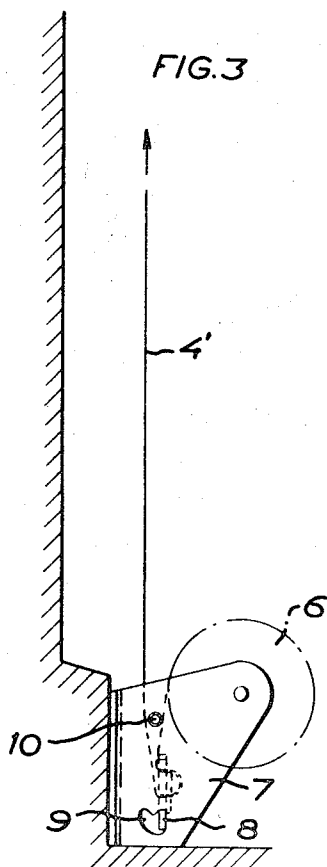
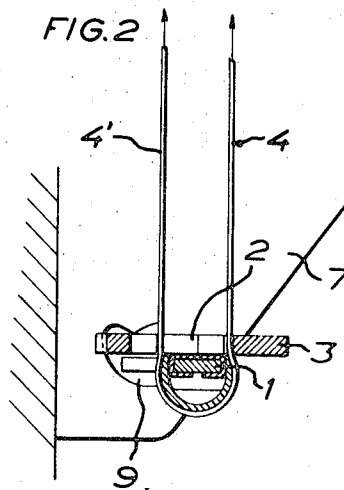
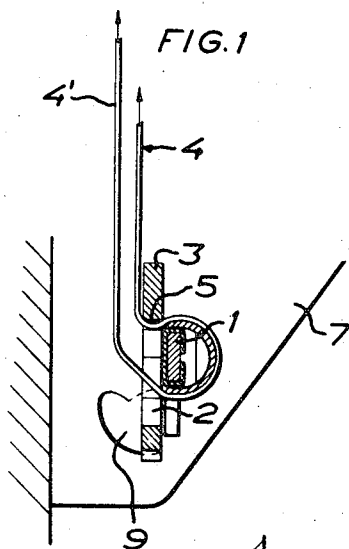


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DEVICES FOR LOCKING A STRAP COOPERATING
WITH A RETRACTING MECHANISM
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DEVICES FOR LOCKING A STRAP COOPERATING WITH A RETRACTING MECHANISM

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7 Claims

ABSTRACT OF THE DISCLOSURE

A device for locking a strap which is part of a safety seat belt and cooperates with a strap retracting mechanism, is constituted by a buckle of the type comprising a rod which serves as a latching means and is shiftable in relation to a recess provided in a plate of the buckle. The strap shall pass about the rod and extend from the same side into and out of the recess, the strap being locked between one edge of the recess and the rod when it is stretched substantially in the direction of the plate. The plate is mounted for pivotal movement in a frame between the locking position in which it thus is substantially parallel with the direction of the strap, and a released position in which it is substantially at right angles to the direction of the strap.

This invention relates to a device for locking a strap cooperating with a retracting mechanism, the strap being preferably incorporated with a safety seat belt or like harness. Said device is substantially characterised in that it is constituted by a buckle of the type comprising a rod or like member which serves as a latching means and is shiftable for latching purposes in relation to a recess provided in a plate of said buckle, and the strap is passed about the rod serving as latching means and extends in such a way from the same side into and out of the recess that the strap is locked between one edge of the recess and the rod when the strap is stretched substantially in the direction of the plate, and that the locking plate is mounted for pivotal movement in a frame between the locking position in which it is substantially parallel with the direction of the strap, and a released position in which it is substantially at right angles to the direction of the strap.

The invention will now be more fully described with reference to the accompanying drawing which shows an embodiment, chosen by way of example, of the device. In the drawing:

FIG. 1 is a vertical section of the buckle in the locking position;

FIG. 2 is a vertical section of the buckle in the released position;

FIG. 3 is a side view on a smaller scale of the entire device.

