BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G31.134.3
Issue 1, August, 1952
AT&T Co Standard

OPEN WIRE TYING
SPIRAL AND MODIFIED SPIRAL TIES

Contents **Page**

1. General 1
2. Placing Spiral Ties 4
3. Placing Modified Spiral Ties 8

1. GENERAL

1.01 The information in this section was formerly covered in G31.134, Issue 2, which is canceled.

1.02 Two pieces of wire are used to make Spiral Ties. They are:

(1) A straight piece of soft tie wire of the length indicated in the following table.

TIE WIRES FOR SPIRAL AND MODIFIED SPIRAL TIES

LINE WIRE		TYPE OF INSULATOR	TIE WIRE					
			COPPER		COPPER STEEL		STEEL	
SIZE	KIND		SIZE	LENGTH INCHES	SIZE	LENGTH INCHES	SIZE	LENGTH INCHES
080	COPPER OR COPPER STEEL	CSC	080	24	080	24		
		ALL OTHERS	080	26	080	26		
104	"	CSC	104	24	104	24		
		ALL OTHERS	104	28	104	28½		
128	"	CSC	128	28½	104	28½		
		ALL OTHERS	128	32	104	32		
165	COPPER	CSC	128	28½	104	28½		
		ALL OTHERS	128	32	104	32		
083	STEEL	ALL					083	26
083H	"	"					"	"
109	"	"					109	30
109H	"	"					"	"
109E	"	"					"	"
134	"	"					"	"
134H	"	"					"	"

(2) A piece of stiff wire preformed as illustrated in the following. This portion of the Spiral Tie is designated as follows:

S Copper Tie Splint: for use on copper and copper-steel line wire.

S Steel Tie Splint: for use on steel line wire.

The designation, diameter and length of S Tie-Splints to be used with the various types of line wire are indicated in the following.

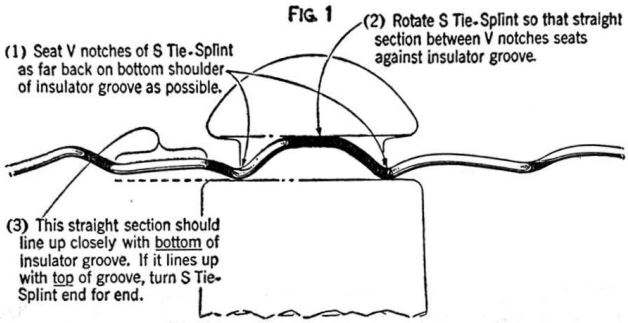
TIE SPLINTS FOR SPIRAL AND MODIFIED SPIRAL TIES

LINE WIRE		S TIE SPLINT					
		COPPER			STEEL		
SIZE	KIND	DESIG.	DIA. IN.	LGTH. IN.	DESIG.	DIA. IN.	LGTH. IN.
080	COPPER OR COPPER-STEEL	080	.081	16 5/16			
104	"	104	.102	16 5/16			
128	"	128	.128	17 1/4			
165	COPPER	165	.144	21			
083	STEEL				083	.109	16 5/16
083H	"				"	"	"
109	"				109	.134	17 1/4
109H	"				"	"	"
109E	"				"	"	"
134	"				134	.134	21
134H	"				"	"	"

2. PLACING SPIRAL TIES

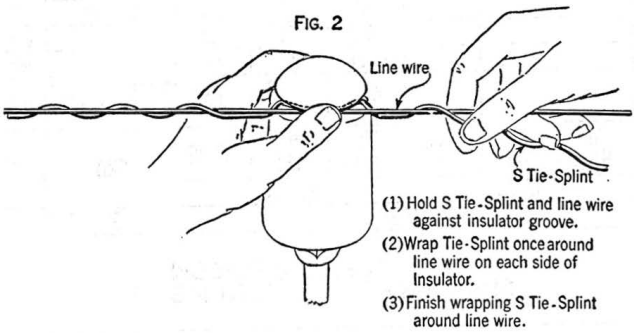
2.01 Place spiral ties as shown in the following illustrations.

