

FROM THE ARCHIVES

Menagerie Top Design and Construction

by Raymond Heim, Chippewa Falls, Wisconsin

PART TWO



"Gone Are The Days" — Yes, these days are over, but to help assist in construction of your menagerie top we offer this shot of the R.B.B. Menagerie taken May 30, 1940 at Newark, N.J. Note how our plan of the Menagerie layout in the Aug.-Sept. issue agree with the cage layout. Also note the variation of sides that are open on the cage wagon. They were not always completely removed. Photo from Heist photo collection.

Before we start construction a word of caution. After writing the first article several fellows wrote and told me they started by making the middle piece pattern first. This is starting all wrong. Your whole design hinges on the dimensions obtained from the preliminary drawings of the round ends. Because of this they wondered why their top didn't fit right. Better stick to this article and the sequence given or you will be having troubles. Maybe some fellows like to do it the hard way.

Another important preliminary procedure which some like to omit to their sorrow is to iron the cloth smooth, as when it is obtained, it is full of folds and wrinkles. **This is very important.** Be very sparing with the sprinkling water and sprinkle evenly. Now **roll** your cloth on something round like a large wooden dowel or rolled newspapers. **Do not fold.** Until you have hemmed the cloth all around be

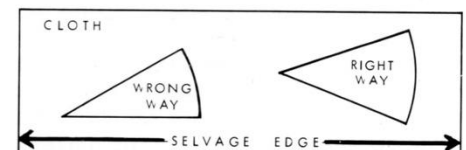
very careful of wrinkles and when not actually working on it keep it rolled. Even the pieces when cut out.

To show you how important it is to stick to the proper design in the proper sequence, while rewriting this article (part 2) I forgot two important lines when drawing the patterns on the cloth. The result is I am writing the whole of part two over again. Maybe I like to do it the hard way also.

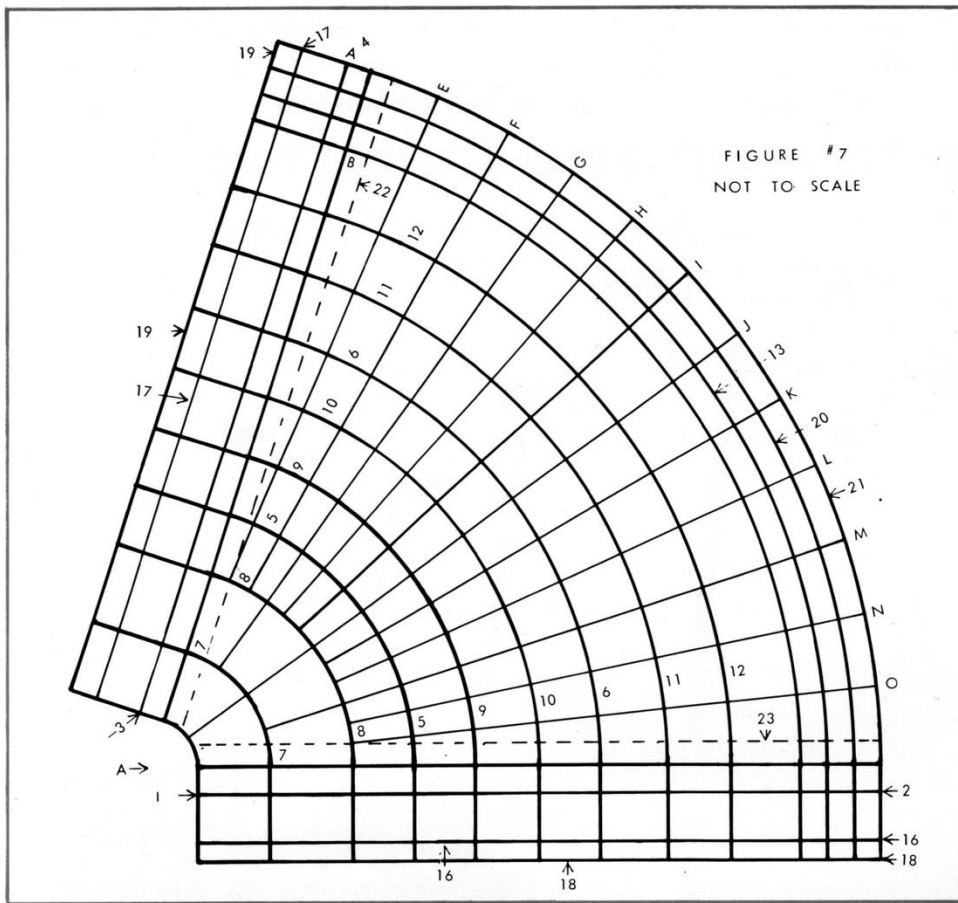
Now let's get down to business. Take one end of the rolled-up cloth and pull it across the table. Hold it down with about six pieces of masking tape and stretch **very lightly**. In fact tape it down just about the way it lays on the table. There will be some loose spots in it but disregard these as it is impossible to pull them out. If you start trying to stretch the cloth you will run into trouble because it is impossible to stretch it each time with the same amount of tension. Therefore the pieces will be of different sizes.

