

Hanging Trolley Wire and Catenary in N Scale

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NTrak / N Scale Collector Convention

Chantilly, VA

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References:

Web:

NCat - <http://www.teamsavage.com/ncat/>

East Penn Traction Club - <http://www.eastpenn.org/>

Print:

Carsten, Harold H., ed. Traction Planbook. Ramsey, NJ: Model Craftsman Publishing, 1968.

Interurban Modeling Handbook. Duarte, CA: Suydam, E. and Co., n.d.

Robinson, Charles. "Building Catenary." East Penn Traction Club Meet presentation, 1997.

Robinson, Charles. "Compound Catenary for the Sacramento Northern as Built by Basil McLean." East Penn Traction Club Meet presentation, 1997.

Schafer, Mike, ed. Traction Guidebook for Model Railroaders. Milwaukee, WI: Kalmbach Publishing, 1974.

Schmidt, Paul. "Getting Started in Traction." Model Railroader November 2002: 74-77.

Preparations for installing trolley wire:

1. Amount of track to be electrified
 - a. will it be a simple loop or full layout
 - b. simple wire work or complex (frogs, pans, crossings, pullovers)
2. Style of poles
3. Size of wire
 - a. 32ga more realistic and harder to find
 - b. 26ga more common and more durable
4. Location and number of poles
 - a. see attached diagrams for spacing
 - b. make extra!
5. Power feeder locations
 - a. every 4' to 6' typical
 - b. may need more for 32ga wire or heavily wired areas
6. Block wiring

Materials for making simple trolley poles:

1. K&S pieces are 12" long
 - a. Main pole (3/32")- 3 per stick
 - b. diagonal & hanger (.020") - 6 per stick
 - c. large horizontal (1/32") - 11 per stick
 - d. small horizontal (.020") - 11 per stick
2. To make 50 poles
 - a. 3/32" - 17 pieces
 - b. 1/32" - 5 pieces
 - c. .020" - 13 pieces
 - d. #65 drill bit
 - e. Small drill press
 - f. Drill jig
 - g. Solder and flux
 - h. Soldering iron
 - i. Simple jig

Materials for making double and longer trolley poles:

1. Double poles
 - a. double length of horizontals and center in pole when soldering
 - b. double length of diagonal and bend one side.
 - c. Install diagonal on one side then bend second side to fit
2. Longer poles

Catenary:

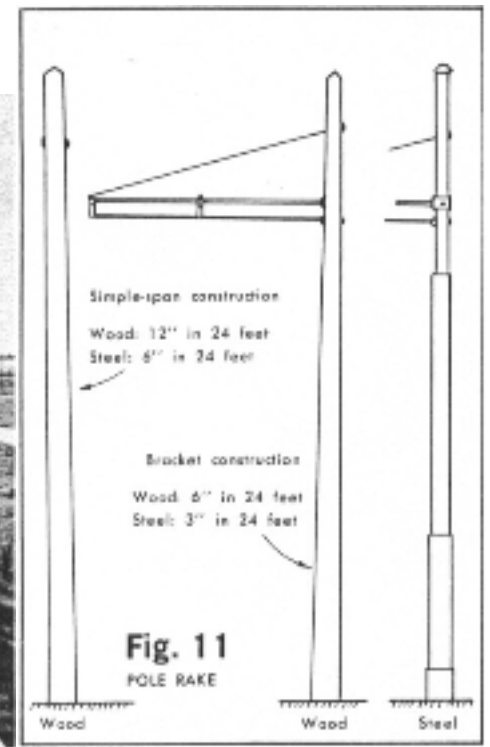
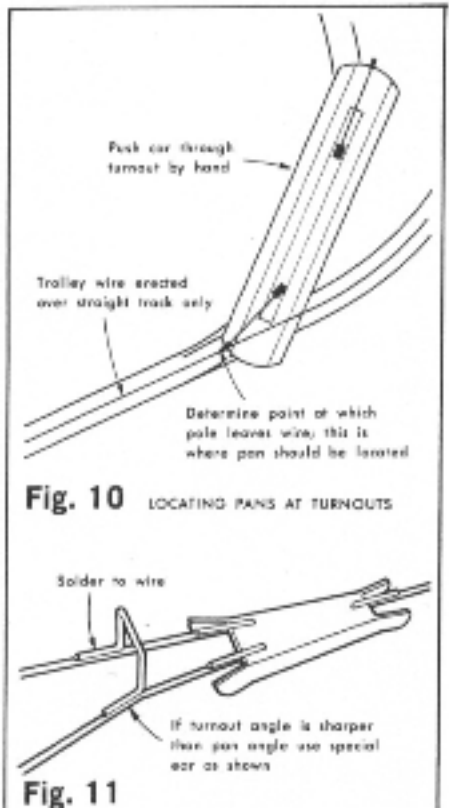
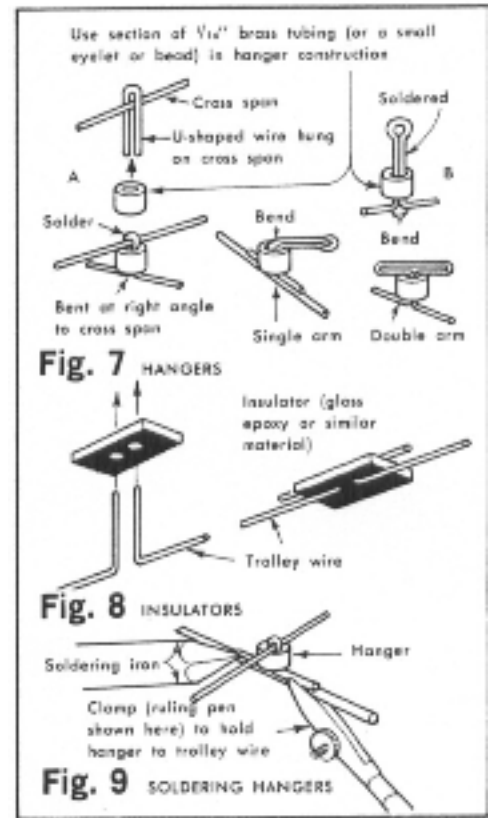
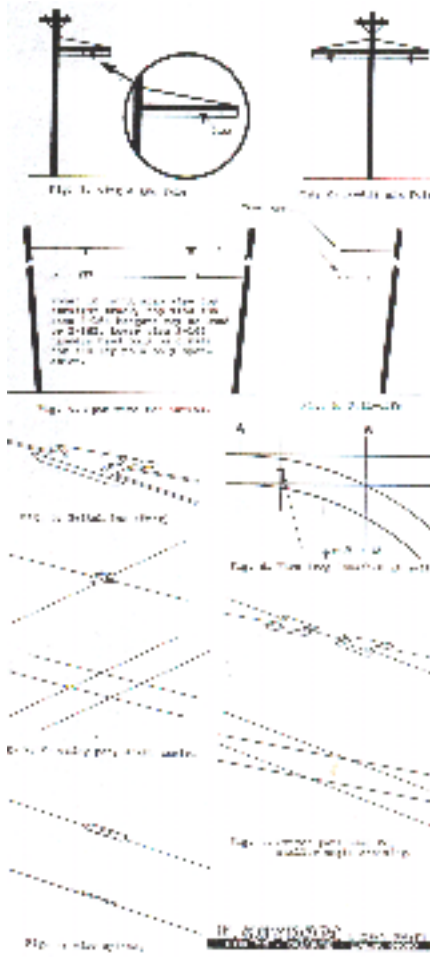