The buckle comprises a rod 1 which serves as a latching means and is shiftable for latching purposes in relation to a recess 2 provided in a plate 3 of the buckle. The strap 4 is passed about the rod 1 and extends in such a way from the same side into and out of the recess 2 as to be locked between the edge 5 of the recess 2 and the rod 1 when the strap 4 is stretched substantially in the direction of the plate 3, as shown in FIG. 1. On the other hand, if the plate 3 takes a position substantially at right angles to the direction of the strap 4, the latter can be freely pulled out, which FIG. 2 is meant to show. Irrespective of whether the plate 3 occupies the FIG. 1 position or the FIG. 2 position the strap retracting mechanism 6 can retract a length of the strap. The locking and the release

thus only apply to the free strap portion 4' remote from the locking device.

The locking plate 3 is mounted for pivotal movement in a frame 7 between the locking position shown in FIG. 1 and the released position shown in FIG. 2. To this end, the plate 3 at its lower edge has projecting portions 8 which cooperate with recesses 9 in the opposite sides of the frame 7, the plate 3 being located between said sides. One of said projecting portions 8 can preferably be formed as or provided with a lever or like operating means for pivoting the plate 3.

The locking plate 3 can be operated either manually or by a remote control means. If the device is employed in connection with safety seat belts for automotive vehicles, remote control can be realized with the aid of a manual lever or a pedal placed where it is easily accessible in the vehicle. Remote control can also be effected from the buckle of the safety seat belt so that the strap 4 is locked when the constituent parts of the buckle occupy their locking positions.

The strap retracting mechanism 6 includes a spring or like element which by the intermediary of the strap 4 tends to pivot the locking plate 3 to locking position. The locking plate 3 is therefore immediately swung back to locking position when for instance the remote control means is released.

In the embodiment illustrated the strap retracting mechanism 6 is a roller mounted in the frame 7 and actuated by a torsion leaf spring. However, the mechanism can also consist of a spiral spring which pulls the strap 4 through the locking device. The spiral spring arrangement can be made very narrow and therefore readily be built into a door pillar, a door bottom member etc. in a vehicle.

In the drawing the frame 7 is placed at the floor of a vehicle, the strap portion 4' extending in a straight upward direction. The frame 7 could, however, also be located adjacent the roof of the vehicle, the belt portion 4' extending downwardly in that case. The pin 10 ensures that the strap portion 4' is always correctly oriented with respect to the locking device.

While the invention has been described and shown in but one embodiment those skilled in the art will readily realize that modifications can be resorted to within the scope of the appended claims.

What I claim and desire to secure by Letters Patent is:

1. A device for locking a strap cooperating with a retracting mechanism comprising:

a strap incorporated with a safety seat belt,

a fixedly mounted frame,

a locking plate having a recess therein and pivotally attached to said frame for pivoting of said plate through an angle of approximately 90° between two end positions with one end position being a locking position and the other end position being a released position for said strap,

a rod latching means mounted for movement in relation to said recess in said plate,

said strap passing through said recess, about said rod latching means, and back through said recess with portions of said strap extending therefrom,

and a strap retracting mechanism connected to said locking plate and said rod latching means through the intermediary of a said portion of said strap,

said portions of said strap substantially parallel to the direction of movement of said rod latching means in relation to said plate in said locking position, and said portions of said strap substantially at right angles to the direction of movement of said rod latching means in relation to said plate in said released position,

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said strap retracting mechanism and said locking plate mounted for movement of said plate from released position to locking position through the intermediary of said portion of said strap connected between said locking plate and said strap retracting mechanism.

2. The locking device of claim 1, further characterized by said rod latching means and said plate relatively positioned to catch said portion of said strap therebetween which connects to said strap retracting mechanism.

3. The locking device of claim 1, further characterized by lever means to permit pivotal movement of said plate.

4. The locking device of claim 1, further characterized by control means to move said plate.

5. The locking device of claim 4, further characterized by said strap retracting mechanism moving said locking plate from released position to locking position when not influenced by said control means.

6. The locking device of claim 1, further characterized

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by a spring means in said strap retracting mechanism for accomplishing the pivoting of said plate to locking position.

7. The locking device of claim 6, in which said strap retracting mechanism is a roller mounted in said frame.

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