

Aug. 4, 1970

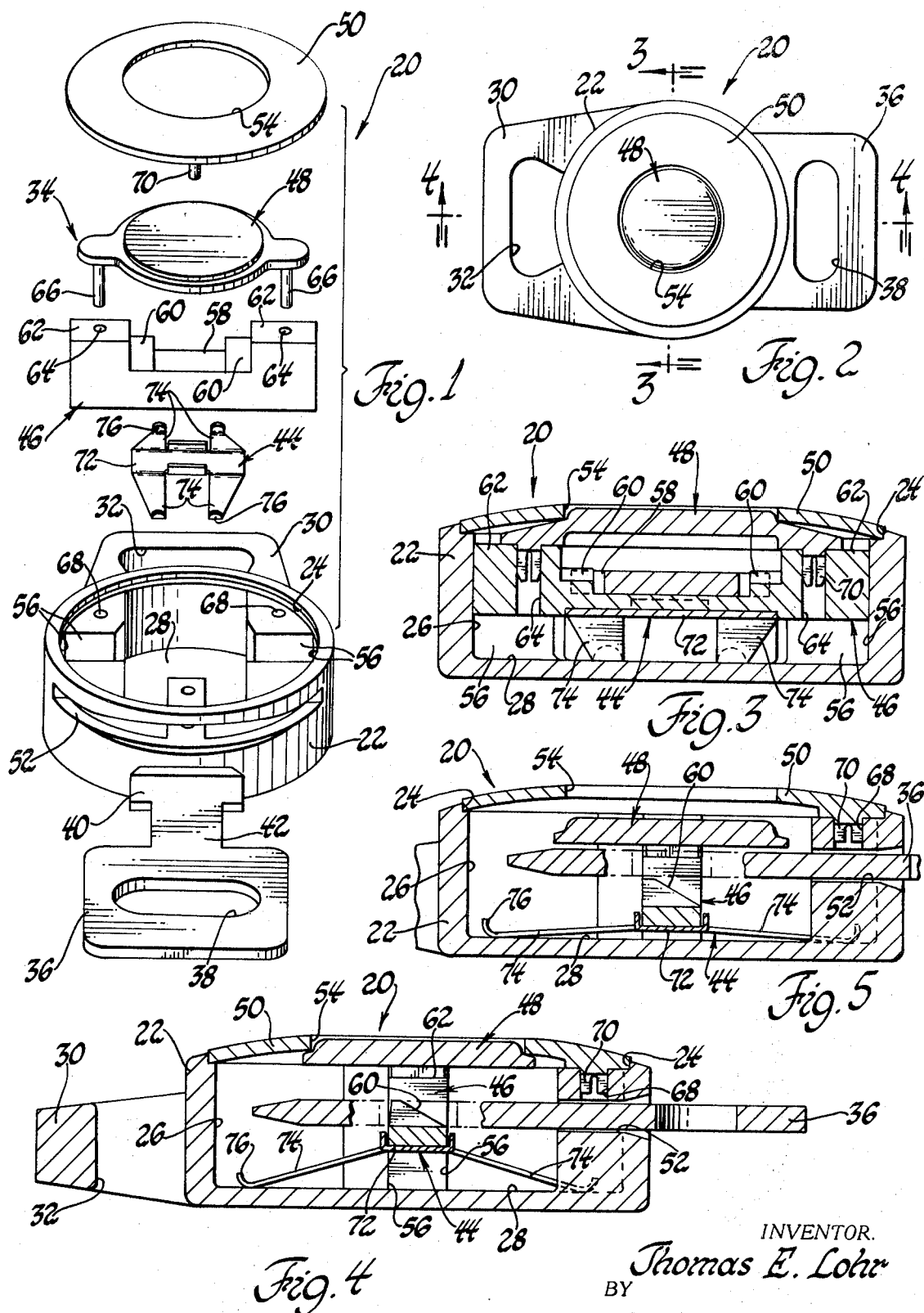
T. E. LOHR

3,522,640

MINI BUCKLE

Filed Nov. 21, 1969

3 Sheets-Sheet 1



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