

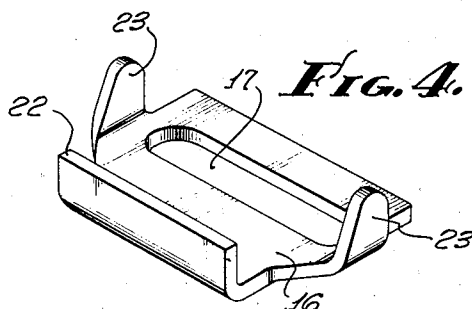
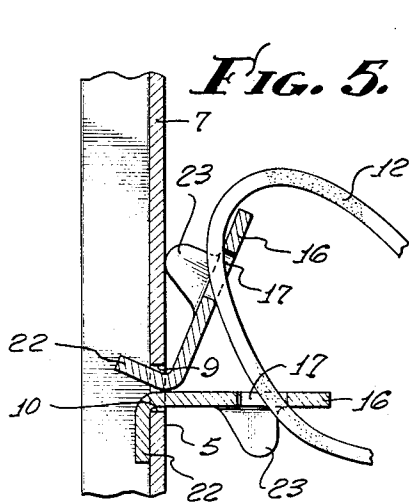
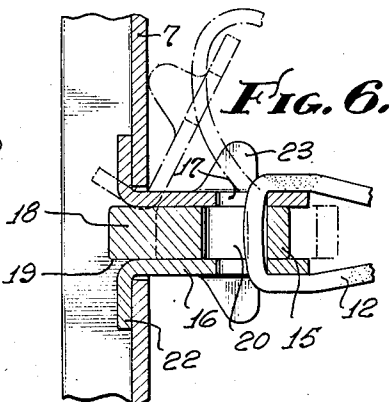
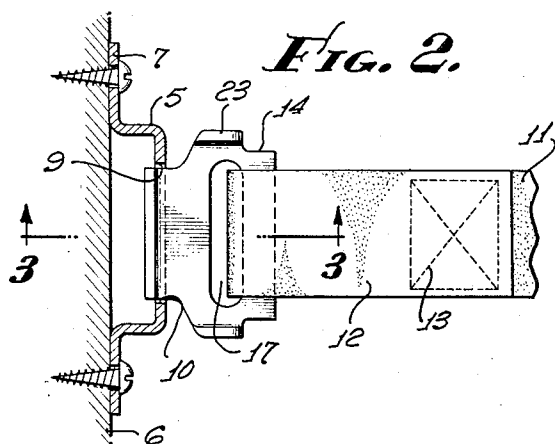
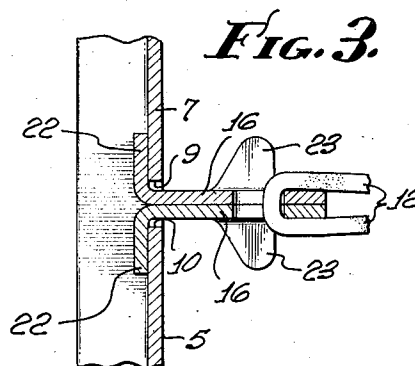
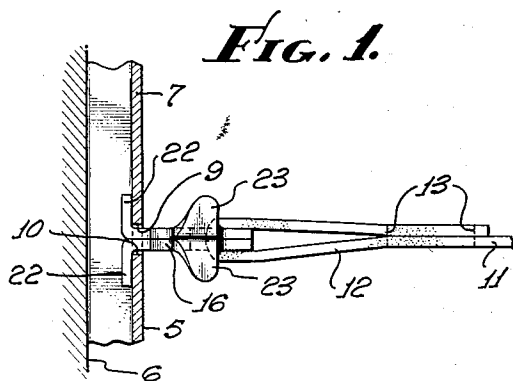
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E. C. ELSNER

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SEPARABLE CONNECTOR

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EDWIN C. ELSNER,
INVENTOR.

