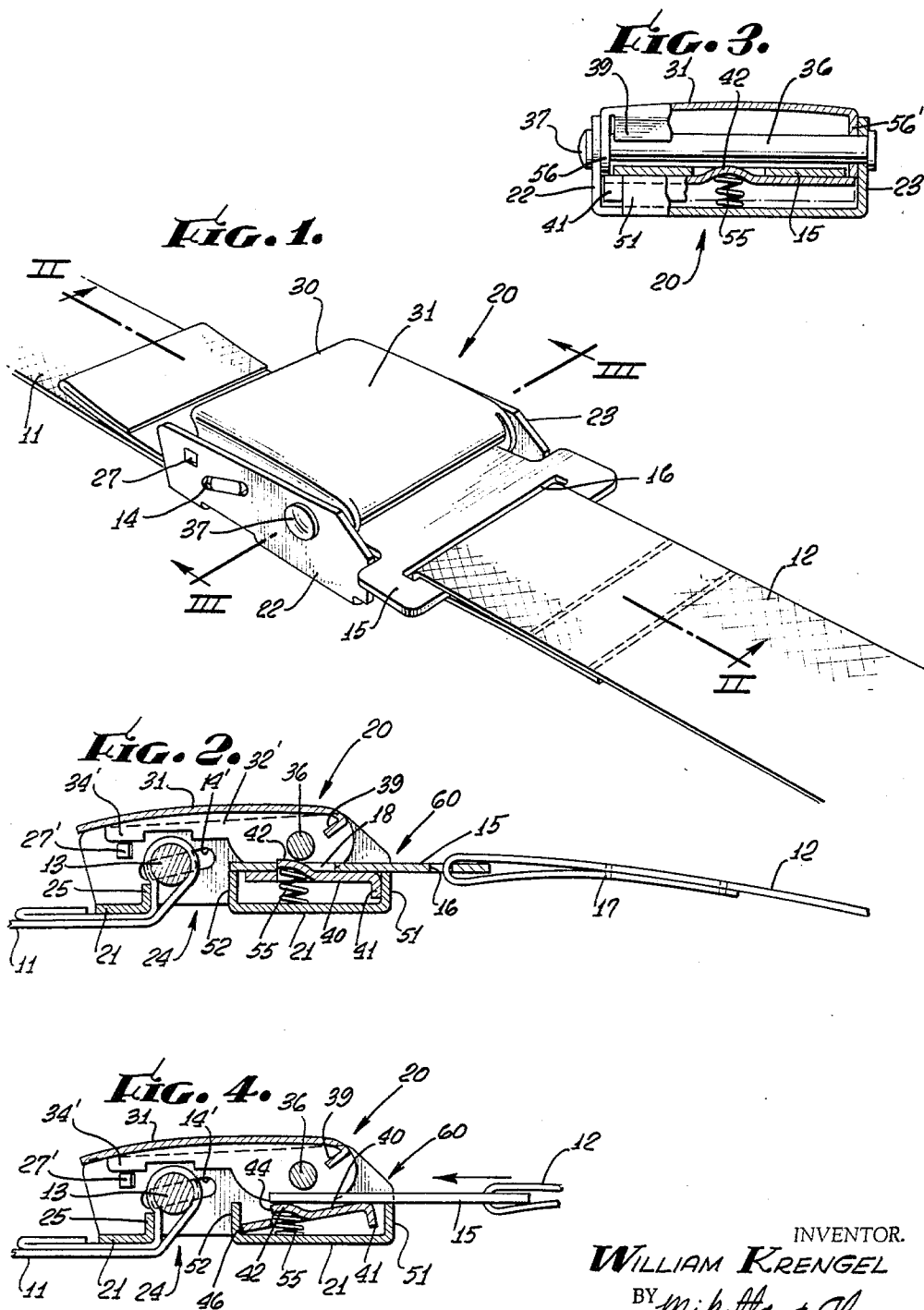
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3,242,547

