

8 Knots & Hitches

You need to be able to tie 8 of these knots and Hitches on your own and be able to explain why/where you would use them

You also need to demonstrate them in a construction activity

Reef or Square Knot

- Use the reef knot to tie two ropes of equal size together so they will not slip.
- Note that the running end and standing part of one rope come out on the same side of the bight formed by the other rope.
- The reef knot will not hold if the ropes are wet or if they are of different sizes.
- It tightens under strain but can be untied by grasping the ends of the two bights and pulling the knot apart.

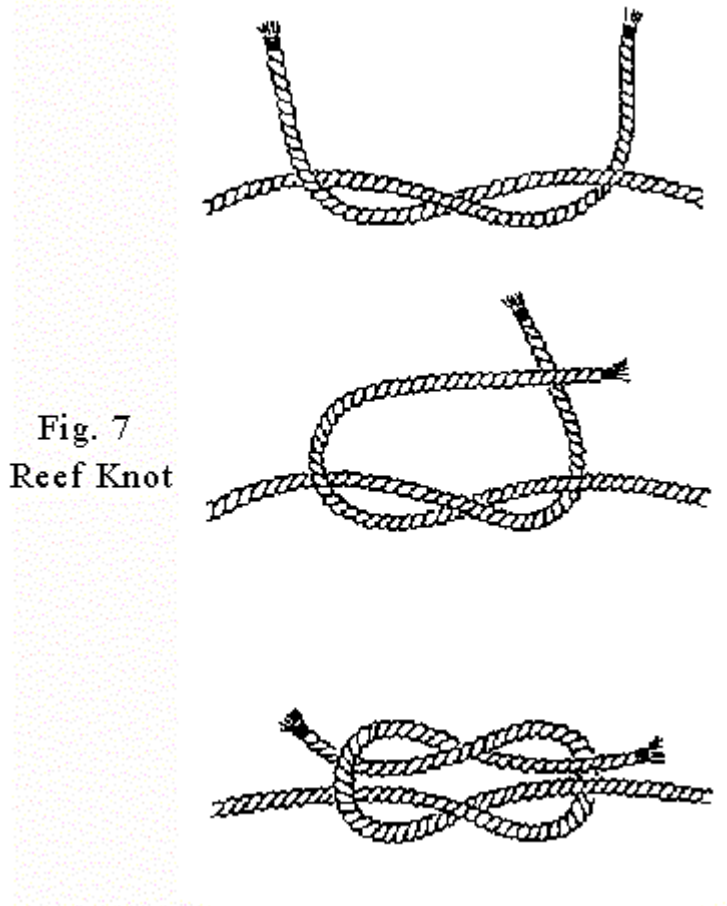


Fig. 7
Reef Knot

To tie a Reef Knot:

- Pass the right-hand running end over and under the left-hand running end.
 - Bring the two running ends together.
 - Pass the left-hand running end over and under the right-hand running end.
 - Draw tight.
- It makes no difference whether the first crossing is tied left-over-right or right-over-left as long as the second crossing is tied opposite to the first crossing.

Sheet Bend

- Tying together two ropes of unequal size. If used this way, the smaller diameter rope should pass around the larger one. Keep in mind that the breaking strength of the combined rope will be less than that of the smaller line.
- Can be used to tie a rope to an eye for light loads.

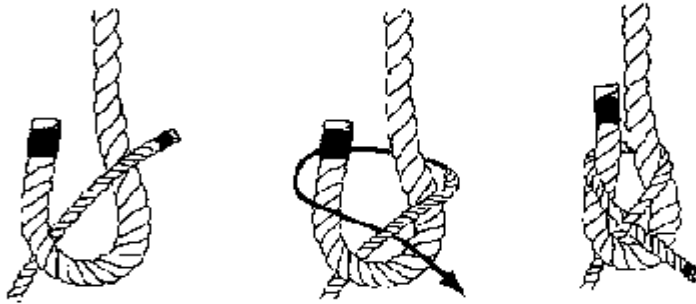


Fig.11
Sheet Bend

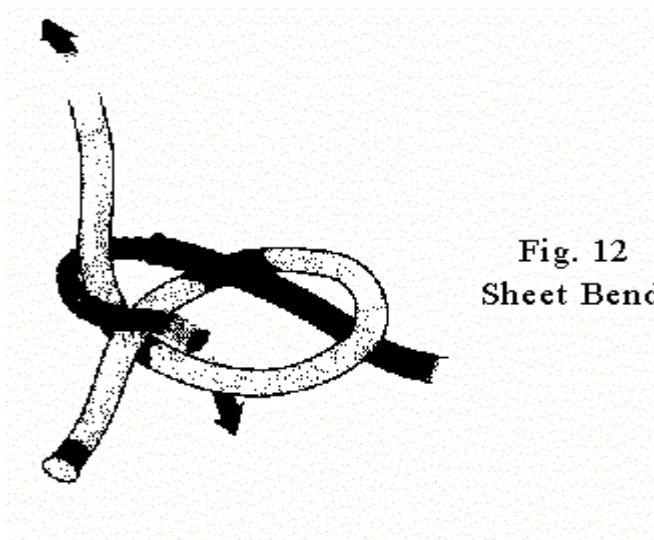


Fig. 12
Sheet Bend

- Compare the Sheet Bend to the Bowline and you'll see they are essentially the same knot.

To tie a Sheet Bend:

- Make an overhand loop in front with the first rope.
- Pass the second line up through the loop and take it around behind the standing part, and down through the loop on the other side.

OR

- Form a bight with the larger rope.
- Take the thinner rope and bring it up through the bight.
- Pass it around both parts of the thicker line.
- Pass the running end of the thinner rope under the same line and over the thicker rope.

Fisherman's Knot

- Used to tie two ropes of equal thickness together.
- Used by fishermen to join fishing line.

