G. L. GILBERTHORPE.

BUCKLE.

APPLICATION FILED JULY 31, 1914.

1,212,622. Patented Jan. 16, 1917.

Fig 1.

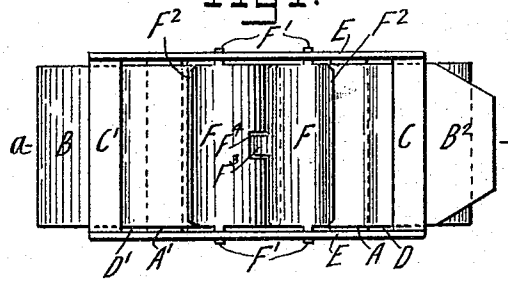


Fig 2.

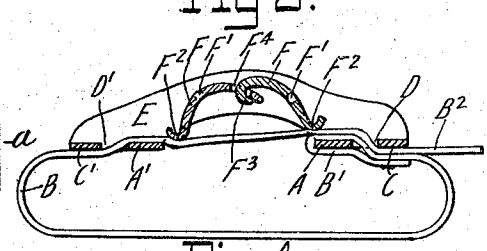


Fig 3.

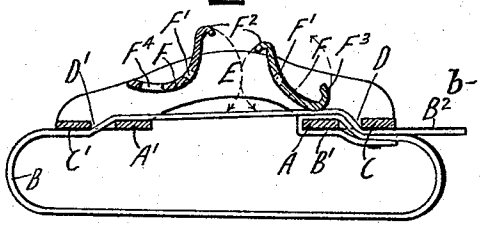


Fig 4.

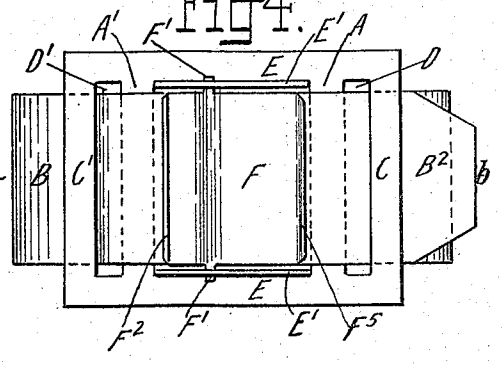


Fig 5.

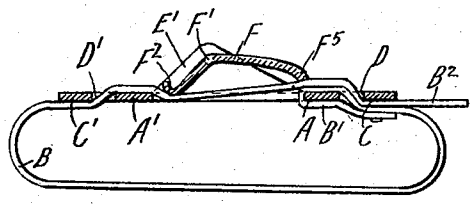


Fig 6.

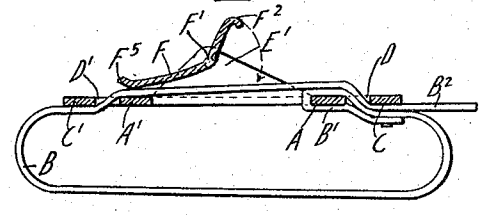
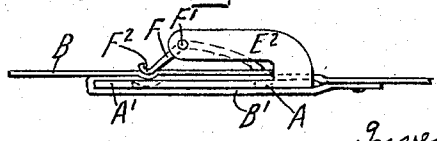


Fig 7.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE LEWIS GILBERTHORPE, OF CHATSWOOD, NEAR SYDNEY, NEW SOUTH WALES, AUSTRALIA, ASSIGNOR TO GILBERTHORPE BUCKLE LIMITED, OF SYDNEY, NEW SOUTH WALES, AUSTRALIA, A CORPORATION OF NEW SOUTH WALES, AUSTRALIA.

BUCKLE.

1,212,622. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed July 31, 1914. Serial No. 854,312.

To all whom it may concern:

Be it known that I, GEORGE LEWIS GILBERTHORPE, a citizen of the Commonwealth of Australia, residing at Chatswood, near Sydney, New South Wales, Australia, have invented new and useful Improvements Relating to Buckles, of which the following is a specification.

