

July 28, 1959

F. L. DAVIS  
WEB END CONNECTOR

2,896,288

Filed Jan. 11, 1957

2 Sheets-Sheet 1

Fig. 1

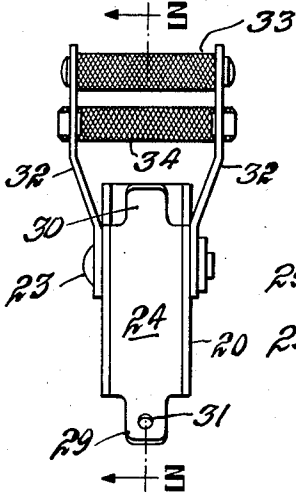


Fig. 2

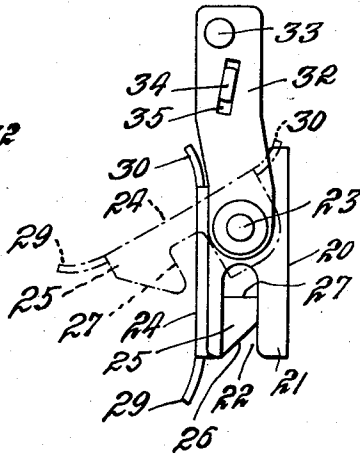


Fig. 3

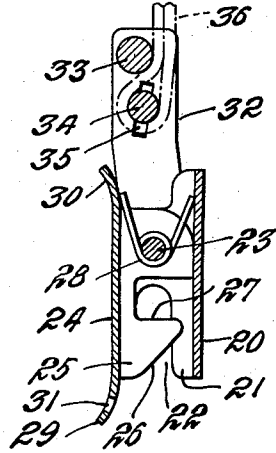


Fig. 4

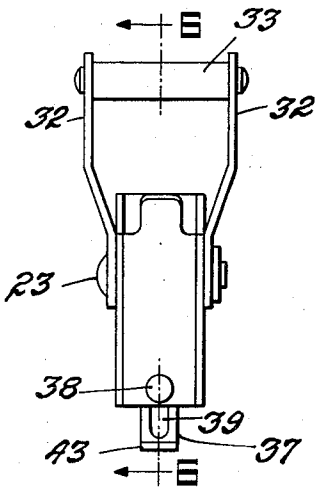


Fig. 5

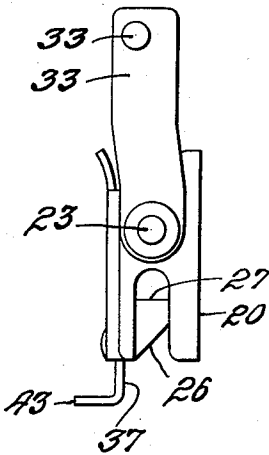


Fig. 6

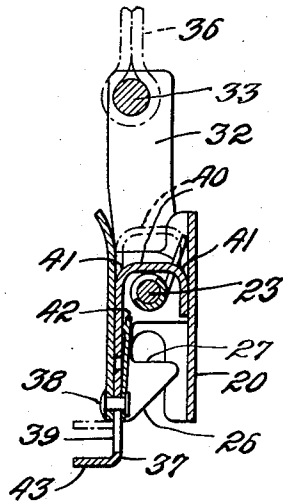
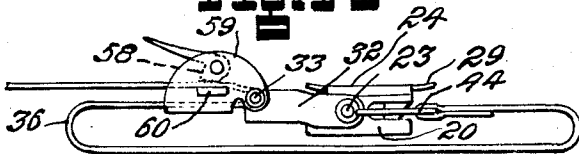


Fig. 14



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2 Sheets-Sheet 2

Fig. 7

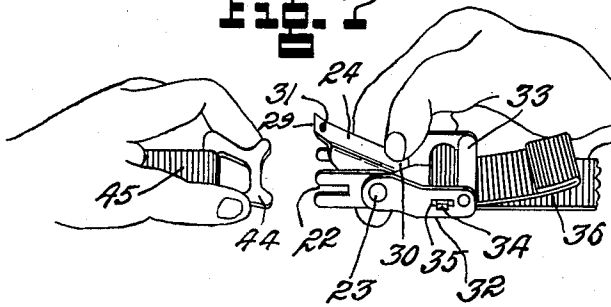


Fig. 8

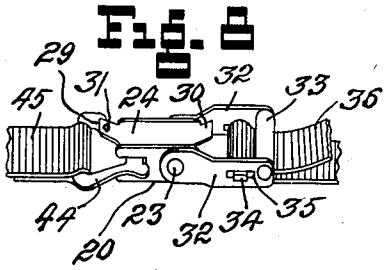
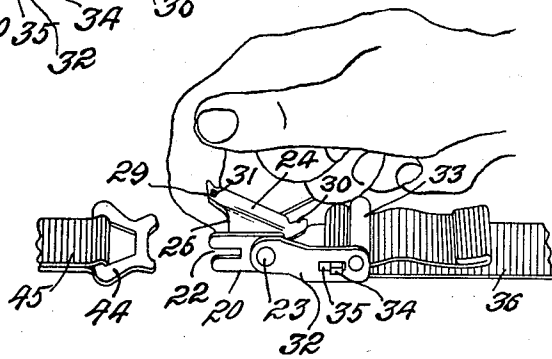


