TENT REPAIR BASICS

Tent Repair

Determine if you are capable of repairing the tent at your facility or should it be sent out to a professional by considering these points:

1. If the tent is to be sent out for professional repair, generally the original manufacturer is the best choice for the tent to look as close to the original as possible.
2. They will make the repairs with the same materials from which your tent top was originally manufactured. Other shops will have to improvise and use materials or hardware that do not match the tent, making the repaired area more obvious.
3. If you use a professional shop other than the original manufacturer, be sure to ask plenty of questions on the front end to determine if they are experienced with making repairs to your type of tent. Ask for an estimate before authorizing the repair.
4. We categorize fabric repairs into three (3) types: A, B and C, with A being the most expensive repair. They are as follows:

   A = Full panel replacement seam to seam.
   B = Partial panel replacement and seam to seam as much as possible.
   C = Patch of damaged area only.

The majority of the repairs made at a manufacturing level are Type “B”.

O. K. - SO YOU’VE DECIDED TO REPAIR THE TENT YOURSELF!

First categorize the extent of the damage to the tent top. Again, we have three (3) categories; A, B, and C with A being the most severely damaged. They are as follows:

A = Not Rentable - Must be repaired before returning to the rental fleet.
B = Minor Damage - Small cuts, holes, etc. - Not 1st Quality Grade - Repair ASAP!
C = Cosmetic damage - Pin holes, scuffs or abrasion marks.

Let’s start with the easiest type of repair “C” (Cosmetic Damage)

A = Pin holes and abrasion marks can be repaired with liquid vinyl. Using a small applicator, such as a toothpick or nail, apply a dot of liquid vinyl to the affected area. The liquid vinyl is self-leveling and will cure in approximately one hour. This product is available in most colors of tent vinyl.
B =Liquid vinyl is also good for repairing holes up to 1/2” in diameter or cuts 2” and under.

Tape the backside of the hole using masking tape. Apply the liquid vinyl to the hole until it is completely covered. Allow three (3) hours drying time, then remove the tape from the back and apply liquid vinyl allowing another three (3) hours drying time.

C = Pin holes and abrasion marks can also be repaired with Stick-On Vinyl patches. They are available in most colors and come in a variety of shapes and sizes. This product is simple to apply. Simply peel off the paper backing and apply to the area to be repaired. Use a vinyl roller to ensure that the patch has been applied evenly and firmly in place.

Note: This type of repair is normally done to the underneath side of the tent, as it is cleaner and more easily accessible once the tent is installed

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PATCHING WITH A HEAT GUN

Patching with a heat gun is the preferred way to repair larger area vs. contact cement; however, it's not as easy to work with in the field as the contact cement.

1. Patching with a heat gun requires a minimum level of skill in order to achieve a structurally sound and aesthetically correct patch. If you are unfamiliar with either the heat gun or patching with specific material being used, it is recommended that you practice first with scrap pieces before attempting to patch the actual tent.
2. Clean the surface of the tent to assure that it is free of dirt, oil or other contaminants. The tent surface must be dry.
3. Prepare the surface area to receive the patch by cleaning with Rubbing Alcohol, Tolulene or MEK. These are all solvents that are compatible with the vinyl fabric and contact cement. These are also readily available from your local paint or hardware store.
4. Cut a round or oval patch. If using a square or rectangular patch, round the corners. Rounding off the square corners will improve the edge bonding. The patch must be a minimum of one inch larger than the damaged area (or the width of the heat nozzle and roller).
5. Heat patching requires a smooth, rigid flat surface large enough to place the area of the tent being repaired.
6. Make sure that the tent fabric is flat against the work surface with the topside of the tent facing up.
7. Place the patch material over the repair area so that it is evenly spaced all the way around. Lineup the scrim pattern of the patch with that of the tent top.
8. Using a heat gun and silicone rubber roller, apply a moderate amount of heat (enough to melt the surface, but not burn) between the patch and the tent material surface holding the heat gun in front of the roller.
9. Using the above procedure, start in the center of the patch working to the opposite edge; repeat as many times as necessary until the complete patch is bonded to the tent.
10. Turn the tent over and bond the edges of the patch area.
11. After the patch has cooled, check all the edges to ensure that they are properly bonded by feeling the edges for loose areas. If any are discovered, repeat the same process as before to reseal the patch.
12. Upon finishing all patchwork, clean the roller tool with the same solvent used on the tent tops before storing.

