April 29, 1941. J. B. FREYSINGER 2,240,012

BUCKLE

Filed Dec. 16, 1939

Fig. 1

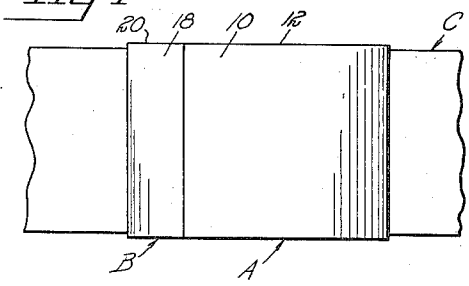


Fig. 2

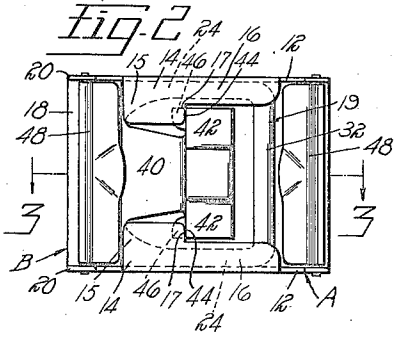


Fig. 3

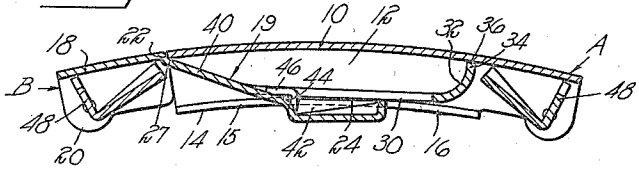


Fig. 4

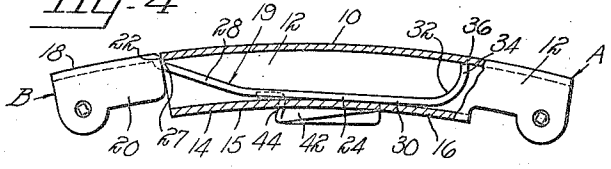


Fig. 5

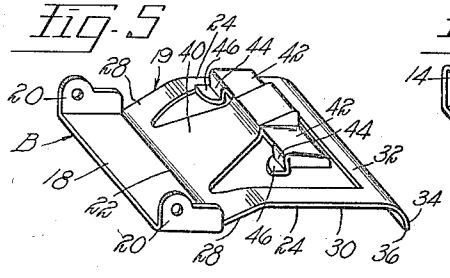


Fig. 6

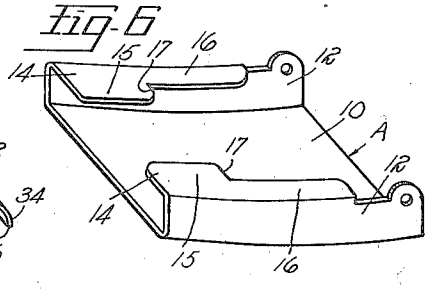
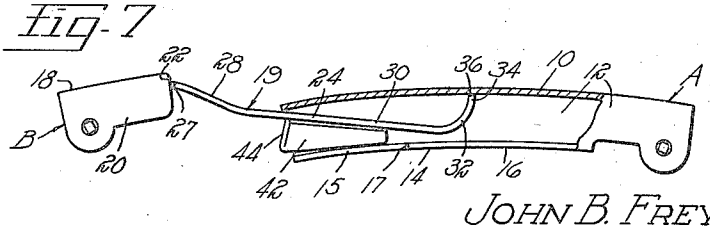


Fig. 7



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UNITED STATES PATENT OFFICE

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BUCKLE

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5 Claims. (Cl. 24—230)

This invention relates to buckles and more particularly to buckles for wearing apparel such as belts.

An object of the present invention is to provide an improved two-member buckle of the type wherein the members are provided with parts adapted to telescope, into one another and engage in interlocking position.

A still further object is a buckle which is simple in construction and effective in operation and so manufactured that upon telescoping of the members they will automatically be positioned in proper relative relation as well as interlock and remain interlocked until manually released.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing:

Figure 1 is a front view of the buckle as applied to the ends of a belt;

Fig. 2 is a rear view of the assembled buckle with the parts in interlocking engagement;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a side view with a portion of one member broken away to show the parts in interlocking engagement;

Figs. 5 and 6 are perspective views of the buckle members; and

Fig. 7 is a view showing the relative positions of the parts as they are moved into interlocking engagement.

Referring to the drawing, the buckle comprises generally a pair of members A and B having cooperating parts for maintaining same in proper relative position and to detachably interlock them together. The members A and B may be of any desired shape and configuration and are preferably formed from stampings of sheet metal.

