April 28, 1964 F. L. DAVIS 3,130,467

SAFETY BELT BUCKLE

Filed Aug. 13, 1962

Fig. 1.

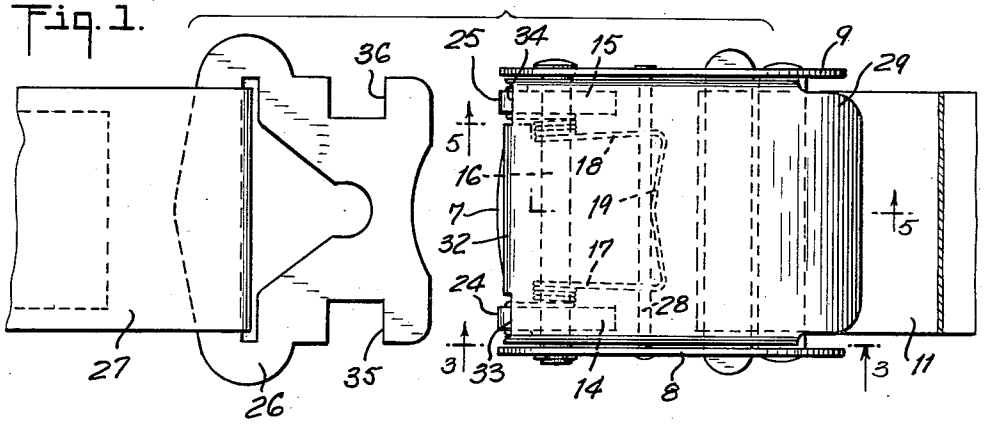


Fig. 2.

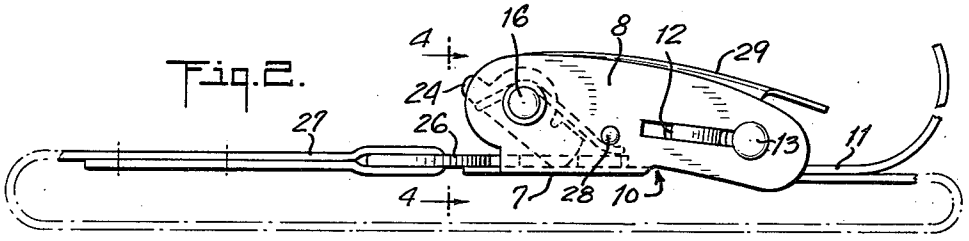


Fig. 3.

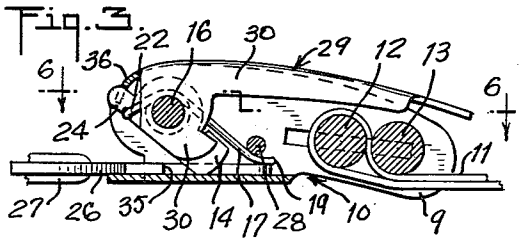


Fig. 4.

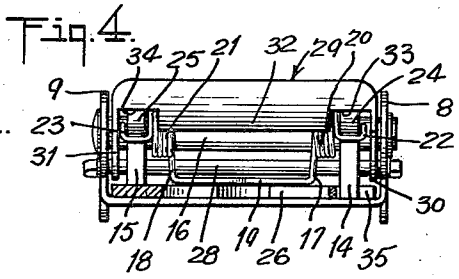


Fig. 6.

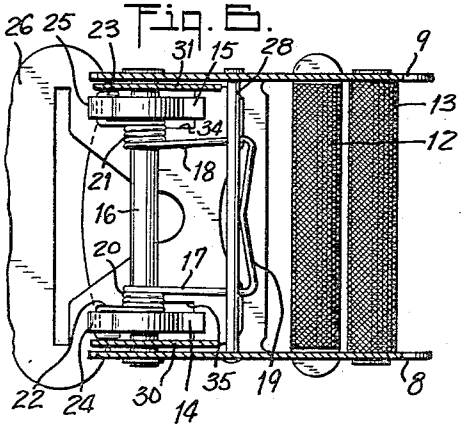
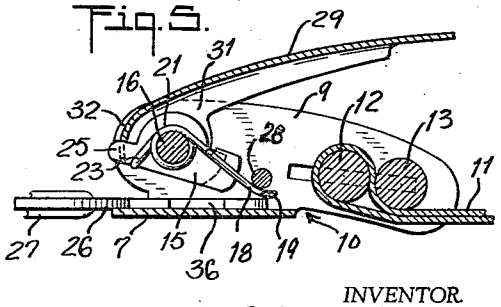