These are the easiest and most common ways vinyl fabrics are repaired in the field or shop. All of the tools and equipment used for the types of repairs discussed require an investment of less than $1,000 dollars.

If you currently rent tents and do not have the proper tools to accomplish these simple repairs, I would highly recommend that you purchase these items from your tent supplier, as you will need them to make repairs from time to time. This will not only make your tents look better, but will also be safer for your customer.

PATCHING WITH CONTACT CEMENT

Contact cement is used to apply patches ranging from a couple of inches to several feet. It is relatively easy to work with and can be used in the field as it requires no power or special tools. However, it does not make the best-looking patches.

1. Clean the surface of the tent to assure that it is free from dirt, oil or other contaminants. The tent surface must be dry.
2. Prepare the surface area (underneath side) to receive the patch by cleaning with Acetone, Rubbing Alcohol, Tolulene or MEK. These are all solvents that are compatible with the vinyl fabric and contact cement. They are also readily available over the counter at most paint or hardware stores.
3. Cut a round or oval patch. If using a rectangular patch, round the corners. Rounding off the square corners improves the edge bonding. Also, try to lineup the scrim pattern of the patch with that of the tent.
4. Apply a thin layer of vinyl contact cement (HH-66) to both surfaces. Allow 2 to 5 minutes of drying time until the surface becomes tacky. If the surface is wet or stringy when touched, allow additional drying time. When using large patches, apply the cement in sections to achieve a more even drying of the glue between the two surfaces.
5. Apply the patch to the tent. Clean off the excess glue from around the patch with the same solvent used to prep the surface (listed in Step 2 above). Be sure to wipe off all excess solvent, as it will dissolve the vinyl if left on the surface. Talcum or Baby Powder will also help to absorb the excess cement. Just sprinkle on and wipe off.
6. Allow proper curing time. Allow two (2) hours minimum before folding the tent. Allow a minimum of 24 hours before erecting the tent. Contact cement achieves its maximum strength in approximately 48 hours.

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Keder Repair

STEP 1: Cut back damaged end or section of Keder as shown. Ensure that this is a straight cut.

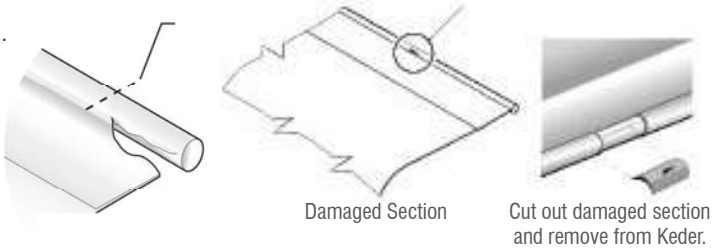
STEP 2: Determine the length of material required to make the repair.

STEP 3: For damaged end, slide drill guide over Keder (as shown.)

STEP 4: Drill Keder using drill guide. Repeat this process on replacement material to be inserted for the Keder repair.

STEP 5: Use a heat gun or liquid soap on the dowel pin and firmly seat into the pre-drilled hole as shown. Repeat this procedure on the replacement material.

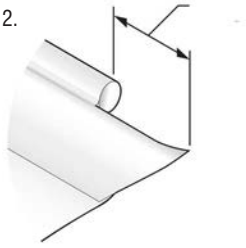
1.



Damaged Section

Cut out damaged section and remove from Keder.

2.



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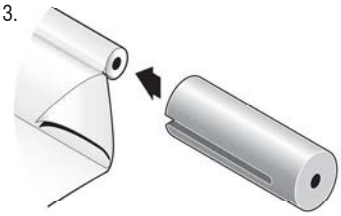

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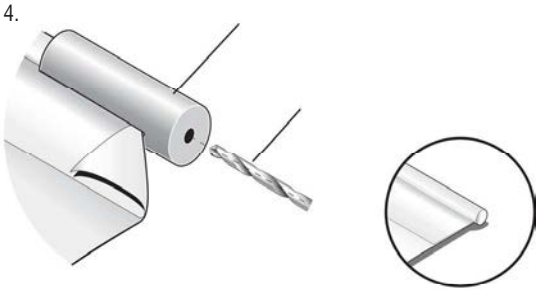

