No. 819,180. PATENTED MAY 1, 1906.

E. M. SOUTHWICK.

BUCKLE.

MODEL. APPLICATION FILED NOV. 8, 1899.

Fig. 1.

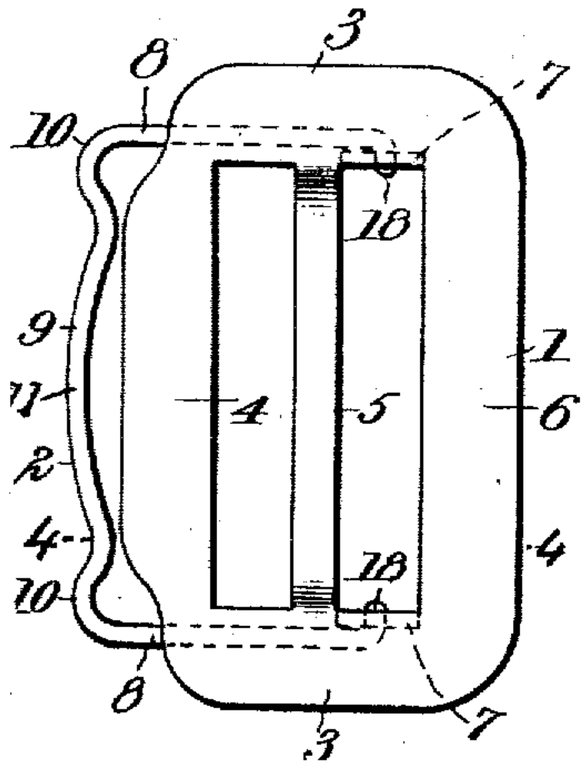


Fig. 2

Fig. 3.

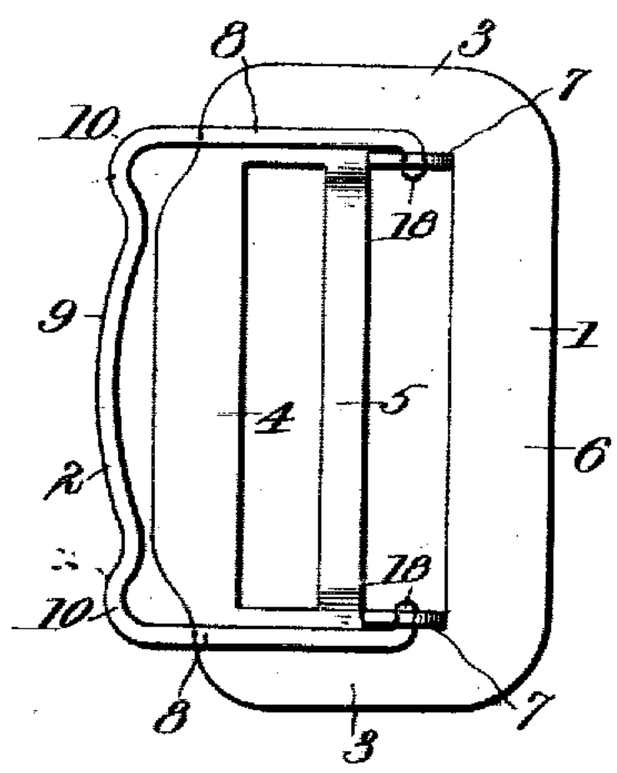


Fig. 4.

Fig. 5.

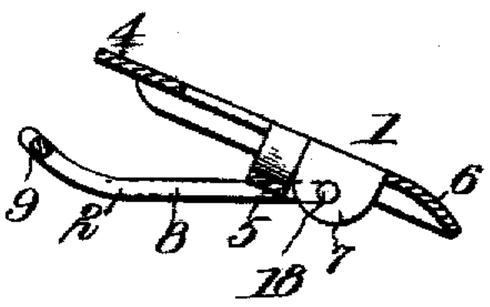


Fig. 6.