Fig. 5.



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SAFETY BELT BUCKLE

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3 Claims. (Cl. 24—230)

The invention herein disclosed relates to safety belt buckles of the type shown in copending patent applications Serial No. 190,576, filed April 27, 1962, now Patent Number 3,091,010, dated May 28, 1963, and Serial No. 211,036, filed July 19, 1962, now Patent Number 3,104,440, dated September 24, 1963, in which the buckle is closed by simply pushing in a plate on one end of the webbing into a frame attached to the other end of the webbing and the parts released by simply lifting the cover on the frame.

The present invention is concerned particularly with the mechanism for releasably holding the companion parts of the buckle together.

Special objects of the invention are to provide latch mechanism strong and durable, positively holding but readily engageable and disengageable, consisting of but few readily assembled parts and which will be of low cost construction, made up of sheet metal stampings.

Another special object of the invention is to attain the foregoing in a relatively light weight, small, form fitting construction.

The foregoing and other desirable objects are attained by a novel combination of latch and releasing cover constructions and other novel features as hereinafter set forth.

The drawing accompanying and forming part of this specification is illustrative of a present commercial embodiment of the invention. Structure however may be modified and changed as regards this illustration, all within the true intent and scope of the invention as hereinafter defined and claimed.

FIG. 1 of the drawing is a plan view of one of the buckles in separated relation, the webbing attached to the two parts of the buckle being broken away.

FIG. 2 is a side elevation of the buckle with parts in coupled relation and the webbing broken away.

FIG. 3 is a vertical sectional view on substantially the plane of line 3—3 of FIG. 1 but showing the parts in coupled relation.

FIG. 4 is a cross sectional view on substantially the plane of line 4—4 of FIG. 2.

FIG. 5 is a longitudinal sectional view on substantially the plane of line 5—5 of FIG. 1 with parts coupled together.

FIG. 6 is a horizontal sectional view on substantially the plane of line 6—6 of FIG. 3, with webbing omitted.

In the several views, the base or frame of the buckle is shown as of channel formation embodying a flat base portion 7 having spaced upstanding flanges or walls 8 and 9.

These side walls are shown as of greater longitudinal extent than the width of the base so as to project beyond one side of the base, as shown in FIGS. 2, 3 and 5, providing open space at 10 beneath or in back of the base for the webbing 11 entered at that end of the buckle and looped about the movable roll 12 which clamps it against the fixed roll 13.

In addition to extending beyond the edge of the base, the side walls 8 and 9 are extended downward below the base to hold the webbing more or less on a line with the back of the base and thus to fit the buckle closely against the body of the wearer.

The latch mechanism is made up of two dogs or detents 14, 15 separately pivoted on opposite end portions of

a cross pin 16 extending between the opposite end walls 8 and 9 of the frame.

These dogs are tensioned downwardly toward the base of the frame by a single U-shaped spring consisting of generally parallel side portions 17, 18 connected in spaced relation by an intermediate connecting portion 19 and terminating in coils 20, 21 engaged about the cross pin 16 and having hooked ends 22, 23 extending about the grooved upper ends 24, 25 of the dogs.

The intermediate connecting portion 19 of the U-spring makes holding engagement with the inner end of the terminal plate 26, which is attached to the webbing 27, holding that when inserted, against rattling in the frame, FIG. 3, and this portion of the spring is restrained and held against lifting in the frame by a restraining pin 28 extending between the sides of the frame, over the top of the spring.