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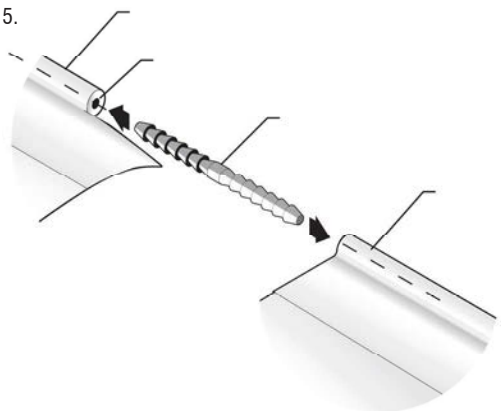

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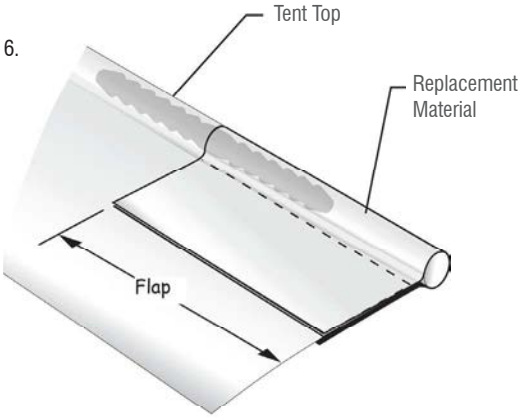
STEP 6:

Pieces should be joined together as shown with the flap of the replacement piece placed over the flap on the tent top

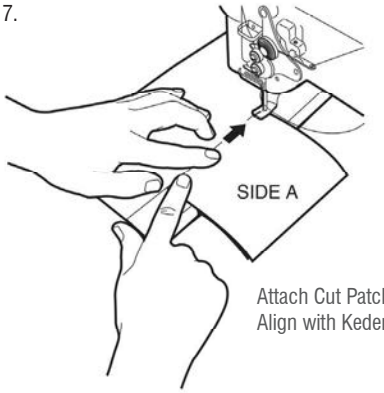
6.



STEP 7:

Use a sewing machine to back tack the replacement material in place.

7.

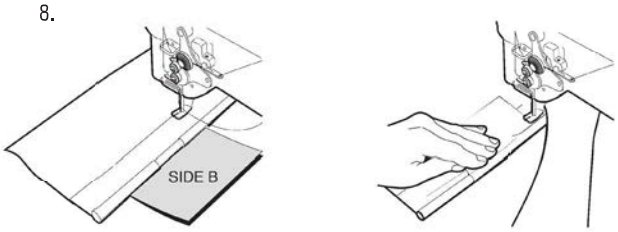


Attach Cut Patch.
Align with Keder Covering

STEP 8:

Turnover to opposite side and pull the replacement material tightly over the keder and sew along side the Keder.

8.



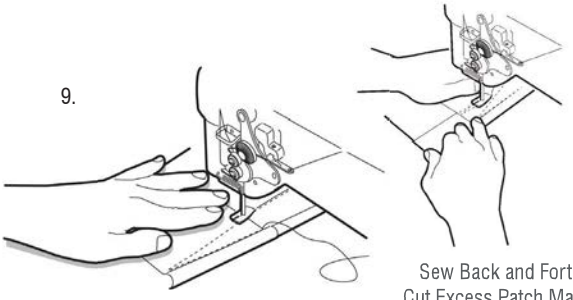
Pull Tightly Over
Keder and Sew

Turnover and pull tightly over Keder and sew along Keder line (as shown)

STEP 9:

Sew diagonally to edge line, then sew back and forth firmly to attach. Cut off excess patch material or thread with a sharp knife or scissors.

9.



Sew Diagonally to Edge Line

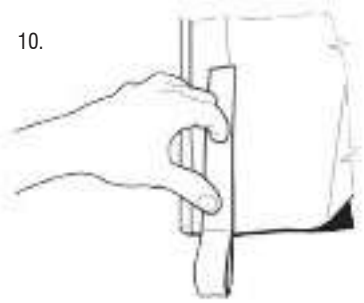
Sew Back and Forth to Firmly Attach
Cut Excess Patch Material off with Sharp
Knife or Scissors

STEP 10:

Attach pull or top tie down strap (sew with a zig-zag motion). Heat around repaired area to seal and complete repair.