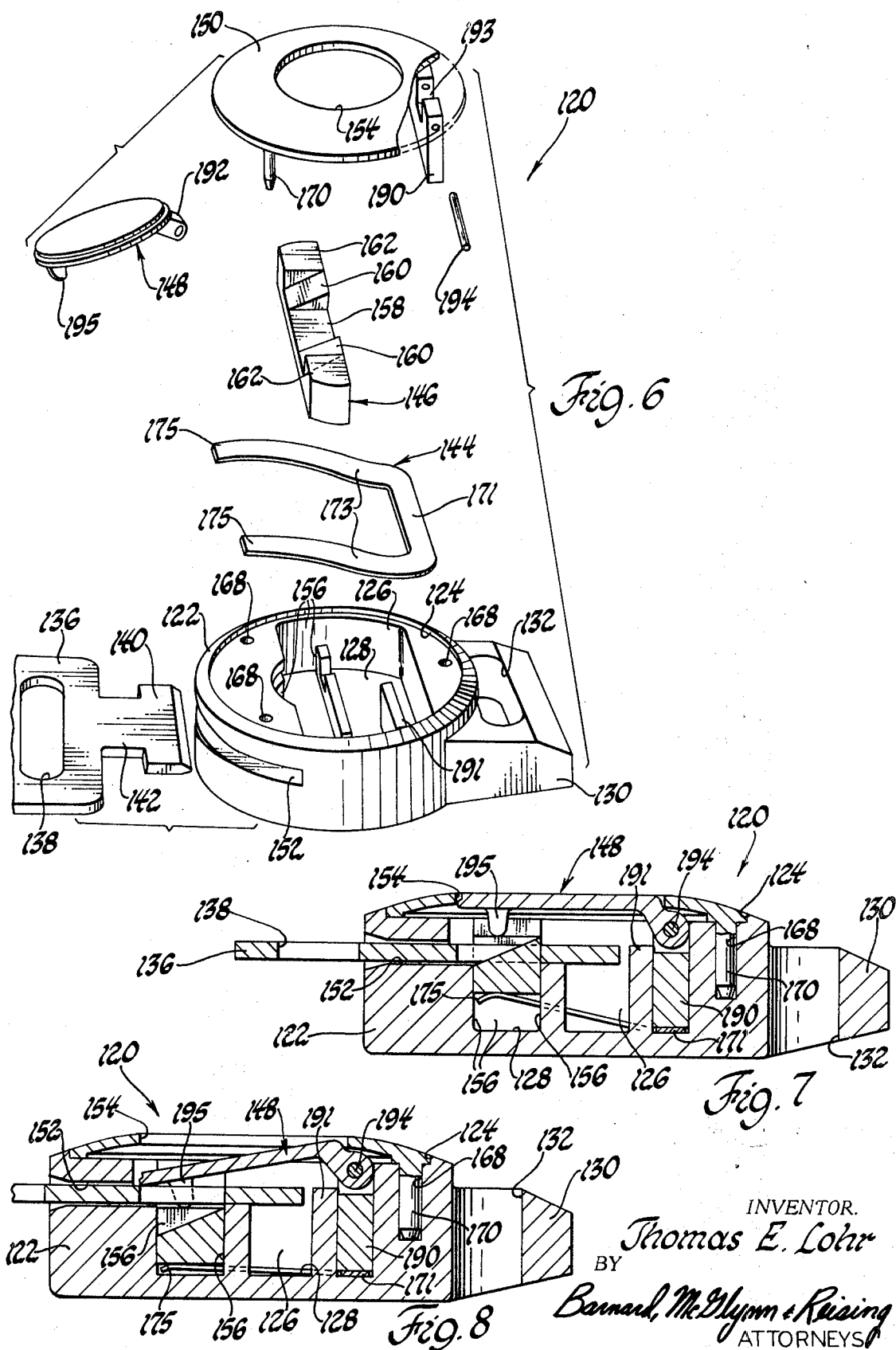
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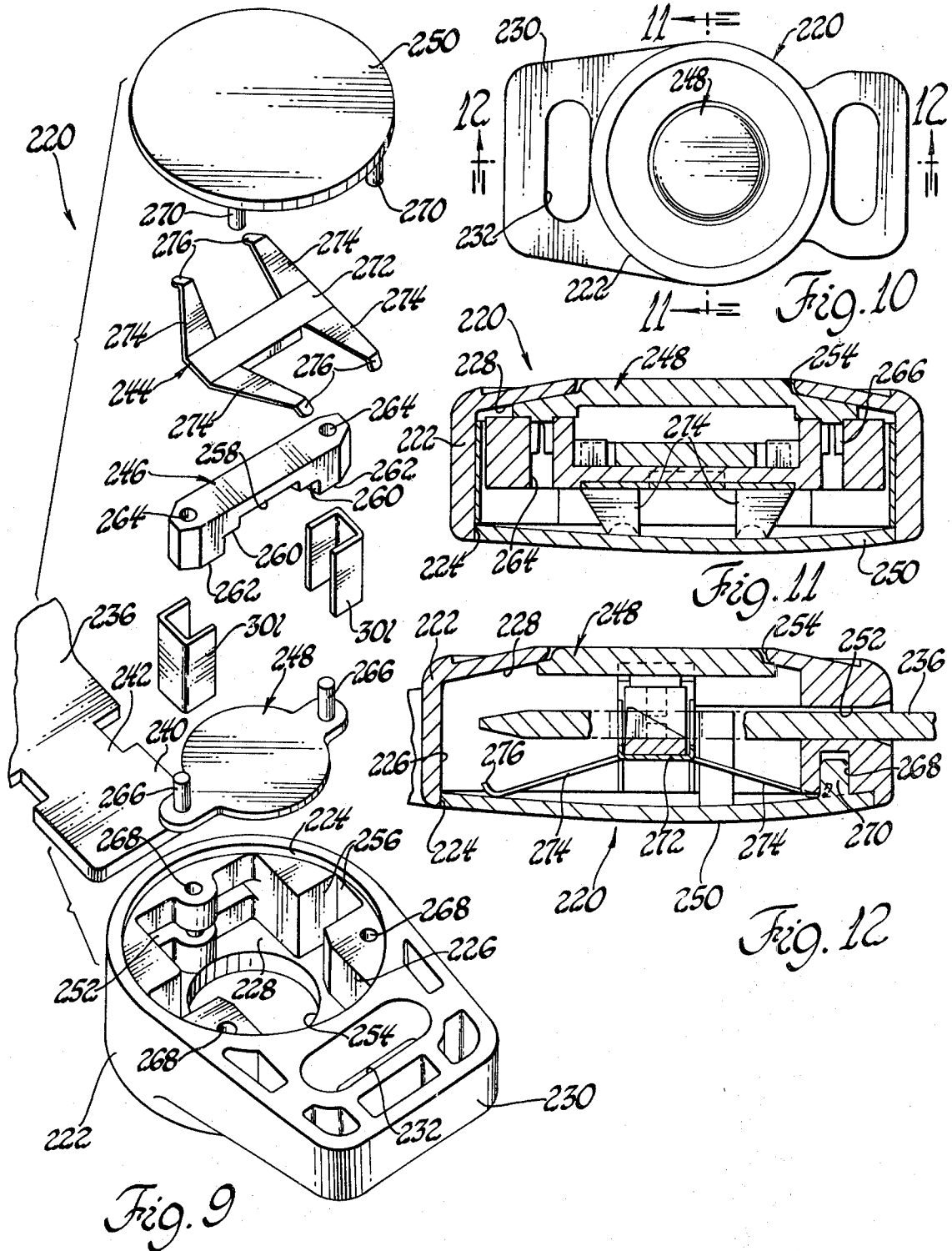
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MINI BUCKLE

