

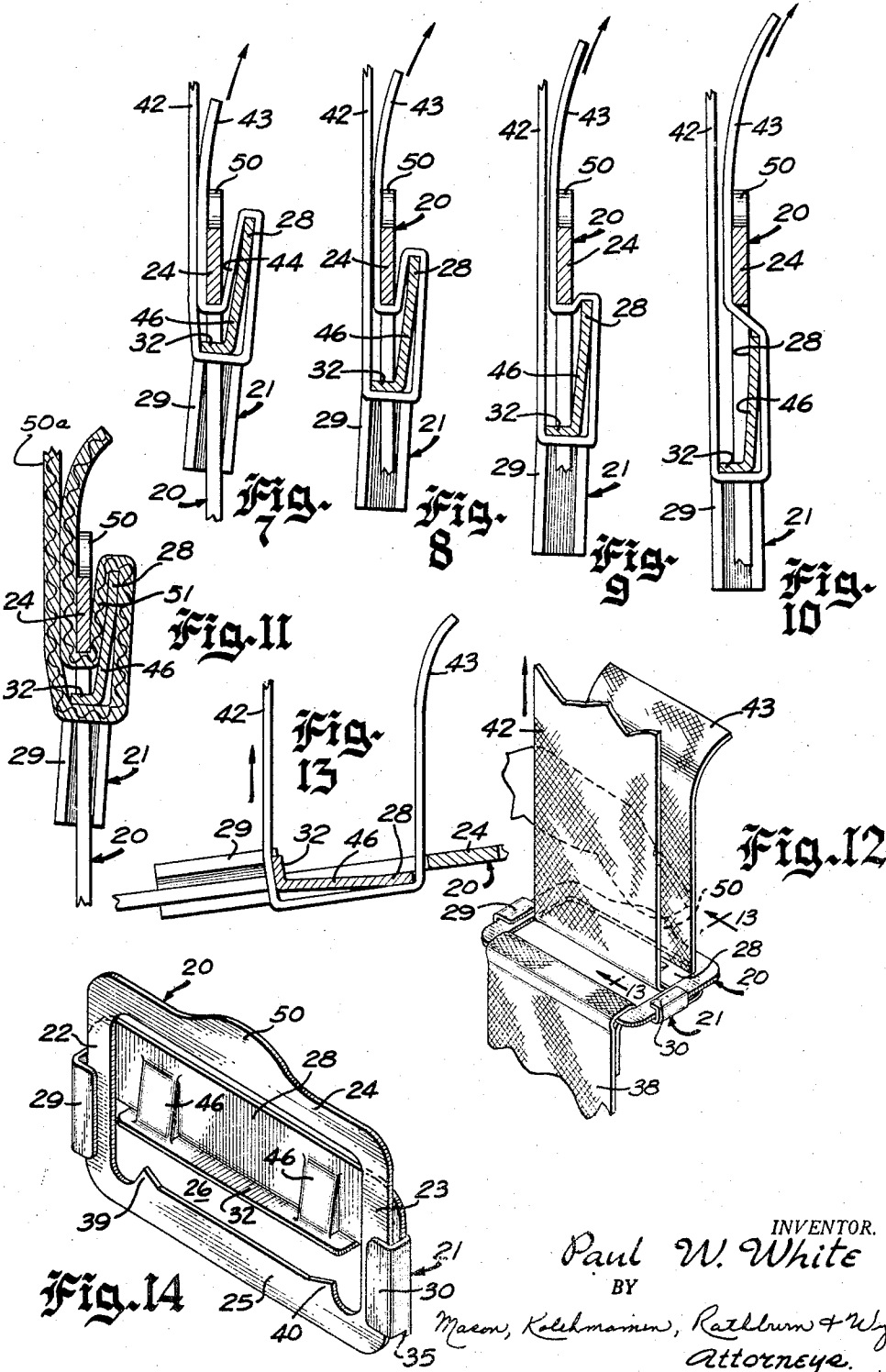
March 24, 1959

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BUCKLE

2,878,540

Filed Oct. 25, 1955

2 Sheets-Sheet 2



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BUCKLE

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Application October 25, 1955, Serial No. 542,542

7 Claims. (Cl. 24—196)

The present invention relates to slide buckles, more particularly to slide buckles suitable for use with lingerie shoulder straps and the like, and the invention has for an object the provision of a new and improved one-slot lingerie buckle which will function properly with straps of different types and thickness, is of lighter weight but has more strength than conventional lingerie buckles, and may be threaded easily while requiring a minimum of strap material.

