

# FENCE ERECTING

Prepared by the Canterbury Agricultural College, Lincoln.

## Tools Required

The following tools will be found useful. For wooden post and batten fences an axe, maul, 1½ in. augur, 1 in. chisel, saw; for iron standard fences a 4 lb. hammer, and for all fences, a crowbar one end with a 3 in. chisel shaped face sloping slightly outwards, and the other end pointed, a round shovel, a narrow spade, level, hammer, pliers, wire-cutters, wire twister, wire strainer, rammer and spinning jinny. A convenient rammer can be made by welding a 3 in. diameter block of iron on the end of a 5 ft. 6 in. length of ¾ in. piping. A spinning jinny can be bought or can be readily home made by any handy workman. Detailed instructions on these and other points may be found in McKenny's book on Sheep Farming, Fencing, etc.

The photographs on the next page indicate the type of fence being described. Figure 1. shows section of Fence and Figures 2 and 3 spinning jinny and post. The concrete strainers are built footed and with stay slots. The method used at Lincoln College in erecting a concrete post and iron standard 7-wire fence is as follows:—

Specifications: No. 8 gauge wire, 6 plain; No. 12 gauge barbed wire 3 in. barb, the top wire; strainer posts 8 in. x 8 in. x 7 ft. 6 in. footed when made by a 3 in. ledge on two sides of the bottom of the post. Gate posts are made 6 in. longer. Stays 4 in. x 4 in. x 9 ft. and foot blocks 1 ft. x 2 ft. 3 in. x 4 in. Intermediates 6 in. x 5 in. x 6 ft. spaced approximately 15 yards. Each intermediate is made with holes at correct gauge through which wire staples can be fitted. Standards 5 ft. long evenly spaced, 4 standards between posts. The 2 standards nearest to each post being bored with 7 holes and the other two with 8

holes to take a pin to secure a 6 in. x 4 in. plate which should be fitted where necessary to prevent the standard sinking into the ground when the ground rises between posts. Height of fence 3 ft. 5 in. from barb or top wire to ground. Gauge 10 in., 7 in., 5½ in., 4 in., 4 in., 4½ in., 6 in. (the gauge for an 8 wire fence the 1st and 3rd of barb wire might be 10 in., 7 in., 5½ in., 4 in., 4 in., 4 in., 4½ in., 5 in.).

## Estimating Material Required:

First drive pegs in where the strainer holes are to be dug (a strain may be up to a maximum of 40 chains but less length is better). Measure the distance between pegs and calculate the number of posts required and distance apart of each post. Drive a peg in for each post hole. For example assuming distance between strainers is 8 chains, 176 yards or 528 feet, material required would be 11 posts, i.e., 12 spaces of 44 ft. and 4 standards, i.e., 5 spaces of 8 ft. 9½ in. for each 44 ft. space, i.e., 48 standards of which some would be 8 hole with pins and plates. There are usually 10 standards in a bundle\* and 5 bundles would be required. Wire—One ½-cwt. coil of No. 8 wire runs approx. 12½ chain, therefore 6 plain wires 8 chains=48 chains, i.e., 4 ½-cwt. coils will be required; one ½-cwt. of barb wire runs 9 to 10 chains, and 77 wire staples will be required for the whole strain and 48 pieces of lacing wire No. 12 gauge 8 in. long to lace the barb wire on to the standards.

Laying out Material: Place foot of intermediate posts 18 in. away from the peg all on the one side of the line and lying at right angles to the line of fence. Place the coil of barb wire at the one strainer and the spinning jinny and plain wire coil opposite the middle post along with staples, pins and plates. Place 2 bundles of standards at the

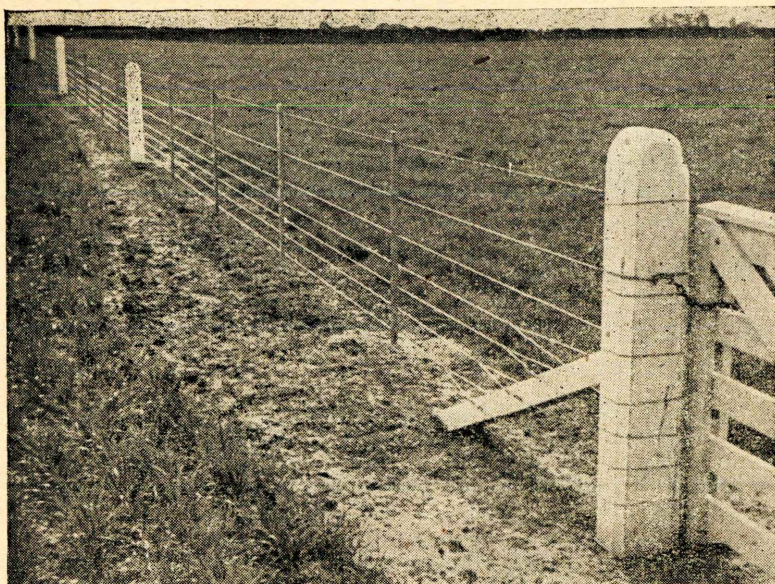


Figure 1.

