

Sept. 29, 1970

J. V. FERRANDO

3,530,546

QUICK RELEASE BUCKLE

Filed April 16, 1968

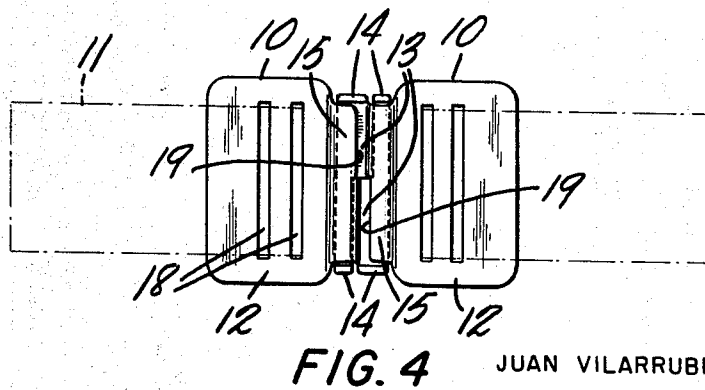
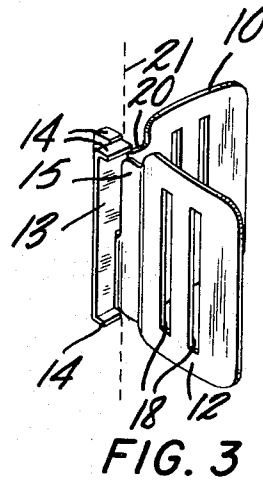
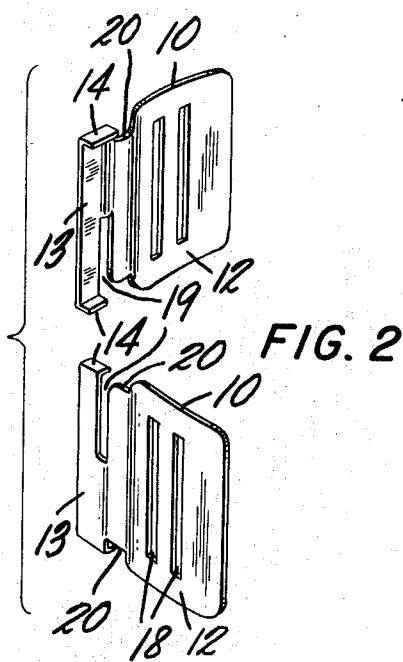
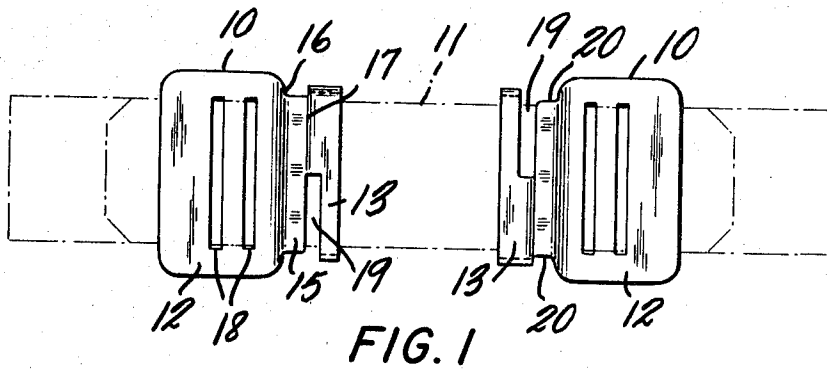


FIG. 4

INVENTOR.
JUAN VILARRUBIS FERRANDO

BY
Brunbaugh, Free, Grasso & Donhue

his ATTORNEYS.

1

2

3,530,546

QUICK RELEASE BUCKLE

Juan Vilarrubis Ferrando, Barcelona, Spain, assignor to Nemrod-Metzler, S.A., Barcelona, Spain, a corporation of Spain

Filed Apr. 16, 1968, Ser. No. 721,836

Int. Cl. A44b 11/25

U.S. Cl. 24-75

1 Claim

ABSTRACT OF THE DISCLOSURE

A quick release buckle comprising two buckle elements each including adjacent plate portions lying in different planes and integrally connected by a bend line to provide side-by-side raised and recessed portions with an open-ended slot between them and extending generally along the line of the bend, the buckle elements being coupled by orienting them in inverted relation and at angles to each other and interengaging the slots such that the line of intersection forms a hinge line between the elements, the raised portions of the buckle elements being accommodated in the recessed portions when the elements are pivoted toward the same plane, and means interlocking the recessed and raised portions to prevent relative movement between the buckle elements when the buckle elements are pivoted toward the same plane, the buckle elements being released by pivoting the buckle elements relative to each other along the hinge line to separate the interlocking means and then moving the buckle elements relative to each other to disengage the slots.

This invention relates to a quick release buckle comprising two buckle elements which can be easily and securely coupled and quickly released in the event of emergency.

The buckle elements of the present invention contain oppositely disposed open-ended slots which can be interengaged when oriented at angles to each other to hinge the buckle elements together. When so hinged together the tension of the belt will tend to pivot the buckle elements toward a common plane, in which position locking portions of both elements interengage with each other to prevent relative movement between the elements. The buckle elements are, nevertheless, readily released by pivoting them relative to each other along the hinge line to disconnect the locking portions and then moving the buckle elements relative to each other in opposite directions to disengage the slots.