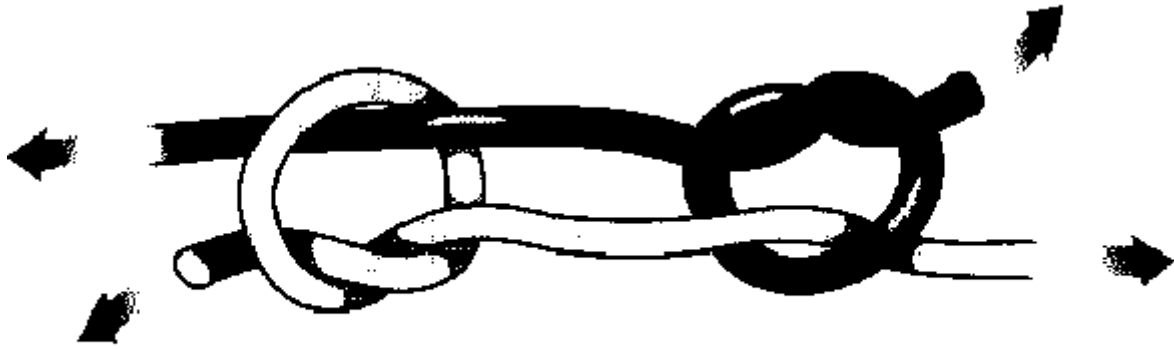


Fig. 16
Fisherman's Knot

To tie a Fisherman's Knot:

- Tie an Overhand Knot in the running end of the first rope around the second rope.
- Then tie an Overhand Knot in the second rope, around the first rope.
- Note that the Overhand Knots are tied such that they lie snugly against each other when the standing ends are pulled.

Bowline

- The bowline is one of the most common knots and has a variety of uses, one of which is the lowering of men and material.
- It is the best knot for forming a strong single loop that will not tighten or slip under strain and can be untied easily.
- The bowline forms a loop that may be of any length.

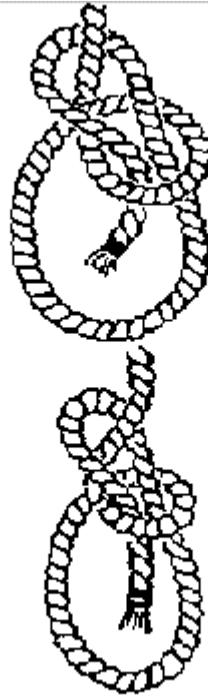
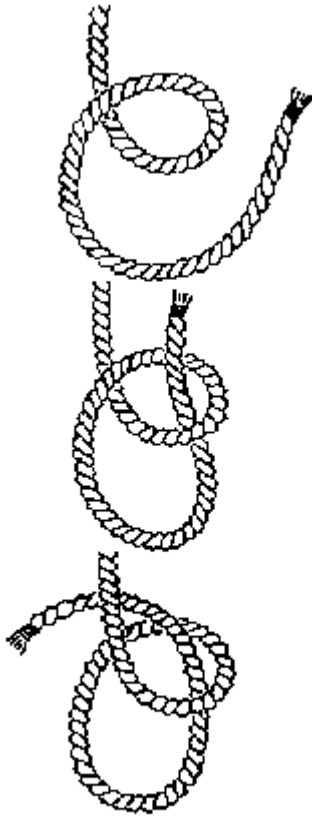
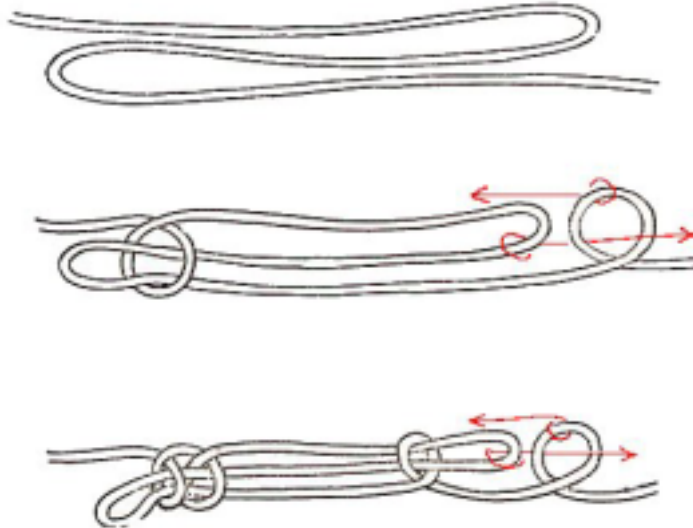


Fig.10
Bowline

To tie a Bowline:

- Hold the standing part in the left hand.
- With the right hand, make an overhand loop in front of the standing part. Hold with the left thumb and forefinger.
- Take the running end in the right hand. Pass up through the loop, behind the standing part, and down through the loop on the other side.
- Draw tightly

Sheepshank



- The Sheep Shank is used for shortening or to take up tension without cutting or damaging the rope. This may be secured by lashing loops to standing parts, or by slipping a stick through the loop and under the standing part. It is important to get this knot really tight, or it will shake out. Note the method of straining the second loop

Figure Eight Knot

- Use the figure-eight knot to form a larger knot at the end of a rope than would be formed by an overhand knot. The knot prevents the end of the rope from slipping through a fastening or loop in another rope or from unreeving when reeved through blocks.
- It is easy to untie.