This invention relates to an improved buckle which is intended to supersede the ordinary combined tongue and chape buckle, and to wholly dispense with the piercings commonly made in leather and fabric straps and bands to admit of the tongue being inserted therein, a number of such piercings being provided to meet the varying dimensions of articles, &c., which it is required to encircle.

The invention can be applied to all kinds of leather and fabric strappings which require to be secured in variable positions, and is capable of being more accurately adjusted and much more quickly and securely fastened than ordinary tongue buckles may be. Its construction embraces the use of a main keeper frame, having parallel side pieces set the width of the strap apart, and joined together by two or more transverse bars designated keeper and seating bars. To the former one end of the strap is secured, while the latter is used to take the transverse pressure of a tumbling plate carried upon side projecting pins which are inserted in the parallel parts of the keeper frame. These may be upwardly flanged for the purpose. There may be two such tumbling plates, one made to overlap the other and having a turned over part arranged to interlock with the sub-tumbler. Each tumbler is made a suitable width, to allow its gripping edge, which is on the heavy side of the pivots, coming sufficiently near to its companion seating bar, that when the leather or fabric is placed between them, a tightening and gripping contact may be produced when the material is strained in the desired direction. The tumbler or tumblers may be made in a variety of shapes, slightly curved downwardly from the projecting pin, the reverse edge being curved in the contrary direction, so that when the strain on the fabric is oppositely applied, the tumbler will kick away from the fabric, and a reverse motion be imparted to it which will wholly free the material and provide for the smooth running of the fabric between the parts. The keeper frame may be formed with flat marginal parts to give it the appearance of an ordinary buckle, and the flanges to receive the tumbler plate pins may be turned at right angles thereto.

The buckle is equally serviceable for heavy and light leather and fabrics, the tumbler in either case being capable of short gripping adjustment by which slack is avoided such as occurs in straps which are pierced and associated with a tongued buckle.

The invention can be applied as a fastening for wearing apparel and harness and such like.

Referring to the accompanying drawings, which form part of this specification: Figure 1 is a plan of a buckle made according to this invention, with double tumbling plates in engagement with each other, the main keeper frame having vertical side parts associated with flat attachment, seating, and keeper bars. Fig. 2 is a central, vertical, sectional elevation on line *a*—*a* of Fig. 1, showing tumbler plates set in their gripping and engaged positions. Fig. 3 is a central, vertical, sectional elevation also on line *a*—*a* of Fig. 1, but showing tumbler plates in their reversed positions, leaving strap free running. Fig. 4 is a plan, showing a buckle with a single tumbling plate, the keeper frame having flat marginal side parts with turned up flanges, also flat attachment, seating, and keeper bars. Fig. 5 is a central, vertical, sectional elevation on line *b*—*b* of Fig. 4, showing tumbling plate in the engaged position. Fig. 6 is a central, vertical, sectional elevation also on line *b*—*b* of Fig. 4, but with tumbling plate in the reversed position, leaving strap free running. Fig. 7 is a side elevation of a single tumbling plate buckle, with turned up flanges arranged with the tumbling plate for gripping the inserted material transversely.

In carrying this invention into effect so as to embrace the use of various kinds of pliant material, and also material of a stiff nature, some slight modifications would be necessary in the arrangement and construction of the parts, both of the buckle frame and the tumbling plate or plates, so as to obtain the desired gripping or vise like action which is essential to prevent displacement when ten-

sion or strain is put upon the material. But in all cases the same essential combination of parts, comprised in the use of a swinging tumbling plate or plates and a seating bar or bars, is employed.

The main keeper frame of the buckle is preferably formed of a single piece of metal stamped out to the required shape, whether the side pieces be arranged vertically as in Figs. 2 and 3, or flat with vertical up-turned parts, as in Figs. 4, 5, and 6. In Figs. 1 and 3, the said frame is formed with a transverse attachment bar A, around which the strap B or the looped end B^1 of the strap B, is secured. In close proximity is the keeper bar C, separated from the transverse attachment bar A by the opening D to receive the forward end B^2 of the strap B. A seating bar A^1 is disposed oppositely to the bar A, and a further keeper bar C^1, separated from A^1 by the opening D^1, completes what may be termed the foundation part of the frame. It will be observed that of the four transverse bars of the frame the attachment and seating bar are the two middle bars, leaving a rather broad interval between them, the other two bars being in close proximity to them respectively and leaving only space for the passage of the strap. Vertical side parts E are, in the first instance, shaped out of the flat sheet metal of which the buckle may be constructed, and are subsequently turned upward at right angles to the foundation part being extended forward over the latter, thus the whole frame can be formed when stamped.

