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[54] **BUCKLES FOR SAFETY SEAT BELTS**
2 Claims, 4 Drawing Figs.

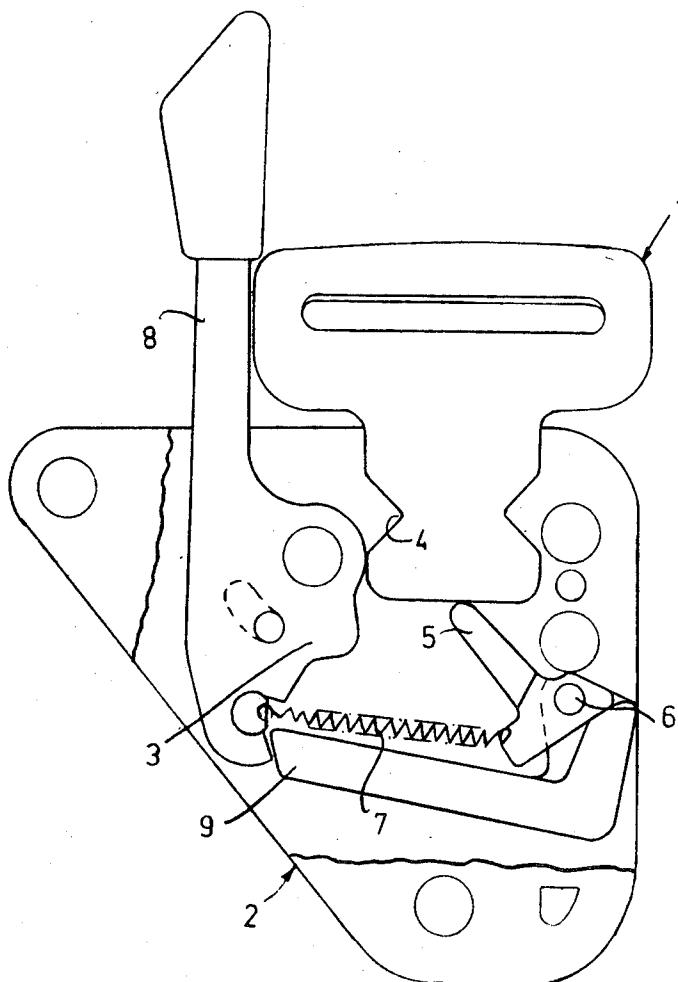
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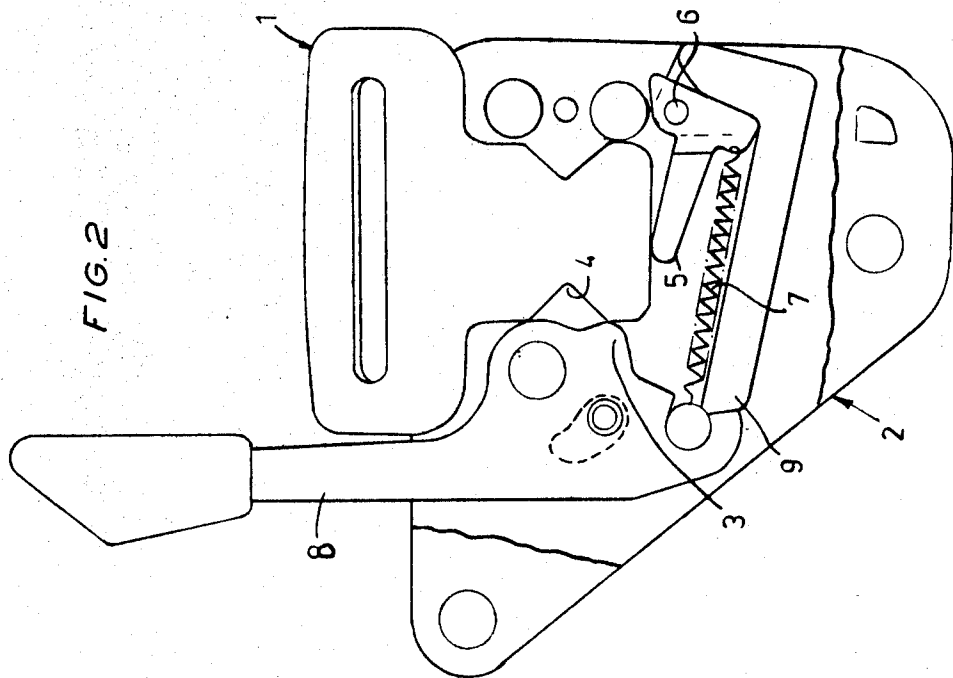
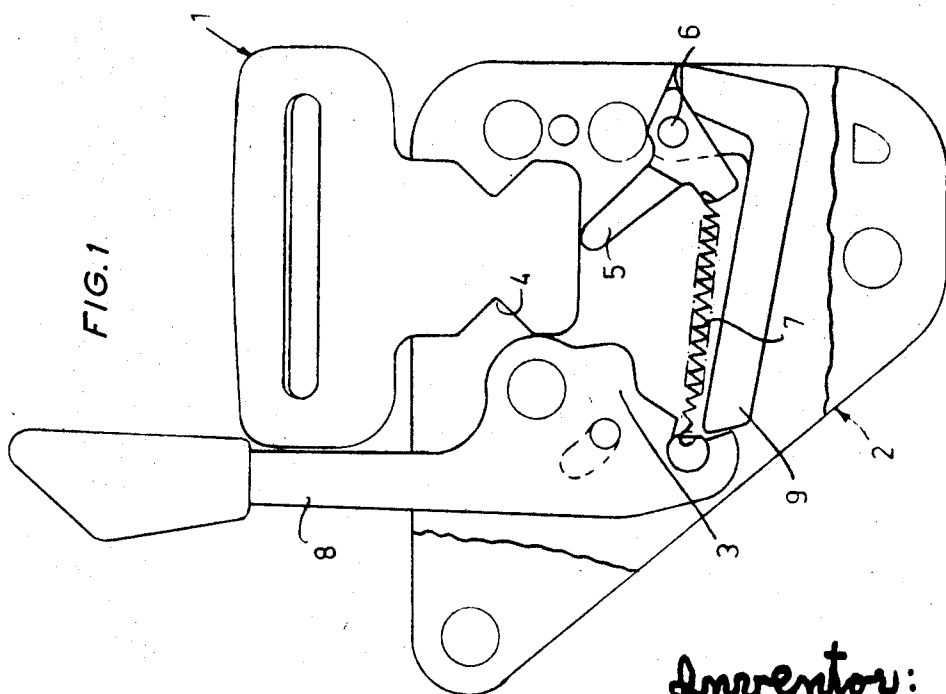
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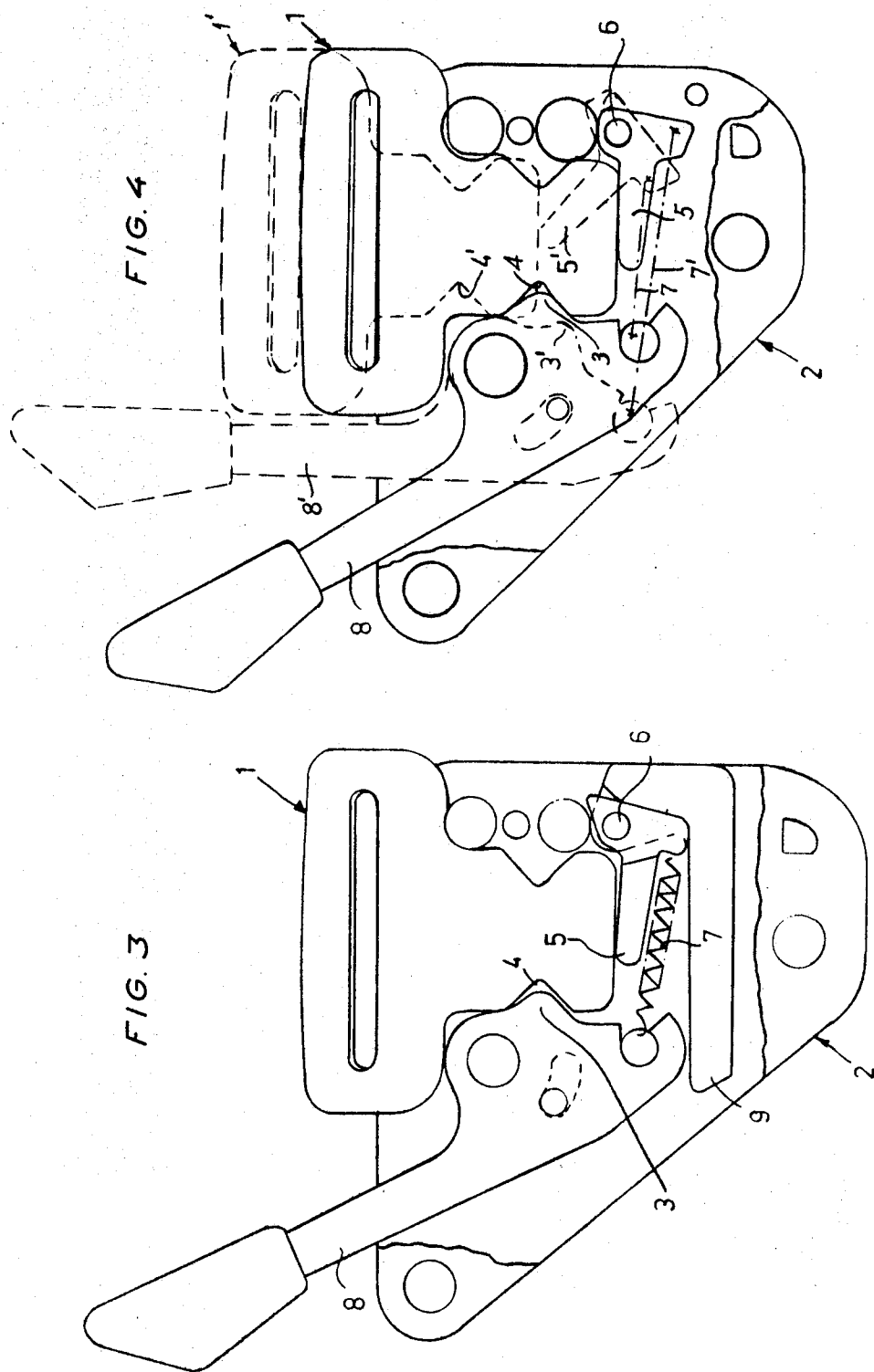
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ABSTRACT: A buckle for safety seat belts in vehicles comprises a locking tongue and a locking housing. The housing has a spring-loaded operating arm with a locking member which is arranged to engage the locking tongue in the position thereof when inserted in the locking housing. Further, the locking housing has a spring-loaded cam which tends to push the locking tongue out of the housing from the position therein. The cam coacts with a latch which blocks the operating arm in the open position of the buckle. The cam, however, is adapted to release the latch when the locking tongue occupies its position in the locking housing.





