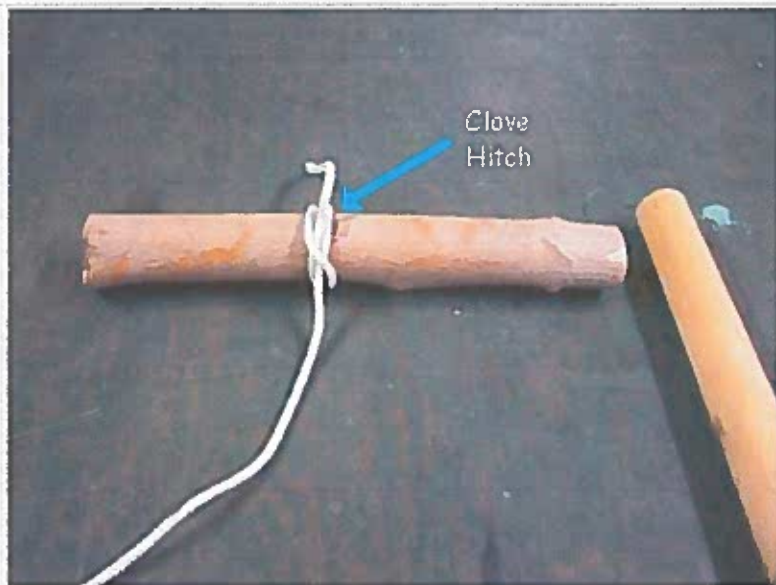


Creating a Square Lashing

A Square Lashing is used to tie two poles together. When done properly it will hold together during the most vigorous activity. When done poorly it will be a source of frustration. The following is step by step instructions on how to tie the square lashing. I hope you find it useful.

Step 1.

Attach the rope to the first spar with a clove hitch.



Step 2.

Twist the loose end from the clove hitch around the rope and then wrap the rope around the two spars as shown.



Step 3.

When you start the second time around, guide the rope to the inside of the existing wraps on the first spar.



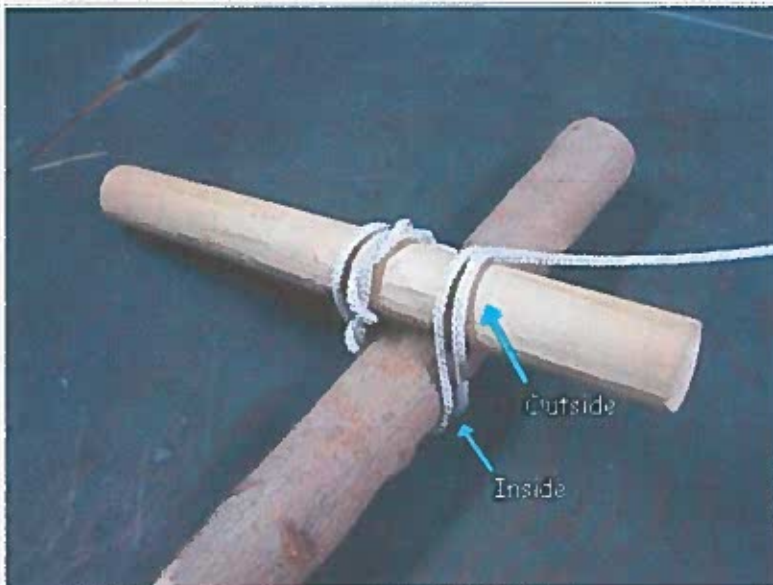
Step 4.

On the second spar guide the rope to the outside of the existing wraps.