SAFETY BELT BUCKLE

Filed Sept. 3, 1964

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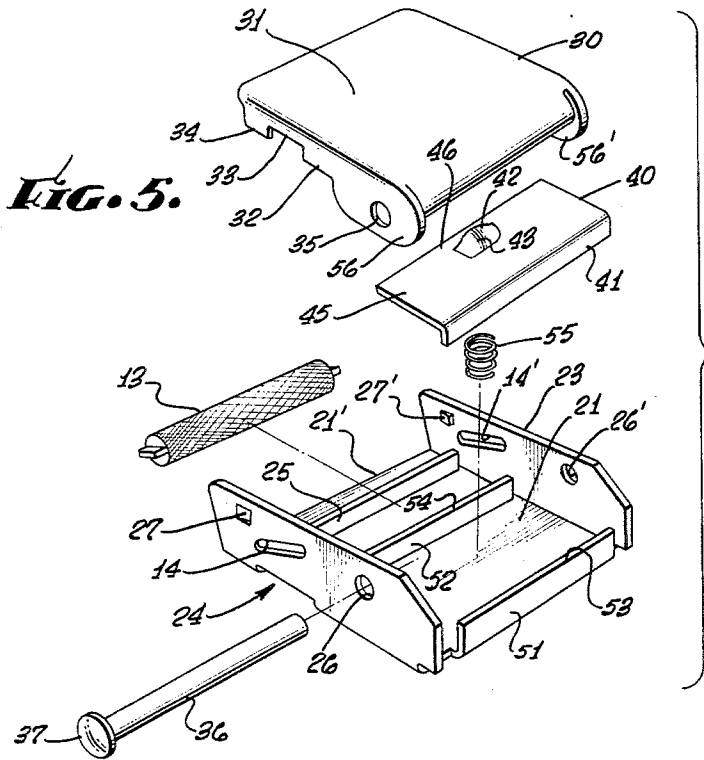
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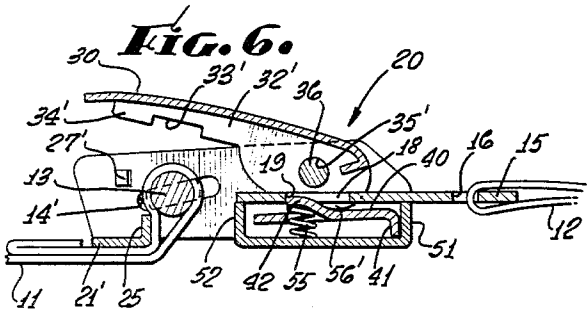
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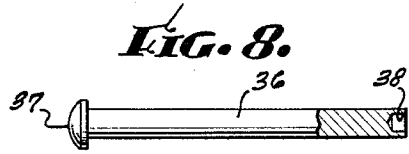
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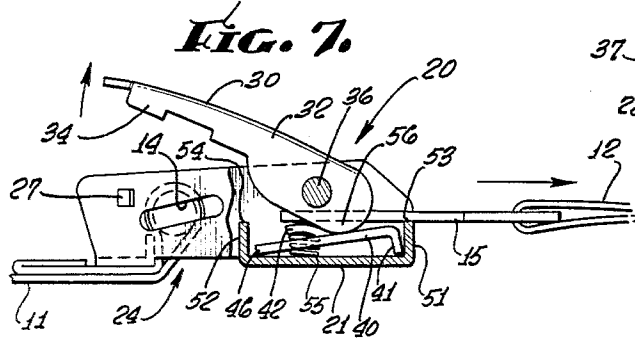
**Fig. 5.**



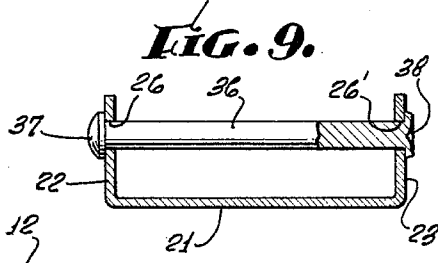
**Fig. 6.**



**Fig. 8.**



**Fig. 7.**



**Fig. 9.**

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**SAFETY BELT BUCKLE**

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17 Claims. (Cl. 24-230)

This invention relates in general to safety belt buckles and improvements therein. More particularly, this invention relates to an improved construction of safety belt buckle in which the principal parts may be stamped and formed from sheet metal and are easily assembled together in a novel manner to provide not only a strong and reliable safety belt buckle but a buckle which can be easily operated on tongue insertion and tongue release operations in part because of the provision of a novel wobbling catch means employed in the buckle.

The need for safety belt buckles has been recognized by most major automobile manufactureres and the public in general, such buckles being presently in wide use and being specified as original equipment in most new automobiles. However, the increased use of safety belt buckles has also been accompanied by an ever increasing demand for a lower priced inexpensive safety belt buckle which can be made of few parts and which can be readily assembled by unskilled labor. Such inexpensive buckle, however, must also meet the strength and handle release load requirements of the various state testing agencies in order to be sold and used throughout the United States of America.

It is therefore the principal object of the present invention to disclose and provide an inexpensive yet strong and durable safety belt buckle which can be made essentially from a few stamped and formed sheet metal parts which are readily assembled together into a completed buckle.

It is an other object of the present invention to disclose and provide a safety belt buckle of the above character in which the high impact loads experienced by the buckle in automobile accidents and in testing operations are transmitted in a generally straight line manner from the tongue plate into the buckle base, without loading of the handle pin or other portions of the buckle.

It is also an object of the present invention to disclose and provide an inexpensive safety belt buckle made essentially from stamped and formed sheet metal parts in which the tongue plate insertion and tongue plate release operations are easily and smoothly accomplished with a minimum of effort on the part of the safety belt buckle user.

It is a primary object of the present invention to disclose and provide a safety belt buckle of the foregoing character in which a wobbling catch means is loosely disposed within the buckle body such that the insertion and release of the tongue plate is facilitated by an axisless free wobbling movement of the catch means.

It is a still further object of the present invention to disclose and provide a safety belt buckle as in the foregoing object wherein during at least an initial tongue plate releasing movement of the catch means, on operation of the release lever or buckle handle, no work need be done against forces in the safety belt straps when under load.

It is also another object of the present invention to disclose and provide an inexpensive safety belt buckle construction as in the foregoing objects wherein a novel manner of supporting and retaining a catch plate means within the buckle is provided so that the catch plate may move freely within certain limits within the buckle in its cooperation and coaction with a tongue plate inserted into the buckle and the buckle handle employed to release the catch plate from such inserted tongue plate.