Round End Sections

Take your round end template and place it on the cloth as shown in sketch below. Don't be stingy and afraid to waste a little cloth. This is one wrinkle I had to learn the hard way. The threads **must** be as nearly parallel to each edge as possible. In a pie-shaped section like this it is impossible but the placement shown below is a compromise to make the top pull evenly when the time comes to set it up and guy it out. The first top I made had one end one inch shorter because I tried to save material and labor by using the selvage edge as a hem.



Now referring to **Fig. 5** of Part 1 (May-June, *LCW*) which is your template, mark distinctly on the cloth



the location of point A. I place a small needle here through the template and cloth and into the drawing board to keep the exact location marked as long as needed.

Draw completely around the template. On line 1-2 on the cloth mark off positions where radii intersect as points 5-6-7-8-9-10-11-12. Along arc 13 on the cloth mark points where radial lines intersect as points E-F-G-H-I-J-K-L-M-N-O. Also show positions of points B & C. Lines AB & AC will be the center lines of the lacings. Lines 3-4 & 1-2 will be the very outer edges of the cloth when it is hemmed. Line B-C the side pole center line with line 13 the eave edge after the cloth is hemmed.

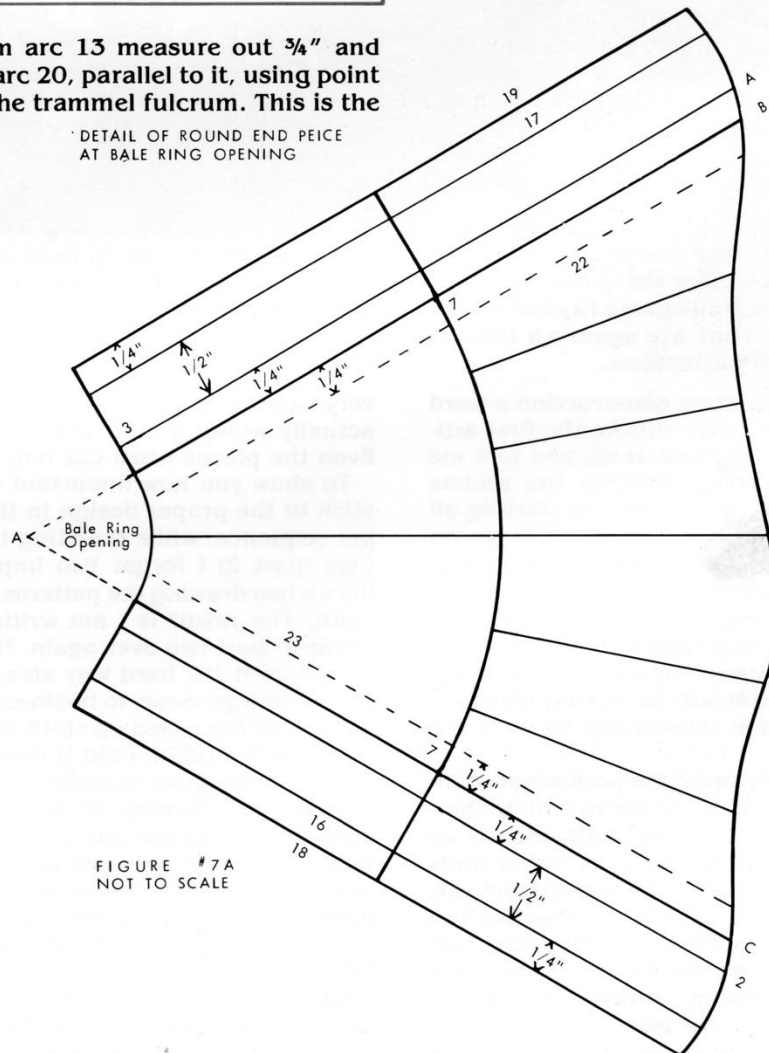
From now on refer to **Fig. 7, 7A & 7B** of this article.