In a preferred embodiment of the quick release buckle of the present invention, both buckle elements are of identical construction.

The quick release buckle of the present invention is adapted for general use as a coupling, but it is particularly adapted for emergency release, for example, of equipment carried by underwater swimmers.

For a complete understanding of the present invention reference can be made to the detailed description which follows and to the accompanying drawing in which:

FIG. 1 is a front view of the quick release buckle of the present invention with the elements thereof separated;

FIG. 2 is a perspective view showing the buckle elements oriented before they are coupled;

FIG. 3 is a view similar to FIG. 2 but showing the buckle elements hinged together; and

FIG. 4 is a front view similar to FIG. 1 with the buckle elements coupled.

Referring to the drawings, the quick release buckle of the present invention in preferred form comprises two identical buckle elements 10 connectable to the ends of

a belt 11 and capable of being locked together when one is inverted with respect to the other.

The buckle elements 10 are preferably made of bendable plate material, such as stainless steel, and each includes a portion 12 connectable to a belt, a locking portion 13 having its opposite ends bent rearwardly to form locking lips 14, and a recessed portion 15 intermediate the portions 12 and 13 and integrally connected to them by bend lines 16 and 17. The adjacent plate portions 13 and 15 are thus offset in different planes with the portion 13 raised and the portion 15 recessed when viewed from the front face of the buckle element.

The buckle portion 12 is shown having two spaced apart parallel slots 18 to facilitate the connection with the end of the belt, but any other suitable means for connecting the belt and belt buckle elements can be used.

An open ended slot 19 is formed between the portions 13 and 15, and the slot is generally in line with the bend line 17.

The length of the recessed portions between the opposite edges 20 thereof is slightly less than the spacing between the locking lips 14. Also, the width of the recessed portion between the bend lines 16 and 17 is at least as wide as the width of the locking portion 13 adjacent the slot 19. This will permit the locking portion 13 of one buckle element to be accommodated within the recessed portion 15 of the other buckle element and between the locking lips 14, so that the locking lips 14 are engageable with the edges 20 of the recessed portion to prevent relative movement between the buckle elements to disengage the slots.

The buckle elements are coupled by orienting the buckle elements at angles to each other in upside down relationship, as illustrated in FIG. 2, and interengaging the slots, as illustrated in FIG. 3, such that the line 21 of intersection forms a hinge line between the buckle elements. When the buckle elements are coupled in the manner shown in FIG. 3, the tension of the belt will tend to pivot the buckle elements on the hinge line 21 toward the same plane, as shown in FIG. 4. As the buckle elements are pivoted from the position illustrated in FIG. 3 to the position illustrated in FIG. 4, the rear surface of both locking portions 13 will move toward the front faces of the recessed portions 15, interlocking the locking lips 14 with the edges 20. The buckle elements cannot be accidentally disconnected in normal use when they are in the relative positions shown in FIG. 4.

The buckle is quickly released by reversing the locking procedure, that is to say, by pivoting the buckle elements along the hinge line 21 to the relative positions illustrated in FIG. 3, thereby separating the locking lips 14 from the opposite edges 20 of the recessed portion, and then moving the buckle elements relative to each other to disengage the slots, as shown in FIG. 2.

The buckle elements can be shaped to accommodate the surface which they will engage. For example, the buckle elements are shown slightly curved to rest against the waist of the user.

The quick release buckle of the present invention has been shown in a single form and by way of example only, and obviously many other modifications and variations are possible within the spirit of the invention. For example, the buckle elements need not be made identical as shown in the drawings, but rather the depth of the slot 19 of one can be longer and the depth of the corresponding slot of the other element can be made shorter. Also, the locking lips 14 can be formed at opposite ends of the portion 20 and project forwardly to accommodate between them the opposite edges of the locking portion 13. The invention, therefore, is not intended to be limited to any

3

specified form or embodiment except insofar as such limitations are expressly set forth in the claims.

I claim:

1. A quick release belt buckle comprising two identical plate-like buckle elements made of rigid material and each including a raised belt attachment portion having parallel slots for attachment with a belt, a raised locking portion having the upper and lower ends thereof bent rearwardly to form locking lips, a recessed receptor portion intermediate the raised belt attachment and locking portions and being integrally connected to each by a bend line which recesses the front face of the receptor portion with respect to the front faces of the other two portions, the receptor portion having a length slightly less than the spacing between the locking lips of the raised locking portion, a width slightly greater than the width of the raised locking portion of the other buckle element and a depth which permits the locking portion of the other element to be accommodated therein between the two bend lines, the free edge of the raised locking element of said other buckle element being closely spaced to the bend line between the recessed receptor portion within which it is accommodated and the adjacent raised locking portion, and there being a rectangular open slot along the bend

5

10

15

20

24—201

4

line between the raised locking portion and the recessed receptor portion for receiving the corresponding open slot of the other buckle element so that when the two slots are engaged and moved to the locked position each raised locking portion may be accommodated in the recessed receptor portion of the other buckle element with the locking lips engaging the edges of the recessed receptor portions to prevent relative movement between the buckle elements.

References Cited

UNITED STATES PATENTS

148,864	3/1874	West	-----	24—75
1,047,376	12/1912	Brynteson.		
2,127,498	8/1938	Westphal.		

FOREIGN PATENTS

798,078	8/1935	France.
1,943	1870	Great Britain.

DONALD A. GRIFFIN, Primary Examiner

U.S. Cl. X.R.