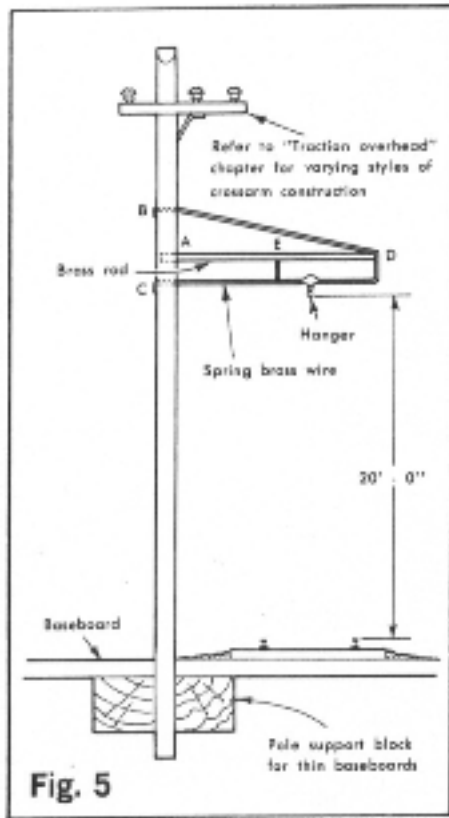
1. Build to fit
 - a. In place (harder)
 - b. with jig
 - c. Single Wire
 - d. Double wire (trolley & messenger)

