

The Impressive *Italian Hitch*

The *Italian hitch* (also known as the *Munter hitch*, the *HMS hitch* and the *carabiner hitch*) is a variant of the *crossing knot* (ABOK #206, 1173). It requires an additional U-turn around the underlying solid by the running end (the end not nipped under the crossing part) so that the two ends emerge in the same direction (Fig 1). The hitch was made popular around 1970 by Swiss mountain guide Werner Mürter, who named it in honour of Italian climbers who pioneered its use in the early 1950s (Phillips 2014). For uses in climbing, the *Italian hitch* has the great advantage that it can pay out rope freely, yet be adjusted almost instantly to provide enough friction to control or arrest the fall of a weight in the range spanning most climbers. Also, the knot can flip to allow controlled feed of the rope in either direction. These features make it ideal for use in belaying a top climber, or controlling an abseil (rappel) descent, without much additional equipment.

So that it can flip and grip without fouling in these uses, the hitch should be tied on a UIAA Type H (HMS) carabiner: one that is climbing-rated, with a locking gate, a body of circular cross-section, a large size and a pear-shape overall when viewed from the side (Fig 2R). Use of a *Italian hitch* causes greater twisting and wear of the rope than well-designed separate belay or abseil devices, especially in abseiling if friction is maintained to control descent speed. But it is generally taught early in the training of climbers and rescue personnel for use when such devices are unavailable.

The hitch is best suited to kernmantle ropes that tolerate tight turns over a carabiner. Some applications, such as tensioning a safety line that may need to be lowered under control while loaded, can be accomplished without a carabiner; by tying directly on a spar, post or ring. The usual rule to avoid rope-on-rope friction in synthetics is safely ignored within this hitch, because all the areas of friction move with the feeding rope, avoiding overheating.

HMS (in the name given to both the hitch and the preferred carabiner) is from the German *halmastwurfsicherung*, meaning half clove hitch belay. There are equivalent terms in Italian (*nodo mezza barcaiolo*) and French (*noeud demi cabestan*). Unfortunately, this is confusing as the structure is more like a *half girth hitch* (or half of any synonym for the *girth hitch*: ABOK #244, 1673, 1694, 1700, 1802, 1816, 1859, 1871). In Spanish it is called *nudo dinámico* – the dynamic knot, reinforcing several cautions below.

Tying it in the end, around a post, rail or ring which does not provide an accessible end, may be easiest by passing a narrow bight (as if starting a *girth hitch*) then pulling only one of the rope ends through the bight. However, if the solid for the hitch has an accessible end

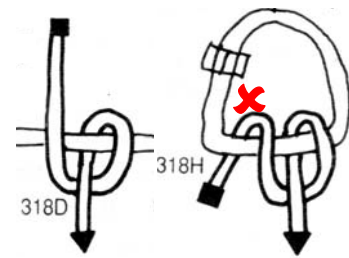


Fig 1. Relationship between a *crossing knot* (318D) and *Italian hitch* (318H). Unfortunately Warner (1992) shows the control line towards the carabiner gate, which is inadvisable. It would be the correct start for a double version, taking the control line (■) back across the front of the load line (▼) then up through the carabiner on the side away from the gate.



Fig 2. Correct orientation of the control line away from the carabiner gate (Left) and incorrect orientation (Right). Here the control line is not in the brake position (cf Figs 1, 3.) From <https://www.ropelab.com.au/munter-hitch/>



Fig 3. One way to tie the *Italian hitch* in the bight starts (1) like a clove hitch (2), but the loops are folded together like closing a book (3) before inserting the carabiner (4). In 4, the carabiner has been inserted from the wrong side, resulting in the control line towards the gate. From <http://mountainlessons.com/knowledge/the-munter-hitch-for-ski-mountaineering>

(like a carabiner) there are several fast methods to tie the *Italian hitch* in the bight. One of these methods starts out like a *clove hitch* cast in the hand (Fig 3). Many climbers prefer to practise a one-handed method for emergencies (Fig 4) (Cox & Fulsaa 2003, p. 148).