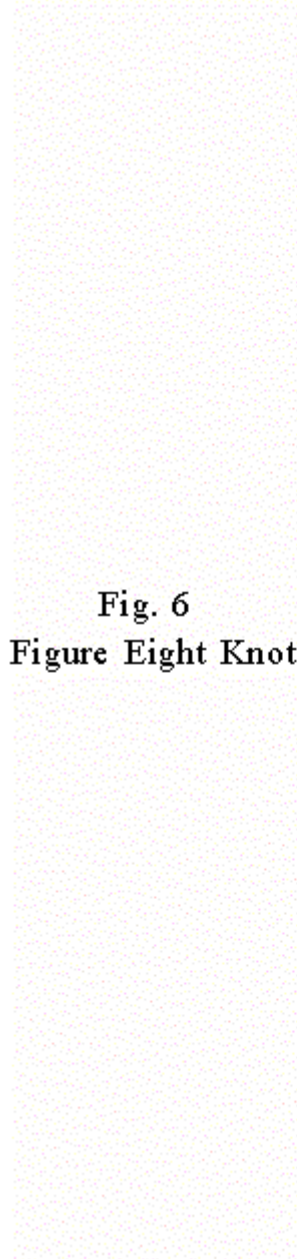


Fig. 6
Figure Eight Knot



To tie a Figure of Eight Knot:

- Make an under-hand loop in the standing part.
- Pass the running end around and over the standing part, pass the end under and then down through the loop.
- Draw tight.

Clove Hitch

- The clove hitch is another widely used knot. It can be tied using the end or the middle of the rope.
- Used to fasten a rope to a timber, pipe, or post. Often used to start and finish lashings.
- With practice, this can be easily tied with one hand.

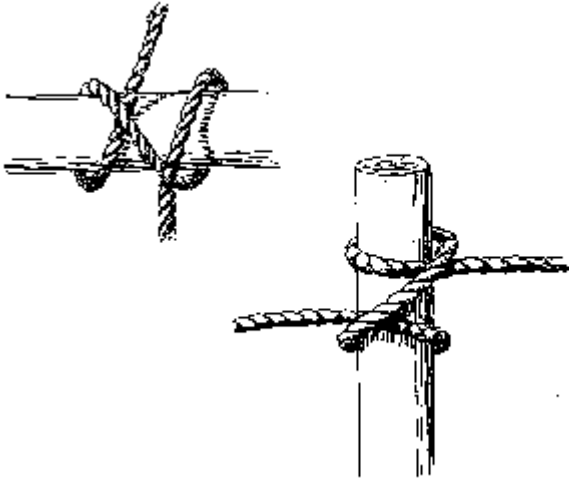


Fig. 13
Clove Hitch

To tie a Clove Hitch:

- Loop the rope around the object you're tying to. Hold an end in each hand.
 - Cross the end in your right hand over the end in your left hand, forming an X with your hands holding the pieces at the top of the X.
 - Wrap the end in your right hand around behind the object again in the same direction as before, leaving the wrap loose. When you bring it back around to the front, poke the end under the piece of rope that you just wrapped around.
- To make a Clove Hitch in the center of the rope - see figure 14.

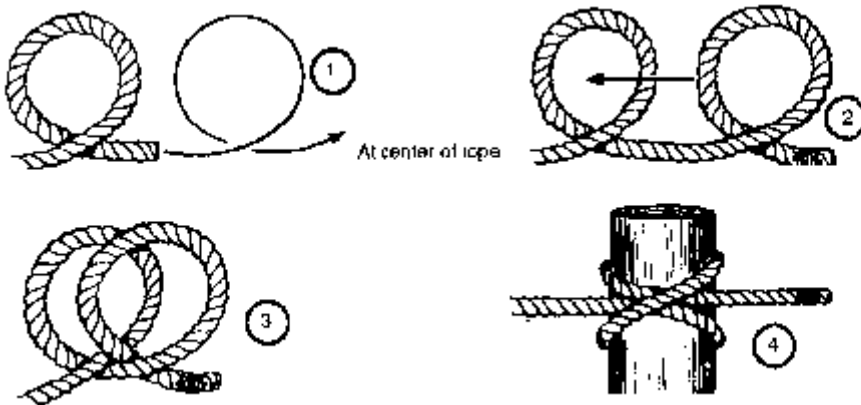


Fig. 14
Clove Hitch

Round Turn and Two Half Hitches

- This knot is used to secure a rope to a column or post.
- It is easily tied, will not jam, and can withstand strain without slipping.
- For greater security, seize the running end of the rope to the standing part.

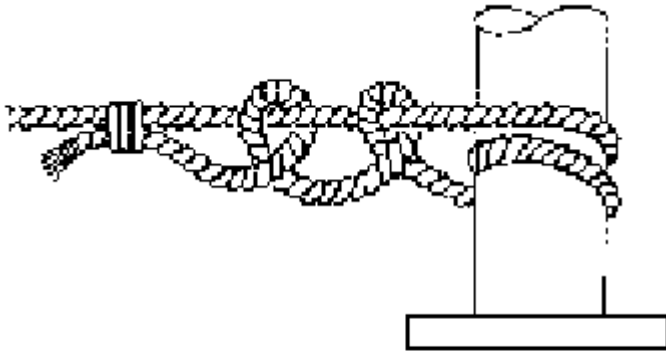


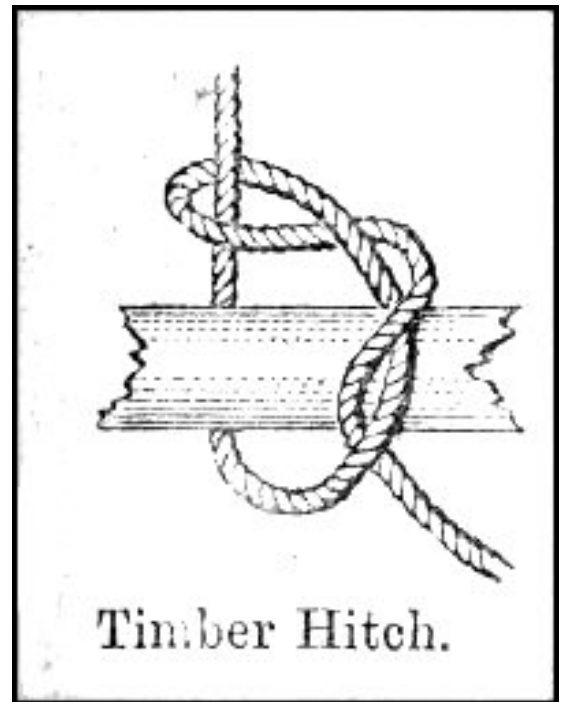
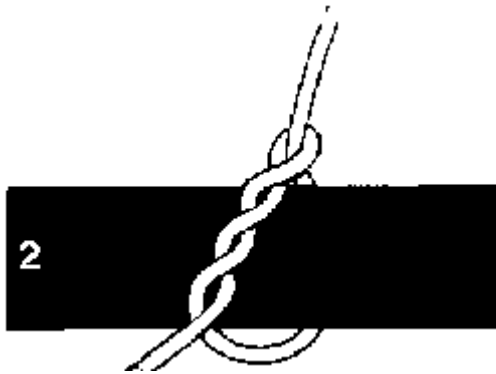
Fig. 15