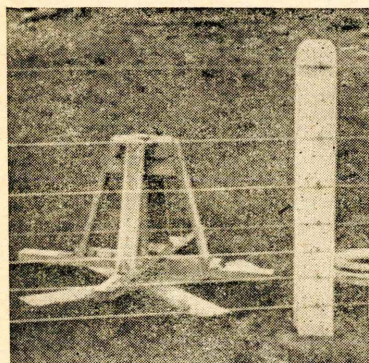


Figure 2.

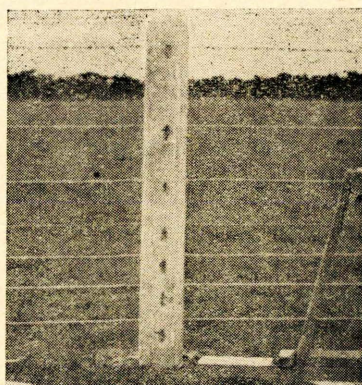


Figure 3.

3rd space from the strainer and 2 other bundles at the 8th space from the strainer. Cut timber, the length of the stay, 9ft. x 3in. x 1in. and 2 T sticks 3ft. 8½in. long the height of the post out of the ground.

Erecting: First mark position of wires and ground level on the strainer post. Dig the hole required 4ft. deep, 1ft. 4in. wide, 1ft. 10in. long and when down 2ft. dig a step 15in. deep. Before tipping up post place the crowbar in the hole against the far side so that the foot of the post will slide down against it. Before ramming see that the post is square to the line of fence and ram with a slight lean away from the strain. Use the 9ft. x 3in.

x 1in. stick to mark out stay trench and hole for foot block. Dig foot block hole 2ft. deep. An assistant is required to hold the stay up in position while the block is rammed up tight. Do not ram side of stay until later, when it is clear that the stay has been placed exactly along the line of the strain. Put in strainer and stay at the other end.

Run a wire to each strainer and tie round strainer where barb is to go. Strain it up tight. In an 8 chain strain on level ground the wire on a calm day will give a straight line. Use the wire to mark out the front of holes 3in. from the wire. (With heavy concrete posts it is easier to ram the front than to

place exactly in the right position against the side of the hole). Prop wire up on standard out of the way and dig holes. To get a level top line fix standards or timber across face of each strainer so that top edge is lin. below top of post. Tie T. sticks to standards half-way between middle post hole and strain-ers, the tops to be level with stand-ards or board on the face of strain-ers. Use a 6ft. T stick to estimate when the post hole is deep enough. (When working with concrete posts is better to have the hole lin. too deep than too shallow).

Let the guide wire find its cor-rect position and put in middle post first, then the one next to it. In case of a high wind the alignment of these posts must be checked by sighting to see that they are in line with the centre of both strain-ers. After all posts are rammed, staple guide wire to top hole of posts packing it  $\frac{1}{2}$  in. from face of post with a bit of stick or the tapered peg used for marking the hole. By packing guide wire  $\frac{1}{2}$  in. from face of post the holes of the standards will be in line with the face of the posts.

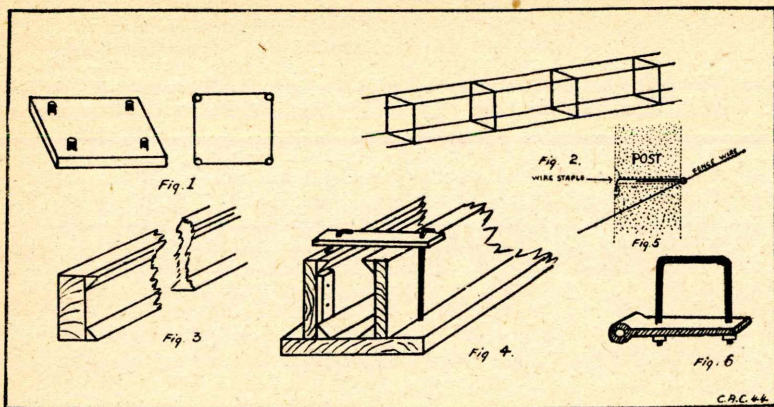
Lay out of Standards: It will be found convenient to stick them in the ground 3ft. back from the guide wire about 3 yards apart. Place foot plates where required under wire in the approx. correct position. Then drive standards using the 9ft. x 3in. x 1in. stick marked at 8ft. 9 $\frac{1}{2}$  in. to obtain the right spacing, placing one end of the stick at centre of post. Use a level to ensure driving standards in perpendicular, one edge of standard just touching guide wire. To allow for sag in guide wire hammer standards in till the top is  $\frac{1}{2}$  in. above the guide wire. In the case of the 8 hole standards put the point of the standard into the foot-plate slot before driving.