Fig. 10

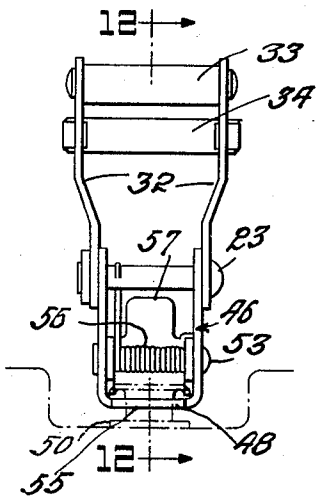


Fig. 11

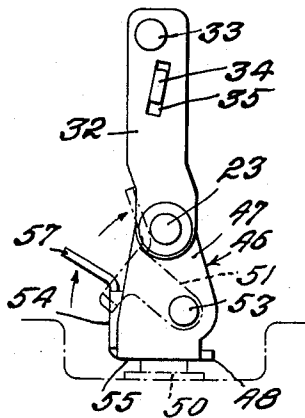


Fig. 12

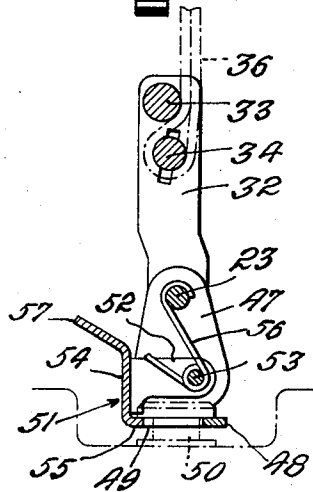
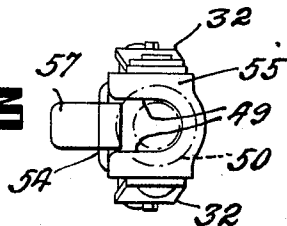


Fig. 13



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2,896,288

**WEB END CONNECTOR**

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Application January 11, 1957, Serial No. 633,611

1 Claim. (Cl. 24—230)

The invention herein disclosed relates to the connection of the ends of webs or straps together or to other parts such as various forms of anchorages.

Special objects of the invention are to provide a quick connectible and quick disconnectible form of fitting which may be attached to the web or webbing in various ways and which while readily releasable will be entirely safe and secure in its holding position.

Other special objects of the invention are to provide a connector which may be either adjustably or non-adjustably engaged with the web and to provide such connector with means by which it may be locked in the securing condition.

Further objects of the invention are to provide a web connector which may be released in different ways, to meet different requirements or conditions.

A further object of the invention is to provide a connector of the character indicated which may be used for many different purposes, such as to secure articles of different size and shape.

Additional objects are to provide such connectors in simply constructed form, light but strong and adapted to be produced at low cost.

The foregoing and other desirable objects are attained by novel features of construction, combinations and relation of parts, all as hereinafter described and illustrated in the accompanying drawings.

The drawings referred to forming part of the specification are illustrative of several different embodiments of the invention, but structure may be further modified and changed, all within the true intent and scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawings is a front elevation of a snap connection form of the invention provided with slack take-up means.

Fig. 2 is a side elevation of the same with broken lines showing the release position of the spring closed holding jaw or hook.

Fig. 3 is a longitudinal sectional view as on line 3—3 of Fig. 1 showing the web looped about the slide pin in position to be gripped against the companion fixed pin.

Fig. 4 is a front elevation of a fixed web form of the connector having a lock for securing the holding jaw in the closed position.

Fig. 5 is a side elevation of this second form of the invention.

Fig. 6 is a longitudinal sectional view as on line 6—6 of Fig. 4 indicating the web stitched or otherwise attached to the cross pin, the locking slide shown in full lines in released position and in broken lines in the locking position.

Figs. 7, 8 and 9 are perspective views illustrating the connector of Fig. 1 as used with a loop or ring on the end of another web or the like.

Fig. 10 is a front elevation of a form of connector for use with a floor stud form of anchorage.