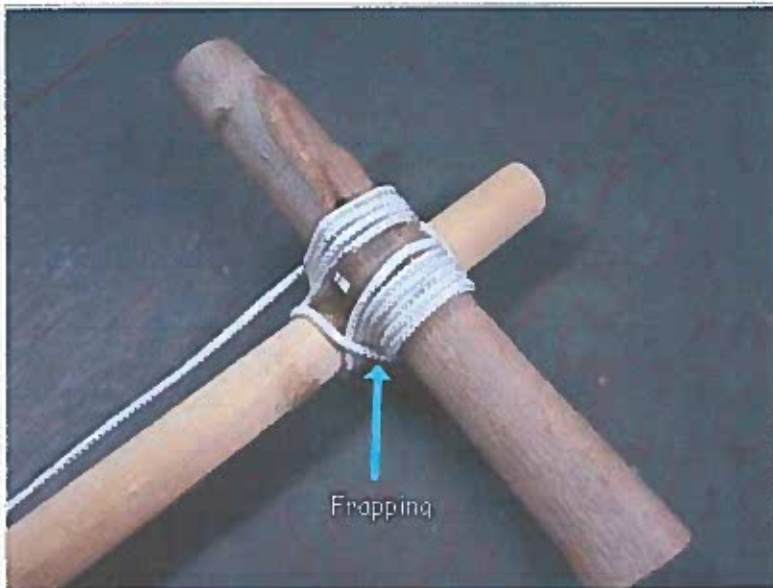
Step 5.

Continue wrapping the rope around the spars following the "inside - outside" sequence.



Step 6.

Once you have enough wraps to give you the strength you need for the project, guide the rope horizontally between the two spars. This is called frapping. Pull the frapping as tight as possible and then add another turn. (If lighter rope is used 4 or 5 turns may be required)



Step 7.

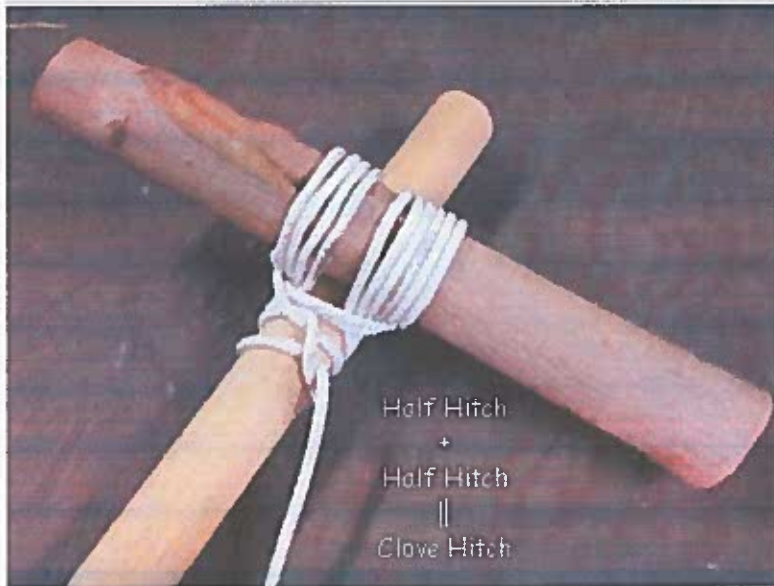
Finish the frapping by tying a half hitch. Wiggle the rope back and forth to ensure the hitch is in as tight as possible to the frapping.



Step 8.

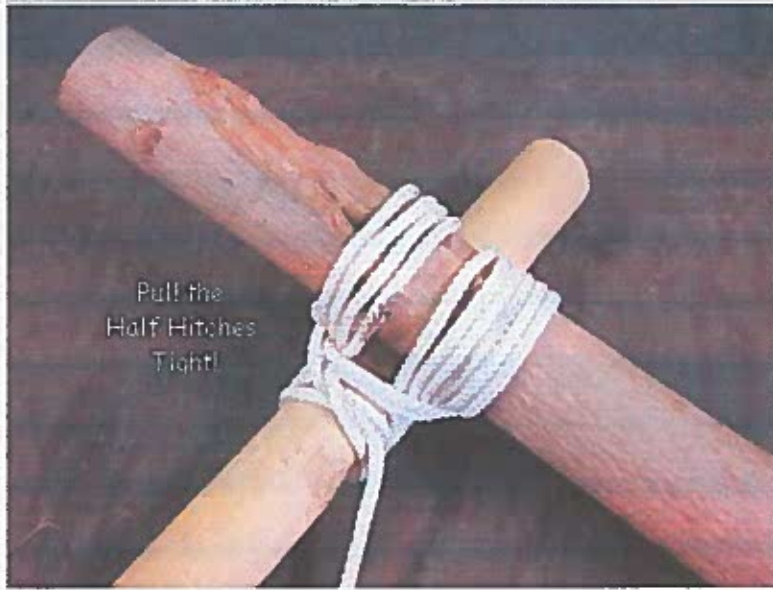
Add another half hitch to finish the job!