Please Note: Bullets can be installed as in the proceeding steps to assist in guiding the repaired top over the crown cluster.

10.



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Bullet Upgrade

Slide drill guide over the end of the Keder as shown in the illustration. This assures that the bullet is installed in a straight position to ensure that the transition over the crown goes smoothly.

Note: Determine Keder Size for correct bullet prior to installation.

Using guide, drill fully into the Keder. It may be necessary to run the drill in and out a couple of times to clear out the excess material.

Use a heat gun or liquid soap on the dowel (bullet) and firmly seat into the pre-drilled hole.

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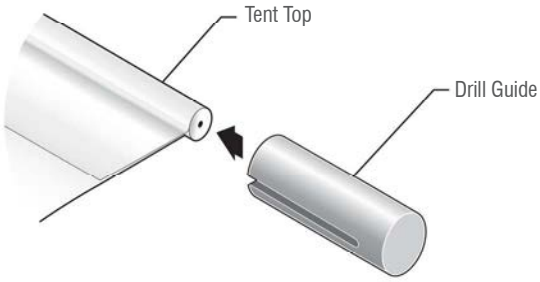

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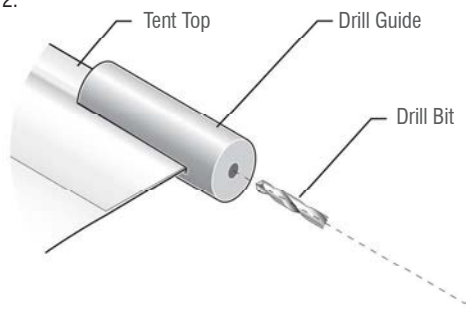

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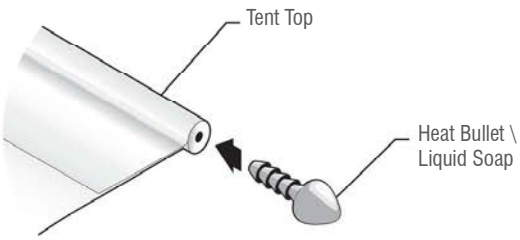

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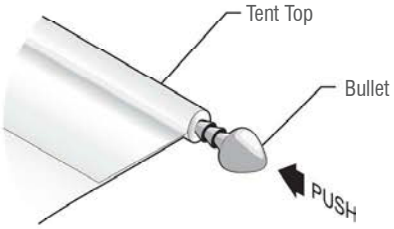

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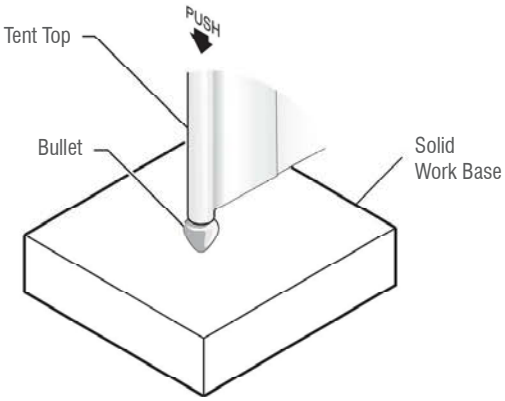

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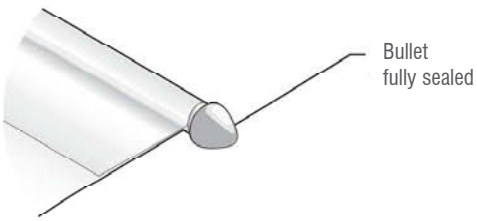

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Grommet Replacement

Grommets are two (2) pieces which consist of a plain rolled rim eyelet and a plain or spur washer. Most tents are manufactured with either a Brass or Stainless Steel Grommet.

1. Tools required for grommet replacement are a setting die, a grommet hole cutter, a two or four pound dead blow hammer, (or rubber mallet) and a solid work base from which to work.

