Chapter 11



Structural Assembly Techniques

Basic Leathercraft Lacing

Lacing puts the finishing touch on handmade leather articles. How good the finished project looks depends very much on the lacing. How you lace and your technique have a great deal of importance in the appearance of the finished project. You can either punch your own holes or you will be using a kit that the holes have already been punched.

Items Needed for Lacing

- Practice pieces of leather
- Lacing and lacing needle
- Tools for measuring, marking and hole punching

Remember: Always lace with the front or outside of the project facing you.

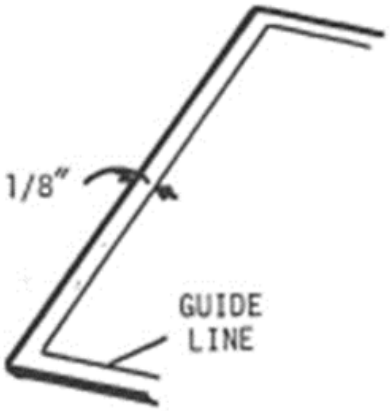
Lacing is special. It will have a smooth side and a rough or flesh side, much as the leather itself does. When you are done lacing a project, only the smooth side should show. You should load two yards of lace in the needle at a time. Working with longer pieces of lacing will be difficult and can cause the lacing to wear and become frayed as it is pulled through the lacing holes.

Kangaroo or calf lacing are the best to use and will come in a variety of colors and earth tones from tan to dark brown and black. Kangaroo lacing is a little stronger than calf lacing. It can be purchased by the yard or by the spool. It is cheaper when you buy it by the spool.

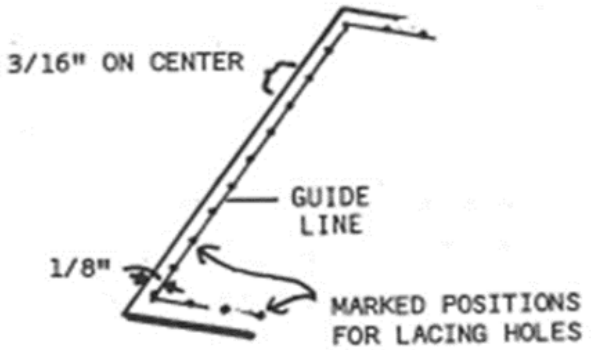
Preparing the Item for Lacing

Either a round hole punch or a lacing chisel (sometimes called a thonging chisel) may be used for punching holes. Some people prefer round holes for some kinds of lacing and slits for other kinds. Holes can be slightly enlarged with a stylus or the pointed end of a modeling tool, so the lacing needle will slide through more easily.

Scribe a light guideline 1/8-inch from the edge around the leather item to be laced. Use a ruler and the point of a modeling tool or other methods.

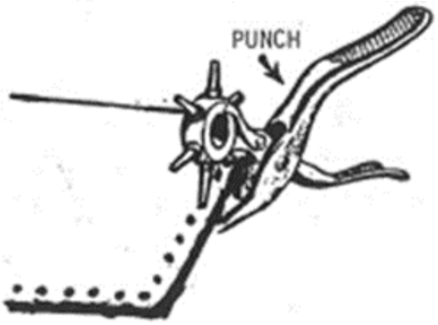


Measure and mark the position of lacing holes along the guidelines. You must have an even number of holes for the stitches to come out right if you are doing the running stitch.



Use the type of punch desired to make holes. Carefully follow the marks.

Note: The multiple prong lacing chisel or the 4-in-1 chisel round hole punch provides automatic spacing of lacing holes.



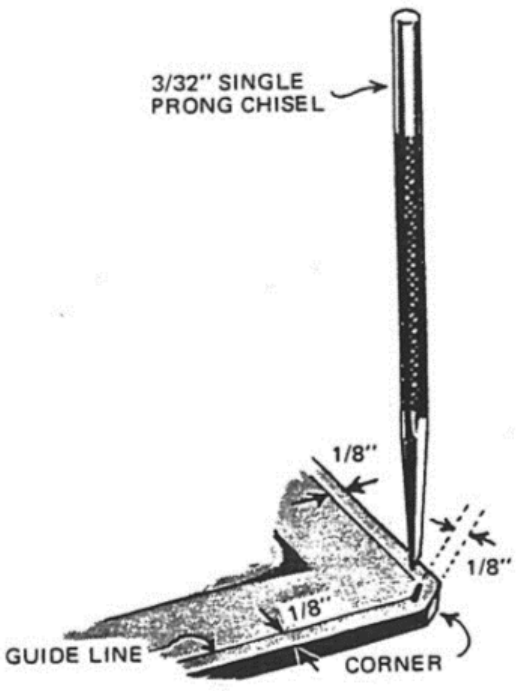
Using Lacing Chisels

Lacing chisels are also called lacing punches. When cutting your own leather articles, you need to punch precisely spaced lacing holes. Information in the next section will tell how to do this.

Lacing chisels (lacing punches) are made single prong and multi-prong. The single prong is used for corner slits and curves. It can also be used in a specific way for the running stitch. The multi-prong is faster and more accurate for straight lines where the whip stitch can be used.

Punching Holes with Lacing Chisel

You will need a piece of soft wood to place under your leather practice piece or article. Place the leather tooled side up. With the point of the modeling tool, mark a light guideline. This line should be 1/8-inch from the edge of the leather item which is to be laced. Then, with a razor blade or sharp knife, trim sharp corners of the leather item so they are very slightly rounded.

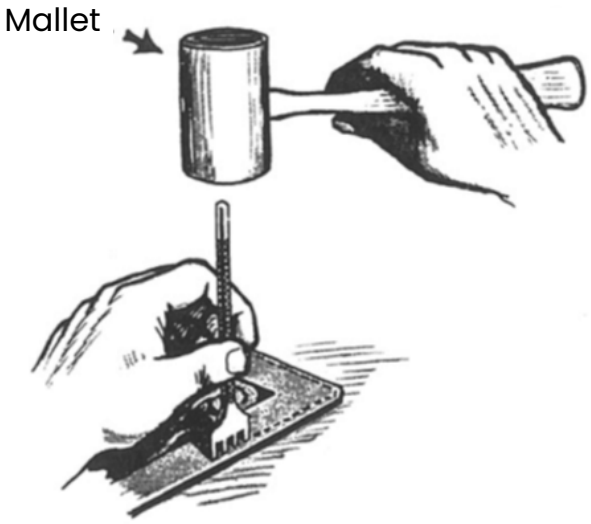


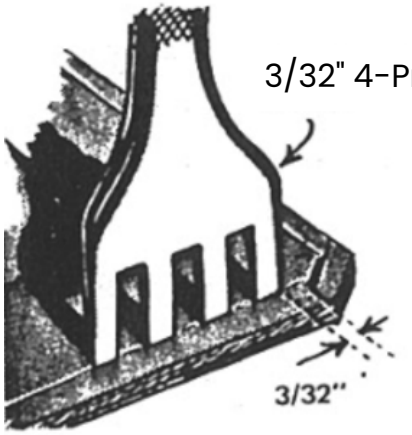
Use a single prong chisel to punch all corner holes. Punch all holes to a uniform depth of the thonging chisel.

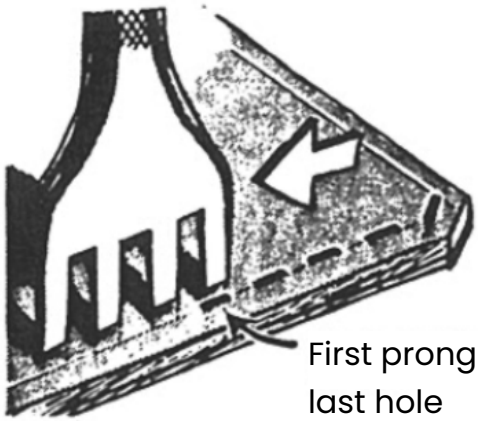
Holding the lacing chisel straight up and down, strike firmly and squarely with the mallet. Never use a steel hammer to strike tools.

After punching the corner holes, begin the next holes with the multi-prong chisel. Space the first hole (from the corner) the same width as the punch blade (3/32″).

To properly align succeeding holes, place the first prong in the last hole and punch again.







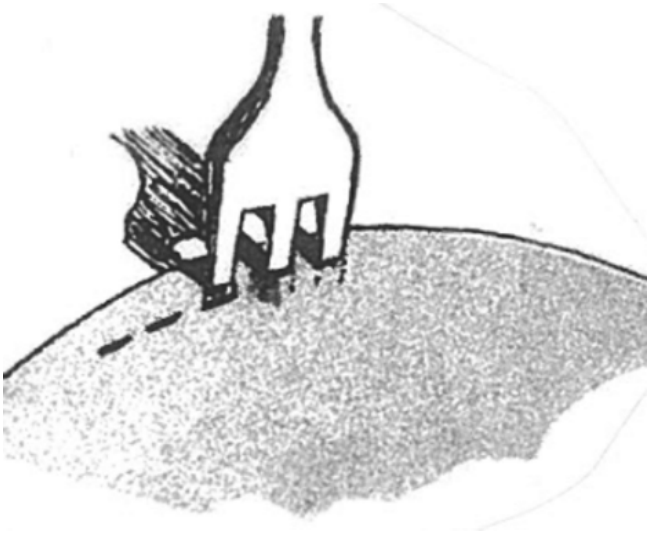


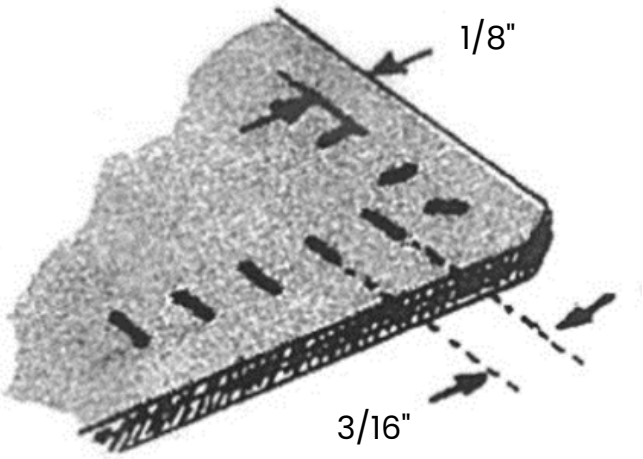
Continue punching to the next corner. A carefully drawn guideline will help you keep the holes in a straight line.

If the holes would not be evenly spaced as you near the corner, use the single prong chisel and adjust the spacing. Try to keep the holes as even as possible. Unevenly spaced holes cause unsightly, irregularly laced edges which detract from the appearance of the finished article.

Punching holes in a circle is easily accomplished by using a 3-prong chisel. Following your guideline, punch three holes. Then set the first prong of the punch in the last hole. Punch again. Continue punching until you are finished. Even the spacing for the final holes with a single prong chisel, if necessary.

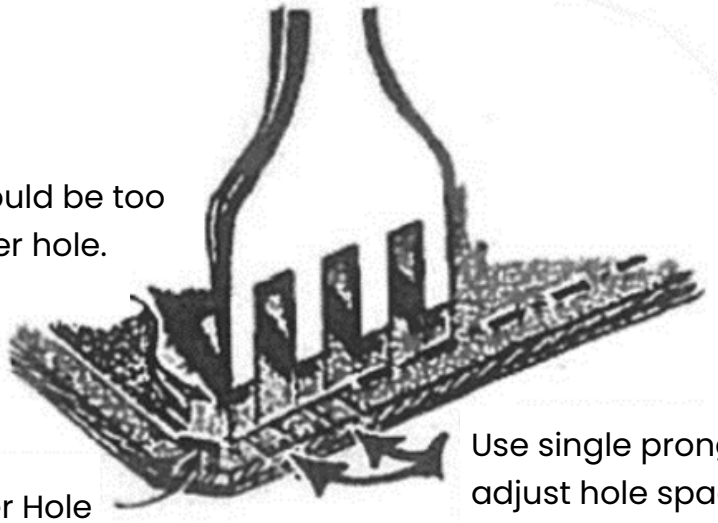
The same technique is used with the 4-in-1 round hole punch.





Note: If the lacing chisel is used for punching holes for the running stitch, the single prong punch should be used, and holes turned 90̊ (degrees) to edge as shown below.

End prong would be too close to corner hole.



Corner Hole

Use single prong chisel to adjust hole spacing

Measuring Lace

The most common lacing used is 3/32 of an inch in width, though other popular widths are 1/8- and 3/16-inch. Lacing will slide through the holes more easily if it is first treated with beeswax or other leather preservative to make it more slippery.

Style	Edge Distance	Amount Required
Running Stitch Lacing	1/8-inch	1 ½ x distance
Whip Stitch Lacing	1/8-inch	4 x distance

Shown below are a variety of some lacing styles that have been popular over the years. Shown also is the approximate length of lace you will need for each. This is calculated by using a multiplier times the length you are lacing. Example: A 9" x 3 ½" billfold has a total length to be laced of 25". The double cordovan stitch takes seven times the total or 25" times 7 or 175", which is about five yards of lace.



Single Whip (3 times) | Double Whip (5 times) | Cross Whip (6 times) | Single Running (1 1/2 times) | Venetian Whip (3 times)



Single Cordovan (6 times) | Double Cordovan (7 times) | Alternate Whip (4 1/2 times)

How to Lace

The main reason for lacing is to attach two or more pieces of leather together. It is also used to give a decorative effect.

When lacing, always lace with the front or finished side of the article facing you. It is suggested that you go left to right. Left-handed leathercrafters will have to experiment to find the best method for them which gives satisfactory results.

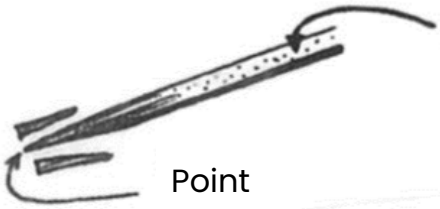
Two-Prong Lacing Needle

Load two yards of lacing in the lacing needle at one time. Working with longer pieces of lacing will be difficult and can cause the lacing to wear and become frayed as it is pulled through the lacing holes.

Skive (cut off in thin layers) one end of lace with a sharp knife.

Point the skived end as shown:

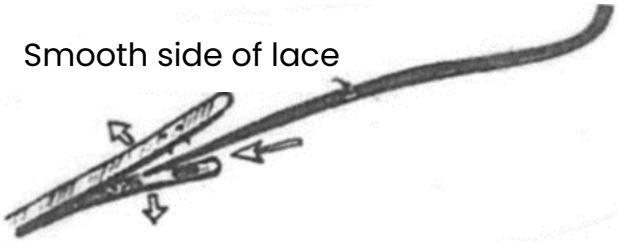




Spring the threading end of the needle open. A thin bladed knife can be used. (You may want to have an adult help with this.)



Insert pointed end of lace into the needle, smooth side against the prongs.



Close the needle on lace and tap lightly with a mallet, or a small pair of pliers, so that prongs pierce the lace and lock it in place. The needle can be unlocked with the edge of a thin bladed knife.



The Life-Eye Lacing Needle

There are solid brass round needles, much preferred by professional craftsmen. Life-eye needles can be used again and again as their name implies. The small size is recommended for 3/32-inch and 1/8-inch laces. The large size, called the Latigo Life-Eye, is used for larger laces, such as 3/16-inch, Florentine, and 5/32-inch buck stitch, and even latigo laces.

Cut the lacing to a sharp point, but do not skive.



Insert pointed end of lace in the needle eye and twist clockwise several times until the lace is secured firmly.

To remove lacing from the needle eye, twist lace counterclockwise. Should the needle fail to thread properly, there is probably material lodged in the eye. This can be removed with a pin. If lacing accidently breaks even with the eye of this needle, unscrew stub with a pair of small tweezers. If this is unsuccessful, take a pin and run it into the stub of lace (at an angle) and unscrew counterclockwise.

QUICK TIPS

Tip: If lace is stuck inside the life-eye needle, do not dig out. This destroys the threads. Have an adult help you and carefully heat the needle with a flame so the lace will be released.

Types of Lacing

The main reason for lacing is to attach two or more pieces of leather together. It is also used to give a decorative effect.

When lacing, always lace with the front or finished side of the article facing you. It is suggested that you go left to right. Left-handed leathercrafters will have to experiment to find the best method for them which gives satisfactory results.

The following pages give you step-by-step instructions for different types of lacing.

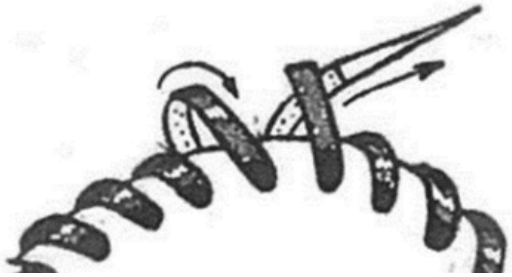
Whip Stitch Lacing (Single Thickness of Leather)



1. Begin lacing as shown below. Leave about 1/2" of lace at the end. Lace around the edge through each hole keeping the smooth side of lacing down.



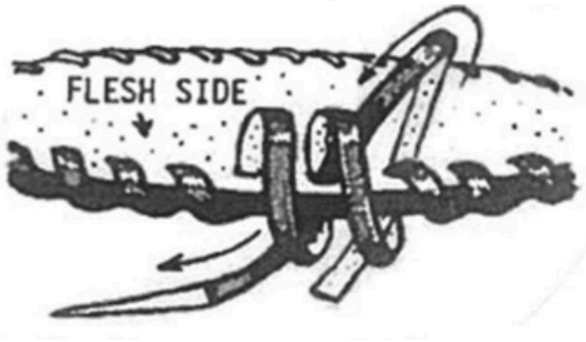
2. Continue lacing, pulling the stitches tight as you go. Do not allow lacing to twist.



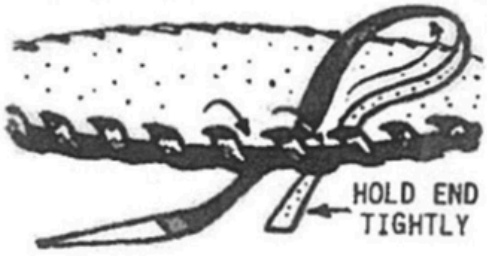
3. Lace through the last hole. Leave this loop loose.



4. Lace through the beginning hole, under the end of lace. Leave this loop loose.



5. Turn leather so the flesh side is up. Push needle through hole of previous loosened stitch. Be sure the needle goes on inside of lace.



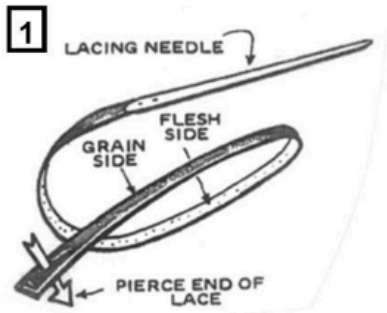


6. Pull the two loose loops tight. Hold the end from slipping.

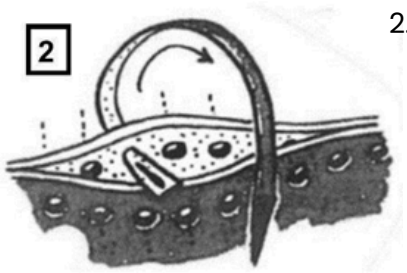


Turn the leather to the carved side. Carefully cut off lace ends with the point of a sharp knife. Tap lacing flat with mallet.

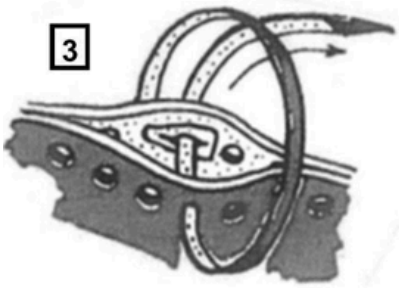
The Whipstitch (Double Thickness of Leather)



1. Thread the needle and then pierce the opposite end of the lace with a sharp knife leaving a slit of 1/8 inch.

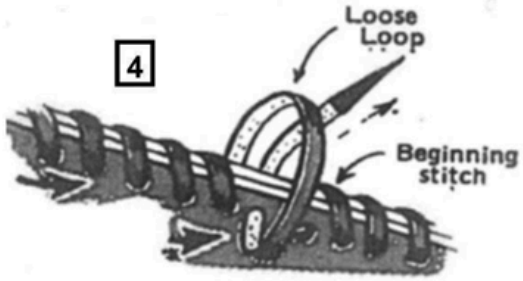


2. Begin lacing in between the two layers of leather. Leave about 1/4 inch to 1/2 inch at the end where you slit the lace.

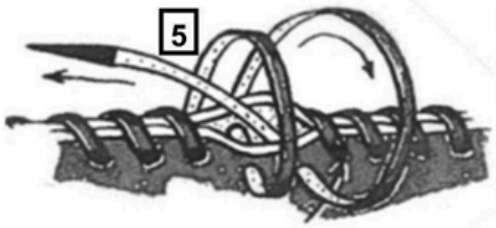


3. Push the needle through the second hole, and then thread it through the slit in the end of lace and through the opposite hole.

   Pull the first loop tight over the end of the lace. Pull the stitch up snug, but not too tight, which can break the lace. Continue lacing, tightening the lace as you go.



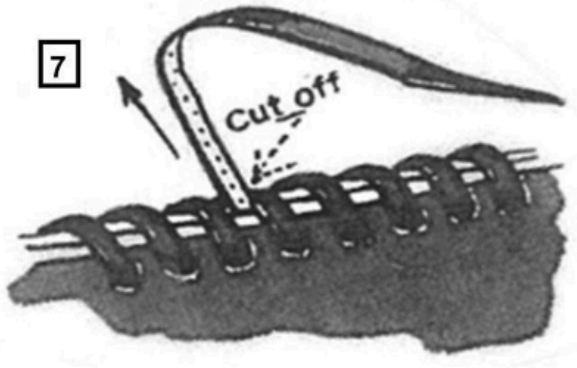
4. Lace around the article, leaving a loose loop in the second hole from the beginning stitch. There will be one unlaced hole between your very first and the last stitch shown.



5. Spread the two leather layers and lace through the last hole, up between the leathers and through the first loose loop.

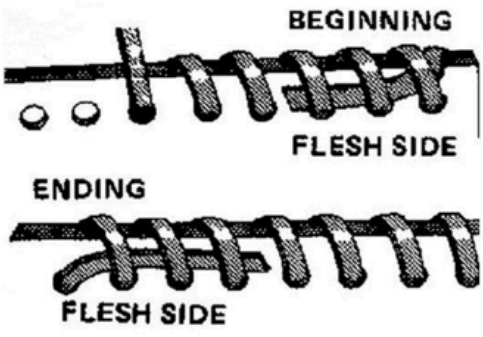


6. Pull the end of the lace tight to take slack out of the last loop.



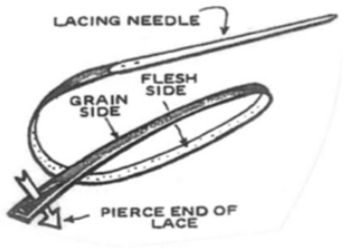
7. Cut off the end of the lace with a sharp knife and tap all lacing flat with a smooth-faced mallet.

When **Whip Stitching on a single thickness of leather**, be sure to catch the beginning tail of lace under the next few stitches on the back of the leather. End by running the needle back under the last few stitches on the back of the leather.

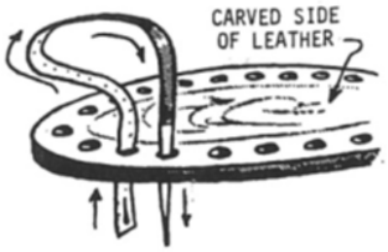


Running Stitch Lacing

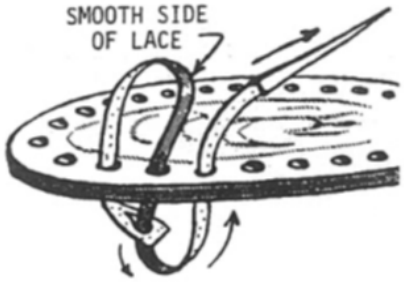
Thread the needle, then pierce the opposite end of the lace with a sharp knife, leaving a 1/8-inch slit.



Push the lace through the hole from the flesh side.



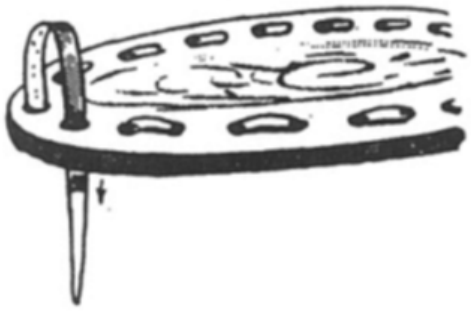
Run the needle through the slit in the lace and up through the next hole.



Pull the lace tight to lock the end. Continue lacing over and under through holes.



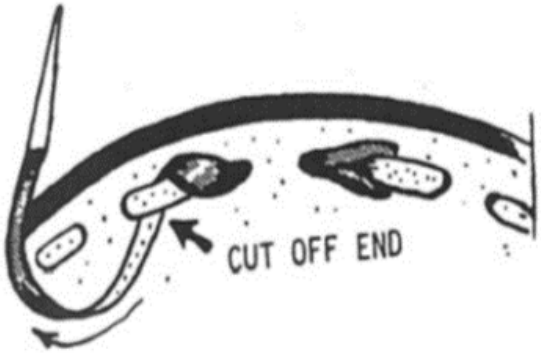
Lace completely around the article. Pull stitches tight as you go, and lace through the last hole.



Push the needle under the last stitch on the flesh side and pull tight.

Pull the end of the lace up tight. Carefully cut off the end with the point of a sharp knife. Tap lacing flat with mallet.

Note: When lacing only one thickness of leather, glue ends to the back of the article.



Buckstitching

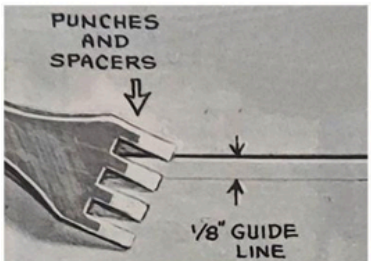
What we term "BUCKSTITCHING" probably derived from the early days when leather garments and other items were sewn together with buckskin thongs. These laces were made from deer skins, either rawhide or with some tannage. Deer skin is very strong. Therefore, articles sewn or laced with deerskin thongs, or lace, were very durable. Laces and thongs made of deerskin used to be commercially available. There still may be a few places or people who prepare these laces, but generally speaking they are probably not to readily available.

Almost any kind of commercial lace leather can be used for buckstitching. Or, you can make your own. For best results, the edges of the leather would be beveled on the flesh side. This allows the stitches to lay flatter against the leather, which is more practical and more pleasing in appearance. Each stitch should be made as uniform as possible, the most desirable being in a diamond shape. This can only be accomplished by slitting the leather with lacing punches or saddler's awls of the proper size. **Round punches are not used for buck-stitching as a diamond shaped stitch cannot be made.**

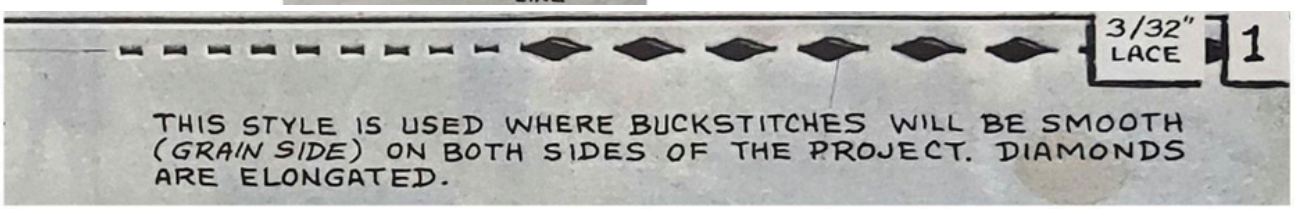
"BUCKSTITCHING" is simply a running (over-under) stitch, with the lace coming up through one slit and down through the next, continuing in this manner until the stitching has been completed. Buckstitching, as we know it today, is generally used as a decoration to enhance the appearance of the design or project. It should not be used as a sole agent to hold two or more pieces of leather together where great stress and strain will be applied to the buckstitched seams. Generally, these seams are sewn by hand (or machine) as the leather buckstitching cannot bear the strain of constant use. In this case, buckstitching should be used as a decoration only.

There are "rights" and "wrongs" with BUCKSTITCHING as with anything else. REMEMBER... the proper angle of your lacing slits is most important for good diamond shaped stitches. **Note-You will need an even number of holes around your project so the last hole ends with the lace ending on the under side of the leather.**

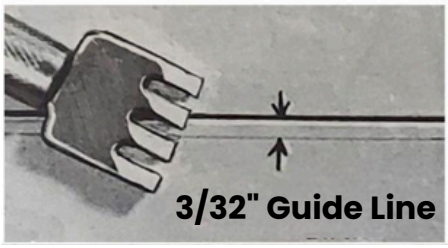
Examples here illustrate the diamond shaped stitches created by using a variety of punches, spacers, and laces. Scribe light guide lines with wing dividers for each punch and lace as shown. Study the examples shown.



3/32" 4-prong lacing chisel



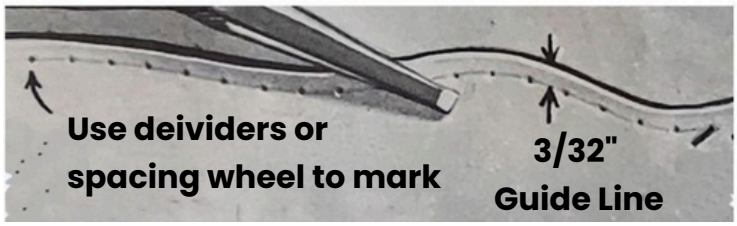
Buckstitching (Continued)



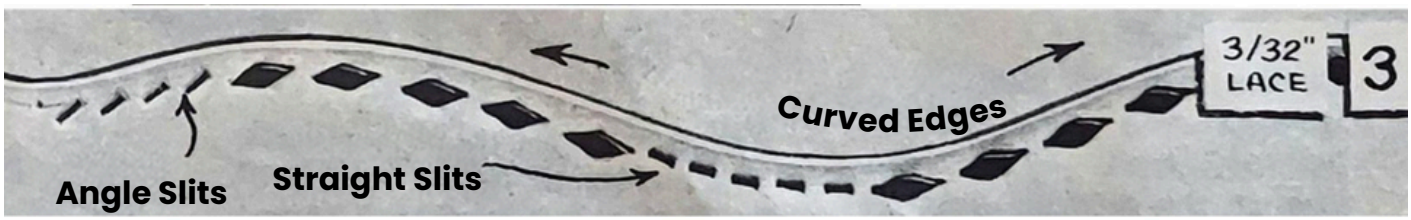
3/32"
4-prong angle lacing chisel



With the angled slits, the diamonds are less elongated. Rough (flesh side) of lace will appear on the back side of the project.

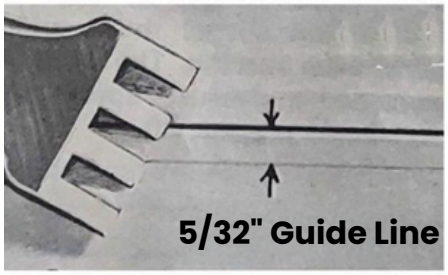


3/32"
Single-prong lacing chisel



For 3/32" lace, use number six or seven wheel.

For 1/8" lace, use number five or six wheel and 1/8" sing-prong chisel.

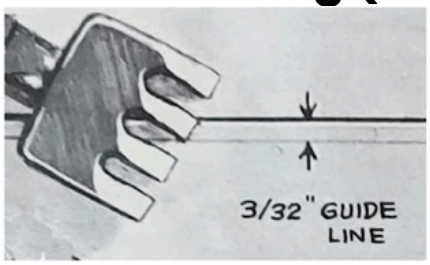


1/8"
4-prong lacing chisel



This is the same as example 1, only with 1/8" lace. This type of stitch will not lay as flat as with the angled slits.

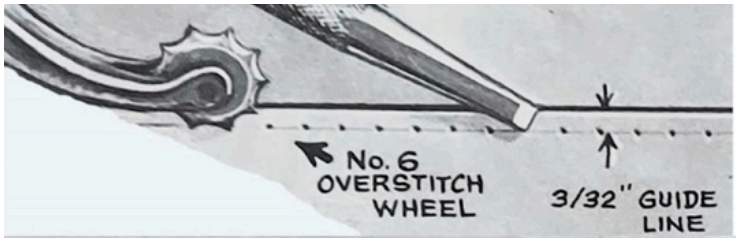
Buckstitching (Continued)



1/8"4-prong angle lacing chisel



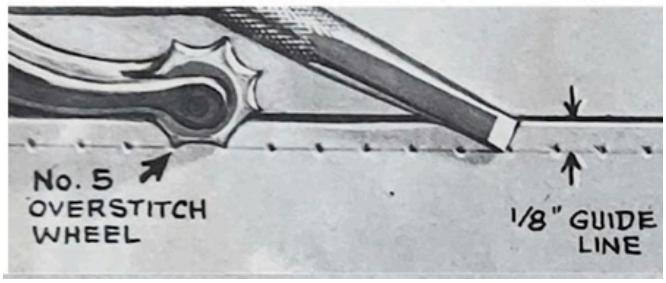
This is the same as example two, only with 1/8" lace. Use 1/8" single prong around curves.



5/32" single prong lacing chisel



The number six wheel marks have spacing slightly closer together than the 4-prong chisel. You'll note the diamonds are closer together.



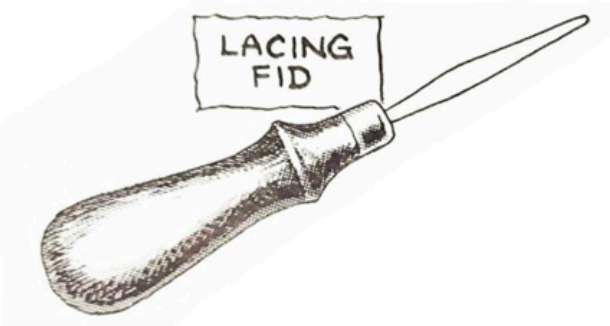
5/32" single prong lacing chisel



Number five wheel marked these spacings. These stitches are slightly closer than example six. Maintain proper slit angle.

Here is a helpful video from Tandy Leather: *Leather Lacing Techniques* https://www.youtube.com/watch?v=hJtbthWGn3U&list=PL2v0zL3aZty-RPep7sBL6AB6gquOi3ZZ4&index=4

Beginning and Ending for Buckstitch

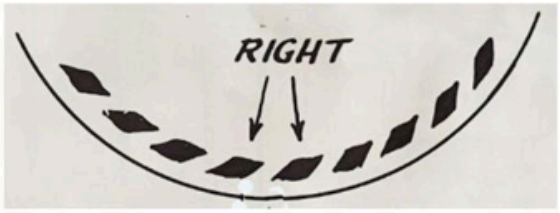


The **Lacing Fid** is a most important tool to aid in buckstitching through the slits made by the lacing chisels. The end of the tool is smooth-blunted for easy opening of the slits. This makes insertion of the needle and/or lace easier, especially from the back side.

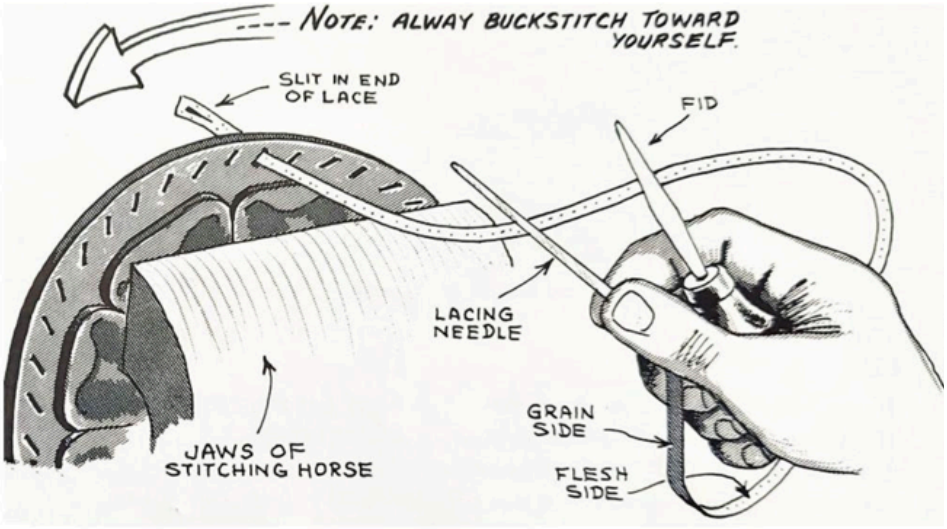
Preparing the Project for Buckstitching

Before punching the lacing slits, always "count" the number of marks around the project after marking with the wheel, or chisels. **An even number is desired,** so you will have an over-under set of stitches on the front of your project. **Abutted stitches (stitches right next to each other) are not desirable.** Always adjust odd numbered marks so you have an even number of marks around the project, from start to end.



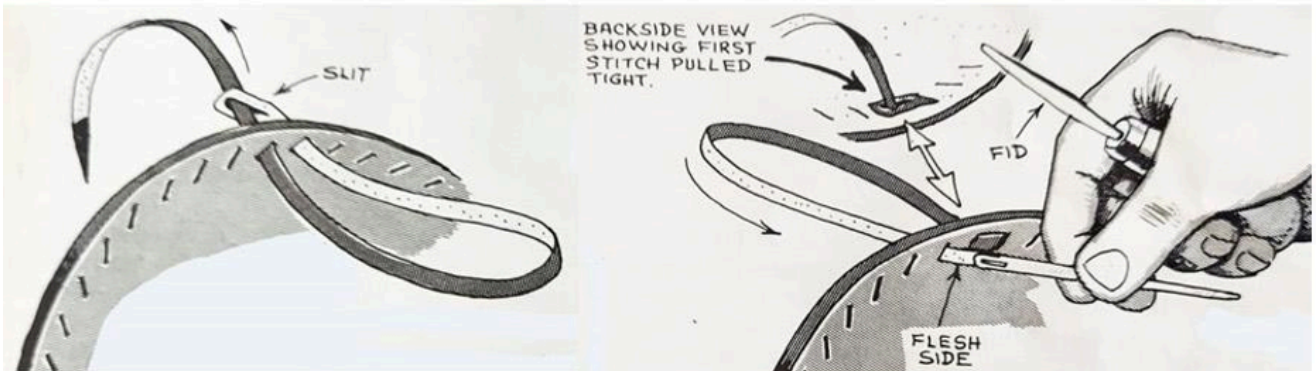


On a large project, where it would be difficult to count all the marks, punch the holes from the beginning to about five inches before the end. Start lacing and lace up to where you stopped punching holes about five inches before the end. In that last five inches, mark the holes carefully to see if it will come out right. If you have to fit an extra hole to make it come out right you have some space to either spread the holes out a little or crowd the holes together a little. Use good judgement. Farther apart is better than too close together.

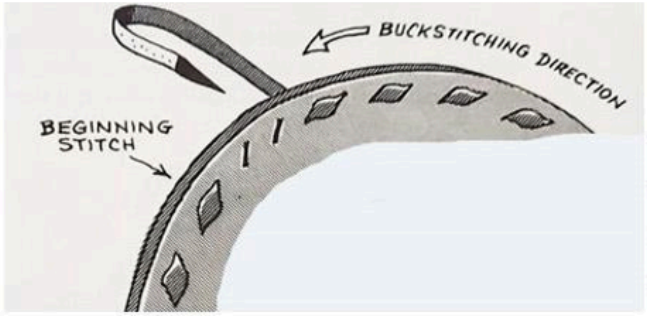


Buckstitching on One Thickness (Coaster)
Push fid in slit to stretch the hole, pull lace through, from the back side. Put a slit in the end of the lace.

Beginning and Ending for Buckstitch (Continued)



Push lace through second slit and through the slit in the end of the lace as shown. This will lock the end of the lace when the first stitch is tight.

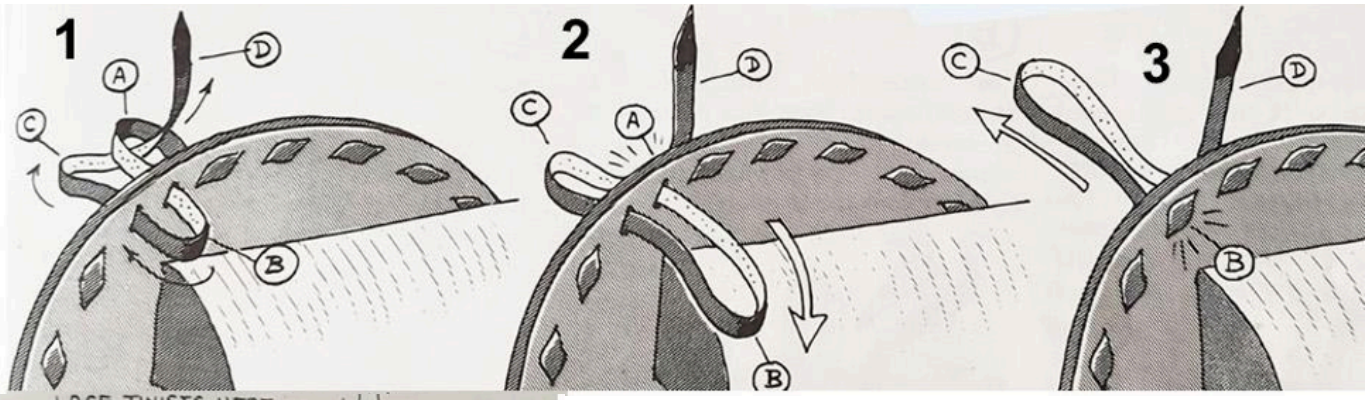


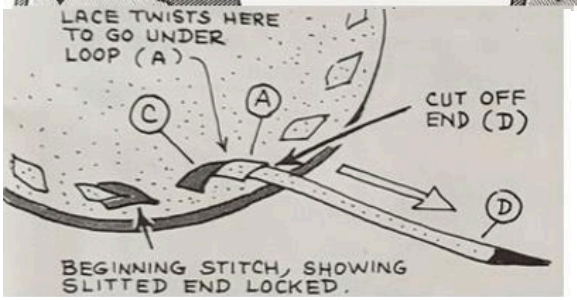
Pull slitted end of lace up snug, at back, and pull first stitch tight. Open third slit with fid and push needle through from back side. Pull stitch up snug. Continue lacing until there are just two slits left.

To finish it off, push lace through from back leaving loose loop A (**see figure 1 below**) Continue lacing, as shown leaving loose loops at (B) and (C). Run end (D) UP through (A).

(See figure 2 below.) Smooth side of End (D) should be against the back of coaster. (A) pull tight

(See figure 3 below.) Pull on loop (C) to tighten loop (B) … pull tight. Next pull end (D) to tighten loop (C).

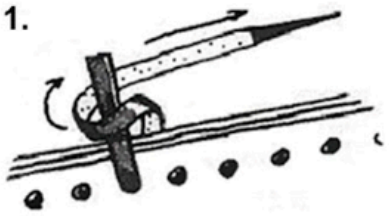




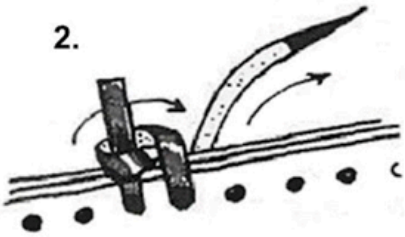
The backside of coaster shows how the ending should look. You could also take end (D) through a second stitch on the back if you wanted ending more secure. Also, a little glue under the end on the back would help it be more secure.

Single Loop Lacing

(Also called Single Cordovan or Single Buttonhole Stitch)



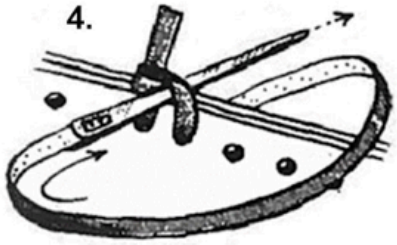
Begin at the top of the article Push lace through the front side. Leave about ½" at the end.



Fold end up and loop lace around as shown. Hold with fingers until the first stitch is tightened.



Lace through the second hole. Be sure the smooth side of lace faces you. Pull up snugly.



Push needle under lace as snown, with the flesh side up. Do not twist lace. Pull up snugly.



The first two stitches should be snug, but not tight. They will need to be adjusted when you get completely around the article. Continue lacing in this way until you reach a corner hole.

More stitches are required at corners for the lacing to lie flat and go around the corner. Lace through corner hole or holes more than once, as shown, Other methods for lacing corners are also permissible. **All corners must be done consistently.**



This method has three stitches through the corner hole. Each stitch goes through the corner hole and then under the loop. The corner hole may need to be enlarged or stretched to fit the extra stitches.



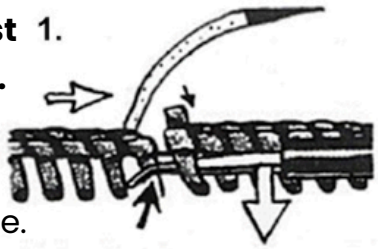
This method has two stitches going through the three corner holes going around corner.



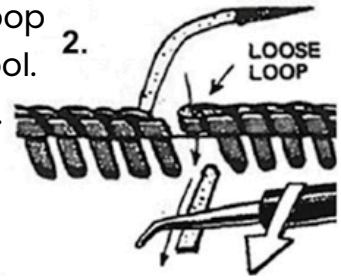
Continue lacing to the beginning point.

Joining the Single Loop Lace Ending to the Beginning point to complete Lace.

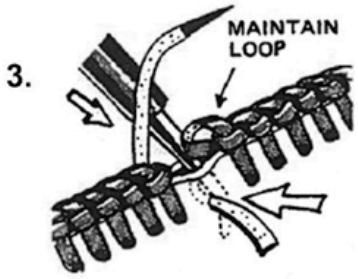
Lace through the last hole and under loop. Insert stylus end of modeling tool under beginning end of lace.



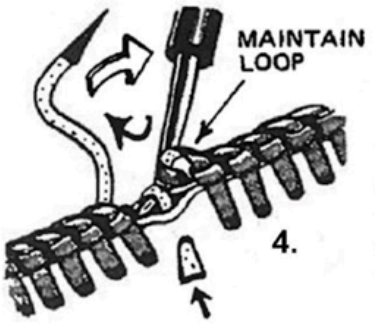
Pull end of lace out of loop with end of modeling tool. Maintain the loose loop.



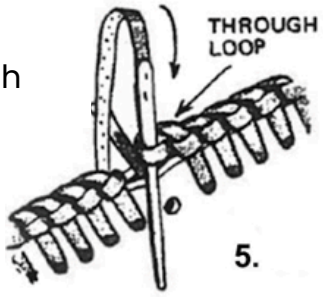
Insert stylus between the leathers and hook it over the end of the lace.



Carfully pull up the stylus and gradually pull the end of the lace out of the hole. up between leathers.



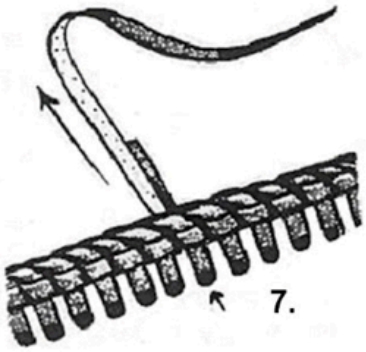
Carefully push the needle down through the loose loop.

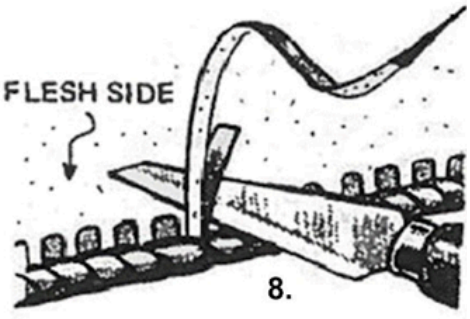


Push the needle through the hole and up between the leathers. Be sure lacing does not twist.



Pull lacing up snug and adjust so all the stitches appear even.





Carefully cut off ends from the flesh side.
(Before you cut the lace you can also apply little leather glue that dries clear on the end of the lace to keep the lace ends from pulling loose, and then cut the lace)

Tap lacing flat with a smooth mallet or roll under a wooden dowel.

Note: When lacing only one thickness of leather, glue ends to the back of the article.

Single loop lacing is best suited for lacing the edges of the lightweight leathers or a single thickness of leather.

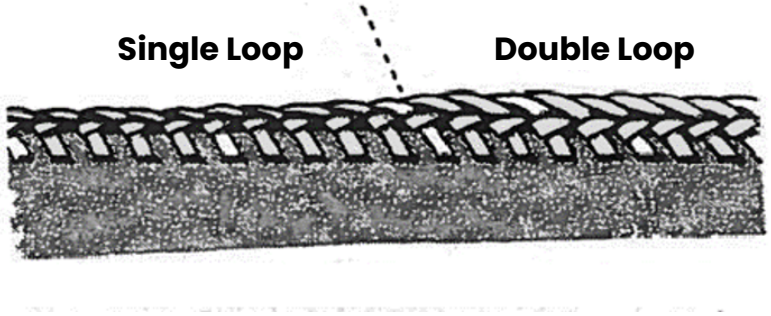
Tip: To make lace slide through holes more easily:

1. Put the end of the stylus through each hole to enlarge it slightly.
2. Coat the lace with leather cream or beeswax to lubricate it. Rub it in well. This also helps preserve the lace.

Double Loop Lacing

(Also called Double Cordovan or Double Buttonhole Stitch.)

Double loop lacing covers a wider area and is used on heavier leather than single loop lacing. It is used especially where two thicknesses of leather require more lacing to cover the edge. On special articles where variations of thickness of leathers occur, the lacing can be joined continuously from one kind of stitch to another. The stitching can also be reversed as thicknesses of leathers decrease.

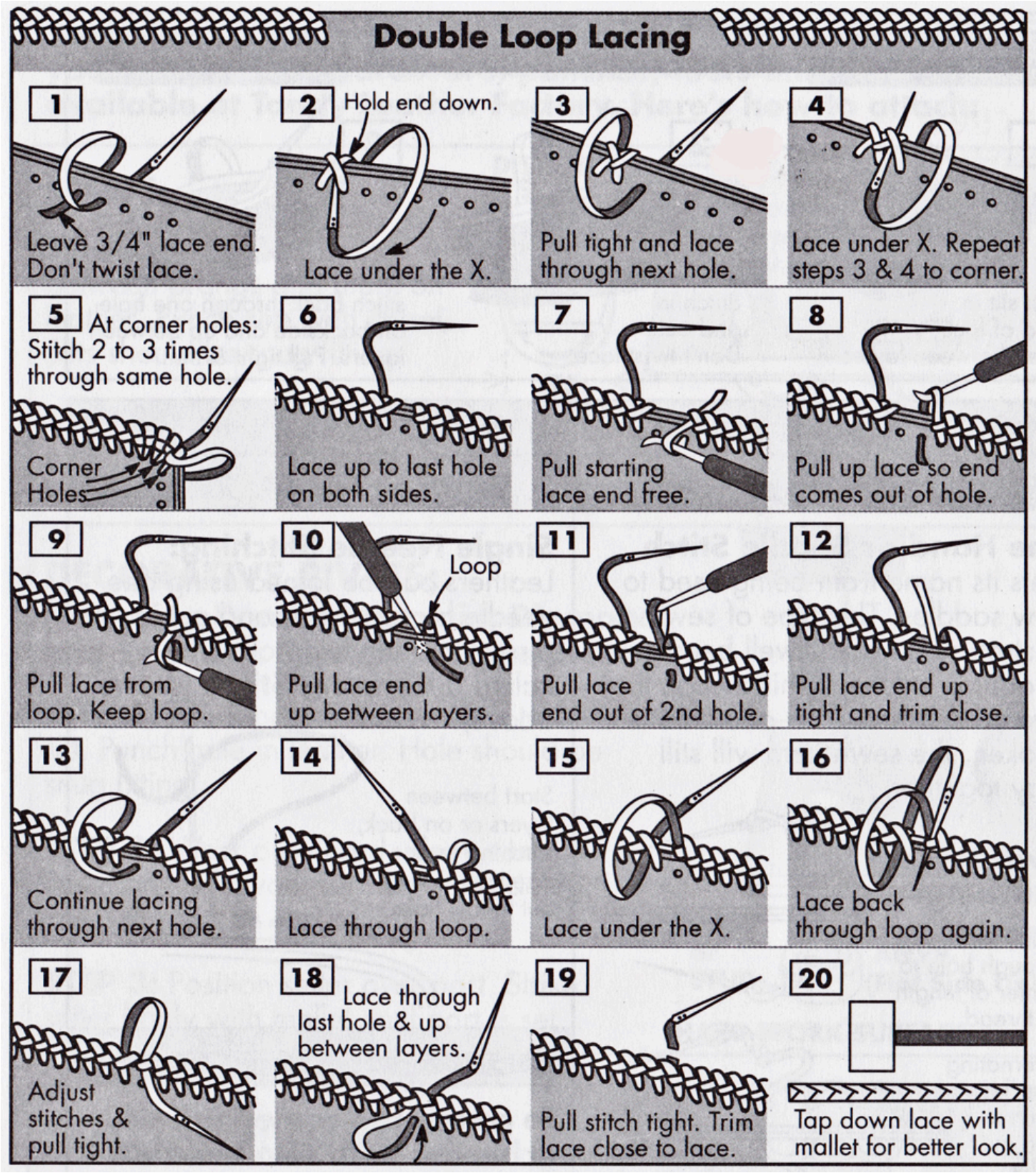


Use the following formula to determine the amount of lacing you will need for the double loop stitch.

Style	Edge Distance	Amount Required
Double Loop	1/8”	7 1/2 x the distance to be laced
	3/16”	8 1/2 x distance to be laced
	1/4”	9 x distance to be laced

Add 10 percent to the above formulas for splicing and ending lacing.

The front side of the article must face the person lacing. Beginning with the flesh side of the lace up, pull the needle and lace through the first hole. Leave about ¾-inch of the lacing end and go on to lace the next hole.



Enjoy this Tandy Leather video: *Learning Leathercraft with Jim Linnell – Lesson 13: Double Loop Lacing* https://www.youtube.com/watch?v=HIpanSwuy4o&list=PL2v0zL3aZty-xboVhmI3Z5SKuWkumtzaM&index=15

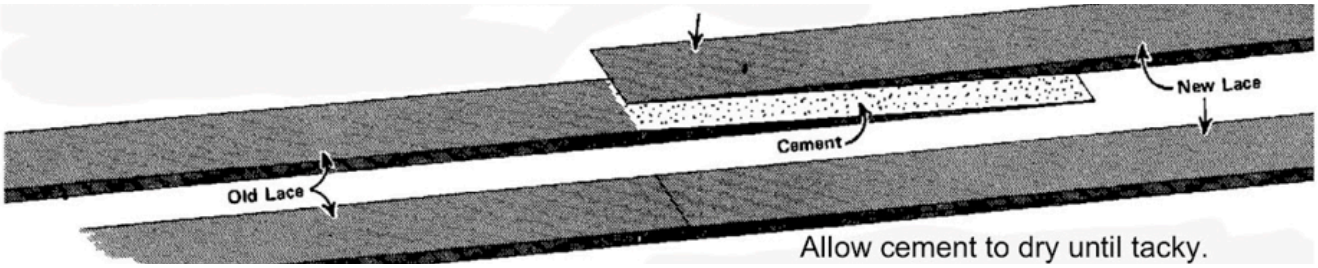
Splicing Lace

When you lace a project it is generally recommended that you use no more than two yards of lace at a time. This is because pulling the lace through all those holes wears the lace and may weaken it. It also frays the edges so that the lace doesn't look good toward the end of the project. Well, unless your project is very small and you are doing a very simple stitch, two yards of lace will not go completely around it. You will have to splice in a new length of lace, maybe even several times.

The two most common ways to splice lace:
A cement splice (sometimes called a "wet" splice) is a splice that is glued together with a leather cement that dries clear. It needs to be clear so it will not show a glue color around the splice.
A dry splice is a way of splicing when lacing two or more thicknesses of leather with single or double loop lacing

Cement Splicing

This method is commonly used by leathercrafters and manufacturers of lace as well. Often on a spool of lace a piece will be spliced in to fill the spool. Splice when five inches of old lace remains. Skive the end of the old lace on the top side. Skive the end of the new lace on the bottom side. Carefully apply leather cement that tries clear, to the skived ends.



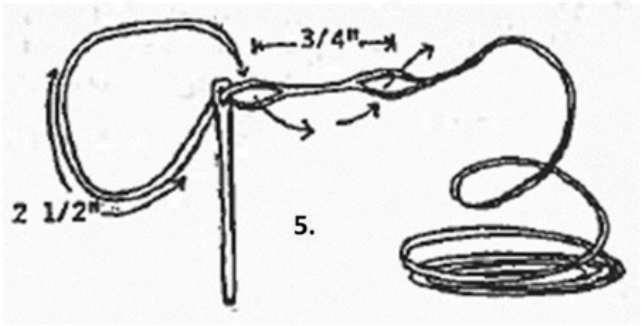


Allow cement to dry until tacky. Adhere skived ends together. Allow the cement to finish drying. Continue lacing around your project with new lace.
NOTE: It might be helpful to stretch the holes a little with a stylus, lacing fid or tracing tool and be a little gentle pulling the spliced lace through the next few holes.

Hand and Saddle Stitching

For the saddle stitch, two harness needles are required and one length of thread as long as your extended arms.

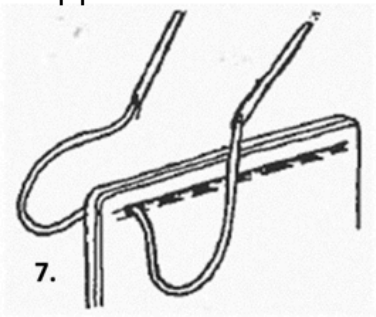




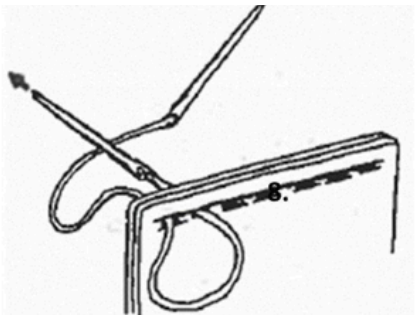


Place one end of the thread through the eye of the needle. Twist the thread open near the eye and pass the short end through the opening. Twist open again about 3/4-inch further down and pass the end through again. This will lock the thread in place. Repeat for the other needle on the opposite end of the thread.

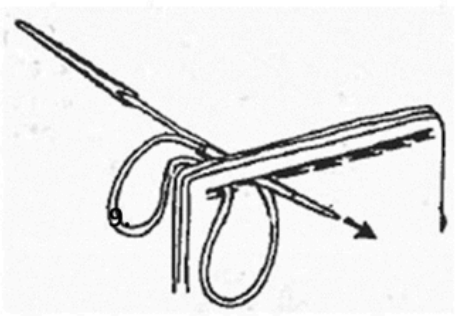
Pull thread over beeswax several times to fuse thread together.



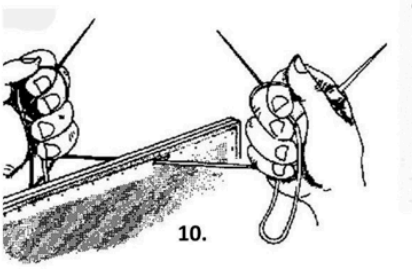
Start by placing a needle through the first hole. Even up the ends of the thread.



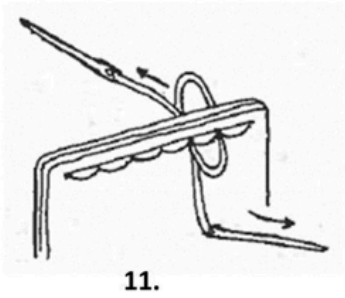
Push one needle through the second hole.



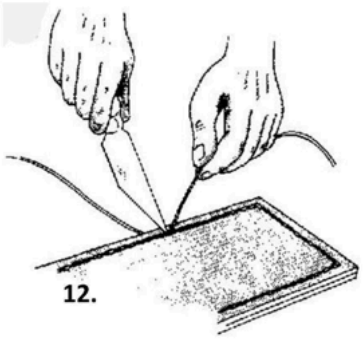
Push the other needle through the same hole. Grasp thread on each side and pull tightly.



To tighten the stitch, grip threads as shown and pull into gouged channel. Use equal tension with both hands. Continue stitching around project to starting hole.

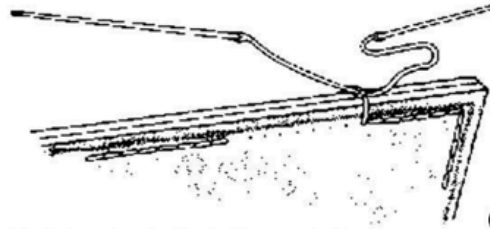


To end, back stitch through two holes.

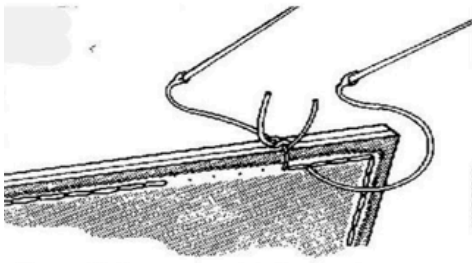


Cut threads off flush with the leather in stitching channel on both sides with a sharp knife.

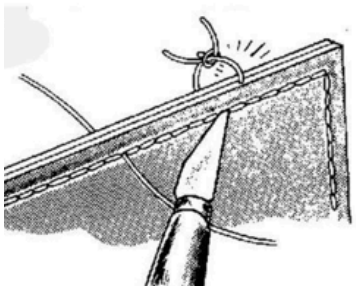
Splicing thread: If you are sewing and use up a full length of thread and have not reached the starting hole, you need to add more thread to finish.



Pull last stitch tight and tie threads together on top edge of leather as shown.

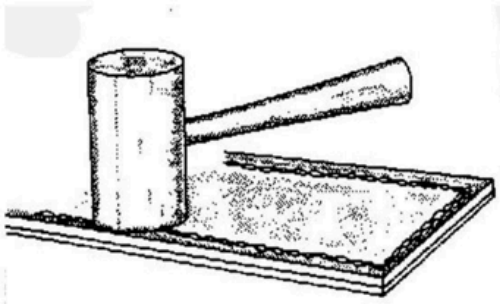


Cut needles off threads. Put needles on a new length of thread. Insert needle one hole back from last stitch and start new thread in this hole. Continue stitching around project to starting hole.

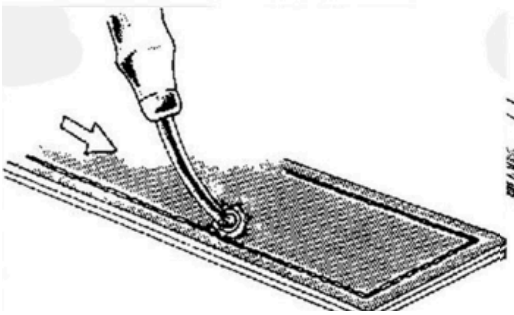


Complete stitching, back stitch two stitches, then cut off both sets of ends.

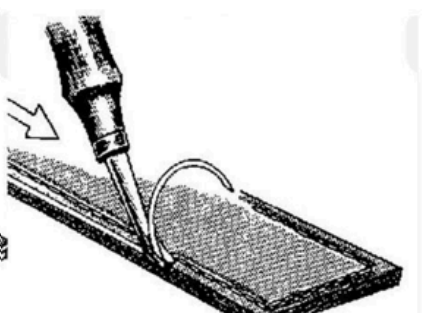
Finishing Touches for the Sewing and Edges



Lay project on smooth work surface and tap over all stitching with a smooth faced mallet. Be careful not to mar leather. This helps set the stitches and smooths them.



Run the overstitch wheel over all of the stitches.
This actually helps the appearance of any slightly irregular stitches.



Round the edges of the leather on both sides with an edger.

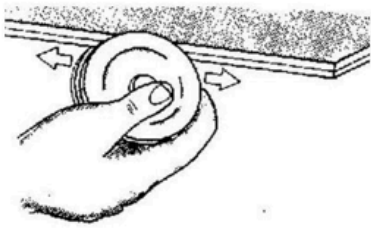
Optional Hand Stitching

Single Needle Stitching:
Leathers can be joined using one needle by sewing in and out in one direction, then tying off. This is called a Running Stitch (shown below).

Start between layers or on back, stitching in one direction in ond out to last hole.



A method similar to the saddle stitching is sometimes used in place of lacing. This method is identical to saddle stitching except that the stitching is generally done with regularly punched holes instead of through diamond holes. Usually a prepared thread (waxed thread) and a tapestry needle are used. Many leathercraft precut and pre-punched kits have this stitching as an option.



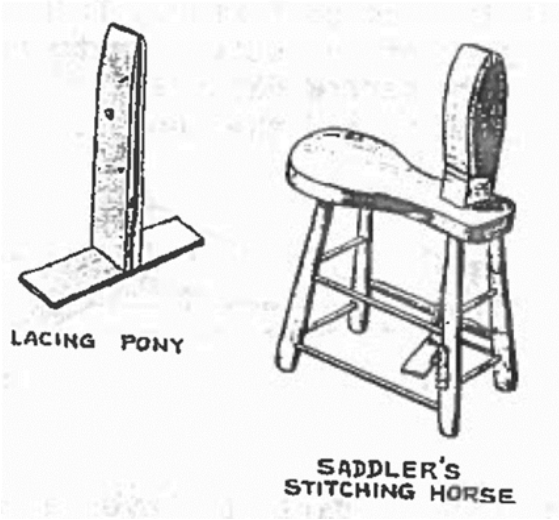
Moisten the edges of the leather and burnish with a circle edge slicker.

To create the same look as achieved with two needles:
Turn and stitch back through the same holes, filling in between the previous stitches.

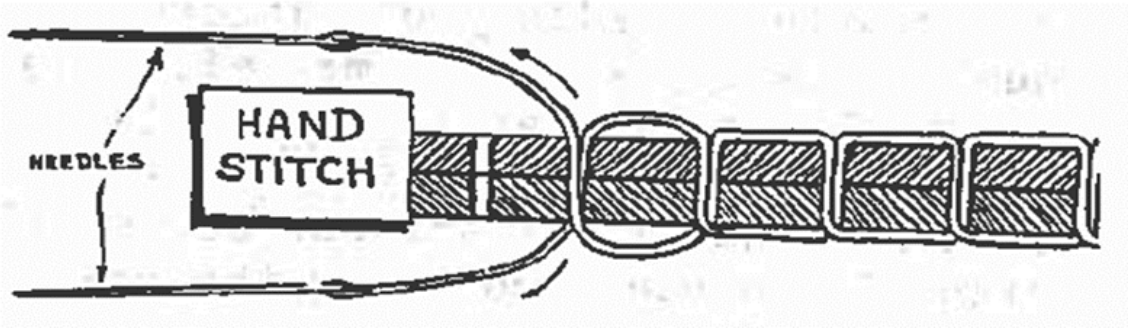


Hand Sewing

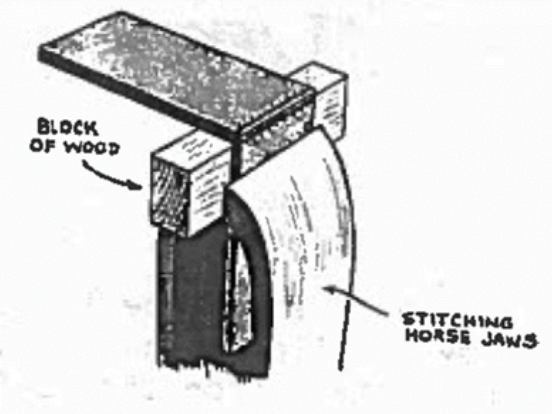
Hand sewing is done where high-quality work is desired and in places which are impossible to reach with a sewing machine. A lacing pony or stitching horse may be used to hold the leather in place. This frees both of your hands for the stitching. Select a good resource book and follow the instructions for preparing your thread and threading the needle.



The basic hand stitch is done by starting with a thread two arm's length (about 8 to 10 feet) long and putting a needle on each end.

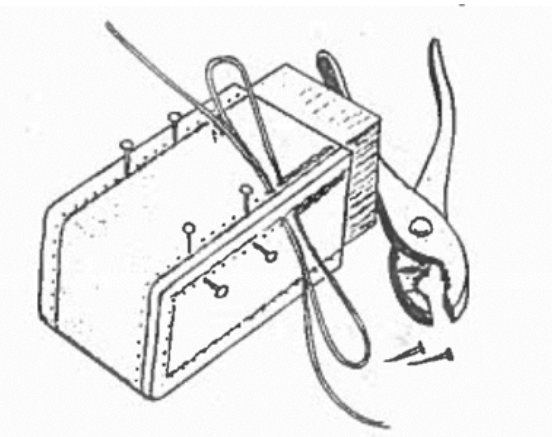


A block of wood should be used to hold the leather straight when you are making a mitered corner.

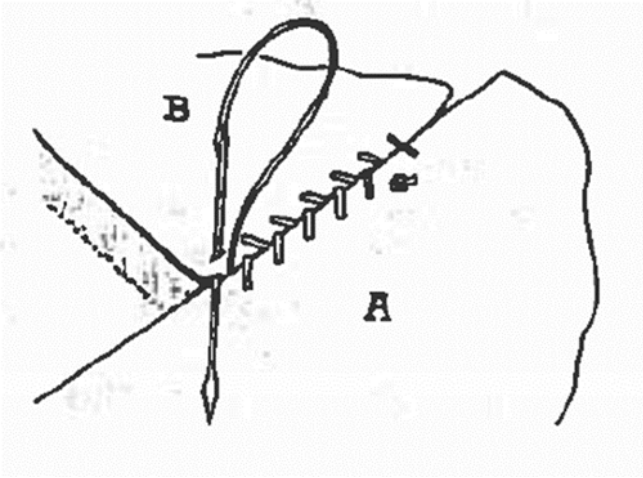


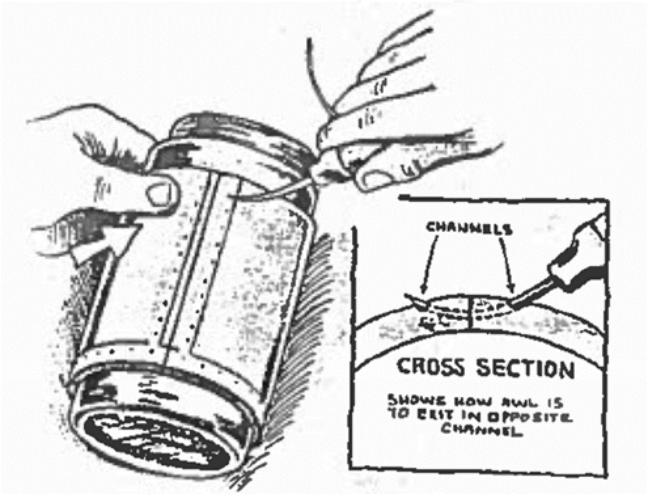
Hand shoe tacks may be used to hold the leather in place when you are sewing leather around a wooden frame.

Curved awls and needles may be needed for some rounded articles.



Different stitches, such as the baseball stitch are sometimes most appropriate for an article.





Look for different ideas for articles which can be made by sewing leather.

Watch this video from Tandy Leather: *Hand Stitching Leather Techniques* https://www.youtube.com/watch?v=qi3BRWO7kuo&list=PL2v0zL3aZty-RPep7sBL6AB6gquOi3ZZ4&index=3

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