

GUYING

NON-PATENT ANCHORS

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1. GENERAL

1.01 In general, the plank anchor is the most economical type of anchor to use in cases where the anchor hole is to be dug by an earth boring machine. This type of anchor can also be used where the soil conditions are unfavorable to the use of patent anchors.

2. TYPES OF NON-PATENT ANCHORS

2.01 The non-patent anchors are of the following types: Log Anchors, Plank Anchors and Concrete Anchors.

3. LOCATION OF ANCHORS

3.01 After providing for proper clearances as given in Section G10.301, Clearances for Aerial Plant, locate anchors at the point desired from a construction standpoint unless prevented by the following:

- (a) Anchors should be located away from traveled ways in order to minimize the possibility of accidents.
- (b) Anchors should be located near property lines, barns, garages, on private property, etc., so that the guy will be as inconspicuous as possible

3.02 It is preferable to have the lead of the guy equal to the height for corner and dead end guys and a $\frac{\text{Lead}}{\text{Height}} = 3/4$

for storm guys. If practicable, avoid having a $\frac{\text{Lead}}{\text{Height}}$ greater than 1-1/4.

4. INSTALLATION OF NON-PATENT ANCHORS—GENERAL

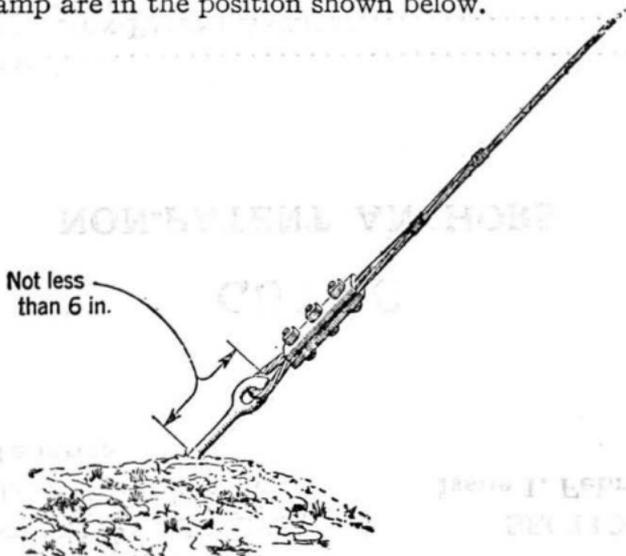
4.01 Install anchors so that the guy rod is as nearly as possible in line with point of attachment of guy on pole without bending the rod. Provide the proper depth of setting and the necessary clearance above the surface of the ground.

4.02 Where the $\frac{\text{Lead}}{\text{Height}}$ is about 1 and the anchors are set to the depths provided, the eye of the rod should, in general, project about 6 inches above the ground.

4.03 Where the $\frac{\text{Lead}}{\text{Height}}$ is greater than 1 and in a few cases where it is about 1 it will be necessary to adjust the depth of setting so that the eye of the rod will project about 6 inches above the ground.

4.04 Where the $\frac{\text{Lead}}{\text{Height}}$ is less than 1, a greater length of the rod will project but the portion above the ground should not, in general, exceed 12 inches.

4.05 Turn the guy rod so that the eye of the rod and the guy clamp are in the position shown below.



4.06 Use guy rods of the following sizes with non-patent anchors:

Number of Guys	Size of Strand or Wire	Size of Guy Rod	Size of Sq. Washer (In Inches)	Type of Anchor
1	203 Galv. BB Wire	1/2 in. x 7 ft.	3/4 x 3	Creosoted Plank or Log
1	2200 Lb.	1/2 in. x 7 ft.	3/4 x 3	Creosoted Plank or Log
1	6000 Lb.	5/8 in. x 8 ft.	7/8 x 3 1/2	Creosoted Plank or Log
1	10000 Lb.	3/4 in. x 9 ft.	1 1/8 x 4	Creosoted Plank or Log
2	6000 Lb.	* 3/4 in. x 9 ft.	1 1/8 x 4	Creosoted Plank or Log
1	16000 Lb.	1 in. x 10 ft.	1 1/8 x 6	Creosoted Plank
1	16000 Lb.	1 in. x 10 ft.	1 1/8 x 4	Log, Precast or Cast in Place Concrete
** 2	10000 Lb.	* 1 in. x 10 ft.	1 1/8 x 6	† Creosoted Plank
** 2	10000 Lb.	1 in. x 10 ft.	1 1/8 x 4	Log, Precast or Cast in Place Concrete
1	25000 Lb.	1 in. x 10 ft.	1 1/8 x 6	† Creosoted Plank or Log
2	16000 Lb.	* 1 1/4 in. x 10 ft.	1 3/8 x 6	Log