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BUCKLES FOR SAFETY SEAT BELTS

This invention relates to a buckle for safety seat belts for vehicles, preferably cars, aircraft and seacraft. One part of the buckle is a locking tongue and the other part is a locking housing equipped with a spring-loaded manually releasable operating arm which is pivoted to the housing and has a locking member adapted, by the action of the spring, to engage the locking tongue when this member occupies its position in the locking housing and to lock the locking tongue to the housing, said housing also having a spring-loaded cam pivoted to it and tending by the action of the spring to push the locking tongue out of the housing from the position therein. The buckle is characterized in that the pivotally mounted cam coacts with a latch for the operating arm having the locking member, said latch being adapted to block the operating arm in the open position of the buckle, and the cam being adapted to release the latch when the locking tongue occupies its position in the locking housing.

The improved buckle provides the advantages that the locking tongue cannot possibly jam in an intermediate position in the locking housing and that the locking tongue is readily insertable in the locking housing as it is only necessary to overcome the spring force to which the cam is subjected.

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

FIGS. 1—3 show side views of the buckle with the locking tongue in three different positions.

FIG. 4 shows the positions of the parts during disengagement of locking tongue from housing. The buckle is composed of the locking tongue 1 and the locking housing 2. The locking tongue 1 is arranged to be connected with one or more straps of the safety seat belt, while the locking housing 2 is intended to be fastened to the floor structure of the vehicle.

The locking housing 2 has a manually releasable operating arm 8 which is pivoted to the housing and under the action of a spring 7. Said operating arm 8 has a locking member 3 mounted thereto or integral therewith. The locking member 3 is adapted, by the action of the spring, to engage in a recess 4 in the locking tongue 1 when the latter is in position in the locking housing 2 so that it holds the tongue locked to said housing. Besides the housing 2 is provided with a cam 5 which is pivoted thereto and loaded by the spring 7 so as to tend to push the locking tongue 1 out of the locking housing 2 from its position therein. The cam is mounted on the pivot 6.

In accordance with the invention the pivotally mounted cam 5 coacts with a latch 9 for the operating arm 8 having the locking member 3. The latch 9 is mounted on the same pivot 6 as the cam 5 and is adapted to block the operating arm 8 in the open position of the buckle, the cam releasing the latch 9 when the locking tongue 1 occupies its position in the locking

housing 2.

As will appear from the above description the cam 5 and the operating arm 8 coact with the spring 7 which is thus common to said two parts. Of course, the cam 5 and the operating arm 8 could also coact each with its respective spring.

FIG. 1 shows the initial position when the locking tongue 1 is being inserted into the housing 2 to fasten the safety seat belt. In this position the arm 8 is held blocked by the latch 9. At the insertion of the tongue 1 into the housing 2 the lower edge of the tongue 1 strikes the cam 5 whereby the cam 5 is urged downwardly. FIG. 2 shows how the cam 5 begins to exert pressure on the latch 9. FIG. 3 shows how the cam 5 has urged aside the latch 9 so that blocking of the operating arm 8 in its upright position has ceased. The operating arm 8 thus occupies the locking position in which the locking member 3 engages the recess 4 in the locking tongue 1.

When the buckle is opened as shown in FIG. 4 the operating arm 8 is pulled to its upright position 8'. At the same time the cam 5 moving to position 5' by the action of the spring 7 moving to position 7' throws the tongue 1 out of the housing 2 to position 1'. Simultaneously the cam 5 moving to position 5' exerts pressure upon the latch 9, which for purposes of clarity has not been included in FIG. 4, so that the outer end thereof is swung in an upward direction blocking the operating arm 8. All parts move from their positions shown in solid lines to their positions shown in dashed lines where these parts are designated by the same numerals with a prime mark.

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

1. A buckle for safety seat belts for vehicles comprising a spring-loaded releasable operating arm and a locking tongue coacting therewith, a housing supporting said operating arm pivotally mounted thereon, a spring-loaded cam pivotally mounted on said housing, said operating arm including a locking member forming part of said operating arm and located in said housing, said locking tongue having a recess therein located to coact with said locking member portion of said operating arm and a surface pressing against said cam in a direction to oppose the spring action on said cam, a latch pivotally mounted on said housing located for contact with said cam and for pivotal movement of said cam, and for contact with said operating arm to oppose the spring action of said operating arm, whereby said latch blocks movement of said operating arm in the open position of the buckle before insertion of said locking tongue in said housing and said cam moves said latch from the blocking position when said locking tongue occupies a position in said housing.
2. The buckle of claim 1, further characterized by said spring-loaded operating arm and said spring-loaded cam having a spring common to both of them.

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