Feb. 4, 1969 E. M. MELIN 3,425,103

PUSHBUTTON TYPE SAFETY SEAT BELT BUCKLE

Filed April 11, 1966

Fig. 1.

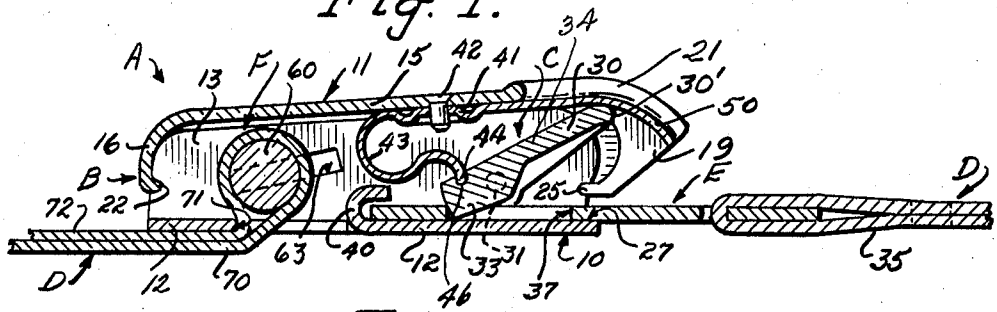


Fig. 2.

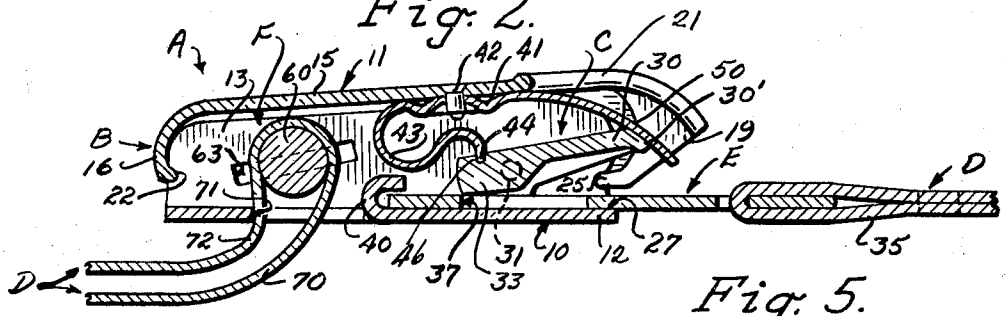


Fig. 3.

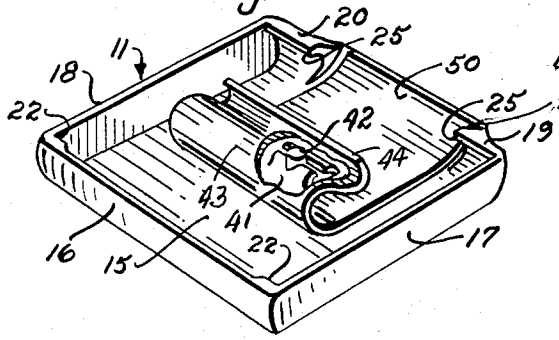


Fig. 5.

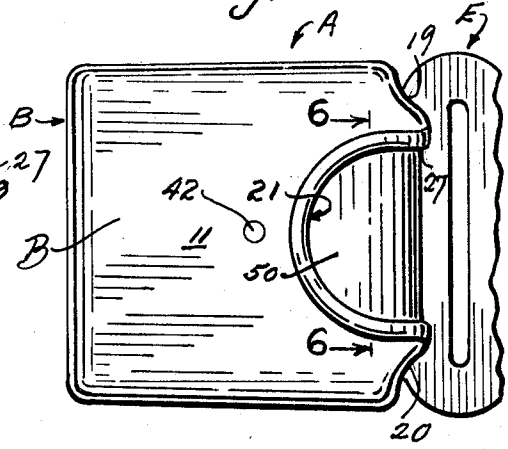


Fig. 4.

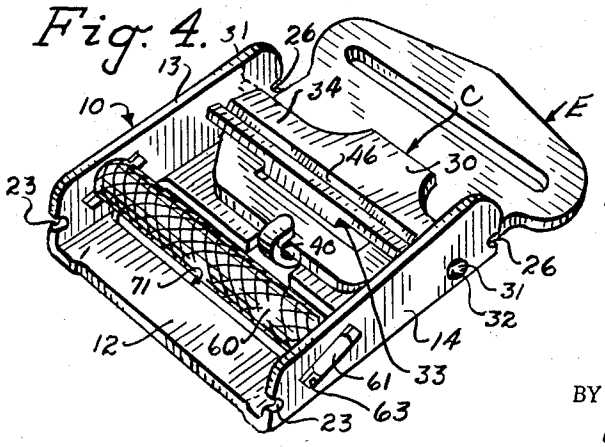
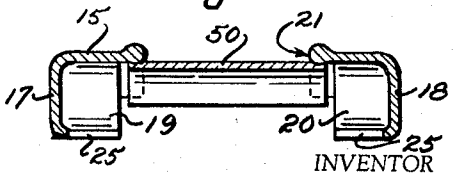


Fig. 6.