Round Turn and Two Half Hitches

To tie a Round Turn and Two Half-Hitches:

- With the running end of the rope, take one complete turn around a fixed object.
- Pass the running over the standing part of the rope, and tuck it back up and under itself, forming a half hitch. Repeat for a second half hitch.

Timber Hitch



The Timber Hitch is used for securing the end of a rope to a spar.

Take the end of a rope round a spar, pass it under and over the standing part, then pass three turns round its own part, and haul it taut.

In towing a spar, log etc, always use a half-hitch in addition to a timber-hitch.

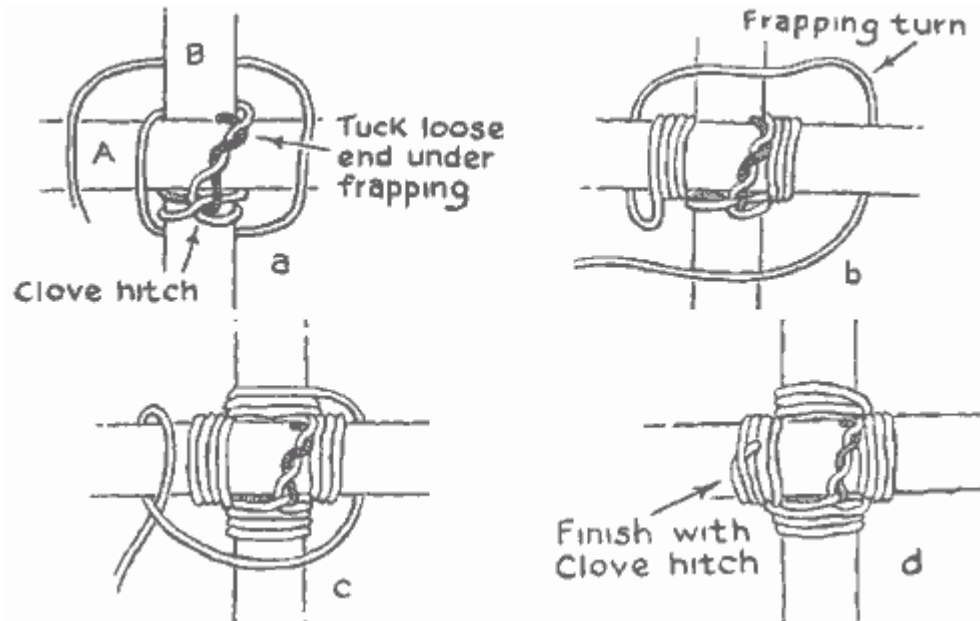


4 Lashings

You need to be able to tie these lashings on your own and be able to explain why/where you would use them

You also need to demonstrate them in a construction activity

Square Lashing



Used when lashing two spars or staves together at, or near, right angles to each other.

A square lashing is started with a clove hitch around the leg, immediately under where the cross piece is to be. Twist the short, free end of the clove hitch around the main part of the rope and begin laying the turns as in Fig. i.

