

# FROM THE ARCHIVES

## Menagerie Top Design and Construction

by Raymond Heim, Chippewa Falls, Wisconsin

### PART THREE

Refer to Part One and Two for Various Figures Used in This Part Three Article



**1949 Cole Bros. menagerie top. Here we see a row of cages down the side with other cages through the center. At the far center end of the tent we can see the Cracker Jack stand. This photo was apparently taken prior to "Doors" as no rope had yet been placed from pole to pole to keep spectators back from cages. This photo reprinted from "Sawdust Trail."**

#### LACING UP THE TOP

We now have the lacing eyelets set as per last month's article (I hope) so it is now time to take the pieces of cloth and form them into a top.

I start by lacing two of the pie shaped end sections together, to form the one end. Then the other two. Next I lace the middle pieces together where they fall along the ridge line (center pole line). After all of the pieces are laced together in pairs as above I start lacing the first two middles to one end. Then the second pair of middles to them. Switch over to the other end and lace the remaining middles to it. Then as a last step lace these two halves together. You may follow any order you wish but from experience I have found this to be the easiest by having to han-

dle the largest volume of cloth only twice and that is on the final two laces. On the middle pieces along the lace line which forms the ridge line see that all of the pieces having the lacing eyelets fall on the one side of the ridge line and conversely all of the middle pieces having the lacing loops fall on the other side of the ridge line.

Now let's start the actual lacing, using **Figures 7, 7A and 7B** as a guide. Take two of the end pieces and place them together so that line 3-4 just touches line 1-2 of the mating piece. Line 3-4 should be the hems sewed in. Line 1-2 is shown as very edge of the cloth now with the dotted lines on the drawing and is the line drawn  $\frac{1}{4}$ " inside of the lacing centerline. The way this is placed line A-B which should have the lacing eyelets in it should fall directly over line A-C of the mating

piece.

Line up the pieces so that the hems on the outer edge and the bale ring openings of the two pieces match up. Then pin generously again using plenty pins. I pin where every arc intersects the hems and one pin in between.

Take your string which is to be used for lacing purposes and cut a piece  $4\frac{1}{2}$  times the length of the lacing line. (From bale ring opening to outerhem.) Place an overhand knot in one end and thread the other through a large needle.

Begin at the bale ring opening and push the needle up from the bottom piece and through the first eyelet. Pull all the way through to the knot. Now push the needle back again through this eyelet and the cloth of the mating piece underneath; pull rope through until you have a loop remaining about

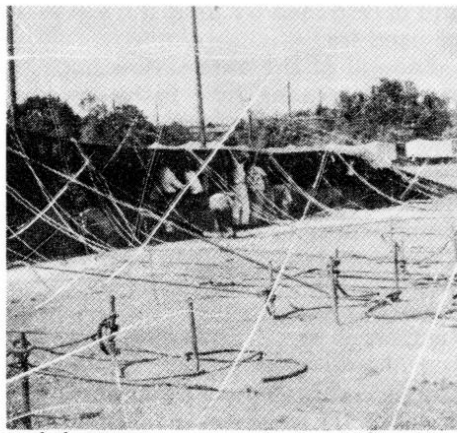
1 1/2" long. Start the needle up through the second eyelet, take the twist out of this loop and hold so that the loop lays flat, pull the rope through until you feel the loop you are holding starting to pull; then run the needle back through the eyelet and into the under piece of cloth and pull the rope through until you again have a second loop about 1 1/2" long. Leave these loops oversize for the time being and keep on lacing until you get to where the rope is too short for further work which should be about 1/3 to 1/2 way down the lace line.

Go back to the second loop and pull on the right side of the loop to start pulling the first loop out of its eyelet. Pull up until the first loop just ends over the second eyelet. Continue down the lace line in this manner until all of the loops so far sewn are pulled into their final position. **Do not pull too tightly.** This is a failing of the first timer. It will make your cloth gather and when set up will leave bulges in it. On the other hand leaving the loops too loose will let the piece of cloth pull away from each other when the top is guyed out. This will look like the suit coat on a man when the coat is too small and buttoned up.

