

CHAPTER 8

CORD KNOTTING OR MACRAME

8-1. General

a. Cord knotting or macrame is of Arabic origin; it has been an art since ancient times. There has been a revival of this art with new innovations of color and texture to make unusually interesting and creative wall hangings, decorations, and tote bags.

b. Cord knotting is not difficult, as it entails learning only a few basic knots; however, good results require skill in making all the knots with the same tension and with their heads lying in the desired direction. This skill is developed through practice and careful work. One has mastered the art of cord knotting when he can skillfully produce pleasing designs of various knots, colors, and textures.

8-2. Use of Frames or Hooks

Square knotting can be done by using a frame or one of several kinds of hooks to hold the cord.

a. A wooden frame is used most frequently in occupational therapy, as it is easy to handle and move. A frame is usually made of 1-inch (25-mm) pine lumber (fig 8-1). The top 1 1/2- or 2-inch (37- to 50-mm) portion of the back upright part is removable. It is held in place by two long bolts inserted from the bottom of the base through the back upright part and is secured with wingnuts. The bolts must be long enough to extend 3/4 to 1 inch (19 to 25 mm) above the top portion in order to hold the wingnuts. By adjustment of the wingnuts, the slot between the fixed and movable parts forms a vise-like apparatus which will hold, for example, a buckle or a project after it is started. On the top of the the removable portion, brads or finishing nails are set in a semi-oval shape. When a project is started, the strands are looped over these brads. In the front upright part of the frame, 8 of 10 cuts, 3/4 inch (19 mm) deep and 3/8 inch (9 mm) apart, are made with a coping saw. These cuts must be of a width which will hold tautly the strands or core around which the knot is made. A cord-knotting frame must have strong, firm joints, as a great amount of pull is exerted between the front and back upright parts. It should also be sanded well and finished with shellac or varnish.

b. Instead of using a frame to hold the cord, it is possible to tie the cord to a firm object and secure the strands in a hook tied around the waist.

(1) The hook may be made of plastic (fig 8-2) or of wood. The slit in the hook must be made so that it will hold two strands of the cord firmly.

(2) Another hook can be made by driving a 20d 4-inch (10-cm) nail through a wooden block and bending back the pointed end of the nail to hold the strands. Strings are attached to the nailhead for use in fasten-

ing this device around the waist.

8-3. Materials

a. Materials used in cord knotting are relatively few and inexpensive. Cord used for all cord knotting, including that for belts and purses, must have a high twist, be hard and strong, and not stretch or spring. The finer the cord, the finer, more delicate, and more time-consuming is the work. The materials most commonly used are—

- Navy cord
- Derry cable cord
- Macrame cord
- Belfast or dreadnaught cord
- Seine cord

It is also possible to use strong, high-twist silk, rayon, cotton or linen cords; however, these are rather small, thus making the work tedious. Jute, worsted yarn, mohair yarn, roving, or any material of the desired color and texture can be used in making wall hangings with interesting effects.

b. Almost any type of buckle can be used on a cord-knotted belt. It may be handmade of silver or wood or obtained commercially. If a purse or bag is designed to have a handle, the cords may be attached to rings, to the purse frame, or to the handle.

8-4. Processes

a. It is desirable, especially with a small project, to cut the cords sufficiently long to eliminate the need to splice. Since each cord is folded over in the center (middle), it should be eight times as long as the length of the finished project. A 36-inch (90-cm) belt should have 8-yard (7.2-m) strands, each of which is coupled to form two 4-yard (3.6-m) strands. Since it takes four strands to make a knot, the total number of double strands should be a multiple of four such as 4, 8, 12, 36, or 44. The long cords are prevented from tangling by winding them individually onto shuttles, by rolling and securing them with elastics, or by chaining them into a very loose crochet loop. For the patient who is working on shoulder or elbow motion, the cords should not be shortened, as this would decrease motion.

b. Starting a project is one of the more complicated and important processes. It may be done in two ways:

(1) Starting may be from a foundation such as a belt buckle, whistle loop, key ring, purse frame, or taut cord. In starting this way, the cords to be knotted are middle and secured to the foundation with a knot. To tie the beginning knot, the loop (formed when the cord was middled) is placed over the foundation and the ends of the cord pulled up under the foundation and through the loop (fig 8-3). The desired number of strands are knotted to the foundation.

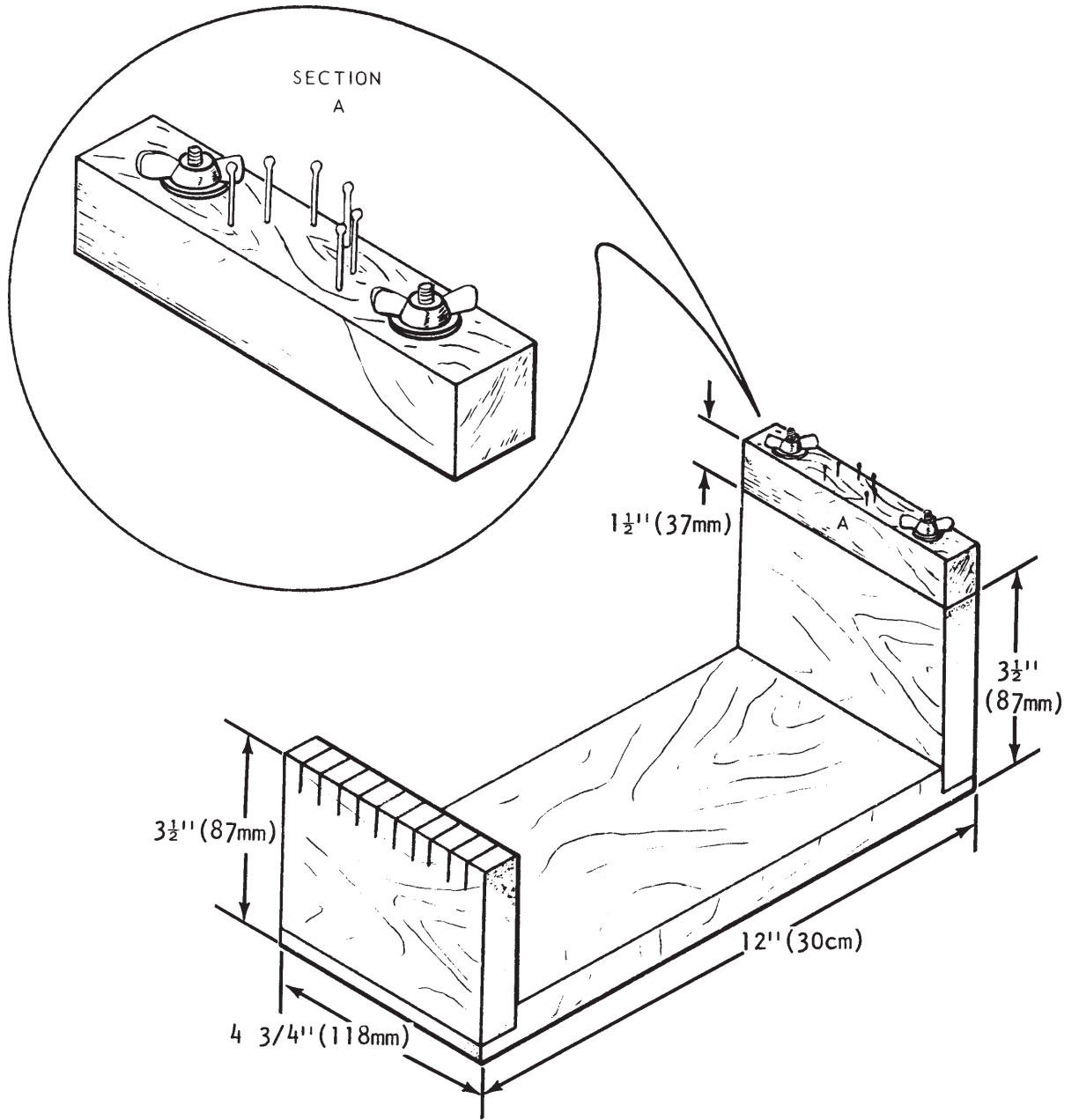


Figure 8-1. Cord-knotting frame.

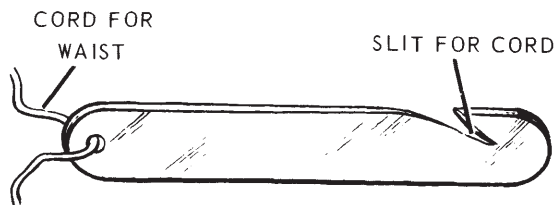


Figure 8-2. Plastic cord-knotting hook.

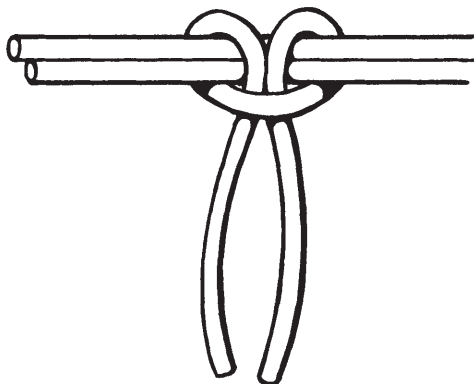


Figure 8-3. Beginning knot.

(2) It is possible to start an article which has a pointed end, such as a belt or a cigarette case, at the point, using brads or finishing nails to anchor the strands. To insure a multiple of four in the number of strands, an even number of nails must be used. To do this, two strands are middled and hung over two small nails as shown in figure 8-4. Using the inside strands as the core, a square knot is made with the two outside strands. A double strand is added on each side over a nail slightly below the square knots just tied. Then, using each double strand and the two adjoining strands, a square knot is made on each side as shown in figure 8-5. After adding each set of double strands, the strands are removed from the nails and the knots pulled up taut, thus tightening the loop formed by the nail head. Strands are added until the belt is the desired width, with any necessary square knots made in the center of the belts.

c. The basic square knot can be made in two ways: In the first method, the square knot is made in two movements; in the second, the knot is made in one operation; however, it is best for the beginner to learn these methods in sequence.

(1) The half knot, also called the macrame knot, is the basic knot of square knotting. It is tied around the two cords of the warp or core. Four strands are used, the center two being used as the core. The left-handed strand ① in figure 8-6 is looped across the core and is left in a horizontal position. The right-hand strand ② in figure 8-7 is brought over the left-hand ① on the right-hand side, parallel with the core. It is then

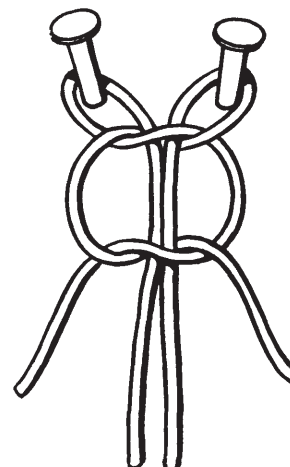


Figure 8-4. Starting at the pointed end.



Figure 8-5. Adding strands to the beginning knot.

passed under the core and up through the loop made with ① on the left (fig 8-8). Both cords are pulled until the knot is tight. This makes the half knot. The square knot consists of two half knots, one tied from the left as shown in figure 8-6 and the other tied in the same manner but from the right. Therefore, cord ①, now on the right-hand side, is looped over the core and left in a horizontal position. Strand ②, now on the left-hand side, is brought down and over ①, under the core, then up through the loop made with ① on the right (fig 8-9). Both cords are then pulled up tightly. A series of square knots form a Solomon bar (fig 8-10). If a series of identical knots are made without alternating left and right, the bar will spiral, forming what is called a twisted or Bannister bar (fig 8-11).

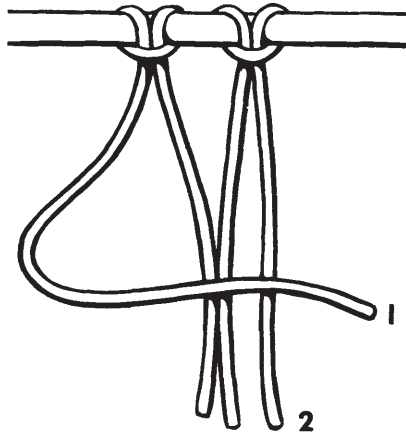


Figure 8-6. Starting the half knot.

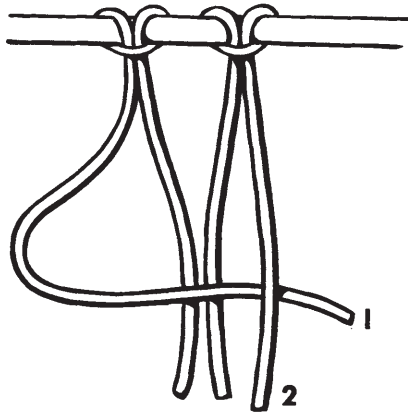


Figure 8-7. Continuing the half knot.

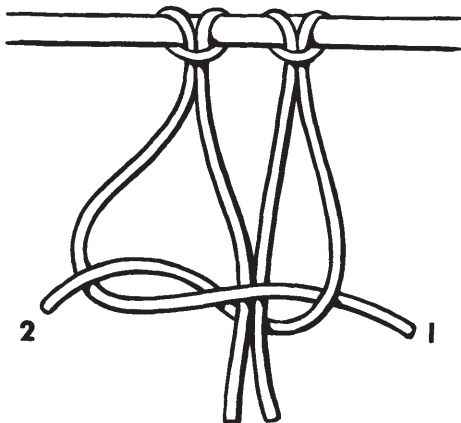


Figure 8-8. Completing the half knot.

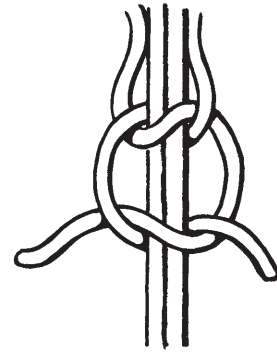


Figure 8-9. Square knot made from two half knots.

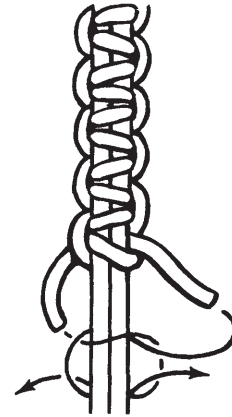


Figure 8-10. Basic square knot in series (Solomon bar).

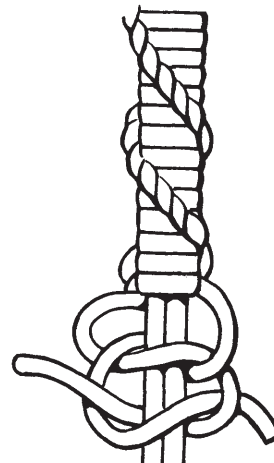


Figure 8-11. Bannister bar.

(2) The second method of tying the square knot is more complicated and difficult to learn, but it is much faster once it is mastered. Four strands are used in this method also, but the entire square knot is tied with one procedure rather than with two. The first step is to take the left-hand cord ① (A of fig 8-12) up over the two center cords, forming a loop over them. The thumb and index finger are next placed through the loop, and this left-hand cord is pulled under the core and up through the loop, forming a double loop (B of fig 8-12). Next, the right-hand strand ② (C of fig 8-12) is passed through the two loops

made in the step above. Strand ① and the loop ③ in C of figure 8-12 are pulled down and out simultaneously until the work appears as in D of figure 8-12. The first half of the knot is then pulled tightly, followed by the second half. It is important to pull these knots with equal power and with both hands in a corresponding position to the work. If the right hand pulls from a position 6 inches (15 cm) above the work and the left hand is 2 inches (5 cm) below the work, the knots will not be even and the pattern will be distorted.

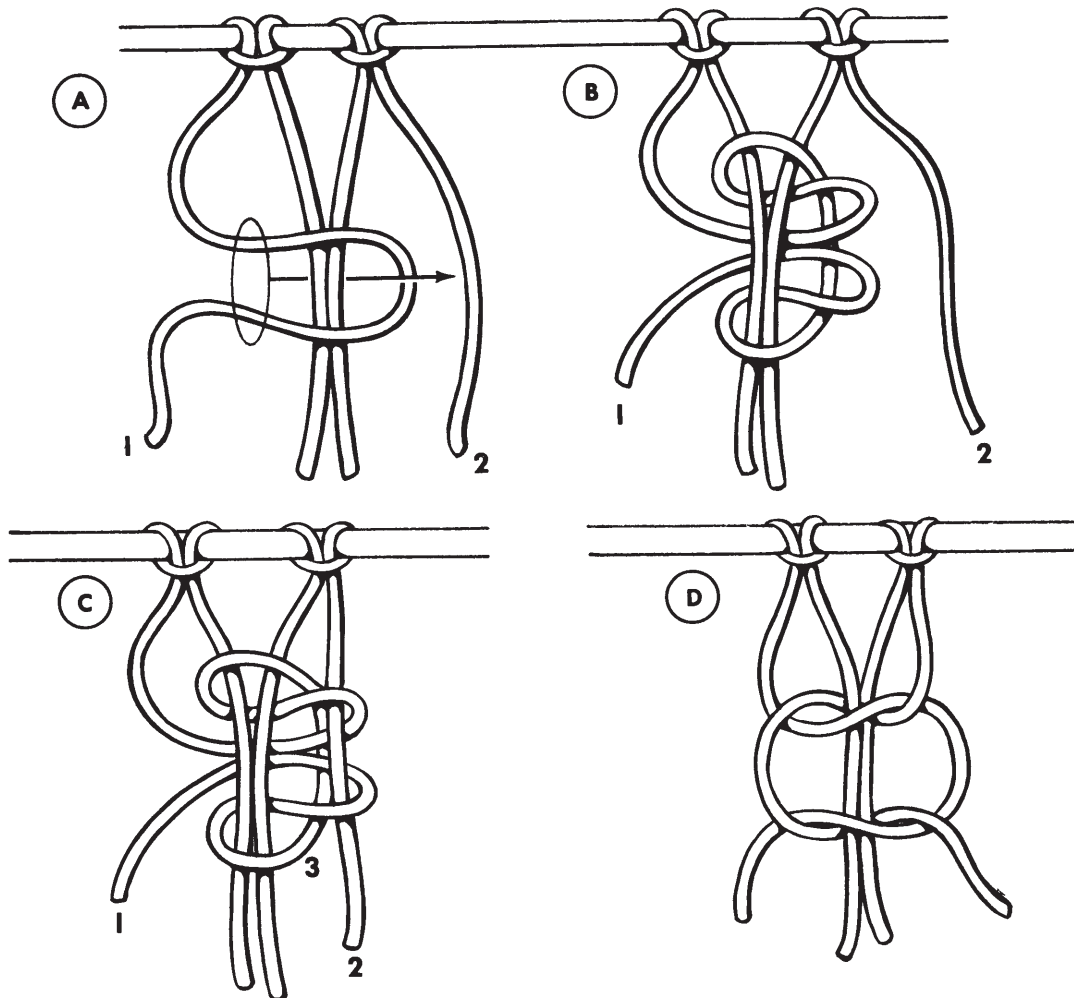


Figure 8-12. Making a square knot, second method.

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(3) The basic fabric is made with rows of square knots, using as many knots as are needed to make the desired project. The first knot is made, using the first four strands; the second knot, using the second four strands; and so on, across the row, using all of the strands. In the second row, the first two strands are put aside; and a row of knots are made, using the strands in sequence as in row one. Two untied strands will be left at each end of the row. The third row is a repeat of the first; the fourth, a repeat of the second, et cetera (fig 8-13). For improvement in appearance and durability, the head of the square knots on the left side of the belt and in the middle should be on the left; and the head of the knots on the right side should be on the right. Those on the left are tied by starting with the left strand as directed in (2) above; those on the right side of the belt are tied, using the right strand first. This reverses the knot. Although it is desirable to do this reversal in all projects, it is absolutely essential in projects of two colors; otherwise, the pattern of colors will not be correct.

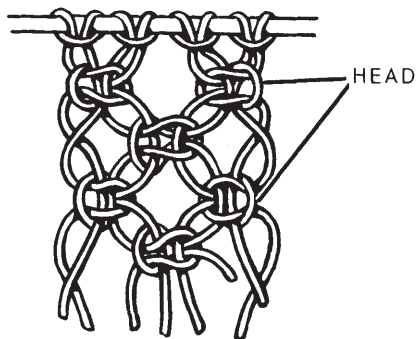


Figure 8-13. Making fabric of square knots.

d. With a knowledge of the half hitch used in conjunction with the basic knot, a number of patterns can be developed.

(1) The half hitch is made by holding one strand taut and half hitching around it by bringing the knotting strand over the taut strand (fig 8-14) and down through the loop, drawing it up taut. Two half hitches must be tied with each strand to hold the strands up taut. This operation may be repeated as many times as is desired over the same core, making a corkscrew bar (fig 8-15).

(2) There are several interesting patterns that may be tied by combining the half knot or the square knot with the half hitch. The first of these makes use of two diagonal rows of half hitches. First, the project must be brought to a point. This is done by tying a row of knots, using all strands, followed by a row in which two strands on each edge are not used in the tying, thus making one less knot than in the first row. In the third row, two more strands are left out on both sides, giving one less knot again. The knotting is continued

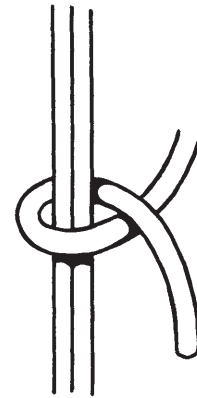


Figure 8-14. Beginning the half hitch.

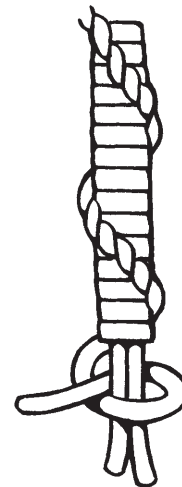


Figure 8-15. Half hitches in a series.

in this way, dropping two strands on the left and two more on the right until the row is reached where there are only four strands left in the center and one knot is tied. The double row of diagonal half hitches may now be tied. The outside left-hand strand must now be grasped and held in a diagonal position in line with the knots just tied; and with each successive strand from the left side to the center, two half hitches are tied over this cord. The half hitches must be drawn close to the other work. The outside right-hand strand is grasped and two half hitches are made around it with each strand, including the strand that was brought to the center from the opposite side (fig 8-16). When the first row of half hitches has been completed from both sides, it should be followed by another done in the same manner. These diagonals are carried from the center out to the opposite sides, tying two half hitches over them with each cord. If it is desired to fill in the area along the edges between the diagonals with square knots, these must be tied after the diagonals reach the center and before they start out again

toward the edge. To complete the pattern, tie square knots between the apex of the diagonals as was done before starting the half hitches (fig 8-17). This pattern may be done in reverse, starting at the middle and carrying the diagonals out to the edge and back to the middle, thus making a diamond and filling it in with square knots (fig 8-18). Another of these patterns, the twisted or banninster bar (spirals), which consists of a series of half knots all tied from the same side, has been mentioned before. A dozen or so of such half knots tied with each group of four strands make an attractive pattern (fig 8-11), or a series of square knots may be tied with each group of four strands. These are called Solomon bars or flats (fig 8-10). After six or seven of these knots, the cords must again be joined by dropping out two cords on each side of the work and tying them with the remainder of the cords. In any pattern, strands of different colors often make the piece more attractive and more interesting. Two and sometimes three colors may be used in a knotted project. Ordinarily, these colors must be evenly distributed in the project to give an attractive design. When colors are used, mistakes become even more noticeable; therefore care must be taken to insure that each knot is tied from the correct side.

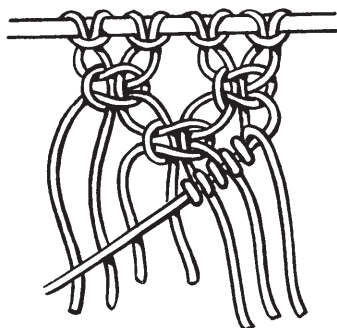


Figure 8-16. Using half hitches as part of design.

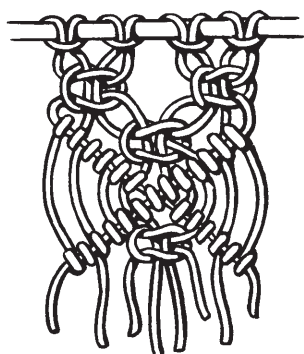


Figure 8-17. Carrying diagonal of half hitches "in".

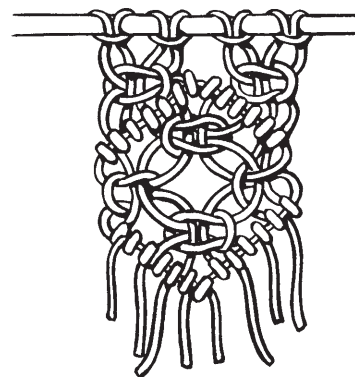


Figure 8-18. Carrying diagonal of half hitches "out".

e. If a cord proves too short, it may be spliced while it is being used as the core of a bar. The two ends are raveled; each end is divided into three parts and waxed well; then each part is scraped to a taper point. The ends are joined, allowing tips to overlap and the solid part of the cord to overlap slightly. These are twisted to the right; and with a piece of thread the same color as the cord, the ends are whipped. The cord is rolled between two boards and covered with thin spar varnish.

f. The ending can be done in several ways, depending upon the project. A belt, for example, is ended as follows:

(1) After making a belt, which as started at the point, one inch (25 mm) longer than the desired total length, bring the center of the belt to a point as in figure 8-19. Then, take the strands on one side of the point and, working at right angles, square knot with these strands toward the edge (fig 8-20). Continue the knotting with all strands on this side until the piece is $2 \frac{1}{3}$ times as long as the belt is wide. This piece will be the belt loop. Bring the belt loop to a point on the same side as the point in the belt itself (fig 8-21). Now, bring the belt loop around on top of the belt to the other side and, with corresponding cords from the loop and the other half of the point of the belt, tie square knots with two strands (no core). There will be half as many square knots as there were cords used in the belt. This knotting joins the belt loop to the belt. Be sure to draw these knots up very tightly. Cut the strands off about $\frac{1}{4}$ inch (6 mm) below this knot. Turn the belt loop inside out before putting the belt on the buckle. Apply the buckle by placing the belt loop under the bar of the buckle, sticking the tongue down through the center of the belt, and pulling the belt through the buckle and then back over the top of the belt bar and through the belt loop.

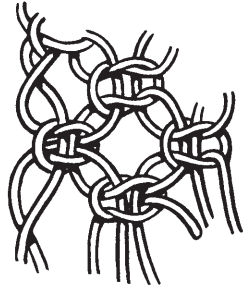


Figure 8-19. Bringing the knots to a point.

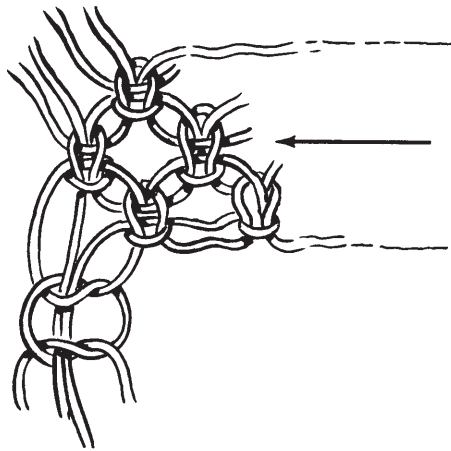


Figure 8-20. Making a keeper.

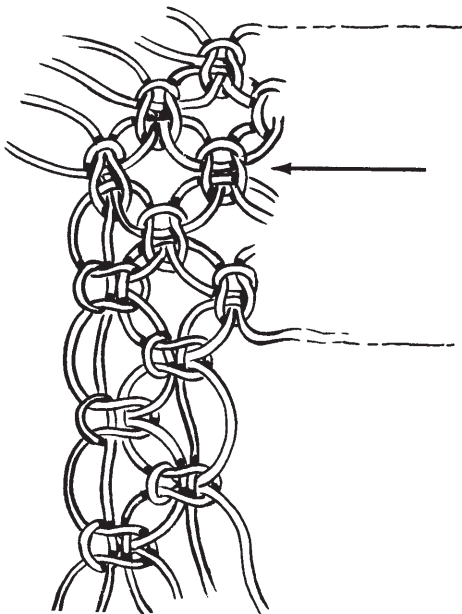


Figure 8-21. Completing the keeper.

(2) If the belt has been started on the buckle end, take the knots down to a point (fig 8-16) and make two rows of half hitches, both ending in the center, and tie the core strands securely in a square knot. With a large needle, mark each cord back from the end 1/4 to 1/2 inch (6 to 12 mm) and cut it off close to the belt. Put shellac over the cut ends to keep them from untwisting or working back. This is a good ending to use for many projects.

8-5. Other Pattern Possibilities

The number of combinations of colors, designs, textures, and projects that are possible to make with cord knotting seems to be limitless. Additional ideas and suggestions are contained in books on the subject.