Fig. 11 is a side elevation of the same with broken

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lines indicating the release position of the locking or securing member.

Fig. 12 is a longitudinal sectional view on substantially the plane of line 12—12 of Fig. 10.

Fig. 13 is a bottom plan view of such connector with the circular outline of the floor stud indicated in broken lines.

Fig. 14 is a side elevation showing the connector equipped with a one-way cam for adjustably securing the web.

In the several embodiments of the invention illustrated, there is a quick attachable and detachable connecting member and a pivotally connected form of yoke by which the device is attached to the end of the web.

The yoke may vary in construction according to how it is to be attached to the web and the connecting member may vary in construction according as to what or how it is to be connected to the same or another length of web or to some form of anchorage or securing device.

In the first form of the invention shown in Figs. 1—3, the quick attachable and detachable coupling comprises a channel shaped body member 20 having parallel side walls or flanges 21 slotted inwardly from the end at 22 to receive the companion coupling element and carrying in back of the slotted portions a pivot stud 23 on which is pivotally engaged the reversely channeled latch or hook member 24.

The side walls 25 of this hook member are beveled inwardly at 26 across the slot 22 and terminate in a shoulder 27 for holding the companion coupling element, rod, bar or the like, at the inner end of the slot, Figs. 2 and 3. A spring 28 coiled about the stud and engaged in its opposite ends with the inner faces of the reversed channels 20 and 24 serves to hold the hook element normally closed in the body channel as shown in Fig. 3.

Opposite ends of the hook channel are shown as extended at 29, 30 to constitute finger holds for lifting or depressing these opposite ends to open the hook to the position shown in broken lines in Fig. 2. The front or outer leverage handle portion 29 is shown perforated at 31, Fig. 1, to take a wire, chain, cord or other connection for releasing the holding hook from a distance.

The web yoke is shown as made up of generally parallel links 32, Fig. 1, pivotally engaged on the outer protruding ends of the pivot stud 23 and carrying at the outer ends a fixed cross pin 33 and, inside that, a slide cross pin 34 operating in inclined slots 35 in the side links.

Fig. 3 shows how a web 36 may be looped about the slide pin 34 for gripping about the overstanding abutment pin 33 to provide a slack take-up for the web, such web being free to be drawn up at the inner side against fixed pin 33 but locking automatically when a load is put upon the outer run of the web extending up from slide pin 34.

In the form of the invention shown in Figs. 4, 5 and 6, the web yoke is simplified to the extent that there is only one cross pin or stud 33 at the end of the links about which the end of the web 36 is looped and sewed or otherwise fastened together as shown in Fig. 6.

There is provided in this form of the invention a special locking member which will secure the connector hook positively in the closed relation.

This lock is shown as a slide 37 held to the underside of the hook by a rivet pin 38 extending through a slot 39 in the slide and the latter having at the inner end a transversely extended abutment portion 40 reaching back or downward to the inner face of the body channel.

This transversely extended back portion has rounded corners as shown at 41, Fig. 6, so that when the slide is in the outer full line position shown this abutment will ride with the hook about the pivot pin 23 as a center without interfering with the free pivoting movement of the hook. However, when the slide is pushed inward to the dotted line position shown, the abutment portion 40 will

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underlie the inner leverage handle part 41 of the hook and in engagement with the body channel form a positive bar to the rocking movement of the hook.

A flat spring 42 secured to the inner face of the slide by rivet 38 forms a detent holding the locking slide in either the outer free, or the inner locking position.

An angularly turned finger hold 43 provides convenient means for shifting the slide into inner locking position or the outer free position.

Figs. 7, 8 and 9 show how the device may be used for connecting or releasing opposite ends of the same or two different lengths of webbing.

In Fig. 7, the coupling, like that illustrated in Fig. 1, is shown about to be engaged with the end ring, loop or eye 44 of a length of webbing 45, which might be the opposite end of web 36, the hook 24 being raised to admit the cross bar of the loop into slots 22 by thumb pressure on the inner handle member 30.

Fig. 8 shows the coupling completed and Fig. 9 shows how the parts may be immediately released by simply lifting the outer handle 29 of the spring closed hook.

At any time in this construction any slack in the web may be taken up by pulling on the free end of the web and if more slack is required, this may be attained by rocking the yoke frame 32 about the pivot center 23, to release pressure of the cross slide against the fixed cross pin, whereupon the web is free to be drawn out as much as need be.

Figs. 10-13 illustrate a holddown form of the connector adapted for use with a floor stud or similar type of anchorage.

