Oct. 20, 1964 S. M. LINDBLAD 3,153,270

SAFETY BELT BUCKLE

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Fig. 2

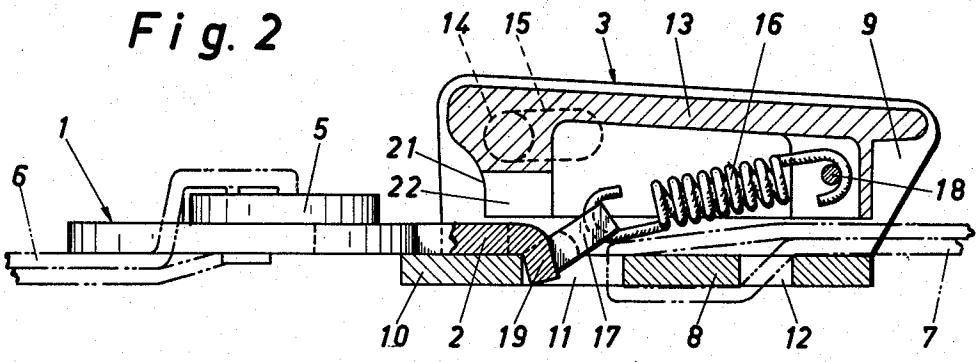
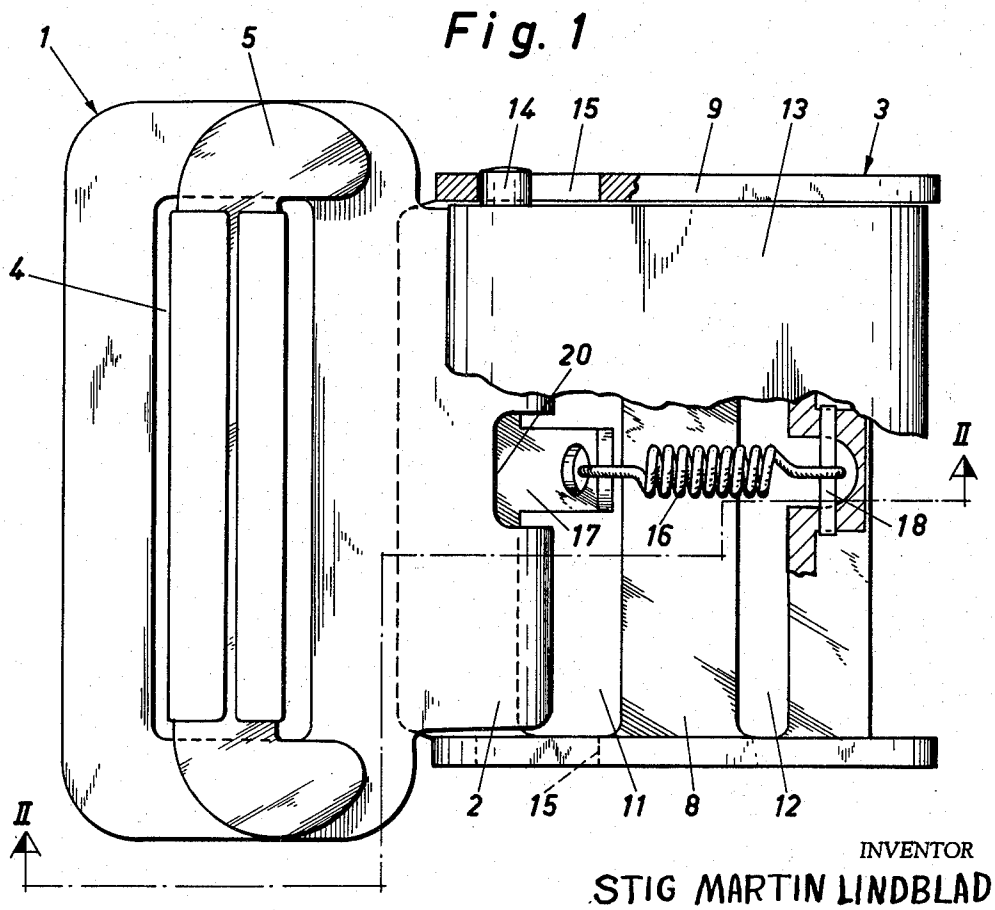