Fig. 7A is just an enlarged view of **Fig. 7** at the bale ring opening (part A) **Fig. 7B** is an enlarged view of **Fig. 7** at corner "B". Corner "C" will be the same as corner "B" only reversed.

Referring to **Figs. 7, 7A & 7B** measure out $\frac{1}{2}$ " from lines 1-2 & 3-4 which is the edge of the pattern. Draw lines 16 and 17 each parallel to their respective pattern's edge or line 16 parallel to line 1-2 and line 17 parallel to line 4-3. This is the actual hem on each side along the lacing lines. From lines 16 and 17 measure out $\frac{1}{4}$ " and draw these lines parallel to the pattern edge. This last $\frac{1}{4}$ " will be the hem. Turn under so that no raw edge of the cloth will show.

From arc 13 measure out $\frac{3}{4}$ " and draw arc 20, parallel to it, using point A as the trammel fulcrum. This is the

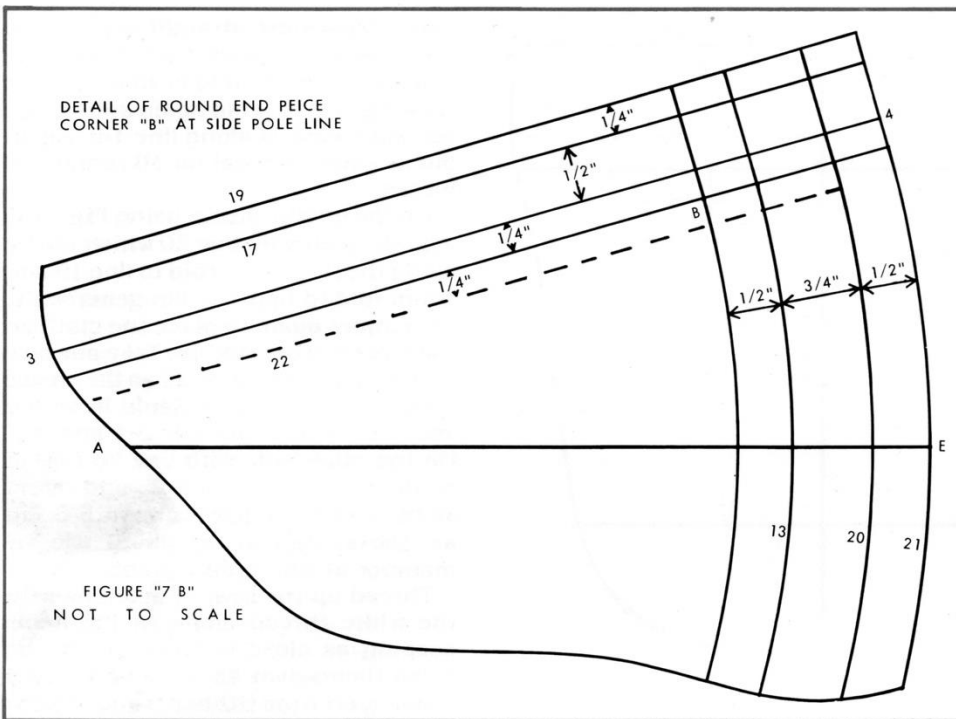
DETAIL OF ROUND END PEICE AT BALE RING OPENING



hem along the side pole line and is made larger than the other hems to give reinforcement to the side pole line. Arc 21 is drawn out $\frac{1}{2}$ " from arc 20. This again is the hem. Turn under so that no raw edge of the cloth will show.

