

Butterfly loop

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The **butterfly loop**, also known as **lineman's loop**, **butterfly knot**, **alpine butterfly knot** and **lineman's rider**, is a knot used to form a fixed loop in the middle of a rope. Tied in the bight, it can be made in a rope without access to either of the ends; this is a distinct advantage when working with long climbing ropes. The butterfly loop is an excellent mid-line rigging knot; it handles multi-directional loading well^[2] and

has a symmetrical shape that makes it easy to inspect.^[2] In a climbing context it is also useful for traverse lines, some anchors, shortening rope slings, and for isolating damaged sections of rope.^[3]

Butterfly Loop



A butterfly loop with a carabiner.

Names	Butterfly Loop, Alpine Butterfly Knot, Butterfly Knot, Lineman's Loop, Lineman's Rider
Category	Loop
Related	Alpine butterfly bend, Farmer's loop, Artillery loop, Span loop
Releasing	Non-jamming
Typical use	Fixed loop on the bight. Isolating a worn section of rope.
ABoK	#331, #532, ^[1] #1053
Instructions	[1] (http://www.animatedknots.com/alpinebutterfly/)

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History

The earliest known presentation of the knot was in A.A. Burger's 1914 work *Rope and Its Uses*, included in an agricultural extension bulletin from what is now Iowa State University.^[4] Burger called the knot a **lineman's rider** stating it was often used by "linemen and especially telephone men". The knot's security and ability to withstand tension in any direction are both discussed.^[5]

The knot's association with mountaineering—and with butterflies—originates from a 1928 article in *Alpine Journal* by C.E.I. Wright and J.E. Magowan.^[6] The authors claim to have developed the **butterfly noose** themselves while attempting to improve the selection of knots available to climbers. The name is "so styled on the basis of a more or less fanciful resemblance imagined in the form of the knot." In the second part of the article they express dissatisfaction regarding their earlier use of the word "noose," since the knot is non-collapsing, and refer to the knot as **butterfly loop** or simply **butterfly**.^[7] Wright and Magowan call the butterfly loop "new," along with several other of their knots, in the sense they were unable to identify any earlier record of them. However, they prudently added that it "might be rash to claim they have never been used before."^[8]

When Clifford Ashley covered the knot in 1944, calling it the **lineman's loop**, he attributed its first publication to J.M. Drew but made no specific reference as to the source of this claim.^[9] A 1912 article called "Some Knots and Splices" by Drew appears in the bibliography of *The Ashley Book of Knots*.^[10] A 1913 reprint of this Drew article does not mention the butterfly loop.^[11]

Use

The loop is typically attached to a climbing harness by carabiner.

It can also be used to isolate a worn section of rope, where the knot is tied such that the worn section is isolated in the loop (which of course does not receive a carabiner nor bear any loads in this case).^[3] The loop portion is isolated when the other two legs are loaded, and in fact the butterfly can be tied as a bend with the ends emerging where the loop would be.

[12][13]

Errors in tying the butterfly loop can produce a similar looking but inferior knot, the so-called "false butterfly", which is prone to slipping. However, some sources suggest this behavior can be exploited purposely for shock absorption.^[3] Wright and Magowan called this less secure loop knot the "half-hitch noose".^[14]

Advantages

- Forms stable, secure loop after initial setting



- Allows for the knot to be loaded three ways; by each end of the main line and the loop
- Relatively easy to untie after loading (more difficult if wet)
- Size of loop can be adjusted more easily than with bulkier or more complex loop knots
- Easy to inspect^[2]
- Can easily be tied with gloves on
- Can easily be tied one-handed

Disadvantages

- Difficult to tie around a solid ring or similar object, as when a rethreaded figure eight is needed
- Improper tying can result in similar looking but inferior "false butterfly" knot
- Works best with softer ropes^[2]