In present day lingerie two general types of shoulder straps are commonly employed, these two types having markedly different physical characteristics which require different sizes and constructions of lingerie buckles for each type of shoulder strap in all conventional lingerie buckle designs. One type of shoulder strap is the so-called self material wherein a strip of the material from which the garment is formed is folded back on itself to form a relatively thick ribbon, the self material strap being generally of coarse, rough material. The other type of shoulder strap is a woven type of ribbon, usually having a satin finish on one side so that the shoulder strap is relatively thin and has a smooth, almost slick, surface. In conventional lingerie buckles, if the buckle slot is made sufficiently narrow to provide good clamping action with the single face satin type of shoulder strap, then the slot is too narrow for a self material strap to be threaded therethrough. On the other hand, if the slot is sufficiently wide to accommodate the self material strap then slippage occurs when a single face satin strap is used. To obviate this problem, conventional lingerie buckles are manufactured in several different sizes to accommodate different types of shoulder straps which means that additional expense is involved in tools and dies for each buckle size, and in the storage, shipping and stocking problems which arise when all sizes of buckles are carried for each type of shoulder strap. Also present day lingerie buckles are in many instances constructed of zinc plated steel to obtain the necessary strength and rust resistant qualities whereas it would be desirable to construct these buckles of some lightweight material such as aluminum, if sufficient strength could be provided, since the aluminum buckle would be rustproof and would be cheaper to ship because of its lighter weight.

A satisfactory lingerie buckle must also be relatively easy to adjust, particularly in the direction of shortening the shoulder straps, and it would be desirable to provide an arrangement wherein a one-handed pull-up adjustment of the buckle can be readily made to shorten the shoulder strap, and which will, at the same time, firmly and securely clamp the strap in non-slipping relation in the newly adjusted position.

It is, therefore, another object of the present invention to provide a new and improved one-slot slide buckle which may be employed with different types and thicknesses of straps while providing a uniform clamping action without slippage or difficulty in adjustment.

It is a further object of the present invention to provide a new and improved one-slot slide buckle which can

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be constructed of aluminum while providing greater strength than conventional buckles made of steel.

It is a still further object of the present invention to provide a new and improved one-slot slide buckle which is particularly adapted for use with lingerie shoulder straps and with which the length of the strap may be readily adjusted by using only one hand.

Briefly, according to one phase of the invention, a one-slot buckle is provided which comprises a frame having side bars and crossbars defining a strap receiving opening therein and a single crossbar slide which is adapted to slide along the side bars of the frame. The bottom one of the frame crossbars serves as a strap attaching bar to which a garment supporting strap may be secured and the single crossbar of the slide is provided with a forwardly projecting flange which extends into the strap receiving opening in the frame and limits movement of the slide in both directions by engagement with the upper and lower frame crossbars. The slide crossbar is offset from the upper one of the frame crossbars by an amount sufficient to permit the slide crossbar to move upwardly under the upper frame crossbar when tension is applied to a strap threaded around the slide crossbar, thereby wedging the free end portion of the strap between the opposed surfaces of the slide crossbar and the upper frame crossbar. This wedging action prevents slippage of the strap during periods when tension is not applied thereto. However, when an upward pull is exerted on the free end of the strap, which may conveniently be done by one hand of the wearer, the slide crossbar is pulled downwardly to remove the wedging action and permit the strap to slide over the slide crossbar to the desired new position. By threading the strap around the slide crossbar and over the upper frame crossbar an extremely rugged construction is provided because the slide crossbar and the upper frame crossbar act as a single bar and the flange portion of the slide crossbar which extends into the strap receiving opening in the frame acts as a stop to prevent the slide from being pulled out of the frame. As a result of this construction both the frame and slide of the buckle may be made of aluminum while providing a buckle which has greater strength than conventional steel lingerie buckles now on the market. Also, by providing a sufficient offset of the slide crossbar with respect to the upper frame crossbar a good wedging action is provided with straps of different types and thicknesses so that the same buckle may be used with all types of shoulder straps. Preferably, the slide crossbar is provided with a plurality of transverse ridges which extend downwardly to the flange portion of the slide crossbar and are inclined with respect to the upper frame crossbar so as to insure good clamping action when straps of different thicknesses are employed and particularly in larger sizes of the buckle.