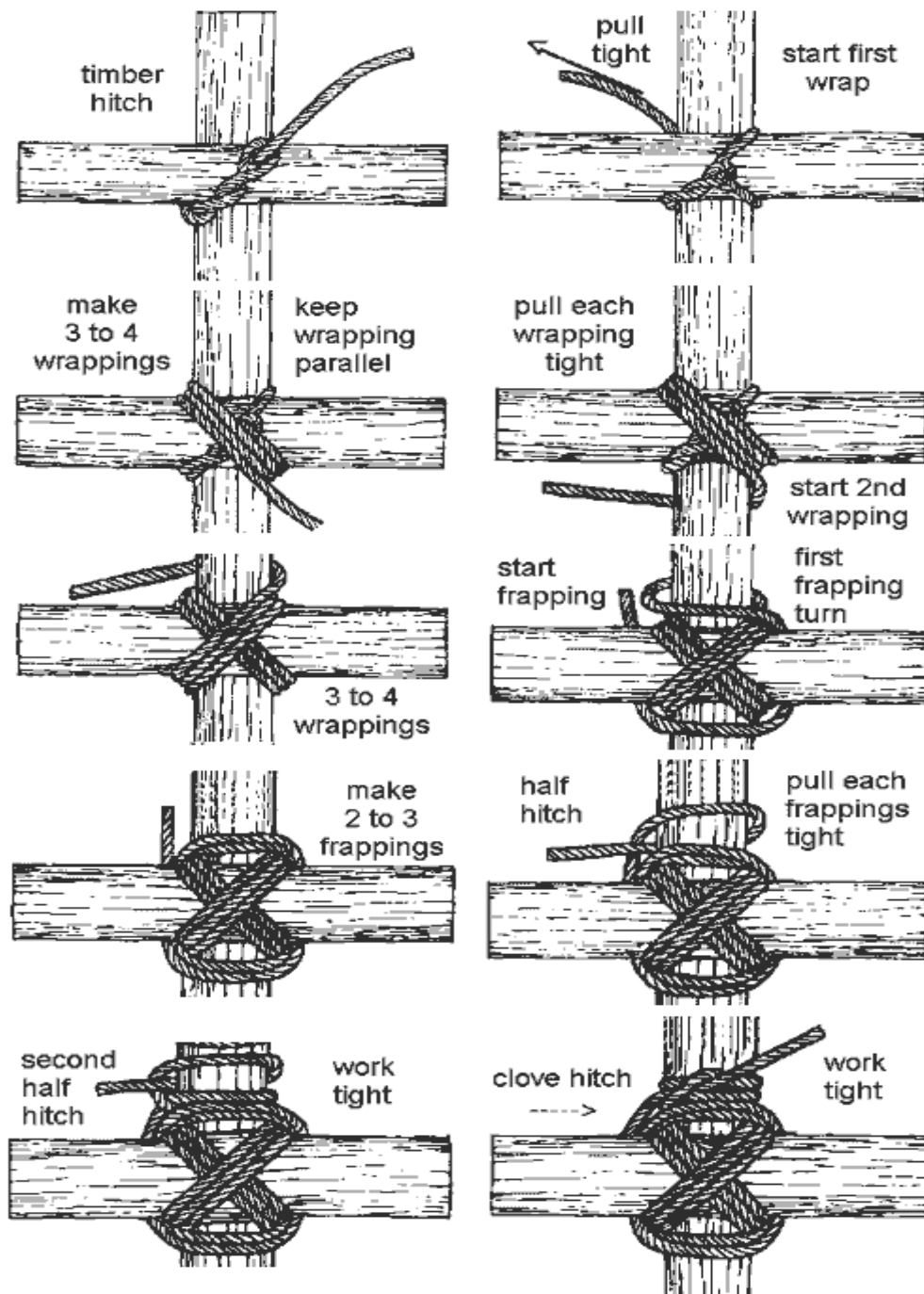
When laying the turns, the rope goes on the outside of the previous turn around the cross piece and on the inside of the previous turn around the leg. Keep the rope taut. Three or four turns are necessary before you begin the frapping. Fig. ii.

Make two or three 'frapping' turns between the spars and strain them tightly as possible

Finish the lashing with a clove hitch around the end of a cross piece.

Remember: Start with a clove. wrap it thrice. frap it twice and end with a clove

Diagonal Lashing



A diagonal lashing is used to 'spring' two spars together.

This lashing is started with a 'timber hitch' around the two spars at the point where they cross, so binding them together.

Take three turns around the spars, following the lay of the timber hitch, making sure that the turns lie beside each other, not on top of one another.

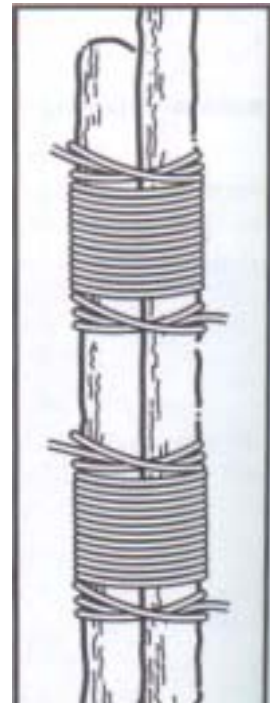
Lay three more turns, this time crosswise over the previous turns and strain to tighten. Make two frapping turns between the two spars, around the lashing turns.

Strain the frapping turns tightly and finish the lashing with a clove hitch around any convenient spar.

Round Lashing

Used to lash two poles together (constructing a flagpole)

1. Tie a clove hitch round the bottom pole
2. Wind the rope around both six or seven times
3. Finish with two half hitches round both poles.
4. The lashing can be tightened by driving a small wooden peg between the poles



Sheer Lashing

Begin with a clove hitch round one spar.

Bind, not very tightly, round both.

Bring rope between spars and frap a few times round binding.

Finish with a clove hitch round other spar

Tighten by opening up shears

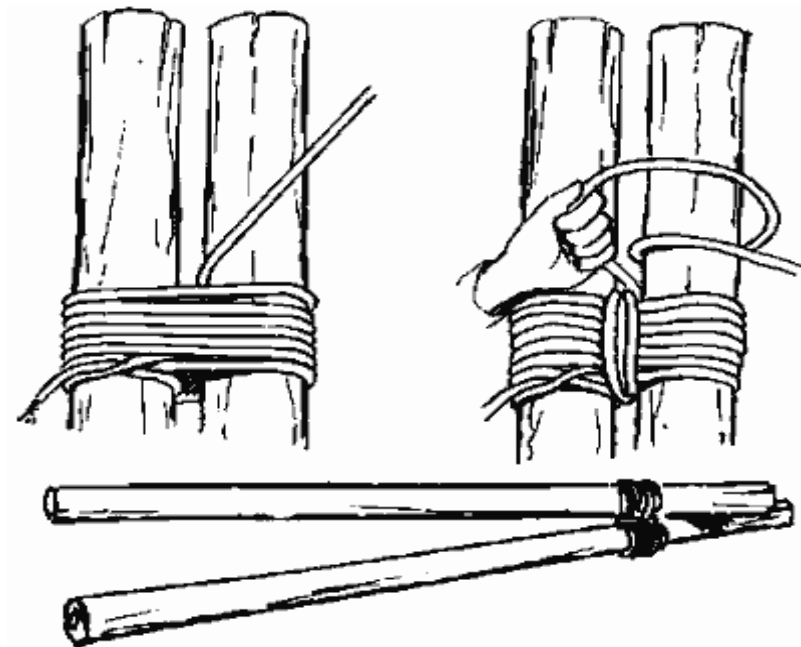


Figure 8 Lashing

A method similar to the Shear Lashing, you can be used to tie 3 poles together to form a tripod or Figure 8 Lashing. Make turns round all three legs and frapping in the two gaps.