Remove the pattern from the cloth by pulling it over the needle leaving it in place. Now holding the cloth firmly in place and with the compass set to 1" radius and the point at A, draw the bale ring opening between lines AB and AC. Then reset the compass or divider and draw arcs 7 and 8. Replace the needle at point A. Using point A as a pivot point draw in all of the radii E-F-G-H-I-J-K-L-M-N-O remembering all of these radii do not go all of the way to arc 1-3 which is the bale ring opening but some terminate on arc 7 and some on arc 8. Two more lines. Measure **into** the cloth $\frac{1}{4}$ " from lines parallel to AB as line 22 and line 23 parallel to line AC. These are shown AB and AC and draw these two lines on the drawings as dotted lines. These lines will become important when the time comes to lace up the top. More on them at that time.

Now remove the needle keeping point "A" firmly in place, draw the balance of the arcs, at 5-6-9-10-11-12.



DETAIL OF ROUND END PEICE
CORNER "B" AT SIDE POLE LINE

FIGURE "7 B"
NOT TO SCALE

On these larger arcs you will have to use a trammel with a pencil holder at one point.

With a square or draftsman's triangle set on line 1-2, extend the end of each arc out to line 18 from line 1-2. Do not draw a radius here but a straight line. Repeat this on line 19 extending the radii out from line 3-4.

Remove the cloth from the board and with a pinking shears cut around the cloth on lines 18-19-21. With a straight scissors cut out the bale ring opening which is arc 1-3.

This is now 1/4 of the round end top. Make three more pieces exactly as described above.

Middle Sections

Referring to **Fig. 6** of part 1 (May-June *LCW*) place the template for the middles upon the cloth which has been taped out as for the round end pieces. This pattern must run parallel to the cloth edges. Whether it is placed lengthwise or across the cloth is immaterial. Remember to leave enough room around each edge for hems.

Place a needle in the center of each arc which will be the bale ring opening on each side of the top of the piece. (Points A and D of **Fig. 6**.) This again should be accurately located and the needles kept in place after removing the pattern until the bale ring opening arcs are drawn as the last step before cutting out the cloth.

Mark with a pencil all around the pattern on the cloth. Also place a mark on the cloth where each line as AB-BC-CD-5-6-7-8-9-10-11-12-13-14-15-16-17 will be drawn on the cloth when the pattern is removed. AB-CD-AD will be the lacing center lines while BC will be the side pole line.

Refer to **Figs. 8, 8A, 8B** for the

following steps. **Fig. 8A** is just an enlarged view at one of the bale ring openings while **Fig. 8B** is an enlarged view at a corner at the eave.

From line 1-2 measure out 1/2" and 3/4" and draw lines 19-20 through these marks parallel to line 1-2. Repeat this same procedure for line V 3-4 drawing lines 22 and 23 parallel to line 3-4. Again repeat on line 5-6 drawing lines 25 and 26 parallel to line 5-6. From line 4-5 measure out 3/4" and 1 1/4" and draw lines through these marks parallel to line 4-5.

Remove the pattern from the cloth. Do this by pulling the pattern over the needles leaving the needles in place. Using a straightedge and with the

marks you have made around the pattern draw in lines 5-6-7-8-9-10-11-12-13-14-15-16-17. Extend them out to the very last line on the cloth. From line A-D measure into the cloth 1/4" and draw line 18 as shown by the dotted line on the drawing. Repeat from line A-B drawing line 21 and from line C-D drawing line 24. We will use these lines when lacing up the top.

Holding the cloth firmly in place take out needle at point "A" and with the compass set at 1" radius draw the bale ring opening arc 2-3. With a square or draftsman's triangle extend the ends of this arc out to lines 20 and 23. Repeat the above for the other bale ring opening at point "D".

