April 30, 1968 J. A. GAYLORD 3,380,692

EMERGENCY RELEASE FOR WEBBING AND LINES

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Fig. 1.

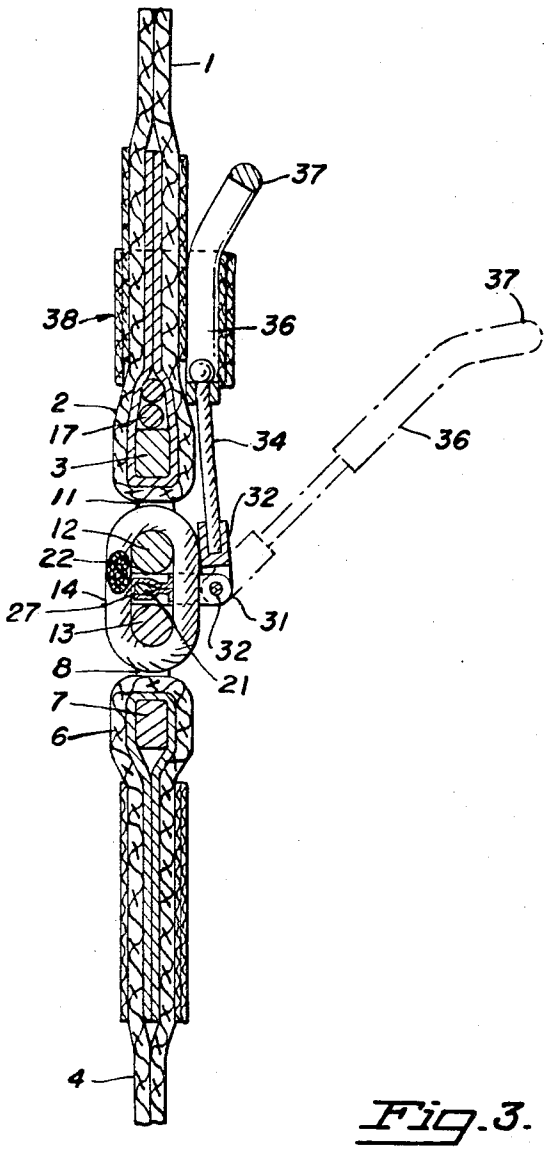


Fig. 2.

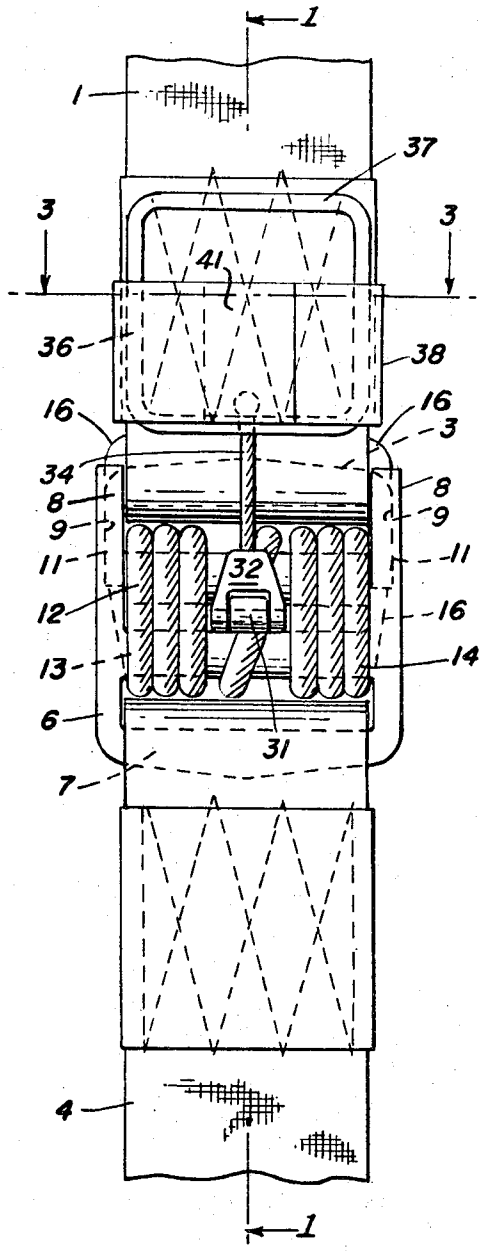
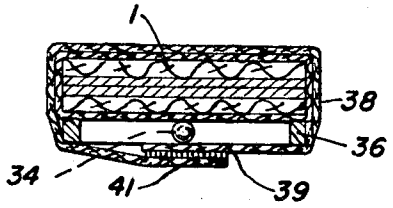


Fig. 3.