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3 Sheets-Sheet 3



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MINI BUCKLE

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Int. Cl. A44b 11/25

U.S. Cl. 24—230

25 Claims

ABSTRACT OF THE DISCLOSURE

A buckle assembly of the type utilized with seat belts including a housing having an opening therein, a cavity extending into the housing from the opening to a wall opposite the opening, and a slot extending into the housing from the exterior thereof to the cavity for receiving a tongue. An elongated latch bar is slidably disposed in the cavity by surfaces in the cavity extending from the wall toward the opening for receiving the latch bar and for limiting movement of the latch bar to movement substantially perpendicular to the wall. A push button is positioned in the cavity for moving the latch bar between a latched position for engaging and retaining a tongue in the cavity and a release position for allowing the tongue to be removed from the cavity. A biasing member urges the latch bar to move to the latched position. The biasing member is positioned on one side of the latch bar and the push button is positioned on the other side of the latch bar. A cap is connected to the housing and disposed over the opening for retaining the push button, the latch bar and the biasing member in the cavity. There are three different modifications but in all of the modifications either the cap or the wall of the housing will have an aperture therein overlying the push button for access to the push button and the biasing member will react against the opposite of the cap and the wall. A primary feature of the assembly is the ease in which it may be assembled.

This invention relates to seat belt assemblies of the type utilized in automobiles for retaining an occupant in a seated position within the automobile. Such seat belt assemblies usually include two straps or belts anchored to the vehicle body with one of the straps being connected to a tongue and the other strap being connected to a buckle whereby the two straps may be disposed over an occupant's lap and the tongue inserted into the buckle so as to be retained therein until being manually released by manipulation of the buckle mechanism.

There is indeed a large number of such buckle assemblies existing in the prior art. The buckle assemblies normally all include some sort of latching means which coacts with a tongue and which is movable between latched and release positions whereby the tongue is retained to the buckle in the latched position and may be removed from the buckle in the release position. The buckles employ various sub-assemblies, devices, linkages, etc., for attachment or coercion with the latching means. Additionally, the assemblies normally include a support structure such as a housing. Quite frequently, these housings take the form of a flat metal plate wrapped into a channel-like member having a substantially rectangular or similar enclosed cross section. Examples of such prior art assemblies are shown in U.S. Pats. 2,995,792 and 3,203,065. The problem with such prior art assemblies is the difficulty in inserting the various elements and components into the housing and into the proper cooperating relationship with the remaining elements and components. The elements are placed into the housing either separately or in sub-assemblies which must be assembled within the housing. This presents a very difficult and ex-

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pensive assembly problem and also increases the possibility of defective assemblies due to improper positioning of the components during assembly.