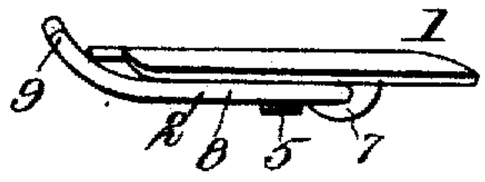
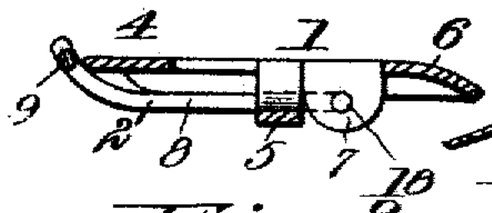


Fig. 8.



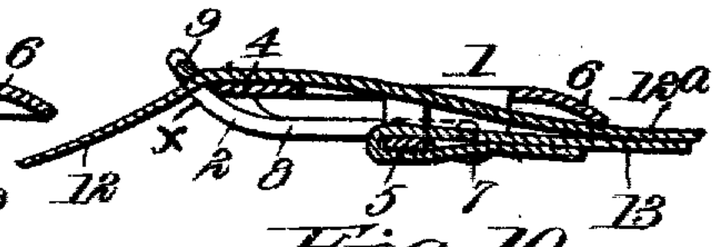
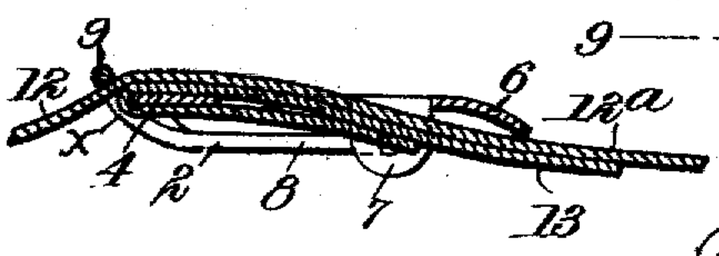
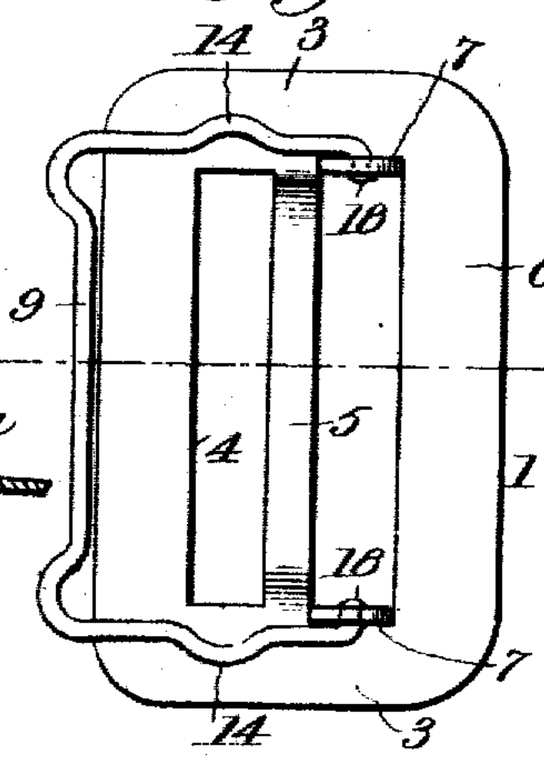


Fig. 10.

Fig. 7.





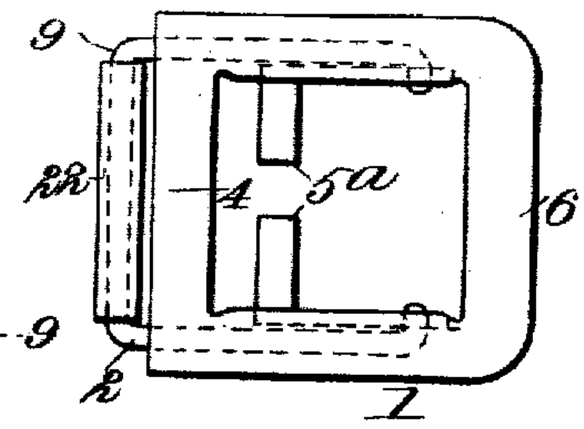
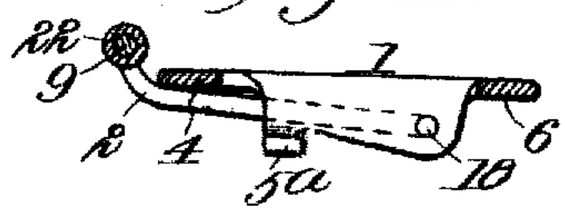


Fig. 11.