For conformity and for ease in finding which side of the loop to pull on when tightening the previous loop I developed a system whereby in coming up through the eyelet I come up to the left as close to the side of the eyelet hole as the needle will get and going back down on the right side. This way a right handed person will have the pulling side of the loop where it is handiest for him. However do this as you wish.

Leave the pins in while lacing and take them out when you go back and are pulling the loops up snug. Pull them out as you go along and just ahead of the loop you are snugging up. Be sure to take out each pin as you progress just ahead of the loop you are snugging up. If a pin is left in, the laces will not fit properly.

Now continue sewing in the lacing rope down the lace line as before and when you run short of rope go back and pull in the loops to their fit. You will probably have to go back three or four times. Continue until the last lacing eyelet. Here push the needle up through the back to form the loop and leave the loop as long as the remainder of the rope. Go back to where you left off and pull the remaining loops up snug until the last large loop you just left. This last loop pull down until it is about 1 1/2" long, place an overhand knot in the rope on the **under** side to hold it in place, then again come through the last eyelet but come up outside of the next to the last loop. Cut the rope off about 1 1/2" long and seal the end with a drop of model airplane



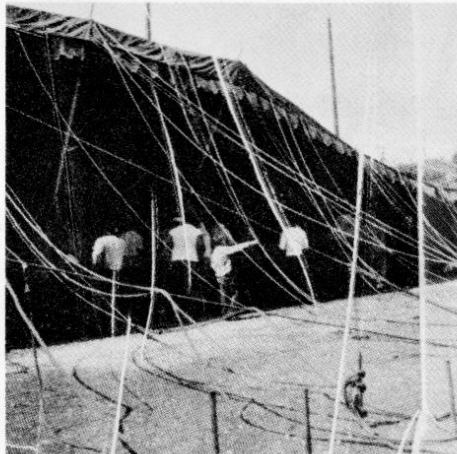
**Raising canvas to start setting the side poles. — Note that side poles are not placed at every rope, only every other rope, which has a double rope on the canvas. A Heist photo.**

glue to prevent fraying. You now have where line 3-4 for **Figure 7** will just a long loop and an end of the lacing loop coming up through the last eyelet with the next to last loop in between them. Tie the last loop and the end together with a square knot to finish the lacing. This makes it convenient to open the lacing if desired at any time.

Lace the other two round ends together in like manner.

Take two middle pieces, one with the lacing eyelets along the ridge line and one without. Place them together (back to back) so the two ridge lines meet. Then overlap them so the one with the lacing eyelets are on top. Refer to the various **Figures 8**. In placing them together line 1-2 which is now the outer edge should just touch line 18 (the dotted line) on the other piece. This way lines A-D of the two pieces will be one on top of the other. Again pin and lace as above. Repeat for all of the middles.

Start lacing the middles to the round end sections. Here line 3-4 of **Figure 8** will just meet line 23 of the round end. Lace together. Go to the other side



**Up She Goes — Side poles being set. Note how pole sockets are set back from edge of canvas and how rope between poles is fastened to the rain curtain. A Heist photo.**

meet line 24 of **Figure 8**. Lace these together.

In lacing the various middles together refer to **Figure 8** where line 3-4 will just meet line 24 of the mating piece.

Continue lacing until the entire top is laced together.

Now, laying the tent upon the floor you will discover that it is impossible to make it lay flat. This is correct. In fact if it will lay flat something is wrong someplace in the design. It will not hang right when set up.

#### QUARTER POLE LAYOUT

QUARTER POLE LAYOUT is something I tried to draw for this top but had to give up as the drawing would be too small to do any good and still be on paper the size of the *LCW*. So for their placement you will just have to rely on these comments and your own judgment.

This top, as previously stated was designed for two rows of quarter poles. At that time I stated that a top this narrow usually does not have two rows of quarter poles but I used them to obtain the result I wanted. If desired one row of quarter poles is sufficient.