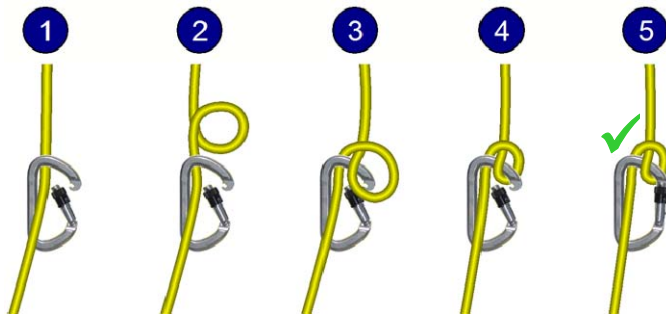


Fig 4. With practice, the *Italian hitch* can be tied one handed this way. Lift the control line to brake. The control line is oriented correctly (away from the gate), but the illustration shows a D carabiner rather than the preferable pear-shaped HMS carabiner. From https://roperescuetraining.com/knots_hitch_munter.php See also <http://jimknowsknots.blogspot.com/2011/11/munter-or-italian-hitch-meditation.html>

The *Italian hitch* does not appear in the famous knot compilations of Ashley (1944) or his contemporaries (Svensson 1941; Macfarlane 1947; Day 1947; Graumont & Hensel 1939-1952). But knotting authorities were convinced of its merits by 1990 (Toss 1990; Warner 1992). The structure is shown by Ashley and contemporaries as part of the *backhanded hitch* (ABOK #1725-26, 1797, 1851-53), though Graumont & Hensel (1952, p. 17) go so far as to say “There is little use for this knot”. Like many others, I learned it as a *tension hitch* when erecting scout patrol tents. The action of the crossing part is hard on the ropes, but it allows boys to safely tension the guys on heavy tents, an application that has much in common with Ashley’s description of use as the *wet weather hitch* (ABOK #205, 1796) by circus men.

Ashley was aware of the advantage of having the standing (weight-bearing) end nipped by the crossing part (cf ABOK #1851-52), but he did not jump to the other advantages for climbers. When sailors needed to control the speed of lowering (without a block and tackle), they used the friction in a round turn (ABOK #478). For greater control of heavier weights they used more turns (ABOK # 1732), or more sailors on the rope. In this application, the round turns would be gentler on rope than the sharp nip of crossing knots. Although they were frequently aloft from the days of square sails, it seems that sailors never applied a simplified *backhanded hitch* for a safe return to the deck, until it was brought to their attention by climbers.

It is important to be aware of the limitations:

First, the *Italian hitch* should always be used so that the control line (the end of the rope that does not go to the load) is on the side of the carabiner away from the gate (Figs 2L, 4, 5, 6). This reduces the risk that passage of the rope can unwind the screw lock on the carabiner gate. Several ways to “double” the hitch (increase the friction) have been described. Unfortunately, the hitch (single or double) is sometimes illustrated on a spring-gate carabiner and/or with the control line near the carabiner gate. This is dangerously wrong.

Secondly, the maximum brake position has both lines in the same direction (Fig 5). This is unlike some other belay devices, so be careful to avoid confusion. The brake hand should be gloved to avoid rope burn. The control line must be in the brake direction to flip the hitch and retrieve rope, without it running down the carabiner. Keep hands well away from the knot, to avoid the possibility of trapping or severing a finger if there is an unexpected flip and load (as in a fall).

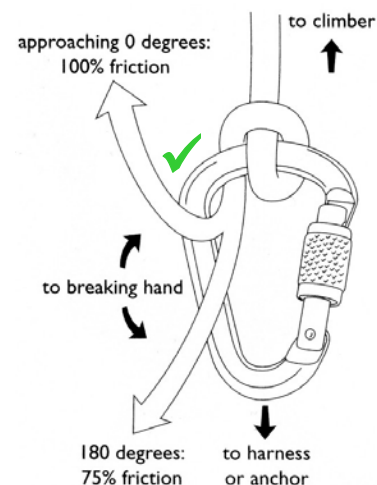


Fig 5. In a belay, if the control line is not pulled, the rope can run freely through the *Italian hitch*. If the control line is gripped firmly, there is substantial friction, which increases as the rope is wrapped around more of the carabiner, by moving the control line in the direction of the load line. (From Cox & Fulsaa 2003).

Thirdly, the hitch must be locked off when adjustment is finished, or the load will fall when friction is released.

A *mule hitch* (*falconers knot* or *halter hitch*) with *overhand knot* is the preferred lock for ease of untying under load (Fig 6). Locks that start with a *slipped half-hitch* (ABOK #1822) rather than *mule hitch* (\approx ABOK #1826) may be hard to untie under load. Other locks have been described, using extra equipment. Even during normal use as a flowing hitch, it is wise to use some kind of autoblock backup to avoid a very hard landing if the *Italian hitch* slips. Without a suitable autoblock, abseiling past the knotted end of the rope is a real possibility.

Finally, be aware that most humans can not apply sufficient force with one hand, on a rope through an *Italian hitch*, to arrest the fall of a typical rescue load (200 kg). It is strictly a single-person control hitch, and some other suitable descent-control device must be employed for rescue loads (Merchant, 2002; Phillips 2014).

