July 12, 1949. A. NEUMANN 2,475,634

BELT OR STRAP FASTENER

Filed Oct. 16, 1945

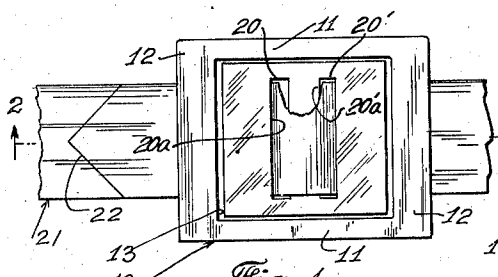


Fig. 1.

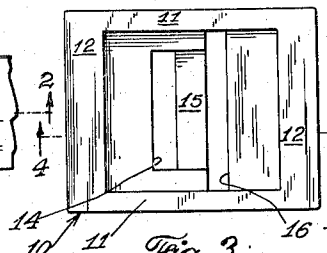


Fig. 3.

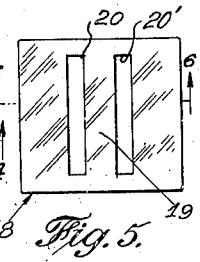


Fig. 5.

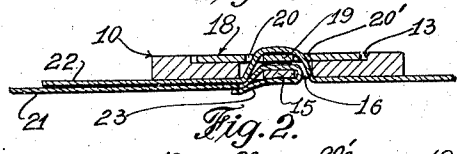


Fig. 2.

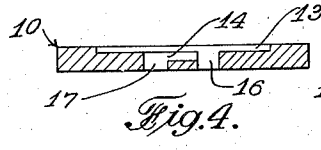


Fig. 4.

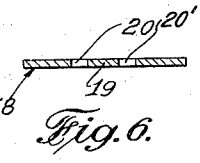


Fig. 6.

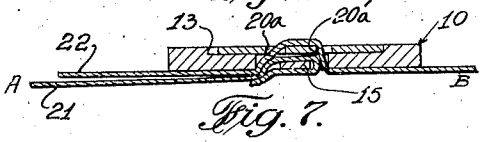


Fig. 7.

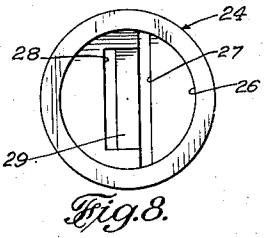


Fig. 8.

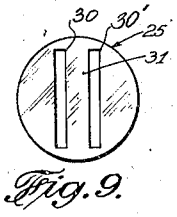


Fig. 9.

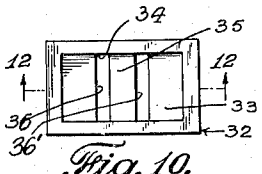


Fig. 10.

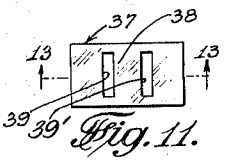


Fig. 11.

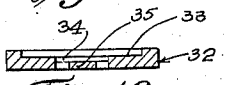


Fig. 12.



Fig. 13.

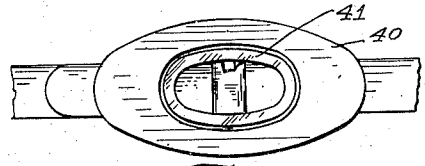


Fig. 15.



Fig. 14.

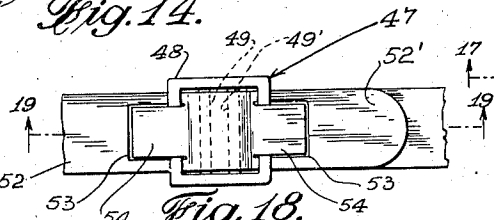


Fig. 18.

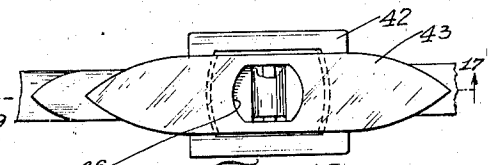


Fig. 16.

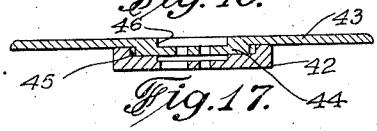


Fig. 17.

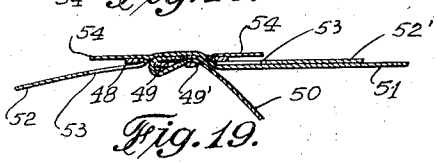


Fig. 19.

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BELT OR STRAP FASTENER

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7 Claims. (Cl. 24—168)

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This invention relates to adjustable fastening devices, and especially to fasteners adapted to be associated with and intended for the adjustment of belts, straps and the like.