* Double Thimble Guy Rods

** Use same Equipment for 1 - 10,000 Lb. and 1 - 6,000 Lb. Guy

† Use 24 inch double planks with 2 washers between plank and nut of guy rod.

5. INSTALLATION OF PLANK ANCHORS

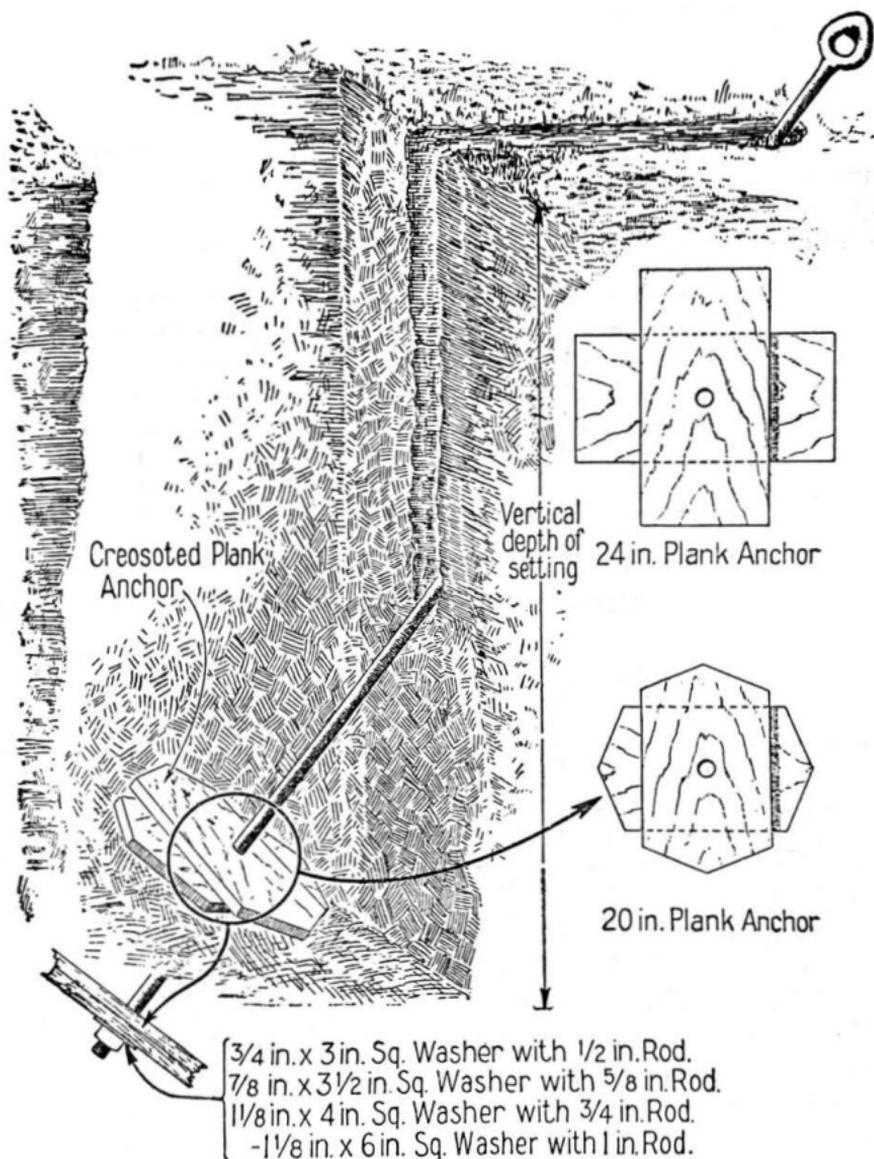
5.01 Set creosoted plank anchors to the following depths:

Size of Guy Rod (In Inches)	Set Anchor Planks to Minimum Vertical Depth of: (In Feet)
1/2	3 1/2
5/8	4
3/4	5
1	7

5.02 Where the anchor hole is to be dug by hand, use two 20-inch or two 24-inch creosoted planks, depending upon which size is available, for constructing the anchor for 16,000-pound and smaller sizes of guys.

CREOSOTED PLANK ANCHORS

CREOSOTED PLANK ANCHOR



5.03 In order to employ a smaller size of anchor hole, the planks can be placed on the guy rod with the ends together and lowered in a hole of sufficient size to accommodate a single plank and enlarged at the bottom so that the planks can be turned at right angles to each other.

5.04 Where the digging for the plank anchors to be used with 16,000-pound guys and the smaller sizes of guys is to be done by an earth boring machine, bore a 20-inch diameter hole and use the 20-inch plank anchor.

5.05 Construct plank anchor for 25,000-pound guy as follows:

- (1) use four 24-inch planks.
- (2) Nail the planks together in pairs, using 10d galvanized wire nails and cross the pairs in a manner similar to that shown above.
- (3) If an earth boring machine is used, bore two 20-inch diameter holes on 18-inch centers. Make hole as deep as machine rack bar permits and enlarge the resulting hole a sufficient amount at a depth of 7 feet to receive the two planks crossed as shown above.
- (4) Make trench for the rod.
- (5) Tamp loose earth at the bottom of the hole firmly before placing the plank.
- (6) When filling the hole the tamping shall be done firmly, avoiding injury to the anchor planks.

6. INSTALLATION OF ANCHORS

6.01 Equip and install anchor logs in accordance with the following:

EQUIPPING AND SETTING ANCHOR LOGS

Size of Strand (In pounds) or Wire	Number of Guys	Number of Guy Rods	Size of Guy Rods	Anchor Log		
				Vertical Depth of Setting (In feet) not less than	Length (In feet)	Width or Diameter (In inches)
109 or 203 Galv. Wire	1	1	1/2 in. x 7 ft.	† 3 1/2	3	6
2,200	1	1	1/2 in. x 7 ft.	† 3 1/2	4	6
6,000	1	1	5/8 in. x 8 ft.	† 4 1/2	3	7
6,000	2	2	5/8 in. x 8 ft.	5	6	8
	2	1	* 3/4 in. x 9 ft.	5	6	8
10,000	1	1	3/4 in. x 9 ft.	5	5	8
6,000	1	1	* 1 in. x 10 ft.	6	5	10
10,000	1			6	5	10
10,000	2	2	3/4 in. x 9 ft.	6 1/2	5	10
10,000	2	1	* 1 in. x 10 ft.	6 1/2	5	10
	1	1	1 in. x 10 ft.	6	6	10
10,000	1	1	* 1 in. x 10 ft.	6 1/2	7	12
16,000	1			6 1/2	7	12
16,000	2	2	1 in. x 10 ft.	6 1/2	8	12
	2	1	* 1 1/4 in. x 10 ft.	6 1/2	8	12
	3	3	1 in. x 10 ft.	7	8	12
25,000	1	1	1 in. x 10 ft.	6 1/2	7	12

* Use Double Thimble Guy Rods.