In Fig. 4, the side parts E are shown flat, and the turned up flanges E^1 are provided to support the tumbler plate F, and are pierced for the pivot pins F^1, which are an integral part of the tumbler plate F, to move in. Each plate is provided with a gripping edge F^2, which is turned over to provide a stiffening at that edge, and serves as an additional weight on that side. The location of the pivots F^1 is determined by the desired distance the gripping edge F^2 is to be away from the edge of the seating bar A^1, plus the thickness of the material to lie between those two parts.

Where double tumbling plates are used, the parts F^2 would both have a bearing upon the fabric, and in Fig. 2, one of such would be in contact with the fabric passing around and over the attachment bar A, which, in this case, serves as a seating bar the same as A^1.

When the strap B is passed through the opening D^1 and over the seating bar A^1, and carried forward onto the loop B^1, with the tumblers in their reversed position as shown in Fig. 3, and if the end B^2 be inserted in the opening D, no impediment is offered to its free movement, but, when the plates F are thrown over with the gripping edges F^2 pressing down upon the material, a kink is formed in the material, and if tension or strain be applied, the gripping edges are drawn downwardly, and a self tightening effect produced, which prevents the liberation of the material thus confined as in a vise. The locking or engagement of these two plates is obtained by the hook part F^3 formed on the one plate, entering into the piercing F^4 of the other plate.

In Fig. 3, the direction of movement of the tumbling plates to insure the proper contact and the desired bending of the fabric by the gripping edges F^2, is indicated by the circular arrows.

Where a single tumbling plate is employed, as in Figs. 4 to 7, the functional use of the gripping edge F^2 is the same as where double tumbling plates are used, but both transverse edges F^2 and F^5 can be utilized for gripping purposes, F^5 pressing down upon the fabric passing over attachment and seating bar A, and F^2 pressing against the fabric passing over the seating bar A^1. The tension put upon the fabric in the direction indicated by the arrows, is productive of the necessary gripping action in the same manner as for the double tumbling plates in Fig. 2.

To use the tumbler plate in a keeper frame where the fabric to be gripped is laid as shown in Fig. 7, a single seating bar A^1 is used, and the tumbling plate F pivoted in between hook shaped vertical side parts E^2, the action of the tumbler being essentially the same as before described.

Having now described my invention, what I consider novel and desire to secure by Letters Patent is:—

1. A buckle frame having four fixed transverse bars, the two middle ones being arranged with a considerable interval between them and the other two bars being arranged as keeper bars in proximity to the said two middle bars, to be used as described, in combination with a pair of reversible tumbler plates arranged to bind said strap against said middle bars in one of the positions of said tumbler plates, one of said tumbler plates being provided with a slot and the other with a hooked part for entering said slot to lock said tumblers against endwise or lateral separation.

2. A buckle frame having a pair of raised rigid side-parts and four transverse bars, in combination with a pair of reversible tumbler plates, pivoted near their middle points to said side parts and arranged to grip a strap against the two middle bars, the strap being attached to one of said middle bars and passed between them and the other two bars, which serve as keepers, and the said tumbler plates being constructed to interlock with each other by a hook and a slot when in their gripping position.

3. A buckle frame provided with a pair of raised rigid side parts and four rigid transverse bars, two of these bars being an attachment bar and a seating bar arranged with a considerable interval between them, and the other two bars being keeper-bars arranged at slight intervals from the other bars for the passage of a strap between them, and means for gripping a strap against said seating bar at least, said means being pivoted to said raised side parts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE LEWIS GILBERTHORPE.

Witnesses:

REG. W. S. HARRIS,

E. C. BARNES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."