One of the objects of the present invention is to provide a fastener or buckle for belts, straps or the like, which has the advantage of combining a sturdy construction with a quick and effective adjusting operation, for the belt, strap or the like with which the buckle is associated.

Another important advantage of the present invention is to provide an adjusting buckle for belts or straps, which is not only highly effective, but which is capable of considerable modifications for the purpose of either enhancing its outer appearance or for adapting it for use in "hard-to-get-to" places, or where either the size of the appliance is of an important consideration, and wherein simplicity in operation is one of the deciding factors.

While it is conceded that numerous devices were heretofore designed with the view of eliminating the use of the well-known tongue and aperture arrangement for adjusting straps, and which arrangement does not afford close adjustment, the present invention contemplates a new organization of parts, the cooperation of which parts produces new advantages and rather unexpected results, not achievable in the aforeindicated prior developments.

The principle of the present invention is based on the employment of two buckle members, wherein one of the members interlocks with the other member, and wherein one of the members is smaller in size than the other member and is operative within the larger member, such operation consisting of a sliding movement of the smaller member in respect to the larger member, and by which sliding movement of the smaller member in one direction a strap or belt passing through the members becomes impinged, and thereby is prevented from moving in respect to the buckle, and, when the buckle members are centered, the belt is freed for adjustment.

This principle and other objects and advantages of the present invention will be more fully understood from the ensuing description in conjunction with the accompanying drawing, wherein:

Fig. 1 is a plan view of a presently preferred form of the instant invention, with the ends of a belt attached thereto;

Fig. 2 is a section therethrough taken on line 2—2 of Fig. 1;

Fig. 3 is a plan view of the larger frame member forming a part of the construction shown in Figs. 1 and 2;

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Fig. 4 is a section taken on line 4—4 of Fig. 3;

Fig. 5 is a plan view of the smaller frame member;

Fig. 6 is a section taken on line 6—6 of Fig. 5;

Fig. 7 is a section similar to that shown in Fig. 2, but with the two buckle members shifted to a belt-impinging position;

Fig. 8 is a plan view through a modified form of a large buckle frame;

Fig. 9 is a plan view of the smaller buckle frame for cooperating with the larger buckle frame shown in Fig. 8;

Fig. 10 is a plan view of the larger member in another buckle construction;

Fig. 11 is a plan view of a corresponding smaller buckle member adapted to cooperate with the larger member shown in Fig. 10;

Fig. 12 is a section taken on line 12—12 through Fig. 10;

Fig. 13 is a section taken on line 13—13 through Fig. 11;

Fig. 14 is a section similar to that shown in Fig. 2 through the buckle arrangement illustrated in Figs. 10 to 13, taken on line 12—12 of Fig. 10 with the belt attached;

Fig. 15 is a top view of still another construction of the present invention, in conjunction with a belt;

Fig. 16 is a plan view of a modified embodiment of the present invention, attached to a belt;

Fig. 17 is a section taken on line 17—17 through Fig. 16, the belt being omitted;

Fig. 18 is a plan view of a different arrangement of a buckle according to the present invention, with a belt attached thereto; and

Fig. 19 is a section taken on line 19—19 through Fig. 18.

Referring now to Figs. 1 to 7, inclusive, numeral 10 denotes the larger member or outer frame of the fastener, which frame is made of a relatively thick material and has a continuous or endless peripheral rim comprising longitudinal or top and bottom members 11 and vertical end members 12. At the upper face of frame 10 there is provided a relatively shallow recess 13, and at the left-hand part of that recess the frame is deepened somewhat more at 14, as clearly seen in Fig. 4. The provision of recess 13 renders the peripheral rim of this buckle member elevated in respect to the bottom of the recess. At about the center of this larger buckle member there is arranged a bar 15, the upper surface of which is disposed in a plane parallel to but spaced from

the plane in which lies the bottom of shallow recess 13. At the right of bar 15 there is provided a relatively long aperture 16, and to the left of bar 15 there will be seen another but shorter aperture 17. The difference in length of these apertures will be explained presently.

Corresponding or complementary to the interior contour of member 10, or to the exterior periphery of recess 13, there is indicated at 18 the smaller buckle member which is adapted to operate or slide within recess 13. In Figs. 2, 6 and 7 the thickness of smaller member 18 is shown to approximate the depth of shallow recess 13. However, the thickness or height of member 18 may be altered, as long as the two buckle members are movable in the manner herein intended. Buckle member or element 18 comprises again a continuous peripheral frame structure provided with a bar 19 located centrally between side apertures 20 and 20'. Referring now to Figs. 3 and 4, it will be observed that the longer aperture 16 of larger buckle element 10 is so dimensioned as to permit the passage therethrough of smaller element 18.