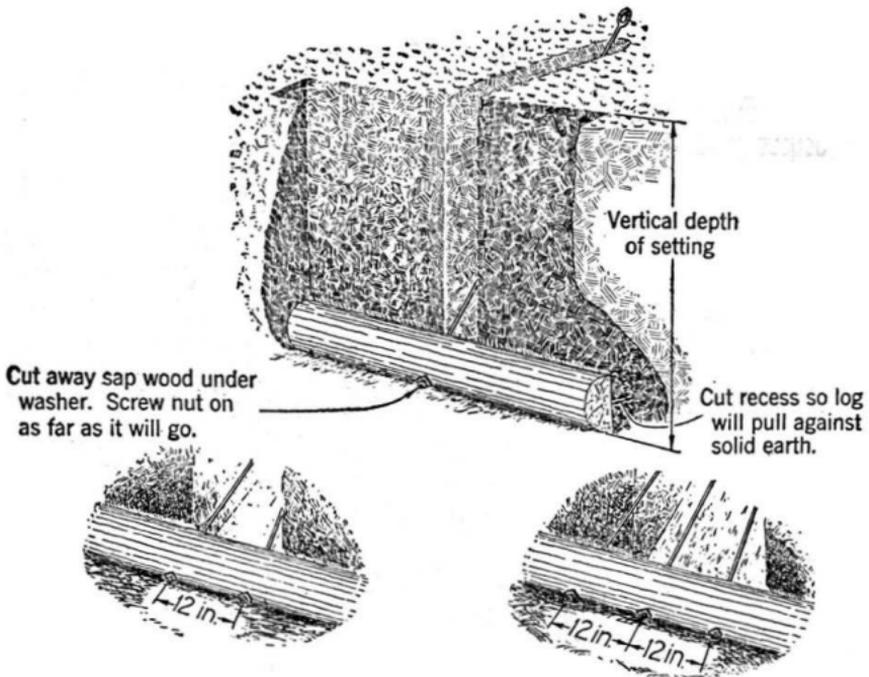
† Where the frost line is below the figures given set anchors to a vertical depth of five feet.

Note: - If the guy rod is of sufficient length a log one foot shorter than indicated above can be used provided the depth of setting is increased one half foot.

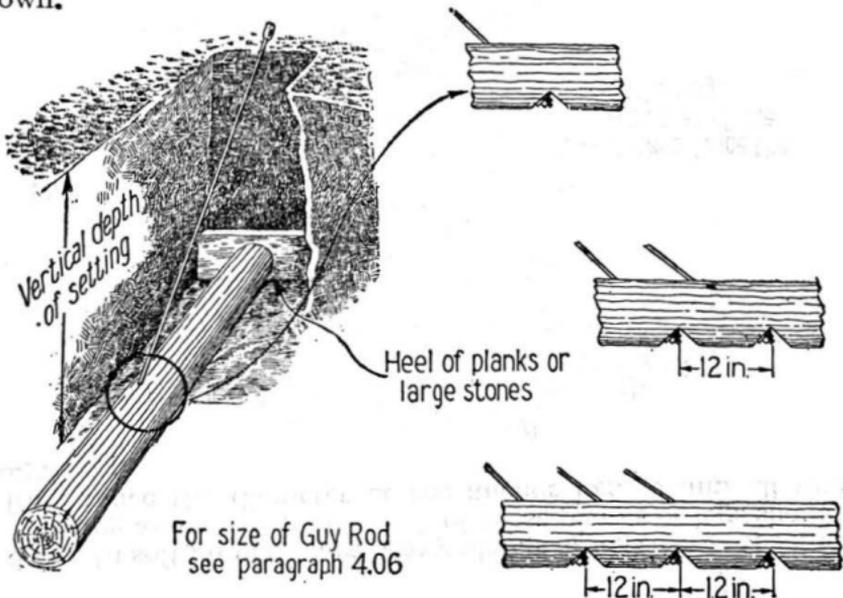
Note: A shorter log of larger diameter than required above can be used if the bearing area is equivalent to that of the log recommended and it is set to the same vertical depth. Employ treated timber, if practicable. Do not cut up good poles for anchor logs, if avoidable, but always use sound, durable timber. Where soil is sandy and well drained, treated timber should be used.

6.02 In excavating for anchor log, dig the hole so that, where practicable, the log will be set horizontally and at right angles to the guy. Dig a trench for the guy rod so that it will be as nearly as possible in line with the point of attachment of the guy on the pole. The length and width of excavation shall be as small as practicable, especially at the surface of the ground.