INVENTOR

EDWARD M. MELIN

BY Rommel, Allen & Rommel

ATTORNEYS

United States Patent Office 3,425,103 Patented Feb. 4, 1969

3,425,103

PUSHBUTTON TYPE SAFETY SEAT BELT BUCKLE

Edward Milton Melin, Lexington, Ky., assignor to Irving Air Chute Company, Inc., Lexington, Ky., a corporation of New York

Filed Apr. 11, 1966, Ser. No. 541,611
U.S. Cl. 24—230 4 Claims
Int. Cl. B25b 1/08, 5/08

ABSTRACT OF THE DISCLOSURE

A pushbutton type safety seat belt buckle in which a casing is provided having a chamber with an opening for receiving a belt buckle tongue and which casing has a pivoted dog normally spring biased into locking position with respect to the tongue, the casing having a finger inserting opening and a flexible pushbutton type flexible spring adapted to cover the opening and located within the casing for flexing upon insertion of a finger through said opening in order to rock the pivoted dog and release it from its locking relation with respect to a belt tongue.

This invention relates to improvements in safety belt buckles.

The primary object of this invention is to provide a low cost buckle for safety belts having a minimum number of parts and of such construction that the buckle cannot be accidentally released or falsely latched.

A further object of this invention is the provision of a safety belt buckle of the pushbutton type in which the operating mechanism is protected against accidental actuation.

Other objects and advantages of this invention will be apparent during the course of the following detailed description, taken in connection with the accompanying drawings, forming a portion of this specification and in which drawings:

FIG. 1 is a longitudinal cross sectional view of the buckle and its parts showing the latching dog in belt locking position.

FIG. 2 is a cross sectional view similar to FIG. 1 showing the latching dog in belt releasing position.

FIG. 3 is an inverted perspective fragmentary view of the casing cover of the buckle.

FIG. 4 is a perspective view of the casing shell showing its associated parts including the latching dog and locking tongue.

FIG. 5 is a plan view of the buckle showing the locking tongue in fragmentary view.

FIG. 6 is a cross sectional view of the buckle cover and dog actuating spring, taken substantially on the line 6—6 of FIG. 5.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views, the letter A may generally designate the buckle assembly. It includes a casing B, latching dog C, belt D, locking tongue E and belt adjusting connection F.

Casing B and other parts of the buckle are preferably metal or plastic, suitable to function as hereinafter explained. Casing B includes a shell portion **10** and cover **11**. Shell **10** preferably comprises a bottom wall **12** and upstanding parallel right angle side walls **13** and **14**. Cover **11** is preferably detachable and includes a top wall **15**, a depending front wall **16**, depending side walls **17** and **18** and rear spaced depending rear walls **19** and **20** defining a thumb or finger inserting opening **21** which extends partially along the top wall **15**. This opening **21** exposes

the pushbutton for belt latching release. Cover **11** may be detachably connected to side walls **13** and **14** in any approved manner. In the specific example shown, front wall **16** of cover **11** is inturned at **22** (see FIGS. 1 and 2) to releasably fit in sockets **23** in the front ends of side walls **13** and **14**. At the rear, cover depending walls **19** and **20** may be inturned at **25** for releasably fitting in sockets **26** at the rear ends of the shell side walls **13** and **14**. It will be understood that the cover has some degree of springiness which enables the extensions **22** and **25** to releasably fit in their respective sockets.

Casing B, at the rear end thereof between base wall **12** and inturned wall portions **19** and **20**, is spaced to provide a passageway **27** (see FIG. 2) adapted to receive the locking tongue E of belt D.

Latching dog C, shown in perspective in FIG. 4, preferably includes an elongated body **30** provided at the ends thereof with axle or pivot extensions **31** which are mounted for pivotal action in sockets **32** provided in upstanding walls **13** and **14** of casing B. Body **30** includes a rearwardly extending elongated body portion **34** which is positioned for operative abutment with the member of the buckle in pivoting of latching dog C, as will be subsequently described. Pivotal action of latching dog C is located on an axis spaced above the base wall **12** of the casing structure, as will be noted from the dotted line **31** (see FIGS. 1 and 2). It will be noted from FIG. 4 that latching dog C is provided with a thickened depending flange latching **33** at the forward end thereof adapted to cooperate with locking tongue E in a manner to be subsequently described.

Locking tongue E is of the usual structure comprising a flat piece of metal attached to one end **35** of the belt D. It is provided with a dog receiving opening **37**. Locking tongue E is adapted to be slipped into opening **27** when applying the belt. The spring assembly biases latching dog C so that its flange **33** will assume the position shown in FIG. 1 and drop into opening **37** of locking tongue E.

Locking tongue E has a limited insertion into casing B, since it will engage a hook-shaped abutment **40**, shown in FIGS. 1 and 2.