More particularly, the member A comprises a rectangular front plate 10 having parallel side flanges 12 extending rearwardly from and at right angles to the side edges thereof and coextensive therewith. The member A further includes a pair of flanges 14 extending inwardly from and at right angles to the rear edges of the flanges 12; the flanges thus being spaced rearwardly of and parallel to the front plate A to define suitable guideways therewith. As best seen in Fig. 6, each flange 14 extends from the leading edge of the member B substantially the full length thereof, but is reduced in width intermediate the ends thereof to provide inner and outer guide members 15 and 16; the inner guide 16 cooperating with suitable positioning means on the member A and the outer guides 15 with interlocking means carried by the member B. The trailing edges of the guides 15 further function as locking shoulders, for reasons hereinafter apparent.

The member B also comprises a rectangular front plate 18 having parallel side flanges 20 extending rearwardly from and at right angles to the side edges thereof and coextensive therewith. In accordance with the invention herein, the front plate 18 and side flanges 20 of member B are adapted to lie in the same plane as and be coextensive with the front plate 10 and side flanges 12 of member A when the buckle is closed, thus giving the buckle the appearance of a one-piece member.

To accomplish the proper positioning of the members relative to one another, the leading edge of the front plate 18 of member B is turned rearwardly to define an end facing shoulder or stop 22 having a depth equal to the thickness of plate 10 of member A and adapted to abut against the leading edge thereof when the buckle is closed.

The shoulder 22 further functions to offset out of the plane of the plate 18 suitable positioning means, generally designated as 19, including a pair of arms 24 extending outwardly from the rear edge of shoulder 22 adjacent the opposite ends thereof. Each of the arms 24 includes an inner camming portion 28 extending obliquely and rearwardly from the shoulder 22, and the intersection of the camming portion 28 and the shoulder 22 defines an upwardly facing inner positioning shoulder 27 adapted to abut against the rear face of the plate 10 when the buckles are closed. Outwardly of the camming portions 28 the arms 24 each includes a fulcrum 30, and the angle and length of the camming portions 28 are such that the fulcrums 30 are spaced rearwardly of shoulder 27 a distance slightly greater than the spacing between the plate 10 and the guide members 16 of the buckle member A.

To complete the positioning means 19 of the member B, the outer extremities of the arms 24 are interconnected by a transverse cross bar 32 having its leading edge bent forwardly to provide a positioning lip 34; the length of the lip being such that the outermost edge thereof functions as a second or outer positioning shoulder 36 spaced from and lying in substantially the same

plane as the inner shoulder 27 at the other extremity of the positioning means.

With the positioning means so constructed, when the buckle members A and B are moved into closing position, the positioning means 19 will readily enter into the guideways of the member A and move forwardly until the leading edge of member A abuts against the camming portion 28 of the positioning means 19, as seen in Fig. 7. Thereafter, upon further movement towards closed position, the fulcrums 30 will be urged downwardly and into contact with the inner faces of the guide members 16 and the outer positioning shoulder 36 of the positioning lip 34 into abutting contact with the rear face of plate 10.

Due to the fact that the fulcrums 30 are normally spaced from the plane of the inner and outer positioning shoulders 27 and 36, further movement of the members into closed position will result in a bending or springing of the camming portions 28, due to the natural resiliency of the metal, in a counterclockwise direction, as viewed in Figs. 3 and 4, about the fulcrums 30. Due to this bending, when the leading edge of the member A abuts against the end facing shoulder or stop 22 of the member B, the front plates 10 and 18 will lie in the same plane with the inner and outer positioning shoulders 27 and 36 abutting the rear face of plate 10 and the fulcrums 30 engaging the guides 16. Moreover, as the shoulders 27 and 36 and fulcrums 30 will all be under tension and in frictional engagement with the cooperating parts of the member B, the buckle members will thus be positively maintained in proper relative position.

As the frictional engagement will not be sufficient to maintain the parts in locked position, there is further arranged on the member B suitable locking means including a tongue 40 centrally positioned and extending outwardly and at an oblique rearward angle from the rear edge of the end facing shoulder 22. The width of the tongue 40 is narrower than the spacing between the guides 16 but carries on the outer end thereof transversely extending locking arms 42 of greater width than the guides 15, but of less width than the spacing between guides 16. The rear edge of each arm 42 is turned forwardly through slightly more than ninety degrees to provide a locking shoulder 44 adapted to be positioned behind the locking shoulder 17 of the guides 14 and thus interlock the members together. To so position the locking shoulders 44, the angle of the tongue 40 is such that the plane of the locking arms 42 is spaced rearwardly of the plane of the fulcrums 30 of the positioning arms, and thus as the parts are assembled, upon moving the locking arms 42 underneath the guides 15 the tongue 40 will be sprung forwardly towards the front plate 10 of the member A until the shoulders 44 move beyond the locking shoulders 17 of the guides 14, whereupon the tongue will spring them rearwardly and behind same, and due to the slight angle of the locking shoulder 44 a positive locking will result. To limit the outward springing of the tongue, the forward edges of the locking shoulders 44 may be turned at right angles to provide suitable restraining shoulders 46 which will engage the forward faces of the guides 14 and thus maintain the locking arms in proper locking position.