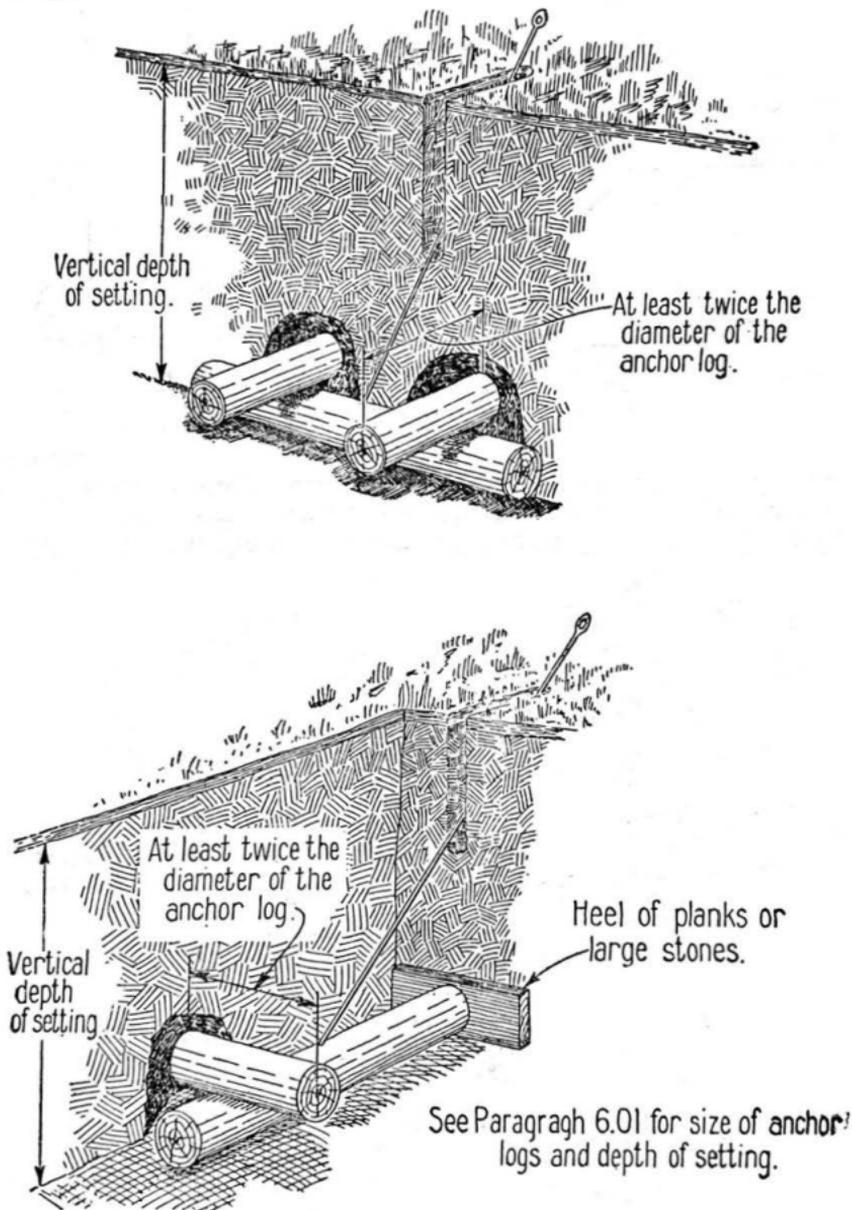
6.03 Frame and set log anchors as shown for one, two or three guy rods.



6.04 Where the anchor log is liable to disturbance from future excavations or in case obstacles prevent the right angle position as in alley work, etc., set the log in line with the guy as shown.



6.05 In soft ground place heavy planks or logs across the anchor log as shown. The length of these planks or logs should be at least twice the diameter of the anchor log. Tamp all fillings firmly.



7. INSTALLATION OF CONCRETE ANCHORS

7.01 Concrete anchors are, in general, not considered economical for use with the smaller sizes of guy rods. They may, however, be used for securing 1-inch guy rods where concrete materials and facilities for mixing are readily available.