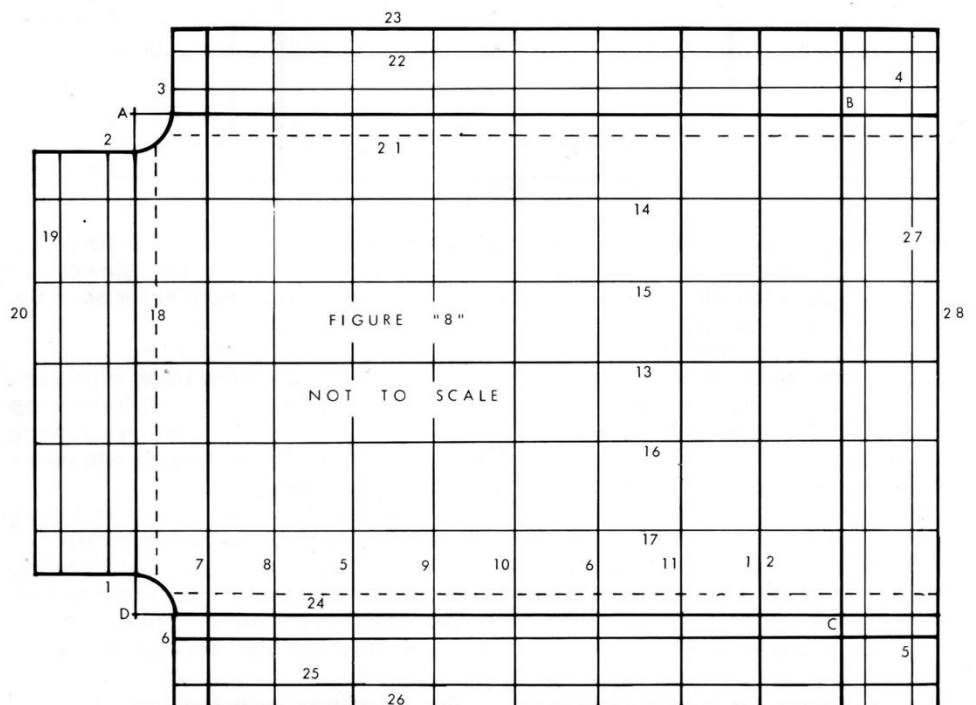
With a pinking shears cut all around the cloth after removing from the board. This would be around lines 19-23-28-26. Then with a straight scissors cut out the bale ring openings at points A and D.

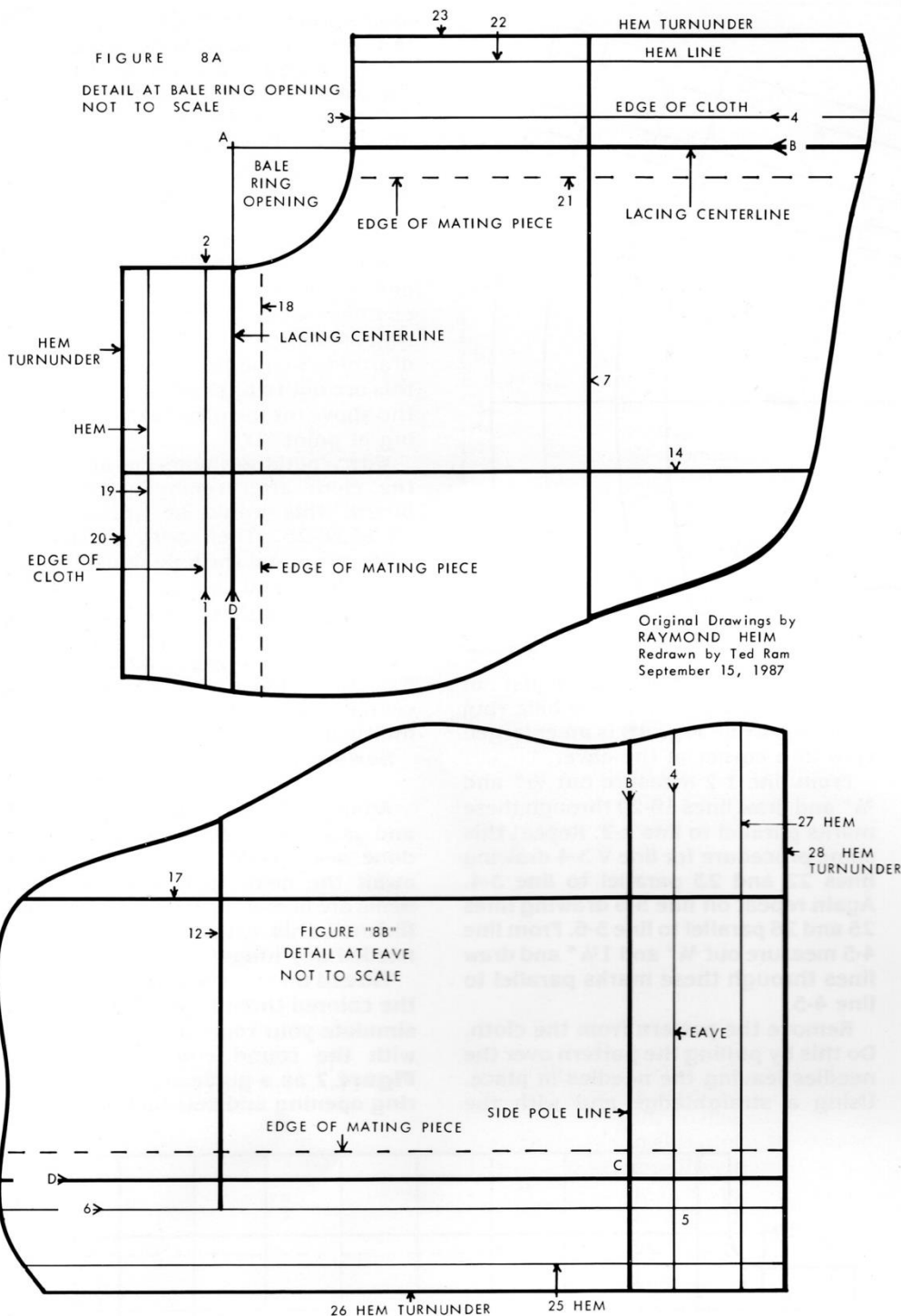
For a five pole top as described in this Article repeat the "Middle Sections" portion until you have a total of 8 sections. For a different number of center poles add or subtract middles in multiples of two to form your top.