A buckle assembly is shown in U.S. Pat. 2,882,581 which does not utilize an enclosed housing and although it does not require any substantial assembly of components after they are inserted into the housing, it does require that the components be inserted into the housing from two directly opposite directions. Such a buckle therefore still presents assembly problems.

Accordingly, it is an object and feature of this invention to provide a buckle assembly which may be very easily assembled, manually or automatically, by merely serially moving the components of the assembly into the housing from one direction and without the necessity of assembling or interconnecting components once in the housing.

In correlation with the foregoing object and feature, another object and feature of this invention is to provide a buckle assembly including a housing means having an opening with a cavity extending into the housing from the opening to a wall disposed opposite to the opening and latching means for latching engagement with a tongue in a latched position and operable for releasing the tongue in a release position and including a plurality of components all successively inserted through the opening and into the cavity one after the other with the first engaging the wall and all of the components disposed in the cavity with at least portions of the components positioned in serial overlapping relationship in the direction in which the cavity extends into the housing.

In correlation with the foregoing objects and features, it is another object and feature of this invention to provide an elongated latch bar disposed in the cavity and limited for movement by surfaces in the cavity to movement substantially parallel to the surfaces and a push button positioned in the cavity for moving the latch bar between latched and release positions and a biasing member urging the latch bar to the latched position with the biasing member being positioned on one side of the latch bar and the push button being positioned on the other side of the latch bar and a cap connected to the housing and disposed over the opening to retain the biasing member, the latch bar and the push button within the cavity.

Other objects and attendant advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. 1 is an exploded perspective view of one preferred embodiment of the instant invention;

FIG. 2 is a plan view of the preferred embodiment of FIG. 1;

FIG. 3 is an enlarged cross sectional view taken substantially along line 3—3 of FIG. 2;

FIG. 4 is an enlarged cross sectional view taken substantially along line 4—4 of FIG. 2;

FIG. 5 is an enlarged fragmentary cross sectional view similar to FIG. 4 but showing the buckle assembly in the release position for allowing the tongue to be removed therefrom;

FIG. 6 is an exploded perspective view of a second preferred embodiment of the instant invention;

FIG. 7 is an enlarged cross sectional view taken lengthwise through the embodiment of FIG. 6;

FIG. 8 is an enlarged cross sectional view similar to FIG. 7 but showing the buckle assembly in the release position for allowing the tongue to be removed therefrom;

FIG. 9 is an exploded perspective view of a third preferred embodiment of the instant invention;

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FIG. 10 is a plan view of the preferred embodiment of FIG. 9;

FIG. 11 is an enlarged cross sectional view taken substantially along line 11—11 of FIG. 10; and

FIG. 12 is an enlarged fragmentary cross sectional view taken substantially along line 12—12 of FIG. 10.

Referring now to the drawings wherein like numerals indicate like or corresponding parts throughout the several views of each embodiment and wherein numerals differing by a multiple of 100 indicate corresponding components throughout the various embodiments, there is disclosed three preferred embodiments of the buckle assembly of the instant invention. The first preferred embodiment of the buckle assembly of the instant invention is generally shown at 20 in FIGS. 1 through 5. A second preferred embodiment of the buckle assembly of the instant invention is generally shown at 120 in FIGS. 6 through 8. A third preferred embodiment of the buckle assembly of the instant invention is generally shown at 220 in FIGS. 9 through 12.

Referring to the buckle assembly 20 of FIGS. 1 through 5, there is included a housing means or housing 22. The housing 22 has an opening 24 therein and a cavity 26 extends into the housing 22 from the opening 24 to a wall 28 which is disposed opposite to the opening 24. The housing 22 also includes means comprising the flange 30 and the opening 32 therein for attaching a seat belt or the like thereto.

The assembly 20 also includes latching means generally indicated at 34 in FIG. 1 for latching engagement with a tongue 36 in a latched position and operable for releasing the tongue 36 in a release position. The tongue 36 is adapted by an opening 38 to be attached to a seat belt. The tongue includes a head 40 and a shank 42 extending from the head to connect the head to the main body portion of the tongue, the purpose of which will become more clear hereinafter.

The latching means 34 includes a plurality of components defined by the biasing member generally indicated at 44, the latch bar generally indicated at 46, and the push button generally indicated at 48. These components are all successively inserted through the opening 24 into the cavity 26 one after the other with the first component defined by the biasing member 44 engaging the wall 48. The components are disposed in the cavity 26 with at least portions thereof positioned in serial overlapping relationship in the direction in which the cavity extends into the housing. As will become more clear as the description proceeds, the biasing member 44, the latch bar 46 and the push button 48 may be separately inserted into the housing and into the cavity one after the other or may be engaged with one another in series as a sub-assembly prior to insertion into the cavity.

The assembly also includes a cap means or cap 50 connected to the housing 22 and disposed over the opening 24 for providing the only and sole means for preventing all of the components which are defined by the biasing member 44, the latch bar 46, and the push button 48, from moving out through the opening 24 and out of the housing 22.