Note: Most knotting books call for a clove hitch to finish a square lashing. By tying 2 half hitches you in fact have tied the required clove hitch.



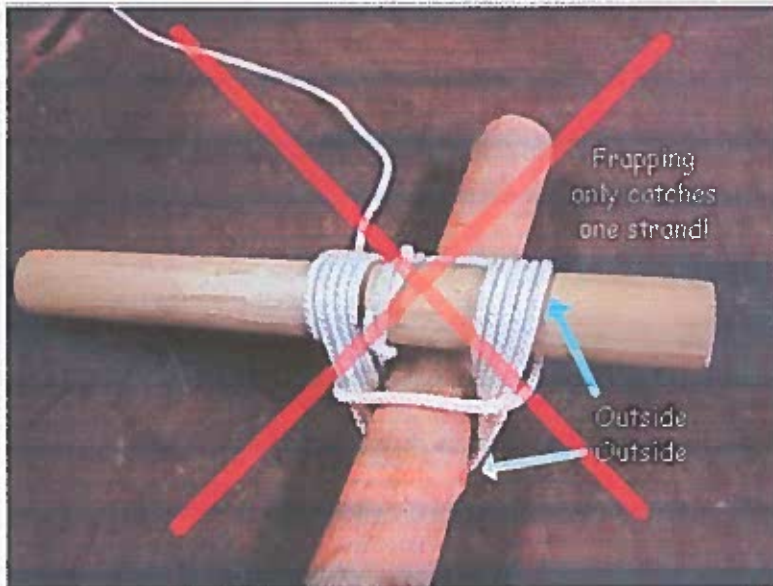
Step 9.

The previous pictures showed the half hitches rather loose. In reality they must be pulled in tight to ensure the lashing does not loosen.



Why the Inside Outside rule!

If you do not pay attention to how you lay the ropes you will generally end up simply going to the outside. When you do that, the frapping will only catch the outer wrap and the lashing will loosen quickly.



CLOVE HITCH:

Description — Two single hitches (half hitches) tied in the same direction around an object.

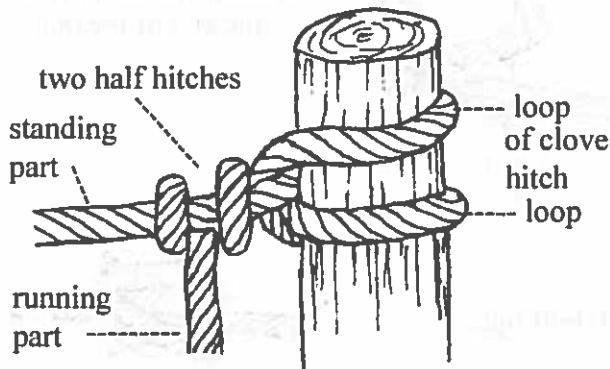
Uses — To secure a line to a post or pole; to start and end most lashings.

Comments — Can be untied (spilled) by pulling on the standing part so that it rotates the cross point in the knot until it goes over the end of the rope.