The connecting or coupling member consists in this case of a U-shaped loop 46 having parallel sides 47 suspended from the cross pin 23 of the yoke and connected at the bottom by a straight flat bar portion 48 slotted inwardly from one edge at 49 to form a fork which will pass about the neck and engage beneath the head of the floor stud 50.

Means are provided for locking this forked yoke in engagement with the floor anchorage, comprising a small U-piece 51 having parallel sides 52 engaged between the sides of the coupling yoke on pivot pin 53 and carrying a gate 54 to form a closure over the open end of the slot 49. This gate portion is shown as having an inwardly extended flange 55 at the bottom to enter beneath the head of the stud as shown in Figs. 12 and 13.

The pivot pin 53 is shown located at the back of the coupling yoke 46 so that the gate will close downwardly over the open end of the slot and so that the gate cannot be forced open by transverse load on the coupling.

A spring 56 coiled about the pivot pin 53 and in abutment at one end with the cross pin 23, Fig. 12, serves to tension the gate member downwardly in the holding or locking position.

An angularly extended handle 57 at the upper edge of the gate provides convenient means for lifting and releasing the same, Fig. 11, indicating in broken lines this lifting releasing action.

Fig. 14 illustrates a further variation of the web attachment yoke wherein adjustment of the web is provided by a one-way holding cam 58 mounted in a U-frame 59 pivotally hung on the outer cross pin 33 of the web attaching yoke.

In this case, the web is shown looped about the cross pin 33 and held by the cam against stationary cross bar 60 in the frame 59.

This construction provides the advantages of quick attachment and detachment and complete length adjustment of the web.

In all constructions, the pivotal connection between the coupling means and the web attachment yoke enables the device to fit closely about or against articles of different size and shape and to accommodate itself to various corners and angles. The web may be fixedly or adjustably secured in the yoke and the connector in any

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case is of quick attachable and detachable design. In the constructions shown in the first group of figures, the coupling can be effected with a snap action by simply pushing the connector over the bar, loop or other terminal element. In the floor stud type of connector shown in Fig. 10, the coupling can be effected by simply lifting the latch member and slipping the connecting hook over the head of the stud or other form of floor anchor.

In this and in the form shown in Fig. 4, the parts are or may be locked in the securing position and be releasable only when the locking element is released. In all instances, the parts can be engaged or securely held but are instantly releasable upon intended action to that effect.

All connectors are of simple, strong, durable low cost construction, relatively light in weight and take up small space and are therefore readily adaptable for use with webbing such as commonly employed for securing and holding purposes.

While capable of holding heavy loads, the connector can be instantly and easily released because the release action is in a direction transverse to the load on the connector.

In the forms of the invention shown in Figs. 1-9, the bevel 26 of the spring closed holding jaw or hook enables the connection to be effected by a simple push movement and snap engagement of the jaw over the companion coupling element such as a bar, ring or the like. The structure is of simple design enabling it to be readily adapted to different web widths.

Quick release can be effected by thumb pressure on the inner end or finger lifting action or pull of a cord or other connection on the outer end of the spring closed holding member. Accidental release is prevented by the locking slide in Figs. 4, 5, 6 form of the invention and the spring closed gate closure prevents accidental release in the hold down floor stud form of the invention, Figs. 10-13.

The small cam added to the web hook, Fig. 14, provides for free and quick length adjustment of the web.

The channeled body member 20 and the reversely faced lever or hook channel 24 fitting within the same form a box structure, one part pressing and reinforcing the other. The hook closing spring is located within this box fully housed and protected. The single pivot stud 23 is a further reinforcement and serves to pivotally connect the two main parts 20 and 24 and also to pivotally connect the web yoke thereto.

What is claimed is:

50 A quick attachable and detachable web connector comprising a body member in the form of a channel having spaced parallel side flanges slotted inwardly from one end to accommodate the complementary member to which the connector is to be connected, a pivot stud connecting the opposite end portions of said side flanges, a hook lever in the form of a smaller reversely faced channel having spaced parallel side flanges entered between the side flanges of said body channel and in pivotal engagement on said stud, said side flanges of said lever channel having beveled end edges faced toward the slotted end of the body channel flanges and abrupt transverse hook shoulders in back of said beveled end edges positioned for holding engagement with a pin or other complementary connector member entered in said slots, a spring coiled about said stud in the space between said side flanges of the lever channel having opposite ends engaging opposite inner surfaces of said opposed channels for yieldingly holding the lever channel seated in said body channel, means for rocking said lever channel about the pivot stud center in opposition to the force of said spring, a yoke of generally parallel side arms engaged on the ends of said pivot stud at the outer sides of said side flanges of the body channel and means at the

free ends of said side arms of the yoke for securing a web thereto.

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