Fig. 1




INVENTOR

STIG MARTIN LINDBLAD

BY Linton and Linton

ATTORNEYS

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Fig. 3

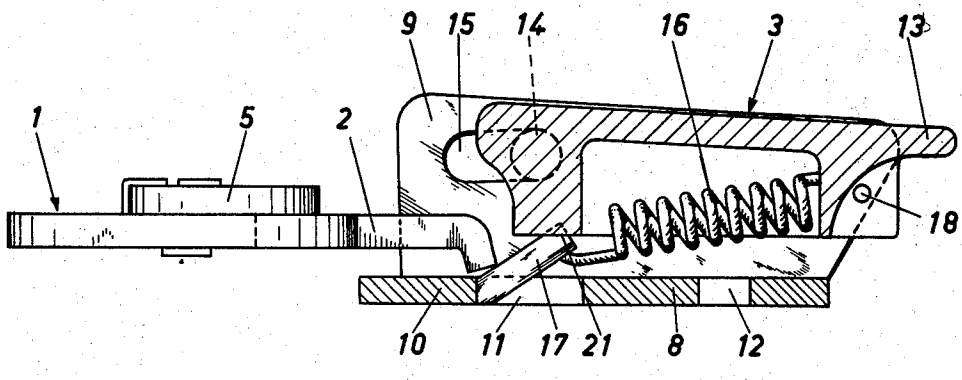
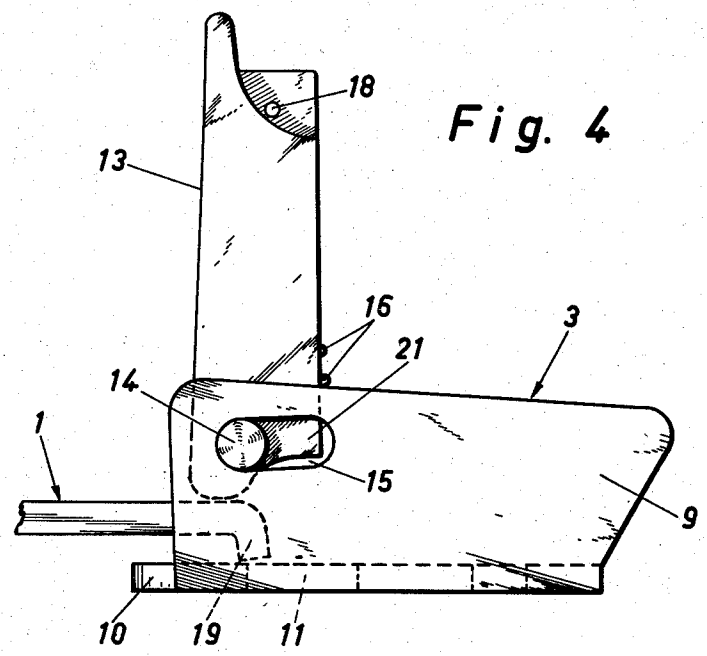



Fig. 4




INVENTOR

STIG MARTIN LINDBLAD

BY Linton and Linton

ATTORNEYS

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3,153,270

# SAFETY BELT BUCKLE

Stig Martin Lindblad, Vargarda, Sweden

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1 Claim. (Cl. 24—230)

The present invention relates to safety belt buckles of the kind comprising a channel-shaped buckle member and a substantially plate-shaped buckle member insertable into the channel-shaped member and provided with projections or openings for engagement with corresponding openings or projections, respectively, in the bottom of the channel-shaped member and adapted to be maintained in engagement with said channel-shaped member by means of a locking member arranged between the walls of the channel-shaped member and spaced from the bottom thereof, said locking member being adapted to be displaced from its locking position against the action of a spring.