BY
Huebner, Bachler & Worrel
ATTORNEYS.

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2,845,680

SEPARABLE CONNECTOR

Edwin C. Elsner, Los Angeles, Calif., assignor to Aeroquip Corporation, Jackson, Mich., a corporation of Michigan

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6 Claims. (Cl. 24—265)

This invention relates to a connector for fastening a strap, web, rope, or the like to anchor means, and is characterized by quick release means enabling fast disconnection therefrom.

This application is a continuation in part of application Serial Number 664,629, filed June 10, 1957, for a "Separable Connector."

The invention is further characterized by simplicity of operation and low cost of manufacture, and it is an object of the invention to provide a separable connector that comprises simple elements, themselves connected only by the strap, web or rope which is to be connected to the anchor means, and which interact to form a positive connector when the strap, web or rope is under tension, and yet may be quickly and readily manipulated for separation from an anchor member to which it is connected.

Another object of the invention is to provide a connector strung on the loop of a strap, web or rope, and comprised of interdependent, but separate and simple, elements in side-by-side relation, which, when the strap, web or rope is under tension, make firm and positive connection with an anchor member, and when the strap, web or rope is slackened off, are adapted for quick and easy manipulation to effect separation from the anchor member.

Further objects of the invention are to provide connector means that are positive in operation, convenient in use, easily installed in a working position, and quickly and easily disconnected therefrom, relatively simple, and of general superiority and serviceability.

The foregoing, as well as other objects and advantages of the invention, will become apparent from a consideration of the description which follows taken in conjunction with the drawings.

In the drawings:

Figure 1 is an edge view of the separable connector embodying my invention, connected to an anchor member which is shown in longitudinal section.

Figure 2 is a side elevational view of the connector, connected to an anchor member which is shown in cross-section.

Figure 3 is a cross-sectional view as taken on the line 3—3 of Figure 2.

Figure 4 is a perspective view of one of the elements of the connector.

Figure 5 is a cross-sectional view, also taken on the line 3—3 of Figure 2, but showing the connector in the process of being separated from the anchor member.

Figure 6 is a view similar to Figure 3 of a modification of the invention.

An anchor member 5 is fastened to a wall, floor, or other base or support 6. The anchor 5 is formed so as to have a member 7 spaced from the wall or floor 6 and adapted to separately connect to the connector 14. To accomplish this the member 7 is provided with an elongated slot or opening 9, the width thereof being

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defined between slot-defining lips 10. It will be understood that member 7 is preferably of metal or other material capable of withstanding considerable pull or stress in a direction away from the base wall or floor 6.

A strap, web, rope, or the like, 11, is formed into a closed loop 12 at one end thereof. When 11 is in the form of a strap or web, the loop 12 may be created by stitching as at 13, in which case a portion of the strap or web is double backed on itself. Loop 12 may also be formed by other suitable means. The strap 11 is preferably made of pliable material of which woven webbing is exemplary. By way of illustration and not of limitation, webbing made of some of the stronger but softer and more pliable synthetic fibres, such as nylon, is preferred in order to enable the loop 12 to be deformed to various shapes. It will be understood, however, that the strap 11 may comprise a cord or rope, and that such member is intended to include strapping, webbing, cord, rope and similar flexible elongated material.

The loop 12 carries the connector 14 which, by engagement with the anchor member 5, connects the strap 11 to the wall or floor 6.

The connector 14 shown in Figures 1-5 inclusive comprises two similar flanking elements 16, the flanking elements being arranged in side-by-side relationship and having an overall thickness somewhat less than the width of the slot 9. Each of the flanking elements 16 is provided with a slot 17 through which the loop 12 passes, thereby retaining said elements in a side-by-side relationship to each other. The loop 12 constitutes a common connecting means for the elements 16 of the connector 14.