INVENTOR
JOHN A. GAYLORD
BY
Genger B. White
ATTORNEY.

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Fig. 4.

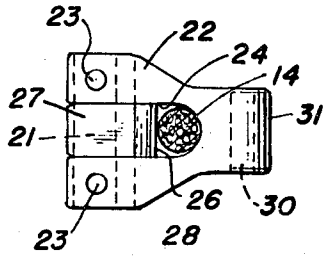


Fig. 6.

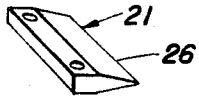


Fig. 7

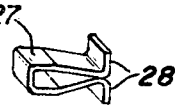


Fig. 5.

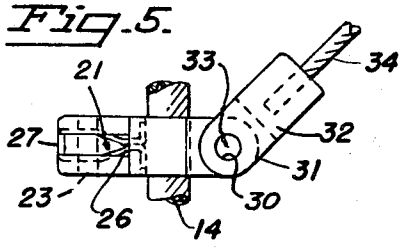


Fig. 8.

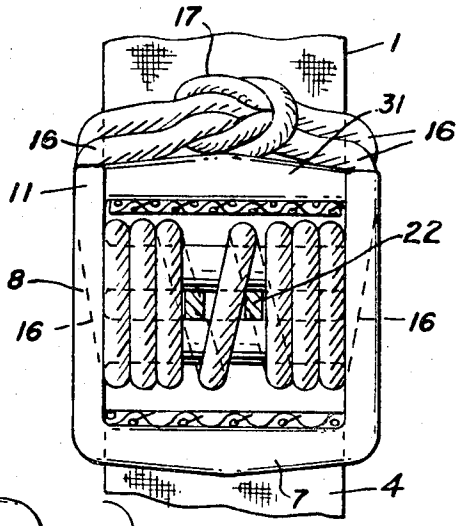


Fig. 9.

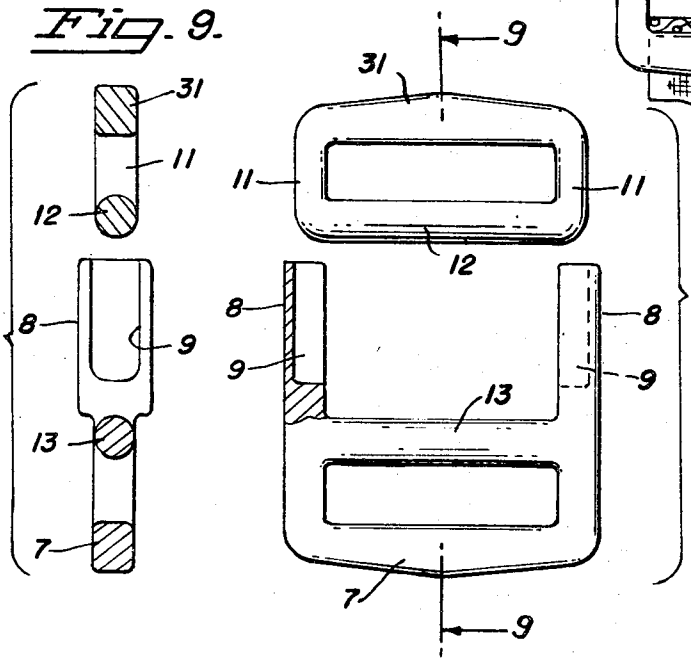


Fig. 10.

INVENTOR
JOHN A. GAYLORD
BY George B. White
ATTORNEY

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EMERGENCY RELEASE FOR WEBBING AND LINES

John A. Gaylord, San Rafael, Calif., assignor to H. Koch & Sons, Corte Madera, Calif., a corporation of California

Filed Nov. 25, 1966, Ser. No. 596,899
8 Claims. (Cl. 244—151)

ABSTRACT OF THE DISCLOSURE

The illustrative embodiment of the invention includes a pair of connector rings on the meeting ends of webbings or lines, and a cord coiled around the adjacent parts of the rings, correspondingly to the anticipated maximum load, the ends of the cord being tied together so as to hold the connection secure; a knife is held inside the coiled cord, and handle means are provided whereby the knife can be pulled to cut the cord for releasing the connection.