The housing 22 has a slot 52 extending thereinto from the exterior thereof and into communication with the cavity 26 for receiving the tongue 36. The slot 52 extends into the housing 22 in a direction generally transverse to the direction in which the cavity 26 extends into the housing 22.

The latch bar 46 is movable between a latched position as shown in FIGS. 3 and 4 for engaging the tongue 36 and a release position as shown in FIG. 5 for releasing the tongue 36 to allow the tongue 36 to be removed from the housing 22.

The biasing member 44 urges the latch bar 46 toward the latched position. The push button 48 is actuatable to move the latch bar 46 from the latched position shown in FIGS. 3 and 4 to the release position shown in FIG. 5.

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It will be noted that the biasing member 44 is positioned on one side of the latch bar 46 and the push button 48 is positioned on the other side of the latch bar 46. The biasing member 44 is disposed upon the wall 28 and the cap 50 has an aperture 54 therein overlying the push button 48 for access to the push button 48.

The housing 22 includes surfaces 56 in the cavity 26 which extend from the wall 28 toward the opening 24 for receiving the latch bar 46 from the opening 24 and for limiting movement of the latch bar 46 to movements substantially parallel to the surfaces 56. In other words, there is formed in or by the cavity 26 a pocket for receiving the elongated latch bar 46 and for limiting movement of the latch bar 46 to movement substantially toward and away from the wall 28.

The side of the latch bar 46 on which the push button 48 is positioned is defined by a central recessed channel 58. A pair of inclined ramps 60 extend upwardly from the channel 58 in a direction away from the slot 52 in the housing 22. Thus, the tongue 36 with the head 40 and the shank 42 may be inserted through the slot 52 so that the head 40 engages the ramps 60 to move the latch bar 46 toward the release position until the head 40 passes over the ramps 60 and the latch bar 46 moves to the latched position where the head 40 is disposed behind the ramps 60 and the shank 42 is disposed in the channel 58 as shown in FIG. 4.

Additionally, the latch bar 46 includes a shoulder 62 disposed outwardly of each of the ramps 60 and the push button 48 engages the shoulder 62. More specifically, each shoulder 62 has a hole 64 therein and the push button 48 has pegs 66 extending therefrom and into the holes 64. The pegs 66 may be slidably disposed in the holes 64 or may be press fitted into the holes 64.

The slot 52 extends through the housing 22 between the exterior thereof and the cavity 26 a sufficient distance to limit movement of the tongue 36 when in the latched position to that which would prevent the tongue 36 from being removed from latching engagement with the latch bar 46 while the latch bar 46 remains in the latched position. In other words, the length of the slot 52 is such that the tongue is prevented from being moved upwardly out of engagement with the rear of the ramp 60. Additionally, in the situation where the push button 48 is press fitted into engagement with the latch bar 62, the movement of the tongue 36 is limited by the spacing between the push button 48 and the latch bar 46.

The housing 22 has bores 68 extending thereinto adjacent the cavity 26 and the cap 50 has posts 70 extending therefrom and press fitted into the bores 68 for attaching the cap to the housing 22.

The biasing member 44 comprises a central cradle portion 72 and a pair of spring arms 74 extending at an angle from each side of the cradle portion 72. The distal ends of the spring arms have arcuately upturned portions 76 engaging the wall 28 of the housing 22.

It will be noted that the push button 48 has a circular central upset portion disposed in the aperture 54.

As alluded to above, the tongue 36 may be inserted into the slot 52 so that the head 40 thereof engages the ramps 60 to move the latch bar 46 downwardly until the head 42 moves past the ramp 60 to allow the latch bar 46 to move upwardly under the biasing of the biasing member 44. The tongue 36 will remain in the latched position and retained in the housing 22 until the push button 48 is depressed downwardly to move the latch bar 46 downwardly whereupon the tongue 36 may be removed from the housing. Furthermore, it will be clear that the buckle assembly is very easily assembled by disposing the biasing member 44, the latch plate 46 and the push button 48 serially, either together as a sub-assembly or separately, into the cavity followed by positioning the cap 50. It is very evident,

therefore, that this buckle assembly is very well suited for automatic assembly thereby eliminating manual manipulation of the components.

Referring now to the buckle assembly 120 of FIGS. 6 and 7, the buckle assembly of FIGS. 6 and 7 differs from the buckle assembly of FIGS. 1 through 5 essentially in the configuration of the cavity, the shape of the biasing member, and the support of the push button.

The buckle assembly 120 includes a housing means or housing 122 having an opening 124 therein and a cavity 126 extending into the housing 122 from the opening 124 to a wall 128 which is disposed opposite to the opening 124. The housing 122 also includes means comprising the flange 130 and the opening 132 therein for attaching a seat belt or the like thereto.