Running the Wires: Cut the guide wire in the middle and at the strain-ers 8in. from the strainer, the 8in. length being used later to make a figure 8 knot with the barb. Thread one length of guide wire through the bottom holes and fasten it to a loop of wire round the strainer and stay, at the opposite end, in such a way that the strained wires are in line with the centre of the stay. Walk back to the middle and thread the other piece of wire and tie to a loop made round the op-posite stay and strainer. (If the wire is tied to the edge of the strainer so that they lie alongside the stay, the strainer is liable to

twist in soft ground and so break the point of the concrete stay, thus allowing the strainer to give). Join sufficient wire to one end at middle and strain halfway between middle post and standard. Then unlace a coil. See that the running end has not a half-hitch in it and put on the jinny. Usually there is a "start this end" label on the wire. If not, be careful to see that a start is made with the outside end of the wire in the coil. Thread this wire through the second holes from bot-tom and fasten to loop round strainer. Cut wire at jinny and thread the other way. Cut at the proper place and strain. Repeat this process four more times. In the case of undulating ground staple wires on rises and depressions be-fore straining except in the case of the barb. Run out the barb wire last. Tie to the short piece of plain wire on each strainer and strain in the middle. Then staple wires and hammer standards down until the majority of wires vibrate freely in the holes, thus levelling up standards. When stapling the barb wire remove the barbs if they are very close to the hole in the post. Finally lace barb to standards.

General: Trim off ends of figure of 8 knots with cutters, also at straining joins and strainer posts. Bag up all short bits of wire and labels. Don't use a short stay. Under 8ft. is useless. A stay 9ft. is better, provided it is bulky enough, a long thin stay will bend. At Lin-coln College the stays are slotted into the posts at a height of 1 $\frac{1}{2}$  in. above the middle line of the fence, i.e., the top of the strainer post is 45in. from the ground and the middle of the stay slot is 23in. from the ground. The slot comes between the 3rd and 4th wire, counting the barb as one. If the stay is put too high and is too short in length it is liable to lift the post out of the ground. In the description given the posts are 6ft. long. For cattle fences on soft ground it would be better if the posts were 6ft. 6in., the posts being placed a further 6in. in the ground and closer together, say about 7 yards instead of 15 yards apart as in the above example. Posts which taper towards the top make for lighter handling. All strain-ers, and dip posts must be well footed. Posts should be placed in the hollows and on the rises.

When using willows etc., for posts that are later expected to grow as trees, staple wire on to a batten attached to the tree by nails.



## MAKING CONCRETE POSTS

### Mixture:

Shingle,  $\frac{3}{4}$  in. washed, 8 kerosene buckets; sand, washed, 4 buckets; cement,  $2\frac{1}{2}$  buckets. Mix thoroughly. Water,  $1\frac{1}{2}$  kerosene buckets, more or less, according to wetness of shingle and sand. Add water gradually and stop while mixture will still hold itself together and not flop out on the floor. Reinforcing, 4  $\frac{5}{16}$  in. rods, 1 inch from sides held together by wire stirrups. (Reinforcing— $\frac{1}{16}$  in. of iron for each square inch cement).

### Result

The above mixture will make 6 posts 5 in. x 6 in. x 6 ft. long, 1 strainer 8 in. x 8 in. x 7 ft. 6 in. long, 2 strainer stays 4 in. x 4 in. x 9 ft., 3 foot blocks 1 ft. x 2 ft. x 3 in. x 4 in.

Moulds are filled in morning and removed the following morning. Posts lie in situ for another 24 hours. They are then stacked for a week and then painted with King's White Cement while still green and allowed to dry slowly for one month or longer. Concrete becomes brittle if dried too quickly. Posts should be made during the winter.

The drawing inserted shows the method of construction involved. Figure 1 depicts the framework used in making and the wire to support the four steel rods (see Figure 2). Figure 3 shows the method of beveling the corners of the mould depicted in Figure 4. Figure 5 shows the wire bent to form staples for inserting in the mould at the appropriate positions. Figure 6 shows the type of clamps used to hitch the gate hinge to the concrete gate post.

Copies of this Bulletin may be obtained from the Secretary, Canterbury Chamber of Commerce, P.O. Box 187, Christchurch.