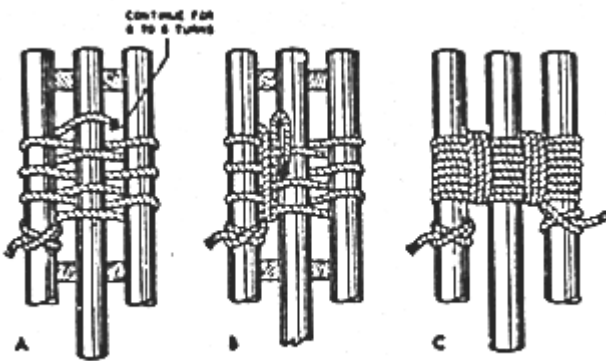
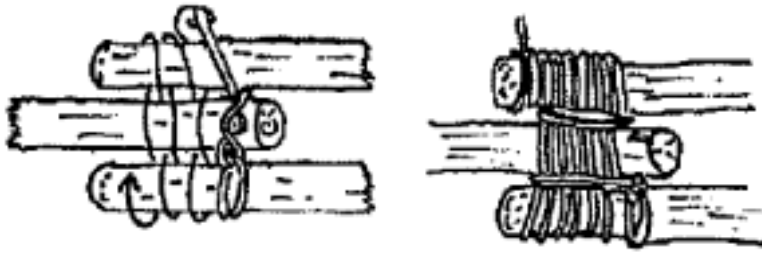
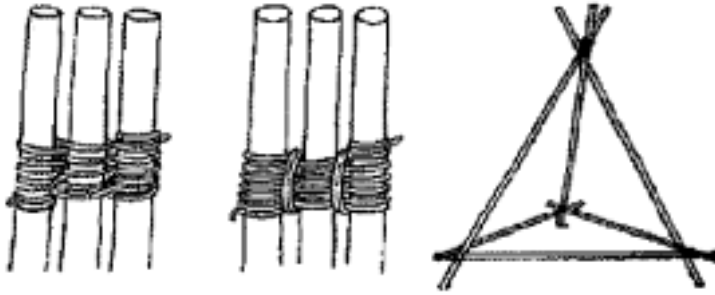


FIGURE 23.—Making figure-eight lashing.

The feet of A-frames and tripods should be anchored to stop them spreading.

Splices & Whipping

You need to be able to demonstrate these Splices and Whipping on your own

Whipping

- Whipping or "seizing" is the common way of preventing a rope from unraveling. This method is fast, and, more importantly, it does not increase the diameter of the rope which can therefore be reeved through a block without difficulty.
- To make a whipping, a fine yarn is generally used. Make a loop in the end of the yarn and place the loop at the end of the rope, as shown in figure 2.

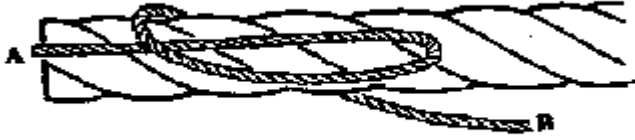


Fig. 2

- Wind the standing part (B) around the rope approximately 15 - 20 times, covering the loop of the whipping, but leaving a small loop uncovered as shown in figure 3. Pass the remainder of the standing end up through the small loop, and pull the dead end (A) of the yarn - thus pulling the standing end (B) and the small loop through which it is threaded back toward the end of the rope underneath the whipping, as shown in figure 3.



Fig. 3

- Continue pulling the dead end (A) of the yarn until the small loop with the standing end through it reaches a point midway underneath the whipping. Trim both ends of the yarn close up against the loops of the whipping.
- The finished whipping is shown in figure 4.



Fig. 4

BACK SPLICE

Where the end of a fiber line is to be spliced to prevent unlaying and a slight enlargement of the end is not objectionable, use a back splice.

- Step 1. Unlay six turns of the line (Figure 12-24).
- Step 2. To start the crown knot, form a bight with the left strand and lay the bitter end of the strand between the right and center strand. Then lay the center strand over the running end of the left strand. Take the right strand under the running end of the left strand, over the running end of the center strand, and back through the bight of the left strand. Then take all the slack out of the strands and gently pull the strands tight (Figure 12-25).
- Step 3. Start the left strand; go over one strand, tuck under the next one, and pull the strand tight (Figure 12-26).
- Step 4. Turn the line and tuck each strand. Three complete tucks are required for each strand (Figure 12-27).
- Step 5. Trim off the ends of the strands. Then lay the splice on the floor, put your foot on it, and roll it back and forth. This will tighten up and smooth out the splice