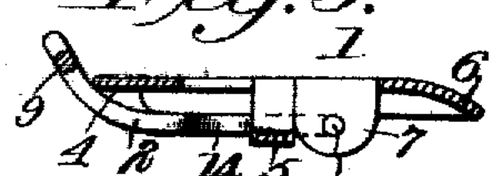


WITNESSES:

C. H. Walker.

H. J. Doerner Doyle

Fig. 9.



INVENTOR

E. M. Southwick

BY

Wright, Brown & Quinby

Attorneys

UNITED STATES PATENT OFFICE.

EDWARD M. SOUTHWICK, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO GEORGE A. WELD, OF WINCHESTER, MASSACHUSETTS.

BUCKLE.

No. 819,180. Specification of Letters Patent. Patented May 1, 1906.

Application filed November 8, 1899. Serial No. 736,260.

To all whom it may concern:

Be it known that I, EDWARD M. SOUTHWICK, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Buckles, of which the following is a specification.

This invention consists of a buckle having certain novel features of construction and arrangement which I shall now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a plan view of a buckle constructed in accordance with my invention. Fig. 2 represents an edge or side elevation thereof. Fig. 3 represents a reverse plan view. Fig. 4 represents a section on line 4 4 of Fig. 1. Fig. 5 represents a similar view to Fig. 4, with the jaws of the buckle opened out. Fig. 6 represents a sectional view of the buckle attached to a base and gripping a strap. Fig. 7 represents a similar view to Fig. 5, showing a slight modification. Fig. 8 represents a reverse plan view of a modified form of buckle. Fig. 9 represents a section on line 9 9 of Fig. 8. Figs. 10 and 11 represent plan and sectional views of another modified form of buckle.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, 1 designates a frame composed of two side bars 3 3 and three cross-bars 4, 5, and 6, joining said side bars. Two ears 7 7 are turned down from the side bars 3 between the cross-bars 5 and 6, and to said ears is pivoted at 18 a tongue or jaw 2, composed, as herein shown, of wire bent to form two side portions 8 8 and a transverse or strap-crossing portion 9 at right angles with the said side portions. The portions 8 of the tongue or jaw 2 lie underneath the frame 1, and said jaw is bent or curved upwardly at *x*, bringing the portion 9 slightly above the plane of the said portions 8 and substantially in the plane of said frame, as shown in the side and sectional views. The portion 4 of the frame 1 presents an edge jaw adapted to coöperate with the portion 9 of the jaw or tongue 2 to grip or pinch the strap between them, the curved portion *x* permitting said tongue to yield relatively to said portion 4.

The frame edge jaw 4 and the jaw 9 of the tongue 2 do not overlap—that is, one does not lie on the other at any time—but when in operative gripping relation the part 9 passes or snaps somewhat beyond the part 4, as shown in Figs. 2, 4, 6, 7, 9, and 11.

In Figs. 6 and 7, 13 represents a base or strap end, to which the buckle is attached, and 12 represents the strap which is gripped by the buckle. In Fig. 6 the strap end 13 is attached to the buckle by being passed below the cross-bar 6 on the frame 1 and folded around the cross-bar 5 and secured upon itself. The base 13 may, however, be attached to the gripping cross-bar 4, as shown in Fig. 7, the cross-bar 5 being omitted. Except for the omission of the cross-bar 5 the construction of the buckle shown in Fig. 7 is the same as in Fig. 4 and operates in the same way.