The foregoing objects and various other objects and advantages of the safety belt buckle in accordance with the present invention will become apparent to those skilled in the art from a consideration of the following detailed explanation of an exemplary embodiment thereof. Reference will be made to the appended sheets of drawings in which:

FIG. 1 is a perspective view of an exemplary embodiment of safety belt buckle, in accordance with the present invention, shown with a pair of exemplary safety belt straps and an exemplary tongue plate;

FIG. 2 is a sectional view of the safety belt buckle of FIG. 1 taken therein along the plane II—II;

FIG. 3 is a sectional view of the safety belt buckle of FIG. 1 taken therein generally in the plane III—III with certain portions thereof left in solid line for clarity;

FIG. 4 is a sectional view of the safety belt buckle of FIGS. 1 through 3 showing the relationship of the parts therein upon an incomplected insertion of a tongue plate into the buckle;

FIG. 5 is an exploded view of the safety belt buckle of FIGS. 1 through 4;

FIG. 6 is a sectional view of the safety belt buckle of FIGS. 1 through 5 showing the buckle parts in their relationship upon an initial raising of the buckle handle and the wobble plate therein being in its initial vertically depressed position during a release of the tongue plate;

FIG. 7 is a partial sectional view of the safety belt buckle of FIGS. 1 through 6 showing the handle in its fully raised position, the wobble plate in its fully depressed position and the tongue plate free to be withdrawn;

FIG. 8 is a detail view of the handle pin of the safety belt buckle of FIGS. 1 through 7; and

FIG. 9 is a detail view showing the assembly of the handle pin of FIG. 8 to the buckle base of the safety belt buckle of FIGS. 1 through 7.

Referring now to the drawings, particularly FIGS. 1 and 2, an exemplary embodiment of a safety belt buckle according to the present invention, shown generally at 20, and its mode of operation will be explained in detail. The buckle is to be employed with a safety belt of conventional form including a first strap 11 and a second strap 12. The safety belt straps 11 and 12 may be attached to a vehicle frame or floor in any well known manner so as to be positioned one on each side of a passenger riding in the vehicle. The first strap 11 is adjustably secured to the buckle about a knurled bar 13 which is slidably mounted in a pair of opposed inclined slots 14 and 14' in the buckle body. Strap 12 may be secured to the tongue plate 15 by being passed through a relatively narrow strap receiving slot 16 and being sewn at 17 to be permanently secured to the tongue plate. The safety belt straps 11 and 12 are preferably adjusted to bring the buckle, indicated generally at 20, and tongue plate 15 into position to be interlocked with each other directly in front of the passenger using the belt so that the buckle is easily reached to be either connected or released. The safety belt buckle of the present invention may also be associated with other conventional hardware and retraction devices as is apparent to those skilled in the art.

Referring now to FIGS. 1, 2 and 5, the exemplary form of buckle, indicated generally at 20, includes a buckle base 21 provided with a pair of integrally formed upstanding spaced side walls or flanges 22 and 23, respectively. The entire buckle base may be stamped and formed from a single sheet of metal by well known progressive punch and die operations. Base 21 is interrupted by a strap receiving aperture, indicated generally at 24, through which the strap 11 passes to engage the knurled bar 13. A rear portion 21' of base 21 is provided with an upstanding lug or snubber wall 25 adjacent

the strap receiving aperture to bind or snub the strap 11 between the wall 25 and bar 13, thereby holding the buckle in its adjusted position relative to strap 11, upon the application of a pull or loading between the buckle and strap 11.

A pair of opposed pivot pin receiving holes 26 and 26' are provided in the spaced walls or side flanges 22 and 23, respectively, as best seen in FIG. 5, to receive the pivot pin employed to mount the handle or lid 30. At a rear portion of each of the side walls or upstanding flanges 22 and 23, there may be provided a handle stop 27 and 27', respectively. Handle stops 27 and 27' may be formed out of the side flanges themselves, as by a semi-piercing operation, and are provided as a stop to limit inward turning movement of the handle 30 toward the base. While the stops 27 and 27' are not necessary to the operation of the buckle, in accordance with the present invention, they may be used to facilitate the positioning of the handle 30 when in its closed position.

Handle 30 may be stamped and formed from a single metal sheet by well known metal working operations and preferably includes a cover or lid portion and a pair of depending spaced side flanges 32 and 32' respectively. Each side flange of the handle or latch 31 is provided with a cutout or recess 33 and 33', respectively, to allow the rearward portion 34, 34' of each flange to abut the handle stops 27, 27' (when employed) without the handle flanges engaging or interfering with the operation of the strap 11 about the knurled bar 13. Pivot pin holes 35 and 35' are provided in the forward portions of each of the handle side flanges 32 and 32', respectively, to receive a handle pin 36.

Handle pin 36, as shown in FIGS. 5 and 8, prior to assembly to the buckle, may be provided as a metal bar or pin having a head 37 formed at one end and a drilled hole 38 provided at the other end. After the pin 36 is passed through the holes 26, 26' in the buckle flanges 22 and 23, mounting the handle 30 to the buckle and passing through the handle pivot pin holes 35 and 35', respectively, the drilled end of the pin 36 may be headed, or preferably, spun to be flattened out as shown in FIG. 9 by a simple spinning operation.