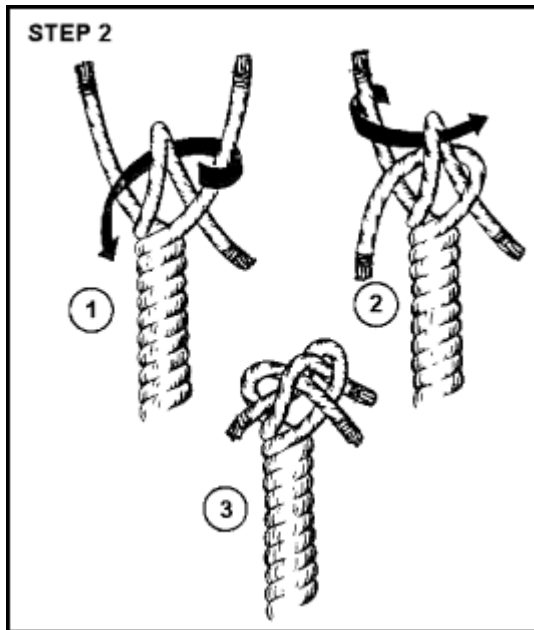


Figure 12-24. Making a Back Splice, Step 1

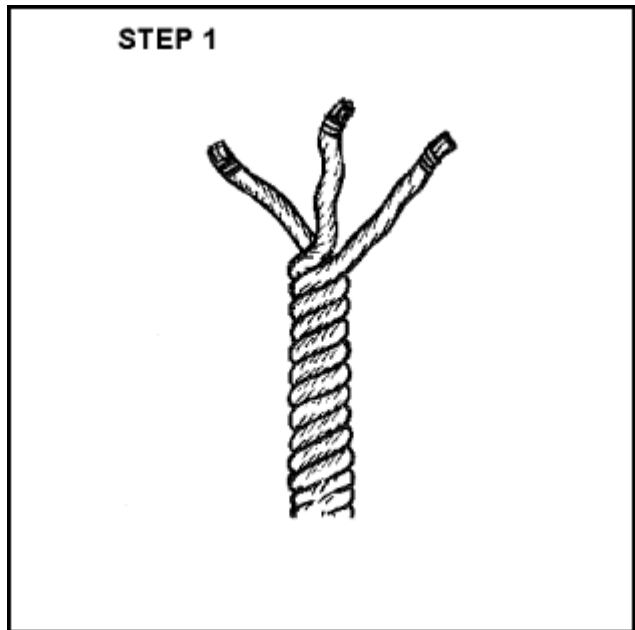


Figure 12-25. Making a Back Splice, Step 2

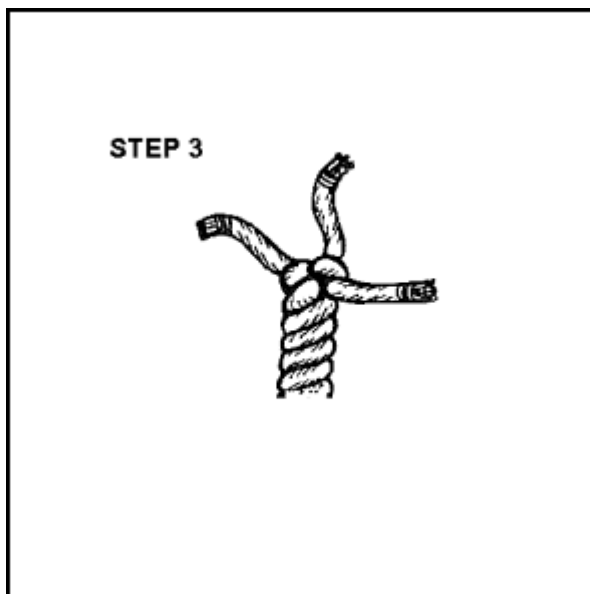


Figure 12-26. Making a Back Splice, Step 3

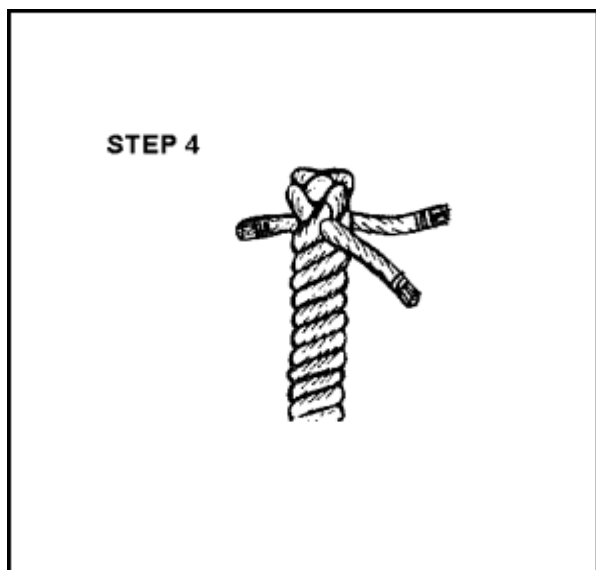
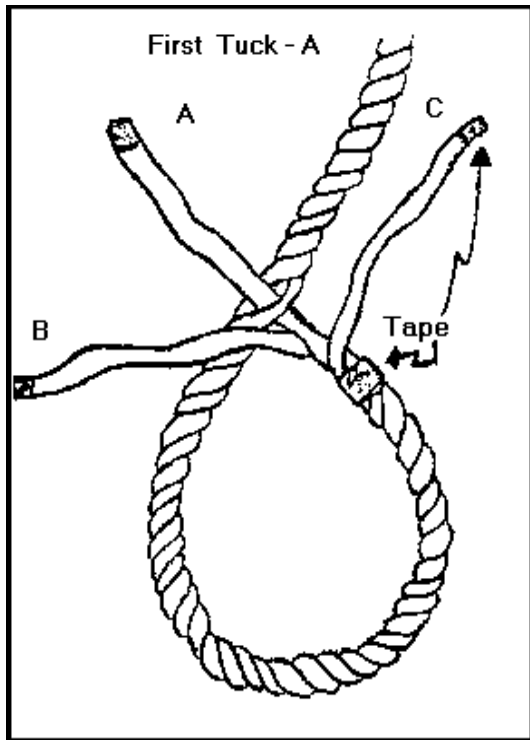


Figure 12-27. Making a Back Splice, Step 4



EYE SPLICE

Unlay one end of the line a short distance.

Tape ends & body of line to prevent further unlaying.

Tuck the centre strand (A), tucking from right to left against the lay of the strands.