FIG. 1



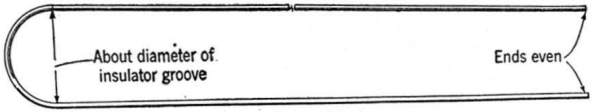
Caution: Be sure S Tie-Splint is placed as directed in Step (3). If not, the line wire will come in contact with the insulator when tie is completed and severe abrasion will result.

FIG. 2



Caution: Line wire cannot touch insulator after these operations are completed, if S Tie-Splint is placed as directed in Step (3) of Fig. 1. If line wire can rest against insulator, take off S Tie-Splint and turn it end for end.

FIG. 3



Bend tie wire into this shape

FIG. 4

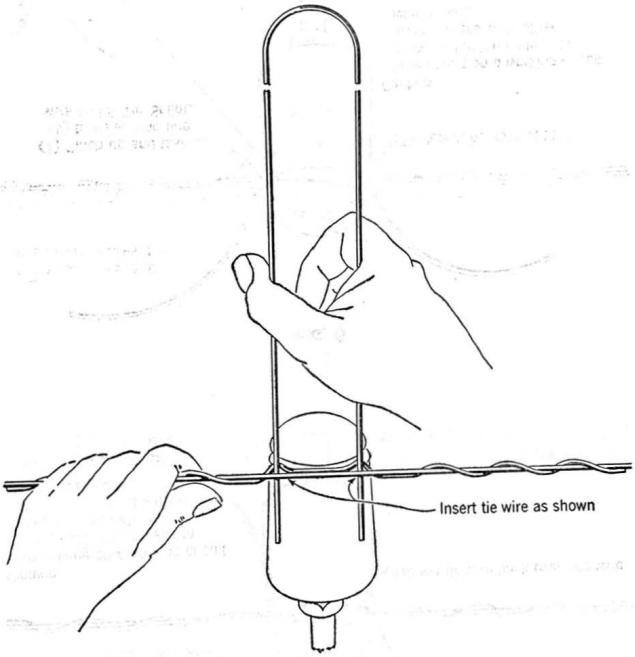


FIG. 5

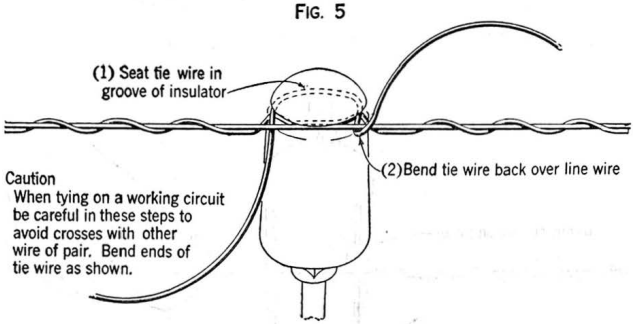

(1) Seat tie wire in groove of insulator
(2)Bend tie wire back over line wire
Caution
When tying on a working circuit be careful in these steps to avoid crosses with other wire of pair. Bend ends of tie wire as shown.

FIG. 6

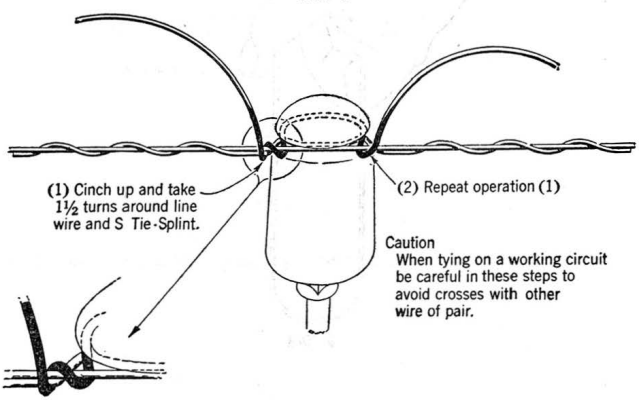

(1) Cinch up and take 1½ turns around line wire and S Tie-Splint.
(2) Repeat operation (1)
Caution
When tying on a working circuit be careful in these steps to avoid crosses with other wire of pair.