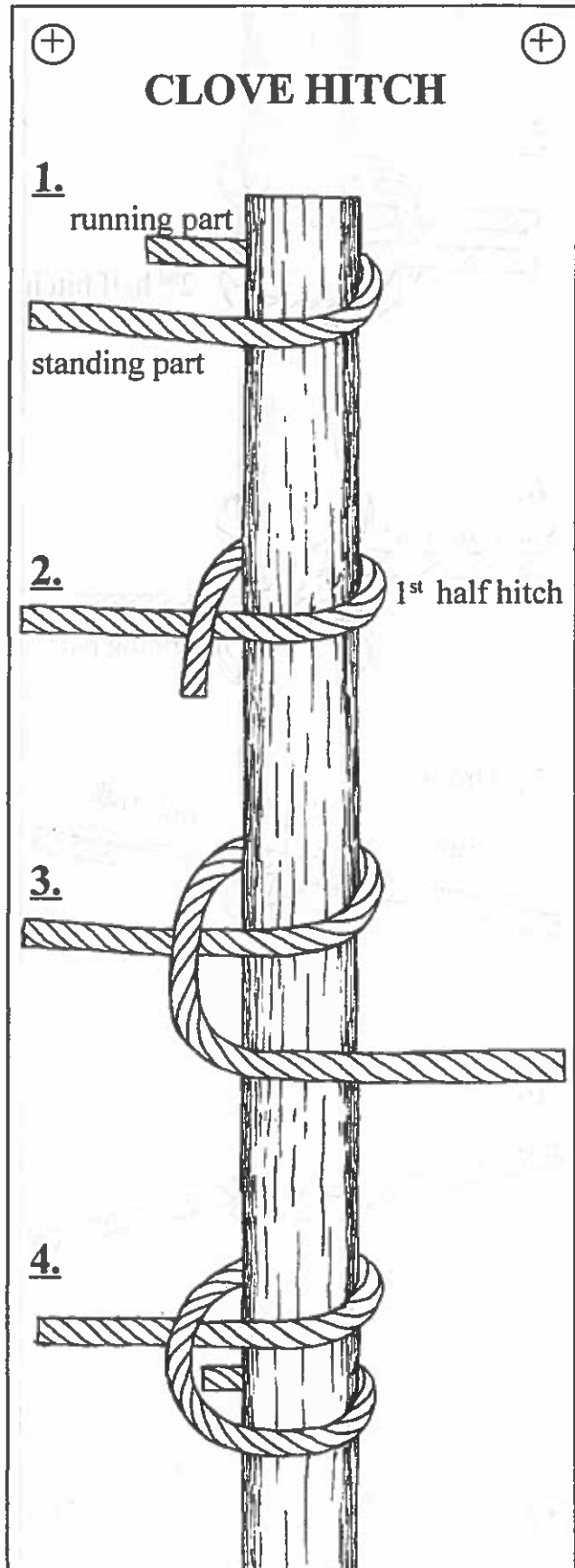
The length of the standing part can be adjusted by rotating the loops of the knot around the pole. To shorten the standing part, pull on the running end so that it rotates the cross point toward the standing end. To lengthen the standing part, pull on the standing part so that the cross point is rotated toward the running part.