The object of the invention is to provide a buckle of the kind set forth above the two parts of which may be rapidly and easily connected together and which will resist the stresses to which it may be subjected with a good margin and which furthermore may be opened very rapidly and conveniently with very small effort.

The invention is characterised in that said locking member is displaceable substantially in parallel with the bottom of the channel-shaped member.

The locking member, in a manner known per se, may consist of one end portion of a handle member which is in the form of a cover for the channel member and which is carried between the sides of the channel by means of a shaft, in which case, according to the invention, the ends of said shaft are journalled in elongated openings in said side walls, said openings extending substantially in parallel with the bottom of the channel member, said spring consisting of a draw spring which is secured at one end to the bottom of said channel adjacent that end of the handle member which is provided with said shaft and which has its opposite end connected to said handle member adjacent the opposite end thereof, so that said handle member is displaceable as well as capable of pivoting on said shaft in a direction away from the bottom of said channel against the action of said draw spring.

According to the invention, the front edge portion of the plate-shaped buckle member is preferably bent into hook shape and adapted, when the buckle members are interconnected, to engage the edge of an opening provided in the bottom of the channel-shaped member.

That surface of the interengaging portions of the buckle members which is effective in restraining the buckle members from being drawn apart when subjected to a pulling force is preferably bevelled in such a manner that when said locking member is displaced from the locking position the buckle members will slide out of engagement with one another under the influence of said pulling force.

The invention will be more closely described herebelow with reference to the accompanying drawing wherein:

FIGURE 1 is a partly broken front view of a buckle according to the invention with the buckle members connected together;

FIGURE 2 is a cross section substantially along the line II—II in FIGURE 1;

FIGURE 3 is a section substantially corresponding to that of FIGURE 2 with the two buckle members disconnected from one another, and

FIGURE 4 is a side view which illustrates the disconnection of the buckle members from one another in a different manner from that shown in FIGURE 3.



The buckle shown in the drawing comprises a buckle member 1 substantially in the form of a plate having an end portion 2 of smaller width which is insertable into a substantially channel-shaped buckle member 3 and adapted to be detachably locked in the innserted position. In the wider portion of the plate-shaped buckle member there is provided an elongated rectangular opening 4 which extends transversely of the buckle member and wherein there is displaceably mounted a cross piece 5 which permits adjustment of the effective length of a part 6 of a safety belt which is threaded around the cross piece 5 and through the opening 4 as indicated in broken lines in FIGURE 2. The other part (7 in FIGURE 2) of the safety belt is intended to be connected by means of a loop-shaped end portion to a portion 8 of the channel bottom 10 extending between the side walls 9 of the channel-shaped member and having the form of a cross member which is delimited by means of two openings 11 and 12 in the channel bottom extending between the sides of the channel.

Above the bottom of the channel-shaped member and between the side walls thereof there is provided a handle member 13 formed as a lid or cover for the channel. A shaft 14 extends through that end portion of the member 13 which is adjacent the front edge of the channel (or the handle member may carry two pivot pins), the end portions of said shaft being journalled in elongated slots 15 provided opposite one another in the side walls 9 of the channel member with the longitudinal direction substantially parallel to the bottom of the channel member. A draw spring 16 is secured with one end to a projection 17 at the bottom of the channel member and the opposite end of said spring is connected to a pin 18 secured in the handle or cover member 13 adjacent the rear end thereof, so that the handle member 13 will be maintained by the spring in the position shown in FIGS. 1 and 2 in which it is displaced towards the front end of the channel member.