The assembly 120 includes a tongue 136 adapted by an opening 138 to be attached to a seat belt. The tongue includes a head 140 and a shank 142.

The assembly 120 also includes a latching means comprising the biasing member generally indicated at 144, a latch bar generally indicated at 146, and a push button generally indicated at 148. Like the corresponding components of the embodiment of FIGS. 1 through 5, these components are also successively inserted through the opening 124 and into the cavity 126 one after the other in series as a sub-assembly or separately.

There is also included a cap means or cap 150 connected to the housing 122 and disposed over the opening 124 for providing the only and sole means for preventing the biasing member 144, the latch bar 146, and the push button 148 from moving out through the opening 124 and out of the housing 122.

The housing 122 has a slot 152 which corresponds in purpose, location, and function to the slot 52 of the first described embodiment.

Like the embodiment of FIGS. 1 through 5, in the assembly 120, the biasing member 124 is positioned on one side of the latch bar 146 and the push button 148 is positioned on the other side of the latch bar 146. The biasing member 144 is disposed upon the wall 128 and the cap 150 has an aperture 154 therein overlying the push button 148 for access to the push button.

The housing 122 includes surfaces 156 in the cavity 126 for defining extremities of the cavity 126 and which extend from the wall 128 toward the opening 124 for receiving the latch bar 146 from the opening 124 and for limiting movement of the latch bar 146 to movement substantially parallel to the surfaces 156 or perpendicular to the wall 128. In the embodiment of FIGS. 6 through 8, one of the surfaces 156 is defined by an up-standing wall in the middle of the cavity 126. There is formed therefore, in or by the cavity 126, a pocket for receiving the elongated latch bar 146 and for limiting movement of the latch bar 146 to movement substantially toward and away from the wall 128. As will be noted, the ends of the latch bar 146 are arcuate so as to conform with the outer walls or extremities of the cavity 126. The latch bar 146 includes a channel 158, ramps 160 and shoulders 162 in a similar manner to the latch bar 46 of the first described embodiment.

The housing 122 has bores 168 extending thereinto adjacent the cavity 126 and the cap 150 has posts 170 extending therefrom and press fitted into the bores 168 for attaching the cap 150 to the housing 122.

The biasing member 144 is U-shaped with a base 171 and a pair of spring arms 173 extending at an angle from the base 171 and supporting the latch bar 146 at arcuate distal ends 175. The base 171 of the biasing member 144 is disposed on the wall 128 as best illustrated in FIGS. 7 and 8. The cap 150 includes a projection 190 which extends into the cavity 126 and terminates immediately above the base 171 of the biasing member 144. A tab 191 extends upwardly from the wall 128 in the cavity 126 so that the base 171 is disposed between one extremity of the cavity 126 and the

tab 191 and the projection 190 for limiting movement of the biasing member 144.

The push button 148 includes a hinge projection 192 which is disposed in an opening 193 in the projection 190 and is retained therein for pivotal movement by a shaft 194. The push button is therefore pivotally connected to the projection 190 of the cap 150. The push button 148 also includes a pair of spaced protrusions 195 which engage and rest upon the shoulders 162 of the latch bar 146 for moving the latch bar 146 from the latched position shown in FIG. 7 to the release position shown in FIG. 8 upon manually pivoting the push button 148 to the position illustrated in FIG. 8.

The embodiment of FIGS. 6 through 8 operates in a manner similar to the embodiment of FIGS. 1 through 5.

Referring now to the embodiment illustrated in FIGS. 9 through 12, the buckle assembly 220 of FIGS. 9 through 12 differs from the buckle assembly of FIGS. 1 through 5 essentially in the disposition of the components in that the push button in the assembly 220 is accessible through an aperture in the wall of the housing.

The buckle assembly 220 includes a housing means or housing 222. The housing 222 has an opening 224 therein and a cavity 226 extending into the housing 222 from the opening 224 to a wall 228 which is disposed opposite to the opening 224. The housing 222 also includes means comprising the flange 230 and the opening 232 therein for attaching a seat belt or the like thereto.

The assembly 220 includes a latching means comprising the biasing member generally indicated at 244, the latch bar generally indicated at 246, and the push button generally indicated at 248. Again, all of these components may be successively inserted through the opening 224 and into the cavity 226 one after the other with the first component being defined by the push button 248.

The assembly 220 also includes a cap means or cap 250 connected to the housing 222 and disposed over the opening 224 for providing the only and sole means for preventing all of the components defined by the biasing member 244, the latch bar 246, and the push button 248 from moving out through the opening 224 and out of the housing 222. The housing 222 has bores 268 extending thereinto adjacent the cavity 226 and the cap 250 has posts 270 extending therefrom and press fitted into the bores 268 for attaching the cap 250 to the housing 222.