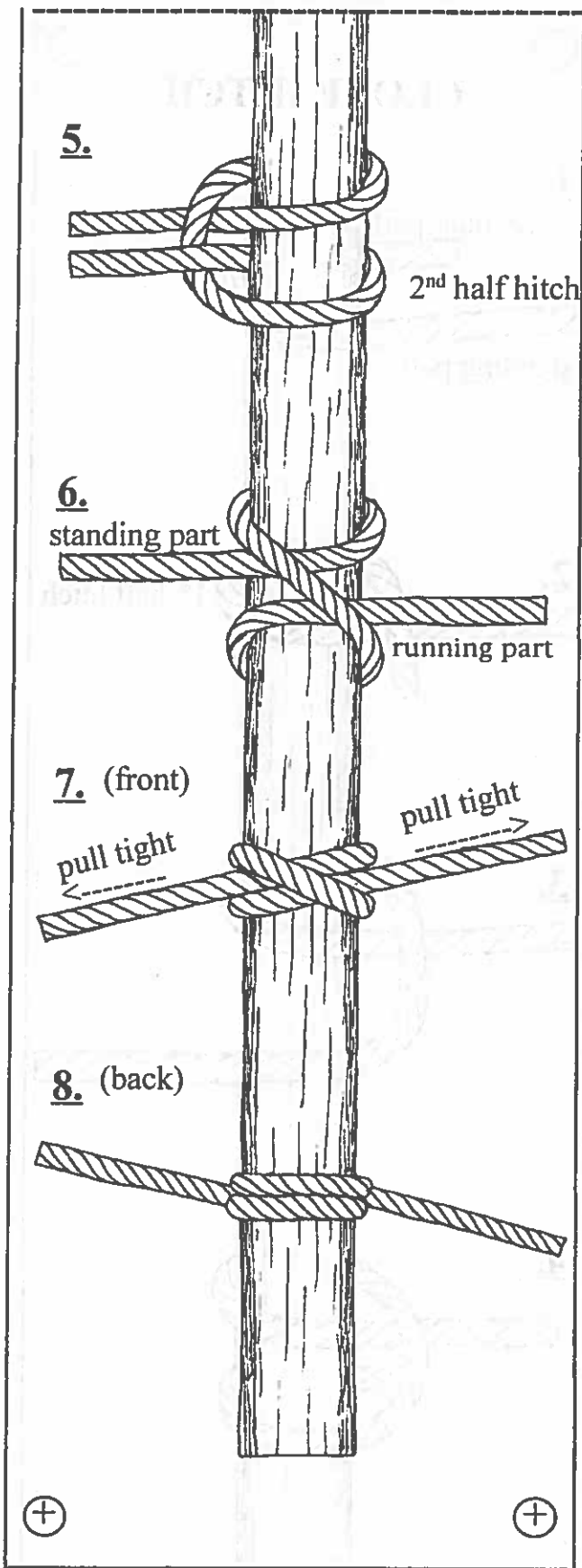
Because the clove hitch can be spilled by rotating the standing part against the cross point, the clove hitch will spill itself if it is tied so that standing part moves back and forth in such a way that it cause the loops of the knot to slide around the pole. To prevent the clove hitch from spilling, 'stop' it by tying two half hitches around the standing part.

STOPPED CLOVE HITCH



When under constant tension the clove hitch has little tendency to slide along the length of the pole even if the tension is nearly parallel to the pole.

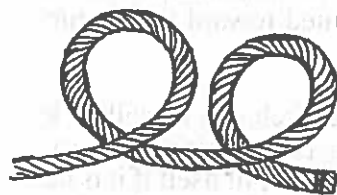




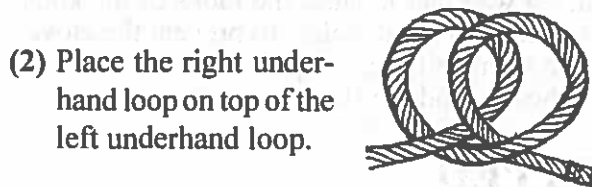
Narrative --- (For clove hitch knotboard.) (1) Start the clove hitch by taking a bight around an object with the running part. (2) Cross the running part over the standing part to form a half hitch. (3) Start the second half hitch by continuing to wrap the standing part around the object in the same direction as the first half hitch. (4) Form a second bight around the object. (5) Finish the second half hitch. (6)&(7) Grasp the standing part and the running part: pull tight the clove hitch tight.

CLOVE HITCH; OVER AN END:

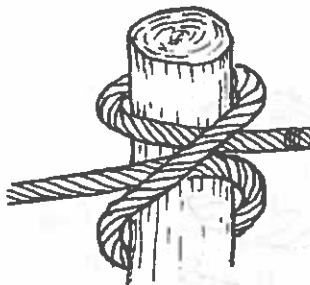
A clove hitch can be tied over the end of a pole or stake by using this method.



(1) Form two underhand loops in the running part of the rope.

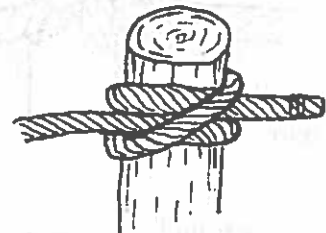


(2) Place the right underhand loop on top of the left underhand loop.



(3) Drop the loops over the end of the pole.

(4) Pull tight.