7.02 Precast concrete anchors may be used to advantage where a considerable number of concrete anchors are to be placed.

7.03 Construct the anchor as follows:

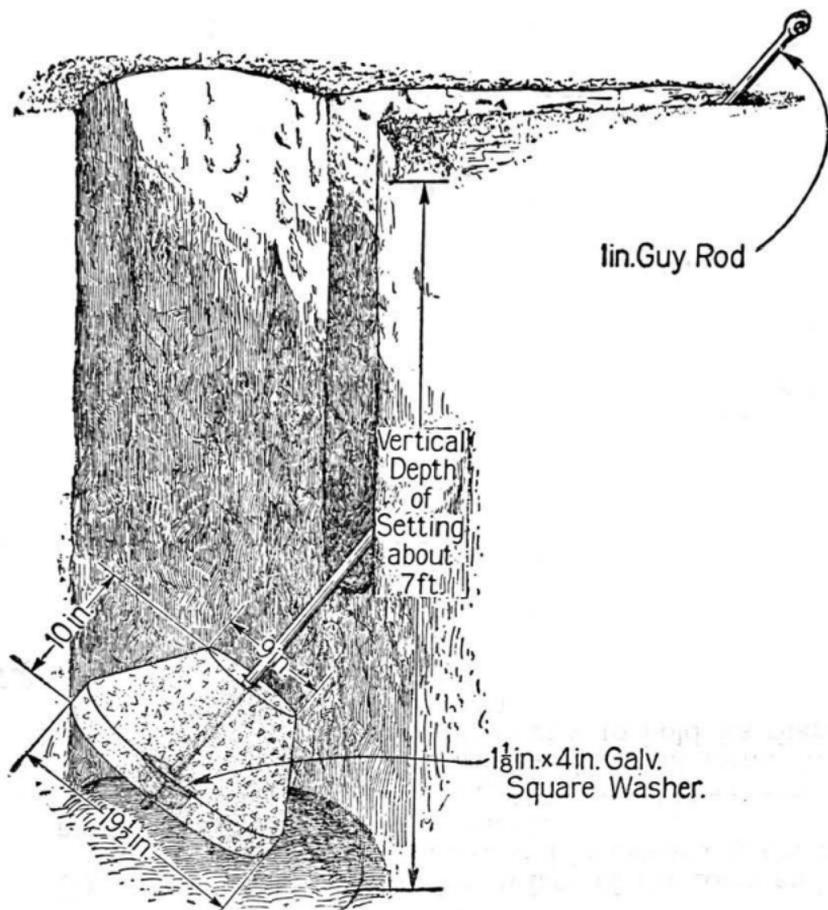
(1) Forms should be made of a good grade of sheet steel galvanized after being bent into shape and riveted (covered by Dwg. No. 46-M-60).

(2) The concrete should be composed of 1 part Portland cement, 1 part sand and 2 parts of crushed stone or gravel approximately 3/4 inch in size mixed with water to mushy consistency.

(3) Before using, the interior surface of the form and exterior surface of the pipe should be cleaned of adhering mortar and coated with kerosene oil.

(4) When filling the forms the concrete should be thoroughly agitated so as to fill all spaces within the form. When the concrete has hardened sufficiently to hold its shape it should be removed from the form.

7.04 Place anchor as shown.



7.05 Cast-in-place concrete anchors may be used to advantage where only a few concrete anchors are to be set.

7.06 Construct anchor as follows:

- (1) Bore two 8-inch holes side by side in a direction approximately perpendicular to the line of the guy. Remove the earth between these holes.
- (2) Bore a 6-inch hole for the guy rod and washer in line with the direction of the guy. This hole should meet the larger hole about 1 foot above the bottom. Where impracticable to use an auger, a vertical hole can be dug with digging tools and a trench made for the guy rod.
- (3) Secure a 4-inch galvanized square washer to the nut of the guy rod and pour concrete over the end of the guy rod and washer.
- (4) Tamp concrete thoroughly.

7.07 A typical installation of a cast-in-place concrete anchor is shown below.