Variations

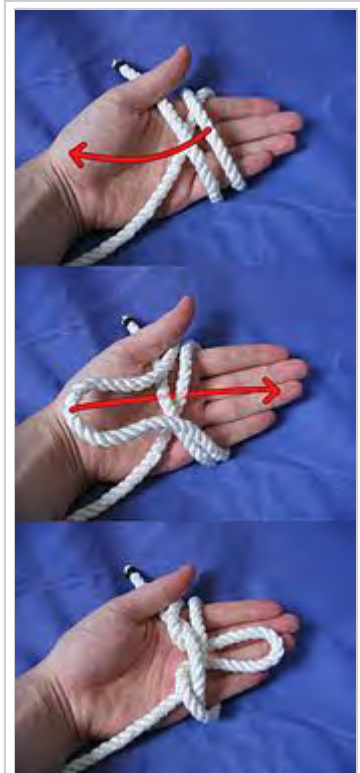
The **double butterfly loop** has two non-collapsing loops, allowing for two clip in points, both of which have the same advantages and disadvantages of a single-loop butterfly.^{[12][15]}

See also

- List of knots

Notes and references

Among high quality knots, the butterfly loop is perhaps the easiest to remember how to tie correctly. Start by simply making two twists in the same direction to form the two loops. Then wrap the outer loop around the standing part and pull it through the hole of the inner loop.



Alternate method of formation using wraps on the hand.

1. Entry #532 on page 87 of *The Ashley Book of Knots* shows a diagram of the butterfly loop under the name harness loop. Ashley appears to have illustrated or named the incorrect knot in this case. The harness loop is shown and discussed as a distinct and specific knot throughout the rest of the book.
2. Smith, Bruce; Allen Padgett (1996). *On Rope; North American Vertical Rope Techniques* (New Revised ed.). Huntsville, Ala.: National Speleological Society. p. 49. ISBN 1-879961-05-9.
3. Marbach, Georges; Bernard Tourte (2002). *Alpine Caving Techniques; A Complete Guide to Safe and Efficient Caving*. English edition translated and adapted by Melanie Alspaugh. Allschwil, Switzerland: Speleo Projects, Caving Publications International. p. 73. ISBN 3-908495-10-5.
4. Day, Cyrus Lawrence (1986), *The Art of Knotting and Splicing* (4th ed.), Annapolis: Naval Institute Press, pp. 80–81
5. Burger, A.A. (1914). "Rope and Its Uses". *Extension Bulletin* 24. Ames: Iowa State College of Agricultural and Mechanic Arts. **XIII** (8): 24–25. Retrieved 2010-09-09.
6. Warner, Charles (1996), "A History of Life Support Knots", in Turner, J.C.; van de Griend, P., *History and Science of Knots*, K&E Series on Knots and Everything, **11**, Singapore: World Scientific Publishing, pp. 157–160, ISBN 981-02-2469-9
7. Wright, C.E.I.; Magowan, J.E. (1928). "Knots for Climbers". *Alpine Journal*. London: Alpine Club (40): 120–140, 340–351.
8. Wright & Magowan, p. 140.
9. Ashley, Clifford W. (1944), *The Ashley Book of Knots*, New York: Doubleday, p. 191
10. Ashley, p. 595
11. Drew, J.M. (1913). "Some Knots and Splices". *Irrigation Age*. Chicago: D.H. Anderson Pub. Co. **28** (1): 212–220.
12. Smith, Phil D. (1955) [1953]. *Knots for Mountaineering, Camping, Utility, Rescue, etc.* Twentynine Palms, CA: Desert Trail.
13. Budworth, Geoffrey (1999), *The Ultimate Encyclopedia of Knots*, London: Hermes House, p. 77
14. Wright & Magowan, p. 126
15. Toss, Brion (1990). *Chapman's Nautical Guides: Knots*. New York: Hearst Marine Books. p. 65. ISBN 0-688-09415-5.

External links

- Butterfly Loop (<http://notableknotindex.webs.com/butterflyloop.html>)

- Butterfly Loop animation
(<http://www.animatedknots.com/alpinebutterfly/>)

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