In Figs. 1 and 2 there is shown a strap or belt 21, the adjustable end 22 of which passes through apertures 20 and 20' of the small buckle element 18. The length of these apertures is such as to permit a ready passage therethrough of belt 22. Again alluding to Fig. 3, the smaller or shorter aperture 17 of larger buckle element 10 corresponds in length to the length or height of apertures 20 and 20' of smaller buckle element 18, and also permits the passage therethrough of adjustable belt end 22.

As seen from Figs. 2 and 7, adjustable end 22 passes through long slot 16 of larger buckle element 10, then through right-hand and left-hand slots 20' and 20 of smaller buckle element 18 and back through short slot 17 of the larger element, and continues below the latter's body to without. Smaller element 18 being somewhat shorter and of lesser width than recess 13 provided in the larger element, it may move in any direction, but is designed mainly to slide either to the left or right in respect to the larger element. In Fig. 7 element 18 is shown shifted to its extreme right-hand position.

When the elements are in the position shown in Fig. 2 adjustable portion 22 of the belt may be readily pulled without undue effort at either one side or the other, thus facilitating the adjustment of the belt, it being understood that the fixed end 23 of the belt is permanently associated with bar 15 of the larger buckle element. When the adjustment of belt end 22 is made, a pull exerted by gripping the permanently attached portion of the belt and the part of the adjustable end extending to the right of the buckle will shift the smaller buckle element to the position shown in Fig. 7, that is to the right. In consequence of this bodily movement of element 18 in respect to larger buckle member 10, the adjustable belt portion, passing over bar 19 and through apertures 20' and 20, and apertures 16 and 17 of the larger buckle element, is brought under tension. At the same time the left-hand edge 20*a* of left-hand opening 20 will impinge upon the upper belt portion, and simultaneously the right-hand lower belt portion passing through large opening 16 will be also impinged upon by the left edge 20'*a* of right-hand opening 20'. Thus the adjustable belt end is prevented from moving in respect to the buckle, and the belt remains now in its adjusted position, irrespective

of any pull exerted upon the two belt portions A and B at the left and right of the buckle (see Fig. 7).

Constructions similar to that described in connection with Figs. 1 to 7, inclusive, are illustrated in Figs. 8 and 9, with the difference that the bodies of the belt buckle elements assume annular and circular shapes, respectively. The large buckle element is indicated at 24 in Fig. 8, while the smaller buckle element is shown at 25 in Fig. 9. The larger element again is provided at one face with relatively shallow recess 26. In that recess portion there will be observed a long vertical slot 27 and a shorter slot 28, the two slots being separated by vertical bar 29, disposed in a plane lower than the bottom of recess 26. The peripheral dimension of the smaller element is such that that element may operate or slide in any direction within recess 26 of the larger element. Again there are provided two slots 30 and 30' between which is disposed a central bar 31. Another modification of the present invention is illustrated in Figs. 10 to 13, where again a large element 32 is employed, the latter being provided with a shallow recess 33 and a deeper recess 34. At the lower recessed area is a bar 35 adjacent to which are two slots 36 and 36', which in this embodiment are of the same length. Somewhat smaller than recessed portion 33 of large element 32 is another buckle element 37, also provided with a central bar 38, at both sides of which are slots 39 and 39'. The arrangement of the belt parts in this modification are illustrated in Fig. 14. That arrangement is identical with that described in connection with Figs. 1 and 7, with the exception that slots 36 and 36' of buckle member 32 are both sufficiently long to permit the passage therethrough of smaller element 37.

In Fig. 15 there is illustrated a belt buckle of a substantially oval type. The body of larger buckle element 40 is considerably extended, whereas smaller element 41 is relatively diminutive as compared with the larger element, but in every other respect the construction and operation of this modification is similar to that described previously.

Referring now to Figs. 16 and 17, lower buckle element 42 corresponding to the elements designated as "larger" in the description of Figs. 1 to 15, is wider than the upper buckle element 43, which latter corresponds to the element designated above as "smaller" elements. As will be readily observed, however, that upper element 43 is substantially longer than element 42, and that its central portion 44 is in the form of an extension of its elongated body. That extension operates or slides within recess 45 of the lower element. It will be observed that the central area of the upper element is provided with a recess 46 so that a belt passed through the slots of the two elements will not extend above the upper face of element 43. In all other respects, however, this modification functions in the same manner as the previously described embodiments.

A somewhat different construction from those already described is illustrated in Figs. 18 and 19. In this embodiment there are also employed two distinct buckle elements, however, one of the elements is formed from and constitutes an integral part of the belt body. The other element is a buckle structure 47 provided with a peripheral, endless frame 48 and two bars 49 and 49', which are disposed in a plane below that of frame 48. Bars 49 and 49' divide the so-to-speak recessed

portion of the buckle structure into three slots and serve for the attachment and adjustment of belt end 50, in that the latter is first passed over bars 49' and 49, then around bar 49, and back and over bar 49' and out from below its continuation 51, which latter rests against the lower face of frame 48. The other end 52 of the belt engages the vertical side members of the buckle frame.