SQUARE LASHING:

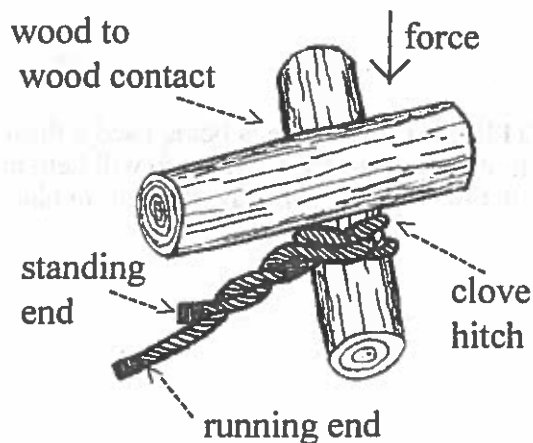
Use ---- To bind poles that are in contact and cross each other at any angle from 45° to 90°.

Comments ---- The square lashing gets its name from the fact that the wrapping turns are at 90° or "square" to the poles.

Traditional square lashing is the most frequently used and the most secure form of lashing. If tied properly, the square lashing will remain tight and secure, but, as with all lashings, if any steps are omitted or done carelessly, the lashing will loosen and create a dangerous situation.

The square lashing can be used to bind poles together that cross and contact each other at any angle from 45° to 90°. If the angle of contact is greater than 45°, a shear lashing should be used.

When tying a square lashing, the poles and the rope must be positioned properly to achieve the maximum strength. The cross pole should

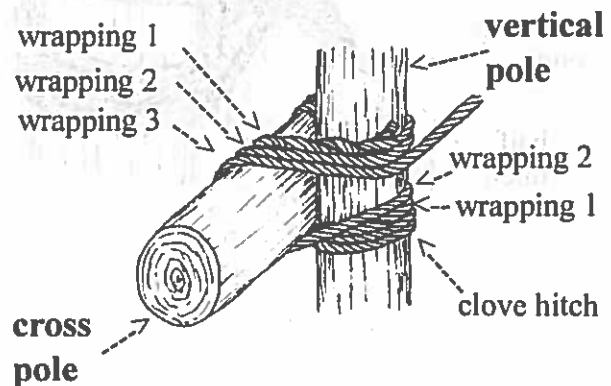


be positioned so that the force applied to the cross pole is directed toward the pole it is lashed to; this allows the wood to wood contact to bear part of the load; if the force tends to separate the poles, only the rope will be supporting the load. The beginning clove hitch should be tied to the pole that is closest to parallel to the direction of the force and to the side of the cross pole that is opposite to the direction of the force.

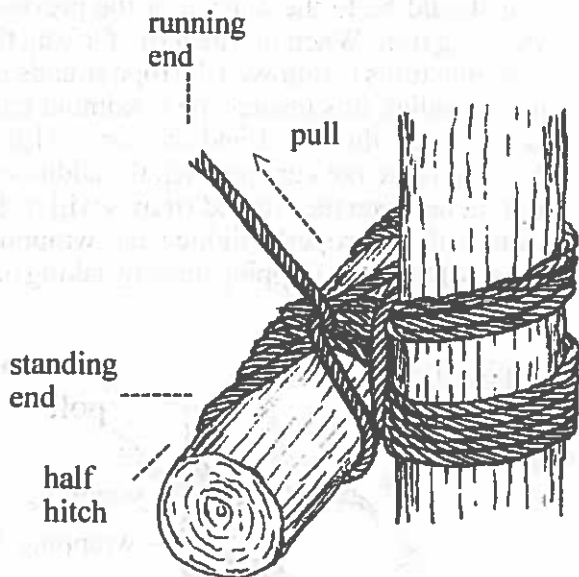
In most cases the force applied to a structure is due to gravity, therefore downward, this means that the beginning clove hitch is usually tied to the vertical pole, and under the cross pole. The standing end of the rope is secured by wrapping it around the running end.

Narration ----- (For square lash knotboard.)