The invention, both as to its organization and method of operation, together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which:

Fig. 1 is a front perspective view of a buckle construction embodying the present invention and showing the buckle assembled in clamping position;

Fig. 2 is a longitudinal sectional view taken along the lines 2—2 of Fig. 1;

Fig. 3 is a rear perspective view of the buckle of Fig. 1 also showing the buckle in clamping position;

Fig. 4 is a front perspective view of the buckle of Fig. 1 and showing the buckle with the slide thereof in pull-up adjustment position;

Fig. 5 is a longitudinal sectional view taken along the lines 5—5 of Fig. 4;

Fig. 6 is a rear perspective view of the buckle of Fig.

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1 and showing the slide of the buckle in the same position as Fig. 4;

Figs. 7 to 10, inclusive, are fragmentary longitudinal sectional views similar to Figs. 2 and 5 and showing the progressive positions of the slide as the pull-up adjustment is made;

Fig. 11 is a fragmentary longitudinal sectional view similar to Fig. 2 and illustrating the use of a relatively thick strap;

Fig. 12 is a front perspective view showing the manner in which the buckle is adjusted to lengthen the strap;

Fig. 13 is a sectional view taken along the lines 13—13 of Fig. 12; and

Fig. 14 is a front perspective view showing certain constructional details of the buckle of Fig. 1.

Referring now to the drawings, the present invention is therein illustrated as comprising a one-slot buckle which includes a frame, indicated generally at 20, and a slide, indicated generally at 21, which is adapted to co-operate with the frame 20, the frame 20 being provided with the side bars 22 and 23 (Fig. 13) and the crossbars 24 and 25 which define a strap receiving opening 26 in the frame 20. The slide 21 comprises a single crossbar 28 and end portions 29 and 30 which extend forwardly and inwardly about the frame side bars 22 and 23 to permit sliding movement of the slide 21 on the side bars 22 and 23 while limiting the lateral separation of the frame and slide and preventing sidewise movement of the slide with respect to the frame.

The slide crossbar 28 is provided with a forwardly projecting flange 32 which extends into the strap receiving opening 26 in the frame 20 and limits movement of the slide 21 in both directions by engagement with the frame crossbars 24 and 25. Thus, the flange 32 engages the upper crossbar 24 to limit upward movement of the slide and the flange 32 engages the lower crossbar 25 to limit downward movement of the slide 21. Preferably, the end portions 29 and 30 are offset downwardly from the crossbar 28 by an amount sufficient to position the bottom edges 34 and 35 of the end portions 29 and 30 below the bottom edge of the lower frame crossbar 25 when the flange 32 engages the upper edge of the frame crossbar 25. With this arrangement the frame 20 and slide 21 can be assembled from strip stock by automatic machinery in a single forming and assembly operation, the slide 21 being severed from the stock material at the edge portions 34, 35 after the slide has been fully formed and assembled on the frame 20.

In order to attach the frame 20 to a garment the lower crossbar 25 thereof acts as a strap attaching bar around which the lower shoulder strap 38 may be looped, it being understood that the lower end of the strap 38 is secured to the garment. The crossbar 25 is provided with a pair of upwardly extending prongs 39 and 40 which engage the outer edges of the bottom strap 38 and prevent the same from moving sidewise or bunching up within the opening 26.

In accordance with an important feature of the present invention the upper shoulder strap 42 is threaded around the slide crossbar 28 in such manner that an extremely strong clamping action is provided while at the same time permitting a relatively simple adjustment to be made by the wearer of the garment to change the tension on the strap. More particularly, the free end portion 43 of the upper shoulder strap 42 is first threaded through the frame opening 26 from the front of the buckle, around the crossbar 28 of the slide 21 and back out of the frame opening 26, the free end portion 43 of the strap thus being positioned between the running portion of the strap 42 and the front surface of the upper frame crossbar 24. The slide crossbar 28 is offset rearwardly from the plane of the frame 20 in order to permit the crossbar 28 to move upwardly behind the upper frame crossbar 24 when tension is applied to the strap 42 so that the intermediate portion 44 (Fig. 2) of the strap is firmly wedged between

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the opposed surfaces of the frame crossbar 24 and the slide crossbar 28. With this arrangement an extremely strong buckle is provided since the strap is wrapped completely around the slide crossbar and this crossbar is positioned beneath the frame crossbar 24 so that these crossbars act as a single bar to provide an extremely strong clamping action while preventing the slide from being pulled out of the frame.