The forward end of handle 30 is preferably provided with a rearwardly inclined depending flange 39, best seen in FIGS. 2, 4 and 6, which may serve to prevent inadvertent insertion of the tongue plate into the buckle between the handle pivot pin 36 and the handle lid or cover plate 31.

Wobbling catch means are provided in accordance with the present invention to wobble loosely within the buckle in receiving, engaging and releasing the tongue plate 15 to be interlocked into the buckle. The insertion of the tongue into the buckle as well as its release from the buckle are both smoothly and easily accomplished by the cooperation of this novel wobbling catch means (and a means for loosely mounting the same within the buckle) with the buckle base and handle or release lever. In the exemplary embodiment, such wobbling catch means includes a wobble plate 40, which may be stamped from a single sheet of metal and formed to provide a forward depending leg portion 41 and a catch means 42. The catch means 42, as in the exemplary embodiment, may be integrally formed out of the wobble plate itself by a lance punch and die operation. The catch means 42 is provided in association with the wobble plate 40 to engage the tongue plate through an aperture 18, abutting a tongue plate retaining shoulder 19 in the exemplary embodiment. While in this exemplary embodiment, the tongue plate 15 is provided with an aperture 18 to form a tongue plate retaining shoulder 19, it is envisioned that tongue plate 15 could be provided in other forms without such an aperture 18 but with a retaining shoulder 19 adapted to engage and abut against a catch means provided upon the wobble plate 40.

Catch means 42 formed out of the flat plate-like body

of the wobble plate 42 is preferably formed to provide a forwardly facing cam surface 43 to be abutted by the leading edge of the tongue plate on its insertion, as best seen in FIG. 4, and a rearwardly facing shoulder or abutment surface 44, extending above the level of the top surface 45 of the wobble plate as shown in FIG. 4 to engage the retaining shoulder 19 of the tongue plate 15 as shown in FIG. 2. The wobble plate top surface 45 is preferably flat, with the exception of the catch or dog means 42, to lie against the underside of the tongue plate 15, when the tongue plate is inserted into the buckle as shown in FIG. 2 and as subsequently described. The depending front leg portion 41 of the wobble plate is adapted to abut the base 21 below and the base forward upstanding wall 51 at the buckle front during operation of the wobble plate. A rearward or trailing edge portion 46 of the wobble plate, extending rearwardly of the catch means 42, is adapted to abut the base 21 and the base rear upstanding wall 52 during operation of the wobble plate as shown in FIGS. 4 and 7 and as subsequently described.

Means for loosely retaining the wobble plate 40 within the buckle are provided in accordance with the present invention to allow the wobble plate 41 freedom to move in a wobbling manner during tongue plate insertion and release operations. Such means for loosely retaining the wobble plate within the buckle in the exemplary embodiment includes the provision of the spaced upstanding side walls or flanges 22 and 23 on the buckle base 21. As best seen in FIG. 3, the wobble plate 40 is loosely disposed between the side flanges 22 and 23. Also, in accordance with the present invention, a pair of spaced upstanding walls 51 and 52 are provided on the buckle base 21, wall 51 being disposed at the forward end of base 21 and wall 52 being disposed at a rearward edge of base 21 adjacent the strap receiving aperture 24. Upstanding walls 51 and 52 are irremovably connected to the base 21 and preferably are formed integrally with the base 21 to lie in substantially parallel planes which are generally perpendicular to the buckle side walls or side flanges 22 and 23. These upstanding walls 51 and 52 are spaced on base 21 a distance greater than the width of the wobble plate 40, which is disposed loosely between them, and they serve as stop walls or limiting means which establish limits of lateral movement for the wobble plate 40 forward and backward within the buckle.

Top surfaces 53 and 54, provided on each of the upstanding walls 51 and 52, respectively, are preferably provided to lie in a plane generally parallel to and spaced above the buckle base 21 by the height of the walls 51 and 52. These top surfaces 53 and 54 may thus provide guide and support means for the tongue plate 15 when it is inserted into the buckle, as shown in FIG. 2. Further, upon the release of the wobble plate 40 and catch means 42 from the tongue plate 15, as shown in FIG. 6, the upstanding walls 51 and 52 together with their respective top surfaces 53 and 54 support the tongue plate 15 during release of the catch means therefrom, facilitating the release and withdrawal of the tongue plate 15 from the buckle.

Means for yieldably supporting the wobble plate above the base 21 and for allowing wobbling movement of the wobble plate thereon, in accordance with the present invention, are also provided in the buckle. In the exemplary form of buckle shown, such means includes a coil spring 55 disposed between the wobble plate 40 and the buckle base 21. Coil spring 55 may be merely seated upon the flat base 21 and yieldably support the wobble plate 40 by engaging an undersurface thereof. In the exemplary embodiment, where the catch means 42 is integrally formed out of the wobble plate itself, leaving a recess or cavity formed in the wobble plate beneath the catch means, the upper portion of the coil spring 55 is disposed in such cavity to facilitate the relative positioning of the spring 55 to the base 21 and wobble plate 40.