As an aside, Dave Merchant has been a strong advocate for the use of *karabiner*, based on the German spelling. Putting aside the English 's' in the plural, and the usual progressive Anglicisation of spellings for adopted words; the historical basis in this case is equivocal. British mountaineers and Berlin firemen used 'spring hooks' for secure attachment of ropes to belts before 1862 (Longman 1863 *Alpine Journal* 1, 20-26; Hiebeler 1969 *Alpine Journal* 74, 320-323). *Carabiner* (I) and *karabinerhaken* (G) are said to have been applied around 1900 to snap links used on rifle straps (Blackford 2003). A short rifle is known as a *carbine* (E), *carabina* (I), *carabine* (F) or *karabiner* (G). Light cavalrymen have been called *carabinieri* since the 17th century. Around 1910, climbers in the Munich area adapted the fireman's device for use with pitons (Hiebeler 1969; Warner 1996), but the names predate this use. Those who use *karabiner* instead of *karabinerhaken* for the evolved 'carbine hook' should know they are using a German word for 'carbine' (rifle), not 'hook'. *Carabiner* has no other current use, so it avoids both this problem and an irregular back-translation of a word first spelled (even in German) with a 'c'. Without diminishing my admiration of Dave Merchant, I am for 'carabiner'.

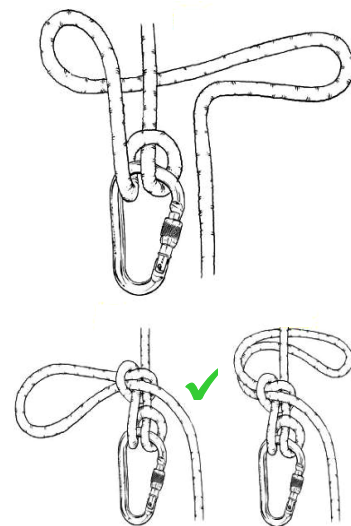


Fig 6. Locking the *Italian hitch* with a *mule hitch*, to prevent further paying out of the line. This should be followed by an *overhand knot* tied in the slip bight of the *mule hitch*, around the load line. From <https://www.climbing.com/skills/save-yourself-a-guide-to-self-rescue/>

References cited

- Ashley CW** (1944) *The Ashley Book of Knots (ABOK)*. Corrected Edition. Faber and Faber Limited, London. <https://archive.org/details/TheAshleyBookOfKnots> G Budworth ed. (1993). ISBN 057109659X.
- Cox SM & Fulsas K** (eds.) (2003) *Mountaineering: The Freedom of the Hills*. 7th Edition. The Mountaineers, Seattle. ISBN 0898868289.
- Day CL** (1947) *The Art of Knotting and Splicing*. Dodd, Mead and Co. Inc, New York. Later editions updated and published by Naval Institute Press, Annapolis. The 4th Edition (1986) is ISBN 0870210629.
- Graumont R & Hensel J** (1939) *Encyclopedia of Knots and Fancy Rope Work*. Cornell Maritime Press, New York. 4th Edition "Completely Revised and Enlarged By Raoul Graumont" (1952)
- Macfarlan A & Macfarlan P** (1947) *Knotcraft*. Bonanza Books, New York. ISBN 0517109077.
- Merchant DF** (2002) *Life on a Line (issue 1.3)*. Dave Merchant, North Wales. 2nd Edn 2007 Lulu.com ISBN 9781847532817. <https://web.archive.org/web/20050320061020/http://www.draftlight.net/lifeonline/download/>
- Phillips K** (2014) *Technical Rescue Handbook*. 11th Edn. US National Park Service, Washington DC. <http://mra.org/wp-content/uploads/2016/05/nps-technical-rescue-handbook-2014.pdf>
- Svensson S** (1940) *Handbook of Seaman's Ropework*. Adlard Coles Limited, London. English version, translated by Inger Imrie, published 1971, ISBN 0229986544.
- Toss B** (1990) *Knots*. Hearst Marine Books, New York. ISBN 0688094155.
- Warner C** (1992) *A Fresh Approach to Knotting and Ropework*. Charles Warner, Yanderra. ISBN 095920363X. This book has been reprinted by [IGKT](https://www.igkt.com/) as ISBN 9780993190810.
- Warner C** (1996) A history of life support knots. Chapter 9 *In: Turner JC & van de Griend P* (eds.) *History and Science of Knots*. World Scientific, Singapore. ISBN 9810224699. <https://www.watchmenofamerica.com/LEARNING-CENTER/Resource-Categories/MS/MS-002-PDF.pdf>