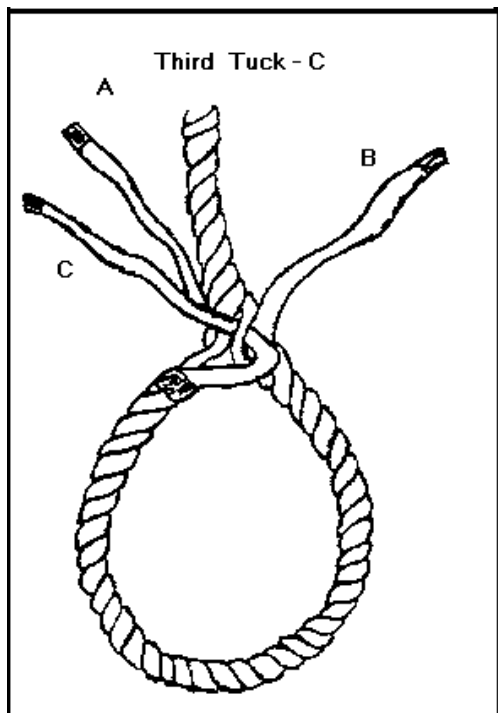
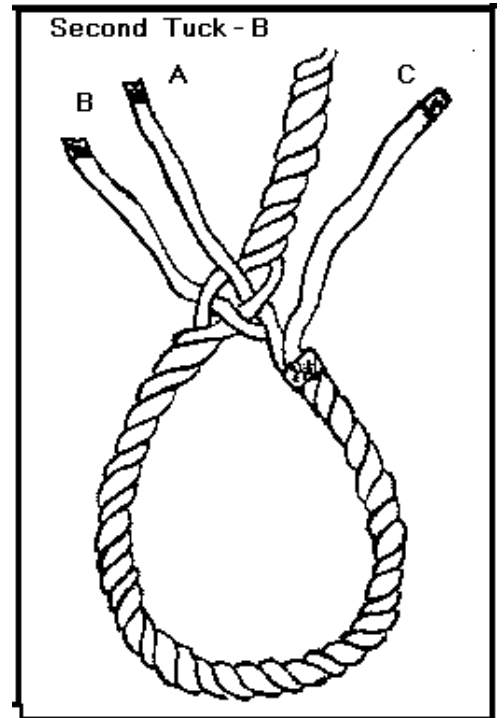
NOTE: Eyes to which hooks or shackles will be attached should have a metal (or nylon) insert, called a thimble. (not shown for clarity).

If a thimble is to be used, wrap the line tightly around it & start the splice as close to the narrow end as possible.

Now tuck the left hand strand (B) under the strand to the left of the one used for (A).

Again tuck from right to left.

NOTE: If rope is weathered & stiff, it may be necessary to open the strands with a pointed tool, called a fid (or screwdriver).



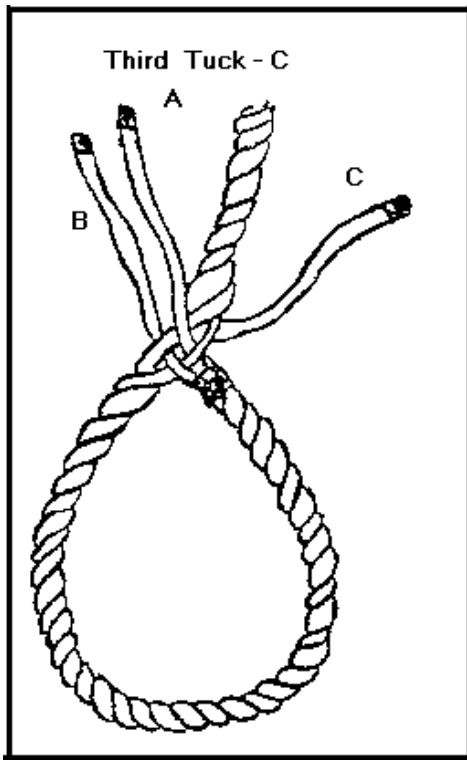
This is the step where you may go wrong.

Turn the splice over.

Tuck the remaining strand (C) under the remaining unused strand, again right to left.

Make sure you tuck from right to left against the lay.

Make sure you do not go under one of the strands already used, nor one of the strands (A) or (B)

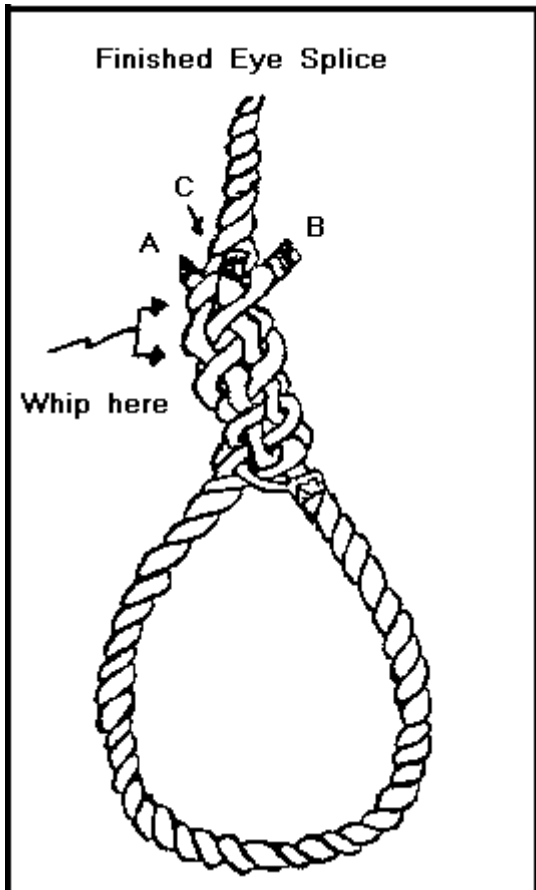


Now turn the eye back again.

Pull each strand tight before continuing.

If you are splicing around a thimble, check that the splice will fit tightly enough to keep the thimble from working out.

NOTE: Nylon lines under stress will work loose of the usual type of galvanized thimble, and should be whipped as shown below. There are nylon thimbles with integral loops to keep the line securely on the thimble.



Continue the splice by returning to the (A) strand.

Again tucking from right to left, go over the neighbouring strand, and tuck under the next strand.

Repeat, in turn, with the (B) & (C) strands.

Again pull the strands tight.

Repeat until each strand has been tuck at least 4 times (for nylon line).

Cut off the strands about 1/2" beyond the place of emergence.

Singe, whip, or tape the ends (or leave "natural" according to preference).

Whip or tape the splice end for security or looks.