It is contemplated within the invention that a single leaf spring be employed in place of the coil spring shown. Such leaf spring may be merely dropped in place on the base 21 as is the coil spring 55. Since the spring means provides a single yieldable support beneath the wobble plate 40, urging the plate upwardly of the base 21, and because of the space between the wobble plate side edges and the surrounding walls 22, 23, 51 and 52, the wobble plate is free to wobble within the buckle without any established or fixed pivotal axis.

Camming means are provided on the handle or latch 30 for a camming or rolling engagement on the wobble plate 40 to depress it toward the base 21 on lifting of the handle to release the tongue plate 15 when engaged within the buckle. Such camming means in the exemplary embodiment includes a cam portion 56 and 56' provided on the buckle handle 30, forwardly of its pivot pin 36, to rollingly engage the upper marginal side surfaces of the wobble plate 40. Such camming portions 56 and 56' may be formed integrally with the depending side flanges 32 and 32', respectively, as best seen in FIG. 5. The spacing of the handle side flanges 32 and 32' is such, relative to the width of the portion of the tongue plate 15 received within the buckle, that the tongue plate 15 is received between the side flanges 32 and 32' and the camming portions 56 and 56' of the handle 30 operate past the sides of the tongue plate 15 upon the side marginal areas of the upper surface 45 of the wobble plate 40.

The operation of the safety belt buckle, in accordance with the present invention, will now be explained in detail with reference being made to the exemplary embodiment shown. Insertion of the tongue plate 15 into the buckle is accomplished by sliding the tongue plate 15 over the base forward wall 51 into the tongue receiving aperture of the buckle formed between the pin 36, base side flanges 22 and 23, and the upstanding walls 51 and 52. The rearwardly depending flange 39 on the forward portion of handle or latch 30 assists the user in properly inserting the tongue plate between the pin 36 and wall top surfaces 53 and 54 of the base upstanding walls 51 and 52 respectively.

As the tongue plate 15 passes under the handle pivot pin 36, a leading end portion of the tongue plate engages the camming face 43 on the catch means 42. This engagement of the tongue plate 15 with the camming surface 43 causes the entire wobble plate 40 to move rearwardly and partially downwardly in a wobbling movement into the position shown in FIG. 4. As shown in FIG. 4, the wobble plate is depressed on its yielding support means with the trailing edge portion 46 thereof having been moved generally against the rear wall 52 and downwardly toward the base 21. Since the wobble plate 40 is loosely disposed between the walls 22, 23, 51 and 52 and is supported by a single support means (the coil spring 55 in the exemplary embodiment) it freely wobbles out of the way of the tongue plate being inserted, there being no fixed axis of rotation or pivoting for plate 40, with a minimum of effort being expended by the user.

Upon further insertion of the tongue plate 15 into the buckle between the handle pivot pin 36 and the two upstanding walls 51 and 52, the catch means 42 will register with the tongue plate aperture 18. Since the wobble plate 40 is urged upwardly by the spring bias of coil spring 55 as soon as the wobble plate 40 has been aligned with the tongue plate 15 so that the catch means 42 may protrude into the tongue plate aperture 18, the catch means abutment 44 will align with and be disposed to abut the retaining surface 19 on the tongue plate. A slight pull or loading on the tongue plate will then move the wobble plate 40 forwardly within the buckle until the wobble plate forward depending wall 41 abuts the base upstanding forward wall 51, as is shown in FIG. 2. With the tongue plate 15, and the wobble plate 40 in the position shown in FIG. 2, the buckle is ready to receive loading

from the safety belt straps 11 and 12. Such loading is expected to occur upon any sudden stopping of the vehicle in which the passenger employing the safety belt is riding. A forward movement of the passenger's body applies a loop force upon the safety belt straps which is transmitted into a pulling or loading force between the tongue plate 15 and the buckle. In accordance with the present invention, the wobble plate is disposed in a generally horizontal position when under load, as shown in FIG. 2, so that load transmitted from the retaining shoulder 19 of the tongue plate 15 into the catch means 42 of the wobble plate is transmitted in a substantially straight line through the wobble plate to the base forward wall 51 and thus into the buckle base. No load is transmitted into the handle pin.

Release of the tongue plate 15 from the buckle, indicated generally at 20, is accomplished rapidly and easily by merely raising the handle or release lever 30 as shown in FIGS. 6 and 7. Referring first to FIG. 6, in the exemplary embodiment the initial raising or pivoting of the handle 30 about its pin 36 causes the camming surfaces 56 and 56' on the forward portion of the handle flanges to begin to roll upon the upper side marginal surfaces of the wobble plate 40. This initial rolling contact between the cam surfaces 56 and 56' of the handle 30 and the wobble plate 40 causes the forward portion of the wobble plate to be vertically depressed until the depending forward leg 41 abuts the buckle base 21, with the coil spring 55 partially compressed, the wobble plate 40 having moved downwardly though still in a generally horizontal disposition. Upon further raising or pivoting of the handle 30 about its pin 36, as shown in FIG. 7, with the leg 41 abutting the base 21, rearward portion 46 of the wobble plate 40 is further depressed until such portion 46 abuts or is close to the base 21. Abutment between the rearward portion 46 of the wobble plate 40 and the base 21 prevents further depression of the wobble plate 40 and limits the extent to which the handle 30 may be raised about its pivot pin 36.