The housing 222 has a slot 252 extending thereinto from the exterior thereof and into communication with the cavity 226 for receiving the tongue 236. Slot 252 is similar to the slot 152 and 52 of the previous described embodiments. The tongue 236 is also similar to the previously described tongues in that it includes a head 240 and a shank portion 242.

The latch bar 246, like the previously described latch bars, includes a central recessed channel 258, ramps 260 and shoulders 262. Each of the shoulders 262 has a hole 264 therein and a push button 248 has pegs 266 extending therefrom and into the holes 264.

The biasing member 244, like the biasing member 44, comprises a central cradle portion 272 and a pair of spring arms 274 extending at an angle from each side of the cradle portion 272. The distal ends of the spring arms 274 have arcuately upturned portions 276 engaging the cap 250.

The housing 222 includes surfaces 256 in the cavity 226 which extend from the wall 228 toward the opening 224 for receiving the latch bar 246 from the opening 224 and for limiting movement of the latch bar 246 to movement substantially parallel to the surfaces 256. A difference in the embodiment of FIGS. 9 through 12 over the previous embodiments is the inclusion of the guides 301 which are disposed between the surfaces 256 and the latch bar 246 to facilitate movement of the latch bar. The wall 228 has an aperture 254 therein overlying

the push button 248. The push button 248 has a circular upset portion disposed in the aperture 254.

Like the previously described embodiments, the buckle assembly 220 may be very easily assembled and functions in a similar manner.

All of the embodiments of the buckle assembly may be fabricated by forming a housing having an opening and a cavity extending into the housing from the opening to a wall opposite the opening and inserting a biasing member, a latch bar and a push button in series into the cavity through the opening with at least portions of the biasing member, the latch bar and the push button positioned in serial overlapping relationship in the direction in which the cavity extends into the housing and thereafter connecting a cap to the housing to cover the opening and to retain the assembly assembled. An alluded to above, the biasing member, the latch bar and the push button may be separately inserted into the cavity or the biasing member, the latch bar and the push button may be inserted into the cavity while engaged with one another together as a sub-assembly. Also as alternatives, an aperture may be formed in the wall of the housing to overlie the push button so that the push button is inserted into the cavity ahead of the latch bar and the biasing member, as in the embodiment of FIGS. 9 through 12, or the biasing member may be inserted into the cavity ahead of the latch bar and the push button followed by the connecting of a cap with an aperture therein to the housing so that the aperture overlies the push button, as in the embodiments of FIGS. 1 through 5 and 6 through 8 respectively.

In these preferred embodiments, the housing, the tongue, the biasing member and the latch bar are preferably made of metal with the push button and cap preferably made of a plastic. The housing may be steel or may be die cast aluminum. The embodiment of FIGS. 9 through 12 has a housing made of an aluminum die cast and the stainless steel guides 301 are provided to prevent galling of the aluminum casting by the sintered iron latch bar. Of course it will be understood that the guides may be made of stainless steel or plastic or various other materials and may be used in the various other embodiments to facilitate movement of the locking bar.

The invention has been described in an illustrative manner, and it is to be understood that the terminology which has been used is intended to be in the nature of words of description rather than of limitation.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A buckle assembly comprising; housing means having an opening therein and a cavity extending into said housing means from said opening to a wall opposite said opening; and latching means for latching engagement with a tongue in a latched position and operable for releasing the tongue in a release position, said latching means including a plurality of components all successively inserted through said opening and into said cavity one after the other with the first engaging said wall and disposed in said cavity with at least portions of said components positioned in serial overlapping relationship in the direction in which said cavity extends into said housing; said latching means including a latch bar for said latching engagement with the tongue, said housing including surfaces in said cavity extending generally from said wall toward said opening for limiting movement of said latch bar to movement substantially parallel to said surfaces, said surfaces having at least portions disposed laterally inwardly from the periphery of the opening, said latch bar being in sliding engage-

ment with said surfaces, said cavity being unobstructed upwardly from said wall along said surfaces and above said surfaces to said opening and said latch bar being no larger than the area between said surfaces so that said latch bar may be inserted and removed through said opening into the assembled position in sliding engagement with said surfaces during assembly and disassembly of said assembly.

2. An assembly as set forth in claim 1 including cap means connected to said housing means and disposed over said opening for providing the only and sole means for preventing all of said components from moving through said opening and out of said housing means.

3. An assembly as set forth in claim 2 wherein said housing means has a slot extending thereto from the exterior thereof to said cavity for receiving a tongue, said slot extending into said housing means in a direction generally transverse to the direction in which said cavity extends thereto.

4. An assembly as set forth in claim 3 wherein said latch bar is movable between the latched position for engaging a tongue and the release position for releasing the tongue, and said components further include a biasing member for urging said latch bar toward the latched position, and a push button for moving said latch bar from the latched position to the release position.

5. An assembly as set forth in claim 4 wherein said biasing member is positioned on one side of said latch bar for said latching engagement with the tongue, said of said latch bar.