The releasing cover 29 is in the nature of a lever having dependent flanges 30, 31 at opposite sides, pivotally engaged on the cross pin 16, at the outer sides of the latch dogs, thus to confine these dogs against outward longitudinal shifting movement on the pivot pin.

The cover lever is shown as extended at 32 downwardly over and around the cross pin and the latch dogs mounted thereon and this downwardly extending cover portion is shown in FIG. 4 as notched at 33, 34 to receive the spring engaged portions 24, 25, thus to further guide and confiine these spring latches.

The upper edges of these notches overlie the projecting portions 24, 25 of the latch dogs and thus act as abutments to rock the dogs clear or free of the end plate when the cover is lifted as in FIG. 5.

Conversely the projecting lugs 24, 25 by engagement with the upper ends of the notches, as in FIG. 3, exert upward pressure to rock the lever 29 downwardly into a cover closed position.

The single spring thus serves to hold all the parts together against any rattling movement.

The main portions can be produced inexpensively in sheet metal stampings and can be quickly and easily assembled.

The complete buckle is small, light weight and fits closely, distributing the load evenly on the confined body.

The two, separate dogs engaged in notches 35, 36 in opposite edges of the end plate 26, equalize the load on the webbing.

These two spring latches may snap into engagement with the end plate separately or together so that one does not interfere with the action of the other.

The buckle as a whole is relatively small and light in weight and free of projections so as not to interfere with clothing of the user.

Also it is to be noted the construction disclosed will fit closely against the body of the user, projecting only to a slight extent.

What is claimed is:

1. A safety belt buckle comprising the combination of
a frame having a flat base and spaced upstanding end walls,
a pivot pin connecting said end walls,
separate, independently acting latch dogs pivoted on the end portions of said pin and having projecting portions extending beyond said pin,
a U-spring having side portions terminating in coils engaged about said pivot pin at the inner sides of said latch dogs and having hooked ends engaged with said dogs in position to rock the dogs toward said base whereby to catch and hold a web end plate inserted in the frame between said end walls,
a release lever disposed between said end walls and

having dependent side flanges pivotally engaged on the pivot pin at the outer sides of said dogs,
said release lever having an end portion extended about said pivot pin and the dogs mounted thereon,
said end portion having notches therein receiving said projecting portions of said dogs and said notches terminating in abutment edges engaging said projecting portions of the dogs whereby
said lever may be lifted to effect the release of said dogs from the end plate mentioned and said spring tensioned dogs will apply force to hold the lever in closed position on the frame,
said U-spring having an intermediate portion connecting said side portions of the spring overlying the flat base of the frame in position to engage and tension a web end plate inserted in the frame, and
a restraining pin connecting the end walls of the frame, closely overlying said intermediate connecting portion of the U-spring and thereby restraining said spring against rocking motion on said pivot pin.

2. The invention according to claim 1 in which
said end walls are extended beyond and below one end edge of said base, providing an open, unobstructed portion of the base of the frame, and
web clamping means are located in said extended end walls to hold a web in the open portion of the frame between said extended parts of the end walls.

3. A safety belt buckle comprising the combination of
a frame,
a pivot pin mounted in said frame,

a web end plate insertable in said frame beneath said pivot pin,
latch dogs pivoted on said pin in spaced relation and in position to engage and hold said web end plate,
a cover forming lever pivoted on said pin at the outer sides of said latch dogs,
said cover forming lever having one-way connection for rocking said latch dogs free of said web end plate and
said latch dogs having one-way connection for holding said cover forming lever in closed position on the frame,
a U-spring having side portions terminating in coils embracing the pivot pin and
end portions engaging said latch dogs to rock them into engagement with the web end plate,
said side portions of the spring being connected by an intermediate spacing portion overlying and bearing on the end plate inserted in the base,
and a member on the frame overstanding said intermediate spacing portion of said U-spring for restraining rocking movement of said spring on the pivot pin.

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