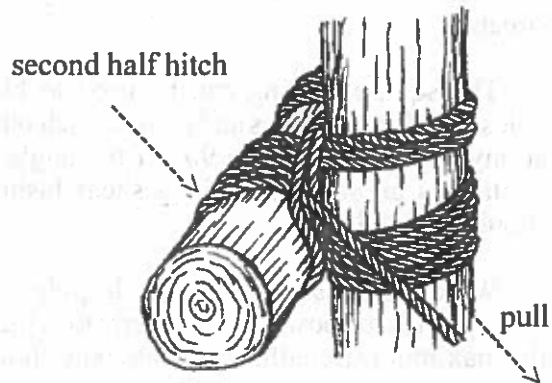
(1) Tie a clove hitch to the vertical pole. (2) Wrap the standing end of the rope around the running end [NOTE] The wrapping of the standing part around the running part is to secure the clove hitch so that it will not slip around the pole and loosen the lashing from the inside. (3) Bring the running end up and over the cross pole; then around the vertical pole; and back down over the cross pole. (4) Pass the rope behind the vertical pole and back up in front of the cross pole; this completes the first wrapping. [NOTE] Notice that the rope goes around the pole perpendicular, at 90° to the length of the pole. This 90° angle gives the square lashing its name. (5) Take two more wrapping turns for a total of three wrappings: pull each turn tight. [NOTE] When the wrappings are taken around the vertical pole the rope should be to the inside of the previous wrapping turn; and the wrappings around the cross pole should be to the outside of the previous wrapping turn. When this pattern of taking the wrapping turns is followed the rope strands remain parallel; this insures the maximum contact between the wood and the rope. Also if the strands are not kept parallel, the additional friction between the crossed strands will make it difficult to properly tighten the wrapping turns. (6) Start the frapping turns by taking one



complete turn around the cross pole; [NOTE] The turn around the cross pole prevents the rope from crossing the wrapping turns on a diagonal. If the change of direction between the wrapping turns and the frapping turns is made by passing the rope diagonally across the wrapping turns, the increased friction between the rope strands will make it difficult to pull the wrapping turns tight. A diagonal across the wrapping turns will also allow unnecessary movement within the completed lashing, which could cause chaffing of the rope. (7) Take at least two frapping turns; keep the turns parallel to each other; pull each turn tight as it is made. [NOTE] Keeping the frapping turns parallel prevents unnecessary friction between the turns making it easier to tighten the frapping turns. (8) When the last frapping turn is in place, take a half hitch around the cross pole, work the half hitch tight. [NOTE] To prevent the rope from crossing the wrapping turns diagonally when tying the half hitch, take the rope past the cross pole on the same plain as the frapping turns, then around the cross pole. [NOTE] To work the half hitch tight, first pull the running end toward the standing end. This will tighten the frapping turns. Next, while



keeping tension on the running end pull it in the opposite direction so that the loop of the half hitch will slip around the pole. This takes up any slack left in the rope. Work the running end back and forth in this way until the half hitch is locked tight against the lashing. If this half hitch is not locked against the lashing the ending clove hitch can slip around the pole allowing the lashing to loosen. (9) Add a second half hitch to form a clove hitch around the cross pole; work half hitch tight.



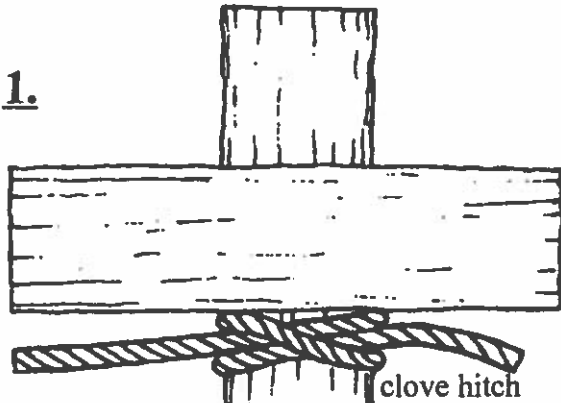
[NOTE] If smooth rope is being used a third half hitch added to the clove hitch will help insure that the lashing will stay securely in place.



SQUARE LASHING

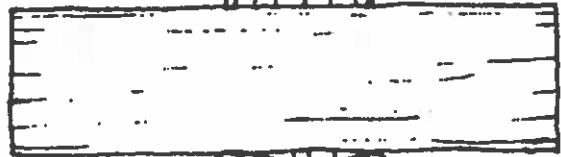


1.