When the buckle is under load conditions, the raising of the handle 30 will automatically and quickly release the tongue plate 15 as soon as the catch means 42 clears the tongue plate retaining shoulder 19. Such release of the tongue plate 15 from the buckle when under load is greatly facilitated and the amount of force required to raise the handle to allow such release is appreciably reduced because of the present buckle construction and mode of operation. As stated, the initial raising of the handle 30 provides a rolling action between the handle cam surfaces 56 and 56' which causes an initial vertical descent or depression of the wobble plate 40, as shown in FIG. 6. This initial releasing movement of the wobble plate 40 is accomplished against only the frictional forces occurring between the catch means rearwardly facing abutment surface 42 and the tongue plate retaining shoulder 19. No work is required to be done against the belt forces in the safety belt straps by such vertical movement or depression of the wobble plate, i.e. effort expended drawing the tongue plate into the buckle against the forces in the belt straps. As shown in FIG. 6, when the forward leg 41 of the wobble plate engages the base 21, the catch means 42 has practically released the tongue plate 15. Further depression of the rearward portion 46 of the wobble plate 40 about the forward leg 41, where it abuts the base 21, allows the catch 42 to release the tongue plate 15 with very slight or no inward movement of the tongue plate 15 acting against the forces in the safety belt straps 11 and 12.

The safety belt buckle construction, in accordance with the present invention, allows the manufacture of a strong durable safety belt buckle with a minimum of individual parts, the major portions of which may be stamped and formed from single sheets of metal. The handle or latch 30 may be stamped and formed from lightweight sheet metal, such as aluminum and/or steel with approximately

an 18 gauge thickness. Since the handle pin 36 does not carry any load carried by the buckle and tongue plate, it need not be heat treated and can be made from inexpensive metal bars, such as grade 1010 steel. The base, tongue plate and wobble plate may be each stamped and formed where required from sheet metal, of a grade such as 4130 steel, and subsequently heat treated to provide required strength. The knurled bar 13 is readily assembled to the buckle body in the conventional manner.

As can be seen readily from an examination of the exploded view of the buckle shown in FIG. 5, the assembly of the buckle in accordance with the present invention is exceptionally simple. The assembly of the buckle is accomplished by merely placing a leaf spring or the coil spring 55 upon the base 21 of the buckle body. The wobble plate 40 is then loosely dropped into the space provided between the base flanges 22 and 23 and the upstanding base walls 51 and 52, the upper portion of coil spring 55 resting within the cavity formed beneath the catch means 42. The handle 30 is then readily assembled to the buckle body by merely pressing it on the wobble plate 40 until its pin holes 35 and 35' align with the flange pivot holes 26 and 26' to receive pin 36 therethrough. Handle pin 36 is thus disposed above the catch means 42 slightly forward of the catch abutment surface 44 to receive and vertically retain a tongue plate between the pin 36 and the top surfaces 53 and 54 of upstanding walls 51 and 52, respectively. The drilled end of the pivot pin 36 may be then spun to be flattened out, as shown in FIG. 9, to retain the entire assembly in its assembled position. The handle pin 36, in accordance with the present invention, serves not only as the pivot pin for the handle, but is the sole locking part or means for holding the buckle base, spring means, wobble plate and handle in assembled relation. The buckle parts are merely loosely assembled and then easily locked together by the insertion of the handle pin, which is then held in place by being headed at its free end or spun, as shown in FIG. 9 at 38.

The buckle construction, in accordance to the present construction and as shown by the exemplary embodiment thereof explained herein, is essentially of a few readily assembled parts inexpensively stamped out of sheet metal. The insertion and release of the tongue plate relative to the buckle body is made easy by the provision of a novel wobbling catch means and the novel means for loosely positioning such catch means within the buckle. The wobbling or axisless movement of the catch means also allows the buckle to be released while under load with a minimum of effort by the user.

The insertion of a tongue plate into the buckle of the present invention is further facilitated and made easy by the provision of a tongue plate receiving zone, indicated generally at 60, in the forward portion of the buckle. As can best be seen in FIGS. 2 and 3, for example, the forward portions of the base 21, including front wall 51 and forward portions of the side flanges 22 and 23, extend forwardly of the generally overlying buckle handle 30, exposing part of the wobble plate 40. The forward portions of the side flanges 22 and 23 are tapered downwardly toward the wall 51. These forward portions of the side flanges 22 and 23, wall 51, flange 39 and the forward exposed portion of the wobble plate 40 cooperate to provide a tongue plate receiving zone easily located by a person assembling a tongue plate to the buckle and greatly aiding the coupling of the buckle and tongue plate.

The foregoing detailed description has been made with reference to an exemplary embodiment of a safety belt buckle in accordance with the present invention. It should be noted that other embodiments of the buckle and various modifications, alterations and innovations thereof may be made which may come within the scope of the present invention which is defined by and limited only by the following claims.