The spring assembly of the latching dog setup comprises a compound spring including an intermediate portion **41** secured by a rivet **42** to the inside surface of the top wall **15** of cover **11** of casing B. The first spring portion **43** is forwardly and downwardly and then rearwardly curved as shown in FIGS. 1 and 2 and its free end is socketed at **44** in a recess **46** provided in the upper surface of latching dog body **30**. This portion **43** of the spring is biased to normally urge latching end **33** of dog C downwardly to the position shown in FIG. 1 and thus enable locking tongue E to be secured by latching dog C upon insertion into casing B. The spring is preferably of one piece construction and includes a second rearwardly extending spring portion **50** which is located beneath wall **15** and laterally across finger inserting opening **21** of top wall **15** of cover **11**. As shown in FIGS. 1, 5 and 6, spring portion **50** extends entirely beneath finger inserting opening **21** and comprises the pushbutton member of the buckle which is exposed for finger contact. In the position shown in FIG. 1, spring portion **43** urges latching dog C into locking position with locking tongue E and front flange extension portion **30** of dog C lies immediately beneath and close to or in contact with spring portion **50**.

It will be apparent from the foregoing that with locking tongue E latched by dog C in the position shown in FIG. 1, the same can be released by inserting a finger in opening **21** and flexing spring portion **50** to the position shown in FIG. 2. This will rock latching dog C to the position shown in FIG. 2 and enable a release of locking tongue E.

Belt adjusting connection F preferably includes a transverse preferably knurled strap bar **60**, the flattened end portions **61** thereof being of well known construction and mounted for sliding in the inclined openings **63** normally provided in the upstanding walls **13** and **14** of casing shell **10**. Belt D includes a loop portion **70** which normally extends through an opening **71** provided in bottom wall **12** of casing B and is wrapped around the knurled bar **60**. End **72** of belt D is the one normally forced against the edge of opening **71** in order to maintain proper adjustment of the belt.

The opening **21** is shown as arcuate at its front end but, it may be polygonal and wider if desired to enable insertion of several fingers of the operator's hand.

It will be apparent from the foregoing that a very simple type of pushbutton buckle has been provided which is extremely safe in application and operation and in which the tang or locking tongue cannot be falsely unlatched.

The top wall **15** is thickened or raised around the finger inserting opening **21**. Thus the pushbutton spring is countersunk in a safety position against liability of accidental depression. The rear slope of the pushbutton end **50** enables a facile release operation of the dog.

Various changes in the size, shape and arrangement of parts may be made to the form of invention shown and described without departing from the spirit of the invention or scope of the claims.

I claim:

1. In a safety belt buckle, a casing structure having a chamber therein provided with a belt tongue entrance passageway thereto, a tongue latching dog movably mounted upon said casing within said chamber, a first spring means mounted in said chamber normally urging said dog into tongue latching position, and an inherently resilient pushbutton spring means having a part fixedly mounted upon the casing and including a pushbutton portion engageable with said dog, which under manual flexing will move the latching dog to an unlatched position with respect to said passageway against the biasing action of said first spring means, the said casing having an opening therein exposing the flexible pushbutton portion for manual actuation thereof.

2. In a safety belt buckle a casing structure having a chamber therein and a belt tongue entrance passageway

thereto, a latching dog pivotally mounted intermediate its ends upon said casing within the chamber, a first spring means mounted upon the casing normally urging the latching dog at one end into tongue latching position, a second pushbutton type flexible spring means having a part fixedly mounted on the casing, said casing including a pushbutton portion engageable with said dog, having an opening therein for insertion of a finger to directly flex said pushbutton portion and rock the dog for moving it out of latching position.

3. In a safety belt buckle a casing strutcure having a base, upstanding sides and a cover to provide a chamber therein having a belt tongue entrance passageway, said casing having a finger inserting opening therein, a latching dog pivotally mounted upon said casing and disposed within said chamber, a first spring means mounted upon the casing in said chamber normally moving one end of said latching dog into latching position with respect to a belt tongue inserted into said passageway, an inherently flexible spring biased pushbutton having a part fixedly mounted on said casing in said chamber, normally biased to extend directly across said opening whereby upon depression by a finger inserted in the opening the spring will rock the dog to enable release of the belt back tongue.

4. The buckle described in claim **3** in which the latching dog is pivoted upon said casing having a forward latching end and a rear operating end at the opposite side of the pivot from the latching end, the spring which moves said latching dog into latching position engaging the end of said latching dog forwardly of its pivot and said pushbutton comprising a flexible spring normally exposed in the opening of said casing in proximity to the rear end of said latching dog for the purpose of actuating said latching dog, said last mentioned spring being normally biased to move away from said latching dog.

References Cited

UNITED STATES PATENTS

3,091,010	5/1963	Davis	24—230
3,136,529	6/1964	Dickinson	24—230
3,203,064	8/1965	Murphy	24—230
3,355,781	12/1967	Silberschlag.	

BERNARD A. GELAK, *Primary Examiner.*