Brief summary of the invention

In some emergencies a webbing or line under load must be cut quickly in order to prevent damage to person or property. For instance, the shroud lines of a parachute or the webbing of a harness, sometimes must be cut manually in such emergency, and if the person drops the knife then the entanglement or emergency may prove fatal. There are other instances of such emergency where the quick cutting of a webbing or a line is vital and any delay in looking for a knife may be fatal, for instance the cutting away of loads on an airplane that became partially loose, or cutting entangled lines pulling or suspending any load and the like. The features of this invention include a pair of suitable connections on the meeting ends of portions of webbing or lines held together by a suitable strong cord which cord can be easily cut, and the supporting of a cutter blade in ready position for cutting the cord, and a pulling handle normally held in inoperative position on the webbing or on a line which can be quickly pulled into operative position and whereby the cutter blade can be pulled against the cord to cut it quickly; the connector elements held together by a cord being so fitted to one another as to easily and quickly separate when the cord is cut.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claims; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

With the foregoing and other objects in view, which will be made manifest in the following detailed description, reference is had to the accompanying drawings for the illustrative embodiment of the invention, wherein:

FIG. 1 is a sectional view of the emergency release on connecting rings between webbings, the section being taken on lines 1—1 of FIG. 2.

FIG. 2 is a front view of the emergency release shown in FIG. 1.

FIG. 3 is a cross-sectional view taken on the lines 3—3 of FIG. 2.

FIG. 4 is a partly sectional detail view of the cutting blade support assembly.

FIG. 5 is a side view of the cutting blade assembly with a fragmental view of the pulling line.

FIG. 6 is a perspective view of the cutting blade.

FIG. 7 is a perspective view of the shield for the cutting blade.

FIG. 8 is a fragmental partly sectional view showing the arrangement and knotting of the cord.

FIG. 9 is a cross sectional developed view of the connecting rings for the opposite webbings, the section being taken on lines 9—9 of FIG. 10.

FIG. 10 is a developed partially sectional front view of the connecting rings for the opposite webbings.

In the illustrative embodiment of the invention herein the webbing or line 1 has a loop 2 formed at its end. A first connector ring 3 is held in the loop 2 in the usual manner. The end 4 of another webbing also has a loop 6 formed therein in which is held a second connector ring 7. From the sides of this second connector ring 7 extend a pair of legs 8, each of which has a groove 9 along the inside thereof for straddling and nesting the respective opposite sides 11 of the first connector ring 3.

The adjacent cross bars 12 and 13 of the respective connector rings 3 and 7 are held together by a cord 14 which is coiled around the cross bars 12 and 13. In this illustrative form the cord is capable of withstanding 1000-lb. pull, and multiplying this by the number of turns of the coiled cord 14, the connection can be made of a strength to suit the weight to be supported, or the tension or pull to which the webbing or shroud line will be subjected, plus a reasonable factor of safety. For instance, the seven turns of the coiled cord 14 in the illustrative embodiment shown in the drawing herein would be capable of supporting up to 7000 pounds of pull. The ends 16 of the cord 14 are extended upwardly along the ring 3 and are tied into a suitable square knot 17, in the present illustration, located in the loop 2 of the webbing 1.

A cutting blade 21 is supported in the yoke 22 by suitable pins 23. The space 24 between the legs of the yoke 22 is such that it accommodates a turn of the cord 14. The cutting edge 26 of the blade 21 faces toward the turn of the cord 14 which is passed through the space 24 of the yoke 22. A spring clip 27 surrounds and shields the cutting blade 21. The separable curved free ends 28 of the spring clip bear against the cord 14 in the space 24 so that when the yoke 22 is pulled, the spring clip, which is very light and readily yieldable, bears against the cord 14 and the ends 28 are sprung apart by cutting edge 26 of the blade 21 as it is pulled against the cord 14. The spring clip 27 is of just sufficient strength to resist accidental cutting of the cord 14.