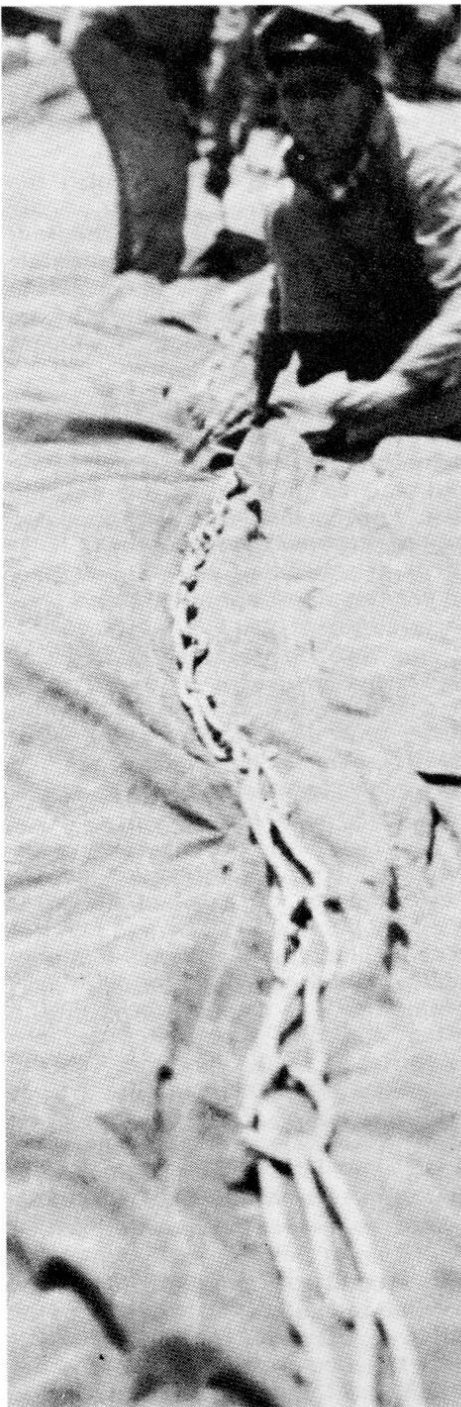
The two quarter poles, as well as being of different lengths are usually designated by the color of the paint they are painted with. By this I do not mean some fancy scheme a model builder has dreamed up for color as it seems that one does try to outdo the other on color schemes. Poles are essential in a top and are usually painted a color which will not attract attention as to a spectator they are a nuisance. The old time shows painted the set of quarter poles next to the center poles dark blue like the center poles. For this reason they were called blue quarter poles or just plain blues. The second row (smaller ones) were painted red and called the red quarter poles or just plain reds. As an added note the side poles were painted blue again like the center poles and blue quarters. To avoid repetition and here we will call them just plain reds or blues. In the single row quarter pole top they were painted blue again like the center poles.

Generally speaking each section of canvas had one blue and two red poles. They were **never** placed in line. The only exception to this was the modern Mills Bros. top. Otherwise I have never seen this. In the single quarter pole line top there was always two quarters to the canvas section.

Our pattern should have been marked off for two rows of poles and we will continue throughout this article as such.

Another thought. The quarter pole lines do **not** have to be spaced equidistant to divide the top into thirds from center pole line to side poles. There is





**Close up of the "lacing" stitch, used to join two sections of canvas. Note they are no more than loops laced through each other. A Templeton photo.**

usually a wider spacing from center poles to the blues to accommodate the rings. Then a narrow spacing for the hippodrome track between the blues and the reds. Lastly between the reds and side poles was the longest spacing to make room for the seats. Remember **all** quarter poles are slanted so they lean out from the center pole line. Usually the reds more than the blues. On the big top the reds can enter the canvas over the seats. The single quarter pole line top does not need the pole line spaced to divide the top into halves. Spacing here is for convenience

and determined by what the top is to be used for.