It will be observed that the belt body has cut-outs 53 whereby flaps or lips 54 are formed, which lips overlie the two side portions of the frame, while the portions of the belt body at both sides of the cut-outs pass on the underside of the frame. By this interengagement of the frame and the belt portions the relative movement of belt end 52 in respect to the frame is prevented, while the adjustment of the belt as to its length is facilitated by the movement of belt end 50 over bars 49 and 49'. The portions of fixed belt end 52 in engagement with frame 48 possesses, what is to be considered, a bar between flaps 54, and takes the place and the function of the "larger" frame element in the previously described embodiments of the present invention, whereas bars 49 and 49' together with the adjustable end 50 of the belt serves in the place of the smaller buckle element. The position of the adjustable end of the belt in this modification is reversed in that the fixed end of the belt is on top. When pull is exerted on fixed end 52 and belt body 51, the impinging action on the fixed end of the belt by the adjustable end thereof prevents further movement of the belt. In order to adjust the belt, end 52' of the fixed belt portion must be held or pulled to the right so as to free that portion of belt end 50 which engages bars 49 and 49', and not until that portion is free can belt end 50 be adjusted.

In the previously described arrangements an adjustment of the belt is not possible while the "small" elements of the belt buckles are in abutting position with one edge of the recess in the "larger" buckle element. In other words the smaller buckle element must be placed to a central position, such as indicated in Fig. 1.

It is to be noted in all of the embodiments illustrated that each buckle unit is composed of two distinct buckle elements, and that each of the elements has at least one bar, or what may be considered a bar formation, such as shown in Figs. 18 and 19 between the two tongues 54, and that these bars are disposed at right angles to the longitudinal center line of the strap or belt body. Another feature of the present development resides in the fact that at least one of the buckle elements constitutes or possesses an endless peripheral frame or rim and that one buckle element is operative within such frame or rim structure of the other element. To all practical purposes both buckle elements may virtually be considered frame structures, so that it may be said that one frame structure operates within the other frame structure.

The construction of the double buckle element is of particular interest where diminutive adjusting devices of this type are essential, such as in the manufacture of shoes, where a correct adjustment of straps becomes an important feature for the comfort of the wearer, or in the field of ladies' undergarments, where emphasis is laid upon easy and positive adjustment of shoulder and hosiery supports.

While only a few modifications of the present development are illustrated, be it understood that variations and changes may be imparted therein in order to meet various conditions, without departing from the scope of the present invention as defined in the annexed claims.

I claim:

1. In a fastener for adjusting belts, straps or the like, a lower member and an upper member, at least one opening in the lower member which permits of threading the upper member through the lower member, the upper member resting on and at least partly overlapping both ends of the lower member in operative position, one strap portion immovably associated with one of said members in normal use of the fastener, another strap portion passing always in the same direction along the lower member and through the lower member, then passing along at least a part of the upper member, said another strap portion being immovably associated with the upper member during normal use of the fastener, said another strap portion again passing through the lower member and finally along the lower member, thereby maintaining the upper member in operative position.

2. A fastener, as set forth in claim 1, in which said lower and upper members comprise frame members, said lower member being larger than said upper member, and the outer peripheral portions of the smaller member engaging corresponding inner complementary portions of the larger member, in order to prevent relative movement between said two members.

3. A fastener as set forth in claim 1, in which said lower and upper members comprise endless frame structures, said lower member having one shallow and one deeper depression whereby an endless peripheral rim is formed and said upper member fits into the rim of said lower member, and the deeper depression provides a passage for the first strap portion.

4. A fastener, as set forth in claim 3, in which the thickness of said upper member substantially corresponds to the depth of the shallow depression in said lower member which is of a shape similar to that of the interior complementary portion of said lower member.

5. A fastener, as set forth in claim 1, including a cross bar member extending transversely within said upper member and defining two transverse openings for passing said other strap portion therethrough.

6. A fastener, as set forth in claim 1, in which said upper member has tongue extensions extending through corresponding slots in the said another strap portion and engages opposite top faces of said lower member.

7. In a fastener for adjusting belts, straps or the like, a lower member and an upper member, at least one cross bar extending transversely within the lower member and defining two transverse openings one of which permits of threading the upper member through the lower member, the upper member resting above the cross bar and at least partly overlapping both ends of the lower member in operative position, one strap portion immovably associated with one of said members, another strap portion passing always in the same direction along the lower member and through one of the transverse openings of the lower member, then passing along at least a part of the upper member, said another strap portion being immovably associated with the upper member during normal use of the fastener, said another strap portion again passing through the other of the transverse openings of the lower member and finally along the lower member,

thereby maintaining the upper member in said operative position.

ANNA NEUMANN.

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