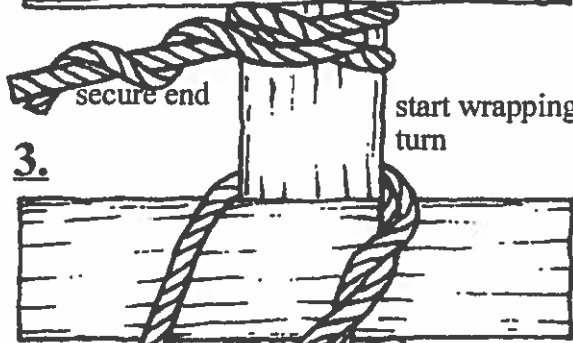


clove hitch

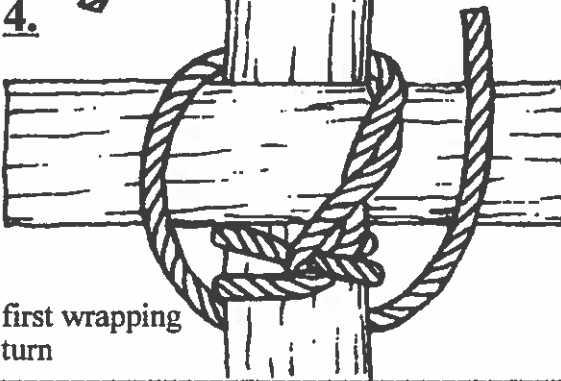
2.



3.

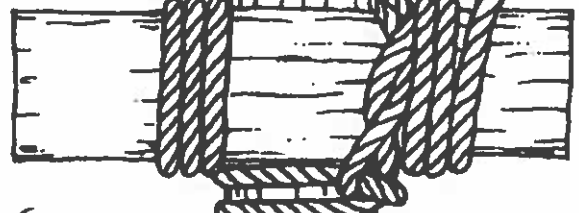


4.

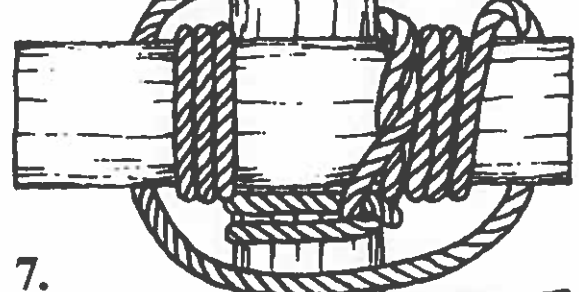


first wrapping turn

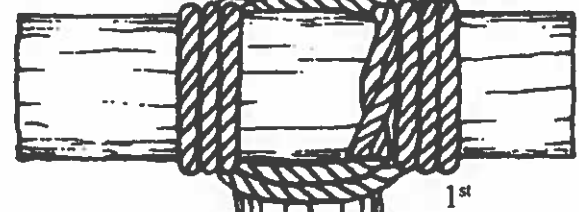
5. make 3 wrapping turns



6. first frapping turn

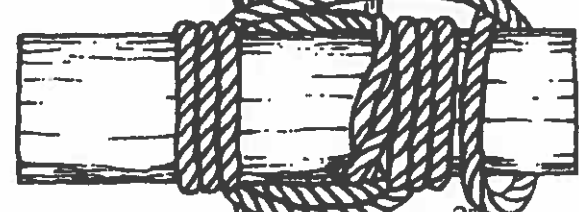


7. make 2 frapping turns



1st half hitch

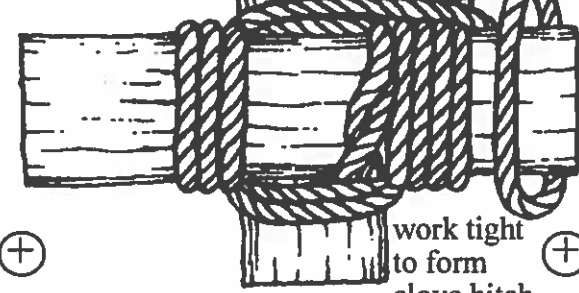
8.



work 1st half hitch tight

2nd half hitch

9.



work tight to form clove hitch