The narrower end portion of the buckle member 1 which is adapted to be inserted into the channel-shaped member is adapted for detachable engagement with the buckle member 3. In the embodiment shown the edge portion at the free end of the portion 2 is bent at an angle to the otherwise flat buckle member 1 for forming a hook-shaped portion 19 which, when the buckle members are interconnected, engages the edge of the opening 11 in the bottom 10 of the channel-shaped member 3 (see FIGURE 2). The hook-shaped portion 19 is provided with a recess 20 for receiving the projection 17 extending upwardly from the bottom of the channel-shaped member. The handle member 13 is provided at its front end with a portion 21 depending towards the bottom of the channel and said portion 21 is also provided with a recess 22 (FIG. 2) for receiving the projection 17 extending from the bottom of the channel. When the buckle members are interconnected, said portion 21 will be maintained by the spring 16 in such a position above the end portion 2 of the buckle member 1 inserted into the channel, that the hook-shaped portion 19 can not be raised out of engagement with the opening 11 in the bottom of the channel.

To open the buckle the handle member 13 is displaced from the position shown in FIGURE 2 against the action of spring 16 along a path parallel to the bottom of the channel to the position shown in FIGURE 3 whereby the portion 21 will be moved away from the end portion 2 of the buckle member 1 so that the hook-shaped portion 19 may be moved out of engagement with the opening 11. As will appear from the drawing, the hook-shaped portion 19 is bent into such an angle that when the portion 21 of the handle member 13 is moved away from the hook-shaped portion 19 the latter will slide out of

the opening 11 upon the buckle members being pulled apart. Thanks to this it will be very easy to open the buckle since the wearer of the safety belt only needs to bend slightly forward so that the belt is stretched and by means of a light pressure of the fingers displace the handle portion 13 to the position shown in FIGURE 3.

The mounting of the handle member 13 and the mounting of the spring 16 in the embodiment shown makes it possible also to swing the handle member upwardly to the position shown in FIGURE 4 whereby the portion 21 is swung away from the end portion 2 of the buckle member 1 so that the latter may be moved out of engagement with the buckle member 3. This manner to open the buckle corresponds to what is common with previously known buckles. Thus the embodiment shown in the drawing also has the advantage that, in a critical situation, the buckle may be rapidly opened also by a passenger who is used to buckles of previously known types.

The displaceable locking member together with the means for its mounting may of course be made in several different ways within the scope of the invention which also in other respects is not limited to the embodiment which has been described hereinbefore and shown in the drawings as an example only. Thus, the means for establishing engagement between the plate-shaped buckle member 1 and the bottom 10 of the channel-shaped member 3 may consist of projections from the bottom of the channel member which are adapted to engage in corresponding openings in the end portions 2 of the buckle member 1.

What I claim is:

A safety belt buckle comprising a channel-shaped buckle member having side walls and openings in the bottom thereof, a substantially plate-shaped buckle member



insertable into said channel-shaped member between said side walls and having projections insertable within at least one of said channel-shaped buckle member openings, a locking member consisting of a handle providing a cover for said channel member, a shaft fixedly connected to one end of said handle, said channel-shaped buckle member side walls each having an elongated slot with said shaft slideably journalled therein and said slots extending substantially parallel with said channel-shaped buckle member bottom, a draw spring connected at one end to the bottom of said channel-shaped buckle member adjacent that end of said handle provided with said shaft and the opposite end of said spring being connected to the opposite end of said handle, and said handle having a projection at said shaft carrying end thereof normally retained by said spring in position for retaining said plate shaped buckle member projections in said channel-shaped buckle member bottom opening when inserted therein.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 132,247 | Burdict | Oct. 15, 1872 |
| 435,360 | Kaylor | Aug. 26, 1890 |
| 2,840,327 | Stanley | June 24, 1958 |
| 2,904,866 | Carter | Sept. 22, 1959 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 434,335 | Great Britain | Aug. 29, 1935 |
| 493,017 | Great Britain | Sept. 30, 1938 |
| 552,880 | Canada | Feb. 11, 1958 |
| 711,940 | France | Sept. 21, 1931 |

OTHER REFERENCES

German printed application No. R 13509, Aug. 16, 1956.