FIG. 7

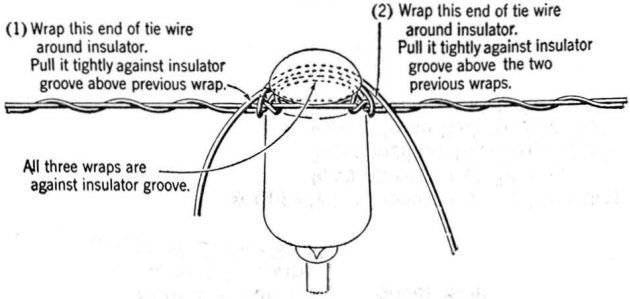
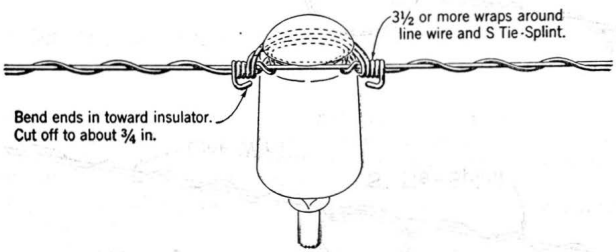


FIG. 8



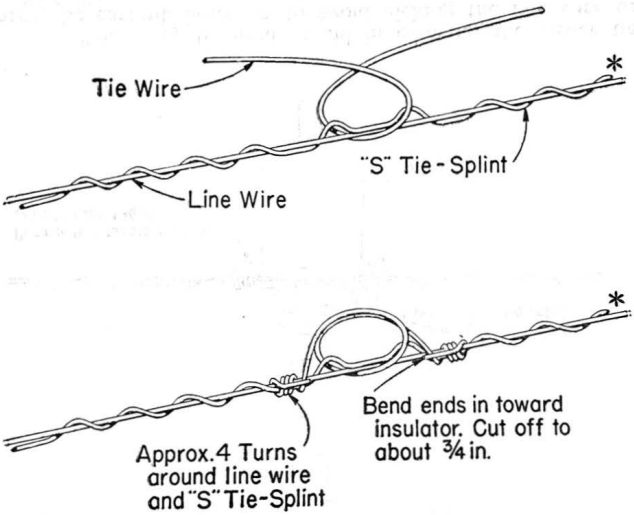
Pliers may be used to aid in cinching the larger tie wires; be careful, however, to avoid nicking the line wire or S Tie-Splint.

3. PLACING MODIFIED SPIRAL TIES

3.01 Because of the difficulty experienced in placing spiral ties on TW insulators, the method of placing the tie wire has been modified. This method is to be used only on TW insulators. The modified spiral tie is made as shown in the following illustration.

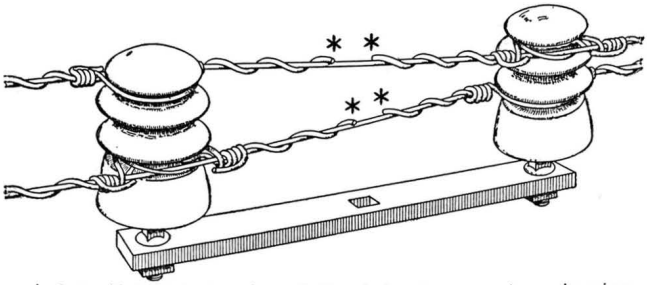
MODIFIED SPIRAL TIE

FOR USE WITH TW INSULATORS



* Cut off 2 3/4 inches from S Tie-Splint towards center of Tandem Transposition Bracket, if each wire is to be tied to both TW Insulators on Tandem Bracket.

3.02 The S Tie-Splint tie wire for the modified spiral tie is the same as that used for the spiral tie. Cut off 2-3/4 inches from the S Tie-Splint to prevent overlapping when used as illustrated in the following:



* Cut off 2¾ inches from S Tie-Splint to prevent overlapping.

3.03 Caution is required to avoid crosses and shorts when handling the long tie wires used in making spiral and modified spiral ties in the vicinity of working wires. Particular situations calling for such caution include:

(a) When taking tie wires up or down through working circuits.

(b) When performing operations illustrated in Figs. 5 and 6 of Paragraph 2.01.