Sewing in the Simulated Rope Networks

Again, keep your pieces rolled up and as wrinkle free as possible. When done sewing roll them up again to await the next operation. After the hems are in and the bale ring openings finished this extra care will not be needed any longer.

Thread up the sewing machine with the colored thread you wish to use to simulate your rope network and start with the round end pieces. Using **Figure 7** as a guide start at the bale ring opening and sew radius J all the





way to the outer edge of the cloth. Start at arc 7 and sew radii F-H-K-M from arc 7 to the edge of the cloth. Start at arc 8 and sew radii E-G-I-K-M-O from arc 8 to the edge of the cloth. We start with the radii first as by sewing arcs 7 and 8 later we sew in the ends of the threads of the radii and save tying them.

Now sew the arcs 5-6-7-8-9-10-11-12 and BC. Start at one edge of the cloth and sew to the other. The hems will hold the ends of the threads at each edge and prevent the stitching from coming loose.

Repeat as above for the other three round ends.

On the middle pieces **Fig. 8** sew all

lines AB-BC-CD-AD-5-6-7-8-9-10-11-12-13-14-15-16-17. Sew from one edge to the opposite edge. Repeat for all of the other middles.

Hems

The side of the cloth upon which you have drawn your lines will be the top on the finished article. When referring to the top in this article we will mean this side of the cloth.

Take one of the round ends and place on a flat surface bottom side **up**.

Using **Fig. 7** as a guide start along line 19 and fold over and crease so that the crease is on line 17. Then fold over again so that the second crease is along line 3-4. Pin the hem as is and do not be stingy with the pins. Be sure

your creases are straight and fall on their respective lines. On the opposite side along line 18 fold in so the crease is along line 16. Fold again so that the second crease is along line 1-2. Again pin as above. Repeat for all round-end pieces.

On the middle pieces using **Fig. 8** as a guide, start with line 20 which will be along the ridge line. Fold to line 19 and again fold to line 1-2. Pin generously. Remember again to place the cloth on the table bottom side up. Take one side as line 23 fold into line 22 so the crease is on line 22 and again fold in so the second crease is on line 3-4 and pin. On the other side with line 26 fold in so the crease is on line 25 and refold so the second crease is on line 5-6. Pin as above. Repeat on all of the remainder of the middle pieces.

Thread up the sewing machine with the white thread and sew the hems keeping as close to the edge of the hems themselves as possible without running off from the hems and leaving them loose in spots. Do this with every hem pinned over so far on all of the pieces, removing the pins as you sew. Going back now on what is now the very outside edge of the cloth as lines 3-4 and 1-2 of **Fig. 7** and lines 1-2, 3-4 and 5-6 of **Fig. 8**. I like to sew down the hems along these lines as close to the outer edge as possible as this makes the cloth lay better and is neater looking. Do this on every hem sewed so far.