Enough of the above. Now back to work. Determine how many quarter poles you need. Remember that each pole must fall on the intersection of the quarter pole line which runs parallel to the center pole line and one of the simulated rope reinforcements sewed with colored thread which runs at right angles to the center pole line or on the round ends is radial from the bale ring. Take some of the scrap muslin which you should have plenty and draw a bunch of circles, stars if you prefer, on it about 2" in diameter or point to point. Make a few more than the number of quarter poles you will need to take care of boobooos.

In these circles or stars just inside the pencil line paint the cloth with model airplane dope. This is to prevent fraying. After drying take the straight scissors and cut out each patch on the pencil line.

Take the seine twine to be used for jump ropes and cut 28" long pieces, enough pieces so that there is one for each quarter pole. Dip one end of these ropes in model airplane cement to prevent fraying and let dry.

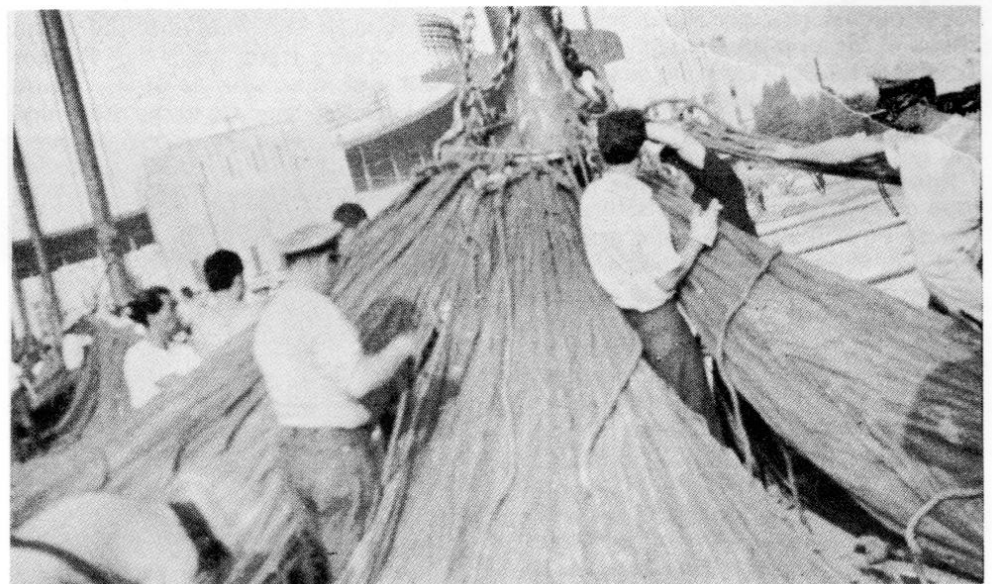
Turn your top upside down so you are working underneath. With the ice pick punch a hole in the top where you wish the quarter pole, place an SE 44 (long) eyelet on the eyelet set, work the canvas down over this. Find the center of one of the patches you just made, poke a hole through it at the center and work over the eyelet. Take the end of the rope you have just cut and in the end not doped place an overhand knot near the end. Force this over the eyelet and tighten around the shank with the hands and a needle nose pliers and set

the eyelet. Give the rope a jerk to see if it has been cut and then cut off the surplus end (short end). If you have cut the rope start working out the eyelet with a diagonal cutters and needle nosed pliers, and start over again. After cutting one or two ropes and finding out the grief of removing the eyelet you will learn in a hurry not to be too heavy handed with the hammer. Conversely, too light a blow to set the eyelet will not set it properly and allow the rope to pull off. On the quarter poles I like to keep the knot in the rope on the side of the eyelet toward the side pole line. This tends to pull on the pole and hold it in place better.

Remember that the airplane dope, cement, and lacquer thinner is extremely explosive so be careful with the cigarettes. Better yet don't smoke here.

Keep the quarter pole sockets off of the lace lines.