The yoke 22 has a hub 31 with a transverse hole 30 therethrough. A forked ferrule 32 straddles the hub 31 and is swingably held in place by a pivot pin 33. A bar or cable 34 is suitably secured in the ferrule 32 and is made of suitable length for manipulation. On the free end of the bar or cable 34 is a handle ring 36, the outer end 37 of which is bent out of the plane of the handle ring 36 as shown in FIG. 1 so that when the handle ring 36 is held against the webbing 1, the end 37 projects slightly to facilitate the gripping and pulling of the handle ring 36 away from the webbing 1 and facilitate the pulling of the yoke 22 and the cutting of the cord 14 by the blade 21 as heretofore described. Upon the cutting of the cord 14 the pull on the opposite webbing or lines unwinds the coiled cord and the connected webbing or shroud lines are severed by the pull exerted thereon.

The handle ring 36 is held in place by suitable light tape or sleeve 38 which is comparatively weak so that it can be manually torn, but it is sufficiently strong to prevent accidental displacement of the handle ring 36.

In the present illustration a so-called "Velcrow" (trademark) strip is used which is wrapped around the webbing 1 and also around the handle ring 36 so that the ends

thereof overlap in front of the handle 36. The adhering or gripping base 39 is formed on the outside surface of the tucked under end of the sleeve 38. The coacting covering gripping surface 41 complemental to the base 39 is formed on the under side of the outer overlapping end of the sleeve 38. The "Velcrow" ends provide just sufficient adhesion to maintain the handle ring 36 in the full line position shown in FIG. 1, but offer minimum resistance to manual force exerted on the end 37 of the handle ring 36 for pulling it away from the webbing 1 and thereby tearing or separating the adhering surfaces 39 and 41 thereby to free the handle ring for pulling the yoke assembly and thereby to pull the knife 21 against the adjacent coil of the cord 14 for cutting the latter.

I claim:

1. In an emergency release for webbing and lines,
(a) a first connector element on the meeting end of one portion of the webbing,
(b) a second connector element on the meeting end of another portion of the webbing,
(c) a cord coiled around adjacent parts of said connector elements, the number of coils of said cord corresponding substantially to the maximum tension to be born by said webbing,
(d) the ends of said cord being secured together against accidental unwinding,
(e) a blade holder embracing at least one coil of said cord,
(f) a cutter blade held in said blade holder within said embraced coil,
(g) and handle means connected to said blade holder,
(h) the cutting edge of said cutter blade facing toward said handle means and being transverse with respect to the embraced coil, whereby the pulling of said handle means pulls said holder for pulling the cutting edge of the blade against and through said embraced coil thereby cutting same embraced coil and releasing said connector elements.

2. The emergency release defined in claim 1 wherein said blade holder includes,
(i) a yoke,
(j) means to secure said blade in said yoke with the cutting edge of the blade facing toward the closed end of the yoke and being spaced from said closed end for providing a space for at least one coil of said cord extended through said space,
(k) said handle means being connected to the closed end of said yoke.

3. The emergency release defined in claim 2, and

(l) a yieldable shield on the exposed portion of said blade,
(m) openable parts of said shield bearing against said cord to open and expose the cutting edge of said blade when said yoke is pulled.

4. The emergency release defined in claim 2, and
(l) a spring clip shielding said blade and having openable end portions bearing against said cord to be pressed apart and open when pulled against said cord, thereby to expose the cutting edge of said blade for cutting said cord in said yoke.

5. The emergency release defined in claim 1 wherein said handle means include
(i) a handle ring,
(j) means to pivotally connect the handle ring to said blade holder,
(k) and securing means to hold said ring against the adjacent webbing thereby to prevent accidental pulling of the blade holder, said securing means including an element wrapped around said ring and said webbing and being separable by the force exerted by the manual pulling of said ring away from said webbing.

6. The emergency release defined in claim 1 wherein
(i) each connector element being a ring,
(j) each webbing having a loop formed on its end to accommodate the adjacent ring, and
(k) said cord being coiled around the adjacent portions of the opposite rings.

7. The emergency release defined in claim 6, and
(l) one of said rings having guides embracing opposite sides of the other ring thereby to hold the rings and the coils of the cord in position.

8. The emergency release defined in claim 6, and
(l) the ends of said cord being extended into the loop of one of said webbings and said secured ends being confined in said loop.

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MILTON BUCHLER, *Primary Examiner.*

R. A. DORNON, *Assistant Examiner.*