In order to release the parts, it is only necessary to press forwardly on the center portion of the tongue 40 to release the shoulders 44 from behind the shoulders 17, whereupon the parts may be readily separated.

As usual, the trailing edges of each of the members A and B may have pivotally mounted in the side flanges thereof a suitable clamping member 48 adapted to secure each member to one end of a belt webbing C. As the clamping members are of usual and well known construction and form no part of the invention herein, no further description thereof will be given.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A buckle of the character described, comprising two separable members, one member having a front plate and oppositely disposed guide members spaced rearwardly from and parallel thereto, the other member having a front plate having its leading edge turned rearwardly to provide a forward facing shoulder having a depth equal to the thickness of the front plate of said first member and abutting the leading edge thereof, and positioning means receivable by the guide members of said first member, said positioning means extending outwardly from the rear edge of said shoulder and comprising spaced apart arms having inner and outer positioning shoulders arranged in the same plane and abutting the front plate of said first member, said arms intermediate of said shoulders having a fulcrum positioned in a plane rearwardly of said positioning shoulders at a distance greater than the distance between the front plate and guide members of said first member, said fulcrum abutting said guide members to place said positioning means under tension whereby the front plates of said members are positioned in coextensive alignment.

2. A buckle of the character described, comprising two separable members, one member having a front plate and oppositely disposed guide members spaced rearwardly from and parallel thereto, the other member having a front plate having its leading edge turned rearwardly to provide a forward facing shoulder having a depth equal to the thickness of the front plate of said first member and abutting the leading edge thereof, and positioning means receivable by the guide members of said first member, said positioning means extending outwardly from the rear edge of said shoulder and comprising spaced apart arms having inner and outer positioning shoulders arranged in the same plane and abutting the front plate of said first member, said arms intermediate of said shoulders having a fulcrum positioned in a plane rearwardly of said positioning shoulders at a distance greater than the distance between the front plate and guide members of said first member, said fulcrum abutting said guide members to place said positioning means under tension whereby the front plates of said members are positioned in coextensive alignment, and a cooperating interlocking means

carried by said members and detachably securing same together.

3. A buckle of the character described, comprising two separable members, one member having a front plate and oppositely disposed guide members spaced rearwardly from and parallel thereto, the other member having a front plate having its leading edge turned rearwardly to provide an end facing shoulder having a depth equal to the thickness of the front plate of said first member and abutting the leading edge thereof, positioning means carried by said second member and receivable by the guide members of said first member, said positioning means comprising spaced apart arms extending outwardly from the rear edge of said end shoulder and each arm having a camming portion extending obliquely and rearwardly from said shoulder and defining therewith inner positioning shoulders abutting the rear surface of the front plate of said member and fulcrum portions extending outwardly from said camming portions and spaced by said camming portions from said positioning shoulders a greater distance than the distance between the front plate and guide members of said first member and engaging the inner faces of said guide members, the outer ends of said fulcrums being interconnected by a cross bar provided at its leading edge with a forwardly turned locking lip having its outer edge in alignment with said inner positioning shoulders and abutting the rear face of the plate of the first member, and cooperating interlocking means carried by said members for detachably interlocking said members together.

4. A buckle of the character described, comprising two separable members, one member having a front plate and oppositely disposed guide members spaced rearwardly from and parallel thereto, the other member having a front plate and positioning means extending outwardly therefrom and receivable within the guide members of said first plate, said positioning means including spaced apart inner and outer shoulders offset from the plane of the front plate of said second member by the thickness thereof and abutting the rear face of the front plate of the first member, and a fulcrum intermediate of said shoulders and abutting the guide members of said first member.

5. A buckle of the character described, comprising two separable members, one member having a front plate and oppositely disposed guide members spaced rearwardly from and parallel thereto, said guide members having locking shoulders intermediate the ends thereof, the other member having a front plate and positioning means extending outwardly therefrom and receivable within the guide members of said first plate, said positioning means including spaced apart inner and outer shoulders offset from the plane of the front plate of said second member by the thickness thereof and abutting the rear face of the front plate of the first member, a fulcrum intermediate of said shoulders and abutting the guide members of said first member, and locking means carried by said second member and including a transverse locking arm spaced outwardly from said front plate by a resilient tongue, said tongue being oblique to said front plate to normally position said locking arm rearwardly of the plane of the guide members of said first member, whereby said arm will be depressed upon being inserted therebetween, and locking shoulders extending rearwardly from the trailing edges of said locking arms and engaging behind the locking shoulders of said guide members.

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