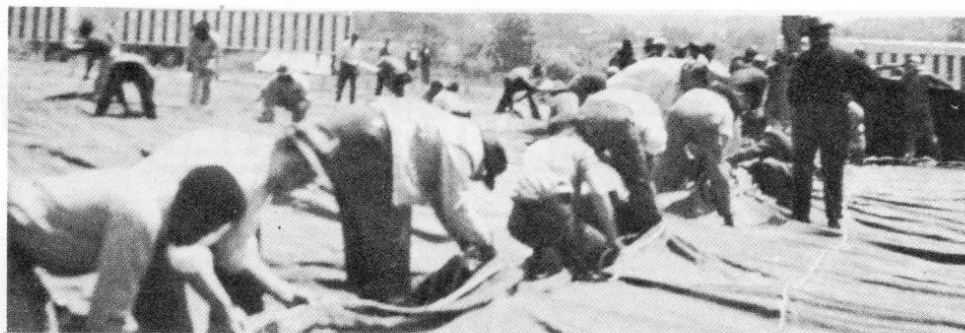
Let's go into the purpose of these ropes for a minute. These are **jump** ropes. On the prototype this jump rope forms a very important purpose as anyone who has ever seen a top in a storm can testify. The jump rope is a rope, permanently fastened to the underside of the canvas. When the peg on the pole is pushed through its socket in the canvas this rope is threaded through a hole drilled transversely through the pole about 2 ft. down from the pole pin and tied to the pole itself near the bottom or at a height convenient for a man to reach. Sometimes two jump ropes are used per pole. These are wound around the pole and then tied again near the bottom. For looks in a model I prefer the single jump rope per pole. This is also according to prototype. This is for the purpose of tying the rope to the can-



**Sections being laced to the Bale "Ring" — Note how the lacing loops on canvas sections hang from canvas. These get laced through eyelets in next section, then through the next loop and so on down the sections, thus lacing both sections together making a zipper effect, and tied at the outer edge to keep the lace from coming open. A Templeton photo.**

vas so that if the wind gets under the top and bellies the canvas the top cannot pull off from the pole pin and let the pole drop. In a wind the butts of the pole will "dance" and shift around but the pole will not fall and the only thing preventing them is the jump rope. Watch a top in a storm sometime and note the poles. The jump rope plus the transverse hole also is used for letting the pole down easy at night instead of letting the end drop when it is pulled out of its socket.

These jump ropes are used on every pole with the exception of the center poles on a bale ring top. Here they are not needed as a top properly guyed out could never pull off from the center pole. On a push pole top there must be jump ropes on each center pole also.



**Closeup view of the lacing operation. — At the completion of the lacing a rain and wind flap covered the lacing and snapped down at certain intervals. A Templeton photo.**

To repeat there are jump ropes on every side pole, every quarter pole, and every center pole where the center poles are for a push pole top.

Was going into the guy ropes this month but this article is getting pretty long winded so will knock it off for this time. See you next month.

**EYELET SOURCES**

We have received the following information on sources for eyelets for making tents:

Art Spellman of West Palm Beach, FL has purchased eyelets from Eyelet Enterprises Inc. 69 Tenean Street Dorchester, MA 02122 FAX (617) 282-4560

Art tells us that this company was recommended to him by the United Shoe Machinery Co. As we suspected, eyelets have increased. Arts last order was \$10.00 per thousand (minimum order). Art also replaced a cap for his setting tool for \$25.80. The company does have a catalog.

Olivia Martinez of Salem, OR tells us that she has purchased eyelets etc. from

Keystone Electronics  
49 Bleeker Street  
New York, NY

Our sincere thanks to these members for sharing this information with the LCW.

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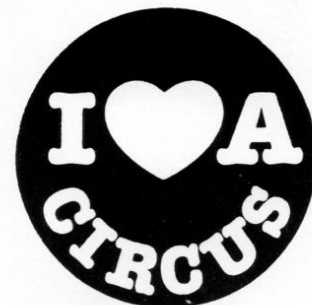
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