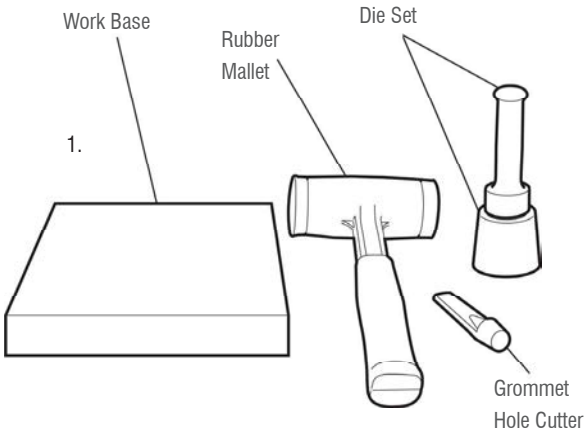
   Grommets are sized from 00 to # 8. Special shapes are also available. Each size will require its own die set.

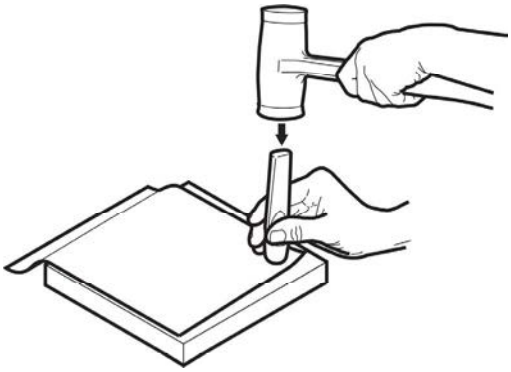
   To remove damaged grommets, you must pry back the rolled over edge of the eyelet releasing the washer. This should be accomplished using a flat tip screwdriver. Use caution to prevent slipping off the grommet and puncturing a hole in the tent material. Generally, when grommets are damaged or pushed out of their hole, the surrounding material that the grommet was attached to has also been damaged requiring a larger grommet to be used or the fabric to be repaired prior to installation of a new grommet. Make sure that the larger size grommet is compatible with the center or side pole in that location.

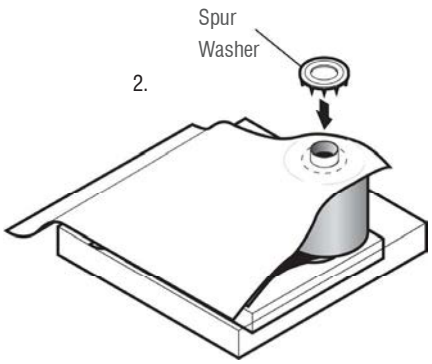
   The first step in installing a grommet is cutting the proper size hole for the part. Your die set should include an appropriately sized cutter for the size grommet you will be using. Select the location of the grommet and use the cutter and dead blow hammer to create the hole in the fabric.

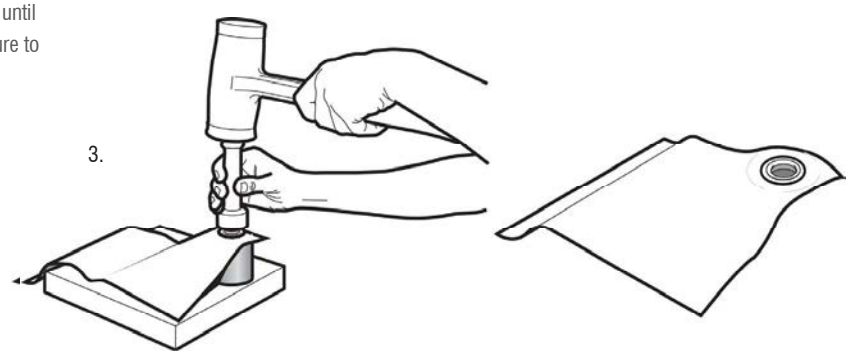
2. To install the new grommet, you must place the setting die base with the eyelet under the grommet hole. Place the fabric over the bell shaped tip of the eyelet as shown with the top side facing up. Place the spur washer over the eyelet as shown.

3. Insert the male half of the setting die through the eyelet. Using a dead blow hammer, drive the two halves of the die together until both sides of the grommet are flush with the material. Be sure to use a solid work base when setting the grommet.