In Figs. 1 and 2 it will be seen that the cross part or bar 9 of the jaw 2 is bent or undulated from end to end. The bar 9 is bent away from the bar 4 at 10 10 near its ends and also at its middle 11, thereby leaving free spaces behind said points between the bar 9 and the edge of the bar 4. The spaces at the ends may be increased by cutting away the edge of the bar 4 at or near its ends behind the points 10, as shown in Figs. 1 and 2. The bending or undulation of the cross-bar 9 has a double function. It adds springiness or elasticity to the jaw 2, enabling the bar 9 to spring away from the edge of the bar 4 in passing the latter, thus adapting the buckle for use with straps of somewhat different thickness, and it also provides free spaces between the strap-gripping portions of the jaws to accommodate seams or thickened portions in the straps upon which the buckle is used. The straps at the backs of trousers are ordinarily provided with seams on their side edges, which render the edge portions of the strap thicker than the middle portions. In applying the buckle to straps of this character it is evident that the said thickened or seamed edges of the strap could be made to occupy the spaces behind the bends 10 when the buckle is closed on the strap, the actual gripping being done against the thinner part of the strap. Vest-straps are frequently made with a seam down the center, which seam would be accommodated in the space behind the middle bend 11.

The cross-bars 4 and 9 are brought sub-

stantially together between the bend 11 and the bends 10, the distance separating them when closed being regulated according to the thickness of the straps upon which the buckle is to be used. Springiness may also be imparted to the tongue or jaw 2 in order to enable it to assume the proper strap-gripping relation to the frame edge 4 to grasp a strap having a different thickness from that represented in Fig. 6 by bending or undulating the side bars of said jaw 2, as indicated at 14 14 in Figs. 8 and 9. Fig. 8 also shows the middle bend of the bar 9 and the cut-away portions of the bar 4 omitted.

With a buckle constructed as above explained it is not necessary to serrate either of the strap-gripping portions of the jaws in order to obtain a firm grip on the strap.

It will be observed that in the buckles shown in Figs. 1 to 9 it is necessary to limit the closing movement of the jaws at a point where they are in strap-gripping relation to each other. This is done by merely providing coacting abutments on the two jaws. In the buckles described this is accomplished by having the side bars 8 of the under jaw 2 pass underneath the side bars of the frame 1 in such manner that the curved portion *x* comes into engagement with the forward edges of said latter side bars as the jaws close into the strap-gripping relation.

In Figs. 10 and 11 a buckle is illustrated in which the jaws are related practically the same as in the form illustrated in Figs. 1 to 6, but in which the cross-bar 9 on the under jaw 2 is provided with a roll 22, consisting of a cylindrical sheath or sleeve loosely surrounding said cross-bar. In this case the cross-bar 9 forms a bearing or support for the roll and acts through the medium of the roll to grip the strap. The edge of the frame 1 engages one side of the strap and moves it as the jaws close and the bite increases, while on the other side the roll 22 revolves around the cross-bar 9 and presents a rolling abutment for the strap to move against. The closing of the jaws to an extremely tight holding relation with the strap is thereby greatly facilitated, and, conversely, the opening of the buckle to release its hold on the strap is eased. In this form the cross-bar is shown at 5^a as a divided or two-part bar to which the strap end is attached.

In each of the forms shown the frame is provided with means to which one end of the strap 13 may be connected and with another cross-bar 6, which is above the plane of the attached end of the strap. The opposing or gripping jaws constitute what may be for convenience referred to as the "front" of the buckle, while the cross-bar 6 is at the rear of the buckle or frame. The location of the cross-bar 6 as described provides a space between said cross-bar and the portion of the strap which extends rearwardly from the cross-bar 5. When the free end 12^a of the strap after passing between the jaws is passed under said bar 6, so as to occupy or fill said space, the jaws cannot become accidentally displaced or disengaged because of any pressure exerted upon the said bar 6. This is because the space between the bar 6 and the strap 13 is filled out by the strap end. Therefore when such space is so occupied the bar 6 cannot be pressed down, so as to lift the part and disengage the strap at the gripping-jaws; but when the free end of the strap is removed from said space, so as to leave the space free, a downward pressure upon said bar 6 will throw the jaws 9 and 4 out of their gripping relation by raising the jaw 4, the frame rocking on the pivotal point of the frame and tongue, said pivotal point being in front of the bar 6; but when the strap-gripping portions 4 and 9 have been snapped slightly past each other into strap-gripping relation and when the free end of the strap has been tucked into the space below the cross-bar 6 it prevents the depression of the bar 6, and thus holds and maintains the gripping relation of the parts 4 and 9.