In order to accommodate straps of different thicknesses and having different surface characteristics, the slide crossbar 28 is provided with a plurality of transverse, gradually inclined ridges 46 which are formed out of the crossbar 28 and extend downwardly to the slide retaining flange 32 of the slide 21. The ridges 46 are inclined with respect to the rear surface of the upper frame crossbar 24 and grip the outer edge portions of the strap portion 44 which is clamped between the bars 24 and 28. Accordingly, when a relatively thick self material strap 50a is employed (Fig. 11) the intermediate portion 51 of this strap is wedged between the frame crossbar 24 and the slide crossbar 28, even though the slide crossbar 28 is not moved upwardly by as great an amount as in the case of the thin strap 42.

In order to move the buckle upwardly on the strap 42 so as to shorten the strap, a pull-up adjustment may be made wherein the slide is first released from its clamping position to an adjustable position in which the desired adjustment may be made. This pull-up adjustment is made simply by grasping the free end 43 of the strap 42 and pulling upwardly thereon. As best illustrated in Figs. 7 to 10, inclusive, when an upward pull is exerted on the free end 43 of the strap, the slide crossbar 28 is moved downwardly with respect to the frame crossbar 24 due to the wrap-around threading of the strap and the fact that in the clamping position the slide crossbar 28 is positioned substantially beneath the frame crossbar 24. The slide 21 is moved downwardly by an amount sufficient to position the bottom edge of the upper frame crossbar 24 above the upper edge of the slide crossbar 28, as shown in Fig. 10. In the position shown in Fig. 10 the free end 43 of the strap slides around the flanged slide crossbar 28 as further tension is exerted on the free end 43 so that the buckle is moved upwardly on the running portion of the strap 42. When the upward pull on the free end 43 of the strap is removed tension on the running portion 42 of the strap will cause the slide 21 to move upwardly and the strap again becomes wedged in the newly adjusted position, as shown in Fig. 2.

When it is desired to lengthen the shoulder strap 42, a finger tab portion 50, which is provided on the upper frame crossbar 24, is engaged by the index finger of the wearer and downward and rearward pressure is exerted thereon so that the frame 20 is tilted to the position shown in Fig. 12 wherein the frame 20 is substantially perpendicular to the plane of the strap 42. In this position the upper strap may be lengthened merely by exerting an upward pull on the running portion of the strap 42 with the result that the free end portion 43 thereof is moved downwardly and the buckle is positioned nearer the end of the strap. Once the strap has been let out in the manner described above and pressure is removed from the finger tab 50, the buckle will be tilted by tension on the strap until it is again positioned in the same plane as the strap and the slide crossbar 28 is again moved upwardly to clamp the strap in its newly adjusted position.

It will be noted that with the buckle construction and threading arrangement of the present invention the rear sides of the slide crossbar 28 and the frame crossbar 25 are covered by the strap material (Fig. 3) so that no metal parts of the buckle can touch the flesh of the wearer and cause discomfort or chafing. Also, as the pull-up adjustment described in detail above is made the slide crossbar 28 is continuously covered by the strap

material so that the metal parts of the buckle cannot scrape the skin during the pull-up adjustment. In addition, the front sides of the frame crossbars 24 and 25 are also covered by the strap material so that very little of the buckle is visible from the front.

While there has been described what is at present considered to be the preferred embodiment of the invention, it will be understood that various modifications may be made therein which are within the true spirit and scope of the invention as defined in the appended claims.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having planar side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars comprising an attaching bar to which a garment may be secured, said slide having a single crossbar disposed behind said planar side bars and crossbars, portions of said slide crossbar being inclined relative to one of said frame crossbars, said slide crossbar being adapted to slide along the side bars of said frame and being provided with a forwardly projecting flange which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, the free end of the shoulder strap extending rearwardly through said strap receiving opening in said frame, around said slide crossbar and forwardly out of said strap receiving opening in said frame so that when tension is applied to the shoulder strap said slide crossbar is moved upwardly behind the upper one of said frame crossbars and the free end portion of the shoulder strap is clamped between said upper frame crossbar and said slide crossbar.

2. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having planar side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars comprising an attaching bar to which a garment may be secured, said slide having a single crossbar which is positioned behind said frame in a plane slightly inclined relative to the plane of said frame bars and is adapted to slide along the side bars of said frame, said slide crossbar having a forwardly projecting flange which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, the free end of the shoulder strap extending rearwardly through said strap receiving opening on one side of said slide crossbar and forwardly out of said opening on the other side of said slide crossbar so that when tension is applied to the shoulder strap said slide crossbar is moved upwardly behind the upper one of said frame crossbars and the strap is clamped between the opposed faces of said upper frame crossbar and said slide crossbar.

3. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having planar side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars comprising an attaching bar to which a garment may be secured, said slide having a single crossbar which is entirely positioned behind said frame and is adapted to slide along the side bars of said frame, said slide crossbar having a body portion in a plane generally parallel to the plane of said side bars and crossbars and having at least one inclined transverse portion for engaging the free end of a shoulder strap, said slide crossbar further having a forwardly projecting flange which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, the free end of the shoulder strap extending rearwardly through said strap receiving opening below said slide crossbar, around said slide crossbar and forwardly out

of said opening above said slide crossbar so that when tension is applied to the shoulder strap said slide crossbar is moved upwardly behind the upper one of said frame crossbars and the free end portion of the strap is clamped around said upper frame crossbar and between the running portion of the strap and said slide crossbar.

4. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars being adapted for attachment to a garment, said slide having a single crossbar which is positioned behind said frame, is adapted to slide along the side bars of said frame and is provided with a right angle flange portion along the bottom edge thereof which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, said slide crossbar having a plurality of transverse gradually inclined ridges which cooperate with the upper one of said frame crossbars to clamp therebetween the free end of a strap which is threaded over said slide crossbar when tension is applied to the running portion of the strap.

5. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars being adapted for attachment to a garment, said slide having a single crossbar which is adapted to slide along the side bars of said frame and is provided with a right angle flange portion along the bottom edge thereof which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, said slide crossbar having a plurality of transverse gradually-inclined ridges which extend downwardly to said right angle flange portion, said slide crossbar being adapted to move upwardly into substantial alignment with the upper one of said frame crossbars when tension is applied to a strap threaded around said slide crossbar so that the free end of the strap is clamped between said inclined ridges and said upper frame crossbar.

6. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars being adapted for attachment to a garment, said slide having a single crossbar which is adapted to slide along the side bars of said frame and is provided with a right angle flange portion along the bottom edge thereof which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, said slide crossbar having a body portion offset from said side bars and crossbars and having strap engaging portions inclined relative to said body portion and said upper frame bar, said body portion being offset from the upper one of said frame crossbars by an amount sufficient to permit said slide crossbar to move upwardly behind said upper frame crossbar when tension is applied to a strap threaded around said slide crossbar and wedge the free end portion of the strap between the opposed surfaces of said slide crossbar and said upper frame crossbar, said wedging action preventing slippage of the strap when tension is not applied thereto while permitting adjustment of said buckle in a direction to shorten the strap merely by exerting an upward pull on the free end of the strap so as to move said slide crossbar downwardly from its wedging position and permit the strap to slide freely over said slide crossbar to the new position.

7. A one-slot buckle for shoulder straps and the like comprising a frame, a slide for cooperation with said frame, said frame having side bars and crossbars defining a strap receiving opening therein, the bottom one of said frame crossbars being adapted for attachment to a garment, said slide having a single crossbar which is

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adapted to slide along the side bars of said frame and is provided with a right angle flange portion along the bottom edge thereof which extends into said strap receiving opening in said frame and limits movement of said slide in both directions by engagement with said frame crossbars, said slide crossbar being offset from and in substantial alignment with the upper one of said frame crossbars when said right angle flange portion is adjacent said upper frame crossbar and having at least one transverse ridge therein which extends downwardly and is inclined relative to said flange portion and is inclined with respect to said upper frame crossbar so that straps of varying thicknesses may be wedged between the opposed surfaces of said slide crossbar and said upper frame crossbar.

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