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Replacement Ropes

Ropes on tents require periodic replacement due to wear and tear. Most manufacturers use a three strand twisted polypropylene or nylon rope. The polypropylene rope is preferred due to its ability to withstand ultraviolet light better than nylon. Following are instructiqns on how to braid a three strand eye splice.

1. Cut the rope to the specified length. We recommend a minimum length equal to 1-1/2 times the distance from the top of the side pole to the stake. Example: you have an 8' sidepole with the stakes placed a 6' out from the sidepole, the distance is 10' , therefore the rope length should be a minimum of 15'. We recommend using a hot knife to cut the rope which seals the ends of the fibers together of each of the three strands preventing them from unraveling. If you do not have access to a hot knife, you can cut the rope with a knife or scissors, then seal the ends of the three strands with a hand-held propane torch. Also use the propane torch to melt together the fibers of the rope on the tail end approximately 3" to prevent unraveling when tying off to stakes.
2. Start by seizing the working end of the rope approximately 6" from the end. Unlay the strands A,B,C, then twist the rope slightly to open up strands D,E,F of the standing part of the rope as indicated in Fig. I approximately 18" from the end.
3. The first tuck is shown in Fig.2. The middle strand B is tucked under strand E, in the middle of the standing part.
4. The second tuck is now made as shown in Fig.3. The left strand A of the working end is tucked under strand D passing over strand E.
5. Figure 4 shows how the third tuck is made in order to make Strand F easy to get at, the rope is turned over. Strand C now appears on left side.
6. Strand C is then passed to the right of and tucked under strand F, as show in Fig.5. This completes the first round of tucks.
7. Figure 6 shows the second round of tucks started, with the rope reversed again for ease in handling. Strand B is passed over strand D and tucked under the next strand to the left. Continue with strands A and C, tucking over one strand and then under one to the left. To complete the splice, tuck each strand once more. A minimum number of three tucks per strand is recommended.
8. The finished eye splice is shown in Fig.7. Roll the splice back and forth under your foot to even up and smooth out the strands.

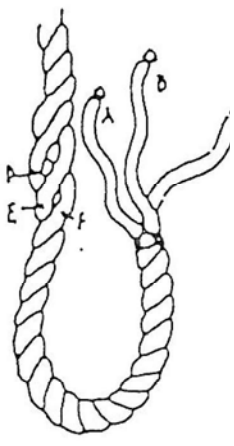


FIG 1.

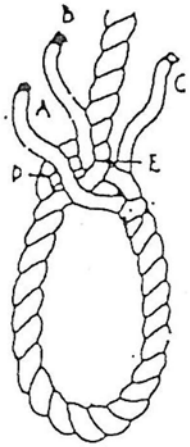


FIG 2.

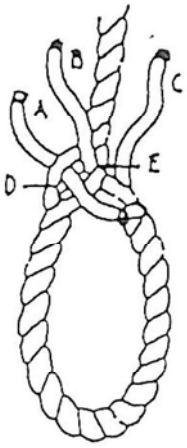
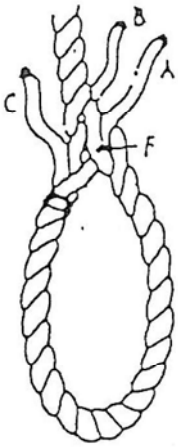


FIG 3.



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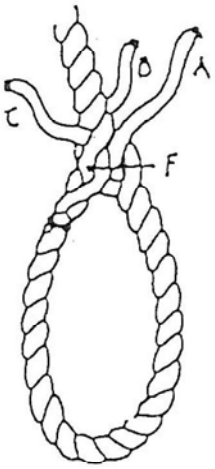

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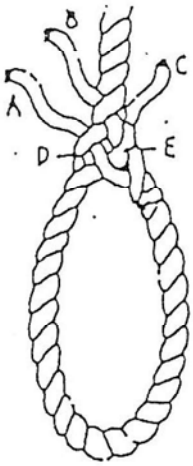

FIG 6.

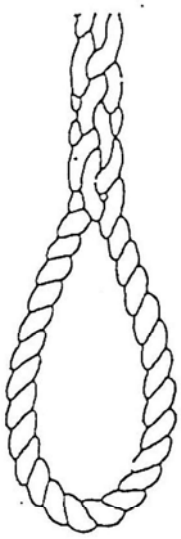
FIG 7.

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