Installing trolley poles & wire:

1. distance from centerline
 - a. straight track
 - b. curved track
 - c. Special pole/wire configurations
2. Vertical angle
 - a. wood poles
 - b. metal poles
3. Securing poles
4. Adjusting Height
5. Attaching feeder
6. Attaching trolley wire
 - a. Straight runs
 - b. frogs
 - c. crossings
7. Attaching guy wires
8. Attaching Pullovers (pull-offs)

Installing Catenary:

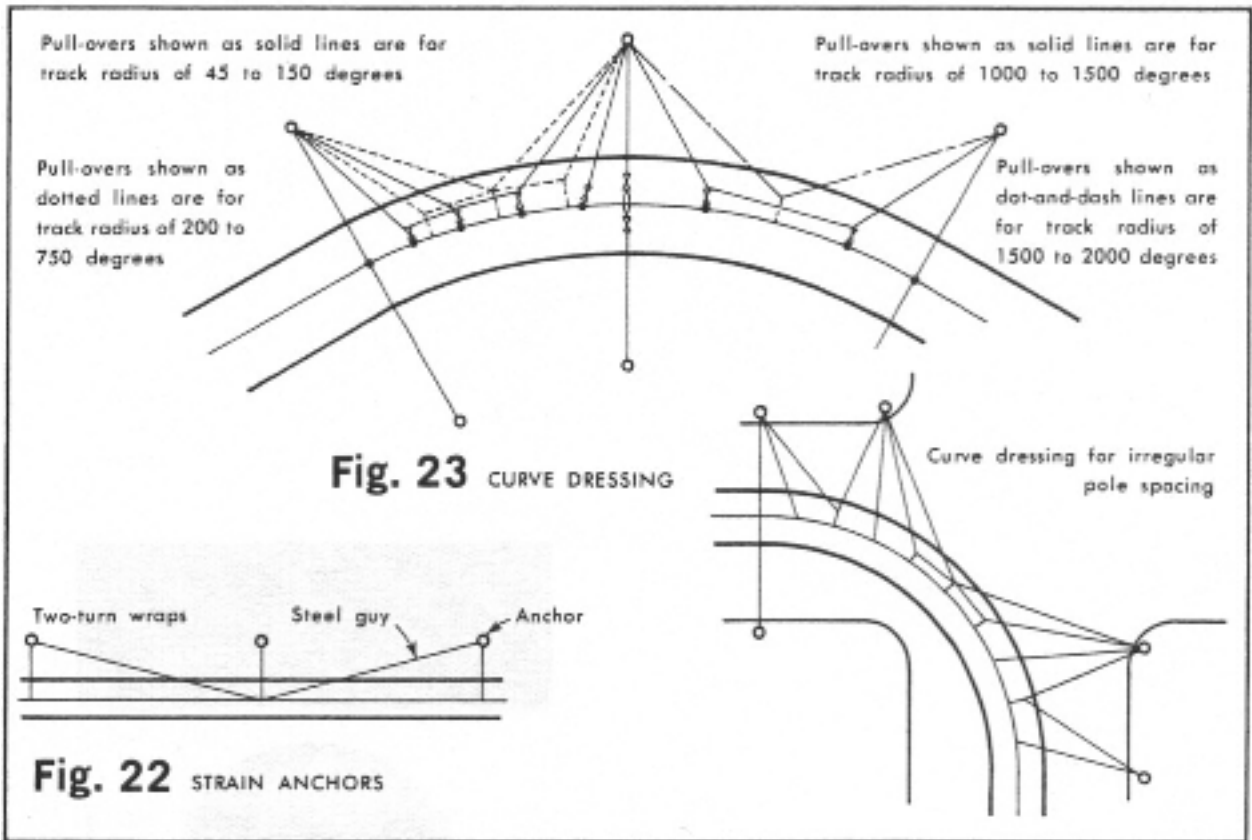
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Pole spacing. Poles on tangents normally should be spaced not less than 90 feet nor more than 110 feet apart. Poles on curves should be set as near as practicable to the following table:

Radius of curve (ft.)	Pole spacing (ft.)
40	35
50	40
60	45
70	50
80	55
90	60
100	65
125	70
150	75
200 to 500	80
750 and over	100

Curve radius	Pull-over spacing	No. pulls between supports	Distance between supports
40 ft.	7 ft.	4	35 ft.
50	8	4	40
60	9	4	45
70	10	4	50
80	11	4	55
90	12	4	60
100	13	4	65
125	14	4	70
150	15	4	75
200-500	20	3	80
750	25	3	100
1000	33.5	2	100
1500-2000	50	1	100
Over 2000	100	0	100



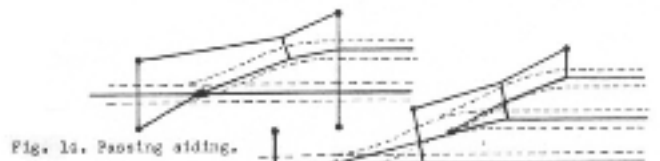
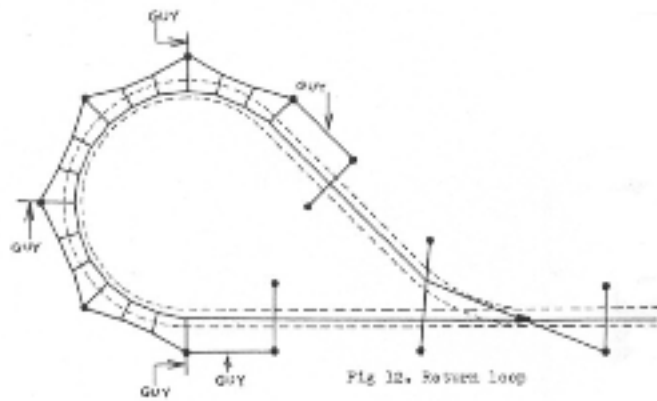
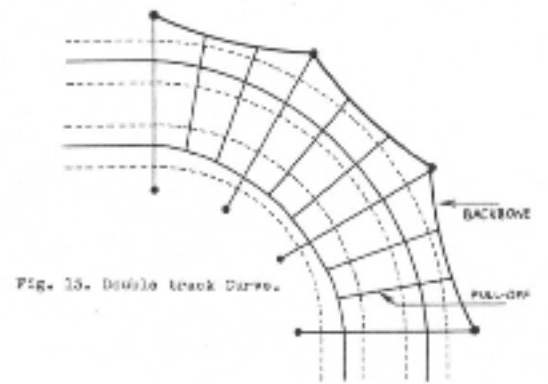
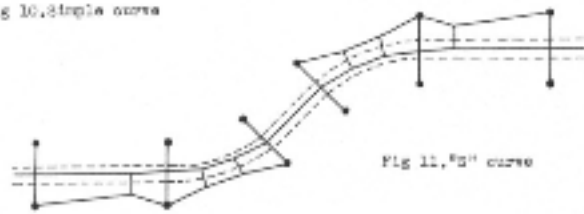
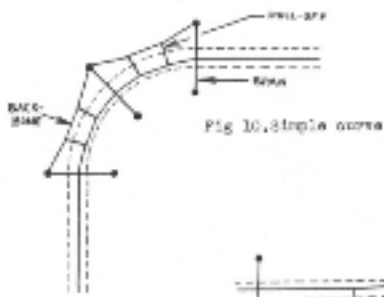
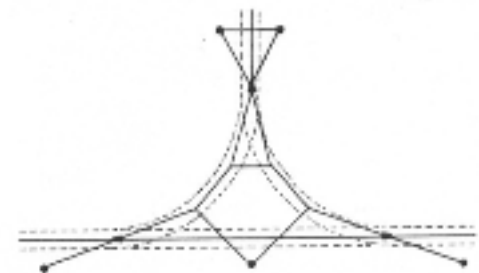
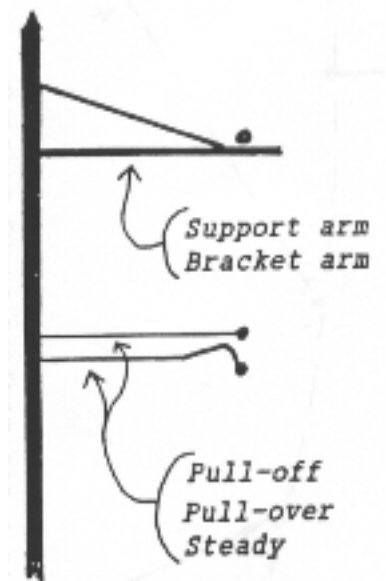
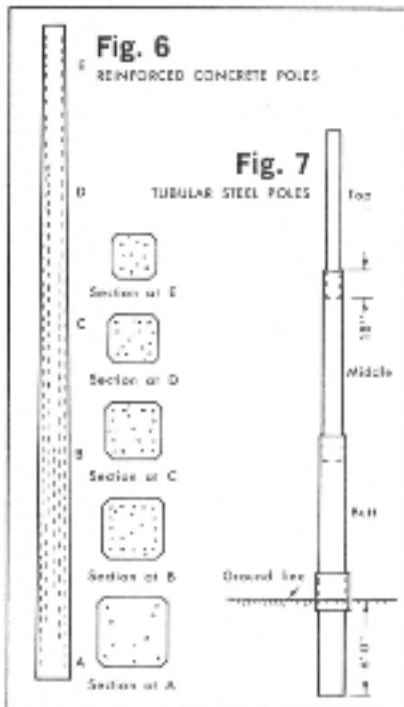
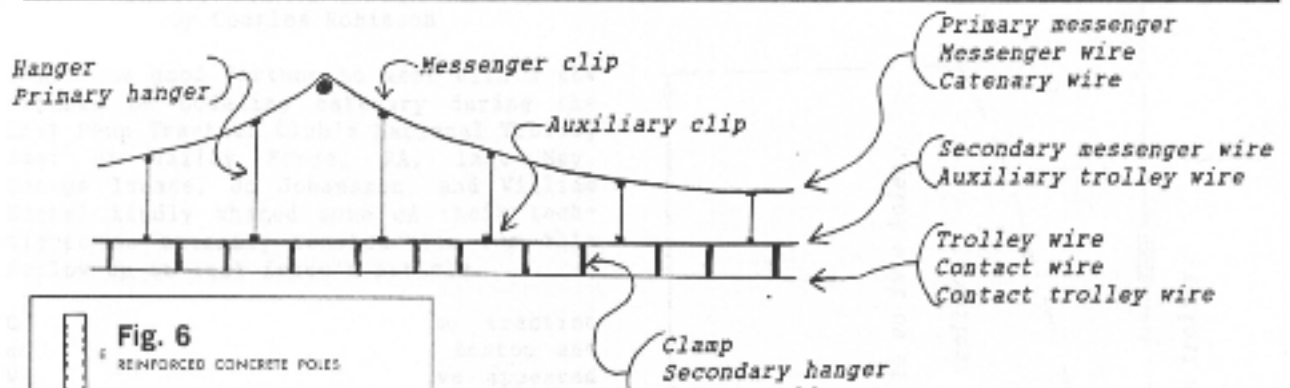
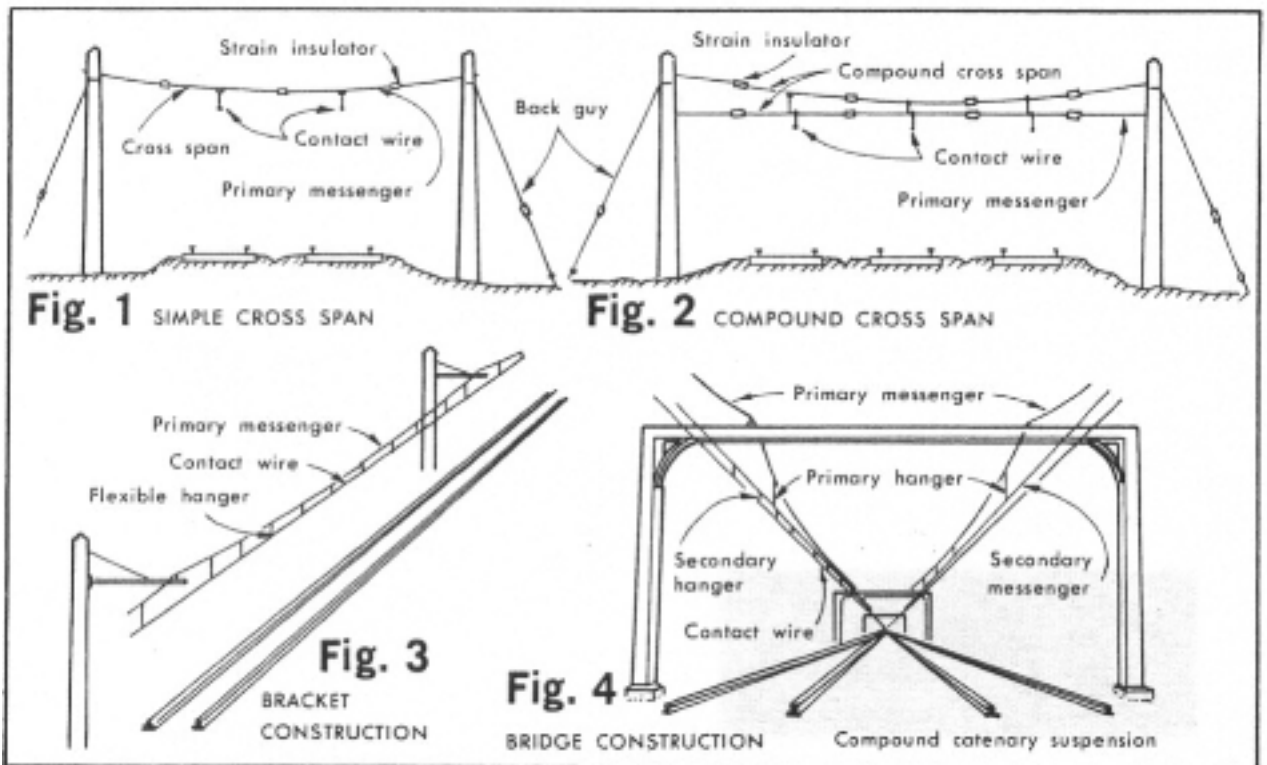