6. An assembly as set forth in claim 5 wherein said biasing member is disposed on said wall and said cap means has an aperture therein overlying said push button for access to said push button.

7. An assembly as set forth in claim 6 wherein said push button is connected to said latch bar.

8. An assembly as set forth in claim 6 wherein said push button is movably supported by said cap means and engages said latch bar.

9. An assembly as set forth in claim 5 wherein said wall has an aperture therein overlying said push button for access to said push button and said biasing member reacts against said cap means.

10. A buckle assembly comprising: a housing having an openings thereto, a cavity extending into said housing from said opening to a wall opposite said opening, a slot extending thereto from the exterior thereof to said cavity for receiving a tongue, and means for attachment to a seat belt or the like; an elongated latch bar disposed in said cavity for latching engagement with the tongue; said housing including surfaces in said cavity extending from said wall toward said opening for limiting movement of said latch bar to movement substantially parallel to said surfaces; said surfaces having at least portions disposed laterally inwardly from the periphery of the opening; said latch bar being in sliding engagement with said surfaces; said cavity being unobstructed above said surfaces to said opening for receiving said latch bar through said opening and for allowing said latch bar to be removed through said opening upon disassembly of the assembly; a push button positioned in said cavity for moving said latch bar between a latched position for engaging and retaining a tongue in said cavity and a release position for allowing the tongue to be removed from said cavity; a biasing member urging said latch bar to move to said latched position; said biasing member being positioned on one side of said latch bar and said push button being positioned on the other side of said latch bar; and an independent cap connected to said housing and disposed over said opening; one of said cap and said wall having an aperture therein overlying said push button for access to said push button and said biasing member reacting against the other of said cap and said wall.

11. An assembly as set forth in claim 10 wherein the side of said latch bar on which said push button is positioned includes at least one inclined ramp extending upwardly in a direction away from said slot in said housing whereby a tongue having a recess to define a shoulder may be inserted through said slot to engage said ramp to move said latch bar toward the release position until the shoulder passes thereover and the latch bar moves to the latched position where the shoulder is disposed behind said ramp to retain the tongue in said housing.

12. An assembly as set forth in claim 11 wherein said latch bar includes a shoulder adjacent each end thereof and said push button engages said shoulders.

13. An assembly as set forth in claim 12 wherein said slot extends through said housing between the exterior thereof and said cavity a sufficient distance to limit movement of a tongue inserted therethrough to that which would prevent the tongue from being removed from latching engagement with said latch bar while the latter is in said latched position.

14. An assembly as set forth in claim 13 wherein said housing has bores extending thereinto adjacent said cavity and said cap has posts extending therefrom and into said bores for attaching said cap to said housing.

15. An assembly as set forth in claim 14 wherein said posts are press fit into said bores.

16. An assembly as set forth in claim 15 wherein said housing is metal and said cap is plastic.

17. An assembly as set forth in claim 16 including guides disposed between said surfaces and said latch bar to facilitate movement of said latch bar.

18. An assembly as set forth in claim 13 wherein said biasing member comprises a cradle portion supporting said latch bar and a pair of spring arms extending at an angle from each side of said cradle portion.

19. An assembly as set forth in claim 18 wherein each of said shoulders on said latch bar has a hole therein and said push button has pegs extending therefrom and into said holes.

20. An assembly as set forth in claim 19 wherein the distal ends of said spring arms have arcuately upturned portions engaging said wall of said housing and said cap has said aperture therein overlying said push button and said push button has an upset portion disposed in said aperture.

21. An assembly as set forth in claim 19 wherein the distal ends of said spring arms have arcuately upturned portions engaging said cap and said wall has said aperture therein overlying said push button and said push button has an upset portion disposed in said aperture.

22. An assembly as set forth in claim 13 wherein said biasing member is U-shaped with a base and a pair of spring arms extending at an angle from said base and supporting said latch bar at arcuate distal ends thereof.

23. An assembly as set forth in claim 22 wherein said cap has said aperture overlying said push button and said base of said biasing member is disposed on said wall.

24. An assembly as set forth in claim 23 wherein said cap includes a projection extending into said cavity and terminates immediately above said base, a tab extending upwardly from said wall, said base being disposed between an extremity of said cavity and said tab and said projection for limiting movement of said biasing member.

25. An assembly as set forth in claim 24 wherein said push button is pivotally connected to said projection of said cap and includes protrusions engaging said shoulders of said latch bar.

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BERNARD A. GELAK, Primary Examiner

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,522,640 Dated August 4, 1970

Inventor(s) Thomas E. Lohr

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 5, line 53 "lach" should be --latch--. Column 7, line 16 "An" should be --As--. Column 8, line 29 after "bar" delete "for said latching engagement with the tongue, said" and insert --and said push button is positioned on the other side--. Column 8, line 45 "openings" should be --opening--.

SIGNED AND
SEALED
DEC 29 1970

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents