

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G85.800.3
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AT&T Co Standard

MANILA ROPE AND BLOCKS

KNOTS, BENDS AND HITCHES

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1. GENERAL

1.01 The knots, bends, hitches and lashings covered in these practices are those most commonly used in telephone work and have been found to be satisfactory. Use them for the purpose specified.

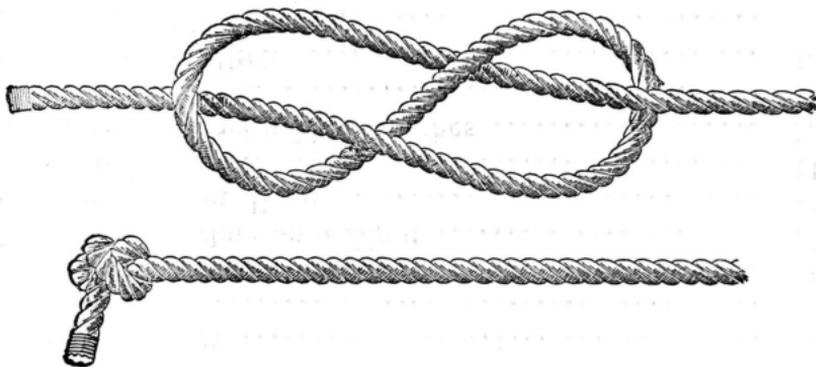
1.02 The strength of manila rope containing a knot is reduced about 60 per cent as the bend in the rope places most of the strain on the outside fibers.

2. SAFETY PRECAUTIONS

- 2.01 The safety precautions set forth in the section "Rope—General," of this group of practices shall be adhered to.
- 2.02 Be thoroughly familiar with proper methods of handling rope. Faulty knots or hitches in ropes under strain may cause serious accidents.
- 2.03 When tying knots or hitches in rope leave enough end to ensure that it will not pull out.

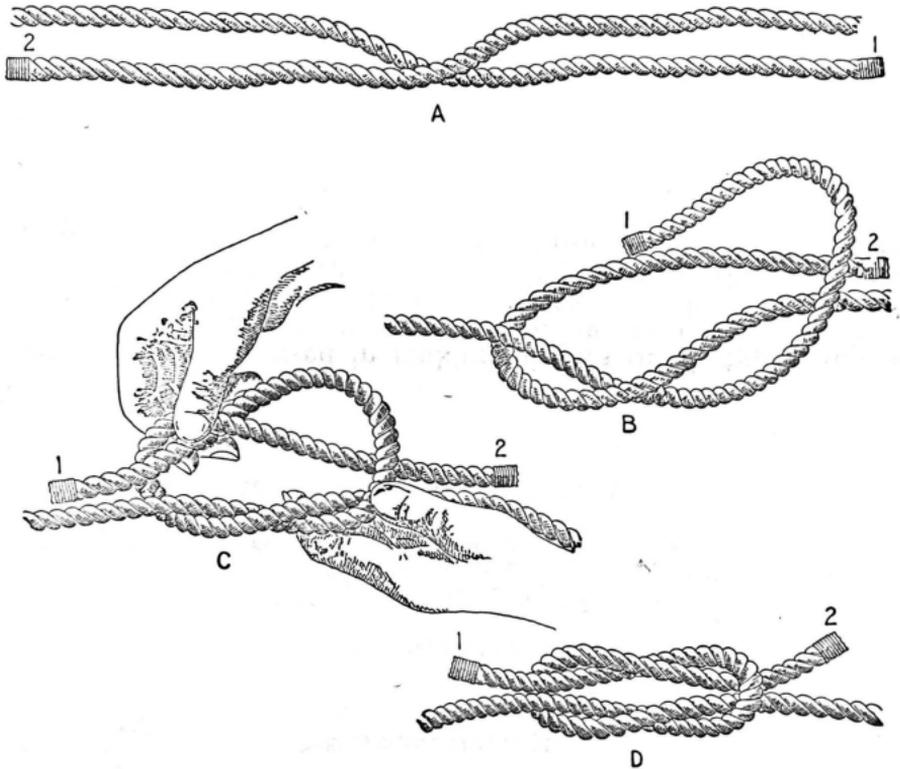
3. FIGURE 8 KNOT

- 3.01 Figure 8 knot is intended for use in preventing the end of the fall line from running through the blocks. It is made as shown below.



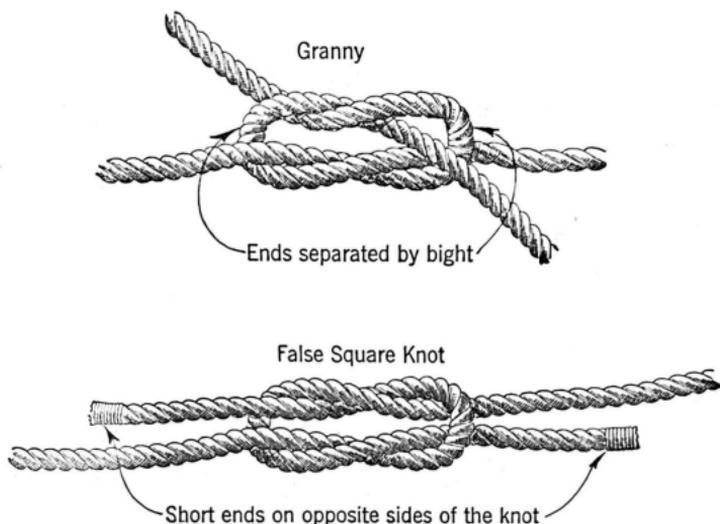
4. SQUARE KNOT

4.01 Square knot is intended for use in joining ends of the same size rope that may be placed under strain as for example joining the ends of ladder and pole lashings. (A square knot joining two ropes of unequal size is very apt to slip.) It is made as shown below.



4.02 If the square knot is improperly made, a “granny” knot or a “false” square knot will result which will not hold and they should never be used.

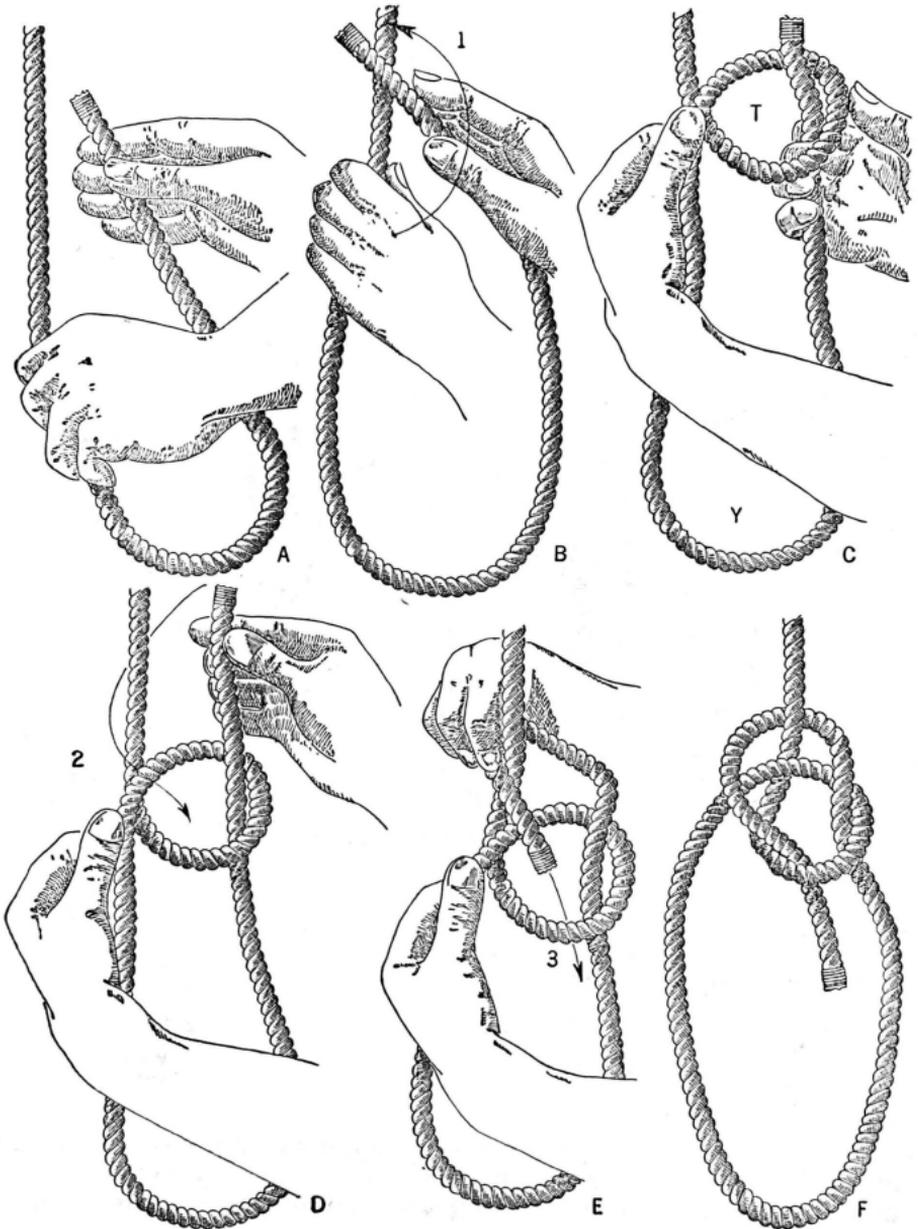
4.03 The following illustrates a "granny" knot and a "false" square knot so that they may be readily identified and avoided.



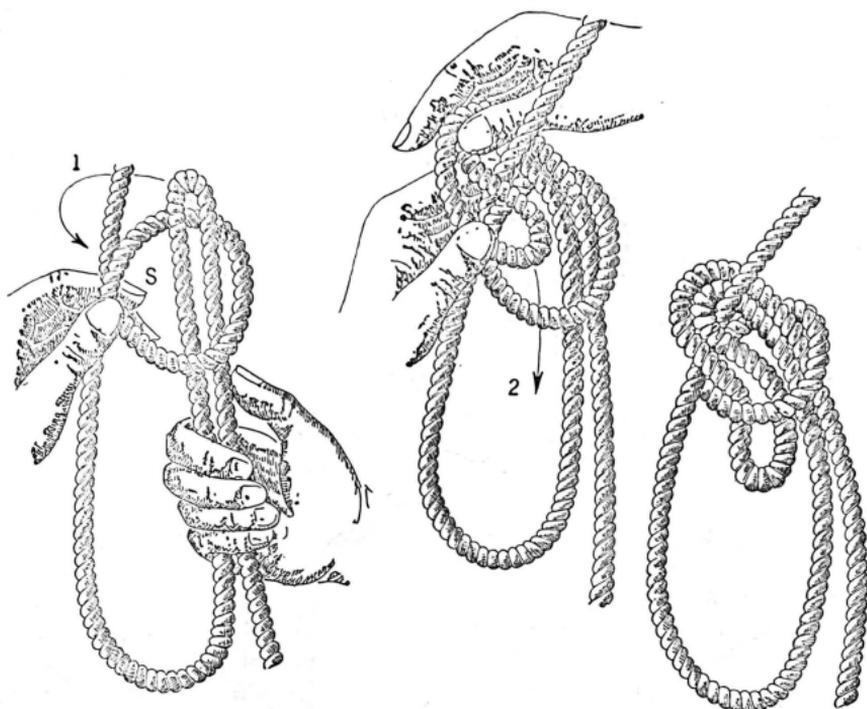
5. BOWLINE

5.01 Bowline is used in making hitches of all types and is formed in various ways depending upon the conditions under which the work is done. It is a tie of universal use and is the best known method for forming a bight that will not slip under tension and may be easily untied.

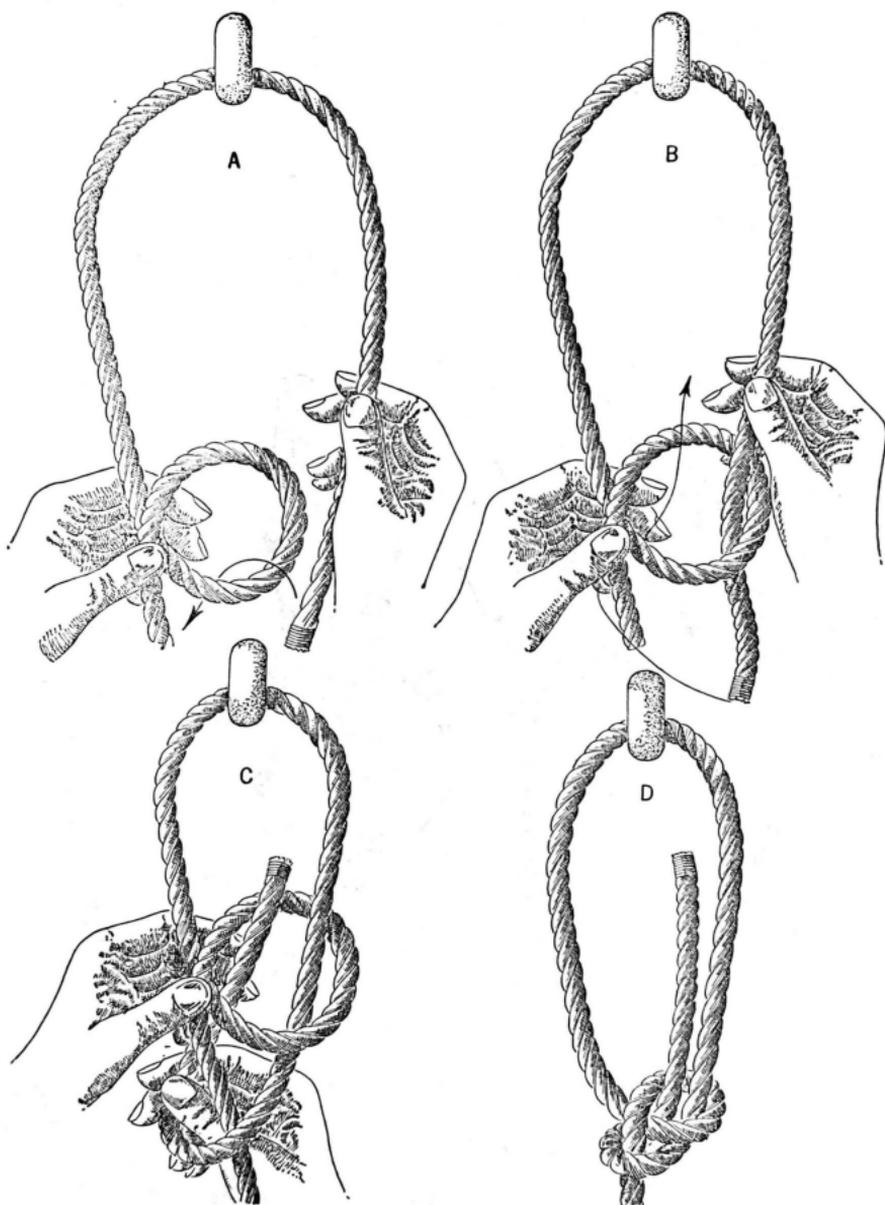
5.02 **Single bowline at end of rope and not attached to an object**, is intended for use in attaching rope to hook of blocks and for joining ends of ropes of different sizes. It is made as shown below.



5.03 **Single intermediate bowline** is also intended for use in attaching rope to hook of block where the end of the rope is not readily available. It is shown below.

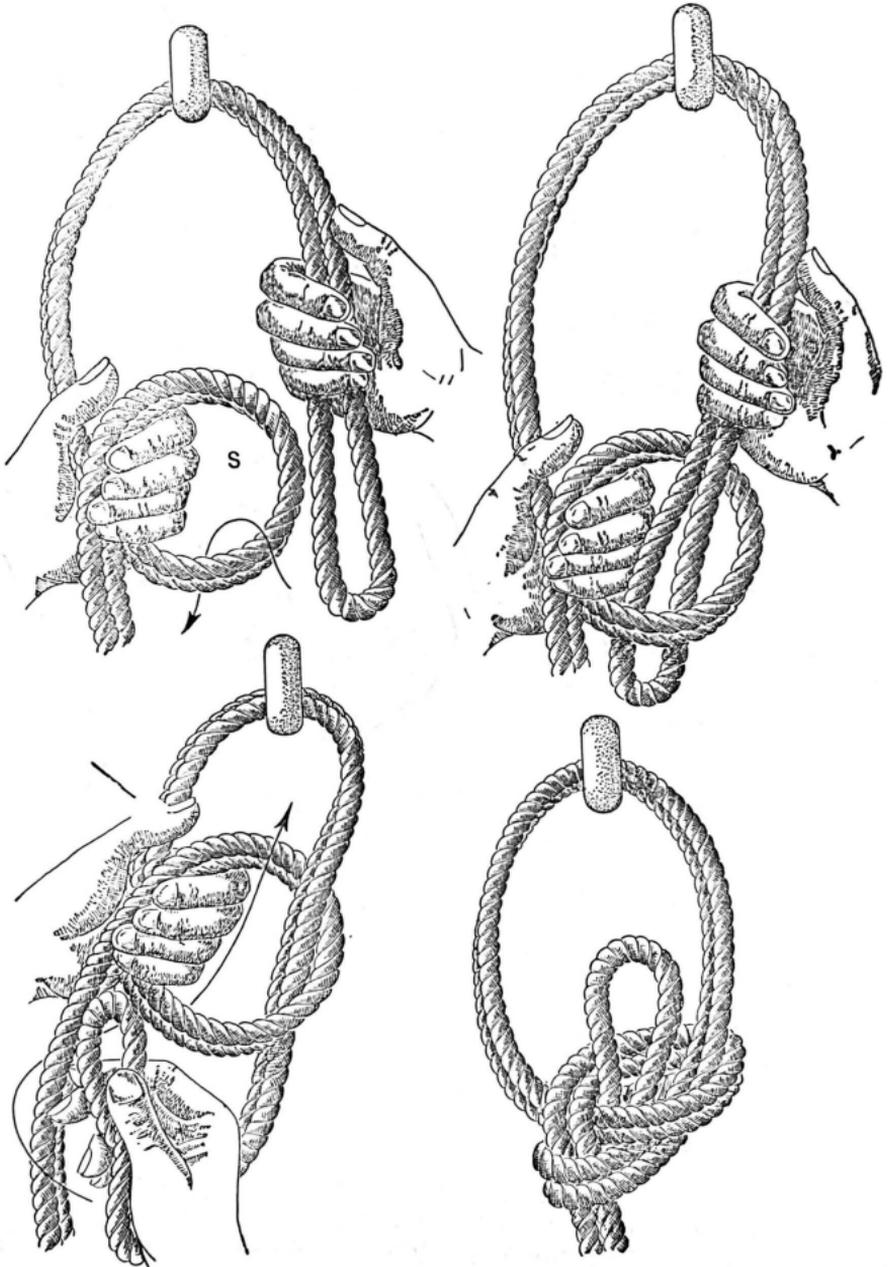


5.04 **Single bowline at end of rope and attached to an object** is intended for use in attaching rope around an object or through a ring or eye as illustrated.

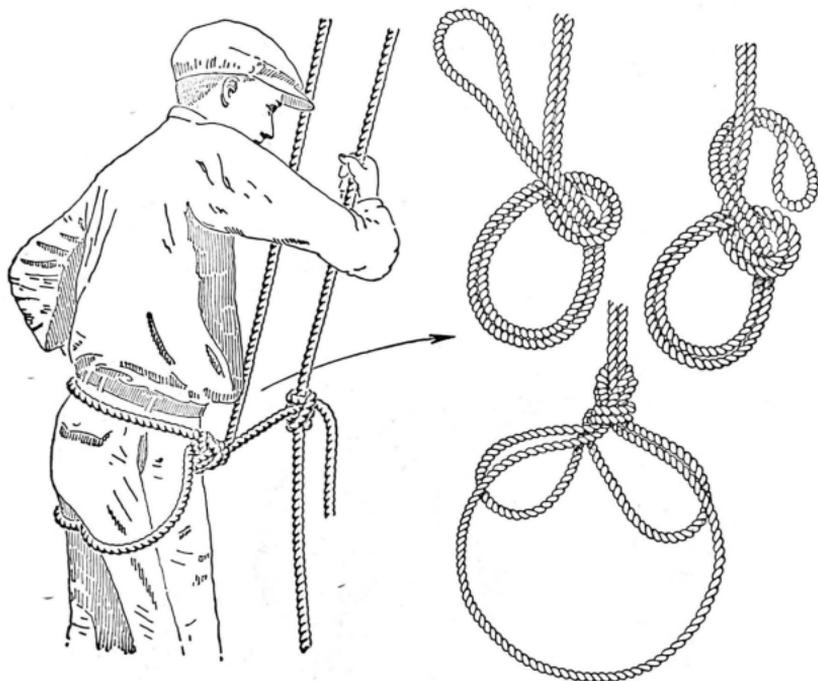


6. DOUBLE BOWLINE

6.01 Double bowline is intended for use in tying at intermediate points. This knot permits two ropes to pass through the eye or over the hook and take the wear instead of one. It is shown below.



6.02 Tree Pruners Handline (125 ft.—1/2 or 5/8 in. rope) with a double bowline knot 4 or 5 feet from one end, the loops of which are fanned out as illustrated provides a comfortable means of working in a tree. The larger loop passes around the waist and one of the smaller loops around each leg. Knot shall be adjusted so that the loops fit the workman snugly.

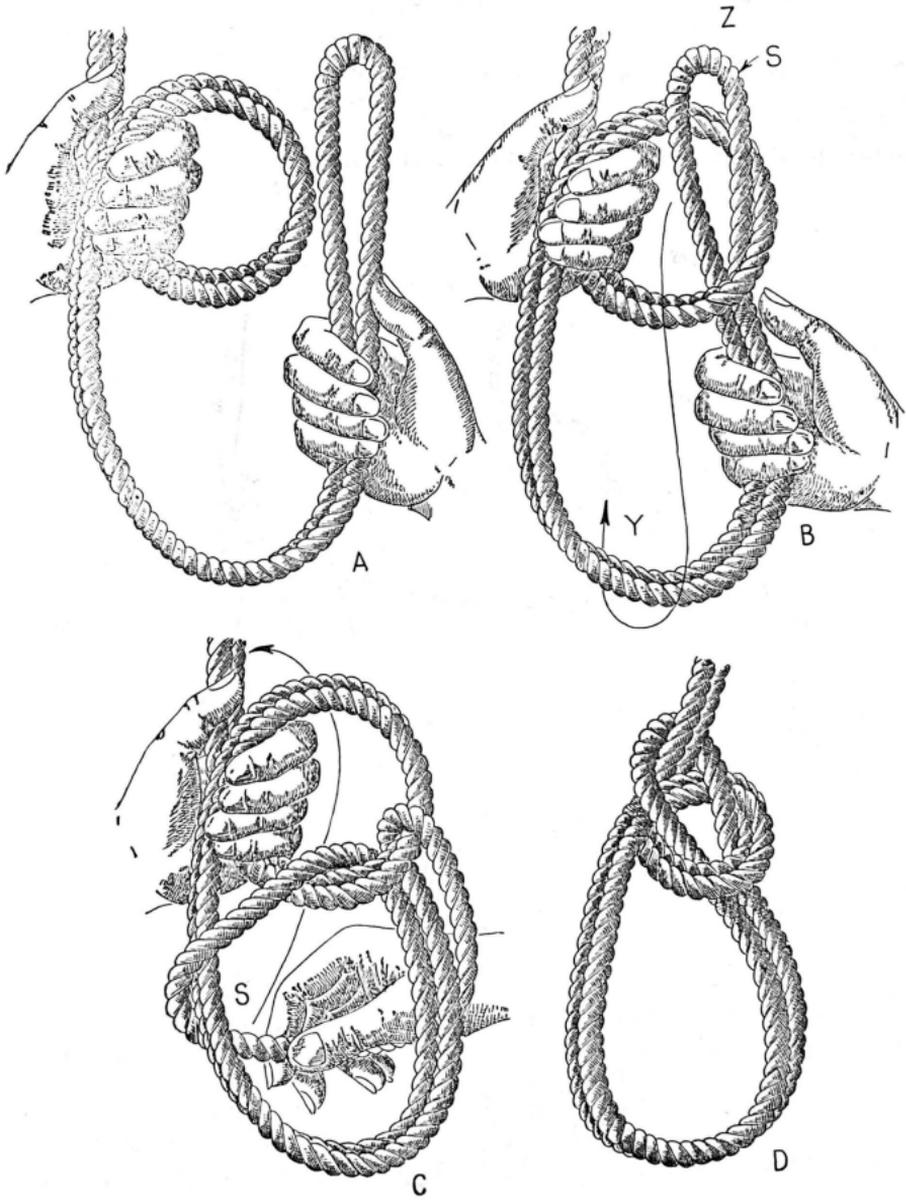


6.03 In climbing a large tree, one end of the rope is thrown over a lower limb as close to the trunk as possible. The workman then gets into the seat knot and pulls himself up into the tree. This method of ascent in most cases eliminates the use of an extension ladder.

6.04 When a number of limbs are to be pruned or removed the rope can be crotched in the top of the tree. The short free end of the rope is then tied in a rolling hitch (see Part 13) around the long end which hangs to the ground. By slipping this knot and keeping as much weight as possible in the rope, the workman can change positions easily and work at a considerable distance from the trunk without danger of breaking the limb or falling out of the tree.

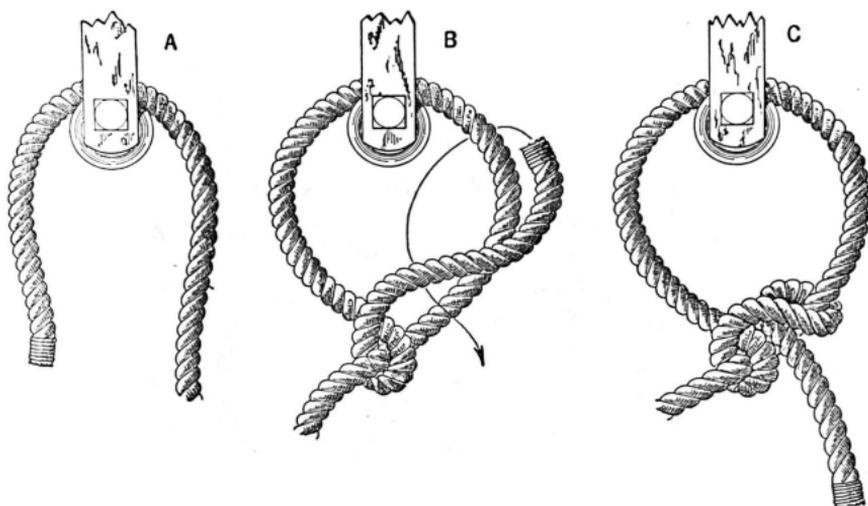
7. DOUBLE BOWLINE ON A BIGHT

7.01 Double bowline on a bight is intended for use as a semi-permanent eye in the middle or end of a rope, to engage with a hook or other similar fastening. This knot shown below, allows two ropes to pass through the clevis and take the wear instead of one.



8. BLOCK BECKET BEND

8.01 Block becket bend is intended for use in attaching the rope to the eye of a guy rod or becket of a block where a temporary connection is desired. It is shown below.

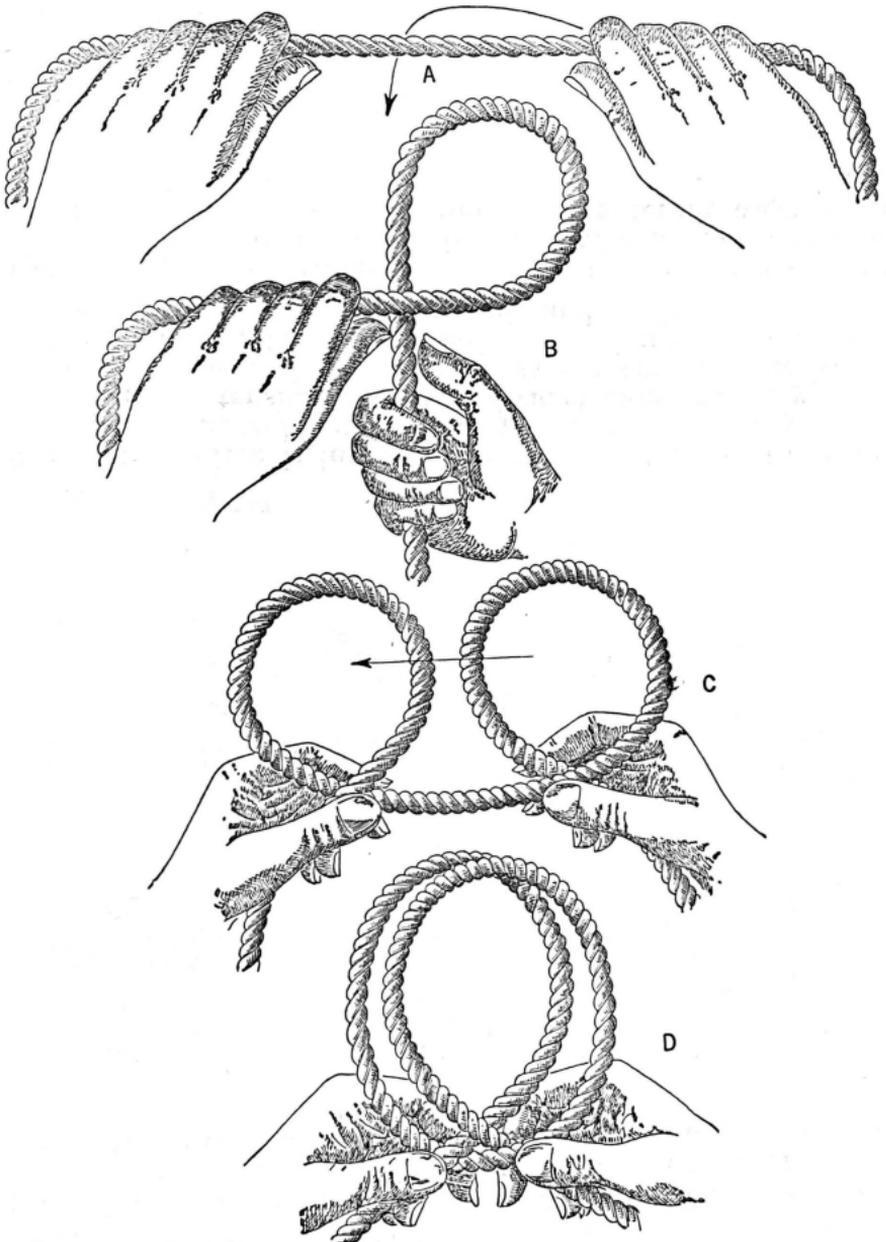


9. CLOVE HITCH

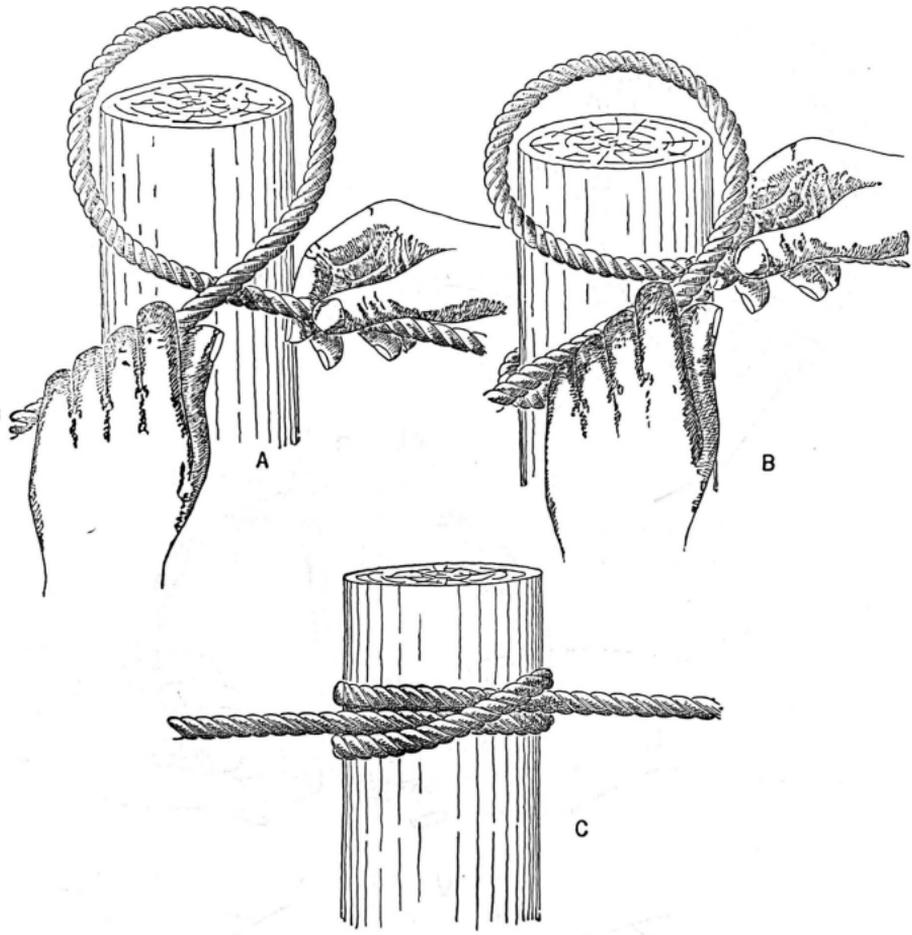
9.01 Clove hitch is intended for use in attaching tools and materials to handline. It may also be used in guying gin poles when the tension is equally divided along the guy ropes in directly opposite directions thus saving cumbersome knots. This hitch will stand a stress in either direction without slipping when properly set. It is quickly made and easily undone.

9.02 Clove hitch is composed of two half hitches made either at the end of a rope or in the middle without access to the ends. It can be made in a number of different ways, three of which are illustrated.

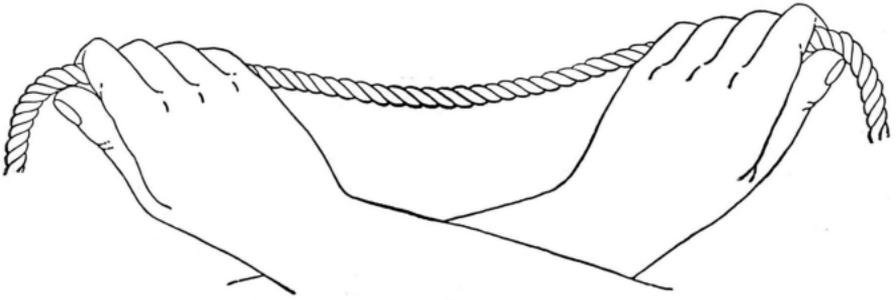
(a) Method of making clove hitch for either low objects or or for passing over the end of an object such as a crowbar.



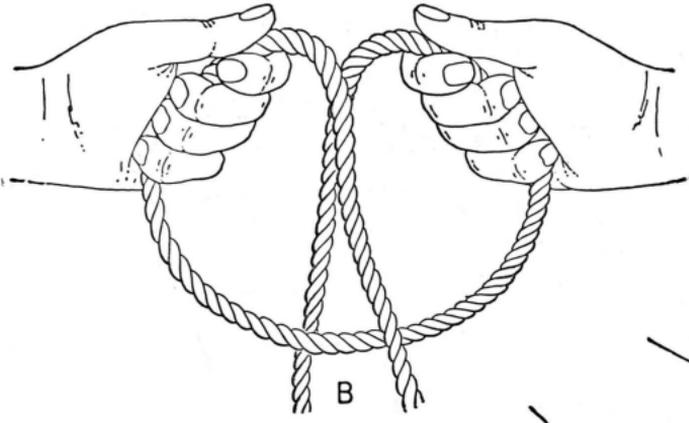
(b) Method of making clove hitch while there is a pull on the rope.



(c) Method of making clove hitch in the quickest manner.



A



B

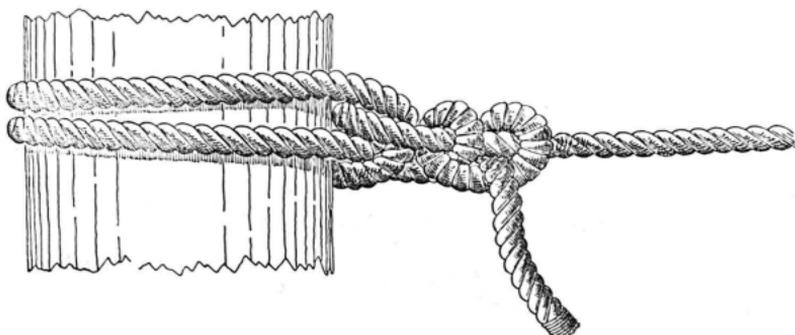
Slip loop from right hand into left hand.



C

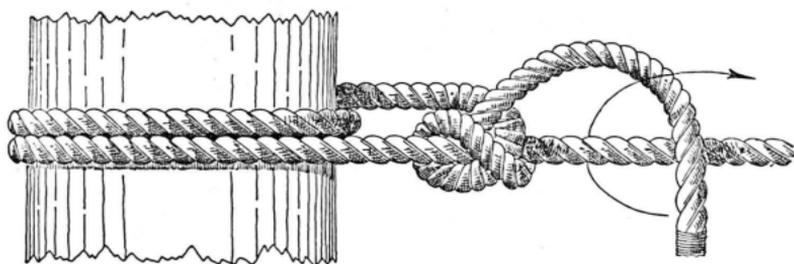
10. CLOVE HITCH WITH HALF HITCHES

10.01 Clove hitch with half hitches is intended for use in temporarily guying poles. The half hitches around the standing part strengthen the holding power of the clove hitch considerably.

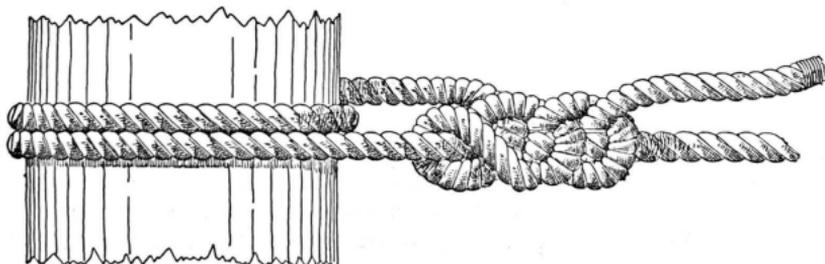


11. SNUBBING HITCH

11.01 Snubbing hitch shown below is intended for use in securing temporary guys to poles and trees.



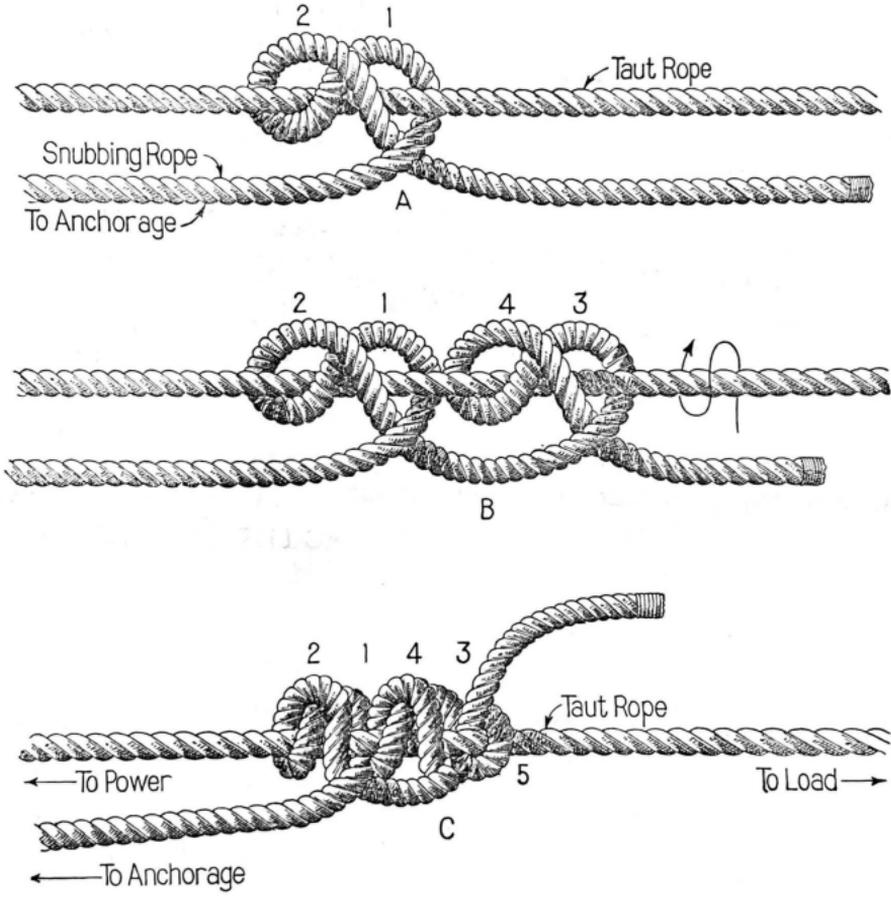
A



B

12. TAUT ROPE HITCH

12.01 Taut rope hitch as shown below is intended for use in attaching one rope to another supporting a load such as to take a hold on a rope under tension that has a broken or cut strand or to snub a fall line in a tackle block for the purpose of securing a new hold.

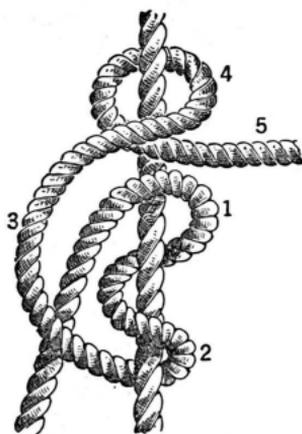


12.02 The operations required to make a taut rope hitch are as follows:

- (a) After snubbing rope has been secured to anchorage take a half hitch around taut rope then make second turn around taut rope crossing over half hitch so as to wedge in behind it.
- (b) Repeat operation (a) on opposite side of snubbing rope.
- (c) Place a half hitch beyond tie 3 and 4. Additional half hitches may be added when considered necessary.

13. ROLLING HITCH

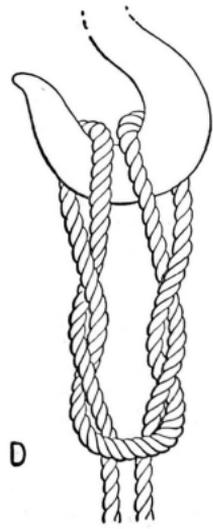
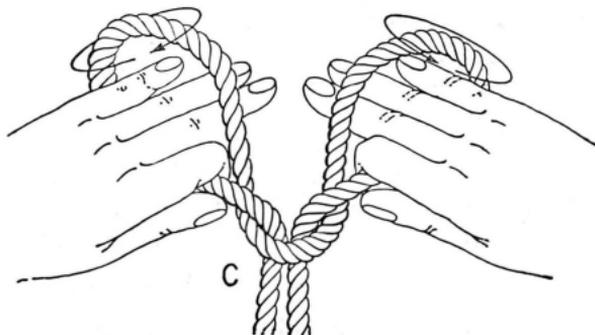
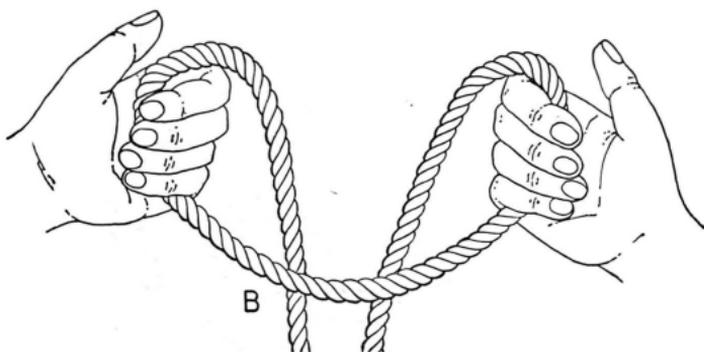
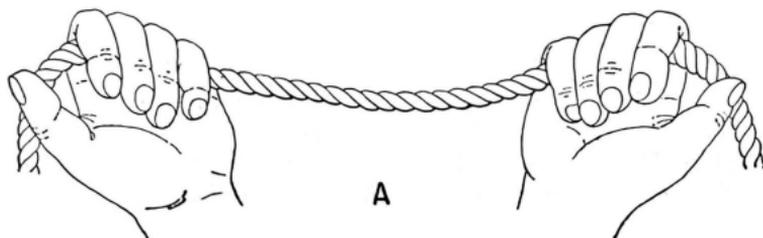
13.01 Rolling hitch is intended for attaching the short end of the pruner's handline to long end when moving around in trees. (See Part 6.)



13.02 The operations required to make a rolling hitch consists of passing the short end of rope around the long end twice then back over the turns and throwing a half hitch adjacent to the initial turn.

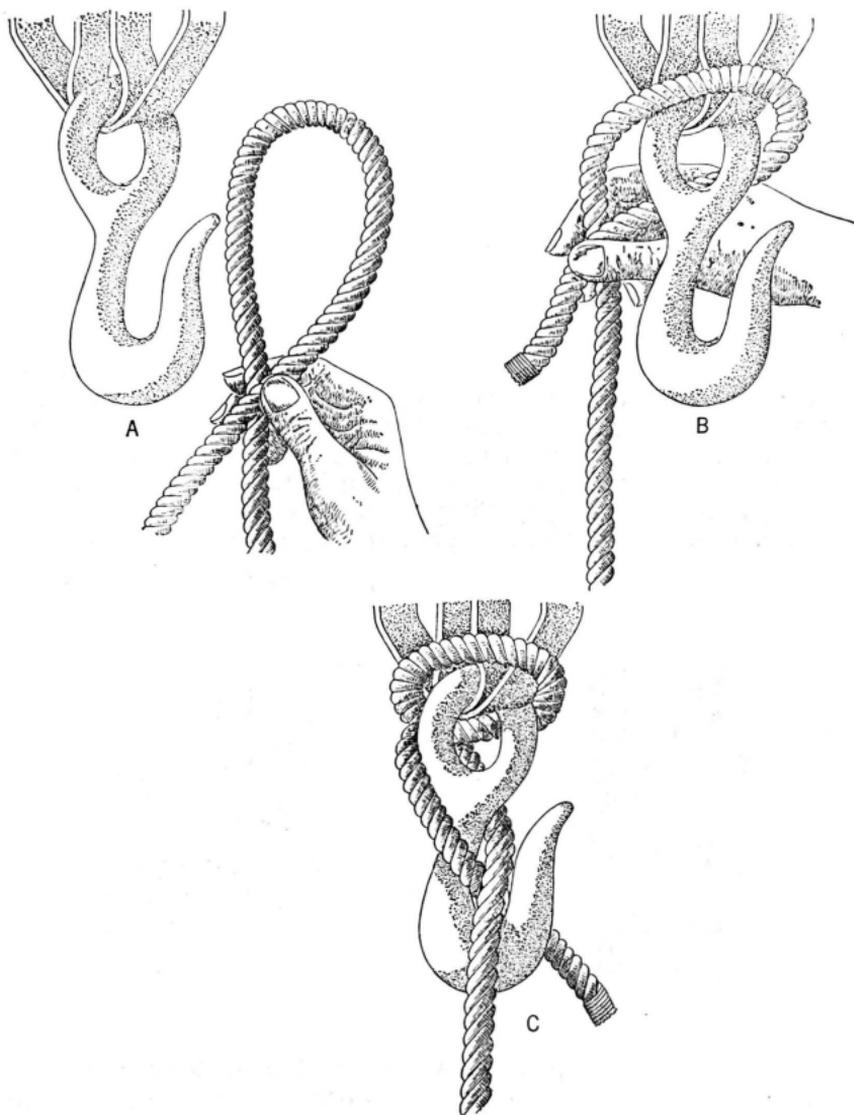
14. CATSPA W

14.01 Catspaw is intended for use in attaching rope to hook of block. It provides a double rope over the hook, and permits a load to be carried on either end of the rope. It is shown below.



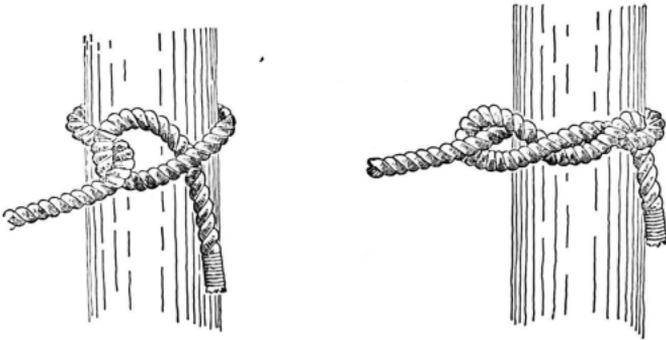
15. DOUBLE BLACKWALL HITCH

15.01 Double blackwall hitch is intended for use in attaching rope to hook of block where space is limited. Note that the long end crosses over the short end twice, once at the back and again in the hook.



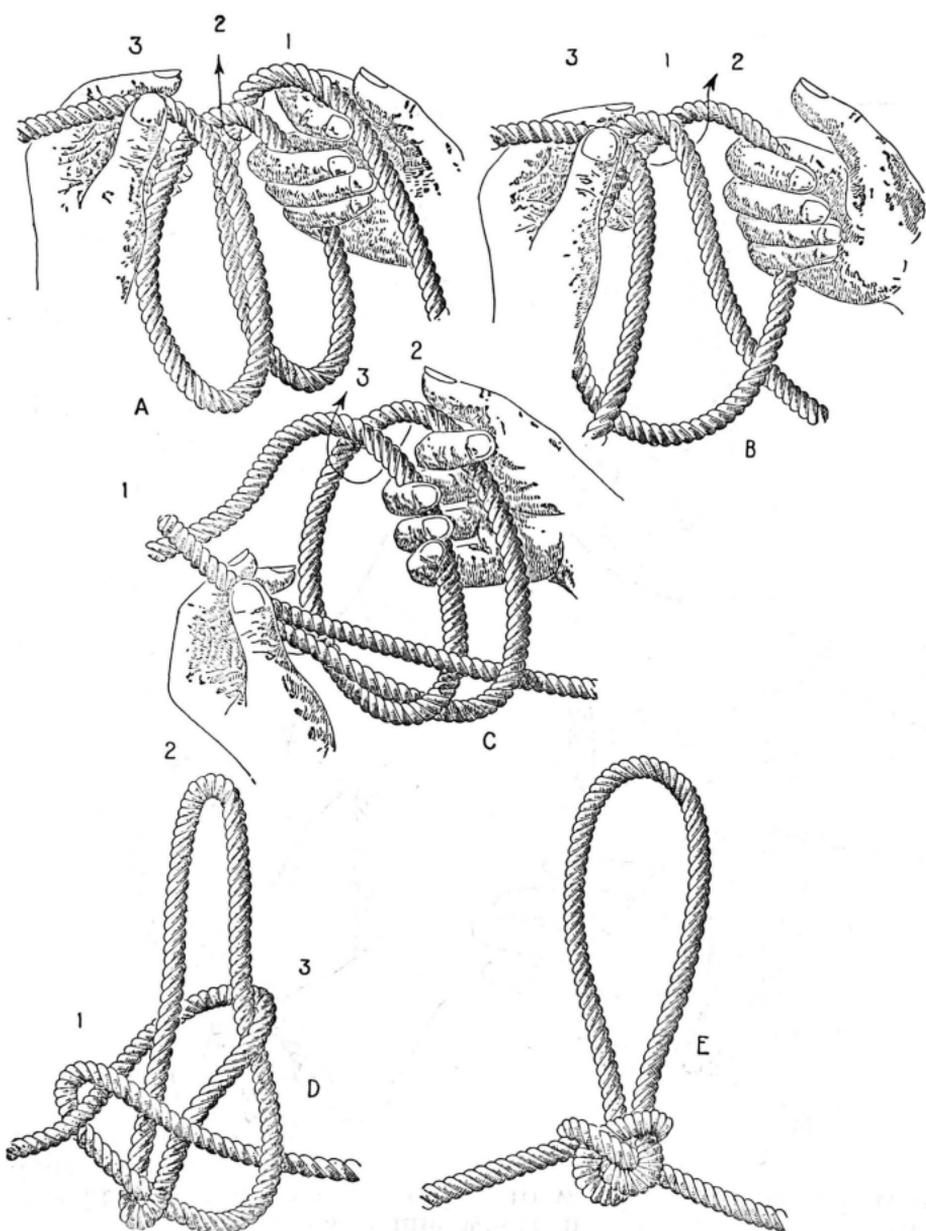
16. TIMBER HITCH

16.01 Timber hitch is intended for lowering limbs in connection with tree pruning work and is illustrated below.



17. FARMER'S KNOT

17.01 Farmer's knot is intended for use where a second pull is required, such as taking the slack out of strand before making the final pull. Load can be applied to either end of rope or to the loop. (If the strain is great use a double bowline on a bight for the last pull.) Farmer's knot can also be used in making rope net for use over electric light or trolley wires while removing wire.



17.02 The operations required to make a farmer's knot are as follows:

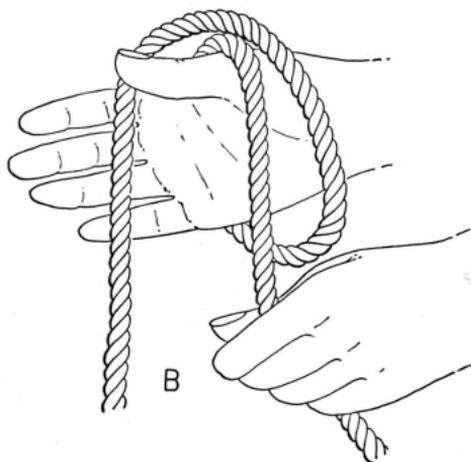
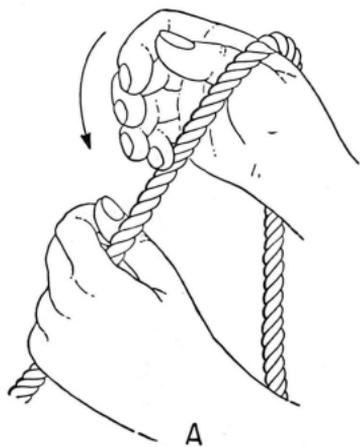
- (a) Form two round turns and hold them as shown above thus bringing side by side the three ropes 1, 2 and 3.
- (b) Pass 1 under 2 as indicated and up between 2 and 3.
- (c) Pass 3 under 1 and up between 2 and 1.

(d) Pass 2 under 3 and up between 3 and 1.

(e) Pull 2 out to form a loop and tighten the knot to the condition shown.

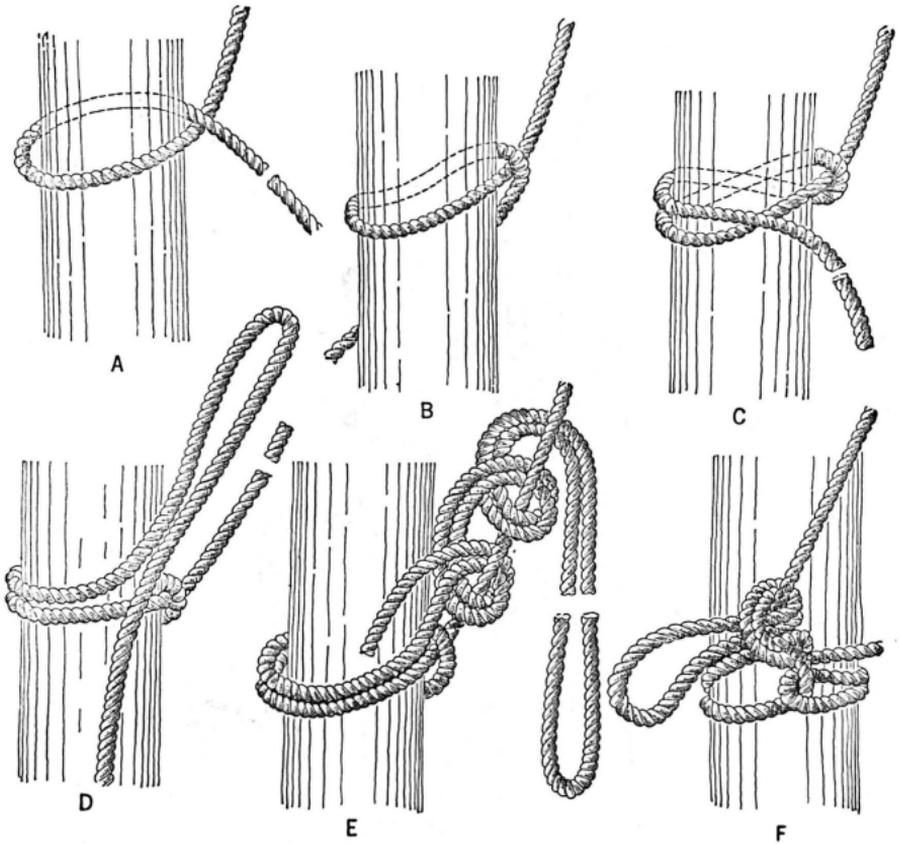
18. RUNNING KNOT OR SLIP NOOSE

18.01 Running knot or slip noose is intended for use in securing tools to hand line where it is desired to have the rope fit tightly around the object to which it is attached. It is shown below.

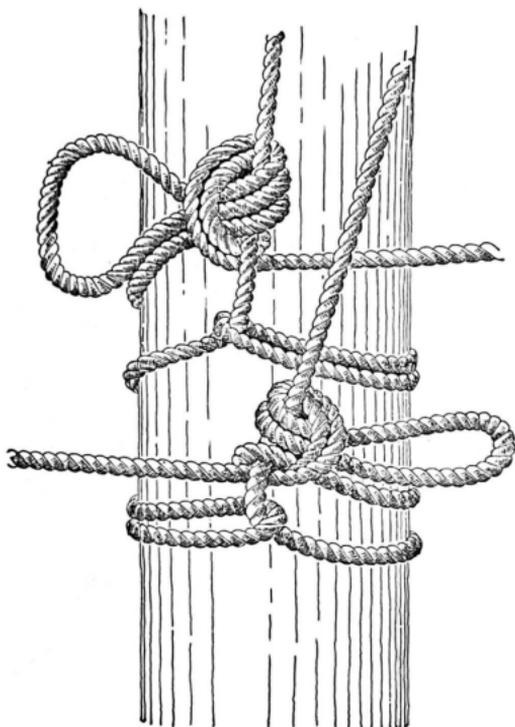


19. PLATFORM GUY KNOT

19.01 Platform guy knot is intended for use in securing the guy ropes leading from the splicer's platform to pole, ladder or other support. The platform guy knot is made with guy rope on opposite side from which the splicer is to work being secured first as shown below.



19.02 The other guy rope shall be secured on the same side of the pole near the turns of the first guy rope. Since this guy rope leads from the opposite direction to that of the first guy rope it must necessarily be snubbed in the opposite direction. To do this take turn around pole in the opposite direction to that outlined above and then place loose end over and around the standing part and pull to the desired tension. Complete the knot as before, keeping clear of steps and avoid obstructing the climbing space. The following illustrates both guy ropes tied to a pole.



19.03 If the loose end is too long to be pulled around the pole double it and proceed as outlined above. The following illustrates a platform guy rope made with the rope doubled.