Fig. 15. Yards



	<p>159 .020 Solid Brass Rod</p> <p>160 1/32 Solid Brass Rod</p> <p>163 3/32 Solid Brass Rod</p> <p>K&S Engineering http://www.ksmetals.com</p> <p>#65 drill bit, 0.035", 0.8890mm</p>
<p>PIECE 'A'</p>	<p>PIECE 'B'</p> <p>PIECE 'C'</p> <p>PIECE 'D'</p>



Catenary Configurations

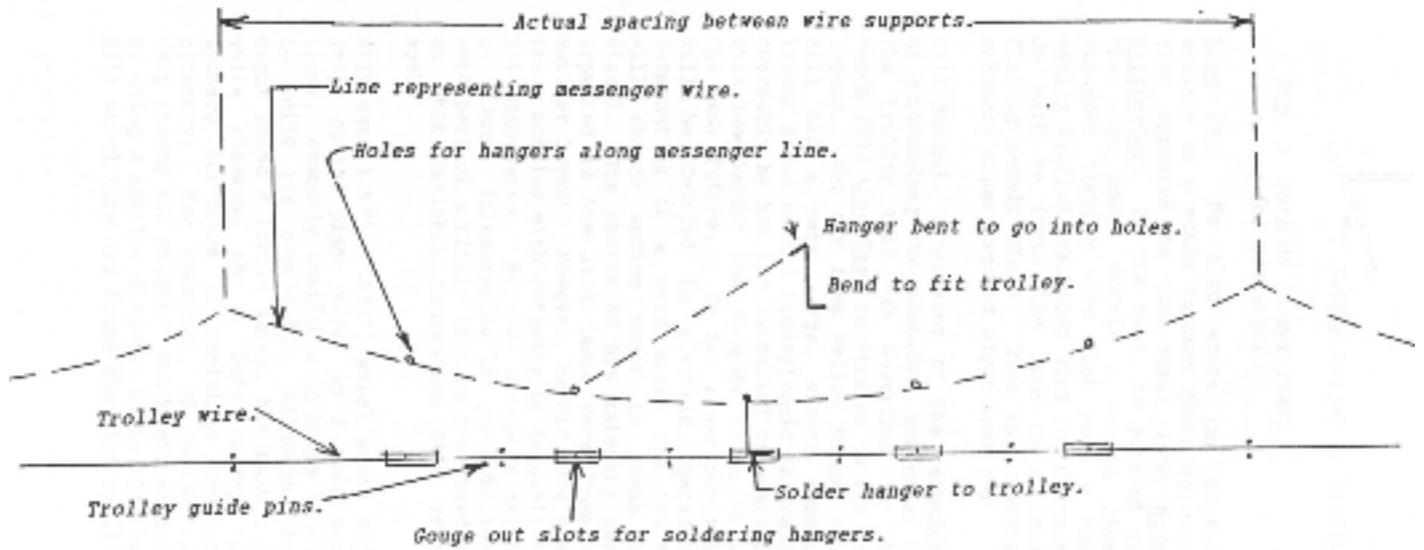


Fig. 1 Jig laid out on wooden block for making catenary.

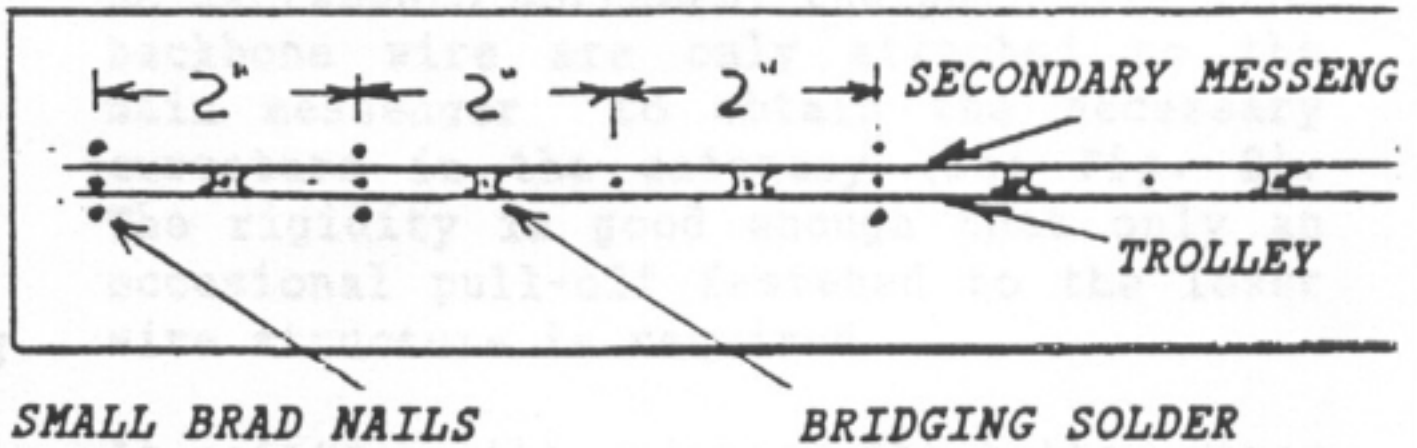


Fig. 1

BRIDGING SOLDER
MENISCUS