Now comes a tough one and one I cannot explain or draw, that will make sense so you will have to use your own judgment. When the hems along the side pole lines as points B and C of **Fig. 7** and points B and C of **Fig. 8** are turned over there will be 9 thicknesses of cloth at these corners. That is too much as eyelets will be placed here with guy ropes and jump ropes. The cloth must be trimmed away so that there is never more than three thicknesses at any corner. **This is important.** Make sure you thin out the cloth at these points. Merely cut away parts of the various seams until it is thinned out.

Starting with **Fig. 7** turn in line 21 so the crease is on line 20 with the cloth upside down. Turn over again so the second crease is on line 13 which will be the eave of the top. Pin as you go along. Repeat on all of the round-end pieces. Then sew as the other hems.

With the middle pieces of **Fig. 8** turn under line 28 so the crease is on line 27 and turn under again with a second crease on line 4-5 and pin. Repeat on the remainder of the middles and sew as the other hems.

Bale Ring Openings

These are rather tricky but with a little care can be also done neatly. To finish these off you will need some 1/2"

wide bias tape. You can buy white or if you prefer make your own out of scrap cloth. Fold the bias tape down the middle so it is 1/4" wide. Place it over the cloth of the tent at the various bale ring openings so that the cloth is in the fold of the bias tape and "work" it around so that it follows the contour of the bale ring opening. Rather than use pins it is best to baste this (sew) by hand to hold it in place. Then with the sewing machine and white thread sew around the edge of the bias tape so it is sewed on the cloth. Repeat on each bale ring opening. This basting should be the only hand sewing on the entire top.

If you have your eyelets and set by now this is a good time to finish the bale ring openings entirely. With the short SE43 eyelets place as many in the bias tape as possible but not so close together they overlap. On one piece at every bale ring a long SE44 eyelet will have to be used. On this eyelet place a piece of the rope you are going to use for lacing with an overhand knot in the end and around the eyelet. Set the eyelet on this knot but make sure you do not pound it hard enough to cut the rope. Here a little practice with some scrap material and rope is advisable. This will let you practice setting the eyelets with just the right amount of a hammer blow to set the eyelets and not cut the rope. Obviously if the eyelet is not set hard enough the rope will pull out from underneath. Cut the short end of the rope off right at the eyelet and dip the other end in the Tester's model airplane cement to prevent it from fraying.

This rope is used to lace the bale ring to the canvas and you will find a piece 28" long just about right. Obviously only one rope is needed per bale ring. More of this when we discuss bale rings.

Storm Flaps (Trim)

On the prototype just outside the side pole line and **not** on the edge of the eave there is a little piece of canvas hanging down loosely which has scallops on the bottom. As well as being trim this serves an important job. This piece of canvas serves to "button up" the top during a storm. If it wasn't for this flap, wind could easily get under the top with disastrous results as anyone who has ever witnessed a blowdown knows. This is to close the gap between the top itself and the side wall. We shall now sew this in.

At one time this was a hand job and tedious, which was disliked by everyone making a tent. Beulah Johnson took one look at this job and came up with the best idea I have seen so far. For this you will need 1" wide bias tape and again I would advise making your own out of scrap to match the color of the top. Otherwise use white.

Take one of the round end pieces and turn it again bottom side up. In **Fig. 7** draw a line halfway between the eave edge and the side pole line which is shown as line No. 13. Take the bias tape and fold it in half making it 1/2" wide. Crease it good with finger pressure so the crease will show. Fold one end over 1/4" as a hem so that the raw end will not show and starting at line 22 pin the bias tape to the canvas so that the crease in the tape will fall on the line you have just drawn. Use plenty of pins. Notice I specify starting on line 22 (**dotted line Fig. 7**) and not at the edge. This is because the cloth from line 22 outward will lap over the cloth on the mating piece and needs no trim for that reason. Go all of the way to the outer edge of the cloth along the line you have drawn. Repeat on all the round ends.