Each element 16 is provided with a lateral flange 22, the flanges of said elements extending in opposite directions. Said flanges are preferably formed as bent portions of the elements 16, and the dimension between the longitudinal outer edges thereof is substantially greater than the width of slot 9 in the anchor member 5. When strap 11 is held under tension as shown in Figures 1 and 3, elements 16 are held in the side-by-side arrangement, and flanges 22 are in hooking engagement with the under side of slot lips 10, and thus the strap 11 is firmly connected to the anchor member 5 and to the wall or floor 6.

The connection between strap 11 and anchor member 5 and wall 6 will be maintained when tension on the strap 11 is eased off to a limited extent, but upon substantial slackening of the strap 11, as suggested in Figure 5, the loop 12 may be spread, permitting a change in the side-by-side arrangement of the elements 16 and the rapid and easy removal of the connector from the anchor member 5 by first enabling the flange 22 of one of the elements 16 to be quickly and easily withdrawn from the slot 9, whereon the other element 16 will readily fall from the slot 9.

Each element 16 is also provided with two lateral flanges 23 of a wing or rocker-arm shape. A winging movement of either element 16 is accomplished in separating the connector from the anchor member 5 by light pressure on the free end of the element toward the anchor means 5, causing the element to rock on the flange 23, which then is resting on the anchor member 5, causing the flange 22 of the element to pop out of the slot 9. Reestablishment of the connection is accomplished in the reverse manner.

It will be realized that the connection will function in the above manner regardless of the length of the elements 16 or whether the strap 11 is a strap, web, cord or rope, or is made of other material.

As shown in Figures 1, 2, 3 and 5, an efficient connector may comprise only the two elements 16. How-

ever, as shown in Figure 6, the connector may be formed with a middle element 15 arranged in side-by-side relationship with the elements 16 and, together with the elements 16, having an overall combined thickness somewhat less than the width of the slot 9. Element 15 has a body 18, which has a lower extension 19 of a length sufficient to allow element 15 to enter slot 9 freely between the elements 16, but extension 19 is substantially shorter than the rest of the body 18.

By way of illustration and not of limitation, in practice the middle element 15 is generally substantially thicker than the element 16 and will serve as a spacer to separate one element 16 from the other element 16 and bring them into close adjacency to the lips 10 of the slot 9. Element 15 is itself provided with a slot 20 through which the loop 12 passes. Again by way of illustration and not of limitation, in practice it has been found advantageous to make the slot 20 wider than the slots 17 so as to permit freer movement of the element 15 in disconnecting.

In disconnecting the connector when the element 15 is a part of the combination, upon slackening of the strap, enabling the loop 12 to be spread in the manner suggested by the dot and dash lines of Figure 6, the element 15 is pulled in a direction away from the member 5 and withdrawn from the slot 9 so as to permit one of the elements 16 to fall into the position shown by the dot and dash lines in Figure 6, and then to be withdrawn from the slot 9 by the winging movement hereinabove described.

While the instant invention has been shown and described herein in what is conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therein within the scope of the invention, which is therefore not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A connector adapted to fit into the opening of an anchor member and carried by the deformable end loop of a strap, the connector comprising two elements strung on the loop and having a total thickness less than the width of the opening, each of the elements being provided at one end thereof with a flange part, the flange parts being oppositely outwardly directed to define a dimension between them that is greater than the width of the opening, whereby, when the elements are inserted in the opening and tension is placed on the strap in a direction away from the anchor member, the flange parts are directed to engage against the underside of the lips of the opening of the anchor member, and each of the elements having rocker-arm flanges formed on the sides thereof directed to engage on the anchor member and provide a winging motion enabling rapid withdrawal of the elements from the opening.