I claim:

1. In a safety belt buckle for releasably engaging a

tongue plate insertable therein and having a retaining shoulder, the buckle including a base, side flanges and a pivotally mounted handle, the provision of:

a wobble plate including catch means thereon for engaging the tongue plate retaining shoulder of a tongue plate inserted into the buckle;

means for loosely retaining said wobble plate within the buckle to allow said wobble plate to wobble out of the way of the tongue plate upon insertion into the buckle;

said means for loosely retaining said wobble plate including yieldable support means for yieldably supporting said wobble plate above the buckle base and for urging said wobble plate catch means into engagement with an inserted tongue plate; and means on said handle for engaging said wobble plate to move it out of engagement with said tongue plate.

2. The provision as in claim 1 wherein said means for loosely retaining said wobble plate within the buckle includes:

a pair of spaced upstanding walls irremovably connected to said base, said walls lying in substantially parallel planes generally perpendicular to the buckle flanges and having top surfaces lying in a plane generally parallel to and spaced above the buckle base, said walls and flanges establishing limits of lateral movement for said wobble plate and said wall top surfaces providing guide and support means for the tongue plate inserted into the buckle.

3. In a safety belt buckle, including a base, side flanges and a pivotally mounted handle, which is adapted to receive a tongue plate having a retaining shoulder, the provision of:

a wobble plate loosely disposed within the buckle between said base, flanges and pivoted handle and including catch means thereon for engaging the tongue plate retaining shoulder on insertion of the tongue plate into the buckle;

means for yieldably supporting said wobble plate above said base and for allowing wobbling of said wobble plate thereon upon insertion of the tongue plate;

stop means for limiting lateral wobbling movement of said wobble plate in a direction generally parallel to said buckle side flanges upon insertion of said tongue plate and upon the application of a withdrawal force on a tongue plate engaged by said wobble plate catch means, and

camming means on said handle for rolling engagement on said wobble plate to depress said wobble plate toward said base on lifting of said handle to release a tongue plate engaged within said buckle by said wobble plate catch means;

the initial movement of said wobble plate toward said base on lifting of said handle being a generally vertical descent with said wobble plate remaining in a generally parallel disposition to said tongue plate to at least partially withdraw said catch means from said tongue plate without moving said tongue plate inwardly of said buckle.

4. In a safety belt buckle for releasably engaging a tongue plate having a retaining shoulder, the buckle including a base, side flanges and a pivotally mounted handle, the provision of:

a pair of spaced upstanding walls integral with said base and traverse to said flanges;

a wobble plate loosely disposed between said flanges and walls, said walls and flanges establishing limits of lateral movement of said wobble plate;

support means between said wobble plate and base for yieldably urging said wobble plate away from said base and for allowing wobbling of said plate thereon into various angular positions relative to said base within the lateral limits defined by said walls and flanges;

catch means on said wobble plate for engaging the

9

retaining shoulder of a tongue plate inserted into said buckle;

said wobble plate wobbling on said support means to allow insertion of said tongue plate into said buckle and into engagement with said catch means and said wobble plate moving laterally to abut one of said spaced walls on application of a force on said tongue plate tending to remove said tongue plate from said buckle; and

means on said handle for engaging said wobble plate to move it out of engagement with said tongue plate.

5. In a safety belt buckle for releasably engaging a tongue plate having a retaining shoulder, the buckle including a base, side flanges and a pivotally mounted handle, the provision of:

a pair of spaced upstanding walls irremovably connected to said base and having top surfaces lying in a plane generally parallel to and spaced above said base, said walls lying in substantially parallel planes generally perpendicular to said flanges, said top surface providing guide and support means for a tongue plate insertable in said buckle;

a wobble plate loosely disposed between said flanges and walls to be movable into contact with either of said walls, said walls and flanges establishing limits of lateral movement of said wobble plate; yieldable support means for yieldably supporting said wobble plate between said walls and flanges above said base, said support means allowing a wobble movement of said wobble plate between said walls and flanges;

catch means formed in said wobble plate for engaging a shoulder provided in a torque plate insertable into said buckle over said wall top surfaces;

said wobble plate tilting rearwardly and partially downwardly toward a rear wall of said walls on insertion of a tongue plate into said buckle to allow a forward portion of said tongue plate to pass over said catch means, said wobble plate moving upwardly toward the plane of said wall top surfaces when said catch means aligns to said tongue plate retaining shoulder and said wobble plate moving forwardly against a forward wall of said walls on application of load to said tongue plate; and

camming means associated with said handle including at least one cam surface to roll upon said wobble plate for depressing said wobble plate toward said base to release an engaged tongue plate upon pivotal movement of said handle away from said base.

6. The safety belt buckle of claim 5 wherein said camming means, yieldably support means, upstanding walls and buckle side flanges cooperate on lifting of said handle to initially depress said wobble plate vertically downwardly without substantial tilting thereof and said wobble plate is provided with a depending flange at a forward end thereof to abut the buckle base on such vertical depression of said wobble plate to cause said wobble plate to turn on said flange in releasing said tongue plate from said buckle.

7. The safety belt buckle of claim 5 wherein said catch means is formed in said wobble plate providing a portion thereof extending above the upper surface of the wobble plate and also providing a recess in the underside of said wobble plate beneath said catch means and

said yieldable support means comprises a coil spring disposed on the buckle base with an upper portion thereof received in and laterally retained within said recess.