My invention includes a construction in which the buckle is provided with a strap-end-attaching member having such a position relatively to the hinged point and the gripping-point as to cause a pulling movement on said member to close the jaws to their strap-gripping relation. In the embodiment of my invention illustrated in Figs. 1 to 6, inclusive, the construction is such that when the jaws are moving toward and to their strap-gripping relation an upward pull is exerted on the portion 9 of the tongue or jaw 2 and a downward pull on the bar 5 of frame 1, said bar 5 constituting the strap-end-attaching member of the buckle shown in said figures. In other words, when the strap end 13 is connected, as shown in Fig. 6, and a strap 12 is introduced to be gripped and the parts move from the position shown in Fig. 5 to the position shown in Fig. 6, a pull upon the straps 12 and 13 in opposite directions or apart from each other will tend to exert an upward pull on the portion 9 of one jaw and a downward pull will be exerted on the cross-bar 4 of the buckle, owing to the pull of the strap 13 on the bar 5.

I claim—

1. A buckle comprising a frame having an edge, and a tongue pivoted thereto at a point below the plane of the frame, said edge and tongue presenting opposing jaws formed to bite one part of an interposed strip, said frame edge and tongue being relatively proportioned and connected to bite the strip part without overlapping, a portion of said frame constituting a stop to limit the movement of the tongue so as to permit the jaw thereof to

snap slightly past the frame edge and to also prevent the tongue from passing the frame edge beyond the strip-gripping relation, a bar for the attachment of another part of the strip, said bar being connected with the tongue and located between the said frame edge and the pivotal point of the tongue, the frame having a bar 6 at the rear of the pivotal point of the tongue and above the plane of the attached part of the strip to form a space between said bar and said strip, whereby the first-named part of the strip may be passed under said bar 6 to fill said space and prevent the accidental disengagement of the said jaws.

2. A buckle comprising a frame having an edge, and a pivoted tongue, said edge and tongue presenting opposing jaws formed to bite an interposed strip, said frame edge and tongue being relatively proportioned and connected to bite without overlapping, a portion of said frame constituting a stop to limit the movement of the tongue in one direction and prevent it from passing the frame edge beyond a strap-gripping relation, said tongue being undulated.

3. A buckle comprising a frame having an edge, and a pivoted tongue, said edge and tongue presenting opposing jaws formed to bite an interposed strip, said frame edge and tongue being relatively proportioned and connected to bite without overlapping, a portion of said frame constituting a stop to limit the movement of the tongue in one direction and prevent it from passing the frame edge beyond a strap-gripping relation, the biting portion of said tongue being undulated in form

4. A buckle comprising a frame and a tongue pivoted thereto, said tongue and one edge of said frame presenting opposing jaws formed to bite an interposed strap, said frame and said tongue being relatively proportioned, and connected to bite without overlapping, a portion of said frame constituting a stop to limit the movement of the tongue in one direction and prevent it from passing the frame edge beyond a strap-gripping relation, one of the said opposing jaws having curved portions adapted to permit the jaws to yield relatively to each other substantially in the plane of the buckle.

5. A buckle comprising hinged jaws having relatively resilient strap-gripping portions formed to bite the strap without overlapping, and constructed to exert a frictional hold on the strap, one of the jaws forming a stop to limit the relative movement of the jaws in one direction to prevent them from passing beyond a strap-gripping relation, said buckle being provided with a strap-end-attaching member having a position relatively to the hinged point and the gripping-point, to cause a pulling movement on said member to close the jaws to their strap-gripping relation.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDWARD M. SOUTHWICK.

Witnesses.

A. D. HARRISON

C. F. BROWN