2. A connector adapted to fit into an opening of an anchor member and carried by the deformable end loop of a strap, the connector comprising three elements strung on said loop and having a total thickness less than the width of said opening, the middle element constituting a spacer for the other two elements, each of the other two elements being provided with a flange on one end thereof, said flanges being oppositely outwardly directed to define a dimension between them that is greater than the width of the opening, whereby, when the three elements of the connector are inserted into the opening and tension is placed on the strap in a direction away from the anchor member, the flanges on the two flanged elements are directed to engage the underside of the lips of the opening in the anchor member and each of the two flanged elements having rocker-arm flanges formed on the sides thereof directed to engage on the anchor member and provide a winging motion enabling rapid withdrawal of the elements from the opening.

3. A connector adapted to fit into an opening of an anchor member and carried by the deformable end loop of a strap, the connector comprising three elements strung on the loop and having a total thickness less than the width of the opening, the middle element constituting a spacer for the other two elements and being substantially thicker than the other two elements, each of the other two elements being provided at one end thereof with an outwardly directed flange, all three elements being formed with a slot therein, the slot in the middle element being substantially wider than the thickness of the strap, the spacer element being movable relative to the other two elements in a direction to permit the same to be withdrawn from the opening in the anchor member during deformation of the strap loop while the two flanged elements are still engaged with the anchor member, and each of the two flanged elements having rocker-arm flanges formed on the sides thereof directed to engage on the anchor member and provide a winging motion enabling rapid withdrawal of the flanged elements from the opening after withdrawal of the spacer element.

4. A connector adapted to fit into an opening of an anchor member and carried by the deformable end loop of a strap, the connector comprising three elements strung on the loop and having a total thickness less than the width of the opening, the middle element constituting a spacer for the other two elements and being substantially longer than the other two elements, each of the other two elements being provided at one end thereof with an outwardly directed flange, all three elements being formed with a slot therein, the slot in the middle element being substantially wider than the thickness of the strap, the spacer element being moveable relative to the other two elements in a direction to permit the same to be withdrawn from the opening in the anchor member during deformation of the strap loop while the two flanged elements are still engaged with the anchor member, and each of the two flanged elements having rocker-arm flanges formed on the sides thereof directed to engage on the anchor member and provide a winging motion enabling rapid withdrawal of the flanged elements from the opening after withdrawal of the spacer element.

5. A connector adapted to fit into an opening of an anchor member and carried by the deformable end loop of a strap, the connector comprising three elements strung on the loop and having a total thickness less than the width of the opening, the middle element constituting a spacer for the other two elements, each of the other two elements being provided with a flange on one end thereof, said flanges being oppositely outwardly directed to define a dimension between them that is greater than the width of the opening, the loop of the strap engaging the two flanged elements and being directed toward the spacer element when tension is imposed on the strap, whereby, with all three elements of the connector inserted in the opening of the anchor member, the flanges of the two elements are directed to engage against the under-side of the lips of the opening of the anchor member, each of the two flanged elements having rocker-arm flanges formed on the side thereof directed to engage on the anchor member and provide a winging motion enabling rapid withdrawal of the elements from the opening.

6. A connector adapted to fit into an opening of an anchor member and carried by the deformable end loop of a strap, the connector comprising three elements strung on the loop and having a total thickness less than the width of the opening, the middle element constituting a spacer for the other two elements, each of the other two elements being provided with a flange on one end thereof, said flanges being oppositely outwardly directed to define a dimension between them that is greater than the width of the opening, the loop of the strap engaging the two flanged elements and being directed toward the spacer element when tension is imposed on the strap, all three elements of the connector being provided with slots

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through which the loop of the strap passes, the slot in the spacer element being wider than the slot in the other two elements in order to enable relative movement of the spacer element with respect to the other two elements, whereby, with all three elements of the connector inserted in the opening of the anchor member, the flanges of the two elements are directed to engage against the

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under-side of the lips of the opening of the anchor member, and each of the two flanged elements having rocker-arm flanges formed on the sides thereof directed to engage on the anchor member and provide a winging motion enabling rapid withdrawal of the flanged elements from the opening.

No references cited.