Take one of the middle pieces and turn it bottom side up. Draw a line half way between the eave edge and the side pole line which is line B-C of **Fig. 8**. Then repeat as above with the bias tape starting 1/2" from the edge or on the dotted line 21 and go to the other edge all of the way. Repeat on all of the middles.

For the scallops on the bottom of the storm flap use rick rack of the color of your choice. Personally I prefer blue as there is too much red around your show as it is but a lot of fellows prefer red. This is merely a matter of choice. Do not get rick rack with too coarse a scallop or conversely with too fine a scallop. See what you prefer. Note — depending on your scale — bias tape is available with rick rack already attached.

Fold the bias tape over into half again with the crease along the thread where it is sewed on the canvas. Insert the bias tape into this half way and sew it in place. This will make a neat looking storm flap and an easy one to make. Repeat on all of the pieces of canvas. For all of above use white thread.

Lacing Eyelets

On **Fig. 7** along line A-B and **Fig. 8** along lines A-B and A-C start at the bale ring and mark of 3/4" spaces along the whole line until about 3/4" from the side pole lines. Of course on the middle pieces just do this with half of the middles as the other half will have the lacing loops. By this I mean along line A-D of **Fig. 8**. Along one side of every piece of canvas there will be lacing eyelets.

Using the SE54 (short) eyelets and the set, punch a hole in the cloth and set an eyelet on every mark which you have marked off 3/4".

This should keep you busy for the time being so will call it quits for this month. Next month we we'll talk about quarter pole sockets and lacing. Possible even get the guy ropes in.



Al. G. Barnes Circus
1921
Set No. 847
(Parade Scenes)

- 820—4 Compartment Cage
 - 821—Tableau
 - 822—3 Compartment Cage
 - 823—Elephants
 - 824—Cage
 - 825—Tableau
 - 826—Mirror tableau
 - 827—Cage
 - 828—Cage
 - 829—Rhino tableau, 10 horse hitch
- 10 Photos — \$4.50

Send Orders & Make Payments to:
Albert Conover
927 Oakland Drive
Xenia, Ohio 45385

Photos are on loan to the Circus Model Builders and are the property of Al Conover. The loan will be in effect for the next 6 months with the profit going to the CMB Treasury. Photos will be available after expiration date.

1041

RATES FOR BACK ISSUES

Members \$3.00
Non-Members \$4.00

Postage & Handling

1-2 copies	\$1.50
3-4 copies	2.00
5-6 copies	2.50
7-9 copies	3.00
10 or more copies	4.00

Back Issues of The Little Circus Wagon
Available in Limited Quantities

Please include alternate choices in
the event we do not have your first choice.

Feb/Mar 1974	May/June 1981	Nov/Dec 1987
Apr/May 1974	Jan/Feb 1982	Jan/Feb 1988
Aug/Sep 1974	Mar/Apr 1983	May/June 1988
Oct/Nov 1974	Sep/Oct 1983	Jul/Aug 1988
Apr/May 1975	Nov/Dec 1983	Sept/Oct 1988
May/June 1976	Jan/Feb 1984	Nov/Dec 1988
May/June 1977	Jul/Aug 1984	Jan/Feb 1989
Jul/Aug 1977	Sep/Oct 1984	Mar/Apr 1989
Sep/Oct 1977	Nov/Dec 1984	May/June 1989
Nov/Dec 1977	Mar/Apr 1985	July/Aug 1989
Jan/Feb 1978	May/June 1985	Sept/Oct 1989
Mar/Apr 1978	Jul/Aug 1985	Nov/Dec 1989
May/June 1978	Sep/Oct 1985	Jan/Feb 1990
Jul/Aug 1978	Nov/Dec 1985	Mar/Apr 1990
Sep/Oct 1978	Sep/Oct 1986	May/June 1990
Nov/Dec 1978	Nov/Dec 1986	July/Aug 1990
Jan/Feb 1979	Jan/Feb 1987	Sept/Oct 1990
Mar/Apr 1979	Mar/Apr 1987	Nov/Dec 1990
May/June 1979	May/June 1987	Jan/Feb 1991
Jul/Aug 1979	Jul/Aug 1987	Mar/Apr 1991
Sep/Oct 1979	Sep/Oct 1987	May/June 1991

Send all orders to
SALLY WEITLAUF
347 Lonsdale Ave.
Dayton, OH 45419