8. In a safety belt buckle for releasably engaging an apertured tongue plate, the buckle including a base, upstanding side flanges and a pivotally mounted handle, the provision of:

10

a pair of spaced upstanding walls on said base, said walls being generally perpendicular to said flanges and terminating in top surfaces lying in a plane generally parallel to and spaced above said base;

a wobble plate loosely disposed between said flanges and walls;

catch means on said wobble plate for engaging an apertured tongue plate inserted in said buckle on said wall top surfaces;

support means for yieldably supporting said wobble plate above said base and for urging said wobble plate away from said base toward the plane of said wall top surfaces;

said wobble plate wobbling on said support means to allow a portion of the tongue plate to pass over said catch means on said wobble plate on insertion of said tongue plate into said buckle; and

camming means associated with said handle for depressing said wobble plate toward said base on pivotal movement of said handle away from said base, said camming means including at least one cam surface to roll upon said wobble plate to cause said depressing of said wobble plate.

9. A safety belt buckle comprising:

a base including a base plate and a pair of spaced upstanding side walls;

a pivot pin mounted in said side walls parallel to and spaced upwardly of said base plate;

a lid overlying said base and pivotally mounted on said pin;

a catch plate including a generally flat plate portion and an upstanding catch portion;

means for loosely retaining said catch plate generally parallel to and spaced above said base plate;

spring means interposed between said base plate and catch plate; and

camming means on said lid forwardly of said pin for rolling upon and depressing said catch plate toward said base on rotation of said lid about said pivot pin.

10. A safety belt buckle comprising;

a base including a base plate and a pair of spaced upstanding side walls;

a lid generally overlying and pivotally mounted to said base;

a link receiving aperture in a front end of the buckle between said lid and base;

a catch plate;

means for loosely retaining said catch plate above said base plate for wobbling movement within said buckle without a fixed axis to receive and hold a link inserted through said aperture; and

means on said lid for engaging said catch plate to move it out of engagement with said link.

11. A buckle as in claim 10 including:

spring means interposed between said catch plate and base plate to bias said catch plate upwardly within said buckle against an inserted link.

12. In a safety belt buckle adapted to receive a tongue plate having a retaining shoulder, said buckle including a base having upstanding side flanges and a handle pivotally mounted on said flanges, the provision of:

a pair of laterally spaced walls irremovably connected to the base between said side flanges and virtually perpendicular thereto but of lesser height than said flanges, top surfaces of said walls providing guide and support means for a tongue plate to be inserted;

a wobble catch plate loosely dropped into the space between said flanges and walls for limited movement in lateral, longitudinal, vertical and rocking movement therebetween, said wobble plate having a rearwardly directed catch to engage a retaining shoulder on an inserted tongue plate;

a spring means between said base and wobble catch

75

11

plate urging the latter into engagement with a tongue plate to be inserted; and

a pivotally mounted handle on said base including spaced means for limiting upward movement of said wobble plate when the handle is in a closed position, said means including camming portions for camming contact with said wobble plate when the handle is pivoted into a release position to depress the wobble catch plate and release an inserted tongue plate from engagement with said catch.

13. A safety belt buckle as stated in claim 12 wherein: said handle is pivoted upon a pin extending between said flanges, said pin being mounted in said flanges above said wobble plate and forwardly of the point where said catch engages said retaining shoulder of an inserted tongue plate, and said pin cooperates with said wall top surfaces to maintain an inserted tongue plate in an operative plane relative to said wobble catch plate and catch thereon.

14. A simple, inexpensive and efficient safety belt buckle capable of being assembled by the use of a single locking part, comprising:

a buckle base including spaced side flanges and a pair of spaced upstanding walls irremovably connected to said base, said walls lying in substantially parallel planes generally perpendicular to said flanges; spring means on said base;

a generally flat catch plate loosely disposed between said walls and flanges on said spring means, said plate having an upwardly extending catch means thereon;

a handle including a lid portion with depending side flanges overlying said wobble plate, said depending side flanges having cam portions thereon to engage an upper surface of said wobble plate;

means for mounting a handle pin to said handle and base including pin receiving holes in said base side flanges and said handle depending side flanges; and

a combined pivot pin and locking means for pivotally mounting said handle to said base and for holding said base, spring means, catch plate and handle in assembled relationship, said pivot pin extending through said pivot holes in said base and handle

12

flanges and having means at each end thereof for retaining said pin on said base.

15. The buckle of claim 14 wherein: said combined pivot pin and locking means is mounted in the buckle in a zone above said catch plate and base walls to maintain an inserted tongue plate in an operable position relative to said catch plate being urged away from said base by said spring means.

16. The safety belt buckle of claim 1 wherein said means for loosely retaining said wobble plate and said pivotally mounted handle cooperate to upwardly expose a forward top portion of said wobble plate and said buckle includes means for providing a tongue plate receiving zone in said buckle at said upwardly exposed forward portion of said wobble plate.

17. The safety belt buckle of claim 16 wherein said means for providing a tongue plate receiving zone in said buckle includes:

an upstanding wall on a forward end of said buckle base, said wall being traverse to said side flanges; forward portions of said side flanges, said portions being downwardly tapered toward said wall; and a rearwardly inclined guide surface depending from a forward top portion of said handle.

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